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September 11, 2015

### <u>Via Email</u> Original via Mail

British Columbia Utilities Commission 6<sup>th</sup> Floor, 900 Howe Street Vancouver, BC V6Z 2N3

Attention: Ms. Erica M. Hamilton, Commission Secretary

Dear Ms. Hamilton:

## Re: FortisBC Inc. (FBC)

Multi-Year Performance Based Ratemaking Plan for 2014 through 2019 approved by British Columbia Utilities Commission (Commission) Order G-139-14 (the PBR Plan)

Annual Review for 2016 Rates

In accordance with the PBR Plan and Commission Order G-139-15 setting out the Regulatory Timetable for FBC's Annual Review, FBC hereby attaches its Annual Review for 2016 Rates Application materials.

Should further information be required, please contact Joyce Martin at 250-368-0319.

Sincerely,

FORTISBC INC.

### Original signed by: Joyce Martin

*For:* Diane Roy

Attachments

cc (email only): Registered Parties to FBC's PBR Proceeding



# FORTISBC INC.

# Multi-Year Performance Based Ratemaking Plan

# for 2014 through 2019

Annual Review for 2016 Rates

**Volume 1 - Application** 

**September 11, 2015** 



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# 11.APPROVALS SOUGHT, OVERVIEW OF THE APPLICATION AND2PROPOSED PROCESS

# 3 **1.1** *INTRODUCTION*

FortisBC Inc. (FBC or the Company) files this Application in compliance with British Columbia Utilities Commission (the Commission) Order G-139-14, which approved a Performance Based Ratemaking Plan (PBR Plan) for FBC for the years 2014 to 2019. In accordance with the PBR Plan, an annual review process is required to set rates for each year under the PBR Plan. With the filing of this Application, FBC seeks to commence the second annual review of the PBR Plan and set FBC's rates for 2016.

10 The PBR Plan approved by the Decision attached to Order G-139-14 (PBR Decision) increases 11 FBC's incentives to seek out savings while maintaining service quality.<sup>1</sup> Pursuant to the 12 earnings sharing approved by the Commission, any PBR-related savings achieved by the 13 Company are shared equally with customers as discussed in Section 10 of the Application.

Under the PBR Plan, FBC projects savings in 2015 due to a continuation of its ongoing productivity focus, including a broad-based Company-wide effort to seek alternate solutions to the filling of vacancies. Overall, FBC proposes to distribute \$0.392 million in earnings sharing to customers in 2016. FBC has achieved these savings over 2015 while maintaining an overall high level of service quality as measured by the Service Quality Indicators (SQIs) approved in the PBR Decision as discussed in section 13 of the Application.

The proposed rates for 2016 flowing from the approved formulas and forecasts set out in the Application, including returning the forecast 2015 earnings sharing to customers, result in a 1.98 percent increase over 2015 rates. This equates to an increase of \$30.50 to the annual bill for an average residential customer.<sup>2</sup> The rate increase of 1.98 percent is in line with 2016 inflation which is forecast at approximately 2 percent.<sup>3</sup>

In the subsections below, FBC sets out the approvals it is seeking, provides an overview of the requirements for the annual review process, and provides an evaluation of the PBR Plan for 2015. This is followed by a summary of FBC's proposed revenue requirement and rate changes for 2016 and an overview of the SQIs. These matters are addressed in more detail in subsequent sections of the Application.

<sup>&</sup>lt;sup>1</sup> PBR Decision, p. 134.

<sup>&</sup>lt;sup>2</sup> Based on a Residential customer using approximately 12,600 KWh per year.

<sup>&</sup>lt;sup>3</sup> Conference Board of Canada - Provincial Outlook 2015 - Long-Term Economic Forecast. (CPI Updated March 2, 2015).



# 1 **1.2** APPROVALS SOUGHT

FBC is requesting approval of the following pursuant to sections 59 to 61 of the UtilitiesCommission Act:

- Interim rates for all customers effective January 1, 2016, resulting in a general increase
   of 1.98 percent compared to 2015 rates for all customer classes.4 Rates will remain
   interim pending the outcome of FortisBC Energy Inc.'s (FEI's) current cost of capital
   proceeding.
- 8 2. The creation of two deferral accounts for the following regulatory proceedings, as
   9 described in Section 12.4.1 of the Application:
- Application for approval of the Capacity and Energy Purchase and Sales
   Agreement (CEPSA) with Powerex Corp financed at FBC's short term interest
   rate; and
- 13 o 2017 Rate Design Application, financed at FBC's weighted average cost of debt.
- Amortization of \$6.201 million of the 2015 closing balance of the 2014 Interim Rate
   Variance deferral account, with the remainder to be amortized in 2017, as set out in
   Section 12.4.2.1 of the Application.
- 4. Depreciation rates in the amounts set out in Table 12-2 in Section 12 of the Application.
- 18 5. Net salvage rates in the amounts set out in Table 12-3 in Section 12 of the Application.

# 19 **1.3** *REQUIREMENTS FOR THE ANNUAL REVIEW*

The Commission set out its expectations for the Annual Review component of the PBR Plan on pages 179 and 180 of the PBR Decision, and set out one further directive (number 8 in the table below) on page 17 of Order G-120-15 in the Capital Exclusion Criteria compliance filing. For reference, the table below sets out each requirement and FBC's response or where it is addressed in the Application:

 <sup>&</sup>lt;sup>4</sup> Commission Order G-3-12 set out pricing principles applicable to residential rates for the years 2012 – 2015:
 a) The Customer Charge is exempt from general rate increases;

b) The Block 1 rate is subject to the general rate increase; and

c) The Block 2 rate is increased by an amount sufficient to recover the remaining required revenue.

In 2016 the general rate increase will be applied to all components of residential rates.



-

# Table 1-1: Annual Review Requirements

ltem	Description	Response or Reference
1	Evaluation of the operation of the PBR Plan in the past year(s) and identification by any party of any deficiencies/concerns with the operation of the PBR plan that have become apparent. Parties are expected to put forward recommendations with how to deal with such concerns.	Section 1.4
2	Review of the current year projections and the upcoming year's forecast. For further clarity, these items are listed below:	See items 2(a) to 2(g) below
2(a)	Customer growth, volumes and revenues;	Section 3
2(b)	Year-end and average customers, and other cost driver information including inflation;	Section 2
2(c)	Expenses (determined by the PBR formula plus flow-through items);	Section 6
2(d)	Capital expenditures (as determined by the PBR formula plus flow-through items);	Section 7
2(e)	Plant balances, deferral account balances and other rate base information and depreciation and amortization to be included in rates;	Sections 7 and 12
2(f)	Projected earnings sharing for the current year and report on true-up to actual earnings sharing for the prior year; and	Section 10
2(g)	Any proposals for funding of incremental resources in support of customer service and load growth initiatives.	FBC does not have any proposals at this time
3	Identification of any efficiency initiatives that the Companies have undertaken, or intend to undertake, that require a payback period extending beyond the PBR plan period and make recommendations to the Commission with respect to the treatment of such initiatives.	FBC has not identified any efficiency investments with a payback beyond the end of the PBR period
4	Review of any exogenous events that the Company or stakeholders have identified that should be put forward to the Commission for decision as to their exclusion from the PBR plan. The review process should include recommendations as to how the exogenous events costs/revenues should be recovered from or credited to ratepayers.	Sections 6.3.6, 7.2.2 and 12.2
5	Review of the Companies' performance with respect to SQIs. Bring forward recommendations to the Commission where there have been a "sustained serious degradation" of service.	Section 13
6	Assess and make recommendations with respect to any SQIs that should be reviewed in future Annual Reviews. For example, stakeholders are to review the usefulness of continuing with the Billing Index and Meter Reading Accuracy SQIs.	FBC does not have any recommendations for new SQIs or the discontinuation of SQIs at this time
7	Assess and make recommendations to the Commission on the scope for future Annual Reviews.	FBC does not have any recommendations at this time



Item	Description	Response or Reference
8	Where the dead band is exceeded for any year, FEI and FBC are directed in the next Annual Review filing to include recommendations as to any adjustment to base capital other than those driven by the 1-X mechanism.	Dead band was not exceeded for 2014 and is not forecast to be exceeded for 2015.

1

# 2 1.4 EVALUATION OF THE PBR PLAN

FBC is projecting to realize savings in O&M expenditures, although FBC's capital expenditures continue to be above the formula. Overall, the savings achieved in 2015 are projected to result in \$0.392 million of earnings sharing that will be returned to customers in 2016, serving to reduce overall rates for FBC's customers. FBC's performance with respect to SQIs, as reported in Section 13 of the Application, demonstrates that FBC achieved these savings while maintaining a high level of service quality, with only the performance of the All Injury Frequency Rate falling below the threshold.

FBC is projecting O&M expenses in 2015 excluding items forecast outside of the PBR formula to be approximately \$0.983 million lower than formula amounts, representing approximately a two percent variance. The expected savings are a result of the Company applying a broad based focus on productivity. While some of the savings are one-time in nature (such as delays in filling vacancies), some of the savings are the result of efficiencies which are expected to continue into the future, recognizing that cost pressures in the future may offset such savings.

16 FBC is continuing to explore opportunities for major productivity initiatives, although it has not 17 implemented any initiatives to date. FBC along with FEI are currently working on a company-18 wide Training and Development initiative to introduce a defined process that enables the 19 Company to plan and track required training activities, ensuring skills requirements for 20 employee training are addressed efficiently and effectively. Presently, there is limited evaluation 21 of the skills requirements for employee training, which may lead to a gap between the training 22 conducted and the skill set or competency that the training was intended to address. 23 Implementation of a new process is expected by late 2015. No O&M savings have been 24 forecast for 2015 as a result of this initiative.

FBC is not projecting any savings in capital relative to the formula in 2015. Projected 2015 capital expenditures excluding items forecast outside of the PBR formula are \$3.213 million higher than the formula amount, attributable to growth capital which is projected to be above the formula by this amount. New customer extensions driven by large commercial customers contribute to the forecast variance. FBC will continue to be challenged to meets its capital formula for the remainder of the term of the PBR Plan.

In summary, 2014 and 2015 provide a preliminary basis which to evaluate the PBR Plan, and
 have shown the potential for earnings sharing and for limiting rate increases. The first two years
 of PBR have also shown the challenges of the growth capital formula.



# 1 **1.5** *Revenue Requirement and Rate Changes for 2015*

The Company is requesting a revenue requirement increase for 2016 of \$6.797 million, equivalent to a general rate increase of 1.98 percent for 2016 compared to 2015 rates. The revenue deficiency is due to revenue at existing rates being lower than the forecast cost of service. The forecast cost of service is impacted by items calculated under the PBR Plan formula (controllable O&M and capital expenditures), and items that are forecast on a cost of service basis.

8 The following chart summarizes the items that contribute to the increase in 2016 revenue 9 deficiency.



10

11 12

13 The components of the 2016 revenue requirements are discussed briefly below.

# 14 **1.5.1 Load Forecast (Section 3)**

In 2016, sales load is forecast to increase by 38 GWh from 2015 due to a growing customer
 base and increased demand from commercial and industrial customers. Based on 2015 rates,

17 FBC's 2016 revenue forecast is \$343.152 million.



# 1 **1.5.2 Power Supply (Section 4)**

Power Supply expense is forecast to increase in 2016 by \$16.595 million, primarily due to
higher gross load, increases to the Brilliant and BC Hydro rates, and the impact of the first full
year of the 40-year Waneta Expansion Capacity Agreement.

# 5 **1.5.3 Other Revenue (Section 5)**

6 Other Revenue is forecast to decrease in 2016 by approximately \$0.095 million, due to a 7 reduction in other recoveries, partially offset by higher contract revenue and apparatus and 8 facilities rental.

# 9 **1.5.4** Operations and Maintenance (O&M) Expense (Section 6)

FBC establishes the bulk of its O&M costs by formula during the PBR term. For 2016, the formula incorporates an inflation factor (I Factor) of 1.569 percent, a productivity improvement factor (X Factor) of 1.03 percent and a customer growth factor of 0.613 percent for a total increase in formula O&M of 1.155 percent. O&M forecast outside of the formula is decreasing by 38 percent, primarily due to anticipated savings from the AMI Project and lower pension and OPEB expense. Overall the decrease in Gross O&M Expense from 2015 to 2016 is 2.9 percent. The decrease in net O&M expense is \$1.462 million.

# 17 **1.5.5** Depreciation and Amortization (Section 7)

In this Application FBC is proposing to update its depreciation rates, including a new provision for net salvage. Implementation of the recommended rates for depreciation, net salvage and amortization of CIAC results in a net decrease in forecast depreciation and amortization expense of approximately \$3.0 million, a 5.5% decrease compared to the depreciation expense using current approved depreciation rates.

Including the effect of the forecast higher plant in service, FBC's total depreciation expense net of CIAC amortization is forecast to decrease by \$0.763 million. The largest contributor to the lower depreciation and amortization expense forecast for 2016 is a \$2.216 million reduction in the amortization of rate base and non-rate base deferred charges. In total, the 2016 forecast depreciation and amortization expense is lower than 2015 Approved by \$3.290 million.

# 28 **1.5.6** Financing and Return on Equity (Section 8)

FBC has one long-term debt issue forecast for 2016 with a coupon rate of 4.6 percent which will replace existing debt with a coupon rate of 8.77 percent and finance growth in rate base. FBC is forecasting a short-term debt rate for 2016 of 2.65 percent, a decrease from the 3.27 percent rate embedded in the 2015 approved rates. Overall, interest expense is forecast to decrease from 2015 approved by \$0.730 million.

Increases in rate base increase the equity return by \$1.386 million. In calculating 2016 delivery
 rates, FBC has utilized its 2015 approved capital structure and return on equity of 40 percent



and 9.15 percent, respectively. FBC will update its 2016 delivery rate calculations once a
 decision is reached on its 2016 capital structure and return on equity.

# 3 **1.5.7 Taxes (Section 9)**

4 Property taxes are forecast to increase 13.0 percent or \$1.989 million from 2015 Approved.

- 5 Increases are driven by changes in classification of certain assets, and changes in tax policies 6 of local taxing authorities.
- There has been no change in the income tax rate of 26 percent from 2015 Approved. Income
  taxes are forecast to increase in 2016 by \$0.836 million primarily due to higher revenues
  resulting from higher cost of service and rates.

# 10 **1.5.8 Earnings Sharing (Section 10)**

11 As discussed in Section 1.5 above, earnings sharing has been forecast at \$0.392 million. This 12 amount will be returned to customers through amortization in 2016.

# 13 **1.6** SERVICE QUALITY INDICATORS (SECTION 13)

FBC's June 2015 year-to-date SQI results indicate that the Company's overall performance is representative of a high level of service quality. For the eight SQIs with benchmarks, five performed at or better than the approved benchmarks with two performing better than the threshold and one SQI, the All Injury Frequency Rate, performing below the threshold. For the three SQIs that are informational only, performance is consistent with or better than recent years' performance.



# 1 2. FORMULA DRIVERS

# 2 2.1 INTRODUCTION AND OVERVIEW

This section provides the calculation of the Inflation Factor (or I-Factor) and Growth Factors used for calculating the 2016 O&M and Capital formula amounts according to the PBR formula.

5 In the PBR Decision and Commission Order G-163-14, the Commission approved an I-Factor 6 using the actual CPI-BC and BC-AWE indices from the previous year and a 55 percent labour 7 weighting, and a growth factor of 50 percent of the ratio of the average number of customers 8 (AC) one year previous to the average number of customers two years previous expressed as 9  $[1 + ((AC_{t-1}/AC_{t-2})/AC_{t-2}) \times 50\%)].$ 

Further guidance on how to calculate the Inflation and Growth factors was provided inCommission Order G-182-14, which states:

- 12 1. FortisBC Inc. is approved to use inflation data from the most recent 12-month period 13 (July through June) for the 2014 rate change calculations and future annual reviews.
- 14 2. FortisBC Inc. is approved to use Statistics Canada CANSIM Table 326-0020 to 15 determine the CPI-BC and CANSIM Table 281-0063 to determine AWE-BC.
- 163. FortisBC Inc. is approved to adjust 2014 inflation for the transition from harmonized17sales tax to provincial sales tax as of April 1, 2013 for an increase of 0.1750 percent.
- 18

The Inflation Factor and Growth Factor calculations utilize these inputs, but as applied to 2016.
 FBC has used July 2013 through June 2015 inflation data for the 2016 rate change calculations

21 using the CANSIM tables noted above, which are included in Appendix A1 of the Application

Regarding item 3 above, 2015 was the second and final year of the adjustment to CPI for the impact of the transition from Harmonized Sales Tax (HST) to Provincial Sales Tax (PST), and no adjustment is required for 2016 or future years.

As discussed below, the 2016 inflation factor based on prior year's BC-CPI and BC-AWE is 1.569 percent, and the AC Growth Factor is 0.613 percent.

# 27 2.2 INFLATION FACTOR CALCULATION SUMMARY

In the PBR Decision, the Commission approved an inflation factor (I-Factor) using the actual CPI-BC and BC-AWE indices from the previous year and a 55 percent labour weighting. Consistent with Commission Order G-182-14 regarding FBC's PBR Compliance Filing, FBC used inflation data from July through June and the CANSIM Table 326-0020 to determine the CPI-BC and CANSIM Table 281-0063 to determine AWE-BC. The supporting Statistics Canada CANSIM Tables 326-0020 and 281-0063 are provided as Appendix A1.



- 1 As shown in Table 2-1 below, the I-Factor has been calculated utilizing CPI-BC of 0.980 percent
- 2 and AWE-BC of 2.050 percent. Applying the 55 percent labour weighting, the calculation of the
- 3 I-Factor is (0.980% x 45%) + (2.050% x 55%) = 1.569%. This calculation is shown in Table 2-1

Table 2-1: I-Factor Calculation

- 4 below.
- 5

	CANSIM	CANSIM						
	326-0020	281-0063			Year ove	er Year		
	2002=100		12-Month	n Average	% Cha	ange		
								PBR
	BC CPI	BC AWE	CPI	AWE	CPI	AWE	I-Factor	Year
	Index	\$	Index	\$	%	%	%	
Jul-13	117.9	869.85						
Aug-13	118.0	872.95						
Sep-13	118.1	872.39						
Oct-13	117.7	875.32						
Nov-13	117.4	890.51						
Dec-13	117.0	888.27						
Jan-14	117.1	886.83						
Feb-14	118.0	889.12						
Mar-14	118.6	894.20						
Apr-14	119.0	895.19						
May-14	119.7	894.44						
Jun-14	119.8	888.88	118.192	884.829				
Jul-14	119.6	893.39						
Aug-14	119.6	900.50						
Sep-14	119.5	897.76						
Oct-14	119.0	905.02						
Nov-14	118.8	902.65						
Dec-14	118.1	895.30						
Jan-15	118.0	911.15						
Feb-15	118.9	909.08						
Mar-15	119.8	904.92						
Apr-15	119.6	902.83						
May-15	120.6	904.23						
Jun-15	120.7	908.74	119.350	902.964	0.980%	2.050%	1.569%	2016

# 6

# 7 2.3 GROWTH FACTOR CALCULATION SUMMARY

8 As noted above, the Commission approved for FBC a growth factor of 50 percent of the ratio of

9 the average number of customers (AC) one year previous to the average number of customers 10 two years previous expressed as  $[1 + ((AC_{t-1}/AC_{t-2})/AC_{t-2}) \times 50\%)]$ .

11 The calculation for the Average Customer growth factor is provided in Table 2-2 below:



		12 Month		
	Customer	Average	AC Factor	
	Count	Customers	@50%	PBR Year
Jul-13	128,689			
Aug-13	128,632			
Sep-13	128,505			
Oct-13	128,524			
Nov-13	128,465			
Dec-13	128,318			
Jan-14	128,768			
Feb-14	128,786			
Mar-14	129,123			
Apr-14	128,955			
May-14	129,430			
Jun-14	129,328	128,794		
Jul-14	129,514			
Aug-14	129,537			
Sep-14	129,547			
Oct-14	130,244			
Nov-14	130,500			
Dec-14	130,572			
Jan-15	130,676			
Feb-15	130,729			
Mar-15	130,830			
Apr-15	130,765			
May-15	130,769			
Jun-15	130.810	130,374	0.613%	2016

Table 2-2:	Average Customer	(AC) Growth	<b>Factor Calculation</b>
------------	------------------	-------------	---------------------------

2

1

# 3 2.4 INFLATION AND GROWTH CALCULATION SUMMARY

Using the I-Factor and Growth Factor as calculated above, and the approved X-Factor of 1.03
percent, a summary of the factors used in the PBR formula for 2016 is provided in Table 2-3.

PAGE 10



1

## Table 2-3: Cost Driver Formula Drivers

Line	Line							
No.	Description	2016						
1	Cost Drivers							
2								
3	Customer Growth Factor @ 50%	0.613%						
4								
5	Escalators							
6								
7	CPI	0.980%						
8	AWE	2.050%						
9								
10	Non Labour	45%						
11	Labour	55%						
12								
13	CPI/AWE Inflation	1.569%						
14								
15	Productivity Factor	-1.030%						
16								
17	Net Inflation Factor	0.539%						

2

3 In summary, the formula-driver for O&M and capital for 2015 is calculated as 101.155 percent,

4 calculated as (1+0.613%) x (1+0.539%).



# 1 3. LOAD FORECAST AND REVENUE AT EXISTING RATES

# 2 3.1 INTRODUCTION AND OVERVIEW

This section describes FBC's forecast of gross system energy load. Gross system energy load is a mix of residential, commercial, wholesale, industrial, street lighting and irrigation loads and system losses. The gross load forecast includes the impacts of forecast energy savings which include Demand Side Management (DSM) savings, and the impacts of the Residential Conservation Rate (RCR), the Consumer Information Portal (CIP) program, the Advanced Metering Infrastructure (AMI) program and future rate changes. These savings are further explained in Section 3.3 - Demand Side Management and Other Savings.

As described in detail below, FBC's load forecast is based upon a methodology that is consistent with that used in prior years and accepted by the Load Forecast Technical Committee in 2011<sup>5</sup>, and provides a reasonable estimate of future load for 2016. FBC is forecasting an increase in consumption in 2016, with the total normalized gross load projected to be approximately 3,540 GWh. Based on the 2015 rates for each customer class, FBC's 2016 revenue forecast is \$343.152 million. The remainder of this section is organized as follows:

- Section 3.2 Background
- Section 3.3 Demand Side Management and Other Customer Savings
- Section 3.4 Residential and Commercial Net Customer Additions Forecast
- Section 3.5 Load Forecast
- Section 3.6– Revenue Forecast
- Section 3.7 Summary

# 22 3.2 BACKGROUND

The methodology used by FBC conforms to the recommendations of the 2011 Load Forecast
 Technical Committee and relies on the following components:

- Residential and commercial customer count forecast;
- Residential average use per customer (UPC) forecast;
- Commercial, lighting and irrigation load forecast; and
- Industrial and wholesale survey forecast.

29

<sup>&</sup>lt;sup>5</sup> Exhibit B-16, FBC 2012-2013 Revenue Requirements and Review of 2012 Integrated System Plan



- 1 The load forecast for residential customers is based upon forecasts for net customer count and 2 UPC rates, consistent with the past methodology. Specifically, the average UPC is estimated for 3 customers and is then multiplied by the corresponding forecast of the number of customers to 4 derive the load forecast. The load forecasts for commercial, lighting and irrigation are based
- upon Conference Board of Canada (CBOC)<sup>6</sup> Gross Domestic Product (GDP) regression, trend 5 6
- analysis and 5-year average respectively. Wholesale and industrial forecasts are based on
- 7 customer-specific survey results.
- 8 Overall, the gross forecasting accuracy for the past four years has been in the range of 0.6 9 percent to 2.6 percent. This is on par with the current industry benchmark of 1.5 percent on 10 average.
- 11 More detail on FBC's forecasting methodologies can be found in Appendix A3 of this filing.
- 12 In the figures provided in the load forecast sections, the following three time frames are shown:
- 13 Actual Years: Actual years are those for which actual data exists for the full calendar 14 year. For the 2016 Annual Review the latest calendar year for which full actual data 15 exists is the 2014 calendar year.
- 16 Forecast Year(s): This is the year or years for which the forecast is being developed. 17 This can be one year (in the case of the Annual Review) or a range of 2 or more years 18 depending on the filing.
- 19 Seed Year: The Seed Year is the year prior to the first forecast year. The Seed Year is • 20 forecast based on the latest years of actual data available, and will be different than the original forecast for that year in the previous filing. For example, for this Application the 21 22 Seed Year is 2015 and the Seed Year forecast is based on the latest actual years, 23 including 2014. As such, the 2015 Seed Year forecast in this Application will differ from 24 the 2015 Forecast presented in the Annual Review for 2015 Rates, for which 2014 25 actual data was not available.

26 FBC acquired the utility assets and customers of the City of Kelowna's electric utility effective 27 March 31, 2013, resulting in an increase in direct customers and changes in the composition of 28 customers and sales load by class, which are reflected in the data and figures in this section.

#### 29 3.3 **DEMAND SIDE MANAGEMENT AND OTHER CUSTOMER SAVINGS**

30 A forecast of incremental DSM savings (excluding DSM already embedded in historical loads) 31 by customer class is shown in Table 3-1 below.

32 The forecast of DSM savings, which is consistent with the Company's 2015-2016 DSM Plan 33 accepted by Order G-186-14, is based on the 2013 Conservation Potential Review (CPR) 34 Update which estimated the remaining economic potential for DSM measures, programs and

<sup>6</sup> Conference Board of Canada, Provincial medium term update May 2014 edition, published 5/7/2014, is included in Appendix A1.



sectors. Each measure's economic potential is multiplied by a ramp rate (which simulates a market diffusion curve), then sub-totaled to a program level and modified if necessary to account for past results. The program sub-totals are then added up to produce the three primary sector (residential, commercial & industrial) annual savings goals. Finally, the annual sector goals are converted into a cumulative time series, and disaggregated into the customer rate classes and commensurate system losses as shown in Table 3-1.

7

Line		
No.	Description	MWh
1	Residential	16,162
2	Commercial	14,508
3	Wholesale	7,636
4	Industrial	2,544
5	Lighting	1,416
6	Irrigation	807
7	Losses	3,745
8	Total	46,817

### Table 3-1: Forecast 2016 DSM Savings

8

9

10 This DSM savings forecast is deducted from the before-savings forecast. The residential energy 11 sales are further reduced by other savings from the RCR and CIP, but increased by recovered 12 sales from the AMI-based revenue protection programs. Rate-driven reductions in load due to

13 price elasticity are also taken into account<sup>7</sup> and deducted from the before-saving loads. All

14 forecast values in this section are shown after being reduced by DSM and other savings unless

15 explicitly stated otherwise.

# 16 3.4 Residential and Commercial Net Customer Additions Forecast

17 Table 3-2 shows the year-end customer count for FBC.

Forecast residential customer counts are determined by a regression of the year-end customer
 accounts on population in the FBC direct service area. The population forecast for the FBC
 service area is provided by a BC Statistics report that has been produced for FBC.

Forecast commercial customer counts are determined from a regression of the year end customer accounts on the provincial GDP from the CBOC, which is included in Appendix A1.

23 No additions are forecast for other rate classes.

<sup>&</sup>lt;sup>7</sup> Forecasts of savings from RCR, CIP, price elasticity and the impact of AMI are based on existing forecast assumptions for these impacts.



Line								
No.	Description	2010	2011	2012	2013	2014	2015	2016
1	Residential	97,883	98,795	99,228	111.862	113,431	114,142	115.758
2	Commercial	11,419	11,525	11,811	13,662	14,363	14,633	15,042
3	Wholesale	7	7	7	6	6	6	6
4	Industrial	35	36	39	47	49	49	49
5	Lighting	1,830	1,803	1,739	1,644	1,620	1,620	1,620
6	Irrigation	1,075	1,092	1,091	1,097	1,103	1,103	1,103
7	Total	112,249	113,258	113,915	128,318	130,572	131,553	133,578
								-

Table 3-2: Year-End Direct Customer Count

### 1

### 3

# 4 3.5 LOAD FORECAST

5 FBC also provides a discussion of the forecast for each of its customer classes in Section 3.5.1
6 through 3.5.6, along with a discussion of losses and peak load in Sections 3.5.7 and 3.5.8.

7 As shown in Figure 3-1 below, the total load, net of losses, is forecast to be 3,262 GWh in 2016,

8 up 24 GWh from 2015.





### Figure 3-1: Total Net Load (GWh)

10

11

- 12 Table 3-3 below shows the normalized after-savings gross load by customer class as well as
- 13 the system peak. For 2016 the residential customer class is forecast to account for 39% of the
- 14 normalized after-savings gross load.



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2

## Table 3-3: Normalized After-Savings Gross Load and System Peak

Line								
No.	Description	2010	2011	2012	2013	2014	2015	2016
	Energy (GWh)							
1	Residential	1,242	1,249	1,229	1,353	1,296	1,363	1,367
2	Commercial	660	657	681	788	866	862	871
3	Wholesale	895	910	899	675	567	572	579
4	Industrial	234	271	291	352	381	388	393
5	Lighting	14	13	13	13	16	14	13
6	Irrigation	40	40	38	40	40	39	39
7	Net Load	3,085	3,140	3,151	3,222	3,166	3,238	3,262
8	Losses	284	307	271	278	270	279	278
9	Gross Load	3,369	3,447	3,422	3,500	3,436	3,517	3,540
10								
11	System Peak (MW)							
12	Winter Peak	726	702	723	698	645	752	760
13	Summer Peak	566	537	589	600	620	593	598

# 3 3.5.1 Residential

# 4 3.5.1.1 Residential UPC

5 The normalized historical UPCs were obtained by dividing the normalized historical residential 6 load by the average customer count in each year. The 2015 before-savings UPC is forecast by 7 averaging the most recent 3 years' normalized historical UPCs (2012, 2013, 2014), and the 8 2016 before-savings UPC is assumed to remain constant at the 2015 level. The before-savings 9 UPC forecast is then multiplied by the forecast average customer count to derive the beforesavings load forecast. Incremental savings are then deducted from the before-savings load 10 11 forecast to determine the after-savings load forecast. The 2016 after-savings UPC forecast is then computed by dividing the 2016 after-savings load forecast with the average customer 12 13 count. As shown in Figure 3-2 below, the residential after savings UPC is forecast to decrease 14 slightly by 0.09 MWh during 2016.



### Figure 3-2: Normalized After-Savings Rate Schedule 1 UPC (MWh)

2 3

1

# 4 *3.5.1.2* Residential Load

5 Consistent with past practice, the total before-savings energy load for the residential class is the 6 product of the average annual residential customer count multiplied by the residential UPC. As 7 shown in Figure 3-3 below, residential after-savings energy is forecast to increase by 4 GWh in

8 2016.







10

FORTIS BC<sup>--</sup>



#### 3.5.2 1 Commercial

- 2 The commercial class is forecast based on a regression of load on the provincial GDP supplied
- 3 by the CBOC. As shown in Figure 3-4 below, Commercial after-savings energy is forecast to 4 increase by 9 GWh in 2016.





## Figure 3-4: Normalized After-Savings Commercial Energy (GWh)

# 6

#### 3.5.3 Wholesale 7

8 FBC sells wholesale power to municipalities within its service territory that own and operate their 9 own electrical distribution systems. These wholesale customers have a load composition that is 10 a mix of residential, commercial, industrial and street lighting.

11 Consistent with past practice the wholesale class is forecast from survey information from each of the individual wholesale customers. FBC believes that the individual wholesalers are best 12 13 able to forecast their future load. All of the wholesale customers responded with their forecast 14 growth projections. As shown in Figure 3-5 below, after-savings wholesale energy is forecast to 15 increase by 7 GWh in 2016.





### Figure 3-5: Normalized After-Savings Wholesale Energy (GWh)

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1

# 3 3.5.4 Industrial

Consistent with past practice, the industrial forecast is determined through a combination of
customer load surveys and, when not available, escalation of the most recent annual loads by
the corresponding provincial GDP growth rates for individual industries.

FBC sends all industrial customers a load survey that requests the customer's anticipated use for the next 5 years. A survey methodology is utilized because FBC believes that individual industrial customers have the best understanding of what their future energy usage will be. This year FBC received a response from 86 percent (42 of 49) of the surveys sent out. The responding customers represent approximately 91 percent of the total industrial load.

As shown in Figure 3-6 below, after-savings industrial energy is forecast to increase by 5 GWhin 2016.





### Figure 3-6: After-Savings Industrial Energy (GWh)

2

1

# 3 **3.5.5 Lighting**

4 Consistent with past practice the trend analysis for the most recent years for which FBC has

5 actual data (2010 to 2014 in this case) is used to forecast this class. As shown in Figure 3-7

6 below, after-savings lighting energy is forecast to decrease by 1 GWh in 2016.





### Figure 3-7: After-Savings Lighting Energy (GWh)

8

# 9 3.5.6 Irrigation

10 The before-savings forecast is developed using a five-year average for the most recent years

11 for which FBC has actual data (from 2010 to 2014 in this case). This method is consistent with



- 1 past practice. As shown in Figure 3-8 below, after-savings irrigation energy is forecast to remain
- 2 unchanged in 2016.





## 4

# 5 3.5.7 Losses

- 6 System losses consist of:
- Losses in the transmission and distribution system;
- Company use;
- Losses due to wheeling through the BC Hydro system; and
- Unaccounted-for energy (meter inaccuracies and theft).

### 11

12 Consistent with past practice FBC assumed 8 percent gross loss rate before the AMI impact. 13 AMI loss reduction is expected to further reduce the losses in the future. Below are the 14 normalized after-savings energy losses from 2010 to 2016. As shown in Figure 3-9 below, 15 after-savings energy losses are forecast to decrease by 1 GWh in 2016.





### Figure 3-9: Normalized After-Savings Energy Losses (GWh)

2

1

# 3 3.5.7.1 Advanced Metering Infrastructure (AMI) Impact on Losses

FBC's implementation of AMI (approved in 2013 by Order C-7-13 and started in 2014) will be completed in 2016 and is expected to positively impact losses (unaccounted-for energy) by deterring theft of power, mainly for indoor marijuana grow sites. In Order G-107-15, FBC was directed to include in its next and subsequent Annual Review materials the impact of AMI on losses through theft deterrence, including:

"(i) a comparison of the projected GWh reduction for the test year and proceeding
years to the estimated GWh theft reduction assumed in the AMI decision for those
years; and (ii) a description of FBC's operational activities and costs incurred in
reducing electricity theft (for example, related to FBC's Revenue Protection Program)
and the regulatory treatment of these costs."<sup>8</sup>

The projected GWh reduction for the test year and subsequent years is unchanged from the estimated GWh theft reduction assumed in the AMI decision, which includes the impact of the Commission's determination to limit the number of assumed marihuana grow cycles to three per year reducing the assumed annual energy losses downward to 113,000 kWh annually per theft site. The projected GWh reductions are provided in Table 3-4 below.

Incremental O&M costs related to the revenue protection program were included as AMI O&M in the CPCN application, and related primarily to the addition of a Revenue Protection Analyst for managing the development and operation of the AMI-enabled energy balancing program, as well as the necessary field resources for the periodic deployment and relocation of the feeder metering devices as required. The feeder meter energy balancing program includes budgeted 2015 O&M expenditures of \$0.139 million; however, forecast 2015 expenditures are currently

<sup>&</sup>lt;sup>8</sup> Order G-107-15, page 15.



1 lower than budget by \$0.07 million, primarily due to the timing of the implementation of the

2 capital component of FBC's feeder meter energy balancing program as further discussed below.

It is expected however that O&M requirements will be consistent with initial forecasts once the
 energy balancing program is fully implemented in Q2 2016.

5 With respect to the regulatory treatment of the AMI costs associated with FBC's Revenue 6 Protection Program, these costs, which are incremental to the Revenue Protection program 7 costs included in formula O&M, are forecast and tracked outside of the PBR formula and 8 variances are recovered from or returned to customers in the following year by way of the Flow-

9 through deferral account as discussed in section 6.3.3.

The continued implementation of AMI technology will improve the Company's ability to detect and deter energy theft, and will also facilitate initiatives such as feeder load balancing on an ongoing basis, reducing physical system losses. The number of theft sites identified annually since 2012 has been decreasing and has decreased from 19 to 3 between 2012 and 2014.

14 FBC believes the reduction in the number of identified instances of power theft is likely due to a 15 number of factors, including the ongoing deployment of FBC's AMI project which includes a 16 detailed meter base inspection for all customer premises, as well as due to the deployment of 17 BC Hydro's Smart Metering Infrastructure (SMI) project in advance of FBC's AMI project and the 18 associated perception that electricity theft (provincially) is becoming increasingly difficult to hide. 19 Indeed, BC Hydro has noted in its reports to the Commission that its theft deterrence benefits 20 are exceeding the expectations initially set out in the SMI business case<sup>9</sup>. Although current 21 forecast loss reductions remain unchanged from those provided as part of the CPCN application 22 FBC expects to have an improved understanding of electric theft trends once the deployment of 23 the AMI system is complete and the feeder meter energy balancing program implemented in 24 The ability of the AMI system to provide time-synchronized meter reads for the 2016. 25 determination of overall system losses will provide FBC a more accurate understanding of 26 annual loss trends, and if warranted will allow FBC to update its forecast loss reductions related 27 to theft detection and deterrence. The table provided below details the normalized losses for 28 2012 – 2014, as well as the forecast losses (both with and without the AMI impact) for 2015 – 29 2019.

<sup>&</sup>lt;sup>9</sup> BC Hydro Smart Metering and Infrastructure Program – Quarterly Update Report No. 21 – April to June 2015



4	
1	
- 1	

		1	Before AMI			Afte	er AMI	
Line No.	Year	Normalized Actuals and Before-Savings Gross Load (GWh)	% of Gross Load	Normalized Actual and Forecast Losses (GWh)	AMI Impact (GWh)	Losses (GWh)	% of Gross Load	
1	2012 Actual	3,421.7	7.92%	271.1				
2	2013 Actual	3,500.0	7.95%	278.1				
3	2014 Actual	3,436.0	7.86%	270.1				
4	2015 Seed	3,549.0	8.00%	283.9	(2.4)	281.5	7.93%	
5	2016 Forecast	3,602.7	8.00%	288.2	(5.2)	283.0	7.86%	
6	2017 Forecast	3,655.7	8.00%	292.5	(9.1)	283.4	7.75%	
7	2018 Forecast	3,709.2	8.00%	296.7	(12.1)	284.6	7.67%	
8	2019 Forecast	3,754.8	8.00%	300.4	(14.5)	285.9	7.61%	

### Table 3-4: System Losses Before and After AMI, 2012 – 2019

2 3

FBC anticipates that it will begin to leverage the tamper detection functionality of the AMI system once the installation of AMI meters and the associated back-office infrastructure is completed (currently forecast for completion by Q2 2016). It is expected that this tamper detection functionality will provide additional leads for the Revenue Protection Analyst and increase theft identification.

9 Approximately \$1 million in capital expenditures were approved as part of the AMI CPCN 10 application for the implementation of a meter-enabled feeder balancing program. The feeder 11 meters will provide better information regarding the nature and location of system losses in 12 excess of expected technical losses which will improve FBC's investigative success rate for 13 power theft, and also provide increased theft deterrence. In early 2015 FBC issued a Request for Proposal for feeder metering devices and is currently in the process of evaluating a number 14 15 of different devices. FBC is also continuing to assess the operational requirements of the theft 16 detection software necessary to reconcile the feeder metering data with customer AMI data.

FBC has also started evaluating automated distribution system single line updates, which are necessary in order to accurately perform energy balancing analyses, using AMI data. FBC expects to have selected appropriate feeder metering devices and commenced implementation of the required technology for an energy balancing theft detection program as described in the AMI CPCN application by Q2 2016. Forecast capital expenditures for this component remain unchanged from approved.

# 23 **3.5.8 Peak Demand**

The peak demand forecast is calculated by escalating ten years of historical peak load data by the actual historical energy load growth rates and then averaging the outputs for each month as well as for seasonal peaks. Normalized after-savings winter and summer peaks for 2010-2016 are shown below.





2

7

1

# 3 3.6 Revenue Forecast

4 The forecast of revenues has been developed by multiplying the total load forecast by the 2015 5 approved rates for each customer class.

6 Table 3-5 below summarizes the approved, projected and forecast revenue for 2015 and 2016.

						,	
Line		Ар	proved	Pr	ojected	Fc	orecast
No.	Description		2015		2015		2016
1	Residential	\$	177.660	\$	176.649	\$	178.755
2	Commercial		74.774		72.476		80.016
3	Wholesale		46.091		45.804		45.591
4	Industrial		29.612		26.966		32.769
5	Lighting & Irrigation		6.393		6.698		6.021
6	Total	\$	334.531	\$	328.594	\$	343.152

# Table 3-5: Forecast Sales Revenue at 2015 Approved Rates (\$ millions)

9

8

- 10 Variances between the revenue forecast in this section and the actual revenues realized are
- 11 captured in the Flow-through deferral account.

# 12 **3.7** *SUMMARY*

FBC's forecast of load is based upon a methodology that is consistent with that used in prior
years and conforms to the recommendations of the 2011 Load Forecast Technical Committee.
Based on this methodology, FBC is forecasting an increase in load in 2016 compared to 2014

16 Actuals and compared to 2015 Approved. The normalized after-savings gross energy forecast



- 1 is 3,540 GWh. Based on net load of 3,262 GWh at the approved 2015 rates, FBC's 2016
- 2 revenue forecast is \$343.152 million.



# 1 4. POWER SUPPLY

# 2 4.1 INTRODUCTION AND OVERVIEW

3 This section includes a review of the 2015 projected and 2016 forecast power purchase 4 expense (PPE), wheeling expense and water fees.

5 As shown in Table 4-1 below, the 2016 Forecast power supply costs of \$148.962 million 6 represents an increase of 12.5 percent or \$16.595 million over the 2015 Approved cost of 7 \$132.367 million. The increase in the 2016 Forecast PPE is due to higher gross load, increases 8 to the Brilliant and BC Hydro rates, and the impact of the first full year of the 40-year capacity 9 purchase agreement with the Waneta Expansion Limited Partnership (WELP). The 2016 10 Forecast wheeling expense is consistent with 2015, while water fees are forecast to increase as a result of increased plant entitlements and higher rates. Any variances to forecast in these 11 12 items are recorded in the Flow-through deferral account and returned to or recovered from 13 customers in the subsequent year.

14

15

### Table 4-1: Power Supply Cost (\$ millions)

Line No.	ApprovedDescription2015		Projected 2015		Forecast 2016		
1	Power Purchase Expense	\$	117.837	\$	111.277	\$	133.907
2	Wheeling Expense		4.734		4.723		4.764
3	Water Fees		9.796		9.706		10.291
4	Total Power Supply Cost	\$	132.367	\$	125.706	\$	148.962
5							
6	Gross Load (GWh)		3,499		3,438		3,540

# 16 4.2 SUMMARY OF POWER SUPPLY RESOURCES

FBC uses a combination of Company-owned generation entitlements, firm contracted supplyand market purchases to meet its load requirements. The Company's firm resources consist of:

- a) Canal Plant Agreement (CPA) Entitlements associated with the generation facilities
   owned by FBC. The costs associated with FBC owned generation are not included in the
   power purchase estimates, except for the Balancing Pool adjustments, which account for
   year to year timing differences in the entitlement energy storage under the CPA;
- b) The Brilliant Power Purchase Agreement (BPPA), a 125 MW contract (Order E-7-96),
  and an amendment to the BPPA which reflects the purchase of 20 MW of Brilliant
  Upgrade power (Letter L-57-00) and the 5 MW Brilliant Tailrace Capacity agreement
  (Order E-17-01);
- c) A power purchase agreement (PPA) with BC Hydro (a 200 MW contract) under BC
  Hydro Rate Schedule 3808 that was approved by Order G-60-14 on May 6, 2014,
  became effective on July 1, 2014, and expires on September 30, 2033;


- d) The Waneta Expansion Capacity Purchase Agreement (WAX CAPA), which is a 40-year
   purchase agreement with WELP for capacity entitlements under the CPA, accepted by
   Orders E-29-10 and E-15-12, and effective on April 2, 2015;
- 4 e) A number of small Independent Power Producer (IPP) contracts; and
- 5 f) A number of market purchase arrangements.

## 6 4.3 PORTFOLIO OPTIMIZATION

7 The primary objectives of FBC's power supply portfolio planning are to ensure that the 8 Company has sufficient firm resources to meet expected load requirements, to ensure the 9 availability of cost effective reliable power for FBC's customers, to prudently manage exposure 10 to the cost and availability of market power supplies, and to optimize the value of any surplus 11 resources that are not needed to meet load requirements.

12 With the inclusion of the WAX CAPA as of April 2015, the Company currently has long-term, firm resources from which it can supply all of its forecast annual energy and capacity 13 14 requirements. The nature of FBC's contracted resources, in particular the BC Hydro PPA, 15 provide the Company some flexibility to participate in the market when conditions are favourable 16 to mitigate the cost of holding those firm resources. Furthermore, although FBC's load 17 requirements are forecast to grow over time, the amount of capacity provided under the WAX 18 CAPA is greater than FBC's current capacity requirements in most months, and FBC sells the 19 surplus capacity to mitigate power purchase expense. FBC has contracted to release a 50 MW 20 block of capacity purchased under the WAX CAPA to BC Hydro under the Residual Capacity 21 Agreement (RCA), which was approved by the Commission in Order G-161-14. The remaining 22 surplus WAX CAPA will be sold to Powerex Corp. (Powerex) on a day ahead basis, if and when 23 it is not required to meet FBC load requirements, under the terms of the Capacity and Energy 24 Purchase and Sale Agreement (CEPSA) with Powerex dated February 17, 2015, and accepted 25 by the Commission in Order E-10-15.

26 The CEPSA became effective on May 1, 2015, and is a master agreement that sets the terms 27 and conditions for future market transactions entered into by FBC with Powerex. Under the 28 CEPSA, FBC will purchase all of its market energy requirements from Powerex, and will sell to 29 Powerex any surplus capacity that may be available after meeting the RCA sale to BC Hydro 30 and FBC's load requirements, in each case at market based prices. The benefits of this arrangement include increased certainty of energy access as well as surplus capacity sales at 31 32 prices that are potentially better than could be achieved elsewhere, helping to optimize FBC's 33 resource portfolio for the benefit of customers. FBC retains the ability to use any WAX CAPA to meet load, after meeting the 50 MW sale to BC Hydro, and only releases surplus capacity under 34 35 the CEPSA on a day ahead basis. The CEPSA does not create any obligation for FBC to purchase or sell any volume, nor does it modify FBC's portfolio optimization strategy. 36



# 1 4.4 FBC 2015/16 ANNUAL ELECTRIC CONTRACTING PLAN

2 On March 18, 2015 FBC filed its 2015/16 Annual Electric Contracting Plan (AECP). The 3 purpose of the AECP is to outline FBC's plan to meet its peak demand requirements and annual 4 energy requirements for the operating year commencing October 1, 2015 and ending 5 September 30, 2016, and to facilitate FBC's annual energy nomination under the PPA. The 6 AECP also outlines FBC's load and resource balance over the following five years, and FBC's 7 plan for optimizing its portfolio over the short-term. FBC's forecasts of PPE for the remainder of 8 2015 and for 2016 are based on the plan discussed in the 2015/16 AECP, which was accepted 9 by the Commission on April 16, 2015, by way of Letter L-18-15.

10 The AECP identified FBC's intention to make its annual energy nomination under the PPA for 11 the 2015/16 contract year equal to 708 GWh, less any firm market contracts that FBC could 12 enter into, as described in section 5 of the 2015/16 AECP.

On June 24, 2015 FBC entered into 2 agreements with Powerex under the terms of the CEPSA and was able to displace 17 GWh of PPA energy with lower cost market purchases during the winter of 2015/16 and 24 GWh of PPA energy during the winter of 2016/17. The Company therefore nominated under the PPA the remaining energy requirement of 690 GWh for the 2015/16 contract year. These contracts are included in the power purchase expense projection/forecast for 2015 and 2016.

Under the terms of the PPA, FBC retains a certain amount of flexibility to allow for any spotmarket opportunities that may become available and to account for variations in forecast load.

The Company anticipates filing its 2016/17 AECP in the first quarter of 2016 and submitting the 2016/2017 nomination under the PPA prior to June 30, 2016.

## 23 4.5 Review of 2015 Power Purchase Expense

As shown in Table 4-2 below, FBC's 2015 gross load (after taking into account demand side management and other customer savings) and PPE are projected to be below the 2015 Approved values by 61 GWh and \$6.560 million, respectively. The reduction in power purchase expense in 2015 is due to decreased load, a reduction in net Waneta Expansion expense due to additional maintenance outages at the WAX plant<sup>10</sup> and increased revenue for WAX surplus sales under the CEPSA, and additional market purchases used to displace BC Hydro PPA energy and capacity purchases at a lower total cost.

<sup>&</sup>lt;sup>10</sup> WAX CAPA sales to FBC are unit contingent, meaning that FBC will only pay for the capacity if it is made available to FBC.



	Line No.	Description	Ap	proved 2015	Pro	ojected 2015	Difference	
	1	Brilliant	\$	37.069	\$	37.055	\$	(0.014)
	3	Waneta Expansion		25.808		22.708		(3.100)
	4 5	Independent Power Producers Market and Contracted Purchases		0.164 9.380		0.189 13.441		0.025 4.061
	6 7	CPA Balancing Pool Special and Accounting Adjustments		(0.044)		1.573 0.060		1.617 0.060
	8	Total	\$	117.837	\$	111.277	\$	(6.560)
2	9	Gross Load (GWh)		3,499		3,438		(61)

#### Table 4-2: 2015 Power Purchase Expense (\$ millions)

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## 4 4.6 2016 POWER PURCHASE EXPENSE FORECAST

5 The 2016 Forecast PPE is approximately \$22.631 million greater than the 2015 Projection. The 6 forecast increase from \$111.277 million in 2015 to \$133.907 million in 2016 is a result of twelve 7 months of capacity under the WAX CAPA being purchased by FBC, as opposed to only nine 8 months in 2015, increased gross load, a reduction in forecast market and contracted purchases 9 and correspondingly a greater reliance on energy supplied by BC Hydro, as well as increases to 10 BC Hydro and Brilliant contract rates. The following table shows a comparison of the 2015 11 Projected PPE and the 2016 Forecast PPE. Reasons for significant variances from the 2015

- 12 Projected PPE are further discussed below.
- 13

#### Table 4-3: 2015 and 2016 Forecast Power Purchase Expense (\$ millions)

Line		Pr	ojected	Fo	Forecast			
No.	Description		2015		2016		Difference	
1	Brilliant	\$	37.055	\$	38.785	\$	1.730	
2	BC Hydro PPA		36.250		47.545		11.295	
3	Waneta Expansion		22.708		37.358		14.650	
4	Independent Power Producers		0.189		0.195		0.007	
5	Market and Contracted Purchases		13.441		10.023		(3.418)	
6	CPA Balancing Pool		1.573		-		(1.573)	
7	Special and Accounting Adjustments		0.060		-		(0.060)	
8	Total	\$	111.277	\$	133.907	\$	22.631	
9	Gross Load (GWh)		3,438		3,540		102	

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- 16 The \$1.730 million increase from 2015 Projected to 2016 Forecast in the Brilliant expense is 17 due to increases in rates which are based on a forecast of the operating and maintenance cost
- 18 of the plant, as well as a true-up to the prior year's actual costs compared to forecast. The
- 19 volumes available under the Brilliant contracts remain consistent from 2015 to 2016.



The \$11.295 million increase from 2015 Projected to 2016 Forecast in BC Hydro PPA expense 1 2 is due to a greater volume of power forecast to be purchased under the PPA in the 2016 3 Forecast compared to the 2015 Projection, as well as due to a forecast BC Hydro rate increase 4 of 4 percent on April 1, 2016<sup>11</sup>. The volume of PPA purchases included in the 2016 Forecast is 5 26 GWh higher than the volume included in the 2015 Approved. However, in the Projected 2015 6 (based on actual data through June 30, 2015), the requirement of PPA energy purchases was 7 lower than 2015 Approved due to reduced gross load, increased real-time market purchases 8 and increased availability of FBC Owned Generation. Therefore, the PPA energy purchases in 9 the 2016 Forecast are 204 GW greater than in the 2015 Projection. For the 2016 Forecast and 10 consistent with the 2015 Approved, FBC has included a \$1.000 million reduction to the forecast 11 BC Hydro expense to account for potential real-time opportunities to displace PPA purchases 12 with lower cost market purchases using the flexibility provided for under the BC Hydro PPA. 13 Real-time opportunities are restricted to a maximum of 25 percent of the PPA nominated energy 14 amount, but depending on system conditions, could be less.<sup>12</sup> The \$1.000 million reduction to 15 BC Hydro purchases in the 2016 Forecast is consistent with the 2015 Approved forecast for 16 PPE. The BC Hydro rate increase of 4% as of April 1 2016, increases the 2016 Forecast 17 expense by \$2.0 million, while increased in volume purchased increases 2016 Forecast 18 expense by \$9.3 million.

19 The forecast cost of the Waneta Expansion in 2016 is \$37.358 million. This amount includes the 20 cost of the WAX CAPA and an offsetting forecast of surplus sales revenue from sales to BC 21 Hydro under the RCA and from sales to Powerex under the CEPSA. The revenue received 22 under the CEPSA is linked directly to the amount of capacity FBC releases to Powerex on a day 23 ahead basis when it is not needed to meet load requirements and day ahead market prices at 24 the Mid-Columbia River (Mid-C) trading hub. The Mid-C is the largest electricity trading hub in 25 the Pacific Northwest and is located on the US portion of the Columbia River. FBC's forecast of 26 Mid-C forward market prices is based on a combination of published and non-published 27 sources. Overall, the forecast of market prices has a relatively marginal effect on the overall PPE. The forecast of surplus sales revenue in 2016 is approximately \$9.3 million. 28

29 Market and Contracted Purchases include actual market purchases which FBC has either entered into or contracted for in 2015 and contracted purchases for 2016. All of the market 30 31 purchases included in the 2016 Forecast are based on fixed price contracts executed by the 32 Company, and the Company has firm fixed price resources in place to meet its forecast load for 33 the balance of 2015 and 2016. The decrease of \$3.418 million from 2015 Projected to 2016 34 Forecast is mainly due to the termination of the Powerex Capacity Block contract in July 2015, 35 which was no longer required following the availability of the WAX CAPA. Additionally, the total 36 volume of market purchases in the 2016 Forecast is currently 54 GWh less than in the 2015 37 Projection, due to FBC's real-time market purchases in 2015. As discussed above, there may 38 be opportunities for additional real-time market purchases in 2016 using the flexibility of the PPA

<sup>&</sup>lt;sup>11</sup> Direction No. 7 to the BCUC, OIC 097 dated March 5, 2014.

<sup>&</sup>lt;sup>12</sup> For example, if loads were 50 GWh lower in a year than forecast, that must be adjusted for as part of the 25 percent PPA flexibility such that the amount of PPA energy that can be displaced by market purchases is also reduced by 50 GWh



purchases, and as such FBC has reduced its expected purchases under the BC Hydro PPA by 1 2 \$1.000 million, consistent with the 2015 Approved PPE.

3 The CPA Balancing Pool represents timing differences in entitlement energy storage under the 4 CPA, and is used to manage fluctuations in load and resource availability, or to take advantage 5 of market opportunities. In the 2015 Forecast, FBC has used a net total of 36 GWh of entitlement energy from storage, at a total cost of \$1.573 million. For 2016, FBC does not 6 7 forecast any net use or storage of entitlement energy.

#### 4.7 WHEELING EXPENSE 8

9 Wheeling expense includes wheeling service provided by BC Hydro under the Amended and Restated Wheeling Agreement (ARWA) and Open Access Transmission Tariff (OATT) as 10 11 needed to supply the Company's loads in the Okanagan, Creston and Princeton. Also included 12 in wheeling expense are charges paid to Teck Metals Ltd. (Teck) for the use of its 71 Line. 13 Rates under the ARWA are specified in BC Hydro's Rate Schedule 21.

14 Table 4-4 below shows FBC's Wheeling Expense for 2015 and 2016.

		• •	•	,				
Line		Арр	proved	Projected		Forecast		
 No.	Description	2	015	2	015	2016		
1	Wheeling Nomination (MW Months)							
2	Okanagan Point of Interconnection		2,400		2,400		2,400	
3	Creston		432		432		432	
4								
5	Wheeling Expense							
6	Okanagan Point of Interconnection	\$	4.194	\$	4.183	\$	4.221	
7	Creston		0.492		0.491		0.495	
8	Other		0.048		0.049		0.048	
9	Total Wheeling Expense	\$	4.734	\$	4.723	\$	4.764	

Table 4-4: Wheeling Expense (\$ millions)

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18 In 2015 and 2016, ARWA costs are forecast to account for all of FBC's wheeling expense, 19 except for \$0.049 and \$0.048 million of OATT and Teck wheeling in 2015 and 2016, 20 respectively.

21 As shown above, wheeling expense is forecast to increase by \$0.041 million in 2016 over 2015 22 Projected, which is due to an anticipated rate increase in the AWRA cost beginning in October

23 2015. The AWRA annual rate increases are based on forecast BC CPI.



## 1 **4.8** *WATER FEES*

2 Water fees are assessed by the Province based on FBC's entitlement usage in the previous

3 year and the rate increases are indexed to BC CPI. As shown in Table 4-5 below, the 2015

4 Projected Water Fees are down slightly from Approved, due to a decrease from forecast rates.

5 Also, 2016 water fees are forecast to increase \$0.585 million over 2015 Projected due to 6 increased plant entitlement use in addition to a yearly increase in water fee rates based on the 7 forecast BC CPI.

#### 8 Entitlement use and water fees for 2015 and 2016 are shown in the table below:

n	
Э	

#### Table 4-5: Water Fees (\$ millions)

	Line No.	Description	App 20	oroved 015	Pro 2	jected 015	Forecast 2016	
	1	Plant Entitlement in Previous Year (GWh)		1,569		1,569		1,649
10	2 3	Water Fees	\$	9.796	\$	9.706	\$	10.291

#### 11 **4.9** *SUMMARY*

FBC's forecast of power purchase expense is based on FBC's firm resources in place at the time of filing and is consistent with the 2015/16 AECP. FBC anticipates filing its 2016/17 AECP in the first quarter of 2016 and will continue to work toward optimizing its power purchase portfolio. Any variances in the costs of power supply, including any power purchase expense decrease due to further portfolio optimization, are recorded in the Flow-through deferral account and returned to or recovered from customers in the following year.



## 1 **5. OTHER REVENUE**

#### 2 5.1 INTRODUCTION AND OVERVIEW

As shown in the table below, FBC is forecasting other revenue to be \$0.095 million lower than the amounts approved for 2015. The main driver of this decrease is a reduction in other recoveries due to a 2015 project for improvements to a substation on behalf of a municipality, which is partly offset by increases in contract revenue and apparatus and facilities rental.

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Line	Line		Approved		Projected		Forecast	
No.	No. Description		015	2015		2016		
1	Apparatus and Facilities Rental	\$	4.380	\$	4.381	\$	4.467	
2	Contract Revenue		1.544		1.725		1.808	
3	Transmission Revenue		1.189		1.185		1.230	
4	Interest Income		0.057		0.036		0.034	
5	Connection Charges		0.470		0.470		0.496	
6	Other Recoveries		0.632		0.594		0.142	
7	Total	\$	8.272	\$	8.391	\$	8.177	

9 In the following sections, FBC summarizes the methodology for forecasting the line items

10 included in the table above.

## 11 5.2 APPARATUS AND FACILITIES RENTAL

Apparatus and facilities rental is comprised primarily of pole contact revenue from other utilities and businesses that attach their facilities to FBC infrastructure in order to deliver services to their customers, such as telephone and cable television providers. Rent is charged at a unit rate per pole contact multiplied by the number of poles that are contacted. The 2015 Projected is expected to be in line with 2015 Approved. FBC's 2016 revenue is forecast to be higher than 2015 Approved due to escalations in unit rental rates.

## 18 **5.3** CONTRACT REVENUE

FBC performs work under contract to third parties at the Waneta and Brilliant hydroelectric generating facilities. This third party work, and the associated management fees earned, fluctuates from year to year based on customer requirements which include routine and nonroutine work planned at the start of the customer's fiscal year. 2015 Projected and 2016 Forecast are both higher than 2015 Approved due to higher levels of third party activity.

The Company also operates and maintains a number of other facilities for third party entities through its non-regulated affiliate FortisBC Pacific Holdings Inc. (FPHI). Transactions between



- 1 FBC and FPHI are conducted in accordance with FBC's Code of Conduct and Transfer Pricing
- 2 Policy<sup>13</sup> and earn a transfer price profit revenue.

## 3 5.4 TRANSMISSION REVENUE

4 Transmission revenue represents charges to customers for transmitting power over the FBC 5 system. Three customers are expected to be using the transmission system in 2015 and 2016

6 with revenues expected to be similar to 2015 Approved amounts.

## 7 5.5 INTEREST INCOME

8 Interest income is primarily comprised of DSM loan interest income. The Company is 9 experiencing a decline in the number of DSM loans. Hence, as loans mature a corresponding

10 drop in interest income is expected.

## 11 **5.6** *CONNECTION CHARGES*

Connection Charges are calculated based on the connection charges specified in FBC's rate schedules applied to the projected or forecast number of new customers. Connection charge revenues projected for 2015 and forecast for 2016 are expected to be similar to 2015 Approved amounts.

## 16 **5.7** OTHER RECOVERIES

Other recoveries are primarily comprised of the recovery of costs for miscellaneous services, such as street light maintenance charged to municipalities. Other recoveries projected in 2015 are expected to be similar to 2015 Approved amounts. In 2016, revenue is forecast to be lower than 2015, in which (non-tariff) fees were earned from performing improvements to a substation on behalf of a municipality.

## 22 **5.8** *SUMMARY*

FBC has forecast the other revenue components for 2016 reflecting all applicable contracts and fixed revenues, and based on the Company's best knowledge of the factors that drive the variable components. Variances in other revenue are recorded in the Flow-through deferral account.

<sup>&</sup>lt;sup>13</sup> As approved by Order G-5-10A.



#### 1 **6. O&M EXPENSE**

#### 2 6.1 INTRODUCTION AND OVERVIEW

3 Under the PBR Plan, FBC's O&M expense is primarily determined by formula, with the addition 4 of a number of items that are forecast outside the formula on an annual basis. In 2016, the 5 formula O&M is \$53.596 million, representing a 1.155 percent increase from 2015 Approved, 6 entirely due to the formula drivers. O&M expenses forecast outside the formula are \$3.775 7 million, representing an approximate 38 percent decrease from the amount approved for 2015, 8 primarily due to anticipated savings from the Advanced Metering Infrastructure (AMI) Project 9 and to lower pension and other post-employment benefit (OPEB) expense. Overall, the decrease in Gross O&M Expense from 2015 Approved to 2016 is approximately 2.9 percent. 10

- 11 The components of 2016 O&M expense are shown in Table 6-1 below.
- 12

#### Table 6-1: 2016 O&M Expense

Line No.	Description	2016	Reference				
1	Formula O&M	\$ 53.596	Table 6.2 Line 6				
2	Forecast O&M	3.775	Table 6.3 Line 7				
3	Total Gross O&M	57.371					
4	Capitalized Overhead (15%)	(8.606)	Section 11, Sch. 21				
5	Net O&M	\$ 48.765					

13 14

In the subsections below, FBC provides further details on its formula and forecast O&Mexpenses for 2016.

#### 17 6.2 FORMULA O&M EXPENSE

The formula-driven portion of Base O&M starts from a base of the 2015 Approved formula O&M escalated by the prior year's inflation less a productivity improvement factor of 1.03 percent, and one-half of the prior year's growth in average customers. As calculated in Section 2, the 2016 inflation based on prior year's BC-CPI and BC-AWE less the productivity improvement factor is 0.539 percent and one-half of the prior year's customer growth is 0.613 percent.

23 For 2016, the annual operating and maintenance expense under the formula is calculated as:

24 2015 Approved formula O&M x [1 + (I Factor – X Factor)] x [1 + (0.5 x customer growth)]

Table 6-2 below shows the calculation of the resulting 2015 Formula O&M.



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#### Table 6-2: Calculation of 2016 Formula O&M

Line No.	Description		Reference
1	2015 Approved Formula O&M	\$ 52.984	FBC 2015 Rates Compliance Filing Sch 17
3	Net Inflation Factor	0.539%	Section 2 Table 2-3
4	Customer Growth Factor	0.613%	Section 2 Table 2-2
5 6	2016 Formula O&M	\$ 53.596	Line 1 x (1 + Line 3) x (1 + Line 4)

## 3 6.3 O&M EXPENSE FORECAST OUTSIDE THE FORMULA

This Formula O&M is then adjusted to add in pension and OPEB expense, insurance premiums, the net costs and savings of FBC's AMI Project, and 2015 Mandatory Reliability Standards (MRS) audit expenses. FBC has also included the incremental costs related to MRS compliance which qualifies for exogenous factor treatment as discussed in section 12 of the Application. These amounts are shown in Table 6-3 below along with a comparison to 2015.

9

#### Table 6-3: 2016 Forecast O&M (\$ millions)

Line No.	Description		oroved 015	Projected 2015		Forecast 2016	
1	Pension/OPEB (O&M Portion)	\$	3.925	\$	3.925	\$	3.391
2	Insurance Premiums		1.380		1.334		1.347
3	Advanced Metering Infrastructure Project		0.452		0.452		(1.800)
4	Advanced Metering Infrastructure Radio-Off		-		0.168		0.392
5	2015 Mandatory Reliability Standards Audit		0.350		0.350		-
6	Mandatory Reliability Standards Incremental O&M		-		-		0.445
7	Forecast O&M	\$	6.107	\$	6.229	\$	3.775

11

10

Each of these items that is forecast outside of the formula is discussed below. Variances in Pension and OPEB expenses are captured in the Pension and OPEB Variance deferral account. Variances in insurance premiums, AMI, and the 2015 MRS audit are captured in the Flow-through deferral account. Any variance in the 2016 MRS Incremental O&M will also be captured in the Flow-through deferral account.

## 17 6.3.1 Pension and OPEB Expense

Pension and OPEB expenses for 2015 are based upon the most recent actuarial estimatesusing assumptions at December 31, 2014 provided by the Company's actuary, Towers Watson.

Pension and OPEB expense is broken out into O&M and capital categories as shown in Table 6-4.



Line No.	Description	Apj 2	Approved 2015			
1	O&M Capital	\$	3.925 4.253	\$	3.391 3.674	
3	Total Pension & OPEB Expense	\$	8.178	\$	7.065	

#### Table 6-4: 2015-2016 Pension and OPEB Expense (\$ millions)

2 3

1

4 Overall, pension and OPEB expense for 2016 is forecast to be \$1.113 million lower than what 5 was approved for 2015, of which \$0.534 million resides in O&M. This decrease is primarily due 6 to higher actuarial gains associated with the most recent OPEB funding valuation and 7 favourable investment returns for the pension plans, partially offset by a decrease in the 8 assumed discount rate.

9 The 2015 variance between approved and actual pension and OPEB expense and any 2016 10 variance between these amounts is captured in the Pension and OPEB Variance deferral 11 account and amortized into rates over a three year period as approved in by the Commission in 12 Order G-139-14.

#### 13 6.3.2 Insurance Premiums

The component of insurance expense tracked outside of the PBR formula relates to insurancepremium expense allocated to FBC by Fortis Inc.

16 2016 insurance premiums are forecast at \$1.347 million, a decrease of \$0.033 million or 2.4 17 percent from what was approved for 2015. The 2016 Forecast is calculated by taking the 18 known annual insurance premium of \$1.167 which is applicable to the first six months of 2016 19 and escalating that amount by five percent for the remaining six months<sup>14</sup>. The five percent 20 escalation is based on a combination of historical increases in premiums, increases in the value 21 of assets year over year and the expectations of Fortis Inc.'s insurance broker on future 22 premiums.

#### 23 6.3.3 AMI Project

Incremental O&M costs related to the implementation of the AMI project will be offset by postimplementation savings, resulting in a net decrease to O&M Expense during the PBR period. Because of the high variability of AMI costs and savings during this period, net AMI costs, including the costs of AMI-enabled billing options and radio-off meters, are forecast and tracked outside of the PBR formula and variances are recovered from or returned to customers in the following year by way of the Flow-through deferral account.

 $<sup>^{14}</sup>$  \$1.167 million/2 = \$0.584 million x 1.05 = \$0.613 million. \$0.584 million + \$0.613 million + \$0.150 million annual firefighting premium = \$1.347 million



1 The 2014 AMI-related O&M costs were lower than approved due to delayed project timing 2 following an extensive CPCN review process and the Commission's directive to file for approval 3 of an opt-out program prior to meter installation. The projected 2015 AMI O&M costs less 4 savings remain at \$0.452 million which is the same amount approved for 2015 in the Annual 5 Review for 2015 Rates. AMI-related costs and savings in 2016 are forecast to continue to lag 6 those estimated in the AMI CPCN application due to the delay in starting the project. Net 7 savings for customers are forecast to be \$1.800 million as compared to \$2.084 million. AMI 8 costs and savings are expected to be approximately as forecast in the CPCN application in 9 2017.

10

Table 6-5: AMI Costs and Savings (\$ millions)

			2014			2015		2016 Total			Total	
		Estimated Actual	Approved	CPCN	CPCN/ Projected Approved 2013 Fcst		CPCN/ Forecast 2013 Fcst		Projected + Approved + Forecast 2013 Fcst		Change	
		(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)=(a)+(d)+(g)	(j)=(b)+(e)+(h)	(k)=(i)-(j)
11	AMI Costs AMI Savings Net AMI Costs	531 (100) 431	750 (150) 600	1,116 (516) 600	1,591 (1,139) 452	1,591 (1,139) 452	1,859 (1,977) (118)	1,738 (3,538) (1,800)	1,892 (3,976) (2,084)	3,860 (4,777) (917)	4,867 (6,469) (1,602)	(1,007) <u>1,692</u> 685

12

#### 13 6.3.4 AMI Radio-Off

In order to mitigate potential risk to the implementation schedule, Commission Order G-220-13
 approved tariff-based standard charges for customers wishing to have their AMI meter radios
 turned off. Pursuant to Order G-220-13, FBC is tracking the actual number of radio-off
 participants and the actual annual radio-off costs separately from other costs.

FBC started collecting radio-off fees in late 2014. These fees include a one-time per-premise
installation fee of either \$60 or \$88 (depending on whether the customer selected a Radio-off
meter prior to exchanges beginning within a region), and ongoing per-read fees of \$18 per read.

The per-premise fees cover the costs associated with processing radio-off requests in the Contact Centre, reconfiguring the AMI meter to radio-off, modifying back office information systems to support radio-off and installing additional network infrastructure required to reform the AMI network around the Radio-off meter. The ongoing per-read fees of \$18 per read cover the labour and vehicle costs associated with manually reading the AMI Radio-off meter.

26 AMI Radio-off fees are designed so that those customers selecting a Radio-off AMI meter will 27 cover the associated costs so as not to reduce the AMI benefits accruing to all other customers. 28 For transparency, FBC is recording the radio-off costs net of customer fees. With respect to the 29 per-premise Radio-off fees, the approved tariff fees are expected to be less than the cost 30 associated with providing the Radio-off service, with a net cost to all customers of \$0.168 million 31 and \$0.392 million expected in 2015 and 2016 respectively. As radio-off meter reading services 32 commenced in the last week of July, 2015, no cost versus revenue information was available at 33 the time of preparing this Application.



## 1 6.3.5 2015 Mandatory Reliability Standards (MRS) Audit

2 FBC's triennial MRS audit concluded in August 2015. Notification of the audit was received on 3 May 12, 2015, and the scope of the audit covered all applicable reliability standards associated 4 with FBC's TO (Transmission Owner) and TOP (Transmission Operator) functions identified in 5 the Actively Monitored List issued in November of 2014. These include Critical Infrastructure 6 Protection (CIP) and Operations and Planning (O&P) standards. The formal audit with the 7 Western Electricity Coordinating Council (WECC) auditors occurred over a two week period from August 10<sup>th</sup> to 20<sup>th</sup>: a one week off-site data review and a one week on-site visit to conduct 8 9 interviews, clarify outstanding questions and visit specific Critical Assets. During the audit 10 approximately ten to fifteen WECC auditors or observers visited FBC's operations. However, 11 preparation and submission of evidence took several months in advance of the two-week formal 12 audit period. This preparation impacted various business groups including human resources, 13 facilities, security, information systems, system control, operations, generation, engineering and 14 planning (transmission/resource), which were called upon and required to provide evidence to 15 prove compliance. A total of 224 requirements and sub-requirements associated with 31 16 standards were assessed and over 500 megabytes of supporting evidence was submitted to 17 WECC. FBC anticipates receiving a draft report of the audit assessment and findings in 18 September 2015.

Incremental costs for the 2015 MRS audit are currently projected to be \$0.350 million as
approved. No costs are forecast for 2016 as no audit will occur in 2016. Any variance from
2015 approved costs will be trued up in 2017 revenue requirements.

#### 22 6.3.6 2016 MRS Incremental Operating Expense

As explained in Section 12.2.2, FBC's incremental O&M expense for MRS compliance meets the Exogenous Factor criteria under the PBR Plan and FBC is therefore tracking the incremental O&M expense outside of the O&M formula.

26 FBC's forecast 2016 incremental costs for MRS are required to comply with Order R-38-15 27 dated July 24, 2015, in which the Commission adopted 34 reliability standards and the NERC 28 (North American Electric Reliability Corporation) Glossary of Terms as recommended for 29 adoption by BC Hydro in MRS Assessment Report No. 8. In that Order, the Commission also 30 identified that one standard is pending and two standards are held in abeyance. The 31 Commission accepted BC Hydro's recommendation of adoption. The major portion of costs 32 identified by the entities relate to the implementation of new cyber security requirements, new 33 modelling and testing requirements for generators and synchronous condensers, and an 34 overhaul of the protection system maintenance program requirements. Supplemental costs are 35 associated with review and revision of procedure documentation and training. The effective 36 dates for the standards span three years and hence implementation requires multi-year costs 37 with ongoing effort and is expected to result in additional staffing requirements.



- 1 By letter to the Commission dated June 11, 2015<sup>15</sup>, FBC identified that its preliminary estimates
- 2 of the one-time costs to achieve compliance are in the range of \$0.780 million to \$1.230 million,
- 3 and preliminary estimates of its ongoing (annual) costs to maintain compliance are in the range
- 4 of \$0.395 million to \$0.525 million.
- 5 FBC is forecasting incremental O&M expenses of \$0.445 million in 2016, approximately \$0.500 6 million in 2017 and \$0.425 million in 2018 and beyond, which it has included in its O&M forecast 7 outside the formula. In addition, capital expenditures to achieve compliance are forecast at 8 \$0.445 million in 2017.
- 9 During 2016 FBC will be evaluating, scoping and implementing additions/changes to procedures 10 and processes to comply with those standards that come into effect in 2016, which would 11 include changes such as modifying the protection testing and maintenance program, training 12 documents, and updating processes/procedures as required.
- 13 In addition, FBC will be assessing and determining the detailed scope and strategy required to 14 implement additions/changes to meet the effective dates of all the standards defined by Order 15 R-38-15 in order to meet in the timelines required. The work will be primarily focused on version 16 5 of the CIP standards and would include evaluating such things as physical and cyber security 17 controls, continuous monitoring, change management and vulnerability assessments. It would 18 include reviewing industry practices, assessing available market solutions and determining the 19 appropriate solutions to meet the requirements for FBC assets. It will also define the scope of 20 work required in 2017 and 2018 as well as determining the ongoing costs which may result in 21 additional staffing requirements. The 2016 estimate is primarily labour with approximately 22 \$0.040 million of miscellaneous/other expenses. The labour cost is estimated to be 23 approximately 40% internal and 60% external with internal labour comprised of resources 24 typically focused on capital work, which will then be performed by contractors/consultants.
- The remainder of the one-time costs estimated to become compliant with the new MRS will occur in 2017. The ongoing costs to maintain compliance will begin to be recognized in 2017 and then continue in future years
- Any variances from the 2016 forecast amount for MRS compliance will be trued up by way of the Flow-through deferral account and returned to, or recovered from, customers in 2017.

## 30 6.4 NET O&M EXPENSE

- 31 Net O&M expense is Gross O&M less capitalized overhead. As approved by the Commission in
- 32 Order G-139-14, the capitalized overhead rate is 15 percent for FBC. After capitalized
- overhead, the net O&M expense is \$48.765 million.

<sup>&</sup>lt;sup>15</sup> Exhibit C1-1, BC Hydro 2015 Mandatory Reliability Standards Assessment Report No. 8.



#### 1 6.5 GENERATION UNIT INSPECTIONS

As directed by the Commission in Order G-139-14, this section provides a review of FBC's actual generation unit inspection expenses in 2015.

These costs are for annual inspections of FBC's generating units, which have been the subject of upgrades and/or life extensions beginning in 1998. The inspections are expected to cost approximately \$0.350 million per unit, depending on unit condition. The majority of FBC's generating units have similar characteristics and, as such, the estimate of \$0.350 million is based on typical equipment in average operating condition. FBC expects to undertake one inspection per year.

10 The Commission indicated on page 197 of the PBR Decision that the actual expenditures 11 related to generation unit inspections should be monitored through the Annual Review process:

"Given the background and assurances provided by FBC, the Commission Panel finds
that the proposal to include the \$350,000 within the Base O&M is reasonable and is not
persuaded there is a need to make it a flow through item at this time. However, in
consideration of the concerns raised and the magnitude of the estimate, actual
expenditures should be monitored through the Annual Review process."

17 A description of the work undertaken in 2015 is provided below.

FBC completed a major unit inspection on Corra Linn Unit 3 (P4U3) on June 2, 2015. The unit, which had no known issues prior to the inspection, was taken offline on May 3, 2015 and through inspecting and testing was found to be in better than average condition overall. The scope of the inspection included dismantling of the unit at the coupling, removing the rotor and performing in-depth mechanical and electrical inspection as well as a thorough cleaning of the unit. The unit was successfully restored back into service, with validated test results confirming the integrity of the unit.

The project was successful and by performing this project the unit should continue to provide a dependable source of power.

The following table compares the estimated costs, based on "average" machine condition, to the actual cost and hours for Corra Linn Unit 3.

#### Table 6-5: 2015 Unit Inspection Costs, Corra Linn Unit 3 (Expense in \$ millions)

			Budget		Actual				
Line	e	Ho	Hours			Ho	urs		
No.	. Description	Electrical	Mechanic	Expe	nse	Electrical	Mechanica	Expe	nse
	1 Project Total	1,004	2,109	\$	0.271	611	1,752	\$	0.265
:	2 Contingency				0.041				-
;	3 Total	3,1	13	\$	0.312	2,3	63	\$	0.265

30



1 From the table above it can be seen that the actual project costs were approximately two percent lower than the pre-contingency estimated amount. Table 6-5 shows internal FBC 2 3 labour hours only; approximately 400 hours of additional electrical work was contracted out, 4 making the total (internal plus contracted) hours similar for the electrical work. From a 5 mechanical perspective, efficiencies were gained throughout the project, primarily on the unit re-6 assembly, resulting in approximately 350 hours of savings for the project. Had this unit been in 7 poor condition, from either an electrical or a mechanical perspective, the project would have 8 utilized some, if not all, of the contingency and potentially more. Actual costs for future unit 9 inspections will likewise reflect the actual condition of the units when taken out of service.

#### 10 **6.6** *SUMMARY*

11 Overall the decrease in Gross O&M Expense from Approved 2015 to 2016 is approximately 2.9

12 percent. The formula-driven O&M is increasing at a rate of 1.155 percent, which is more than

13 offset by net decreases in O&M forecast outside of the formula, primarily due to anticipated

14 savings from the AMI Project and lower pension and OPEB expense. The capitalized overhead

15 rate remains unchanged from 2015 at 15 percent.



## 1 **7. RATE BASE**

#### 2 7.1 INTRODUCTION AND OVERVIEW

The 2016 Rate Base for FBC is forecast to be \$1.287 billion. Rate Base is composed of mid year net plant in service, work-in-progress not attracting AFUDC, unamortized deferred charges,
 working capital and the generation plant acquisition adjustment<sup>16</sup>.

6 The 2016 Rate Base of FBC includes the full-year impacts of the 2015 closing projected plant 7 balances as well as the mid-year impact of the following amounts:

- Capital additions, net of Contributions in Aid of Construction (CIAC) additions, of
   \$44.805 million; and
- Plant depreciation, net of CIAC amortization, of \$43.163 million.
- 11

12 In addition, various changes in deferred charges, working capital and other items increase rate 13 base by a net amount of \$18,703 million

- 13 base by a net amount of \$18.703 million.
- 14 Details of the 2016 forecast plant balances can be found in Section 11 Schedules 5 through 9.

## 15 7.2 2016 REGULAR CAPITAL EXPENDITURES

16 Under the PBR Plan, FBC's regular capital expenditures are primarily determined by formula, 17 with the addition of a number of items that are forecast outside the formula on an annual basis. 18 In 2016, the formula-capital is \$42.874 million, representing a 1.155 percent increase from 19 2015, entirely due to the formula drivers. Capital expenditures forecast outside the formula are 20 \$5.074 million, representing an approximate 87 percent decrease from the 2015 approved level. 21 Overall the decrease in regular capital expenditures from 2015 approved to 2016 is approximately 41 percent. The components of 2016 regular capital expenditures are shown in 22 23 Table 7-1 below.

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#### Table 7-1: 2016 Capital Expenditures

No. Description	2016	Reference		
1 Formula Capital Expenditures	\$ 42.874	Table 7.2 Line 6		
2 Forecast Capital Expenditures	5.074	Table 7.3 Line 7		
3 Total Capital Expenditures	\$ 47.948			

26 In the subsections below, FBC provides further details on its formula and forecast capital 27 expenditures for 2016.

<sup>&</sup>lt;sup>16</sup> The utility plant acquisition adjustment relates to the 1982 purchase of plants 2, 3, and 4 and is being amortized over a period of 64 years.



## 1 7.2.1 Formula Capital Expenditures

2 The formula-driven portion of regular capital expenditures starts from a base of the 2015 3 approved formula capital, escalated by the prior year's inflation less a productivity improvement 4 factor of 1.03 percent, and one-half of the prior year's growth in average customers. As 5 calculated in Section 2, the 2016 inflation based on prior year's BC-CPI and BC-AWE less the 6 productivity improvement factor is 0.539 percent, and one-half of the prior year's average 7 customer growth is 0.613 percent. In accordance with Order G-139-14, regular capital 8 expenditure amounts will not be rebased to actual amounts during the PBR term unless the 9 dead band set by the Commission is exceeded<sup>17</sup>.

- 10 For 2016, the annual capital expenditures under the formula are calculated as:
- 11 2016 Capital = 2015 Capital x [(1 + (I Factor X Factor)] x [1 + customer growth]
- 12 Table 7-2 below shows the calculation of the resulting 2016 formula capital expenditures.
- 13

14

Table 7-2: Calculation of 2016 Formula Capital Expenditures

No.	No. Description			Reference		
1	2015 Approved Formula Capital Expenditures	\$	42.384	FBC 2015 Rates Compliance Filing Sch. 5		
2						
3	Net Inflation Factor		0.539%	Section 2 Table 2-3		
4	Customer Growth Factor		0.613%	Section 2 Table 2-2		
5						
6	2016 Formula Capital Expenditures	\$	42.874	Line 1 x (1 + Line 3) x (1 + Line 4)		

## 15 **7.2.2 Capital Expenditures Forecast Outside the Formula**

16 The formula capital expenditures are adjusted to add in pension and OPEB expense, 17 expenditures for the PCB Compliance and AMI projects, and 2013 capital deferred as approved 18 by Order G-139-14. FBC has also added capital expenditures necessitated by wildfires in 19 FBC's service area during 2015 which qualify for exogenous treatment as discussed in Section 12 of the Application. The 2016 forecast amounts are shown in Table 7-3 below along with a 20 comparison to the 2015 approved and projected amounts.

<sup>&</sup>lt;sup>17</sup> In relation to the capital dead band, page 172 of the PBR Decision states "The Panel finds this an appropriate mitigation, providing the dead-band trigger results in a rebasing of the capital formula, and that in this eventuality, the rebased amount be applied to the subsequent year's formula." This was further clarified in Appendix A to Order G-120-15 on Page 17: "Where the dead band is exceeded for any year, FEI and FBC are directed in the next Annual Review filing to include recommendations as to any adjustment to base capital other than those driven by the 1-X mechanism."



#### 1

Line No.	Description	Approved 2015		Projected 2015		Forecast 2016	
1	Pension/OPEB (Capital Portion)	\$	4.253	\$	4.253	\$	3.674
2	PCB Compliance - Substations		0.200		0.493		-
3	Advanced Metering Infrastructure Project		28.139		27.767		1.327
4	Advanced Metering Infrastructure Radio-Off		-		0.498		0.073
5	2013 Deferred Capital		6.291		5.959		-
6	2015 Wildfire Damage		-		3.043		-
7	Forecast Capital Expenditures	\$	38.882	\$	42.012	\$	5.074

#### Table 7-3: 2016 Forecast Capital Expenditures (\$ millions)

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- 4 Each of the items forecast outside of the formula is described further below.
- The Pension and OPEB forecast of \$3.674 million represents the forecast capital portion
   of the total Pension and OPEB costs for 2016. These amounts are described in Section
   6.3.1.
- 8 The PCB Compliance – Substations project is a major non-recurring expenditure • 9 required to meet the requirements of federal regulation for the removal of substation 10 equipment with PCB concentrations exceeding 500 mg/kg and was approved by Orders G-195-10 and G-110-12. The 2015 projected expenditures of \$0.493 million are higher 11 12 than the 2015 Approved due to the identification of an additional site requiring 13 transformer bushing replacement that had not been identified when the 2015 forecast 14 was prepared. This PCB Compliance project will be completed in 2015 as planned. The 15 total project cost of \$24.700 million is lower than the original forecast of \$29.522 million, 16 as a result of lower material and construction costs and scope reductions where 17 conditions allowed.
- 18 FBC's AMI project was approved by Order C-7-13 with an estimated cost of \$50.898 million. Project components include the replacement of existing customer meters 19 20 (excluding certain Industrial customers) with AMI enabled meters and the installation of 21 the associated infrastructure to support the transmission of metering information from 22 the AMI meters to FBC. Actual expenditures to June 30, 2015 are \$38.946 million with 23 the balance of 2015 expenditures estimated to be \$9.149 million. The 2016 forecast 24 expenditures are \$1.327 million. The project will be complete during 2016 and is 25 expected to meet the approved costs. Capital costs associated with the radio-off option 26 discussed in Section 6.3.4 are forecast to be \$0.498 million in 2015 and \$0.073 million in 27 2016.
- 28 2013 Deferred Capital In 2013, FBC experienced a prolonged labour dispute between
   29 the Company and its IBEW employees. The labour disruption primarily impacted the
   30 generation, transmission and distribution areas where approved capital projects were



- unable to be completed during 2013. As a result and as approved by the Commission in
   Order G-139-14, FBC deferred \$37.539 million of its planned 2013 capital expenditures
   (including \$2.239 million of AMI expenditures planned for 2013) to 2014 and 2015. The
   Projected 2015 expenditures on this deferred capital are \$5.959 million which is lower
   than the Approved.
- 2015 Wildfire Damage In August 2015 FBC experienced significant damage to transmission and distribution facilities as a result of wildfires which occurred in a widespread portion of its service area, to an extent not previously experienced by the Company. The fire damage and restoration efforts are described below. As explained in Section 12.2.1, this event meets the Exogenous Factor criteria under the PBR Plan and FBC is therefore tracking the estimated \$3.043 million in capital expenditures required to repair the damage from these wildfires outside of the PBR formula.
- 13 On August 13, 2015 a large wildfire caused significant damage in the Rock 14 Creek/Westbridge area of the Boundary region. 30 customers lost their homes and due 15 to the nature of the damage, approximately 700 additional customers were left without 16 power. FBC operations staff activated a level 2 emergency in accordance with the 17 corporate emergency response plan and worked at finding a solution to restore power to 18 the affected customers and make repairs to the sections destroyed in the fire. A back-up 19 generator was brought in on August 15, restoring power to approximately 550 customers 20 and contractors and FBC crews worked around the clock, restoring the main section of 21 the line on August 21, allowing for the back-up generator to be decommissioned. All 22 remaining taps were completed by August 28.
- 23 During the course of the Rock Creek Wildfire, two other fires in the Oliver region caused 24 damage to electric distribution and transmission infrastructure. On August 14, the Wilson 25 Mountain Wildfire and the Testalinden Wildfire damaged two distribution lines and a 26 section of transmission line (43L). 55 customers lost power and the transmission line 27 was isolated and back-fed through an alternate source. Power was restored to these 28 customers on August 16 by way of a temporary line and contractors were able to rebuild 29 the transmission line by August 22. The distribution line feeding repeaters at the peak of 30 Kobau Mountain is yet to be rebuilt as of September 8, 2015, as crews have not been 31 allowed to access the line.
- FBC operations were once again on alert on August 26, as the Stickpin Wildfire burning in Washington State just south of the Canadian border threatened the communities of Grand Forks and Christina Lake. Activities included clearing vegetation around substations and poles, and having fire suppression equipment at the ready and crews on standby.
- The capital expenditures to respond to the wildfire events described above have been or will be incurred in 2015 and therefore are treated as an addition to the 2015 capital



expenditures forecast outside of the formula. Any variance from the projected costs as
 described above will be trued up for actual costs in future annual reviews.

# 3 7.3 2016 PLANT ADDITIONS

The 2016 Plant Additions are comprised of FBC's 2016 capital expenditures from section 7.2 above, the change in work in progress which adjusts for capital expenditures for projects such as those listed in Section 7.2 that are in progress at year end, plus the allowance for funds used during construction (AFUDC) and overhead capitalized for the year. A reconciliation of capital expenditures to plant additions is shown below and is also provided in Schedule 5 in Section 11.

9

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#### Table 7-4: Reconciliation of Capital Expenditures to Plant Additions

Line			
No.	Description		Reference
1	Formula Capital Expenditures	\$ 42.874	Table 7-2
2	Forecast Capital Expenditures	5.074	Table 7-3
3	Total Capital Expenditures	\$ 47.948	
4			
5	Capitalized Overhead	8.606	Table 6-1
6	Direct Overhead	5.000	
7	AFUDC	0.514	
8	Cost of Removal charged to Accumulated Depreciation	(2.528)	
9	Gross Capital Expenditure	59.540	
10	Change in Work in Progreas	0.058	Section 11, Sch. 5
11	2016 Plant Additions	\$ 59.598	

## 11 7.4 CONTRIBUTIONS IN AID OF CONSTRUCTION (CIAC)

Rate base is reduced by CIAC. Gross CIAC is composed of opening contributions plus additions during the year. 2016 CIAC additions are forecast at \$9.593 million. The year end CIAC balances net of accumulated amortization are \$105.594 million in 2015 (projected) and \$111.698 million forecast in 2016.

## 16 7.5 ACCUMULATED DEPRECIATION

The rate base of FBC includes the accumulated depreciation of plant in service, which isincreased through depreciation expense, and decreased through retirements.



- 1 The depreciation rates used for 2016 are the rates that have been proposed in Section 12.3.2
- 2 and set out in Table 12-2. Depreciation is calculated starting January 1 of the year after the
- 3 assets are placed in service, which is the treatment approved in Commission Order G-139-14.
- 4 Based on calculating depreciation expense at these proposed depreciation rates on the opening
- 5 plant-in-service balance, the 2016 depreciation expense is calculated as \$54.380 million.

## 6 7.6 RATE BASE DEFERRED CHARGES

7 The forecast mid-year balance of unamortized deferred charges in rate base for FBC is 8 approximately \$18.316 million in 2016 and this balance is driven largely by the balances in 9 deferral accounts for DSM, Pension and OPEB funding liability, deferred debt issue expense 10 and unamortized meter costs arising from the AMI project, which were deferred pursuant to 11 Order C-7-13. FBC is not proposing any new rate base deferral accounts for 2016.

Based on amortizing the opening deferral account balances using the approved amortization
 periods, the 2016 amortization expense for rate base deferral accounts is calculated as \$4.630
 million.<sup>18</sup>

## 15 7.7 WORKING CAPITAL

16 The working capital component of rate base is comprised of cash working capital and other 17 working capital.

18 Cash working capital is defined as the average amount of capital provided by investors in the

19 Company to bridge the gap between the time expenditures are required to provide service

20 (expense lag) and the time collections are received for that service (revenue lag).

The revenue lag associated with sales revenue is primarily a function of the frequency of billing. The majority of residential and commercial customers are currently being billed on a bi-monthly basis which corresponds with the bi-monthly manual meter reading schedule; following the completion of FBC's AMI project, the Company intends to offer a new billing option to provide customers with monthly billing based on verified meter reads. Depending on the number of customers choosing this option, the revenue lag component of working capital may be reduced. In its Decision and Order G-16-14 approving FBC's proposed AMI-Enabled Billing Options, the

28 Commission directed that FBC must flow through any incremental working capital benefits to

29 customers by way of the Flow-through deferral account approved in Order G-139-14.

FBC's revenue lag for each customer class is the sum (weighted by the relative proportion ofmonthly- to bimonthly-billed customers in the class) of:

<sup>&</sup>lt;sup>18</sup> Section 11; Schedule 11 Line 16 Column 6.



- The consumption lag, which is the number of days between the consumption of energy and the date the customer's meter is read or estimated;
- The processing lag, which is period between the date the customer meter is read or estimated and the date the bill to the customer is prepared; and
- The clearing lag, which is the period between the customer billing date and the when the funds are received from the customer<sup>19</sup>.

7 The impact on working capital of the AMI Project will be identified by changes in the proportion 8 of monthly to bi-monthly-billed customers. FBC has updated the lag days associated with sales 9 revenue based on the proportion of customers billed monthly and bi-monthly as of June 2015 in 10 order to identify future changes in monthly billings. The Company intends to offer the monthly 11 billing option identified in its AMI-Enabled Billing Options application beginning in 2016, once the 12 AMI installation phase is complete. Therefore, the impact on working capital for 2015 will be nil.

Other working capital includes the monthly averages of uncollectible accounts, inventory of
materials and supplies, and DSM and employee loans, less customer deposits and sales taxes.
Forecast values for these items, except for customer loans for DSM projects which are forecast
separately, are on a monthly average basis, based on 2015 actual amounts.

#### 17 **7.8** *SUMMARY*

FBC's rate base includes the impact of both formula-driven capital expenditures and those capital expenditures that are forecast outside of the formula, adjusted for work-in-progress, AFUDC and overheads capitalized. In addition, FBC has provided forecasts for all of its rate base deferral accounts in its financial schedules in Section 11. Finally, the rate base includes

base deferral accounts in its financial schedules in Section 11. Finally, the rate base includes other working capital, composed of customer deposits and loans and other smaller components.

<sup>19</sup> For example, the revenue lag shown in Section 11, Schedule 15, Line 3 Column 3 for the residential class, of which 13.5 percent are billed monthly and 86.5 percent bimonthly, is calculated as:

Concurrentian las	$= (0.425 \times 45.2 \text{ down}) + (0.005 \times 20.4 \text{ down})$	_	00.4
Consumption lag	= (0.135 x 15.2 days) + (0.865 x 30.4 days)	=	28.4
Processing lag		=	1.0
Clearing lag	= (0.135 x 17 days) + (0.865 x 22 days)	=	<u>21.3</u>
Total revenue lag		=	50.7

days



# 1 8. FINANCING AND RETURN ON EQUITY

#### 2 8.1 INTRODUCTION AND OVERVIEW

3 FBC has prepared this Application using its 2015 capital structure of 60 percent debt and 40 4 percent equity and a Return on Equity (ROE) of 9.15 percent as approved by Orders G-75-13 5 and G-47-14. FEI's ROE is the benchmark utility in BC, which in turn affects the ROE for FBC. 6 FEI will file its evidence on its capital structure and ROE for 2016 no later than November 30, 7 2015 as directed by the Commission. When a decision is reached on that application, which will 8 determine the benchmark utility ROE, FBC will update its rate calculations once the final 9 approved amounts have been determined. The 2016 forecast for financing costs, including the 10 interest expense on issued long and short-term debt, has been updated as described in Section 11 8.3 below. Based on the updated financing costs, FBC's AFUDC Rate for 2016 (which is equal 12 to its after-tax weighted average cost of capital) is 5.90 percent. Variances in the interest 13 expense recovered in rates will be recorded in the Flow-through deferral account for return to or 14 recovery from customers in the following year.

## 15 8.2 CAPITAL STRUCTURE AND RETURN ON EQUITY

The Company finances its investment in rate base assets with a mix of debt and equity, as approved by the Commission from time to time. Pursuant to Order G-75-13, the Commission approved a benchmark ROE of 8.75 percent for FEI, the benchmark utility in BC, effective January 1, 2013 until December 31, 2015, with an Automatic Adjustment Mechanism (AAM) in place. Order G-47-14 further approved a capital structure of 60.0 percent debt and 40.0 percent equity with an equity risk premium of 40 basis points over the benchmark ROE for FBC.

The AAM was not triggered for 2014 or 2015, such that the ROE percentage remained as approved in Orders G-75-13 and G-47-14. FBC has therefore prepared this Application using an ROE of 9.15 percent and a common equity percentage of 40 percent. As part of Order G-75-13, the Commission directed FEI as the benchmark utility to file a cost of capital application no later than November 2015, for determination of cost of capital for periods beyond December 31, 2015. The outcome of the cost of capital proceeding will be reflected in rates once the approved ROE for FBC has been determined.

## 29 8.3 FINANCING COSTS

Debt financing costs include the borrowing costs on issued debt as well as on new issuances
 that are forecast. Debt consists of both long-term debt and short-term (unfunded) debt.

#### 32 8.3.1 Long-term Debt

FBC is a public issuer of long-term debt. As part of the forecast for 2016 cost of debt, FBC has
 included the issuance of long-term debt of \$100 million during October 2016, at a rate of 4.6



percent for a term of 30 years, all of which has been embedded into the long-term Weighted Average Cost of Debt. The proceeds of this issuance are expected to be used to repay unfunded debt, as well as to repay the \$25 million Series H debenture with a coupon rate of 8.77 percent maturing in February 2016. The exact timing of the 2016 debt issuance will depend on future market conditions. Variances in interest expense related to the timing and amount of the issuances of the debt or the rates at which they are issued will be captured in the Flowthrough deferral account.

#### 8 8.3.2 Short-term Debt

9 FBC obtains short-term funding primarily through the issuance of Bankers' Acceptances and 10 prime lending rate margin loans, both drawn on its \$150 million operating credit facility, which 11 matures in May 2018. The operating credit facility, along with a \$10 million overdraft facility, 12 provide FBC with required liquidity should there be constraints issuing debt to fund FBC's 13 capital program and working capital requirements.

#### 14 8.3.3 Forecast of Interest Rates

FBC uses interest rate forecasts to estimate future interest expense. Forecasts of Treasury Bills and benchmark Government of Canada Bond interest rates are used in determining the overall interest rates for short-term debt and for rates on new issues of long-term debt, respectively. The forecasts are based on available projections made by Canadian Chartered banks.

Credit spreads on new long-term debt are based on current indicative rates, on the assumption that the current credit ratings of FBC are maintained. FBC currently expects to issue long term debt in 2016 for the repayment of maturing debt as well as other capital requirements. The estimated issue rate for 2016 is approximately 4.6 percent based on a 30 year GOC rate of 2.83 percent and an indicative spread of 1.74 percent.

- 25 FBC's short-term borrowing rate is based on the rate at which it issues Bankers' Acceptances (or the Canadian Dealer Offered Rate or CDOR) plus an Acceptance Fee Rate, and on the 26 27 Prime Lending Rate. Since CDOR is not forecast by economists, a forecast needs to be derived 28 by FBC; therefore, the Company must first obtain the 3-Month T-Bill rate forecast then convert it 29 to a CDOR forecast. FBC does this by taking the 3-year historical spread between CDOR and 30 the 3-month T-Bill rate. The Company then adds the Acceptance Fee Rate of 1.0 percent, 31 based on the pricing arising from the Company's April 2015 renewal of its operating credit 32 facility agreement and its current credit ratings.
- Also included in the Company's short-term interest rate are borrowings using the Prime Lending Rate. Based on the pricing arising from the April 2015 extension of FBC's operating credit facility agreement and its current credit ratings, there is no prime rate margin associated with Prime Rate Margin borrowings.
- 37 The short-term interest rate forecasts using current information are shown in Table 8-1 below.



Line No.	Description	Projected 2015	Forecast 2016
1	3 month T-Bills <sup>(1)</sup>	0.54%	0.70%
2	Spread to CDOR	0.31%	0.31%
3	Acceptance Fee Rate	1.00%	1.00%
4	Bankers' Acceptance Rate	1.85%	2.01%
5			
6	Prime Rate	2.72%	2.78%
7	Prime Rate Margin	0.00%	0.00%
8	Prime Lending Rate	2.72%	2.78%
9	<u> </u>		
10	Weighted Average Short-term Rate <sup>(2)</sup>	1.90%	2.10%
11			
12	add: Standby Fee on Undrawn Credit <sup>(3)</sup>	0.26%	0.14%
13	Short-term Interest Rate applied to debt balance	2.16%	2.24%
14	add: Financing fees <sup>(4)</sup>	0.53%	0.41%
15	FBC Short-term Interest Rate	2.69%	2.65%

#### Table 8-1: Short Term Interest Rate Forecast<sup>20</sup>

3 <u>Notes:</u> 4 <sup>1</sup> 3 Mc 5 for th

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- <sup>1</sup> 3 Month T-Bill rate for 2015 based on a composite of actual historical rates as at June 30, 2015 and forecast rates for the remainder of the year.
- 6 <sup>2</sup> Representative of the weighted average of BA rate and the Prime Lending Rate.
- Amounts undrawn on the credit facility are subject to a Standby fee, which is estimated to be 20 basis points in 2015 and 2016. The Standby Fee as shown reflects the amount payable had it been converted to a rate to be applied to the amount of operating credit facilities which has not been drawn upon through BAs and prime loans.

<sup>4</sup> Financing fees consist of banking agreement renewal fees, annual lender and agency fees, demand line interest
 and other minor interest charges such as interest due to customers on outstanding security deposits.

#### 12 8.3.4 Interest Expense Forecast

The interest expense forecast reflects FBC's existing and forecast borrowing costs on long-term
 debt and short-term debt.

S short-term interest expense is determined by applying the forecast short-term debt rate to the estimated short-term debt balance and then adding financing fees. Long-term debt interest expense is determined using the straight line method by multiplying the average balance of the specific debenture by the debt coupon rate, or forecast coupon rate, if it is a new issue. The

19 2016 long-term debt schedule for FBC can be found in Section 11, Schedule 27.

FBC's Flow-through deferral account captures the variances in interest expense for return to or recovery from customers in the following year.

<sup>&</sup>lt;sup>20</sup> The 2015 approved short term rate for FBC was 3.27%, inclusive of standby fees and financing fees.



## **1 8.3.5 Allowance for Funds Used During Construction (AFUDC)**

2 Based on the above information, FBC's AFUDC Rate for 2016 (which is equal to its after-tax

- 3 weighted average cost of capital) is 5.90 percent. The calculation of the rate is shown in the
- 4 following table.

5 FBC applies AFUDC to projects that are greater than 3 months in duration and greater than

- 6 \$100 thousand. Based on these criteria, the calculation of AFUDC for 2016 is as follows.
- 7

8

#### Table 8-2: Calculation of AFUDC Rate for 2016

Line			Pre-Tax	After-Tax
No.	Description	Weight	Rate	Rate
1	Short Term Debt	6.84%	2.65%	1.96%
2	Long Term Debt	53.16%	5.35%	3.96%
3	Common Equity	40.00%	12.36%	9.15%
4				
5	Weighted Average	100.00%	7.97%	5.90%

#### 9 8.4 SUMMARY

10 FBC's capital structure and ROE have been forecast for 2016 at the same percentages as

approved for 2015 and the ROE will be updated once a decision is reached on the benchmark

12 2016 ROE. FBC's financing costs on rate base are primarily determined by embedded rates on

13 long-term debt, with one maturity forecast to be refinanced at a lower rate in 2016, and short-

14 term debt rates remaining stable.



## 1 9. TAXES

#### 2 9.1 INTRODUCTION AND OVERVIEW

This section discusses FBC's forecasts of property taxes and income tax which have been forecast on a consistent basis with prior years. In 2016 property taxes are forecast to increase 13.0 percent from 2015 Approved, while income tax is forecast to increase by \$0.836 million or 12.5 percent compared to 2015 Approved. Any variances from the forecast of property taxes and income tax included in rates will be recorded in the Flow-through deferral account and returned to or collected from customers in the following year.

## 9 9.2 PROPERTY TAXES

Property taxes for 2016 of \$17.320 million incorporate Company forecasts of assessed values
of taxable assets, mill rates and taxes from revenues earned from electricity consumed within
municipalities. A breakdown of property taxes by asset type is provided in Table 9-1 below.

Table 9-1: Property Taxes (\$ millions)

Line No.	Description	Apj 2	oroved 2015	Pro 2	jected 015	Foi 2	recast 2016
1 2 3 4	Generating Plant Transmission and Distribution Substation Equipment	\$	2.982 6.278 3.600 0.705	\$	2.918 6.123 3.584 0.684	\$	2.995 8.052 3.651 0.707
5	In-Lieu		1.766		1.732		1.915
6	Total Property Taxes	\$	15.331	\$	15.041	\$	17.320
7							
8	Forecast Change from Approved 2015						13.0%
9	Forecast Change from Projected 2015						15.2%

13

#### 15

14

As shown in the table above, in 2016 property taxes are forecast to increase by 13.0 percent from 2015 Approved, and increase 15.2 percent compared to 2015 Projected. In general, the increase from 2015 Projected is due to increases to legislated transmission and distribution line rates, as well as increases to assessed property values from normal construction activities, market value increases and changes in tax policies of local taxing authorities. The most significant forecast drivers of the changes are as follows:

- 1. *Changes in Tax Rates.* Tax rates are based on FBC's average annual change in the tax rate applicable to FBC since 2012. On average:
- 24 a. Municipal rates are expected to increase by 2.7 percent;
- 25 b. School rates are expected to decrease by 1.6 percent;
- 26 c. Rural rates are expected to increase by 1.9 percent;



- d. Tax rates on First Nations are expected to increase 0.7 percent; and
  - e. Other rates are expected to increase by 1.7 percent
- 3

1 2

- 2. Changes in Revenues to Calculate Grants In-lieu of Taxes. Revenues reported to municipalities are expected to increase by 10.6 percent based on actual revenues to be reported. As grants in-lieu of taxes are based on a fixed percentage of revenues, the overall increase in revenues reported to municipalities increases the grants in-lieu of taxes due.
- 9 3. Changes in Assessed Values. Forecast changes in the assessed values of FBC's
   property are based on the increases that BC Assessment was proposing at the time the
   forecast was developed. These include:
- a. A 45.9 percent increase in assessed values for distribution lines and a 13.5
   percent increase in assessed values for transmission lines;
- b. A 2.32 percent increase in assessed values for generating facilities calculated
   using legislated cost manuals for valuing generating facilities;
- 16 c. A 1.97 percent increase in assessed values for substations calculated using
   17 legislated cost manuals for valuing substations; and
- 18 d. Land value changes which are expected to range from a 1.69 percent decrease
  19 in the assessed value for right of ways to a 2 percent increase in the market
  20 value for properties owned in fee simple.
- 21

Any variances from the forecast of property taxes included in rates will be recorded in the Flowthrough deferral account and returned to or collected from customers in the following year.

#### 24 9.3 INCOME TAX

FBC is subject to corporate income taxes imposed by the federal and BC governments. Current income taxes have been calculated using the flow-through (taxes payable) method, consistent with Commission-approved past practice, at the corporate tax rate of 26 percent for 2016, which is unchanged from 2015. The corporate tax rates used in this Application are based on the Canada Income Tax Act and the BC Income Tax Act enacted legislation and will be updated each year as part of the annual rate setting process.

Income tax is forecast to increase in 2016 by \$0.836 million or 12.5 percent compared to 2015 Approved. This increase is primarily due to an increase in overall revenues, a decrease in lower deductible temporary tax timing differences associated with capital cost allowance as compared to depreciation, a decrease in pension and OPEB contributions relative to the amount of pension and OPEB expense, and an increase in the amortization of deferral credits and flowthroughs owing back to customers.



- 1 Any variances from the forecast of income taxes included in rates will be recorded in the Flow-
- 2 through deferral account and returned to or collected from customers in the following year.

#### 3 9.4 *Summary*

- 4 FBC has forecast its property and income taxes on a basis consistent with prior years, utilizing
- 5 enacted legislation for income taxes and forecast changes for property tax rates and 6 assessments.



## 1 10. EARNINGS SHARING

2 The PBR Decision (at pages 120-121) stated that the inclusion of a symmetric earnings sharing 3 is beneficial to both FBC and its customers and approved an earnings sharing mechanism 4 where gains and losses are shared equally between FBC and customers. As described below, 5 FBC proposes to distribute \$0.393 million in earnings sharing to customers as a reduction in 6 2016 revenue requirements. This amount is then adjusted for the earned return variance for 7 2014 on capital expenditures of \$0.001 million, and any difference between the 2014 projected and actual earnings sharing (there is no difference for 2014<sup>21</sup>), for a total earnings sharing 8 9 distribution in 2016 of \$0.392 million.

As set out in FBC's letter dated November 7, 2014 in response to Order G-163-14 and as approved by Order G-107-15 for FBC's Annual Review for 2015 Rates, the earnings sharing is calculated each year as one-half of the pre-tax earnings impact of the variances in the formuladriven gross O&M and cumulative capital expenditures, as follows:

14 Formula-driven O&M less actual base O&M<sup>22</sup> x 50% +

15 ((Cumulative formula-driven capital expenditures less cumulative actual base capital
 16 expenditures<sup>23</sup>) x equity percentage x approved return on equity x 50%) divided by (1 –
 17 the tax rate)

As discussed in Section 1.4, FBC is projecting 2015 formula-driven O&M savings at \$0.983
 million, and 2015 capital expenditures in excess of the formula by \$3.213 million<sup>24</sup>.

20 In addition, as set out in Order G-15-15 in relation to formula capital expenditures, "FEI and FBC 21 are approved to recover the variance in earned return driven by the use of prior year customer 22 additions for the growth term when compared to the actual customer additions. This positive or 23 negative variance in earned return resulting from the Growth Term shall be recovered from or 24 returned to customers in the subsequent year through the earnings sharing mechanism." FBC 25 has calculated the resulting adjustment for 2014 as shown in Table 10-1 below based on its 26 actual customer additions, and has included the amount in the earnings sharing calculation as 27 shown in line 41 of Table 10-2 below.

<sup>&</sup>lt;sup>21</sup> FBC's actual formula capital expenditures differed from the amount included in the Compliance Filing by \$0.014 million, which has no impact on the ESM calculation. The O&M variance was unchanged from the Compliance Filing.

<sup>&</sup>lt;sup>22</sup> Excluding items that are reforecast outside of the formula.

 $<sup>^{\</sup>rm 23}\,$  lbid .

<sup>&</sup>lt;sup>24</sup> \$4.003 million cumulative capital expenditure variance.



#### 1 Table 10-1: Calculation of Earnings Sharing Adjustment for Actual Customer Growth (\$ millions)

Line				
No.	Description			Reference
1	Average Customers 2014		129,525	
2	Average Customers 2013		128,585	
3	Growth in Average Customers		940	Line 1 - Line 2
4	Average Customer Growth		0.731%	Line 3 / Line 2
5			50%	G-139-14
6	Average Customer Growth to be recast in Formula		0.366%	
7	Net Inflation Factor		0.430%	G-139-14
8	2013 Base Capital	\$	41.875	G-139-14
9	2014 Reforecast Formulaic Capital	\$	42.209	Line 8 x (1 + Line 7) x (1 + Line 6)
10	2014 Year Formulaic Capital	\$	42.193	G-139-14
11				
12	Increase in Capital Requirements from Actual Growth	\$	0.016	Line 9 - Line 10
13	Mid-Year	\$	0.008	Line 12 / 2
14				
15	Equity Cost Component		3.66%	G-139-14
16	Debt Cost Component		3.54%	G-139-14
17	Earned Return on Incremental Capital Requirements	\$	0.001	Line 13 x (line 15 + Line 16)
		_		

#### 2

3 The earnings sharing calculation including all the components discussed is projected at \$0.392

4 million, calculated as set out in Table 10-2 below.



1

\_

#### Table 10-2: Calculation of Earnings Sharing to be Returned in 2016 (\$ millions)

Line			
No.	Description		Reference
1	Approved Formula O&M	\$ 52.984	G-139-14
2	Actual/Projected Gross O&M	58.230	
4			
5	Less: O&M Tracked Outside of Formula		
6	Pension/OPEB (O&M Portion)	3.925	
7	Insurance Premiums	1.334	
8	Advanced Metering/Infrastructure Costs/Savings	0.452	
9	Advanced Metering/Infrastructure Radio-Off	0.168	
10	2015 MRS Audit	0.350	
11	Total	6.229	Sum of Lines 6 - 10
12			
13	Actual/Projected Base O&M	52.001	Line 3 - Line 11
14			
15	O&M Subject to Sharing	 (0.98 <u>3</u> )	Line 13 - Line 1
16			
17			
18	Cumulative Formula Capital Expenditures	84.577	G-139-14
19	Ourse define Tatal Desuder Conital Fundaditures	00.000	
20	Cumulative Total Regular Capital Expenditures	99.229	
21	Less: Canital Expenditures Tracked Outside of Formula		
23	Cumulative Pension and OPEB	10.649	
24			
25	Actual/Projected Base Capital Expenditures	88.580	Line 20 - Line 23
26			
27	Actual Base Capital Expenditure Variance	4.003	Line 25 - Line 18
28	Equity Component of Rate Base	40.00%	G-139-14
29	Approved Return on Equity	 9.15%	G-75-13/G-47-14
30	After Tax Capital Expenditures Subject to Sharing	0.147	Product of Lines 27, 28 & 29
32	Tax Rate	26.00%	G-139-14
33		20.0070	0 100 14
34	Before Tax Capital Expenditures Subject to Sharing	0.198	Line 30 ÷ (1 - Line 32)
35			
36	Total Before Tax Sharing Account	(0.785)	Line 15 + Line 34
37	Sharing Percentage	50.00%	G-139-14
38		<i>(</i> <b>- - - - )</b>	
39	Earnings Sharing Before Adjustments	(0.393)	Line 36 x Line 37
40	Actual Customer Growth Adjustment	0.001	Line 20 L Line 17
4⊺ ⊿2	2013 Earnings Sharing	(0.392)	
43	2014 Pre-Tax Earnings Sharing True-Un	-	
44	2016 Pre-Tax Amortization	(0.392)	Line 41 + Line 43
45	2016 After-Tax Amortization	 (0.290)	Sch 12 Line 21 Col 6

2



- 1 FBC proposes to distribute \$0.392 million to customers in 2016 as a reduction in 2016 revenue
- 2 requirements through amortization of the projected 2016 opening after-tax balance of \$0.290
- 3 million in the Earnings Sharing deferral account.
- 4 As part of the Annual Review for 2017 rates, the earnings sharing for 2015 will be subject to a
- 5 true-up. This true-up will account for the actual O&M and capital expenditure amounts for 2015,
- 6 as well as impacts, if any, associated with non-performance of Service Quality Metrics, based
- 7 on final 2015 results.



# 1 11. FINANCIAL SCHEDULES

Description	Schedule Reference
Summary Of Pate Change	1
Bate Base	I
Litility Pato Paco	2
Clility Rate Dase	2
Capital Expanditures	J 4
Capital Expenditures To Plant Personalitation	4
Plant In Service Centinuity Schedule	5
Accumulated Depreciation Continuity Schedule	0
Schedule Net Applicable to EartiaRC Inc	/ 0
Schedule Not Applicable to Fontisbe Inc.	0
Schedule Net Applicable to EartisPC Inc.	9
Schedule Not Applicable to Fortise Inc.	10
Unamortized Deferred Charges And Amortization - Rate Dase	11
Marking Capital Allowance	12
Coop Working Copital	13
Casil Working Capital Schodule Net Applicable to FortioDC Inc	14
Schedule Not Applicable to FortiSBC Inc.	15
	10
	10
Cost Of Energy	17
Volume And Revenue	18
Revenue At Existing And Revised Rates	19
Other Revenue	20
Operating And Maintenance Expense	21
Depreciation And Amortization Expense	22
Property And Sundry Taxes	23
Income Taxes	24
Capital Cost Allowance	25
Return On Capital	26
Embedded Cost Of Long Term Debt	27

#### FORTISBC INC.

#### September 11, 2015

Section 11

Schedule 1

#### SUMMARY OF RATE CHANGE FOR THE YEAR ENDING DECEMBER 31, 2016 (\$000,000s)

Line		2016		
No.	Particulars	Forecast		Cross Reference
	(1)	(2)	(3)	(4)
1	VOLUME/REVENUE RELATED			
2	Customer Growth and Volume	(8.622)		
3	Change in Other Revenue	0.095	(8.527)	
4			. ,	
5	POWER SUPPLY			
6	Power Purchases (net of customer growth and volume)	16.070		
7	Water Fees	0.495		
8	Wheeling	0.030	16.595	
9				
10	O&M CHANGES			
11	Gross O&M Change	(1.720)		
12	Capitalized Overhead Change	0.258	(1.462)	
13				
14	DEPRECIATION EXPENSE	(2, 700)		
15	Depreciation Rate Change (Depreciation Study)	(3.700)	(0.070)	
10	Depreciation from Net Additions	2.721	(0.979)	
18	AMORTIZATION EXPENSE			
10	CIAC Rate Change (Depreciation Study)	(0,800)		
20	CIAC from Net Additions	(0.800)		
21	2005 Rate Stabilization Adjustment	(0.311)		
22	Deferrals	(2.216)	(2.311)	
23	Doronaio	(2:2:0)	(2.011)	
24	FINANCING AND RETURN ON EQUITY			
25	Financing Rate Changes	(1.447)		
26	Financing Ratio Changes	(0.484)		
27	Rate Base Growth	2.588	0.657	
28			0.001	
29	TAX EXPENSE			
30	Property and Other Taxes Changes	1.989		
31	Other Income Taxes Changes	0.837	2.824	
32	je i na se i na		-	
33				
34	Revenue Deficiency (Surplus)	\$	6.797	Schedule 16, Line 7, Column 4
35				
36	Revenue at Existing Rates		343.152	Schedule 16, Line 7, Column 3
37	Rate Change		1.98%	
Line No.

1

2 3

4

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7 8

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Working Capital

Mid-Year Utility Rate Base

Utility Plant Acquistion Adjustment

2005 Rate Stabilization Adjustment

Particulars	 2015 Approved	at	2016 Revised Rates	Change	Cross Reference
(1)	(2)		(3)	(4)	(5)
Plant in Service, Beginning Opening Balance Adjustment	\$ 1,785,587 -	\$	1,866,055	\$ 80,468	Schedule 6.1, Line 14, Column 3
Net Additions	 80,374		54,398	(25,976)	Schedule 6.1, Line 14, Column 4+5+6
Plant in Service, Ending	 1,865,961		1,920,453	54,492	
Accumulated Depreciation Beginning Opening Balance Adjustment	\$ (470,087)	\$	(507,239)	\$ (37,152)	Schedule 7.1, Line 15, Column 5
Net Additions	(37,922)		(46,652)	(8,730)	Schedule 7.1, Line 15, Column 6+7+8
Accumulated Depreciation Ending	 (508,009)		(553,890)	(45,881)	
CIAC, Beginning Opening Balance Adjustment	\$ (157,666) -	\$	(166,764)	\$ (9,098)	Schedule 9, Line 1, Column 2
Net Additions	(6,287)		(9,593)	(3,306)	Schedule 9, Line 1, Column 4
CIAC, Ending	 (163,953)		(176,357)	(12,404)	
Accumulated Amortization Beginning - CIAC Opening Balance Adjustment	\$ 57,088 -	\$	61,171	\$ 4,083	Schedule 9, Line 3, Column 2
Net Additions	 3,705		3,489	(216)	Schedule 9, Line 3, Column 4
Accumulated Amortization Ending - CIAC	 60,793		64,660	3,867	
Net Plant in Service, Mid-Year	\$ 1,234,857	\$	1,254,044	\$ 19,187	
Adjustment for timing of Capital additions Capital Work in Progress, No AFUDC	\$ (11,812) 7,916 9.826	\$	- 6,532 18 316	\$ 11,812 (1,383) 8 490	Schedule 11 Line 16 Column 8
onanonized belence onalges	3,020		10,510	0,730	

2,111

5,865

-

1,286,868 \$

125

(186)

(156)

37,890

Schedule 13, Line 15, Column 3

1,986

6,051

1,248,978 \$

\$

156

September 11, 2015

Section 11

Schedule 2

Section 11

Schedule 3

### FORMULA INFLATION FACTORS FOR THE YEAR ENDING DECEMBER 31, 2016 (\$000s)

Line						
No.	Particulars	Reference	2014	2015	2016	Cross Reference
	(1)	(2)	(3)	(4)	(5)	(6)
1	Formula Cost Drivers					
2	CPI		0.473%	0.879%	0.980%	
3	AWE		2.277%	1.646%	2.050%	
4	Labour Split					
5	Non Labour		45.000%	45.000%	45.000%	
6	Labour		55.000%	55.000%	55.000%	
7	CPI/AWE	(Line 2 x Line 5) + (Line 3 x Line 6)	1.460%	1.301%	1.569%	
8	Productivity Factor		-1.030%	-1.030%	-1.030%	
9	Net Inflation Factor for Costs	Line 7 + Line 8	0.430%	0.271%	0.539%	
10						
11	Average Customer Growth		0.326%	0.181%	0.613%	
12	Inflation Factor	(1 + Line 9) x (1 + Line 11)	100.758%	100.452%	101.155%	

## September 11, 2015

Section 11

Schedule 4

## CAPITAL EXPENDITURES FOR THE YEAR ENDING DECEMBER 31, 2016 (\$000s)

Line			Forecast		Total	
No.	Particulars	CapEx	CapEx		CapEx	Cross Reference
	(1)	(2)	(3)		(4)	(5)
1	<u>2013</u>					
2	Base	\$ 41,875				
3	<u>2014</u>					
4	Net Inflation Factor	100.758%				Schedule 3, Line 12, Column 3
5	Formula Capex	 42,193				
6	<u>2015</u>					
7	Net Inflation Factor	 100.452%				Schedule 3, Line 12, Column 4
8	Formula Capex	 42,384				
9	<u>2016</u>					
10	Net Inflation Factor	 101.155%				Schedule 3, Line 12, Column 5
11	Formula Capex	\$ 42,874		\$	42,874	
12						
13	Capital Tracked Outside of Formula					
14	Pension & OPEB (Capital Portion)	0	<b>3</b> ,6	74		
15	Advanced Metering Infrastructure Project		1,3	27		
16	Advanced Metering Infrastructure Radio-Off		·	73		
17	Total	9	5,0 <sup>°</sup>	74 \$	5,074	
18						
19	Total Capital Expenditures before CIAC			\$	47,948	

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Schedule 5

Section 11

#### CAPITAL EXPENDITURES TO PLANT RECONCILIATION FOR THE YEAR ENDING DECEMBER 31, 2016 (\$000s)

Line			2016	
No.	Particulars		Formula	Cross Reference
	(1)		(2)	(3)
1	CAPITAL EXPENDITURES			
2				
3	Formula Capital Expenditures	\$	42,874	Schedule 4, Line 11, Column 4
4	Forecast Capital Expenditures		3,674	Schedule 4, Line 14, Column 3
5	Total Regular Capital Expenditures	\$	46,548	
6				
7	Special Projects and CPCNs			
8				
9	Advanced Metering Infrastructure Project	\$	1,400	Schedule 4, Line 15+16, Column 3
10	Special Projects and CPCNs	\$	1,400	
11				
12	Total Capital Expenditures	\$	47,948	
13				
14				
15	RECONCILIATION OF CAPITAL EXPENDITURES TO	O PLANT		
16				
17	Regular Capital Expenditures	\$	46,548	
18	Add - Capitalized Overheads		8,574	Schedule 21, Line 25, Column 4 - Schedule 5 Line 28 Column 2
19	Add - Direct Overheads		5,000	
20	Add - AFUDC		480	
21	Less: Removal costs		(2,528)	
22	Gross Capital Expenditures		58,074	
23	Change in Work in Progress	-	-	
24	Total Additions to Plant	\$	58,074	
25	Sussial Prejects and CDCNs			
20	Advanced Materia a lafa structure Designt	¢	4 400	
27	Advanced Metering Infrastructure Project	\$	1,400	
20			3Z 24	
29	Add - AFODC		- 34	
30	Gross Capital Expenditures		1 /66	
32	Change in Work in Progress		1, <del>4</del> 00 58	
33	Total Additions to Plant	\$	1 524	
34		Ψ	1,024	
35	Grand Total Additions to Plant	\$	59,598	

Line													
No.	Account	Particulars	·	12-31-15		CPCNs		Additions	F	Retirements	12-31-1	16	Cross Reference
	(1)	(2)		(3)		(4)		(5)		(6)	(7)		(8)
4		Hudroulia Draduction Diant											
1	220	Hydraulic Production Plant	¢	000	¢		¢		¢		<u>ም</u>	000	
2	330	Land Rights	\$	962	\$	-	\$	-	\$	-	\$	962	
3	331	Structures and Improvements		15,191		-		345		(10)	15	5,526	
4	332	Reservoirs, Dams & Waterways		33,123		-		840		(30)	33	3,933	
5	333	Water Wheels, Turbines and Gen.		96,815		-		43		-	96	5,858	
6	334	Accessory Equipment		43,030		-		388		(390)	43	3,027	
7	335	Other Power Plant Equipment		45,510		-		539		(130)	45	5,918	
8	336	Roads, Railroads and Bridges		1,287		-		-		-		1,287	
9			\$	235,917	\$	-	\$	2,154	\$	(560)	\$ 237	7,511	
10		Transmission Plant											
11	350	Land Rights-R/W	\$	9,010	\$	-	\$	-	\$	-	\$9	9,010	
12	350.1	Land Rights-Clearing		8,240		-		-		-	8	3,240	
13	353	Station Equipment		192,316		-		13,388		(200)	205	5,503	
14	355	Poles Towers & Fixtures		104,918		-		3,397		(90)	108	3,225	
15	356	Conductors and Devices		100,492		-		2,797		(120)	103	3,170	
16	359	Roads and Trails		1,121		-		-		-		1,121	
17			\$	416,098	\$	-	\$	19,582	\$	(410)	\$ 435	5,270	
18		Distribution Plant										-	
19	360	Land Rights-R/W	\$	4,576	\$	-	\$	-	\$	-	\$ 4	4,576	
20	360.1	Land Rights-Clearing		10,456		-		-		-	10	0,456	
21	362	Station Equipment		272,636		-		-		(340)	272	2,296	
22	364	Poles Towers & Fixtures		198,140		-		18,793		(580)	216	5,353	
23	365	Conductors and Devices		295,610		-		5,610		(600)	300	0,620	
24	368	Line Transformers		134,440		-		2,805		(1,290)	135	5.955	
25	369	Services		9,521		-		-		-	ç	9,521	
26	370	Meters		100		-		-		-		100	
27	370.1	AMI Meters		35,090		624		841		-	36	5,556	
28	371	Installation on Customers' Premises		938		-		-		-		938	
29	373	Street Lighting and Signal System		12.071		-		-		(70)	12	2.001	
30			\$	973,580	\$	624	\$	28,049	\$	(2,880)	\$ 999	9,372	

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Section 11

Schedule 6

Section 11

Schedule 6.1

#### PLANT IN SERVICE CONTINUITY SCHEDULE FOR THE YEAR ENDING DECEMBER 31, 2016 (\$000s)

Line										
No.	Account	Particulars	12-31-15		CPCNs	Additions	F	Retirements	12-31-16	Cross Reference
	(1)	(2)	(3)		(4)	(5)		(6)	(7)	(8)
1		General Plant								
2	389	Land	\$ 11,636	\$	-	\$ 400	\$	-	\$ 12,035	
3	390	Structures - Frame & Iron	337		-	-		-	337	
4	390.1	Structures - Masonry	44,506		-	710		-	45,216	
5	391	Office Furniture & Equipment	6,753		-	158		-	6,911	
6	391.1	Computer Equipment	93,692		363	4,102		(110)	98,048	
7	391.2	AMI Software	9,974		471	-		-	10,445	
8	392	Transportation Equipment	25,412		-	1,972		(1,170)	26,214	
9	394	Tools and Work Equipment	13,634		-	710		(70)	14,274	
10	397	Communication Structures & Equipment	29,024		-	237		-	29,260	
11	397.1	AMI Communications Structure & Equipment	 5,493		66	-		-	5,559	
12			\$ 240,460	\$	900	\$ 8,289	\$	(1,350)	\$ 248,299	
13										
14		Total Plant in Service	\$ 1,866,055	\$	1,524	\$ 58,074	\$	(5,200)	\$ 1,920,453	
15										
16		Cross Reference		S	chedule 5	Schedule 5				
					Line 33	Line 24				
					Column 2	Column 2				

#### ACCUMULATED DEPRECIATION CONTINUITY SCHEDULE FOR THE YEAR ENDING DECEMBER 31, 2016 (\$000s)

Line	•		Gro	ss Plant for	Depreciation			Depreciation	۱		C	Cost of				
No.	Accoun	t Particulars	De	epreciation	Rate	1	2-31-15	Expense	F	Retirements	R	emoval	Adjustments		12-31-16	Cross Reference
	(1)	(2)		(3)	(4)		(5)	(6)		(7)		(8)	(9)		(10)	(11)
1		Hydraulic Production Plant														
2	330	Land Rights	\$	962	2.6%	\$	(513)	\$ 2	5 \$	-	\$	- 9	s -	\$	(488)	
3	331	Structures and Improvements	Ψ	15 191	1.3%	Ψ	5 203	φ <u>-</u> 19	φ 6	(10)	Ψ	(15)	-	Ψ	5 373	
4	332	Reservoirs Dams & Waterways		33 123	1.8%		6 1 1 7	59	n	(30)		(38)	-		6,639	
5	333	Water Wheels Turbines and Gen		96 815	1.8%		13 206	1 73	3	(00)		(2)	-		14 937	
6	334	Accessory Equipment		43.030	2.3%		9.603	.,	1	(390)		(17)	-		10,177	
7	335	Other Power Plant Equipment		45,510	2.1%		13,192	93	3	(130)		(24)	-		13,971	
8	336	Roads, Railroads and Bridges		1.287	1.5%		344	1	9	-		-	-		363	
9			\$	235,917		\$	47,151	\$ 4,47	7 \$	(560)	\$	(97) \$	6 -	\$	50,971	
10		Transmission Plant		,	•		,	. ,		× /		( ) -			<u> </u>	
11	350	Land Rights-R/W	\$	9,010	0.0%	\$	(183)	\$-	\$	-	\$	- 9	- 6	\$	(183)	
12	350.1	Land Rights-Clearing		8,240	1.2%		1,933	10	1	-		-	-		2,034	
13	353	Station Equipment		192,316	2.5%		62,760	4,71	2	(200)		(846)	-		66,426	
14	355	Poles Towers & Fixtures		104,918	2.5%		23,330	2,65	4	(90)		(215)	-		25,679	
15	356	Conductors and Devices		100,492	2.5%		17,084	2,53	2	(120)		(177)	-		19,320	
16	359	Roads and Trails		1,121	2.9%		240	3	2	-		-	-		272	
17			\$	416,098		\$	105,164	\$ 10,03	1 \$	(410)	\$	(1,238) \$	6 -	\$	113,547	
18		Distribution Plant														
19	360	Land Rights-R/W	\$	4,576	0.0%	\$	-	\$-	\$	-	\$	- 9	- 6	\$	-	
20	360.1	Land Rights-Clearing		10,456	1.2%		1,950	12	9	-		-	-		2,079	
21	362	Station Equipment		272,636	2.6%		53,331	7,00	7	(340)		-	-		59,998	
22	364	Poles Towers & Fixtures		198,140	2.7%		48,582	5,29	0	(580)		(752)	-		52,540	
23	365	Conductors and Devices		295,610	2.9%		80,602	8,54	3	(600)		(225)	-		88,321	
24	368	Line Transformers		134,440	2.7%		28,911	3,68	4	(1,290)		(112)	-		31,193	
25	369	Services		9,521	0.5%		6,601	4	В	-		-	-		6,649	
26	370	Meters		100	6.7%		54		7	-		-	-		61	
27	370.1	AMI Meters		35,090	5.0%		407	1,75	5	-		-	-		2,162	
28	371	Installation on Customers' Premises		938	0.0%		938	-		-		-	-		938	
29	373	Street Lighting and Signal System		12,071	4.7%		2,628	56	1	(70)		-	-		3,119	
30			\$	973,580		\$	224,005	\$ 27,02	4 \$	(2,880)	\$	(1,089) \$	-	\$	247,060	

Section 11

Schedule 7

#### ACCUMULATED DEPRECIATION CONTINUITY SCHEDULE FOR THE YEAR ENDING DECEMBER 31, 2016 (\$000s)

Line		Gro	oss Plant for	Depreciation	[	Depreciation			(	Cost of				
No. Accourt	t Particulars	D	epreciation	Rate	12-31-15	Expense	Re	etirements	R	Removal	Adjustmen	IS	12-31-16	Cross Reference
(1)	(2)		(3)	(4)	(5)	(6)		(7)		(8)	(9)		(10)	(11)
1	General Plant													
2 389	Land	\$	11,636	0.0%	\$ (11) \$	; -	\$	-	\$	- \$		-	\$ (11)	
3 390	Structures - Frame & Iron		337	0.6%	281	2		-		-		-	283	
4 390.1	Structures - Masonry		40,730	2.8%	13,846	1,128		-		-		-	14,974	
5 390.1	Leasehold Improvements		3,776	various	3,374	28		-		-		-	3,402	
6 391	Office Furniture & Equipment		6,753	1.7%	5,537	113		-		-		-	5,650	
7 391.1	Computer Equipment		93,692	7.2%	70,418	6,755		(110)		-		-	77,063	
8 391.2	AMI Software		9,974	10.0%	617	997		-		-		-	1,614	
9 392	Transportation Equipment		25,412	6.0%	8,210	1,527		(1,170)		(105)		-	8,462	
10 394	Tools and Work Equipment		13,634	2.5%	10,297	339		(70)		-		-	10,566	
11 397	Communication Structures & Equipment		29,024	5.5%	18,198	1,593		-		-		-	19,791	
12 397.2	AMI Communications Structure & Equipment		5,493	6.7%	152	366		-		-		-	518	
13		\$	240,460	-	\$ 130,918 \$	12,848	\$	(1,350)	\$	(105) \$		-	\$ 142,312	
14				-										
15 108	Total Accumulated Depreciation	\$	1,866,055	2.9%	\$ 507,239 \$	54,380	\$	(5,200)	\$	(2,528) \$		-	\$ 553,890	
16				•										
17	Cross Reference		Schedule 6.1											
			Line 14											
			Column 3											

September 11, 2015

Section 11

Schedule 7.1

Section 11

Schedule 8

THIS SCHEDULE NOT APPLICABLE TO FORTISBC INC.

Section 11

Schedule 9

#### CONTRIBUTIONS IN AID OF CONSTRUCTION CONTINUITY SCHEDULE FOR THE YEAR ENDING DECEMBER 31, 2016 (\$000s)

Line No.	Particulars	1	2-31-15	Ac	ljustment	Д	Additions	Re	tirements	1	12-31-16	Cross Reference
	(1)		(2)		(3)		(4)		(5)		(6)	(7)
1 <b>CIAC</b>		\$	166,764	\$	-	\$	9,593	\$	-	\$	176,357	
2 3 Amortiza	tion		(61,171)		-		(3,489)		-		(64,660)	
4 5 Net CIAC		\$	105,594	\$	-	\$	6,104	\$	-	\$	111,698	

Section 11

Schedule 10

THIS SCHEDULE NOT APPLICABLE TO FORTISBC INC.

Section 11

Schedule 11

#### UNAMORTIZED DEFERRED CHARGES AND AMORTIZATION - RATE BASE FOR THE YEAR ENDING DECEMBER 31, 2016 (\$000s)

Line				Op	pening Bal./	(	Gross		Less	Ar	nortization			Mid-Year	
No.	Particulars	1	2-31-15	T	ransfer/Adj.	A	dditions		Taxes	I	Expense	12	2-31-16	Average	Cross Reference
	(1)		(2)		(3)		(4)		(5)		(6)		(7)	 (8)	(9)
1 2 3	Energy Policy Demand Side Management	\$	21,099 21,099	\$	-	\$ \$	10,176 10,176	\$ \$	(2,646)	\$ \$	(3,003)	\$	25,626 25,626	\$ <u>23,363</u> 23,363	
4															
5	Preliminary and Investigative Charges														
6	Preliminary and Investigative Charges	\$	150	\$	-	\$	-	\$	-	\$	-	\$	150	\$ 150	
7		\$	150	\$	-	\$	-	\$	-	\$	-	\$	150	\$ 150	
8														 	
9	Other														
10	Right of Way Reclamation (Pine Beetle Kill)	\$	519	\$	-	\$	-	\$	-	\$	(173)	\$	346	\$ 433	
11	Deferred Debt Issue Costs		3,946		-		1,538		(173)		(161)		5,150	4,548	
12	Accounting Treatment of non-AMI Meters		6,711		-		-		-		(1,293)		5,418	6,064	
13	Pemsion and OPEB Liability		(15,982)		-		(518)		-		-		(16,500)	(16,241)	
14		\$	(4,807)	\$	-	\$	1,020	\$	(173)	\$	(1,627)	\$	(5,587)	\$ (5,197)	
15									. /						
16	Total Rate Base Deferral Accounts	\$	16,442	\$	-	\$	11,196	\$	(2,818)	\$	(4,630)	\$	20,190	\$ 18,316	

Section 11

Schedule 12

#### UNAMORTIZED DEFERRED CHARGES AND AMORTIZATION - NON-RATE BASE FOR THE YEAR ENDING DECEMBER 31, 2016 (\$000s)

Line				Ope	ening Bal./	Ģ	Gross	L	ess	Amo	ortization			N	1id-Year	
No.	Particulars	1	2-31-15	Tra	ansfer/Adj.	Ad	lditions	Ta	axes	E>	xpense	12	-31-16	A	verage	Cross Reference
	(1)		(2)		(3)		(4)		(5)		(6)		(7)		(8)	(9)
1	Deferral Accounts Financed at Short Term Interest Rate															
2																
3	Revenue and Power Supply <sup>(1)</sup>															
4	Revenue and Power Supply Variances	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	
5		\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	
6																
7	Flow-Through Accounts															
8	2015 Flow-Through Accounts	\$	(1,536)	\$	-	\$	-	\$	-	\$	1,536	\$	-	\$	(768)	
9		\$	(1,536)	\$	-	\$	-	\$	-	\$	1,536	\$	-	\$	(768)	
10																
11	Non-Controllable Items															
12	Pension & Other Post Retirement Benefits (OPEB) Variance	\$	412	\$	-	\$	-	\$	-	\$	(1,243)	\$	(831)	\$	(209)	
13		\$	412	\$	-	\$	-	\$	-	\$	(1,243)	\$	(831)	\$	(209)	
14																
15	Regulatory Compliance	•		•		•		•		•	(000)	•	70.4	•		
16	2014-2019 Performance Based Ratemaking Application	\$	994	\$	-	\$	-	\$	-	\$	(260)	\$	734	\$	864	
17	2015-2019 Annual Reviews	<u>_</u>	237	¢	-	¢	100	¢	(26)	¢	(237)	ሱ		<b>^</b>	156	
18		\$	1,231	\$	-	Ф	100	Þ	(26)	\$	(497)	\$	808	\$	1,020	
19	Othor															
20	2014-2019 Earnings Sharing Account	¢	(200)	¢	_	¢	_	¢	_	¢	200	¢	_	¢	(145)	
21	2014 Interim Rate Variance	φ	(230)	Ψ	_	Ψ	-	ψ	-	φ	6 201	φ (1	-	φ	(143)	
23		\$	(17,837)	\$	-	\$		\$	-	\$	6 4 9 1	\$(1	11 346)	\$	(14,592)	
24		Ψ	(11,001)	Ψ		Ψ		Ψ		Ψ	0,101	Ψ(	11,010)	Ψ	(11,002)	
25	Residual															
26	BC Hydro Application for Power Purchase Agreement with FBC	\$	76	\$	-	\$	-	\$	-	\$	(76)	\$	-	\$	38	
27	2015-2016 DSM Plan Application		(1)		-		-		-		<u>`</u> 1		-		-	
28	Residual Capacity Agreement Application		4		-		-		-		(4)		-		2	
29	Capacity and Energy Sale and Purchase Agreement with Powerex		121		-		-		-		(121)		-		61	
30		\$	200	\$	-	\$	-	\$	-	\$	(200)	\$	-	\$	100	
31																
32																
33	Total Deferral Accounts at Short Term Interest	\$	(17,530)	\$	-	\$	100	\$	(26)	\$	6,088	\$(1	11,368)	\$	(14,449)	
34																
35	Financing Costs at STI	\$	(367)			\$	(307)	\$	80	\$	367	\$	(227)	\$	(297)	
36																

37 <sup>(1)</sup> Revenue and Power Supply Variances are included in the Flow-Through Accounts during the PBR Term.

38

39 Note: FBC has restated its non-rate base deferral account presentation compared to the Annual Review for 2015 Rates. Interest charges are no longer included in each deferred account.

Section 11

Schedule 12.1

#### UNAMORTIZED DEFERRED CHARGES AND AMORTIZATION - NON-RATE BASE cont'd FOR THE YEAR ENDING DECEMBER 31, 2016 (\$000s)

(Þ	υ	10	S	)

Line	•			Oper	ning Bal./	C	Gross	L	Less	Am	nortization			Μ	lid-Year	
No.	Particulars	12	2-31-15	Trar	nsfer/Adj.	Ad	ditions	Т	axes	E	xpense	12	2-31-16	A	verage	Cross Reference
	(1)		(2)		(3)		(4)		(5)		(6)		(7)		(8)	(9)
1	Deferral Accounts Financed at Weighted Average Cost of Deb															
2																
3	Preliminary and Investigative Charges															
4	CPCN Projects Preliminary Engineering	\$	2,059	\$	-	\$	(192)	\$	-	\$	-	\$	1,867	\$	1,963	
5		\$	2,059	\$	-	\$	(192)	\$	-	\$	-	\$	1,867	\$	1,963	
6																
7	Regulatory Compliance															
8	Transmission Customer Rate Design	\$	75	\$	-	\$	-	\$	-	\$	(75)	\$	-	\$	38	
9	2016 Long Term Electric Resource Plan		206		-		261		(68)		-		399		303	
10	2017 Rate Design Application		-		-		250		(65)		-		185		93	
11		\$	281	\$	-	\$	511	\$	(133)	\$	(75)	\$	584	\$	433	
12																
13	Other															
14	US GAAP Pension and OPEB Transitional Obligation	\$	4,520	\$	-	\$	(827)	\$	-	\$	-	\$	3,693	\$	4,106	
15		\$	4,520	\$	-	\$	(827)	\$	-	\$	-	\$	3,693	\$	4,106	
16																
17	Residual															
18	Negotiation of New PPA between BC Hydro and FBC	\$	(1)	\$	-	\$	-	\$	-	\$	1	\$	-	\$	-	
19	Joint Pole Use Audit, 2013		0		-		-		-		(0)		-		-	
20		\$	(0)	\$	-	\$	-	\$	-	\$	0	\$	-	\$	-	
21											·					
22	Total Deterral Accounts at Weighted Average Cost of Deb	\$	6,859	\$	-	\$	(508)	\$	(133)	\$	(75)	\$	6,144	\$	6,502	
23																
24	Financing Costs at WACD	\$	214			\$	333	\$	(87)	\$	(214)	\$	246	\$	230	
25																

26 Note: FBC has restated its non-rate base deferral account presentation compared to the Annual Review for 2015 Rates. Interest charges are no longer included in each deferred account.

Section 11

Schedule 12.2

#### UNAMORTIZED DEFERRED CHARGES AND AMORTIZATION - NON-RATE BASE cont'd FOR THE YEAR ENDING DECEMBER 31, 2016 (\$000s)

Line No.	Particulars	1	2-31-15	Op Tra	ening Bal./ ansfer/Adj.	C Ad	Gross ditions	Le: Tax	ss æs	Am E	ortization xpense	12-:	31-16	N	/lid-Year Average	Cross Reference
	(1)		(2)		(3)		(4)	(5	5)		(6)	(	(7)		(8)	(9)
1 2	Deferral Accounts Financed at AFUDC															
3	Energy Management															
4	On Bill Financing (OBF) Participant Loans	\$	22	\$	-	\$	(2)	\$	(0)	\$	(0)	\$	20	\$	21	
5		\$	22	\$	-	\$	(2)	\$	(0)	\$	(0)	\$	20	\$	21	
6																
7	Total Deferral Accounts at AFUDC	\$	22	\$	-	\$	(2)	\$	(0)	\$	(0)	\$	20	\$	21	
8																
9	Financing Costs at AFUDC	\$	1			\$	1	\$	(0)	\$	(1)	\$	1	\$	1	
10																
11	Deferral Accounts Non-Interest Bearing															
12																
13	Other															
14	Kettle Valley Future Development	\$	50	\$	-	\$	-	\$	-	\$	-	\$	50	\$	50	
15		\$	50	\$	-	\$	-	\$	-	\$	-	\$	50	\$	50	
16																
17	Total Deferral Accounts Non-Interest Bearing	\$	50	\$	-	\$	-	\$	-	\$	-	\$	50	\$	50	
18																
19																
20	Total Non Rate Base Deferral Accounts (including financing)	\$	(10,751)	\$	-	\$	(383)	\$ (	(166)	\$	6,165	\$ (	5,135)	\$	(7,942)	
21																

22 Note: FBC has restated its non-rate base deferral account presentation compared to the Annual Review for 2015 Rates. Interest charges are no longer included in each deferred account.

### September 11, 2015

Section 11

Schedule 13

#### WORKING CAPITAL ALLOWANCE FOR THE YEAR ENDING DECEMBER 31, 2016 (\$000s)

Line		2015		2016		
No.	Particulars	Approved	Fo	orecast	Change	Cross Reference
	(1)	(2)		(3)	(4)	(5)
1	Cash Working Capital					
2 3	Cash Working Capital	\$ 4,350	\$	5,445	\$ 1,095	Schedule 14, Line 40, Column 5
4	Add: Funds Unavailable					
5	Customer Loans DSM	1,100		990	(110)	
6	Employee Loans	280		349	-	
7	Uncollectible Accounts	1,224		697	(527)	
8	Inventory (average monthly investment)	537		531	-	
9						
10	Less: Funds Available					
11	Average Customer Deposits	(4,085)		(4,500)	(415)	
12	Average Provincial Sales Tax	(704)		(741)	(37)	
13	Average Goods and Services Tax	(716)		(659)	57	
14	-	· /		· · /		
15	Total	\$ 1,986	\$	2,111	\$ 62	

#### CASH WORKING CAPITAL FOR THE YEAR ENDING DECEMBER 31, 2016 (\$000s)

						Weighted	
Line			2016	Lag (Lead)		Average	<b>A A A</b>
No.	Particulars	at Re	vised Rates	Days	Extended	Lag (Lead) Days	Cross Reference
	(1)		(2)	(3)	(4)	(5)	(6)
1	REVENUE						
2	Sales Revenue						
3	Residential Tariff Revenue	\$	182.296	50.7	\$ 9.242		
4	Commercial Tariff Revenue	·	81,601	49.6	4,047		
5	Wholesale Tariff Revenue		46,494	33.2	1,544		
6	Industrial Tariff Revenue		33,418	33.2	1,109		
7	Other Tariff Revenue		6,140	48.2	296		
8							
9	Other Revenue						
10	Apparatus and Facilities Rental		4,467	27.4	122		
11	Contract Revenue		1,808	43.6	79		
12	Transmission Revenue		1,230	15.2	19		
13	Interest Income		34	15.2	1		
14	Other Utility Income		638	44.7	29		
15	Tetel	<u>^</u>	050 400	_	10.400	40.0	
16	lotal	\$	358,126	<u> </u>	\$ 16,488	46.0	
17	EVDENCES						
10	EXPENSES	¢	122.007	44 7	E E04		
19	Power Functiones	φ	10 201	41.7	5,564		
20	Wheeling		10,291	(1.0)	(10)		
21			4,704	40.2	191		
23	Salaries and Wages		16 573	53	88		
24	Employee Benefits		13,106	13.2	173		
25	Contracted Labour		12,507	50.6	633		
26	Rental of T&D Facilities		3.372	48.6	164		
27	Office Lease		770	(15.2)	(12)		
28	Materials		942	45.6	43		
29	Insurance		1,494	(182.5)	(273)		
30	Interest		38,918	85.2	3.316		
31	Property Taxes		17.320	1.4	24		
32	Income Tax		7,520	15.2	114		
33			.,				
34	Total	\$	261,485		\$ 10.036	(38.4)	
35		+	201,100	_		(0011)	
36	Net Lag (Lead) Days				-	7.6	
37							
38	Total Expenses					\$ 261.485	
39						,	
40	Cash Working Capital				-	\$ 5.445	

September 11, 2015

Section 11 Schedule 14

Section 11

Schedule 15

THIS SCHEDULE NOT APPLICABLE TO FORTISBC INC.

#### UTILITY INCOME AND EARNED RETURN FOR THE YEAR ENDING DECEMBER 31, 2016 (\$000s)

Line			2015			2	016 Forecast				
No.	Particulars		Approved	at E	xisting Rates	Rev	vised Revenue	at	Revised Rates	Change	Cross Reference
	(1)		(2)		(3)		(4)		(5)	(6)	(7)
1											
1			0.004		0.000				0.000	00	Ochochula 40, Lizza 7, Ochuran 0
2	Sales volume (Gwn)		3,224		3,262				3,262	38	Schedule 18, Line 7, Column 3
3 4	REVENUE AT EXISTING RATES										
5	Sales	\$	334 531	\$	343 152	\$	-	\$	343 152 \$	8 622	
6	Deficiency (Surplus)	Ψ	-	Ψ	-	Ψ	6.797	Ψ	6.797	6.797	
7	Total		334,531		343,152		6,797		349,949	15,419	Schedule 19, Line 8, Column 5
8											
9	EXPENSES										
10	Cost of Energy		132,367		148,962		-		148,962	16,595	Schedule 17, Line 29, Column 3
11	O&M Expense (net)		50,227		48,765		-		48,765	(1,462)	Schedule 21, Line 26, Column 4
12	Depreciation & Amortization		52,833		49,542		-		49,542	(3,291)	Schedule 22, Line 12, Column 3
13	Property Taxes		15,331		17,320		-		17,320	1,989	Schedule 23, Line 7, Column 3
14	Other Revenue		(8,272)		(8,177)		-		(8,177)	95	Schedule 20, Line 8, Column 3
15	Utility Income Before Income Taxes		92,044		86,741		6,797		93,538	1,493	
16											
17	Income Taxes		6,684		5,753		1,767		7,520	837	Schedule 24, Line 14, Column 3
18											
19	EARNED RETURN	\$	85,361	\$	80,988	\$	5,030	\$	86,018 \$	657	Schedule 26, Line 5, Column 7
20											
21	UTILITY RATE BASE	\$	1,248,978	\$	1,286,868			\$	1,286,868 \$	37,890	Schedule 2, Line 30, Column 3
22	RATE OF RETURN ON UTILITY RATE BASE		6.83%		6.29%				6.68%	-0.15%	Schedule 26, Line 5, Column 6

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Schedule 16

## September 11, 2015

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Schedule 17

### COST OF ENERGY FOR THE YEAR ENDING DECEMBER 31, 2016 (\$000s)

Line		2015		2016			
No.	Particulars	Approved	F	orecast	Change	Cross Reference	
	(1)	(2)		(3)	(4)	(5)	
1	POWER PURCHASES						
2	Gross Load (GWh)	3,499		3,540	41		
3							
4	Power Purchase Expense						
5	Brilliant	\$ 37,069	\$	38,785	\$ 1,716		
6	BC Hydro PPA	45,460		47,545	2,085		
7	Waneta Expansion	25,808		37,358	11,550		
8	Independent Power Producers	164		195	31		
9	Market and Contracted Producers	9,380		10,023	643		
10	Balancing Pool	 (44)		-	44		
11	Total	\$ 117,837	\$	133,907	\$ 16,070		
12							
13	WATER FEES						
14	Plant Entitlement Use in previous year (GWh)	1,569		1,649	80		
15							
16	Water Fees	\$ 9,796	\$	10,291	\$ 495		
17							
18	WHEELING						
19	Wheeling Nomination (MW months)						
20	Okanagan Point of Interconnect	2,400		2,400	-		
21	Creston	432		432	-		
22							
23	Wheeling Expense						
24	Okanagan Point of Interconnect	\$ 4,194	\$	4,221	\$ 27		
25	Creston	492		495	3		
26	Other	 48		48	-		
27	Total	\$ 4,734	\$	4,764	\$ 30		
28			-				
29	Total	\$ 132,367	\$	148,962	\$ 16,595		

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Schedule 18

### VOLUME AND REVENUE FOR THE YEAR ENDING DECEMBER 31, 2016 (\$000s)

Line			2015		2016		
No.	Particulars	A	pproved	F	orecast	Change	Cross Reference
	(1)		(2)		(3)	(4)	(5)
1	ENERGY VOLUME SOLD (GWh)						
2	Residential		1,397		1,367	(30)	
3	Commercial		808		871	63	
4	Wholesale		593		579	(14)	
5	Industrial		371		393	22	
6	Lighting & Irrigation		53		52	(1)	
7	Total		3,224		3,262	38	
8							
9	REVENUE AT EXISTING RATES						
10	Residential	\$	177,660	\$	178,755	\$ 1,095	
11	Commercial		74,774		80,016	5,242	
12	Wholesale		46,091		45,591	(500)	
13	Industrial		29,612		32,769	3,157	
14	Lighting & Irrigation		6,393		6,021	(372)	
15	Total	\$	334,531	\$	343,152	\$ 8,622	

Section 11

#### Schedule 19

#### REVENUE AT EXISTING AND REVISED RATES FOR THE YEAR ENDING DECEMBER 31, 2016 (\$000s)

			2015	2016 Forecast						Average		
Line		A	pproved	Re	evenue at		Effective	R	evenue at	Number of		
No.	Particulars	R	levenue	Exis	sting Rates		Increase	Rev	vised Rates	Customers	GWh	Cross Reference
	(1)		(2)		(3)		(4)		(5)	(6)	(7)	(8)
1												
2	Residential	\$	177,660	\$	178,755	\$	3,541	\$	182,296	114,950	1,367	
3	Commercial		74,774		80,016		1,585		81,601	14,838	871	
4	Wholesale		46,091		45,591		903		46,494	6	579	
5	Industrial		29,612		32,769		649		33,418	49	393	
6	Lighting & Irrigation		6,393		6,021		119		6,140	2,723	52	
7												
8	Total	\$	334,531	\$	343,152	\$	6,797	\$	349,949	132,566	3,262	
9												
10	Effective Increase								1.98%			

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OTHER REVENUE FOR THE YEAR ENDING DECEMBER 31, 2016 (\$000s)

140.	r ai liculai S	Approved	Forecast	Change	Cross Reference
	(1)	 (2)	(3)	(4)	(5)
1	Apparatus and Facilities Rental	\$ 4,380	\$ 4,467	\$ 87	
2	Contract Revenue	1,544	1,808	264	
3	Transmission Revenue	1,189	1,230	41	
4	Interest Income	57	34	(23)	
5	Connection Charge	470	496	26	
6	Other Recoveries	632	142	(490)	
7					
8	Total	\$ 8,272	\$ 8,177	\$ (95)	

Schedule 20

Section 11

Schedule 21

## OPERATING AND MAINTENANCE EXPENSE FOR THE YEAR ENDING DECEMBER 31, 2016 (\$000s)

Line		Formula	Forec	cast	Тс	otal	
No.	Particulars	O&M	O&	M	0	&M	Cross Reference
	(1)	(2)	(3)	)	(-	4)	(5)
4	0040						
1	<u>2013</u>	<b>•</b> • • • • • •					
2	Base O&M	\$ 60,159					
3	Less: O&M tracked outside of Formula	(7,810)					
4	O&M Subject to Formula	52,349					
5	<u>2014</u>						
6	Net Inflation Factor	100.758%	,				Schedule 3, Line 12, Column 3
7	Formula O&M	52,746					
8	<u>2015</u>						
9	Net Inflation Factor	100.452%	i i				Schedule 3, Line 12, Column 4
10	Formula O&M	52,984					
11	<u>2016</u>						
12	Net Inflation Factor	101.155%					Schedule 3, Line 12, Column 5
13	Formula O&M	\$ 53,596			\$ 5	53,596	
14							
15	O&M Tracked Outside of Formula						
16	Pension & OPEB (O&M Portion)		\$	3,391			
17	Insurance Premiums			1,347			
18	Advanced Metering Infrastructure Costs/Savings			(1,800)			
19	AMI Radio-Off			392			
20	Mandatory Reliability Standards			445			
21	Total		\$	3,775	_	3,775	
22					_		
23	Total Gross O&M				\$ 5	57,371	
24							
25	Capitalized Overhead				(	(8,606)	
26	Net O&M Expense			•	\$ 4	8,765	
	-						

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Schedule 22

### DEPRECIATION AND AMORTIZATION EXPENSE FOR THE YEAR ENDING DECEMBER 31, 2016 (\$000s)

Line			2015	2016		
No.	Particulars	A	pproved	Forecast	Change	Cross Reference
	(1)		(2)	(3)	(4)	(5)
1	Depreciation					
2	Depreciation Expense	\$	55,359	\$ 54,380	\$ (979)	Schedule 7.1, Line 15, Column 6
3						
4	Amortization					
5	Rate Base deferrals	\$	2,267	\$ 4,630	\$ 2,363	Schedule 11, Line 16, Column 6
6	Non-Rate Base deferrals		(1,586)	(6,165)	(4,579)	Schedule 12.2, Line 20, Column 6
7	Utility Plant Acquisition Adjustment		186	186	-	
8	2005 Rate Stabilization Adjustment		311	-	(311)	
9	CIAC		(3,705)	(3,489)	216	Schedule 9, Line 3, Column 4
10			(2,527)	(4,838)	(2,311)	
11						
12	Total	\$	52,833	\$ 49,542	\$ (3,290)	

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Section 11

Schedule 23

### PROPERTY AND SUNDRY TAXES FOR THE YEAR ENDING DECEMBER 31, 2016 (\$000s)

Line			2015	2016		
No.	Particulars	A	pproved	Forecast	Change	Cross Reference
	(1)		(2)	(3)	(4)	(5)
1	Generating Plant	\$	2,982	\$ 2,995	\$ 13	
2	Transmission and Distribution		6,278	8,052	1,774	
3	Substation Equipment		3,600	3,651	51	
4	Land and Buildings		705	707	2	
5	1% In-Lieu of Municipal Taxes		1,766	1,915	149	
6						
7	Total	\$	15,331	\$ 17,320	\$ 1,989	

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Schedule 24

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FOR THE YEAR ENDING DECEMBER 31, 2016 (\$000s)

Line			2015		2016			
No.	Particulars		Approved		Forecast	(	Change	Cross Reference
	(1)		(2)		(3)		(4)	(5)
4		¢	05 064	¢	96.019	¢	657	Schodulo 16 Line 10 Column 5
1		Ф	85,301	Ф	86,018	Ф	657	Schedule 16, Line 19, Column 5
2	Deduct: Interest on Debt		(39,648)		(38,918)		730	Schedule 26, Line 1+2, Column 7
3	Adjustments to Taxable Income		(26,954)	-	(26,188)	_	766	Schedule 24, Line 32, Column 3
4	Accounting Income After Tax	\$	18,759	\$	20,912	\$	2,153	
5			74.000/		74.000/		0.000/	
6	1 - Current Income Tax Rate	_	74.00%	<b>^</b>	74.00%	<b>^</b>	0.00%	
(	l axable Income	\$	25,350	\$	28,259	\$	2,909	
8			~~~~~				0.000/	
9	Current Income Tax Rate	_	26.00%	-	26.00%	_	0.00%	
10	Income Tax - Current	\$	6,591	\$	7,347	\$	756	
11								
12	Previous Year Adjustment		-		-		-	
13	Deferred Charges Tax Effect	_	93	<b>^</b>	173	<u> </u>	80	
14	lotal Income Tax	\$	6,684	\$	7,520	\$	836	
15								
16								
17	ADJUSTMENTS TO TAXABLE INCOME							
18	Addbacks:							
19	Depreciation	\$	55,359	\$	54,380	\$	(979)	Schedule 22, Line 2, Column 3
20	Amortization of Deferred Charges		681		(1,535)		(2,216)	Schedule 22 Line 5+6, Column 3
21	Amortization of Utility Plant Acquisition Adjustment		186		186		-	
22	Amortization of 2005 Rate Stabilization Adjustment		311		-		(311)	
23	Pension & OPEB Expense		11,446		7,065		(4,381)	
24								
25	Deducitons:							
26	Capital Cost Allowance		(69,665)		(67,652)		2,013	Schedule 25, Line 17, Column 6
27	CIAC Amortization		(3,705)		(3,489)		216	Schedule 22, Line 9, Column 3
28	Debt Issue Costs		(314)		(636)		(322)	
29	Pension & OPEB Contributions		(11,592)		(5,720)		5,872	
30	Overheads Capitalized Expensed for Tax Purposes		(8,864)		(8,606)		258	Schedule 21, Line 25, Column 4
31	All Other		(798)		(180)		618	
32	Total	\$	(26,954)	\$	(26,188)	\$	766	

Section 11

Schedule 25

### CAPITAL COST ALLOWANCE FOR THE YEAR ENDING DECEMBER 31, 2016 (\$000s)

Line		CCA	31-12-2015		2016	2016	31-12-2016
No.	Class	Rate	UCC Balance	Adjustments	Additions	CCA	UCC Balance
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	1(a)	4% \$	205,179	\$-	\$-	\$ (8,207)	\$ 196,972
2	1(b)	6%	18,717	-	7,889	(1,360)	25,246
3	2	6%	17,585	-	-	(1,055)	16,530
4	3	5%	1,084	-	-	(54)	1,030
5	6	10%	5	-	-	(1)	4
6	8	20%	3,744	-	-	(749)	2,995
7	10	30%	5,002	-	-	(1,501)	3,501
8	12	100%	1,039	-	46	(1,062)	23
9	13	manual	234	-	-	(150)	84
10	17	8%	103,869	-	2,154	(8,396)	97,627
11	42	12%	4,900	-	-	(588)	4,312
12	45	45%	31	-	-	(14)	17
13	46	30%	16,750	-	325	(5,074)	12,001
14	47	8%	443,019	-	32,201	(36,730)	438,489
15 16	50	55%	4,730	-	398	(2,711)	2,417
17	Total	\$	825,888	\$ -	\$ 43,013	\$ (67,652)	\$ 801,249

#### RETURN ON CAPITAL FOR THE YEAR ENDING DECEMBER 31, 2016 (\$000s)

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Schedule 26

							2016						
			2015				Average			E	arned		
Line		Approved				Embedded	Cost	Earned	Return				
No.	Particulars	Particulars Earne		Earned Return Amour		Ratio	Ratio Cost 0		Return	Change		Cross Reference	
	(1)		(2)		(3)	(4)	(5)	(6)	(7)		(8)	(9)	
1	Long Term Debt	\$	37,545	\$	684,041	53.16%	5.35%	2.84% \$	36,587	\$	(958)	Schedule 27, Line 10, Column 6	
2	Short Term Debt		2,103		88,080	6.84%	2.65%	0.18%	2,331		228		
3	Common Equity		45,713		514,747	40.00%	9.15%	3.66%	47,099		1,386		
4							_						
5	Total	\$	85,361	\$	1,286,868	100.00%		6.68% \$	86,018	\$	657		
6							-						
7	Cross Reference				Schedule 2 Line 30								

Column 3

Section 11

Schedule 27

				Average			
Line		Issue	Maturity	Principal	Interest	Interest	
No.	Particulars	Date	Date	Outstanding	Rate	Expense	Cross Reference
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	Series G	28-08-1993	28-08-2023	\$ 25,000	8.800% \$	2,200	
2	Series H	01-02-1996	01-02-2016	3,082	8.770%	270	
3	Series I	01-12-1997	01-12-2021	25,000	7.810%	1,953	
4	Series 1 - 05	09-11-2005	09-11-2035	100,000	5.600%	5,600	
5	Series 1 - 07	04-07-2007	04-07-2047	105,000	5.900%	6,195	
6	MTN - 09	00-01-1900	02-06-2039	105,000	6.100%	6,405	
7	MTN - 10	24-11-2010	24-11-2050	100,000	5.000%	5,000	
8	MTN - 14	28-10-2014	28-10-2044	200,000	4.000%	8,000	
9	MTN - 16 (forecast)	15-10-2016	tbd	20,959	4.600%	964	
10	Total			\$ 684,041	\$	36,587	
11			-				
12	Average Embedded Cost			_	5.35%		



# 1 12. ACCOUNTING MATTERS AND EXOGENOUS FACTORS

## 2 12.1 INTRODUCTION AND OVERVIEW

3 In this section, FBC discusses "Exogenous Factors" under its PBR Plan (identifying one 4 exogenous factor in 2015 and one in 2016 and future years), emerging accounting guidance, 5 the results of its 2014 Depreciation Study, and the status of its non-rate base deferral accounts. 6 FBC proposes new depreciation rates based on the results of the 2014 Depreciation Study. In 7 addition, FBC proposes, beginning in 2016, to include the recovery of the estimated future costs 8 of removal over the average service of the assets (net salvage) in accumulated depreciation. 9 With respect to its non-rate base deferral accounts, FBC proposes two new deferral accounts 10 related to regulatory matters, and the 2016 and 2017 amortization of the balance of its 2014 11 Interim Rate Variance deferral account. FBC also reports on the Flow-through deferral account 12 in this section.

# 13 **12.2** *Exogenous (Z) Factors*

FBC is permitted to adjust the cost of service for "Exogenous Factors" under its PBR Plan. The
following criteria have been established for evaluating whether the impact of an event qualifies
for exogenous factor treatment:

- The costs/savings must be attributable entirely to events outside the control of a
   prudently operated utility;
- The costs/savings must be directly related to the exogenous event and clearly outside
   the base upon which the rates were originally derived;
- 21 3. The impact of the event was unforeseen;
- 22 4. The costs must be prudently incurred; and
- 5. The costs/savings related to each exogenous event must exceed the Commission-defined materiality threshold.

25

- The materiality threshold (item 5) for FBC has been established at \$0.301 million, as approved by Commission Order G-184-14.
- FBC has identified one exogenous factor for 2015 and one exogenous factor for 2016 and future years, as described below.

## 30 **12.2.1 2015 Wildfire Damage**

In August 2015, wildfires within the FBC service territory caused an estimated \$3.043 million in
 damage to the Company's transmission and distribution facilities. The damage and restoration
 effort and costs are described in Section 7.2.2.



1 The wildfire events and the costs to repair the damage caused by the wildfires meet the 2 exogenous criteria identified above:

- The costs are attributable entirely to the wildfire events described in section 7.2.2, which are events outside the control of a prudently operated utility. The wildfire events were precipitated by the unusually dry conditions in FBC's service territory, which were in fact experienced across the province as well as in Washington State. No measures could have been taken to prevent the damage; it is clearly outside the control of FBC to prevent forest fires of this nature.
- As described in section 7.2.2, the costs are directly and solely attributed to the wildfire
   events. Previous wildfires in recent years have generally resulted in damage to
   approximately three or four structures; as such, costs of the magnitude experienced in
   2015 were not included in the 2013 base capital used to determine capital expenditures
   under the PBR formula.
- As noted above, the wildfires in 2015 were due to the unusually dry conditions and were
   unprecedented in their scale. These events and their impacts could not have been
   foreseen at the time the 2013 base capital was set.
- All of the costs to repair on an emergency basis the damage caused by the wildfires
   have been or will be prudently incurred.
- The projected costs of \$3.043 million to repair the damage caused by the wildfires
   exceed the materiality threshold of \$0.301 million.

## 21 **12.2.2 Mandatory Reliability Standards**

22 In Section 6.3.6, FBC identified incremental O&M Expense in 2016 and future years (and 23 incremental capital expenditures in 2017) related to MRS that qualify as exogenous events. By 24 Order R-38-15 dated July 24, 2015, the Commission adopted 34 reliability standards and the 25 NERC (North American Electric Reliability Corporation) Glossary of Terms as recommended for 26 adoption by BC Hydro in MRS Assessment Report No. 8. In that Order, the Commission also 27 identified that one standard is pending and two standards are held in abeyance. The 28 Commission accepted BC Hydro's recommendation of adoption given that the major portion of 29 costs identified by the entities relate to the implementation of new cyber security requirements, 30 new modelling and testing requirements for generators and synchronous condensers, and an 31 overhaul of the protection system maintenance program requirements.

- This event and the costs required as a result of the adoption of the reliability standards meet the exogenous factor criteria identified above.
- The costs are entirely attributed to complying with the changes to BC's MRS program approved by Order R-38-15, which is an event outside the control of FBC. These changes were developed by regulatory bodies in the U.S., assessed for adoption by BC



- Hydro and then adopted by the BCUC. FBC is legally obligated to comply with the new reliability standards.
   As described in section 6.3.6, the costs are directly and solely attributable to complying with the changes to the BC MRS program approved on July 24, 2015. These costs have
- not been previously incurred and were not known at the time the 2013 base O&M was
  determined and therefore were not included in the 2013 base O&M used to determine
  the O&M expense included in the PBR formula.
- The costs to comply with the reliability standards that were approved by Order R-38-15
   could not have been foreseen at the time the 2013 base was set as the new standards
   were either non-existent or under preliminary development at the time.
- FBC will manage its costs to comply with the reliability standards in a prudent manner
   and the Commission will have the opportunity to review the costs in subsequent annual
   reviews.
- The forecast O&M costs of \$0.445 million in 2016, \$0.500 million in 2017, and \$0.425
   million in 2018 and beyond, and the forecast capital expenditures of \$0.445 million in
   2017 exceed the materiality threshold of \$0.301 million.

# 17 **12.3** ACCOUNTING MATTERS

18 In the following two sections, FBC provides information on emerging accounting guidance and19 on depreciation rates.

## 20 **12.3.1 Emerging US GAAP Accounting Guidance**

In the PBR Decision, the Commission directed FBC to "communicate any accounting policy changes and updates to the Commission and other stakeholders as part of the Annual Review process during the PBR period." FBC discusses two US GAAP accounting standards below, neither of which impacts the accounting policies or rate forecasts for 2016.

## 25 12.3.1.1 Revenue Recognition

26 In May 2014, the Financial Accounting Standards Board (FASB) issued Accounting Standards 27 Update (ASU) 2014-09, Revenue from Contracts with Customers. This standard completes a 28 joint effort by FASB and the International Accounting Standards Board (IASB) to improve 29 financial reporting by creating common revenue recognition guidance for US GAAP and 30 International Financial Reporting Standards (IFRS) that clarifies the principles for recognizing revenue and that can be applied consistently across various transactions, industries and capital 31 32 markets. This standard was originally effective for annual and interim periods beginning on or 33 after December 15, 2016 and is to be applied on a full retrospective or modified retrospective 34 basis. In August 2015, FASB issued ASU 2015-14, Revenue from Contracts with Customers 35 (Topic 606): Deferral of the Effective Date. ASU 2015-14 defers by one year the effective date 36 of the new revenue recognition standard to annual and interim periods beginning on or after 37 December 15, 2017. FASB also decided to allow early adoption of the new guidance as of the 38 original effective date.



1 The new guidance is not expected to significantly change current practice for rate-regulated 2 operations that use published tariff rates to recognize revenue upon delivery of natural gas to a 3 customer meter. FBC is revisiting its revenue contracts associated with power purchase 4 agreements, bundled arrangements and sales of power-generating property, plant, and 5 equipment. FBC is also revisiting the accounting treatment of contributions in aid of construction 6 under the new guidance. Any long-term sale arrangements will need to be aggregated and 7 documented to determine whether the terms result in changes to how revenue is recognized 8 under the new guidance. There are various situations that could arise which could change the 9 timing of when revenue is recognized, resulting in revenue being deferred on the balance sheet. 10 FBC is continuing to assess whether there is any exposure under any of its revenue 11 arrangements and will provide an update in the 2016 annual review for 2017 delivery rates.

## 12 *12.3.1.2 Leases*

13 In May 2013, the FASB issued a proposed ASU, Leases (Topic 842) which was a revision of the 14 2010 proposed ASU, Leases (Topic 840). A final standard is expected during Q4 2015. 15 Currently, FASB has not set an effective date for the standard. The existing accounting models 16 for leases require lessees to classify their leases as either capital or operating. However, those 17 models have been criticized for failing to meet the needs of users of financial statements 18 because they do not provide a faithful representation of leasing transactions. In particular, they 19 omit relevant information about rights and obligations that meet the definitions of assets and 20 liabilities in the IASB and FASB's conceptual framework. The models also lead to a lack of 21 comparability and undue complexity because of the sharp bright-line distinction between capital 22 leases and operating leases. As a result, many users of financial statements adjust the amounts 23 presented in the statement of financial position to reflect the assets and liabilities arising from 24 operating leases.

FASB is pursuing a dual model approach whereby leases would either be recognized as finance leases using the effective interest method resulting in higher expenses in the earlier part of the lease term or a second option of using the straight-line method which distributes expense in a more even manner over the term of the lease.

These proposed changes could result in operating leases being recognized as assets and liabilities on the balance sheet. FBC has building operating leases which could potentially be recorded as assets and liabilities on the balance sheet and the income statement classification would change from operations and maintenance expense to interest and depreciation expense. Once a final standard is issued during Q4 2015 FBC will assess the impact of the standard and provide an update in the 2016 annual review for 2017 delivery rates.

## 35 **12.3.2 Depreciation Study and Rates**

FBC last received approval to update its depreciation rates effective January 1, 2012 in Order
 G-110-12 and the attached decision (the 2012-2013 RRA Decision). The approved depreciation
 rates were based on a depreciation study related to electric plant-in-service as at December 31,
 2009. In preparation for this annual review, FBC contracted Gannet Fleming Valuation and



- 1 Rate Consultants Inc. (Gannett Fleming) to perform a review of FBC's depreciation rates. The
- 2 current depreciation study which is included in Appendix C has been prepared based on electric
- 3 plant-in-service as of December 31, 2014, which is five years since the completion of the last
- 4 study.

As in the prior study, Gannett Fleming has estimated the depreciation rates using various statistical methods, operational interviews with FBC staff and informed judgement based on their experience in the electricity industry. Straight-line depreciation is developed for the assets in a particular class beginning with the original cost, the estimated average and remaining service life characteristics and then accounting for the accumulated depreciation already booked in that class. The depreciation study includes recommendations for both depreciation rates and net salvage rates.

- Implementation of the recommended rates for depreciation, net salvage and amortization of CIAC results in a net decrease in depreciation and amortization expense of approximately \$3.0 million per year, a 5.5% decrease compared to the depreciation expense using current
- 15 approved rates.

## 16 Table 12-1: Impact of Implementing Depreciation Study Recommendations (\$ millions)

Line								
No.	Description	Exis	sting	Recom	mended	Change		
1	Depreciation	\$	58.1	\$	44.3	\$	(13.8)	
2	Net Salvage		-		10.1		10.1	
3	Subtotal		58.1		54.4		(3.7)	
4	CIAC		(4.3)	1	(3.5)		0.8	
5	Total	\$	53.9	\$	50.9	\$	(3.0)	

17 18

Further discussion of the recommended changes by Gannett Fleming to the depreciation, netsalvage and amortization of CIAC follows.

## 21 12.3.2.1 Depreciation Rates

22 Implementation of the recommended depreciation rates that were developed using the Average 23 Service Life (ASL) depreciation methodology result in a change to the average composite 24 depreciation rate for FBC from 3.16 percent to 2.41 percent. Total depreciation expense for 25 FBC decreases approximately \$13.8 million due to this change in depreciation rate, which 26 excludes the effects on depreciation expense of additions and retirements to PP&E as well as 27 changes to the net salvage rates. The recommended depreciation rates, excluding the net 28 salvage rates, are set out in Table 12-2 below. Rates noted with an asterisk are not included in 29 the depreciation study since they are calculated separately by reference to other criteria such as 30 leasehold improvements.



1

Line #	Class	Description	Existing 2015 Rate	Recommended 2016 Rate	Depreciation Based on 2015 Rate	Depreciation Based on 2016 Rate	Increase + / Decrease -
1	330.10	Land Rights	3.80%	2.60%	36,540	25,001	(11,539)
2	331.00	Structures and Improvements	1.29%	1.19%	195,968	180,776	(15,192)
3	332.00	Reservoirs, dams and waterways	2.01%	1.50%	665,774	496,846	(168,928)
4	333.00	Water wheels, turbines and generators	1.95%	1.45%	1,887,884	1,403,811	(484,073)
5	334.00	Accessory electrical equipment	2.36%	1.77%	1,015,500	761,625	(253,875)
6	335.00	Other pow er plant equipment	2.32%	1.79%	1,055,823	814,622	(241,201)
7	336.00	Roads, railroads and bridges	1.49%	1.47%	19,182	18,925	(257)
8	350.20	Surface and mineral	1.47%	1.23%	121,132	101,356	(19,776)
9	353.00	Substation equipment	3.44%	1.79%	6,615,659	3,442,451	(3,173,208)
10	355.00	Poles, tow ers and fixtures	2.64%	1.89%	2,769,835	1,982,950	(786,885)
11	356.00	Conductors and devices	2.05%	1.93%	2,060,090	1,939,499	(120,591)
12	359.00	Roads and trails	2.68%	2.88%	30,050	32,292	2,242
13	360.20	Surface and mineral	2.66%	1.23%	278,124	128,606	(149,518)
14	362.00	Substation equipment	2.21%	1.92%	6,025,262	5,234,616	(790,646)
15	364.00	Poles, tow ers and fixtures	2.13%	1.84%	4,220,391	3,645,784	(574,607)
16	365.00	Conductors and devices	2.57%	1.98%	7,597,187	5,853,086	(1,744,101)
17	368.00	Line transformers	3.41%	2.29%	4,584,416	3,078,684	(1,505,732)
18	369.00	Services	0.16%	0.50%	15,234	47,607	32,373
19	370.00	Meters	6.68%	6.68%	6,680	6,680	-
20	370.10	AMIMeters	5.00%	5.00%	1,754,515	1,754,515	-
21	371.00	Installations on customers premises	0.00%	0.00%	-	-	-
22	373.00	Street lighting and signal systems	2.38%	4.13%	287,279	498,514	211,235
23	390.00	Structures-Frame and Iron	0.71%	0.56%	2,393	1,887	(506)
24	390.1.2	Structures-Masonry	6.11%	2.77%	2,488,617	1,128,227	(1,360,390)
25	391.00	Office furniture and equipment	3.64%	1.68%	245,804	113,448	(132,356)
26	391.10	Computer Equipment	7.61%	7.21%	7,129,980	6,755,211	(374,769)
27	391.60	AMI Computer Softw are	10.00%	10.00%	997,400	997,400	-
28	392.1.2	Transportation Equipment	10.71%	6.01%	2,721,646	1,527,273	(1,194,373)
29	394.00	Tools and work equipment	4.03%	2.49%	549,439	339,480	(209,959)
30	397.00	Communications structures and equipment	8.05%	5.49%	2,336,413	1,593,404	(743,009)
31	397.20	AMI Communications structures and equipment	6.67%	6.67%	366,363	366,363	-
32	390.00	Leasehold Improvements*	0.89%	0.74%	33,425	28,000	(5,425)
33		Total Annual Depreciation	-		58,114,005	44,298,939	(13,815,066)
34		· ·	-		· · · · ·		,
35							

#### Table 12-2: Impact of Implementing Recommended Depreciation Rates

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The asset categories that account for the majority of the forecast change in depreciation expense are Transmission Substation Equipment (353), Distribution Conductors and Devices (365), Distribution Line Transformers (368), Structures-Masonry (390.1.2) and Transportation Equipment (392.1.2). Refer to pages II-4 to II-10 of the Gannett Fleming study included in Appendix C for further discussion.

3.16%

2.41%

8 For Transmission Substation Equipment (353), Gannett Fleming recommends a 50 year life, 9 which is the same as the service life recommended in the previous study. A recent review of 10 retirements, additions and other plant transactions for the period 1940 to 2014 suggests that an 11 average service life of 50 years is still reflective of the historic retirement activity and falls within 12 the typical range of lives used for this account. As a result of an accumulated depreciation 13 deficiency that existed in this asset class as of the date of the previous study, a higher rate was 14 incorporated at that time to make up for the historical under depreciation. Therefore, even 15 though the average service life for Transmission Substation Equipment remains at 50 years, the 16 decrease of approximately 1.65 percent in the depreciation rate for this category is a result of no 17 longer requiring a true up of the accumulated depreciation deficiency, as well as new terminal 18 stations being constructed and existing stations being upgraded which extend the composite

19 remaining life of the assets..

Annual Composite Rate


For Distribution Conductors and Devices (365), Gannett Fleming recommends a 49 year life, an increase from the 45 year service life recommended in the previous study. Review of retirement transactions suggests that an average service life of 49 years is more reflective of the historic retirement activity and falls within the typical range of lives used for this account. The recommended longer life of the Distribution Conductors and Devices and the true-up of the depreciation rate over the remaining life of the assets result in a decrease of approximately 0.59 percent in the depreciation rate for this asset category.

8 For Distribution Line Transformers (368), Gannett Fleming recommends a 45 year life which is 9 the same as the service life recommended in the previous study. Review of retirement 10 transactions suggests that an average service life of 45 years is still reflective of the historic 11 retirement activity and falls within the typical range of lives used for this account. As a result of 12 an accumulated depreciation deficiency that existed in this asset class as of the date of the 13 previous study, a higher rate was incorporated at that time to make up for the historical under 14 depreciation. Therefore, even though the average service life for Distribution Line Transformers 15 remains at 45 years, the decrease of approximately 1.12 percent in the depreciation rate for this 16 category is a result of no longer requiring a true up of an accumulated depreciation deficiency.

For Structures-Masonry (390.1.2) Gannett Fleming recommends a 41 year life, an increase from the 35 year service life recommended in the previous study. Review of retirement transactions suggests that an average service life of 41 years is more reflective of the historic retirement activity and falls within the typical range of lives used for this account. The recommended longer life of the Structures-Masonry and the true-up of the depreciation rate over the remaining life of the assets result in a decrease of approximately 3.34 percent in the depreciation rate for this asset category.

24 For Transportation Equipment (392.1.2) Gannett Fleming recommends a 10 year life for Light 25 Duty Vehicles and a 15 year life for Heavy Duty Vehicles, an increase from the 8 year life for 26 Light Duty Vehicles and a decrease from the 20 year life for Heavy Duty Vehicles recommended 27 in the previous study. Review of retirement transactions suggests that an average service life of 28 10 years for Light Duty Vehicles and 15 years for Heavy Duty Vehicles is more reflective of the 29 historic retirement activity and falls within the typical range of lives used for this account. As a 30 result of a significant accumulated depreciation deficiency that existed in the Light Duty Vehicle 31 asset class as of the date of the previous study, a significantly higher rate was incorporated at 32 that time to make up for the historical under depreciation. The new recommended life of the 33 Transportation Equipment and no longer requiring the true-up of the depreciation rate over the remaining life of the assets result in a decrease of approximately 4.70 percent in the 34 35 depreciation rate for this asset category.

The adoption of the depreciation rates as outlined in the current depreciation study is necessary in order to properly reflect the assets' useful lives and a fair allocation and recovery of depreciation expense between current and future ratepayers.



#### 1 **12.3.3 Net Salvage**

2 FBC is proposing to implement the traditional method of recovering net salvage over the useful 3 lives of its assets starting in 2016. As discussed below, while the existing method used by FBC 4 of charging net salvage to accumulated depreciation at the time assets are removed from 5 service is an acceptable practice, FBC recognizes that the proposed method is more 6 appropriate as it matches the cost of the asset to the service it provides and preserves 7 intergenerational equity. The current test period provides an appropriate time to transition to 8 this practice as the increase in rates due to the implementation of net salvage will be offset by 9 the proposed changes to depreciation rates discussed above. FBC's net salvage proposal is 10 discussed further below.

11 Currently, FBC records net salvage (removal costs less salvage proceeds) as a charge to 12 accumulated depreciation at the time assets are removed from service. These amounts 13 included in accumulated depreciation are then factored into future depreciation rates, such that 14 they are recovered over the lives of the assets in existence at the time the depreciation study is 15 undertaken, after the assets to which they relate have been removed from service. This 16 treatment was approved in Order G-110-12 in FBC's 2012-2013 RRA (the last time FBC 17 reviewed its depreciation rates) at page 86 of the attached decision:

18 "... the Commission Panel approves FortisBC's continued use of recognizing actual 19 asset removal costs as incurred, as requested. The Commission Panel acknowledges 20 the view of the ICG that FortisBC "should not be permitted to delay the need to reduce 21 costs by managing rates through accounting practices that do not follow the 22 recommendations of the depreciation consultant", and we agree with the general premise. (ICG Final Submission, p. 43) However, the Panel finds that the evidence 23 24 tendered at the oral phase of the proceeding, as noted above, supports FortisBC's 25 current practice as being "widely used" and "acceptable." The Panel further notes the 26 significant rate increase which would result from a change from the current method of 27 accounting for asset removal costs to the traditional method of recognizing negative 28 salvage value at the asset acquisition stage and is not prepared to direct a change in 29 this accounting method at this time."

30 The Panel further noted that, "This concept may need to be reviewed in the future."

While FBC's existing practice is widely used and acceptable, FBC recognizes that it is more appropriate to recover net salvage costs from customers over the useful lives of the assets to which they relate, matching the cost of the asset to the service it provides and preserving intergenerational equity. This entails recovering net salvage for utility plant in service that require significant removal costs over the lives of the assets, with amounts collected included in accumulated depreciation by asset class.

The inclusion of a provision for estimated net salvage value in depreciation rates is consistent with the BCUC Uniform System of Accounts. The BCUC Uniform System of Accounts states:



1 "There shall be charged monthly to account No. 303, "Depreciation", or other appropriate 2 accounts with concurrent credits to the accounts for accumulated depreciation amounts 3 which will allocate the service value for the plant over its estimated service life in a 4 systematic and rational manner. The service value of the assets, for depreciation 5 purposes, shall be their cost less their estimated net salvage value. Net salvage value 6 means the salvage value less removal costs. The charges for depreciation shall be 7 computed in conformity with the group system under the straight line method at rates 8 approved by the Commission."

9 The inclusion of a provision for estimated net salvage value in depreciation rates is generally
10 followed by other utilities across Canada and is the approach recommended by Gannett
11 Fleming.

FBC therefore requested that Gannett Fleming include a proposal for the implementation of net salvage in its most recent depreciation study. Gannett Fleming includes its consideration of and recommendations for net salvage rates in Part II of its study included in Appendix C

15 The asset classes where net salvage is recommend by Gannet Fleming are shown in Table 12-16 3 below. The estimates of net salvage were based on the professional judgment of Gannett 17 Fleming, primarily on historical data, and through a comparison to peer companies. As set out in

- 18 the current depreciation study, the composite net salvage rate is 0.65 percent. This change
- 19 results in net salvage expense of approximately \$10.1 million.
- 20

#### Table 12-3: Net Salvage Rates by Asset Class

Line #	Class	Description	Survivor curve 2016	Recommended 2016 Rate	Negative Salvage Based on 2016 Rate
1	331.00	Structures and Improvements	-5%	0.10%	15,191
2	332.00	Reservoirs, dams and waterways	-15%	0.28%	92,745
3	333.00	Water wheels, turbines and generators	-20%	0.34%	329,170
4	334.00	Accessory electrical equipment	-20%	0.51%	219,451
5	335.00	Other pow er plant equipment	-10%	0.26%	118,325
6	353.00	Substation equipment	-25%	0.66%	1,269,284
7	355.00	Poles, tow ers and fixtures	-25%	0.64%	671,475
8	356.00	Conductors and devices	-25%	0.59%	592,904
9	362.00	Substation equipment	-25%	0.65%	1,772,136
10	364.00	Poles, tow ers and fixtures	-30%	0.83%	1,644,565
11	365.00	Conductors and devices	-30%	0.91%	2,690,055
12	368.00	Line transformers	-15%	0.45%	604,982
13	373.00	Street lighting and signal systems	-10%	0.52%	62,767
14		Total Annual Depreciation			10,083,050
15					
16					
17		Annual Composite Rate			0.65%

22

21

Overall, Gannett Fleming's study results in a recommended combined depreciation and net
 salvage rates of 3.06 percent (depreciation of 2.41 percent plus negative salvage of 0.65
 percent), which is less than the existing composite depreciation only rate of 3.16 percent. As a



result, there will be no increase in rates from the implementation of the recommended changes
of depreciation and net salvage. FBC therefore believes that 2016 is an appropriate time to
transition to recovering net salvage over the lives of the associated assets.

In summary, FBC recommends implementing the traditional method of recovering net salvage, starting in 2016 and has prepared its financial schedules incorporating Gannett Fleming's recommended approach. This entails recovering net salvage for utility plant in service that require significant removal costs over the lives of the assets, with amounts collected included in accumulated depreciation by asset class. The net salvage expense of approximately \$10.1 million will be offset by lower depreciation rates recommended by Gannett Fleming and proposed by FBC.

#### 11 **12.3.4** Amortization of Contributions in Aid of Construction (CIAC)

12 The amortization rate for CIAC is calculated as a function of the depreciation rates for 13 Distribution plant, which is the asset type for which CIAC is received.

The recommended amortization rates of 2.09 percent for Distribution CIAC is based on the average of the recommended depreciation rates for the Distribution Poles, Towers and Fixtures, Distribution Conductors and Devices, Distribution Line Transformers and Distribution Meters plant. With the lower recommended rates for these asset classes, the amortization rates for CIAC will also be lower resulting in a reduction to amortization of CIAC of approximately \$0.773 million per year.

#### 20 12.4 Non RATE BASE DEFERRAL ACCOUNTS<sup>25</sup>

FBC maintains both rate base and non-rate base deferral accounts. Rate base deferral accounts are included in rate base and earn a return equal to the WACC. In contrast, non-rate base deferral accounts are outside of rate base and may have varying rates of return, depending on the nature of the account and the return approved by the Commission. The forecast mid-year balance of unamortized non rate base deferred charges is a credit balance of approximately \$7.942 million in 2016.

In the following sections, FBC requests approval of two new deferral accounts, which are
 related to regulatory requirements. FBC also provides additional information for two of its
 previously approved deferral accounts.

#### 30 12.4.1 New Deferral Accounts

Consistent with the Commission's decision in the 2012-2013 RRA and the PBR Decision, FBC has followed the practice of new deferral accounts being financed using either the short term

<sup>&</sup>lt;sup>25</sup> FBC has restated its non-rate base deferral account presentation (Section 11, Schedule 12) compared to the Annual Review for 2015 Rates. Interest charges are no longer included in each deferred account.



interest (STI) rate where recovery is over a one-year period; or the weighted average cost of
 debt (WACD) for longer-term deferrals.

# *12.4.1.1* Capacity and Energy Purchase and Sale Agreement (CEPSA) with Powerex Corp.

5 On March 6, 2015, FBC filed an application for approval of a Capacity and Energy Purchase 6 and Sale Agreement (CEPSA) with Powerex Corp. Following a written public hearing, the 7 CEPSA was accepted by Order E-10-15 as an energy supply contract pursuant to section 71 of 8 the Utilities Commission Act. FBC incurred \$0.163 million (\$0.121 million after tax) in costs 9 related to the CEPSA application and proceeding. These costs are primarily legal fees, 10 Commission expenses and intervener funding.

FBC is seeking approval of a deferral account attracting a STI return, to capture costs related to
 the CEPSA proceeding incurred in 2015. FBC proposes to amortize the costs over one year, in
 2016.

## 14 *12.4.1.2* 2017 Rate Design Application

FBC will be filing a Rate Design Application on or before December 31, 2017. In order to meet
this filing date, work on the application will commence in 2016. As such FBC is requesting
approval for a deferral account to capture costs related to the application.

Based on historical experience, the December 31, 2017 balance in this deferral account is expected to be in the range of \$0.600 million to \$0.700 million, with the majority of the costs expected to be incurred in 2017. Additions to the deferral account in 2016 are forecast to be \$0.250 million (\$0.185 million after tax) and are primarily related to consultant costs and participant funding associated with stakeholder workshops.

FBC will request an amortization period for this account in an upcoming annual review filing once there is greater certainty over the process and forecast balance of this deferral account.

#### 25 **12.4.2** Information on Existing Deferral Accounts

Below, FBC provides information on two of its approved deferral accounts, including a request
 for the 2016 amortization of its 2014 Interim Rate Variance deferral account.

#### 28 12.4.2.1 2014 Interim Rate Variance Deferral Account

The 2014 Interim Rate Variance deferral account was approved by Order G-182-14 regarding FBC's Application for Approval of 2014 Permanent Rates and 2015 Interim Rates filed with the Commission on November 14, 2014 (2015 Interim Rates Application). In its 2015 Interim Rates Application, FBC had reviewed a number of amortization options for this deferral account and concluded that "amortizing this variance over a three-year period beginning in 2015 best balances the goal of reducing rate volatility with minimizing the duration and volume of deferral accounts." Order G-107-15 regarding 2015 rates approved a three-year amortization period for



- this deferral account and the amortization of 20 percent of the opening balance during 2015.
  The credit balance of this account will be \$17.547 million at December 31, 2015.
- The Company proposes to amortize \$6.201 million of the opening 2016 deferral account balance in 2016 and the remaining \$11.346 million in 2017. This amortization profile equalizes the resulting rate increases in 2016 and 2017, resulting in an increase of 1.98 percent in 2016
- 6 and a projected increase of 1.98 percent in 2017.

#### 7 12.4.2.2 Flow-Through Deferral Account

As approved by Commission Order G-163-14, the Flow-through deferral account is used to capture the annual variances between the approved and actual amounts for all costs and revenues which are included in rates on a forecast basis and which do not have a previously approved deferral account. The specific items included in the Flow-through account were set out in Table 1 which was included in FBC's letter Response to Orders G-162-14 and G-163-14 filed with the Commission on November 7, 2014 reproduced below and accepted in the determination of 2015 rates pursuant to Order G-107-15.



#### Table 12-4: Variances Captured in the Flow-through Deferral Account<sup>26</sup>

	FEI	FBC
Delivery Revenues (FEI):		
Residential and commercial use rate variances	RSAM	N/A
Customer variances	Flow-through deferral	N/A
Industrial and all other revenue variances	Flow-through deferral	N/A
Revenues and Power Supply (FBC):		
Revenue variances	N/A	Flow-through deferral
Power purchase variances	N/A	Flow-through deferral
Water fees variances	N/A	Flow-through deferral
Gross O&M:		
Formula driven O&M variances	Earnings sharing	Earnings sharing
BCUC fees variances	BCUC Variances deferral	Flow-through deferral
Pension & OPEB variances	Pension/OPEB variances deferral	Pension/OPEB variances deferral
All other O&M variances *	Flow-through deferral	Flow-through deferral
Capitalized Overhead:		
Capitalized overhead variances	N/A - no variance	N/A - no variance
Property Tax:		
Property tax variances	Flow-through deferral	Flow-through deferral
Depreciation and Amortization:		
Depreciation variances	Flow-through deferral	Flow-through deferral
Amortization of deferrals	N/A - no variance	N/A - no variance
Other Revenues (FEI)/Other Income (FBC):		
SCP Mitigation Revenues variances	SCP Revenues deferral	N/A
CNG/LNG Recoveries variances	CNG/LNG Recoveries deferral	N/A
All other other revenue/income variances	Flow-through deferral	Flow-through deferral
Wheeling (FBC)/Transportation costs (FEI):		
Transportation and wheeling variances	Flow-through deferral	Flow-through deferral
Income Tax:		
Income tax variances	Flow-through deferral	Flow-through deferral
Interest Expense/Cost of Debt:		
Interest on RSAM/CCRA/MCRA/Gas Storage	Interest on RSAM/CCRA/MCRA/Gas Storage	N/A
All other interest variances	Flow-through deferral	Flow-through deferral

2

\* Including items re-forecast outside of the formula such as insurance premiums, AMI, NGT stations, Biomethane, RS46 O&M

4 In accordance with the method set out above, the calculation of the 2015 projected Flow-5 through amount of \$1.536 million credit is shown in Table 12-5 below.

<sup>3</sup> 4

<sup>&</sup>lt;sup>26</sup> FBC notes an error in the table that was filed. Although for FEI the BCUC fee variances are recorded in a separate deferral account, for FBC these fees are included in formula O&M. As such, for FBC, any variance in these fees between the formula-driven amount and the actuals will be subject to earnings sharing, and not to flow-through treatment.



	1	
	I	

Line		Аŗ	proved	Pr	ojected		
No.	Description		2015		2015	Var	iance
1 2	Revenue	\$	(334.531)	\$	(328.594)	\$	5.936
3 4	Power Purchase Expense		117.837		111.277		(6.560)
5 6	Wheeling		4.734		4.723		(0.011)
7 8	Water Fees		9.796		9.706		(0.090)
9	O&M Tracked Outside of Formula		1 290		1 224		(0.046)
11	Advanced Metering Infrastructure Project		0.452		0.452		(0.046) -
12 13	Advanced Metering Infrastructure Radio-Off 2015 Mandatory Reliability Standards Audit		- 0.350		0.168 0.350		0.168 -
14			45.004		45.044		(0.000)
15 16	Property Tax		15.331		15.041		(0.290)
17 18	Depreciation and Amortization		52.833		52.063		(0.770)
19	Other Revenue		(8.272)		(8.391)		(0.119)
20	Interest Expense		39.648		39.261		(0.387)
22 23	Income Tax		6.684		7.317		0.633
24 25	2015 After-Tax Flow-Through Addition to Deferral Account					\$	(1.536)

#### Table 12-5: 2015 Flow-through Deferral Account Additions (\$ millions)

3 The variance in revenue is due to loads being lower than approved for residential, industrial and 4 wholesale customers. The variance in power purchase is due to decreased loads, lower 5 expenses for Waneta Expansion power, and increased market savings. Variances in water fees 6 are shown in Section 4, other revenue are shown in Section 5, O&M tracked outside of formula 7 are shown in Section 6, and Property Taxes are shown in Section 9. The variance in interest 8 expense is due to lower interest rates. Finally, the variance in income taxes is due to the 9 income tax impacts of each of the aforementioned items and the variance between the 10 projected and approved tax timing differences.

As approved by Commission Order G-163-14, the balance in the account will attract a shortterm interest rate return and be amortized in the following year. The amortization of the account is included within depreciation and amortization shown in Section 11, Schedule 22. An adjustment to include the difference between the projected and final actual amounts subject to flow-through will be recorded in the deferral account in 2015 and amortized in 2016 rates. As the projected 2014 flow-through amount of \$0.498 million was the same as the 2014 actual, no adjustment is required for 2014.



## 1 12.5 SUMMARY

- 2 FBC has identified two exogenous factors affecting rates in 2016 and has provided an updated
- 3 depreciation study and recommendations for depreciation, net salvage and CIAC amortization
- 4 rates. In this section, FBC has also requested approval of two new deferral accounts and
- 5 requested final disposition of the balance of its 2014 Interim Rates Variance deferral account.



## 1 13. SERVICE QUALITY INDICATORS

#### 2 13.1 INTRODUCTION AND OVERVIEW

SQIs form the basis of determining a utility's quality of service and represent a broad range of
business processes that are important elements to the customer experience. Under a PBR
Plan, SQIs are used to monitor the utility's performance to ensure that any cost reductions by
the utility as a result of implementing productivity initiatives do not result in serious degradation
of the quality of service to customers during the PBR period.

8 The Commission approved a balanced set of SQIs covering safety, responsiveness to customer 9 needs, and reliability. Eight of the SQIs have benchmarks and performance ranges set by a 10 threshold level, as outlined in the Consensus Recommendation approved by the Commission in 11 Order G-14-15. Three of the SQIs are for information only, and as such do not have 12 benchmarks or performance ranges.

In the subsections below, FBC reports on its June 2015 year-to-date performance as measured against the SQI benchmarks and thresholds. Consistent with 2014 results, FBC's June 2015 year-to-date SQI results indicate that the Company's overall performance is representative of a high level of service quality. For the eight SQIs with benchmarks, five performed at or better than the approved benchmarks with two performing better than the threshold and one SQI, the All Injury Frequency Rate, performing below the threshold. For the three SQIs that are informational only, performance is consistent with or better than recent years' performance.

#### 20 13.2 Review of the Performance of Service Quality Indicators

For each SQI, Table 13-1 provides a comparison of FBC's June year-to-date performance for 22 2015 to the Commission-approved benchmarks and includes the performance range thresholds 23 that have been agreed to in the Consensus Recommendation that was approved by the 24 Commission. Actual June year-to-date results for 2015 are also provided for the three 25 informational SQIs.

Performance Measure	Description Benchmark		Threshold	2015 June YTD Results
	Safety SQIs			
Emergency Response Time	Percent of calls responded to within two hours	93%	90.6%	91%
All Injury frequency rate (AIFR)	3 year average of lost time injuries plus medical treatment injuries per 200,000 hours worked1.64		2.39	2.86
First Contact Resolution	Percent of customers who achieved call resolution in one call	78%	72%	75%

#### Table 13-1: Approved SQI, Benchmarks and Actual Performance



Performance Measure	Description	Benchmark	Threshold	2015 June YTD Results
Billing Index	Measure of customer bills produced meeting performance criteria	5.0	≤5.0	0.29
Meter Reading Accuracy	Number of scheduled meters that were read	97%	94%	97%
Telephone Service Factor (Non- Emergency)	Percent of non-emergency calls answered within 30 seconds or less	70%	68%	71%
Customer Satisfaction Index	Informational indicator - measures overall customer satisfaction	-	-	8.1
Telephone Abandon Rate	Informational indicator – percent of calls abandoned by the customer before speaking to a customer service representative	-	-	2.9%
	Reliability SQIs	·		
System Average Interruption Duration Index (SAIDI) - Normalized	3 year average of SAIDI (average of cumulative customer outage time)	2.22	2.62	2.20
System Average Interruption Frequency Index (SAIFI) - Normalized	3 year average of SAIFI (average customer outage)	1.64	2.50	1.49
Generator Forced Outage Rate	Informational indicator – Percent of time a generating unit is removed from service due to component failure or other events.	-	-	0.2%

In the following sections, FBC reviews each SQI's individual performance June year-to-date
 performance in 2015. Discussion is also provided for the informational SQIs.

## 4 13.2.1 Safety Service Quality Indicators

#### 5 <u>Emergency Response Time</u>

6 Emergency Response Time is the time elapsed from the initial identification of a loss of 7 electrical power (via a customer call or internal notification) to the arrival of FBC personnel on 8 site at the trouble location. This metric will provide ongoing information to assess FBC crew 9 sizes and crew locations in response to system trouble. The target measures the percentage of 10 emergency calls responded to within two hours. The measure is calculated as follows:

#### 11 <u>Number of emergency calls responded to within two hours</u>



#### Total number of emergency calls in the year

The June 2015 year-to-date result is 91 percent; lower than the benchmark level set at 93 percent but above the threshold. There are many variables affecting the response time including conditions such as time of day (during business hours or after business hours), number of events (i.e. widespread outages), available resources and location (travel times and traffic congestion). Year-to-date performance indicates that, overall, trouble calls and/or unplanned system interruptions are being addressed in a prompt and timely manner.

8 The June 2015 year-to-date results have been impacted by a widespread outage in the 9 Kootenay area due to a windstorm at the end of June, where restoration efforts took several 10 days. Due to the number of outages to the distribution system during the storm, the monthly 11 response time in June dropped to the lowest level of the year at 83%. Prior to June's monthly 12 results the 2015 year-to-date results were at the benchmark level of 93%.

The Company's 2009 to 2014 emergency response times are provided below. While the results
 which have been relatively consistent, variables such as outages described above contribute to

15 the observed volatility in the annual performance for this metric.

16

#### Table 13-2: Historical Emergency Response Time

2009	2010	2011	2012	2013	2014
92%	95%	92%	91%	94%	91%

17

#### 18 <u>All Injury Frequency Rate</u>

19 The All Injury Frequency Rate (AIFR) is an employee safety performance indicator based on 20 injuries per 200,000 hours worked, with injuries defined as lost time injuries (i.e. one or more 21 days missed from work) and medical treatments (i.e. medical treatment was given or 22 prescribed). The annual performance for this metric is calculated as:

23 <u>Number of Employee Injuries x 200,000 hours</u>

#### 24 Total Exposure Hours Worked

For the purpose of this SQI and as approved by the Commission, the measurement of performance is based on the three year rolling average of the annual results.

As of June 30, the 2015 annual AIFR is 2.55 as a result of 1 Medical Treatment and 5 Lost Time injuries. This compares to the June year-to-date AIFR result of 4.29 in 2013 and 1.35 in 2014. The three year rolling average of annual results including 2015 June year-to-date results is 2.86, which is outside of the performance range of 2.39. The lost time injuries that have been reported to WorkSafeBC include a strained shoulder, crushed finger, pulled groin and two slip and fall injuries resulting in 131 lost days of work. One employee received medical treatment as a result of a small cut on the leg.



Although the number of incidents is of concern, the majority (85) of the lost days were attributable to a single injury involving a First Aid attendant which did not have an impact on the quality of service being provided to customers. The remaining 46 days of lost time were split between injuries to temporary workers (35 days), office worker (2) days and field workers (8 days), all of whose duties were covered off through normal business practice with no resulting impact on service to customers.

7 In 2015, safety continues to be a core value for FBC and prevention of injury remains a key 8 focus. FBC continues to focus and reinforce fundamentals of safe work planning, hazard 9 identification and proper body positioning with all employees. In addition, FBC continues to 10 maintain the Certificate of Recognition (COR) through audits performed annually, providing 11 validation of the effectiveness of the Company's safety programs. The COR, administered by 12 the Partners in Injury and Disability Prevention Program of WorkSafeBC, is a voluntary initiative 13 that recognizes and rewards employers who meets the requirements of the Occupational Health 14 and Safety Regulations. An independent qualified auditor is used to assess the Company's 15 Health and Safety programs in consideration of this initiative.

16 As a part of the Company's focus on continuous improvement, FBC has undertaken a 17 comprehensive review of its Safety Management System including peer reviews with other 18 utilities from the Fortis group of companies who have achieved overall improvement in safety. 19 The results of this review recently completed confirmed that FBC has in place a robust Safety 20 Management system that addresses the hazard and risk requirements of a safe workplace and 21 identifies opportunities for improvement in the Company's safety culture. As a result of the 22 review and to enhance the Company's existing Safety Management system and programs, FBC 23 will be developing the "Target Zero" safety program with the official launch to take place in 24 January 2016. This program will provide a structured format for employees at all levels to 25 provide input into corporate safety enabling the Company to better understand the current state 26 of the safety culture and prioritize and implement initiatives that are relevant to our employees. 27 Increased O&M funding is being reallocated to support this program. Aspects of the program 28 include:

- Targeted and relevant safety communications to increase safety awareness with
   employees.
- Annual safety performance analysis developed for all departments.
- Safety action plans created by each department on an annual basis that will become the
   blueprint for each department's continual safety improvement. The results will be
   reviewed on a quarterly basis.
- Implementation of a new annual employee safety perception survey that will allow the
   Company to better understand the current state of our safety culture and prioritize and
   implement initiatives that are relevant to our employees.
- Development and implementation of a new voluntary employee based safety program.
   This program will be developed and administered by the employees for employees.



The annual AIFR June year-to-date result in 2015 is 2.55, With the use of three-year rolling average methodology, the lowest three-year AIFR that could be achieved for 2015 would be approximately 2.43, assuming no more injuries the remainder of the year. This is above the approved threshold of 2.39. As discussed in the above, the Company is taking steps to improve performance.

6 The Company's 2009 to 2014 AIFR results are provided below.

7

All Injury Frequency Rate	2009	2010	2011	2012	2013	2014
Annual Results	1.41	1.72	1.48	1.72	2.82	3.21
Three year rolling average	2.00	2.00	1.54	1.64	2.01	2.58

8

## 9 13.2.2 Responsiveness to Customer Needs

#### 10 *First Contact Resolution*

11 First Call Resolution (FCR) measures the percentage of customers who achieve resolution in 12 one contact with FBC. The Company determines the first contact resolution results using a 13 customer survey methodology, tracking the number of customers who responded that their 14 issue was resolved in the first contact with the Company. The FCR rate is impacted by factors such as the quality and effectiveness of the Company's coaching and training programs. The 15 16 FCR rate is also heavily influenced by the composition of the different call drivers as some call 17 types are simpler to resolve in the first call than others. For example, a move call is simpler to 18 resolve in one call than a high bill call. A high bill call may require a site visit to the customer in 19 order to provide the right resolution or it may require more in-depth investigation.

20 The June 2015 year-to-date performance is 75 percent, above the energy industry call centre 21 average of 72 percent and within the performance range (the benchmark is 78 percent and the 22 threshold is 72 percent). The benchmark was set at the same level as FEI as there were no 23 previous FBC results that could be used to establish the current level of performance. Although 24 FCR performance has been between the benchmark and threshold for two consecutive years, 25 the June 2015 year-to-date FCR levels have improved since the start of PBR (75% versus 73% 26 in the two previous years). This improvement reflects an increased focus on FCR in the 27 Company's coaching and training programs. This focus will continue in an attempt to further 28 raise the level of FCR to the benchmark level during the term of the PBR.

29 The Company's 2009 to 2014 results are provided below.



4	
1	

Table 13-4: Historical First Contact Resolution Levels

2009	2010	2011	2012	2013	2014
n/a	n/a	n/a	n/a	73%	73%

#### 3 <u>Billing Index</u>

4 The Billing Index indicator tracks the effectiveness of the Company's billing system by 5 measuring the percentage of customer bills produced meeting performance criteria. The Billing 6 Index is a composite index with three components:

7 Billing completion (percent of accounts billed within two days of the billing due date):

- Billing timeliness (percent of invoices delivered to Canada Post within two days of file
   creation); and
- Billing accuracy (percent of bills without a production issue based on input data).
- 11

12 The objective is to achieve a score of five or less.

13 The June 2015 year-to-date performance is 0.29, better than the benchmark of 5.0 approved by

14 the Commission. The Billing Index is impacted by factors such as the performance of the

15 Company's billing system, weather variability which can cause a high volume of billing checks 16 and estimation issues, and mail delivery by Canada Post. No significant billing issues have

17 arisen in 2015.

18 The Company's 2009 to 2014 results are provided below. As this SQI was tracked starting 19 during 2013, the 2013 results do not reflect a full year.

20

Table 13-5:	Historical	Billing	Index	Results
-------------	------------	---------	-------	---------

2009	2010	2011	2012	2013	2014
n/a	n/a	n/a	n/a	0.10	2.34

21

28

#### 22 <u>Meter Reading Accuracy</u>

This SQI compares the number of meters that are read to those scheduled to be read. Providing accurate and timely meter reads for customers is a key driver for the Company and its

25 customers. The results are calculated as:

- 26 Number of scheduled meters read
- 27 Number of scheduled meters for reading
- 29 The June 2015 year-to-date performance is 97 percent, which equals the benchmark.



- 1 FBC notes that it will be challenging to maintain this level of performance in the second half of
- 2 the year due to staffing challenges as the Company transitions from manual to automated meter
- 3 reading. In addition, several meter reading routes had to be estimated during August due to
- 4 forest fires destroying advanced metering routers and limiting road access for meter readers.
- 5 Historically, there has been no variation in performance other than in 2013, which saw a 6 significant drop in performance (i.e. 51 percent) as the result of the IBEW labour disruption.
- 7 The Company's 2009 to 2014 results are provided below.
- 8

#### Table 13-6: Historical Meter Reading Accuracy Results

2009	2010	2011	2012	2013	2014	
98%	98%	98%	98%	51%	98%	

9

#### 10 <u>Telephone Service Factor (Non-Emergency)</u>

The Telephone Service Factor (Non-Emergency) measures the percentage of non-emergencycalls that are answered in 30 seconds. It is calculated as:

- 13 Number of non-emergency calls answered within 30 seconds
- 14

Number of non-emergency calls received

15

16 The June 2015 year-to-date performance is 71 percent, better than the benchmark of 70 17 percent approved by the Commission.

The TSF is a measure of how well the Company can balance costs and service levels with the overall objective to maintain a consistent TSF level. This ensures the Company is staying within

20 appropriate cost levels and maintaining adequate service for its customers.

21 The principal factors influencing the TSF results include volume and type of inbound calls 22 received and the resources available to answer those calls. Staffing is matched to the calls 23 forecasted based on historical data in order to reach the service level benchmark desired. 24 Other factors that can influence the TSF are billing system related issues and weather patterns 25 that may generate high numbers of billing related queries. Additionally, the complexity of the 26 calls can also influence TSF results as more complex calls require more time for the Company's 27 representatives to resolve. Examples of complex calls include high bills queries, meter reading 28 estimate concerns and collections calls.

The Company's 2009 to 2014 results are provided below. As discussed in the 2015 Annual Review, the 2014 result was negatively impacted by the events such as the first verified meter readings occurring after the IBEW labour disruption ended in December of 2013; introduction of the Residential Conservation Rate; and the integration of the City of Kelowna customers.



#### Table 13-7: Historical TSF Results

2009	2010	2011	2012	2013	2014
70%	70%	70%	70%	70%	48%

2

#### 3 <u>Customer Satisfaction Index</u>

4 The Customer Satisfaction Index (CSI), an informational indicator as approved by the 5 Commission, measures overall customer satisfaction with the Company as indicated by 6 quarterly surveys. The index reflects customer feedback about important service touch points 7 including the contact centre, perceived accuracy of meter reading, energy conservation 8 information and field services. The Index includes feedback from both residential and mass 9 market commercial customers. The survey is conducted quarterly and results are presented as 10 a score out of ten.

The CSI survey investigates both service quality, as well as customer attitudes that are often influenced by factors outside the Company's control. Important examples include storm-related unplanned outages and media coverage. Over the last several years, customer concerns about tiered electricity prices, collection policies and advanced metering have contributed to an overall erosion of CSI scores as evident in Table 13-8 below. Recent index scores compare favourably with the 2014 result, with several service attributes showing marked improvement.

17 The June 2015 year-to-date average index score is up to 8.1 from 7.9 for the same period last 18 year. Customer attitudes about the Company's contact centre services increased by one point 19 from 8.1 to 8.2. Attitudinal improvements were seen also in overall satisfaction and perceived 20 accuracy of meter reading. On a year-to-date basis, overall satisfaction rose from 7.5 for June 21 2014 year-to-date to 7.7 for June 2015 year-to-date. Accuracy of meter reading scores 22 increased from 6.9 in 2014 to 7.5 for June 2015 year-to-date, for a net increase of 0.6. FBC 23 believes the positive trends are likely associated with a continued focus on call quality, first 24 contact resolution and an improved online experience.

25 The Company's 2009 to 2014 results are provided below.

26

#### Table 13-8: Historical Customer Satisfaction Results

2009	2010	2011	2012	2013	2014	
8.6	8.8	8.7	8.4	8.0	8.1	

27

#### 28 <u>Telephone Abandon Rate</u>

The Telephone Abandon Rate, an informational indicator as approved by the Commission, measures the percent of calls abandoned by the customer before speaking to a customer service representative. Abandon rates are not always an indication of a negative experience.



- 1 Customers may abandon due to waiting times, or due to receiving their required information
- 2 through informational messages in the Company's Interactive Voice Response (IVR) system
- 3 such that the customer no longer needs to speak to an agent.
- The June 2015 year-to-date result is 2.9 percent, representing a return to performance levels close to those achieved in years prior to 2014 (e.g. 1.9 percent in 2012 and 2.0 percent in 2013)
- 6 and a continuation of a trend that occurred during the last half of 2014.
- As discussed in the 2015 Annual Review, the 2014 result of 12.4 percent was negatively impacted by the first verified meter readings occurring after the IBEW labour disruption ended in
- 9 December of 2013; introduction of the Residential Conservation Rate; and the integration of the
- 10 City of Kelowna customers.
- 11 The Company's 2009 to 2014 results are provided below.

 Table 13-9: Historical Telephone Abandon Rates

2009	2010	2011	2012	2013	2014
2.2%	1.9%	1.7%	1.9%	2.0%	12.4%

13

#### 14 **13.2.3 Reliability**

FBC measures transmission and distribution system reliability as adjusted by the Institute of Electrical and Electronics Engineers (IEEE) method of normalizing reliability statistics by excluding "major events". Major events are identified as those that cause outages exceeding a threshold number of customer-hours. Threshold values are calculated by applying a statistical method called the "2.5 Beta" adjustment to historical reliability data. Any single outage event that exceeds the threshold value is excluded from the reliability data. Major event days in the FBC service territory have been caused by mudslides, windstorms and wildfires.

Reported outages included in these measures are of one-minute duration or longer, which is consistent with the Canadian Electricity Association (CEA) standard for reporting.

24 System Average Interruption Duration Index (SAIDI) – Normalized

25 SAIDI is the amount of time the average customer's power is off per year (i.e. the total amount

- of time the average customer's clock would lose during a year) calculated as follows:
- 27 <u>Total Customer Hours of Interruption</u>
- 28 Total Number of Customers Served

29 Customer Hours of Interruption related to a power outage are calculated by multiplying the 30 number of customers affected by the outage by the duration of the outage.



For the purpose of this SQI, the measurement of performance is based on the three year rolling
 average of the annual results, as directed by the Commission.

The three-year rolling average of the normalized annual results including the June 2015 year-todate results is 2.20 and better than the benchmark of 2.22 approved by the Commission. A further explanation of outages impacting 2015 year-to-date SAIDI results is included in the

6 following SAIFI section.<sup>27</sup>

7 The Company's 2009 to 2014 results are provided below. From 2009 to 2014, performance has

8 generally been stable and improving. However, the results can be influenced by uncontrollable

- 9 events such as storms that occur in a year.
- 10

2009	2010	2011	2012	2013	2014
2.40	2.51	2.33	2.22	1.94	2.09

11

#### 12 <u>System Average Interruption Frequency Index (SAIFI) – Normalized</u>

SAIFI is the average number of interruptions per customer served per year (i.e. the number of times the average customer would have to reset their clock during the year) calculated as follows:

16Total Number of Customer Interruptions17Total Number of Customers Served

The Number of Customer Interruptions related to a power outage is the number of customersaffected by the outage.

For the purposes of this SQI, the measurement of performance is based on the three-year rolling average of the annual results, as directed by the Commission.

The three-year rolling average of the normalized annual results, including June 2015 year-todate results, is 1.49, below and better than the benchmark of 1.64 approved by the Commission.

Up to June 2015 year-to-date, FBC has experienced one major event due to a windstorm on June 29, 2015. The windstorm impacted the transmission and distribution systems in the Kootenay area, and affected 16,000 customers and resulted in 101,000 customer hours of interruption, with customer restoration efforts extending into July 1, 2015 due to the extent of damage to the distribution system.

<sup>&</sup>lt;sup>27</sup> In section 12.2.1 FBC discusses a number of wildfires in August 2015 which resulted in prolonged outages to some customers. These outages exceed the 2.5 Beta threshold for normalization of the reliability statistics and will not affect the measures.



Significant outages impacting reliability performance to June 2015 year-to-date also include a 1

- 2 snowstorm in the Kootenay area on January 5 and 6, 2015 causing damage and outages due to
- 3 falling trees, affecting 11,000 customers and resulting in 34,000 customer hours of interruption.
- 4 Another large outage occurred on February 4, 2015 in Kelowna due to a station equipment
- 5 failure which affected 24,700 customers and resulted in 11,000 customer hours of interruption.

6 The Company's 2009 to 2014 results are provided below. From 2009 to 2014, performance has 7 generally been stable and improving. However, the results can be influenced by uncontrollable 8 events such as storms that occur in a year.

- 9

Table 13-11:	Historical SAIFI Results
--------------	--------------------------

2009	2010	2011	2012	2013	2014
1.87	1.96	1.71	1.64	1.31	1.39

10

#### 11 **Generator Forced Outage Rate**

12 Generator Forced Outage Rate (GFOR), an informational indicator, is a measure of the 13 percentage of time in one year that the generating units experienced forced outages compared 14 to the amount of time they could have operated without a forced outage. A forced outage 15 means the removal of a generating unit from service due to the occurrence of a component failure or other event, making it unavailable to produce power due to the unexpected 16 17 breakdown. The GFOR is defined by CEA as follows:

20 The GFOR up to June 2015 year-to-date is 0.2 percent.

21 The Company's 2009 to 2014 results are provided below. The 2013 and 2014 results are 22 higher than the other years due to forced outages that arising from fires at the Corra Linn and 23 South Slocan generating plants. Also shown is the comparable data from the Canadian 24 Electricity Association, demonstrating that FBC's performance has, other than 2013, been much 25 lower than the industry average.

26

Table 13-12: Historical Generator Forced Ou	tages
---	-------

	2009	2010	2011	2012	2013	2014
FBC	0.9%	0.1%	0.1%	0.5%	5.2%	1.7%
CEA	1.8%	3.9%	5.0%	4.9%	4.9%	5.5%



Additionally, as directed by the Commission in its Decision on FBC's Application for the Annual
 Review of 2015 Delivery Rates:

"The Panel understands a forced outage to occur as a result of an unexpected or
unplanned breakdown and, as a result of its investigations of these forced outages, FBC
has taken steps to implement additional quality assurance standards as well as
measures for new and existing cable installations and more frequent testing. The Panel
interprets this to mean that unplanned generator outages may be reduced by more
robust inspection and maintenance programs.

9 Because FBC shares in savings in its operating and maintenance costs under PBR, the 10 Panel is concerned that such savings should not be made at the expense of increasing 11 energy purchase costs that are fully recovered from customers. Put more simply, the 12 Panel considers it important to ensure that less robust inspection programs or lower 13 maintenance standards resulting in increased unplanned forced outages are 14 discouraged. Accordingly, FBC is directed to include in its next Annual Review Application a discussion on whether GFOR should be moved from an 15 informational SQI and added to the list of measurable SQIs. 16

As directed, FBC provides the following discussion on whether the GFOR should be moved
from an informational SQI and added to the list of measurable SQIs. As discussed below, FBC
believes it is appropriate for GFOR to remain as an informational SQI.

FBC has in place rigid inspection and maintenance practices set by industry and manufacturer's guidelines, and enhanced or modified based on operational experience and performance of the equipment. Evidence of these rigid inspection and maintenance practices for FBC's generators is demonstrated by the Company's historical low forced outage rates, which are consistently better than the industry average.

25 As with all events of this nature, FBC conducted an investigation into the two fires at South 26 Slocan Unit 1 and Corra Linn Unit 2 including an extensive failure analysis. The main purpose of 27 any failure analysis is to collect and analyze data to determine the root cause of failures and 28 then use the knowledge acquired to drive improvements in product and process design. Once 29 the failure modes are determined, prudent management dictates that existing practices and 30 processes be reviewed and updated, where necessary, to minimize future similar issues that 31 were evident in the two installations. Likewise, additional testing can be implemented to 32 improve the diagnostic data available and hence improve decision making on the performance 33 of the equipment.

The investigations into the two fires at South Slocan Unit 1 and Corra Linn Unit 2 revealed that the most likely cause was an installation issue – and not due to "less robust inspection programs or lower maintenance standards". The failure analysis revealed that additional quality assurance standards during installation and additional testing would serve to minimize future failures. FBC therefore took steps to implement additional quality assurance standards as well as measures for new and existing cable installations and more frequent testing.



The implementation of additional quality standards post-failure investigations does not imply that the original practices and processes were deficient. Rather, the original practices were reasonable based on the knowledge known at the time and consistent with good utility practice. The information and experience gained from the analysis of the fires, however, resulted in new practices to prevent similar events from occurring in the future.

6 To make GFOR a measurable SQI (i.e. with a benchmark) would neither change the 7 recommendations that arose from the failure analysis of the South Slocan Unit 1 and Corra Linn 8 Unit 2 fire, nor would FBC change its existing inspection and maintenance programs which are 9 already consistent with industry standards. The Company's historical forced outage rates 10 amply demonstrate the adequacy of FBC's current inspection and maintenance programs 11 notwithstanding that one recommendation of the failure analysis is to augment the current 12 inspection program with additional testing which will result in increased O&M cost. The 13 Company believes the additional testing is a prudent step towards acquiring additional 14 equipment performance data and is reflective of the Company's responsive approach to revise 15 plans and practices as needed in order to reduce the likelihood of similar incidents in the future.

Further, consistent with previous discussions in the 2014-2018 PBR proceeding, FBC believes that for a metric to be considered a SQI, it must represent a service or a service attribute that customers value. In the case of the GFOR metric, there is no direct impact on customers and the electric service they receive, because the failure of one of the Company's generators does not result in loss of service to customers due to the availability of a portfolio of resources to draw upon on if a generator fails.

FBC emphasizes that its GFOR has been consistently better than the industry averages published annually by the CEA and, as shown in Table 13-12, FBC's worst performing year in the recent past (i.e. year 2013 which included the Corra Linn fire) was still consistent with industry averages. The very low GFOR means that this measure will be heavily influenced by a single event. Therefore, should the Commission be persuaded to make GFOR a measurable index, FBC's performance should not be held to a standard that is much higher than other industry participants. Rather, the target should be based on the CEA average.

In summary, establishing a benchmark for GFOR metric would have limited value as it does not impact service to customers and would not result in any changes to FBC's inspection or maintenance programs. FBC already has multiple compelling reasons to maintain inspection and maintenance programs consistent with good utility practice and a GFOR SQI would not change FBC's approach to these programs in any way. Furthermore, fluctuations in the GFOR do not necessarily reflect any fault on FBC's part. The GFOR should therefore remain an informational indicator.

#### 36 **13.3** *SUMMARY*

In summary, FBC's June 2015 year-to-date SQI results indicate that the Company's overall
 performance is representative of a high level of service quality. For those SQIs with



- 1 benchmarks, five performed better than the approved benchmarks with two performing better
- 2 than the threshold. One SQI, the All Injury Frequency rate performed below the threshold. For
- 3 the three SQIs that are informational only, performance is consistent with or better than recent
- 4 years' performance.

Appendix A LOAD FORECAST SUPPLEMENTARY INFORMATION

# Appendix A1 STATISTICS CANADA AND CONFERENCE BOARD OF CANADA REPORTS



#### Table A1-1: CANSIM Table 326-0020

Statistics Canada

Canada

Table 326-0020<sup>1,2,3,5,5,2,2,18</sup> Consumer Price Index monthly (2002=100)

Data table Add/Remove data Manipulate Download Related information. Help

#### Data table

Selected items [Add/Remove data] Geography<sup>10</sup> = British Columbia Household Alcoholic Health and Recreation. All-Products and operations Clothing beverages AIFeducation excl Food Shelter pinduct groups furnishings and Transportation Gasoline and items personal care and 100 and footwear tobacco reading products ene equipment 117.9 126.9 113.2 110.9 98.2 128.0 199.3 111.7 115.1 131.1 111 2013 July 118.0 127.7 113,3 110.3 101.0 127.3 196.2 112.3 115.4 131.1 112 2013 August 11B.1 127.0 113.3 110.8 104.2 126.6 191.1 112.6 114.7 131.6 112 2013 September 117.7 125,9 113.2 112.6 103.5 125.7 180.4 111.9 113,3 131.9 112 2013 October 113.3 112.7 100.4 124.6 174.2 111.9 112.0 133.2 112 117.4 127.1 2013 November 113.2 97:9 124.3 172,7 111.4 131.8 117.0 127.5 111.3 112.5 111 2013 December 113.5 125.2 117.1 127.2 111.6 98.3 176.0 112.4 110.7 133.1 111 2014 January 118.0 113.5 112.5 100.0 126.4 179.0 113.0 111.B 132.8 112 128.8 2014 February 118.6 128.8 113.5 112.8 102.4 128.2 191.3 112.8 112.7 134.2 112 2014 March 135.1 114.8 112.2 102.6 129.0 196.9 112.4 112 119.0 128.8 113.2 2014 April 114.6 112.5 102.5 130.2 115.1 135.6 119.7 129.5 201.3 112.8 113 2014 May 135.5 119.8 114.5 112.8 101.1 130.6 204.5 115.R 113 2014 June 129.6 112.9 1125 101.0 116.2 135.6 113 2014 July 119.6 130.2 114.5 129.0 197.3 112.4 99.5 117.0 2014 August 119.6 129.9 114.4 113.4 128.5 192.7 112.8 135.6 113 113.6 127.8 115.6 136.3 113 2014 September 119.5 129.7 114.5 102.9 190.7 112.8 2014 October 119.0 129.8 114.1 113.2 103.9 126.9 178.8 112.3 113.7 135.8 113 118.8 130.6 114.2 113.5 102.2 126.0 171.6 113.9 112.2 136.3 113 2014 November 118.1 131.1 114.1 113.0 9B.4 123.6 155,6 113.1 111.8 135.4 112 2014 December 118.0 132.2 114.0 113.3 99.6 121.8 140,5 113.6 111.2 137.0 112 2015 January 118.9 133.1 114.0 113.9 101.6 123.7 154.9 113.7 113,1 136.0 113 2015 February 119.8 133.5 114.0 114.5 105.6 126.2 168.2 113.0 114.0 136.9 113 2015 March 113.7 114.8 126.1 113.3 137.1 113 119.6 132.7 106.5 165.8 113.0 2015 April 114.0 114.7 104.3 128.1 137.2 114 120.6 134.4 176.6 114.0 116.6 2015 May 120.7 134.7 113.9 114.9 101,D 128.7 8.081 113.9 118,4 137.4 114 2015 June

The data below is a part of CANSIM table 326-0020. Use the Add/Remove data tab to customize your table.



Canada

1

#### Table A1-2: CANSIM Table 281-0063

Government Gouvernement of Canada du Canada

Statistics Canada

Home > CANSEN

## Table 281-00631-31-12-13-34

Survey of Employment, Payrolls and Hours (SEPH), employment and average weekly earnings (including overtime) for all employees by North American Industry Classification System (NAICS), seasonally adjusted monthiy

Data table Add/Remove data Manipulate Download Related information Help

#### Data table

The data below is a part of CANSIM table 281-0063. Use the Add/Pernove data tab to customize your table.

Selected items [Add/Remove data]

Geography = British Columbia Estimate - Average weekly earnings including overtime for all employees (dollars)<sup>2</sup>

North American Industry Classification System (NAICS)	Industrial aggregate excluding unclassified businesses [11-91N] <sup>2-1</sup>	Goods producing industries {11-33N} 4	Forestry, logging and support [11N] <sup>4</sup>	Mining, quarrying, and oil and gas extraction (21)	Utilities (22)	Construction	Manufacturing (21-22)	Service producing industries [41-91N]	
2013 July	869.85 <sup>4</sup>	1,123.004	1,099.49*	1,741.22*	1,600.74	1,114.93*	904.83 <sup>4</sup>	820.30 <sup>4</sup>	676
2013 August	872.95*	1,124.01*	1,250.06*	1,620.09*	1,693.50^	1,097.10*	1,009.87*	823.474	661
2013 September	872.39 <sup>4</sup>	1,123.44 <sup>8</sup>	1,169.41*	1,705.95*	1,600.074	1,111.11*	995.39 <sup>4</sup>	822.754	667
2013 October	875.32 <sup>4</sup>	1,123.744	1,139.47 <sup>6</sup>	1,795.22 <sup>k</sup>	1,628.394	1,109.73*	966.10 <sup>4</sup>	B25.60 <sup>4</sup>	659
2013 November	890.51 <sup>4</sup>	1,155.454	1,209.294	1,850.24*	1,696.514	1,130.49*	1,030.414	839.17 <sup>4</sup>	679
2013 December	888.27*	1,164.43 <sup>8</sup>	1,286.89	1,875.48*	1,704.96*	1,127.22*	1,012.328	837.82*	7.02
2014 January	896.83 <sup>4</sup>	1,129.294	1,152.384	1,827.78*	1,743.03 <sup>4</sup>	1,110.35*	993.15 <sup>4</sup>	839.344	690
2014 February	689.12 <sup>A</sup>	1,128.26*	1,043.12 <sup>8</sup>	1,821.98*	1,718.094	1,131.98*	992.75 <sup>4</sup>	843.86*	686
2014 March	894.204	1,139.554	1,090.39*	1,903.93*	1,739.25*	1,122.63*	1,008.62 <sup>4</sup>	B47.14 <sup>4</sup>	674
2014 April	895.19 <sup>4</sup>	1,140.134	1,117.434	1,903.84 <sup>8</sup>	1,707.054	1,124.44*	1,000.164	847.64 <sup>4</sup>	680
2014 May	894.44 <sup>4</sup>	1,149.148	1,176.58*	1,895.44 <sup>8</sup>	1,694.67	1,137.39*	987.65*	848.24*	6.84
2014 June	696.66 <sup>4</sup>	1,146.87 <sup>4</sup>	1,219.14*	1,913.41*	1,701.11*	1,110.07*	1,004.60*	837.61*	690
2014 July	893.39 <sup>4</sup>	1,140.984	1,206.404	1,747.10 <sup>8</sup>	1,691.20 <sup>4</sup>	1,122.02*	997.67 <sup>4</sup>	843.314	683
2014 August	900.50 <sup>A</sup>	1,153.544	1,131.75 <sup>A</sup>	1,945.93 <sup>8</sup>	1,876.24	1,135.17*	1,021.70*	851.72 <sup>A</sup>	698
2014 September	897.76 <sup>4</sup>	1,162.394	1,099.25*	1,986.07*	1,745.524	1,138.67*	1,025.764	845.04 <sup>8</sup>	685
2014 October	905.02 <sup>4</sup>	1,165.294	1,163.73	2,001.55*	1,726.06 <sup>4</sup>	1,143.17 <sup>8</sup>	1,011.164	854.29 <sup>4</sup>	673
2014 November	902.65 <sup>4</sup>	1,154.164	1,115.274	1,949.55*	1,729.29 <sup>A</sup>	1,140.79*	1,009.314	854.954	678
2014 December	895.30 <sup>4</sup>	1,150.36 <sup>8</sup>	1,182.894	1,947.43 <sup>8</sup>	1,646.87*	1,147.93*	986.93 <sup>4</sup>	848.714	688
2015 January	911.15 <sup>4</sup>	1,164.644	1,204.43*	1,919.00 <sup>8</sup>	1,690.57	1,174.93*	1,016.28 <sup>4</sup>	862.03 <sup>4</sup>	686
2015 February	909.08 <sup>A</sup>	1,150.404	1,197-33*	1,913.37 <sup>a</sup>	1,700.444	1,125.11*	1,043.11 <sup>4</sup>	863.41 <sup>A</sup>	685
2015 March	904.92 <sup>4</sup>	1,151.654	1,230.13*	1,989.33*	1,668.654	1,125.06*	1,035.464	858.814	695
2015 April	902.63 <sup>4</sup>	1,155.94*	1,212.80*	1,807.90*	1,630.944	1,135.37*	1,044.524	853.714	686
2015 May	904.23 <sup>4</sup>	1,146.844	1,185.73*	1,761.76*	1,572.084	1,127.22*	1,060.124	857.74 <sup>8</sup>	696
2015 June	908.744	1.154.934	1.211.67*	1.901.63*	1.809.564	1.140.35*	1.033.814	861.69 <sup>4</sup>	703

#### FORTISBC INC. APPENDIX A1 – STATISTICS CANADA AND CBOC REPORTS



#### 1 2

#### Table A1-3: Conference Board of Canada GDP Forecast

May 7, 2015 Provincial Medium Term Forecast: 20151 Run: 20151					TABLE	11: KEY	ECONOM	IC INDICA	TORS, BR	атівн со	LUMBIA				
	2017Q1	2017Q2	2017Q3	2017Q4	2018Q1	2018Q2	2018Q3	2018Q4	2019Q1	2019Q2	2019Q3	2019Q4	2017	2018	<u>2019</u>
G.D.P AT MARKET PRICES	271835	275718	279215	282435	287273	291097	294603	296763	299669	302373	304607	306016	277300	292434	303166
(MILLIONS \$)	1.6	1.4	1.3	1.2	1.7	1.3	1.2	0.7	1.0	0.9	0.7	0.5	5.5	5.5	3.7
G.D.P AT MARKET PRICES	238149	239734	241324	243111	245314	246995	248604	249994	251158	252227	253297	254266	240580	247727	252737
(MILLIONS \$2007)	0.7	0.7	0.7	0.7	0.9	0.7	0.7	0.6	0.5	0.4	0.4	0.4	2.9	3.0	2.0
G.D.P AT BASIC PRICES	219220	220679	222143	223788	225815	227363	228843	230123	231195	232179	233164	234055	221457	228036	232648
(MILLIONS \$2007)	0.7	0.7	0.7	0.7	0.9	0.7	0.7	0.6	0.5	0.4	0.4	0.4	2.9	3.0	2.0
IMPLICIT PRICE DEFLATOR -	1.1	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
GDP AT BASIC PRICES (2007=1.0)	0.9	0.8	0.6	0.4	0.8	0.6	0.5	0.2	0.5	0.5	0.3	0.1	2.6	2.4	1.6
CONSUMER PRICE INDEX (2007=1.0)	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
	0.3	1.1	0.5	0.1	0.4	1.1	0.6	0.0	0.3	1.1	0.5	0.1	2.2	2.1	2.0
WAGES & SALARY PER EMPLOYEE	47.9	48.2	48.6	49.0	49.4	49.9	50.3	50.6	51.0	51.3	51.6	51.9	48.4	50.1	51.4
(THOUSANDS \$)	0.8	0.6	0.8	0.8	0.9	0.8	0.8	0.8	0.7	0.5	0.6	0.7	3.0	3.3	2.8
PRIMARY HOUSEHOLD INCOME (MILLIC	189768	192190	194992	197828	200761	203196	205669	208134	210375	212254	214283	216313	193694	204440	213306
	1.2	1.3	1.5	1.5	1.5	1.2	1.2	1.2	1.1	0.9	1.0	0.9	5.2	5.5	4.3
HOUSEHOLD DISPOSABLE INCOME	167812	169941	172310	174648	176863	179053	181214	183303	185129	186858	188648	190392	171178	180109	187757
(MILLIONS \$)	1.4	1.3	1.4	1.4	1.3	1.2	1.2	1.2	1.0	0.9	1.0	0.9	5.3	5.2	4.2
POPULATION OF LABOUR	3959	3972	3985	3999	4012	4026	4040	4053	4068	4082	4095	4109	3979	4033	4088
FORCE AGE	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.3	1.3	1.4	1.4
LABOUR FORCE ('000)	2509	2522	2535	2545	2554	2563	2571	2579	2586	2593	2598	2603	2528	2567	2595
	0.3	0.5	0.5	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.2	0.2	1.6	1.6	1.1
EMPLOYMENT ('000)	2371	2385	2401	2417	2431	2439	2447	2456	2462	2468	2473	2478	2393	2443	2471
	0.5	0.6	0.7	0.6	0.6	0.3	0.3	0.4	0.2	0.2	0.2	0.2	2.0	2.1	1.1
UNEMPLOYMENT RATE	5.5	5.4	5.3	5.0	4.8	4.9	4.8	4.8	4.8	4.8	4.8	4.8	5.3	4.8	4.8
RETAIL SALES (MILLIONS \$)	77436	78164	79083	80049	80977	81726	82527	83253	83865	84364	84910	85414	78683	82121	84638
	1.0	0.9	1.2	1.2	1.2	0.9	1.0	0.9	0.7	0.6	0.6	0.6	4.0	4.4	3.1
HOUSING STARTS (NUMBER OF UNITS)	31876	32025	32368	32817	32895	32659	32718	32106	32547	32673	32799	33127	32272	32595	32787
	-0.2	0.5	1.1	1.4	0.2	-0.7	0.2	-1.9	1.4	0.4	0.4	1.0	2.6	1.0	0.6

Appendix A2 LOAD FORECAST TABLES



# **Appendix A-2**

# **Load Forecast Tables**

September 11, 2015



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### 1 1. MONTHLY LOAD FORECAST

- 2 Forecast loads are shown:
- before-saving the load before DSM and all other savings (RCR1, CIP2, AMI3, and rate-driven impacts);
- before-saving and after rate-driven and RCR impacts the load before DSM and some savings (CIP, AMI), but after rate-driven and RCR impacts; and
- after-saving –the load after DSM and all other savings (RCR, CIP, AMI, and rate-driven impacts).

#### 9 1.1 GROSS LOAD

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Historical N	lormalized	Actuals											
2005	342,246	296,201	292,316	252,500	241,113	229,855	259,166	259,939	241,052	266,340	299,822	361,345	3,341,894
2006	370,078	309,284	305,670	255,581	240,065	237,225	274,816	260,925	231,742	267,853	310,004	366,727	3,429,970
2007	362,696	318,187	300,725	251,383	254,740	238,900	280,425	261,986	228,445	261,607	298,971	356,106	3,414,170
2008	351,478	312,547	288,943	248,550	243,211	235,861	276,961	258,486	223,859	260,879	300,150	349,985	3,350,908
2009	357,560	302,739	305,539	244,978	242,249	242,735	276,801	262,866	234,668	269,945	315,009	360,679	3,415,766
2010	358,574	304,251	288,022	253,247	237,451	232,285	274,190	265,937	227,770	258,133	303,172	365,668	3,368,701
2011	374,096	313,764	312,059	254,039	235,722	242,276	268,421	273,732	242,593	260,877	307,093	362,607	3,447,280
2012	354,376	315,497	304,411	253,594	237,899	233,308	272,143	275,122	236,457	262,538	313,757	362,555	3,421,657
2013	372,939	327,919	300,296	255,888	249,987	235,093	291,183	274,786	241,239	266,317	303,923	380,406	3,499,975
2014	363,245	306,420	303,949	253,146	241,945	242,396	285,626	270,799	229,532	256,624	301,612	380,684	3,435,977
Before-Sav	vings												
2015S	372,111	320,093	314,271	267,788	256,978	246,266	285,504	281,326	243,931	273,736	317,086	369,933	3,549,024
2016F	377,684	325,027	319,033	271,899	260,916	250,026	289,762	285,524	247,688	277,893	321,852	375,351	3,602,656
After-Savi	ngs												
2015S	369,618	317,760	311,851	265,508	254,694	243,938	282,891	278,612	241,280	270,828	313,878	366,349	3,517,207
2016F	372,426	320,050	314,000	267,142	256,221	245,294	284,621	280,238	242,516	272,378	315,932	368,908	3,539,727

<sup>&</sup>lt;sup>1</sup> FBC's Residential Conservation Rate

<sup>&</sup>lt;sup>2</sup> Customer Information Portal

<sup>&</sup>lt;sup>3</sup> Advanced Metering Infrastructure



## 1 **1.2 NET LOAD**

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Historical N	lormalized /	Actuals											
2005	298,628	259,684	259,404	226,558	217,892	207,991	232,685	233,314	217,207	238,515	264,471	313,327	2,969,676
2006	323,051	272,294	272,267	230,781	218,543	215,584	247,266	235,858	211,010	241,560	274,833	320,453	3,063,500
2007	319,345	281,021	269,786	228,457	231,883	218,021	253,178	237,923	209,218	237,608	267,532	314,154	3,068,127
2008	313,562	279,252	262,392	227,860	223,882	217,082	252,395	236,852	206,815	238,874	270,905	312,359	3,042,230
2009	318,969	271,732	276,533	225,115	223,331	223,208	252,599	240,861	216,326	246,835	283,506	321,479	3,100,494
2010	322,764	275,389	264,054	233,827	220,707	215,751	252,308	245,260	211,831	238,568	276,095	328,561	3,085,116
2011	333,975	282,076	283,208	233,733	218,542	223,679	246,555	251,059	223,951	240,135	278,304	324,686	3,139,902
2012	321,730	286,779	279,732	235,517	222,312	217,842	252,099	254,667	220,598	243,793	286,926	328,517	3,150,511
2013	337,728	297,641	276,667	237,842	233,199	219,696	268,867	254,751	225,078	247,419	279,078	343,897	3,221,865
2014	329,517	279,546	279,656	235,365	226,070	226,002	263,980	251,199	214,732	238,897	276,987	343,940	3,165,892
Before-Sav	/ings												
2015S	337,084	291,160	288,595	248,169	239,322	229,489	264,016	260,419	227,451	253,868	290,249	335,279	3,265,102
2016F	342,135	295,639	292,967	251,974	242,986	232,990	267,957	264,308	230,949	257,721	294,614	340,202	3,314,444
After-Savi	ngs												
2015S	335,081	289,239	286,604	246,258	237,392	227,506	261,809	258,109	225,155	251,379	287,537	332,293	3,238,361
2016F	337,906	291,533	288,830	247,994	239,032	228,975	263,645	259,842	226,499	253,044	289,669	334,925	3,261,893

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## 4 1.3 RESIDENTIAL

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Historical No	rmalized Ac	tuals											
2005	111,659	97,674	99,104	78,430	74,489	62,417	77,324	73,748	67,573	84,996	89,832	122,425	1,039,671
2006	129,951	99,060	100,792	76,647	67,004	65,050	81,435	70,346	60,882	78,885	93,787	140,556	1,064,394
2007	133,283	110,758	109,301	80,854	84,765	70,147	92,330	83,263	69,225	90,062	107,143	133,921	1,165,052
2008	136,053	115,157	109,364	89,438	80,721	72,251	97,949	85,591	74,307	91,773	109,092	133,820	1,195,516
2009	138,654	111,321	124,105	89,024	87,454	83,579	97,792	88,147	71,111	92,827	114,789	140,106	1,238,909
2010	144,415	116,176	112,135	94,505	85,285	75,333	96,222	91,300	72,613	94,047	110,964	148,667	1,241,663
2011	150,580	112,169	121,527	98,312	80,093	79,957	85,233	91,744	76,608	88,720	117,345	146,806	1,249,094
2012	134,187	105,958	112,447	88,508	81,808	82,946	97,309	91,118	73,417	89,175	117,807	154,029	1,228,709
2013	145,263	115,730	114,637	112,100	90,869	85,319	120,666	100,397	73,591	97,867	124,661	171,845	1,352,945
2014	147,191	120,724	129,852	84,813	80,792	77,673	105,443	102,753	73,260	95,314	119,531	159,107	1,296,452
Before-Savi	ngs												
2015S	154,752	120,453	126,936	102,595	95,273	87,937	108,267	102,588	80,140	102,585	128,536	165,686	1,375,750
2016F	156,334	121,685	128,234	103,644	96,248	88,836	109,374	103,636	80,959	103,634	129,851	167,380	1,389,816
After-Saving	gs												
20155	153,684	119,500	125,933	101,679	94,372	87,040	107,250	101,551	79,158	101,462	127,256	164,203	1,363,088
2016F	154,340	119,837	126,347	101,886	94,529	87,133	107,523	101,753	79,133	101,628	127,645	164,924	1,366,678



#### 1 1.4 COMMERCIAL

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Historical N	ormalized Ad	ctuals											
2005	50,029	46,137	45,775	44,918	45,221	47,850	50,288	49,487	46,380	45,480	49,428	54,585	575,578
2006	54,810	52,105	49,302	47,269	49,149	52,078	52,684	51,555	49,179	48,978	52,736	56,451	616,295
2007	57,625	54,282	51,787	50,427	52,321	55,372	55,996	53,312	51,185	52,063	55,272	60,163	649,803
2008	60,679	56,323	52,557	51,300	52,601	55,870	56,404	52,930	51,191	52,238	56,934	61,945	660,971
2009	60,319	57,143	55,134	52,468	52,802	56,015	57,628	55,929	54,675	55,551	57,688	60,004	675,356
2010	58,527	55,666	53,799	51,561	52,546	56,272	56,380	52,416	51,844	54,570	57,594	58,382	659,556
2011	57,742	59,980	55,524	50,675	51,759	55,477	59,401	55,911	50,918	50,637	53,116	55,779	656,918
2012	64,101	63,452	59,292	53,673	54,431	49,553	55,968	62,008	56,661	52,596	57,398	51,423	680,553
2013	65,750	60,623	56,214	57,036	69,494	61,665	67,834	73,941	72,704	67,185	66,229	69,533	788,208
2014	80,354	73,607	69,309	70,566	73,342	72,255	76,262	75,406	66,710	60,531	66,112	81,292	865,746
Before-Sav	ings												
2015S	81,154	78,563	74,068	67,880	70,211	68,175	73,374	73,816	69,918	67,886	71,741	72,413	869,198
2016F	82,742	80,100	75,517	69,208	71,584	69,508	74,809	75,259	71,286	69,213	73,144	73,829	886,200
After-Savir	ngs												
2015S	80,636	78,025	73,521	67,331	69,648	67,595	72,759	73,165	69,240	67,172	70,983	71,617	861,692
2016F	81,510	78,855	74,280	67,991	70,373	68,286	73,546	73,947	69,935	67,812	71,684	72,319	870,539

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## 3 1.5 WHOLESALE

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Historical N	lormalized /	Actuals											
2005	99,219	83,440	81,645	70,362	65,739	65,754	73,447	73,418	63,796	69,197	90,327	102,676	939,020
2006	104,740	87,653	86,284	70,910	67,094	65,924	77,822	79,281	66,626	76,585	98,120	97,957	978,996
2007	97,305	84,118	78,385	66,546	61,822	58,282	72,200	64,135	54,997	65,136	77,393	97,674	877,994
2008	95,009	83,999	79,094	66,892	69,677	66,114	71,212	70,951	57,242	70,540	82,793	94,718	908,240
2009	95,727	81,925	76,294	64,159	63,412	59,985	72,433	70,682	64,375	73,304	87,106	98,864	908,266
2010	98,545	83,945	77,442	67,108	59,780	59,833	72,144	70,068	60,545	64,123	82,201	99,603	895,337
2011	100,725	84,225	82,112	65,996	58,766	60,441	68,427	71,106	64,187	70,871	84,304	98,386	909,548
2012	96,036	85,333	81,119	66,560	58,307	59,084	69,719	70,177	60,311	72,646	82,146	97,532	898,971
2013	103,661	88,423	80,309	42,225	37,653	34,630	44,414	42,889	38,531	44,175	51,637	66,656	675,204
2014	64,115	50,647	51,900	41,917	35,985	34,959	43,081	42,482	38,972	41,116	53,678	68,270	567,123
Before-Sav	/ings												
2015S	63,084	54,848	50,832	42,065	38,147	37,369	44,826	44,481	39,554	44,653	53,010	63,623	576,491
2016F	64,298	55,903	51,811	42,874	38,881	38,088	45,689	45,337	40,315	45,512	54,030	64,848	587,585
After-Savi	ngs												
2015S	62,878	54,628	50,604	41,830	37,905	37,116	44,557	44,193	39,248	44,326	52,661	63,254	573,202
2016F	63,634	55,238	51,151	42,230	38,245	37,444	45,015	44,636	39,596	44,756	53,233	64,009	579,185



## 1 1.6 INDUSTRIAL

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Historical N	lormalized A	Actuals											
2005	35,246	30,890	31,737	31,681	28,610	25,945	24,775	26,343	28,573	32,409	31,901	32,066	360,177
2006	32,169	31,766	34,606	34,204	31,283	27,474	26,731	23,420	24,749	30,771	27,229	23,877	348,279
2007	29,351	30,288	28,555	28,792	28,203	25,897	22,857	25,798	23,811	24,761	24,910	20,828	314,051
2008	19,981	22,004	19,570	18,082	16,331	16,765	16,700	15,303	15,758	18,412	18,815	20,129	217,849
2009	22,496	19,712	19,195	17,101	15,353	13,975	14,634	15,213	17,528	18,602	21,176	20,726	215,710
2010	19,449	17,896	18,991	18,389	18,616	18,603	18,551	20,146	19,259	21,495	22,097	20,207	233,699
2011	23,160	24,129	21,555	17,261	24,902	22,812	25,671	21,690	22,374	24,978	20,262	21,971	270,764
2012	24,973	30,356	25,036	25,285	23,707	21,432	22,094	22,115	22,666	22,863	26,328	23,917	290,771
2013	19,966	30,774	23,744	24,489	31,517	33,006	29,815	29,726	31,598	32,105	32,500	33,084	352,325
2014	35,943	32,746	26,411	34,532	30,112	32,770	29,719	22,362	30,032	38,104	35,138	33,043	380,912
Before-Sav	vings												
2015S	36,200	35,543	35,057	33,538	31,558	29,789	29,067	29,297	29,803	33,466	33,984	31,901	389,204
2016F	36,868	36,199	35,704	34,157	32,140	30,339	29,603	29,837	30,353	34,083	34,611	32,489	396,384
After-Savir	ngs												
2015S	36,131	35,469	34,980	33,459	31,477	29,704	28,977	29,200	29,701	33,356	33,868	31,778	388,100
2016F	36,626	35,954	35,459	33,916	31,903	30,101	29,360	29,585	30,092	33,808	34,325	32,197	393,326

2

## 3 **1.7** *LIGHTING*

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Historical N	ormalized A	Actuals											
2005	900	900	900	900	900	835	834	841	976	1,056	1,028	997	11,066
2006	1,043	984	1,064	1,034	1,061	1,033	1,021	1,029	1,014	1,144	1,102	1,062	12,591
2007	1,056	1,041	1,121	1,040	1,073	1,057	1,080	1,057	1,064	1,129	1,056	1,062	12,835
2008	1,168	1,104	1,151	1,128	1,111	1,055	1,196	1,094	1,111	1,140	1,083	1,066	13,406
2009	1,097	1,044	1,133	1,024	1,163	1,154	1,112	1,136	1,089	1,153	1,077	1,114	13,297
2010	1,132	1,100	1,172	1,047	1,184	1,513	1,767	1,246	1,123	1,111	1,045	1,041	14,480
2011	1,114	1,027	1,674	582	1,092	1,098	1,086	1,113	1,615	560	1,121	1,153	13,233
2012	1,618	1,031	1,232	601	1,666	601	1,661	1,137	611	1,127	1,137	1,064	13,487
2013	1,532	863	1,003	1,112	1,186	1,101	1,151	1,069	1,135	1,132	1,080	1,114	13,479
2014	1,282	1,273	1,251	1,310	1,327	1,331	1,329	1,374	1,257	1,255	1,260	1,382	15,633
Before-Sav	ings												
2015S	1,349	1,202	1,234	1,197	1,231	1,216	1,235	1,199	1,259	1,259	1,268	1,116	14,764
2016F	1,349	1,202	1,234	1,197	1,231	1,216	1,235	1,199	1,259	1,259	1,268	1,116	14,764
After-Savin	igs												
2015S	1,342	1,189	1,214	1,171	1,200	1,180	1,192	1,149	1,202	1,195	1,195	1,036	14,267
2016F	1,260	1,107	1,134	1,094	1,125	1,106	1,118	1,073	1,125	1,116	1,115	955	13,329



#### 1.8 IRRIGATION 1

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Historical N	lormalized A	ctuals											
2005	1,576	643	242	266	2,933	5,191	6,017	9,477	9,909	5,378	1,956	578	44,165
2006	338	726	219	716	2,953	4,026	7,573	10,227	8,560	5,196	1,858	551	42,945
2007	726	534	637	800	3,699	7,265	8,715	10,359	8,937	4,456	1,758	507	48,393
2008	672	666	656	1,019	3,441	5,028	8,933	10,984	7,206	4,771	2,190	682	46,248
2009	675	588	673	1,340	3,147	8,501	9,000	9,754	7,548	5,399	1,669	664	48,957
2010	698	605	514	1,217	3,296	4,198	7,243	10,085	6,448	3,223	2,194	660	40,381
2011	654	545	816	908	1,931	3,894	6,737	9,495	8,249	4,369	2,156	590	40,345
2012	816	650	606	890	2,393	4,226	5,348	8,113	6,933	5,385	2,109	552	38,019
2013	1,557	1,228	759	880	2,480	3,974	4,986	6,729	7,519	4,955	2,970	1,666	39,704
2014	633	549	932	2,227	4,512	7,013	8,146	6,822	4,501	2,578	1,267	847	40,025
Before-Sav	/ings												
2015S	544	550	468	895	2,902	5,003	7,247	9,040	6,777	4,020	1,710	540	39,695
2016F	544	550	468	895	2,902	5,003	7,247	9,040	6,777	4,020	1,710	540	39,695
After-Savir	ngs												
20155	541	548	465	889	2,885	4,965	7,181	8,959	6,708	3,977	1,690	531	39,339
2016F	536	543	458	877	2,856	4,904	7,084	8,847	6,618	3,924	1,666	521	38,836

2

#### 1.9 System Peak (MW) 3

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Winter	Summer
Historical N	ormalized	Actuals												
2005	661	652	553	506	545	400	484	487	442	497	649	709	719	487
2006	719	666	582	523	561	415	493	490	474	541	638	733	733	493
2007	676	644	555	514	540	393	520	487	471	535	627	704	704	520
2008	660	660	543	535	476	380	502	494	443	504	666	677	707	502
2009	707	643	624	507	481	415	496	446	564	514	660	704	704	496
2010	683	629	536	499	486	420	566	554	448	487	652	726	726	566
2011	722	666	593	516	472	448	529	537	509	508	632	691	702	537
2012	702	675	560	523	493	418	589	540	453	501	624	723	723	589
2013	720	631	549	493	515	442	600	565	523	502	598	698	698	600
2014	651	580	562	469	403	482	620	605	412	467	572	645	645	620
Before-Sav	ings													
2015S	624	684	579	470	415	450	596	601	415	459	642	671	756	596
2016F	708	645	586	515	465	499	599	577	476	533	660	717	767	604
After-Saving	<u>y</u> s													
2015S	622	682	577	468	413	447	593	598	412	456	638	667	752	593
2016F	703	639	580	509	459	493	592	570	469	526	653	709	760	598


### 1 2. ACCOUNTS FORECAST

#### 2 2.1 ACCOUNTS

3

5

Customer Counts	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015S	2016F
Residential	86,870	89,181	93,647	95,502	96,565	97,883	98,795	99,228	111,862	113,431	114,142	115,758
Commercial	10,012	10,285	11,010	11,216	11,308	11,419	11,525	11,811	13,662	14,363	14,633	15,042
Wholesale	8	8	7	7	7	7	7	7	6	6	6	6
Industrial	39	37	38	36	33	35	36	39	47	49	49	49
Lighting	1,836	1,905	1,992	1,910	1,874	1,830	1,803	1,739	1,644	1,620	1,620	1,620
Irrigation	980	997	1,030	1,048	1,066	1,075	1,092	1,091	1,097	1,103	1,103	1,103
Total Direct	99,745	102,413	107,724	109,719	110,853	112,249	113,258	113,915	128,318	130,572	131,553	133,578

#### 4 2.2 ACCOUNT ADDS

Customer Additions	2005	2006	2007	2008	2010	2011	2012	2013	2014	2015S	2016F
Residential	2,862	2,311	4,466	1,855	1,318	912	433	12,634	1,569	711	1,616
Commercial	(39)	273	725	206	111	106	286	1,851	701	270	409
Wholesale	-	-	(1)	-	-	-	-	(1)	-	-	-
Industrial	(1)	(2)	1	(2)	2	1	3	8	2	-	-
Lighting	(96)	69	87	(82)	(44)	(27)	(64)	(95)	(24)	-	-
Irrigation	(298)	17	33	18	9	17	(1)	6	6	-	-
Total Direct	2428	2,668	5,311	1,995	1,396	1,009	657	14,403	2,254	981	2,025



# 1 3. USE PER CUSTOMER (UPC)

	MWh/Customer	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015S	2016F
2	Residential	12.17	12.09	12.74	12.64	12.90	12.77	12.70	12.41	12.48	11.51	11.98	11.89



#### 1 4. ENERGY

#### 2 4.1 ENERGY

#### Normalized Energy Sales and After-Savings Forecast

Energy (GWh)	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015S	2016F
Residential	1,040	1,064	1,165	1,196	1,239	1,242	1,249	1,229	1,353	1,296	1,363	1,367
Commercial	576	616	650	661	675	660	657	681	788	866	862	871
Wholesale	939	979	878	898	908	895	910	899	675	567	572	579
Industrial	360	348	314	218	216	234	271	291	352	381	388	393
Lighting	11	13	13	13	13	14	13	13	13	16	14	13
Irrigation	44	43	48	46	49	40	40	38	40	40	39	39
Net	2,970	3,064	3,068	3,042	3,100	3,085	3,140	3,151	3,222	3,166	3,238	3,262
Losses	372	366	346	3,351	315	284	307	271	278	270	279	278
Gross	3,342	3,430	3,414	309	3,416	3,369	3,447	3,422	3,500	3,436	3,517	3,540
System Peak (MWh)												
Winter Peak	719	733	704	707	704	726	702	723	698	645	752	760
Summer Peak	487	493	520	502	496	566	537	589	600	620	593	598

### 5 4.2 WHOLESALE ENERGY

#### Normalized Energy and After Savings Forecast Wholesale (GWh) 2015S 2016F BCH Lardeau BCH Kingsgate City of Grand Forks City of Nelson City of Penticton District of Summerland City of Kelowna Total

# 7 4.3 AMI, CIP, RCR AND RATE-DRIVEN SAVINGS IMPACTS (GWH) WITHOUT 8 Losses<sup>4</sup>

	2016
AMI	+7
CIP	-4
RCR	-8
Rate-driven	-2

<sup>&</sup>lt;sup>4</sup> See Section 3 of the Application for the impact of AMI on losses.



### 1 5. FORECAST VARIANCES

#### 2 5.1 CUSTOMER COUNT VARIANCE

Customer Count	2009	2010	2011	2012	2013	2014
Actual						
Residential	96,565	97,883	98,795	99,228	98,906	113,431
Commercial	11,308	11,419	11,525	11,811	12,077	14,363
Wholesale	7	7	7	7	6	6
Industrial	33	35	36	39	39	49
Lighting	1,874	1,830	1,803	1,739	1,641	1,620
Irrigation	1,066	1,075	1,092	1,091	1,097	1,103
Total direct	110,853	112,249	113,258	113,915	113,766	130,572
Forecast						
Residential	97,255	98,264	99,663	101,320	103,279	113,229
Commercial	11,583	11,667	11,714	11,837	12,130	13,739
Wholesale	7	7	7	7	7	6
Industrial	37	34	35	36	36	48
Lighting	3,031	2,939	1,836	1,830	1,830	1,742
Irrigation	Combined	l with Light	1,081	1,075	1,075	1,091
Total direct	111,913	112,911	114,336	116,105	118,357	129,855
Variance (customers)						
Residential	(690)	(381)	(868)	(2,092)	(4,373)	202
Commercial	(275)	(248)	(189)	(26)	(53)	624
Wholesale	-	-	-	-	(1)	-
Industrial	(4)	1	1	3	3	1
Lighting	-91	-34	(33)	(91)	(189)	(122)
Irrigation	Combined	l with Light	11	16	22	12
Total direct	(1,060)	(662)	(1,078)	(2,190)	(4,591)	717
Variance (%)						
Residential	-0.7%	-0.4%	-0.9%	-2.1%	-4.4%	0.2%
Commercial	-2.4%	-2.2%	-1.6%	-0.2%	-0.4%	4.3%
Wholesale	0.0%	0.0%	0.0%	0.0%	-16.7%	0.0%
Industrial	-12.1%	2.9%	2.8%	7.7%	7.7%	2.0%
Lighting	-3.1%	-1.2%	-1.8%	-5.2%	-11.5%	-7.5%
Irrigation	Combined	l with Light	1.0%	1.5%	2.0%	1.1%
Total direct	-1.0%	-0.6%	-1.0%	-1.9%	-4.0%	0.5%



#### 1 5.2 LOAD VARIANCE

Energy (GWh)	2009	2010	2011	2012	2013	2014
Actual						
Residential	1,273	1,216	1,254	1,224	1,265	1,304
Commercial	675	660	657	681	699	866
Wholesale	931	881	909	896	902	572
Industrial	216	234	271	291	291	381
Lighting	13	14	13	13	13	16
Irrigation	49	40	40	38	40	40
Net	3,157	3,044	3,144	3,143	3,211	3,178
Gross	3,478	3,324	3,452	3,414	3,489	3,450
Forecast						
Residential	1,222	1,248	1,261	1,264	1,276	1,402
Commercial	678	682	671	696	709	813
Wholesale	921	915	940	926	935	581
Industrial	224	291	233	250	255	389
Lighting	14	15	12	14	14	13
Irrigation	48	50	45	44	43	42
Net	3,107	3,199	3,162	3,193	3,233	3,240
Gross	3,410	3,509	3,472	3,502	3,543	3,519
Variance (GWh)						
Residential	51	(32)	(8)	(40)	(11)	(99)
Commercial	(3)	(22)	(14)	(16)	(10)	53
Wholesale	10	(34)	(31)	(29)	(33)	(9)
Industrial	(8)	(57)	38	41	36	(9)
Lighting	(1)	(1)	1	(0)	(0)	3
Irrigation	1	(10)	(4)	(6)	(3)	(2)
Net	50	(155)	(18)	(50)	(21)	(62)
Gross	68	(185)	(20)	(89)	(55)	(69)
Variance (%)						
Residential	4.0%	-2.7%	-0.6%	-3.3%	-0.9%	-7.6%
Commercial	-0.4%	-3.4%	-2.1%	-2.3%	-1.4%	6.1%
Wholesale	1.1%	-3.9%	-3.4%	-3.3%	-3.6%	-1.6%
Industrial	-3.8%	-24.5%	13.9%	14.1%	12.4%	-2.2%
Lighting	-5.3%	-3.6%	10.4%	-3.5%	-1.5%	18.2%
Irrigation	2.0%	-23.8%	-10.8%	-14.9%	-8.7%	-4.9%
Net	1.6%	-5.1%	-0.6%	-1.6%	-0.7%	-2.0%
Gross	1.9%	-5.6%	-0.6%	-2.6%	-1.6%	-2.0%



#### 1 5.3 ANNUAL PERCENT GROWTH

		Actual	and Norm	alized	-			
Energy (GWh)	2009	2010	2011	2012	2013	2014	2015	2016
Residential	1,239	1,242	1,249	1,229	1,353	1,296	1,363	1,367
Commercial	675	660	657	681	788	866	862	871
Wholesale	908	895	910	899	675	567	572	579
Industrial	216	234	271	291	352	381	388	393
Lighting	13	14	13	13	13	16	14	13
Irrigation	49	40	40	38	40	40	39	39
Net	3,100	3,085	3,140	3,151	3,222	3,166	3,238	3,262
Losses	315	284	307	271	278	270	279	278
Gross	3,416	3,369	3,447	3,422	3,500	3,436	3,517	3,540
System Peak								
Winter Peak (MW)	704	726	702	723	698	645	752	760
Summer Peak (MW)	496	566	537	589	600	620	593	598
Growth Year over Year	2009	2010	2011	2012	2013	2014	2015S	2016F
Residential		0%	1%	-2%	10%	-4%	5%	0%
Commercial		-2%	0%	4%	16%	10%	0%	1%
Wholesale		-1%	2%	-1%	-25%	-16%	1%	1%
Industrial		8%	16%	7%	21%	8%	2%	1%
Lighting		9%	-9%	2%	0%	16%	-9%	-6%
Irrigation		-18%	0%	-6%	4%	1%	-2%	-1%
Net		0%	2%	0%	2%	-2%	2%	1%
Losses		-10%	8%	-12%	3%	-3%	3%	0%
Gross		-1%	2%	-1%	2%	-2%	2%	1%
System Peak								
Winter Peak (MW)		3%	-3%	3%	-3%	-8%	17%	1%
Summer Peak (MW)		14%	-5%	10%	2%	3%	-4%	1%

APPENDIX A2 LOAD FORECAST TABLES



Customer Count	2009	2010	2011	2012	2013	2014	2015	2016
Residential	96,565	97,883	98,795	99,228	111,862	113,431	114,142	115,758
Commercial	11,308	11,419	11,525	11,811	13,662	14,363	14,633	15,042
Wholesale	7	7	7	7	6	6	6	6
Industrial	33	35	36	39	47	49	49	49
Lighting	1,874	1,830	1,803	1,739	1,644	1,620	1,620	1,620
Irrigation	1,066	1,075	1,092	1,091	1,097	1,103	1,103	1,103
Total Direct	110,853	112,249	113,258	113,915	128,318	130,572	131,553	133,578
Growth Year over Year	2009	2010	2011	2012	2013	2014	2015S	2016F
Residential		1%	1%	0%	13%	1%	1%	1%
Commercial		1%	1%	2%	16%	5%	2%	3%
Wholesale		0%	0%	0%	-14%	0%	0%	0%
Industrial		6%	3%	8%	21%	4%	0%	0%
Lighting		-2%	-1%	-4%	-5%	-1%	0%	0%
Irrigation		1%	2%	0%	1%	1%	0%	0%
Total Direct		1%	1%	1%	13%	2%	1%	2%

#### 2 5.4 System Load Factor

The following table uses annual after-savings gross energy and peak. (annual energy/peak
hourly load x 8,760)

Year	Energy (MWh)	Peak (MW)	Load Factor
2009	3,415,766	707	0.55
2010	3,368,701	726	0.53
2011	3,447,280	722	0.55
2012	3,421,657	723	0.54
2013	3,499,975	720	0.56
2014	3,435,977	651	0.60
2015S	3,517,207	752	0.53
2016F	3,539,727	760	0.53

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# Appendix A3 LOAD FORECAST METHODOLOGY



# **Appendix A3**

# Load Forecast Methodology

September 11, 2015



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#### 1 1. LOAD FORECAST METHODOLOGY

#### 2 **1.1** WEATHER NORMALIZATION

Electricity consumption is impacted by weather, particularly by temperature. For example,
energy requirements in an extremely cold winter month can be significantly higher than
requirements in normal weather conditions in the same month, due to additional heating loads.
As the load forecast is made under an assumption of normal weather, it is necessary to remove
those extreme weather effects. This is the first step in forecasting.

8 Statistical tests were made to check whether the Residential, Wholesale, and Commercial loads 9 were sensitive to temperature due to heating and cooling demands and whether the Irrigation 10 load was sensitive to the precipitation. Industrial and Street Lighting loads are typically 11 insensitive to the weather. Currently, only the Residential and Wholesale load classes are 12 normalized because their associated regression results showed significant results with high R<sup>2</sup> 13 values for these load classes while the R<sup>2</sup> values for the Commercial and Irrigation classes were 14 low.

15 Results of the Residential and Commercial Regression are given below.

16

Roondonnan Rogroooron Pasio					
Residential	Winter	Spring	Summer	Fall	
Intercept	37,724	65,665	75,899	66,414	
Slope HDD	172	111	-	84	
Slope CDD	-	-	132	-	
Adjusted R2	0.72	0.81	0.75	0.87	

**Residential Regression Table** 

17 18

Commercial	Winter	Spring	Summer	Fall
Intercept	49,335	51,003	53,829	54,098
Slope HDD	16	7	-	(7)
Slope CDD	-	-	24	-
R2	0.45	0.52	0.49	0.56

**Commercial Regression Table** 

19

20 Steps for weather (temperature) normalization are described as follows:

Calculate monthly Heating Degree Days (HDD)<sup>1</sup> and Cooling Degree Days (CDD)<sup>2</sup> for
 the Penticton weather station.

<sup>&</sup>lt;sup>1</sup> Heating degree-days for a given day are the number of Celsius degrees that the mean temperature is below 18 Celsius degrees.

<sup>&</sup>lt;sup>2</sup> Cooling degree-days for a given day are the number of Celsius degrees that the mean temperature is above 18 Celsius degrees.



- Calculate rolling 10-year HDD and CDD averages for each month of the year. These are used as the parameters of normal weather.
- 3 3. For the each of the Residential and Wholesale classes, regress energy on HDD or CDD 4 on a seasonal basis. Four seasons were defined: winter is November to February, spring 5 is March to May, fall is September to October, and summer is June to August. Thus all 6 monthly energy and degree day data for each season are used and four separate 7 regressions were calculated for each class. Princeton Event variables were included in 8 the regressions to recognize that in 2007 Princeton Light and Power Inc. (PLP), ceased 9 to exist as a wholesale customer and their customers became directly served by 10 FortisBC.
- 11 Chow tests confirmed that energy use consumption in the different seasons responded 12 differently to HDD and CDD (regression coefficients were statistically different).
- 13 4. To normalize a month, e.g. February 2014:
- 14 (a) obtain the month's HDD (or CDD) information from the Environment Canada;
- (b) calculate the deviation from the 10-year average (2004-2013) HDD (CDD) as found
   in Step 2;
- (c) apply the regression slope obtained in Step 3 to this deviation to come up with anormalization adder; and
- 19 (d) add the normalization adder to the month's load (residential or wholesale).
- 20 The general equation to normalize energy requirements in month t is shown below.
- 21 Normalized energy<sub>t</sub> = Energy<sub>t</sub> -HDD slope<sub>t</sub>\*(HDD<sub>t</sub> Normal HDD<sub>t</sub>) for t = March-May, 22 September-October, November-February,
- 23 Normalized energy<sub>t</sub> = Energy<sub>t</sub> –CDD slope<sub>t</sub>\*(CDD<sub>t</sub> Normal CDD<sub>t</sub>) for t = June-August

#### 24 1.2 ENERGY FORECAST

This section discusses methodologies to forecast energy requirements for different load classes for before savings. Savings is defined as the sum of DSM, the Residential Conservation Rate (RCR), Customer Information Portal (CIP), Advanced Metering Infrastructure Project (AMI), and rate-driven impacts. Note that the RCR, the CIP, and AMI forecasts are only available for the residential class. A general formula for an after-saving load in year *t* is

30 After-saving Load<sub>t</sub> = Before-saving Load<sub>t</sub> – Saving<sub>t</sub>

#### 31 1.2.1 Residential

32 The formula to forecast the expected before-saving residential load in year *t* is



1	Before-saving Load <sub>t</sub> = UPC <sub>t</sub> *Average Customer Count <sub>t</sub> ,
2	where UPC (use per customer, MWh per customer per year) is before-saving.
3 4 5 6 7	The before-saving UPC for 2016 was forecast at 12.09 <sup>3</sup> (MWh per customer per year) as the average of historical normalized UPCs in the previous three years 2012-2014. This value was then assumed to remain constant throughout the period due to offsetting impacts of factors that increase load (e.g. there are more appliances to suit more comfortable lifestyle) and decrease load (e.g. appliances are more energy-efficient).
8	Next, average customer count in year <i>t</i> is calculated as
9	Average Customer Count <sub>t</sub> = $0.5^*$ (Year-end Count <sub>t</sub> + Year-end Count <sub>t-1</sub> )
10	The year-end customer count was based on the least square regression model below.
11	Year-end Customer <sub>t</sub> = $b_0 + b_1$ *Population <sub>t</sub> + $b_2$ *Princeton Event
12	where
13	• Population, is the population data supplied by BC Stats that is customized to the

- 14 Company's direct service area.
- 15

#### **Results of Residential Regression**

Regression of RES on Load Drivers			
Regression	Residential		
Start Year	1990		
End Year	2014		
R2	0.99		
Adjusted R2	0.99		
df	22		
Intercept	(41,599)		
Slope Population	0.57		
Slope PLP Event	15,877		

#### 16

#### 17 **1.2.2 Commercial**

- The expected before-saving Commercial load in year *t* was forecast based on the provincial
  GDP supplied by the CBOC. The relationship was estimated from the following equation.
- 20 Before-saving  $Load_t = b_0 + b_1^*GDP_t + b_2^*Princeton Event_t + b_3^*CoK Event_t$
- 21 where
- Princeton Event<sub>t</sub> is a binary variable for the PLP integration event in 2007

<sup>&</sup>lt;sup>3</sup> The 2015 before-savings UPC of 12.09 (MWh) is calculated by integrating COK load into the calculation before it was actually integrated. The following values were used in calculating the average: 2012 12.28, 2013 12.48, 2014 11.51 (MWh).



- CoKt is a binary variable for the City of Kelowna integration event in 2013
  - Coefficients b0, b1, b2, and b3 are obtained from an OLS regression analysis on the 2001 to 2014 data
- 4 Savings for this load class were from DSM and rate-driven impacts.

5

1

2

3

Results of Commercial Regression				
Regression of COM on Load Drivers				
Regression	Commercial			
Start Year	2001			
End Year	2014			
R2	0.98			
Adjusted R2	0.97			
df	10			
Intercept	68,111			
Slope GDP	3.59			
Slope PLP Event	43,792			
Slope CoK Event	126,910			

6

#### 7 1.2.3 Wholesale

8 The Company forecast its wholesale load using the results of load surveys from all wholesale 9 customers. The response rate was 100 percent, FBC then summed over the Wholesale 10 customers' forecasts to come up with the before-saving wholesale load forecast. The main 11 assumption in this approach is that in the near to medium-term, the Wholesale customers have 12 the best knowledge of their service territory's load with respect to their customer mix, load 13 behaviors, development projects with associated energy requirements, etc.

#### 14 **1.2.4 Industrial**

The before-saving industrial load is the sum of forecasts supplied by the current FBC 49 individual customers. For each customer, its forecast in each year was used if it responded to the load survey. Otherwise, its load was forecast by escalating its preceding year's load with the CBOC forecast GDP growth rates for the industrial sector that it is in. The majority of the FBC industrial customers responded to the surveys (86 percent of customers accounting for 91 percent of 2014 load.)

#### 21 **1.2.5 Irrigation**

The before-saving irrigation load in 2015 and 2016 was developed using a 5-year average of actual loads in 2010-2014.



#### 1 **1.2.6 Lighting**

2 The before-saving street lighting forecast for 2016 was based on a trend analysis of lighting 3 loads from 2007 to 2014.

#### 4 1.2.7 DSM and Other Savings

5 Besides DSM programs administered by the PowerSense group, the Company also has other 6 saving programs including Residential Conservation Rate (RCR), Customer Information Portal 7 (CIP), Advanced Metering Infrastructure (AMI), and rate-driven. RCR, CIP, and AMI are 8 currently forecast for the residential class only. RCR, CIP, and rate-driven impacts are 9 calculated as percentage of the corresponding before-saving load. The rate-driven impact is the 10 product of the assumed elasticity of -0.05 and the forecast average real rate increase. This 11 saving is independent of the RCR saving and applied to all rate classes. In the absence of 12 specific information with regards to price elasticity as presented in the RCR application, FBC 13 has applied the assumption of -0.05<sup>4</sup> elasticity made by BC Hydro. BC Hydro is considered as 14 the closest utility to FBC in terms of its public policies, geographical proximity, customer mix and 15 behavior, and its assumed price elasticity of -0.05 has been well defended in a testimony for the 16 BCH LTAP 2008<sup>5</sup>.

- 17 AMI impacts, include two components with their offsetting impacts on the gross load:
- sales recovered from illegal grow-op sites, considered here as AMI savings increases
   gross load
- loss reduction due to closing illegal grow-op sites, not considered here as savings but
   covered under losses decreases loss load

The updated RCR savings forecast is consistent with the Residential Conservation Rate Information Report submitted to the BCUC in November 2014.

#### 24 1.3 PEAK DEMAND FORECAST

Historical monthly peak load data for ten years (2005-2014) were escalated by historical gross
load growth rates and then averaged to obtain monthly peaks under normal weather condition.
Zellstoff Celgar load was excluded from the historical data since it was forecast separately.
Seasonal peaks were used for both the winter and the summer. The twelve monthly peaks, as
well as the seasonal peaks, were then escalated by the annual load growth rates in the forecast
period to produce forecast monthly peaks. Zellstoff Celgar's expected monthly peak of 16 MW
was finally added to these values to obtain the before-saving peak forecast. The winter peak

<sup>&</sup>lt;sup>4</sup> BCH 2012 IRP, App. 2A, p. 14, <u>http://www.bchydro.com/content/dam/hydro/medialib/internet/documents/planning\_regulatory/iep\_ltap/2012q2/draf</u> t\_2012\_irp\_appendix36.pdf, accessed as of April 12, 2013.

<sup>&</sup>lt;sup>5</sup> <u>http://www.bchydro.com/content/dam/hydro/medialib/internet/documents/info/pdf/2008\_ltap\_appendix\_e.pdf,</u> accessed as of April 12, 2013



- and the summer peak are usually assumed to replace monthly peaks in December and July
   respectively.
- 3 The after DSM peak forecast was found by subtracting DSM capacity saving forecast, which is
- 4 supplied by the DSM group, from the before DSM peak forecast for each month in each year.

Appendix B PRIOR YEAR'S DIRECTIVES

#### FORTISBC INC.





No.	Decision / Order Page No.	Directive No. or Reference	Description / Details	Status	Section in this Application
G-1	39-14 – F	BC MULTI-YEAR	Performance Based Ratemaking Plan for 2014 to 2019		
1.	80	29, 30, 31	<b>Benchmarking Study:</b> The Panel directs FEI and FBC to each prepare a benchmarking study to be completed no later than December 31, 2018.	Not yet started.	N/A
			In order to avoid a clash of methodologies as was experienced in this Proceeding, the Panel directs that Fortis consult with the parties to this proceeding, including Commission staff, prior to engaging a mutually acceptable consultant to conduct the benchmarking study.		
			Fortis is directed to report the results of this consultation to the Commission prior to starting the study.		
2.	212	98	<b>Accounting Changes</b> The Panel directs FBC to communicate any accounting policy changes/updates to the Commission and other stakeholders as part of its Annual Review process during the PBR period.	Ongoing during term of PBR	Section 12.3
G-1	69-14 – F	BC Advanced M	ETERING INFRASTRUCTURE (AMI) ENABLED BILLING OPTIONS FOR CUSTOMERS	;	
3.	2	3	AMI Deferral Account FBC must flow through any incremental O&M costs and/or benefits to customers as part of the Advanced Metering Infrastructure project deferral account.	Ongoing.	Section 12.4.2
4.	2	4	FBC must flow through any incremental working capital benefits to customers as part of the new flow through deferral account, approved in Order G-163-14, or another appropriate flow through account.	Ongoing.	Section 7.7
5.	2	5	FBC must report these incremental costs and savings in each of the annual reviews during the Performance Based Ratemaking term.	Ongoing during term of PBR.	Section 6.3.3

#### **FORTISBC INC.** APPENDIX B – PRIOR YEAR'S DIRECTIVES



G-107-	15 – FBC	ANNUAL REVI	EW FOR 2015 RATES		
6.	7	Appendix A	<b>Deferral Accounts – Residual Capacity Agreement (RCA) and 2015-2016</b> <b>Demand Side Management (DSM) Plan</b> The Panel approves the establishment of the Residual Capacity Agreement Tariff 1 Supplement 10 & Rate Schedule 111 deferral account and the 2015 – 2016 DSM Plan Application deferral account. Both deferral accounts must be financed at FBC's short term interest rate, amortized in 2015, and subsequently closed. These deferral accounts are to recognize costs, which are external to FBC, such as legal fees, Commission expenses and intervener funding. Therefore, the Panel finds it reasonable to recover these costs through the deferral mechanism.	Completed	Section 11 Schedule 12 Line 28, Line 27
7.	9	Appendix A	<ul> <li>Deferral Account - Long Term Electric Resource Plan (LTERP)</li> <li>The Panel approves the establishment of the LTERP deferral account as set out by FBC in its request, subject to the following.</li> <li>All activities/costs anticipated under "Incremental labour" are not eligible for deferral treatment; accordingly, the deferral account forecast is reduced by \$0.119 million.</li> <li>Any staff costs for "Stakeholder consultation" are not eligible for deferral.</li> </ul>	Completed	Section 11 Schedule 12.1 Line 9
8.	15	Appendix A	Advanced Metering Infrastructure (AMI) Theft Reduction The Commission Panel directs FBC to include, in its next and subsequent annual PBR reports, the impact of AMI on losses through theft deterrence. This directive will improve regulatory efficiency in the review of FBC's proposed actions (and FBC's incentives to undertake these actions while under PBR) related to the reduction of theft related costs. The information to be submitted should include: (i) a comparison of the projected GWh reduction for the test year and proceeding years to the estimated GWh theft reduction assumed in the AMI decision for those years; and (ii) a description of FBC's operational activities and costs incurred in reducing electricity theft (for example, related to FBC's Revenue Protection Program) and the regulatory treatment of these costs.	Ongoing during term of PBR	Section 3.5.7.1
9.	23	Appendix A	Service Quality Indicators – Generator Forced Outage Rate (GFOR) FBC is directed to include in its next Annual Review Application a discussion on whether GFOR should be moved from an informational SQI and added to the list of measurable SQIs.	Completed	Section 13.2.3

# Appendix C DEPRECIATION STUDY



# **2014 DEPRECIATION STUDY**

# CALCULATED ANNUAL DEPRECIATION ACCRUAL RATES APPLICABLE TO ELECTRIC GENERATION, TRANSMISSION AND DISTRIBUTION PLANT IN SERVICE AS OF DECEMBER 31, 2014

Prepared by:



FORTISBC INC. Kelowna, British Columbia

#### 2014 DEPRECIATION STUDY CALCULATED ANNUAL DEPRECIATION ACCRUAL RATES APPLICABLE TO PLANT IN SERVICE AS OF DECEMBER 31, 2014

#### GANNETT FLEMING CANADA ULC

Calgary, Alberta





August 21, 2015

FortisBC Inc. Suite 100, 1975 Springfield Road Kelowna, BC V1Y 7V7

Attention: Mr. Sreekanta Banerjee Manager, Budgets & Forecasting

Ladies and Gentlemen:

Pursuant to your request, we have conducted a depreciation study related to the electric generation, transmission and distribution system of FortisBC, Inc. as of December 31, 2014. Our report presents a description of the methods used in the estimation of depreciation and net salvage, the statistical analyses of service life and the summary and detailed tabulations of annual and accrued depreciation.

The calculated annual depreciation accrual rates presented in the report are applicable to plant in service as of December 31, 2014. The depreciation rates are based on the straight-line method, the remaining life basis, using the average service life group procedure. A periodic review of the depreciation rates using the same estimates and methods is recommended.

Respectfully submitted,

GANNETT FLEMING CANADA ULC

LARRY E. KENNEDY Vice President

LEK/hac Project #059459

Gannett Fleming Canada ULC

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### FORTISBC INC. DEPRECIATION STUDY

#### **EXECUTIVE SUMMARY**

Pursuant to FortisBC Inc.'s ("FortisBC") request, Gannett Fleming Canada ULC ("Gannett Fleming") conducted a depreciation study related to the electric generation, transmission, distribution and general plant assets of FortisBC Inc. as of December 31, 2014. The purpose of this study was to determine the annual depreciation accrual rates and amounts for book and ratemaking objectives.

The depreciation rates are based on the straight line method using the average service life ("ASL") procedure and were applied on a remaining life basis. The calculations were based on attained ages and estimated average service life, and forecasting net salvage characteristic for each depreciable group of assets.

FortisBC's accounting policy has not changed since the last depreciation study was prepared. This study anticipates that FortisBC will continue to book actual costs of removal to the accumulated depreciation account in the year of expenditure in accordance with the long standing approval of the British Columbia Utilities Commission (BCUC"). However, this study does introduce the estimation and recovery of the future costs of removal over the average service of the assets, and therefore, includes estimated cost of removal percentages into the depreciation rate calculations. In this manner a provision for the eventual costs of removal is appropriately collected over the useful life of the assets within the company's accumulated depreciation account, which will be offset by the actual costs of removal at the time of the asset's retirement.

Gannett Fleming recommends the calculated annual depreciation accrual rates set forth herein apply specifically to electric plant in service as of December 31, 2014 as summarized by Tables 1 and 2 of the study by account detail. Supporting data and calculations are provided as well within the study.

Finally, this study results in an annual depreciation expense accrual of \$59.1 million when applied to depreciable plant balances as December 31, 2014 of \$1.8 billion. The report study results are summarized at an aggregate functional group level as follows:

	ORIGINAL COST	ANNUAL ACCRUAL	
PLANT GROUP	\$'s	%'s	\$'s
(1)	(2)	(3)	(4)
GENERATION	232,752,634	1.90	4,416,057
TRANSMISSION	437,746,434	2.46	10,775,391
DISTRIBUTION	879,251,104	3.68	32,372,946
GENERAL	206,952,176	5.58	11,552,160
TOTAL PLANT IN SERVICE	1,756,702,347	3.37	59,116,554

#### SUMMARY OF ORIGINAL COST, ACCRUAL PERCENTAGES AND AMOUNTS

PART I. INTRODUCTION

# FORTISBC INC. DEPRECIATION STUDY PART I. INTRODUCTION

#### SCOPE

This report sets forth the results of the depreciation study for FortisBC Inc. to determine the annual depreciation accrual rates and amounts for book purposes applicable to the original cost of electric plant at December 31, 2014. The rates and amounts are based on the straight line remaining life method of depreciation. This report also describes the concepts, methods and judgments which underlie the recommended annual depreciation accrual rates related to electric plant in service as of December 31, 2014.

The service life and net salvage estimates resulting from the study were based on: informed engineering judgment which incorporated analyses of historical plant retirement data as recorded through December 31, 2014; a review of Company practice and outlook as they relate to plant operation and retirement; and consideration of current practice in the electric industry, including knowledge of service lives and net salvage estimates used for other electric companies.

#### PLAN OF REPORT

Part I. Introduction, contains statements with respect to the plan of the report, and the basis of the study. Part II. Development of Depreciation Parameters, presents descriptions of the methods used and factors considered in the service life and net salvage studies. Part III. Calculation of Annual and Accrued Depreciation presents the methods and procedures used in the calculation of depreciation. Part IV. Results of Study, presents summaries by depreciable group of annual and accrued depreciation. Part V presents the results of the Retirement Rate and Service Life Statistics and Part VI presents Net Salvage Analysis. Detailed tabulations of annual and accrued depreciation are presented in Part VII of this report. An overview of Iowa curves and the Retirement Rate Analysis are set forth in Appendix A of the report. An overview of the net salvage analysis is presented in Appendix B of this report.

#### **BASIS OF THE STUDY**

#### **Depreciation**

For most accounts, the annual and accrued depreciation were calculated by the straight line method using the average service life procedure. For certain General Plant accounts, the annual and accrued depreciation are based on amortization accounting. Both types of calculations were based on original cost, attained ages, and estimates of service lives and salvage.

The straight line method, average service life procedure is a commonly used depreciation calculation procedure that has been widely accepted in jurisdictions throughout North America. Gannett Fleming recommends its continued use. Amortization accounting is recommended for certain General Plant accounts because of the disproportionate plant accounting effort required when compared to the minimal original cost of the large number of items in these accounts. Many electric utilities in North America have received approval to adopt amortization accounting for these accounts.

#### Service Life and Net Salvage Estimates

The service life and salvage estimates used in the depreciation and amortization calculations were based on informed judgment which incorporated a review of management's plans, policies and outlook, a general knowledge of the electric utility industry, and comparisons of the service life and net salvage estimates from our studies of other electric utilities. The use of survivor curves to reflect the expected dispersion of retirement provides a consistent method of estimating depreciation for electric plant. lowa type survivor curves were used to depict the estimated survivor curves for the plant accounts not subject to amortization accounting.

The procedure for estimating service lives consisted of compiling historical data for the plant accounts or depreciable groups, analyzing this history through the use of widely accepted techniques, and forecasting the survivor characteristics for each depreciable group on the basis of interpretations of the historical data analyses and the probable future. The combination of the historical experience and the estimated future yielded estimated survivor curves from which the average service lives were derived. The depreciation rates should be reviewed periodically to reflect the changes that result from plant and reserve account activity.

# PART II. DEVELOPMENT OF DEPRECIATIONS PARAMETERS

#### PART II. DEVELOPMENT OF DEPRECIATION PARAMETERS

#### DEPRECIATION

Depreciation, in public utility regulation, is the loss in service value not restored by current maintenance, incurred in connection with the consumption or prospective retirement of utility plant in the course of service from causes which are known to be in current operation and against which the utility is not protected by insurance. Among causes to be given consideration are wear and tear, deterioration, action of the elements, inadequacy, obsolescence, changes in demand, and the requirements of public authorities.

Depreciation, as used in accounting, is a method of distributing fixed capital costs, less net salvage, over a period of time by allocating annual amounts to expense. Each annual amount of such depreciation expense is part of that year's total cost of providing electric utility service. Normally, the period of time over which the fixed capital cost is allocated to the cost of service is equal to the period of time over which an item renders service, that is, the item's service life. The most prevalent method of allocation is to distribute an equal amount of cost to each year of service life. This method is known as the straight-line method of depreciation.

The calculation of annual and accrued depreciation based on the straight line method requires the estimation of survivor curves and is described in the following sections of this report. The development of the proposed depreciation rates also requires the selection of group depreciation procedures, as discussed in Part III of this report.

#### ESTIMATION OF SURVIVOR CURVES AND NET SALVAGE

#### Survivor Curves

The use of an average service life for a property group implies that the various units in the group have different lives. Thus, the average life may be obtained by determining the separate lives of each of the units, or by constructing a survivor curve by plotting the number of units which survive at successive ages using the retirement rate method of analysis. The range of survivor characteristics usually experienced by utility and industrial properties is encompassed by a system of generalized survivor curves known as the lowa type curves. There are four families in the lowa system, labeled in accordance with the location of the modes of the retirements in relationship to the average life and relative height of the modes. The left-moded curves are those in which the greatest frequency of retirement occurs to the left of, or prior to, average service life. The symmetrical-moded curves are those in which the greatest frequency occurs to the right of, or after, the average service life. The origin-moded curves are those in which the greatest frequency occurs to the right of, or after, the average service life. The origin-moded curves are those in which the greatest frequency of retirement occurs at the origin, or immediately after age 0. The letter designation of each family of curves (L, S, R or O) represents the mode of the associated frequency curve with respect to the average service life. The numerical subscripts represent the relative heights of the modes of the frequency curves within each family.

A discussion of the general concept of survivor curves and retirement rate method is presented in Appendix A of this report.

#### Survivor Curve and Net Salvage Judgments

The survivor curve estimates were based on judgment which considered a number of factors. The primary factors were the statistical analysis of data; current policies and outlook as determined during conversations with management personnel and on the knowledge Gannett Fleming developed through the completion of numerous electric utility studies.

The estimates of net salvage were based in part on historical data related to actual retirement activity through the year 2014 for most accounts. Gross salvage and cost of removal as recorded to the depreciation reserve account and related to experienced retirements were used. Percentages of the cost of plant retired were calculated for each component of net salvage on both annual and five-year moving average bases.

Historically, FortisBC has not included net salvage percentages in the depreciation rate calculations. In the proceeding related to the FortisBC Application for

2012–2013 Revenue Requirement, a significant amount of testimony dealt with the manner in which the costs of removal are recovered. Gannett Fleming understands that prior depreciation rates have not included the estimated costs of removal of assets. Recovery of the actual costs of removal (or retirement) were historically charged to the accumulated depreciation account, with no prior recovery of a provision related to these amounts, resulting in a recovery of costs of removal over the future toll-payers rather than over the life of the asset. Gannett Fleming recommends that FortisBC now include the estimated costs of retirement into the depreciation rates which will build a provision within the accumulated depreciation account for the eventual removal of the assets. This will better provide for the toll-payer who has access to the assets in service bearing the total cost responsibility (including the costs to retire). A general discussion of the methods used in the development of the net salvage percentages is included as Appendix B of this report.

While this study incorporates the estimated future costs of removal into the depreciation rate calculations, it is also recognized that that there has been no previous provision for net salvage to date. While Gannett Fleming believes that the recommended net salvage percentages are reasonable, it is noted that future depreciation studies may need to increase the estimated costs of removal.

The following discussion, dealing with a number of accounts which comprise the majority of the investment analyzed, presents an overview of the factors considered by Gannett Fleming in the determination of the average service life and net salvage estimates. The survivor curve estimates for the remainder of the accounts not discussed in the following sections were based on similar considerations.

<u>Account 365.00 - Distribution - Conductors and Devices</u>, represents 16.3% of the depreciable plant studied. The retirements, additions and other plant transactions for the period 1950-2014 were analyzed by the retirement rate method. The original survivor curve as plotted on page V-44 indicates retirement ratios that begin to increase at age 13 and continue with high retirement ratios thereafter. Discussions with operational and management staff have indicated that the historic retirement patterns of the distribution system will be typical of the expectation going forward. This account has experienced a sufficient amount of retirement activity (over \$12 million analyzed)

which provides a solid foundation for the historic analysis. The life of this account has been increased from 45 to 49. As such, the Iowa 49-R3 selected for this account fits well to the historic retirement patterns and is expected to be indicative of the future retirement patterns.

This account has witnessed a significant amount of net salvage (i.e. cost of removal) activity since 1995, ranging from 0% to over negative 301 percent with a full depth band (i.e. cumulative from 1995 to 2014) value of negative 86 percent. A threeyear moving average indicates a range from 0 percent to negative 203 percent with the most recent five-year average being negative 165 percent. All the bands indicate a higher level of negative net salvage in the periods since 2009 compared to the earlier The discussions held with the company operations and engineering staff years. indicated that the historical indications would be reasonable to consider in the development of future expectations for the equipment in this account. Considering the historical results and the comments from the operations and engineering staff, Gannett Fleming would normally have recommended a net salvage percentage of negative 50 percent after giving consideration to the historic trends and the approved percentages of a peer group. However, this recommendation would have been heavily influenced by the past six-year period where this account has witnessed a large amount of retirement activity indicating very significant amounts of costs of removal. In order to avoid overreaction to these recent indications of large net negative salvage requirements in this initial inclusion of costs of removal into the deprecation rate calculations, Gannett Fleming recommends that a moderate and conservative negative 30 percent as a reasonable percentage at this time.

<u>Account 362.00 - Distribution - Station Equipment</u>, represents 12.9% of the depreciable plant studied. The retirements, additions and other plant transactions for the period 1950 through 2014 were analyzed by the retirement rate method. The original survivor curve as plotted on page IV-38 indicates retirement ratios starting early in the account's life and continuing at a relatively constant pace throughout all age intervals. The retirement rate analysis has indicated that a reduction in the average service life estimate from the current Iowa 55-S3 to the Iowa 50-R3 is required. The Iowa 50-R3 provides a good interpretation of the historical retirement experience and
recognizes the expectation that future retirements will most likely follow the same trends as the past.

This account has witnessed a significant amount of net salvage (i.e. cost of removal) activity since 1995, ranging from 0% to over negative 219 percent with a full depth band (i.e. cumulative from 1995 to 2014) value of negative 39 percent. A threeyear moving average indicates a range from 0 percent to negative 167 percent with the most recent five-year average being negative 92 percent. All the bands indicate a higher level of negative net salvage in the periods since 2009 compared to the earlier The discussions held with the company operations and engineering staff vears. indicated that the historical indications would be reasonable to consider in the development of future expectations for the equipment in this account. Considering the historical results and the comments from the operations and engineering staff, Gannett Fleming would normally have recommended a net salvage percentage of negative 40 percent after giving consideration to the historic trends and the approved percentages of a peer group. However, this recommendation would have been heavily influenced by the past six-year period where this account has witnessed a large amount of retirement activity indicating very significant amounts of costs of removal. In order to avoid overreaction to these recent indications of large net negative salvage requirements in this initial inclusion of costs of removal into the deprecation rate calculations, Gannett Fleming recommends that a moderate and conservative negative 25 percent as a reasonable percentage at this time.

<u>Account 353.00 - Transmission - Substation Equipment</u>, represents 12.8% of the depreciable plant studied. The retirements, additions and other plant transactions for the period 1940 through 2014 were analyzed by the retirement rate method. This account consists primarily of the investment in transmission substations which include large voltage transformers, station isolating and circuit breaking equipment, control systems, bus work, bus work support, and other ancillary equipment. As indicated in the original survivor curve as plotted at page V-23, this account has witnessed a material amount of retirement activity, in particular over the past few years. Recently FortisBC has constructed a number of new terminal stations as well as rebuilt some of the existing substations. While it is not expected that the recent level of activity will

continue at the same pace over the foreseeable future, it is expected that the retirement and age of retirements as observed in the observed life table are indicative of the long term future.

The Iowa 50-R4 provides a good fit to the historic retirement information, which is believed by management to be indicative of the long term future retirement pattern. As such, the Iowa 50-R4 is recommended by Gannett Fleming and has been included in the depreciation rate calculations.

This account has witnessed a significant amount of net salvage (i.e. cost of removal) activity since 1996, ranging from 0% to over negative 699 percent with a full depth band (i.e. cumulative from 1995 to 2014) value of negative 54 percent. A threeyear moving average indicates a range from negative 1 percent to negative 530 percent with the most recent five-year average being negative 58 percent. All the bands indicate a higher level of negative net salvage in the periods since 2009 compared to the earlier years. The discussions held with the company operations and engineering staff indicated that the historical indications would be reasonable to consider in the development of future expectations for the equipment in this account. Considering the historical results and the comments from the operations and engineering staff, Gannett Fleming would normally have recommended a net salvage percentage of negative 40 percent after giving consideration to the historic trends and the approved percentages of a peer group. However, this recommendation would have been heavily influenced by the past six year period where this account has witnessed a large amount of retirement activity indicating very significant amounts of costs of removal. In order to avoid overreaction to these recent indications of large net negative salvage requirements in this initial inclusion of costs of removal into the deprecation rate calculations, Gannett Fleming recommends that a moderate and conservative negative 25 percent as a reasonable percentage at this time.

<u>Account 364.00 – Distribution - Poles, Towers and Fixtures,</u> represents 10.0% of the depreciable plant studied. The retirements, additions and other plant transactions for the period 1940 through 2014 were analyzed by the retirement rate method. This account consists of the distribution power poles, the insulators and attachments to the power poles such as cross arms and guy wires. As indicated in the original survivor curve as plotted on page V-41 this account has witnessed a significant amount of retirement activity within the experience band analyzed, with the pace of retirement ratios increasing at approximately age 27. While it is expected that this account will continue to experience growth over the next number of years, it is also expected that the retirement activity in this account in the future will follow a similar dispersion as that witnessed over the last number of years. As such the lowa 50-R2.5 was selected reflecting a better match for the historical data than the current lowa 50-R3. The lowa 50-R2.5 provides a reasonable interpretation of the historical retirement experience and recognizes the expectation that future retirements will most likely follow the same trends as the past.

This account has witnessed a significant amount of net salvage (i.e. cost of removal) activity since 1995, ranging from 0% to over negative 309 percent with a full depth band (i.e. cumulative from 1995 to 2014) value of negative 73 percent. A threeyear moving average indicates a range from 0 percent to negative 226 percent with the most recent five-year average being negative 132 percent. All the bands indicate a higher level of negative net salvage in the periods since 2009 compared to the earlier The discussions held with the company operations and engineering staff vears. indicated that the historical indications would be reasonable to consider in the development of future expectations for the equipment in this account. Considering the historical results and the comments from the operations and engineering staff, Gannett Fleming would normally have recommended a net salvage percentage of negative 60 percent after giving consideration to the historic trends and the approved percentages of a peer group. However, this recommendation would have been heavily influenced by the past six-year period where this account has witnessed a large amount of retirement activity indicating very significant amounts of costs of removal. In order to avoid overreaction to these recent indications of large net negative salvage requirements in this initial inclusion of costs of removal into the deprecation rate calculations, Gannett Fleming recommends that a moderate and conservative negative 30 percent as a reasonable percentage at this time.

<u>Account 368.00 - Distribution - Line Transformers</u>, represents 7.5% of the depreciable plant studied. The retirements, additions and other plant transactions for

the period 1940 through 2014 were analyzed by the retirement rate method. This account consists mainly of the lower voltage overhead and pad mounted line transformers used in the distribution of electric power within the company's service area. The original survivor curve as plotted on page V-47 indicates retirement ratios that begin early in the account's life and continue with relatively consistent retirement ratios through age 35, with remaining plant retiring quickly thereafter. While the best fit to the observed life table would indicate the Iowa 40-R2.5, it is noted that a significant amount of retirements have recently been completed related to a program to retire transformers that contain PCB's. This program, started in 2010 was completed in 2014, and has resulted in retirements at an age that are not expected to re-occur in the future. While it is considered that this account will experience growth over the next few years and given expected growth in the distribution service areas, the currently approved Iowa 45-R4 has been retained and is considered to be indicative of future retirement patterns.

This account has witnessed a significant amount of net salvage (i.e. cost of removal) activity since 1995, ranging from 0% to over negative 69 percent with a full depth band (i.e. cumulative from 1995 to 2014) value of negative 28 percent. A threeyear moving average indicates a range from 0 percent to negative 55 percent with the most recent five-year average being negative 47 percent. All the bands indicate a higher level of negative net salvage in the periods since 2009 compared to the earlier years. The discussions held with the company operations and engineering staff indicated that the historical indications would be reasonable to consider in the development of future expectations for the equipment in this account. Considering the historical results and the comments from the operations and engineering staff, Gannett Fleming would normally have recommended a net salvage percentage of negative 30 percent after giving consideration to the historic trends and the approved percentages of a peer group. However, this recommendation would have been heavily influenced by the past six-year period where this account has witnessed a large amount of retirement activity indicating very significant amounts of costs of removal. In order to avoid overreaction to these recent indications of large net negative salvage requirements in this initial inclusion of costs of removal into the deprecation rate calculations, Gannett

Fleming recommends that a moderate and conservative negative 15 percent as a reasonable percentage at this time.

<u>Account 355.00 – Transmission - Poles, Towers and Fixtures,</u> represents 5.9% of the depreciable plant studied. The retirements, additions and other plant transactions for the period 1950 through 2014 were analyzed by the retirement rate method. This account consists of the transmission, towers, poles, insulators and attachments, such as guy wires and anchors. In 2004, 350 km of 60Kv transmission lines were removed. Additionally, since the period of the last study, a number of transmission lines have been retired. As such, this account has witnessed over \$4.1 million in retired investment since the last study and \$8.0 overall over the entire life of the account.

Discussions with operating staff confirmed that the account did experience a significant level of plant retirements over the past few years due to required system improvements and upgrades of aging plant. Management has indicated future builds and retirements will occur as needed but are not expected to be similar in number or significance as the past years but should be considered as indicative of the manner in which the transmission lines may retire over the long term. As such, the Iowa 50-R1.5 which provides a good fit to the historic retirement data is recommended by Gannett Fleming to be indicative of the long term retirement patterns. Therefore, the Iowa 50-R1.5 has been used in the depreciation rate calculations.

This account has witnessed a significant amount of net salvage (i.e. cost of removal) activity since 1995, ranging from 0% to over negative 851 percent with a full depth band (i.e. cumulative from 1995 to 2014) value of negative 75 percent. A three-year moving average indicates a range from 0 percent to negative 795 percent with the most recent five-year average being negative 101 percent. All the bands indicate a higher level of negative net salvage in the periods since 2009 compared to the earlier years. The discussions held with the company operations and engineering staff indicated that the historical indications would be reasonable to consider in the development of future expectations for the equipment in this account. Considering the historical results and the comments from the operations and engineering staff, Gannett Fleming would normally have recommended a net salvage percentage of negative 55 percent after giving consideration to the historic trends and the approved percentages of

a peer group. However, this recommendation would have been heavily influenced by the past six-year period where this account has witnessed a large amount of retirement activity indicating very significant amounts of costs of removal. In order to avoid overreaction to these recent indications of large net negative salvage requirements in this initial inclusion of costs of removal into the deprecation rate calculations, Gannett Fleming recommends that a moderate and conservative negative 25 percent as a reasonable percentage at this time.

Account 356.00 - Transmission - Conductors and Devices, represents 5.7% of the depreciable plant studied. The retirements, additions and other plant transactions for the period 1940 through 2014 were analyzed by the retirement rate method. This account consists mainly of the transmission conductor and related material required for the electric transmission of electricity. As indicated in the original survivor curve as plotted at page V-29, this account has witnessed a significant amount of retirement activity within the experience band analyzed. Retirements in this account have begun at a relatively early age and have continued through the entire account's life. In 2004, 380 km of 60Kv transmission lines were removed. Additionally, since the period of the last study, a number of transmission lines have been retired. As such, this account has witnessed over \$3.7 million in retired investment since the last study and \$7.6 overall over the entire life of the account.

Discussions with operating staff confirmed that the account did experience a significant level of plant retirements over past few years due to required system improvements and upgrades of aging plant. Management has indicated future builds and retirements will occur as needed but are not expected to be similar in number or significance as the past years but should be considered as indicative of the manner in which the transmission lines may retire over the long term. As such the lowa 53-R1.5, which provides a good fit to the historic retirement data, is recommended by Gannett Fleming to be indicative of the long term retirement patterns. Therefore, the lowa 53-R1.5 has been used in the depreciation rate calculations.

This account has witnessed a significant amount of net salvage (i.e. cost of removal) activity since 1995, ranging from 0% to over negative 592 percent with a full depth band (i.e. cumulative from 1995 to 2014) value of negative 97 percent. A three-

year moving average indicates a range from 0 percent to negative 733 percent with the most recent five-year average being negative 121 percent. All the bands indicate a higher level of negative net salvage in the periods since 2010 compared to the earlier years. The discussions held with the company operations and engineering staff indicated that the historical indications would be reasonable to consider in the development of future expectations for the equipment in this account. Considering the historical results and the comments from the operations and engineering staff, Gannett Fleming would normally have recommended a net salvage percentage of negative 65 percent after giving consideration to the historic trends and the approved percentages of a peer group. However, this recommendation would have been heavily influenced by the past five-year period where this account has witnessed a large amount of retirement activity indicating very significant amounts of costs of removal. In order to avoid overreaction to these recent indications of large net negative salvage requirements in this initial inclusion of costs of removal into the depreciation rate calculations, Gannett Fleming recommends that a moderate and conservative negative 25 percent as a reasonable percentage at this time.

Account 333.00 - Generation Plant - Water Wheels, Turbines and Waterways, represents 5.5% of the depreciable plant studied. The retirements, additions and other plant transactions for the period 1960 through 2014 were analyzed by the retirement rate method. This account consists mainly of the rotating generating equipment including turbines required for the hydro-electric generation of electricity. As indicated in the original survivor curve as plotted at page V-9, this account has witnessed approximately \$1.4 million of retirement activity within the experience band analyzed. While the retirement rate analysis does provide for some meaningful average service life indications, Gannett Fleming also reviewed the average service lives of peer hydroelectric generation plants throughout Canada. The peer review indicated that this account has approved life estimates ranging from 35 years to 60 years. Given that the peer analysis produced average service life estimates lower than the results of the retirement rate analysis which proved an Iowa 70-R2.5, Gannett Fleming has recommended a reduction from the currently approved Iowa 75-R3 to the Iowa 70-R2.5 for use in the depreciation rate calculations.

This account has witnessed a significant amount of net salvage (i.e. cost of removal) activity since 1995, ranging from 0% to over negative 219 percent with a full depth band (i.e. cumulative from 1995 to 2014) value of negative 91 percent. A three-year moving average indicates a range from 0 percent to negative 409 percent with the most recent five-year average being negative 408 percent. All the bands indicate a higher level of negative net salvage in the periods since 2009 compared to the earlier years. The discussions held with the company operations and engineering staff indicated that the historical indications would be reasonable future expectations for the equipment in this account. Considering the historical results and the comments from the operations and engineering staff, Gannett Fleming recommends that a negative 20 percent is a reasonable percentage for this initial implementation.

Account 335.00 - Generation Plant - Other Power Plant Equipment, represents 2.5% of the depreciable plant studied. The retirements, additions and other plant transactions for the period 1957 through 2014 were analyzed by the retirement rate method. This account consists of the equipment related to generation of power from the hydro-electric stations not included in other generation accounts. As indicated in the original survivor curve as plotted at page V-15, this account has witnessed approximately \$1.8 million of retirement activity within the experience band analyzed. While the retirement rate analysis does provide for some meaningful average service life indications, Gannett Fleming also reviewed the average service lives of peer hydro-electric generation plants throughout Canada. The peer review indicated that this account has approved life estimates ranging from 40 years to 50 years. Given that the longest life of the peer analysis produced average service life estimates similar to the results of the retirement rate analysis which proved an lowa 51-R4, Gannett Fleming has recommended the lowa 51-R4 for use in the depreciation rate calculations.

This account has witnessed a significant amount of net salvage (i.e. cost of removal) activity since 2000, ranging from 0% to over negative 184 percent with a full depth band (i.e. cumulative from 2000 to 2014) value of negative 14 percent. A three-year moving average indicates a range from 0 percent to negative 20 percent with the most recent five year average being negative 23 percent. All the bands indicate a higher level of negative net salvage in the periods since 2009 compared to the earlier

years. The discussions held with the company operations and engineering staff indicated that the historical indications would be reasonable future expectations for the equipment in this account. Considering the historical results and the comments from the operations and engineering staff, Gannett Fleming recommends that a negative 10 percent is a reasonable percentage for this initial implementation.

Account 334.00 - Generation Plant - Accessory Electrical Equipment, represents 2.4% of the depreciable plant studied. The retirements, additions and other plant transactions for the period 1950 through 2014 were analyzed by the retirement rate method. As indicated in the original survivor curve as plotted at page V-12, this account has witnessed approximately \$3.6 million of retirement activity within the experience band analyzed. Retirements in this account have begun at a relatively early age with significant levels of retirements occurring from ages 8.5 through to 22.5. This retirement activity has provided a significant amount of historic retirement information. The retirement rate analysis has indicated the Iowa 50-R1.5. Gannett Fleming also reviewed the average service lives of peer hydro-electric generation plants throughout Canada. The peer review indicated that this account has approved life estimates ranging from 25 years to 55 years.

Discussions with management and company staff indicate that further retirement activity will likely be similar to the historic levels. The Iowa 50-R1.5 is similar to the currently approved Iowa 50-R3, and is within the range of the industry peers. As such the Iowa 50-R1.5 is considered to provide a reasonable interpretation of the historical retirement experience and recognizes the expectation that future retirements will occur in a similar pattern as the historic retirement activity and is, therefore, used in the depreciation rate calculations in this study.

This account has witnessed a significant amount of net salvage (i.e. cost of removal) activity since 1999, ranging from 0% to over negative 134 percent with a full depth band (i.e. cumulative from 1999 to 2014) value of negative 33 percent. A three-year moving average indicates a range from 0 percent to negative 67 percent with the most recent five-year average being negative 35 percent. All the bands indicate a higher level of negative net salvage in the periods since 2009 compared to the earlier years. The discussions held with the company operations and engineering staff

indicated that the historical indications would be reasonable to consider in the development of future expectations for the equipment in this account. Considering the historical results and the comments from the operations and engineering staff, Gannett Fleming would normally have recommended a net salvage percentage of negative 30 percent after giving consideration to the historic trends and the approved percentages of a peer group. However, this recommendation would have been heavily influenced by the past six-year period where this account has witnessed a large amount of retirement activity indicating very significant amounts of costs of removal. In order to avoid over-reaction to these recent indications of large net negative salvage requirements in this initial inclusion of costs of removal into the depreciation rate calculations, Gannett Fleming recommends that a moderate and conservative negative 20 percent as a reasonable percentage at this time.

Account 332.00 - Reservoirs, Dams and Waterways represents 1.8% of the depreciable plant studied. The retirements, additions and other plant transactions for the period 1940 through 2014 were analyzed by the retirement rate method. As indicated in the original survivor curve as plotted on page V-6 this account has not witnessed a significant amount of retirement activity within the experience band analyzed, with less \$1.0 million retired to date. However, discussion with management and operational staff has indicated that some enhancements are planned at the Corra Linn generating station over the next few years. While it is expected that this account will continue to experience growth over the next number of years, it is also expected that the retirement activity in this account may increase. While there is not sufficient information to recommend a change from the currently approved 70-year average service life, Gannett Fleming is recommending a small change in the lowa curve shape form the currently approved R-4 to the lowa S2.5 based on the indications in the retirement rate study. As such, Gannett Fleming has recommended the lowa 70-S2.5 for use in the depreciation rate calculations.

This account has witnessed a significant amount of net salvage (i.e. cost of removal) activity since 2004, ranging from 0% to over negative 375 percent with a full depth band (i.e. cumulative from 2004 to 2014) value of negative 64 percent. A three-year moving average indicates a range from 0 percent to negative 737 percent with the

most recent five-year average being negative 179 percent. All the bands indicate a higher level of negative net salvage in the periods since 2009 compared to the earlier The discussions held with the company operations and engineering staff years. indicated that the historical indications would be reasonable to consider in the development of future expectations for the equipment in this account. Considering the historical results and the comments from the operations and engineering staff, Gannett Fleming would normally have recommended a net salvage percentage of negative 25 percent after giving consideration to the historic trends and the approved percentages of a peer group. However, this recommendation would have been heavily influenced by the past six-year period where this account has witnessed a large amount of retirement activity indicating very significant amounts of costs of removal. In order to avoid overreaction to these recent indications of large net negative salvage requirements in this initial inclusion of costs of removal into the depreciation rate calculations, Gannett Fleming recommends that a moderate and conservative negative 15 percent as a reasonable percentage at this time.

<u>Account 370.00 – Meters</u> represents 0.8% of the depreciable plant studied. The investment in this account relates to the conventional meters that will be replaced once the Automated Metering Interface (AMI) program is completed. In accordance with the directives contained in the BCUC Decision C-7-13 related to the replacement of these legacy meters, a one-year remaining life has been assigned to this account. The depreciation rate as indicated on Table 1 of this report is in accordance with the BCUC Decision C-7-13, dated July 23, 2013. It is noted that an immaterial dollar amount will remain in this account relating to a few vintage meters that will not be replaced in the AMI program, however, given the immaterial amount of the remaining investment, Gannett Fleming is not recommending a specific depreciation rate for the remaining investment.

<u>Account 370.10 – AMI Meters; Account 391.60 – AMI Computer Software; and</u> <u>Account 397.20 - AMI Communications Structure and Equipment</u> all related to the investment associated with the AMI project. As this project is not yet fully in service as of the depreciation study date of December 31, 2014, the depreciation rates for these accounts as indicated in Table 1 of this report, are in accordance with the depreciation rates as prescribed in the BCUC Decision C-7-13. In accordance with the provisions of the BCUC Decision C-7-13, these assets will be studied for the first time during the next full depreciation study.

### Other Accounts

The above analysis provides the consideration relating to almost 86% of the depreciable plant. The accounts related to the remaining 14% of the depreciable plant studied as of December 31, 2014 were analyzed using similar methods and considered similar factors including review of operational comments, peer reviews and experience of Gannett Fleming.



# PART III. CALCULATION OF ANNUAL AND ACCRUED DEPRECIATION



### PART III. CALCULATION OF ANNUAL AND ACCRUED DEPRECIATION

### CALCULATION OF ANNUAL AND ACCRUED DEPRECIATION Group Depreciation Procedures

When more than a single item of property is under consideration, a group procedure for depreciation is appropriate because normally all of the items within a group do not have identical service lives, but have lives that are dispersed over a range of time. There are two primary group procedures, namely, the average service life and equal life group procedures.

In the average service life procedure, the rate of annual depreciation is based on the average service life of the group, and this rate is applied to the surviving balances of the group's cost. A characteristic of this procedure is that the cost of plant retired prior to average life is not fully recouped at the time of retirement, whereas the cost of plant retired subsequent to the average life is more than fully recouped. Over the entire life cycle, the portion of cost not recouped prior to average life is balanced by the cost recouped subsequent to average life.

In the equal life group procedure, also known as the unit summation procedure, the property group is subdivided according to service life. That is, each equal life group includes that portion of the property which experiences the life of that specific group. The relative size of each equal life group is determined from the property's life dispersion curve. The calculated depreciation for the property group is the summation of the calculated depreciation based on the service life of each equal life unit.

In the determination of the depreciation rates in this study, the use of the average service life procedure has been continued. While the equal life group procedure provides an enhanced matching of depreciation expense to the consumption of service value, the average service life procedure is widely used throughout North America and was used in order to conform to past Company practices and approvals by the British Columbia Utilities Commission.

### CALCULATION OF ANNUAL AND ACCRUED AMORTIZATION

Amortization is the gradual extinguishment of an amount in an account by distributing such amount over a fixed period, over the life of the asset or liability to which it applies, or over the period during which it is anticipated the benefit will be realized. Normally, the distribution of the amount is in equal amounts to each year of the amortization period.

The calculation of annual and accrued amortization requires the selection of an amortization period. The amortization periods used in this report were based on judgment which incorporated a consideration of the period during which the assets will render most of their service, the amortization period and service lives used by other utilities, and the service life estimates previously used for the asset under depreciation accounting.

Amortization accounting is proposed for a number of accounts that represent numerous units of property, but a very small portion of depreciable electric plant in service. The accounts and their amortization periods are as follows:

		AMORTIZATION
		PERIOD,
<u>ACCOUNT</u>	TITLE	<u>YEARS</u>
391.10	Office Furniture and Equipment	15
391.10	Computer Hardware	5
391.20	Computer Software	8
391.60	AMI Computer Software	10
394.00	Tools and Work Equipment	15
397.00	Communications Structures and Equipment	15
397.20	AMI Communications Structures and Equipment	15

For the purpose of calculating annual amortization amounts as of December 31, 2014, the book depreciation reserve for each plant account or subaccount is assigned or allocated to vintages. The book reserve assigned to vintages with an age greater than the amortization period is equal to the vintage's original cost. The remaining book reserve is allocated among vintages with an age less than the amortization period in

proportion to the calculated accrued amortization. The calculated accrued amortization is equal to the original cost multiplied by the ratio of the vintage's age to its amortization period. The annual amortization amount is determined by dividing the future amortizations (original cost less allocated book reserve) by the remaining period of amortization for the vintage.

# PART IV. RESULTS OF STUDY



### PART IV. RESULTS OF STUDY

### **QUALIFICATION OF RESULTS**

The calculated annual and accrued depreciation are the principal results of the study. Continued surveillance and periodic revisions are normally required to maintain continued use of appropriate annual depreciation accrual rates. An assumption that accrual rates can remain unchanged over a long period of time implies a disregard for the inherent variability in service lives and salvage and for the change of the composition of property in service. The annual accrual rates and the accrued depreciation were calculated in accordance with the straight line method, using the average service life procedure based on estimates which reflect considerations of current historical evidence and expected future conditions.

### **DESCRIPTION OF DETAILED TABULATIONS**

The service life estimates were based on judgment that incorporated statistical analysis of retirement data, discussions with management and consideration of estimates made for other electric utilities. The results of the statistical analysis of service life are presented in the section beginning on page V-2 of this report.

For each depreciable group analyzed by the retirement rate method, a chart depicting the original and estimated survivor curves followed by a tabular presentation of the original life table(s) plotted on the chart. The survivor curves estimated for the depreciable groups are shown as dark smooth curves on the charts. Each smooth survivor curve is denoted by a numeral followed by the curve type designation. The numeral used is the average life derived from the entire curve from 100 percent to zero percent surviving. The titles of the chart indicate the group, the symbol used to plot the points of the original life table, and the experience and placement bands of the life tables which where plotted. The experience band indicates the range of years for which retirements were used to develop the stub survivor curve. The placements indicate, for the related experience band, the range of years of installations which appear in the experience.

The tables of the calculated annual depreciation applicable to depreciable assets as of December are presented in account sequence starting on page VII-2 of the supporting documents. The tables indicate the estimated average survivor curves used in the calculations. The tables set forth, for each installation year, the original cost, calculated accrued depreciation, and the calculated annual accrual.

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# TABLE 1. ESTIMATED SURVIVOR CURVE, ORIGINAL COST, BOOK DEPRECIATION RESERVE AND CALCULATED ANNUAL DEPRECIATION ACCRUALS RELATED TO UTILITY PLANT AS OF DECEMBER 31, 2014 DEPRECIATION RELATED TO RECOVERY OF ORIGINAL COST OF INVESTMENT

		SURVIVOR	NET	ORIGINAL COST AS OF	BOOK DEPRECIATION	FUTURE	CALCULATE	ED ANNUAL ACCRUAL	COMPOSITE REMAINING
ACCOUNT	ACCOUNT DESCRIPTION	CURVE	SALVAGE (%)	<b>DECEMBER 31, 2014</b>	RESERVE	ACCRUALS	AMOUNT	RATE	LIFE
	(1) GENEP ATION PLANT	(2)	(3)	(4)	(5)	(9)	(2)	(8)=(7)/(4)	(4)/(9)=(6)
330.10	LAND RIGHTS	75-R4		961,358	(549,854)	1,511,212	25,018	2.60	60.4
331.00	STRUCTURES AND IMPROVEMENTS	68-S2.5		14,871,098	5,031,785	9,839,313	177,194	1.19	55.4
332.00	RESERVOIRS, DAMS AND WATERWAYS	70-S2.5		31,722,604	5,577,922	26,144,682	475,628	1.50	54.6
333.00	WATER WHEELS, TURBINES AND GENERATORS	70-R2.5		96,839,221	11,347,980	85,491,241	1,406,673	1.45	60.5
334.00	ACCESSORY ELECTRICAL EQUIPMENT	50-R1.5		42,712,705	9,169,201	33,543,504	756,490	1.77	43.2
335.00	OTHER POWER PLANT EQUIPMENT	51-R4	•	44,358,214	12,393,174	31,965,040	794,393	1.79	40.1
336.00	ROADS, RAILROADS AND BRIDGES	75-S4		1,287,434	324,723	962,711	18,928	1.47	50.9
	TOTAL GENERATION PLANT			232,752,634	43,294,931	189,457,703	3,654,324	1.57	
	TRANSMISSION PLANT								
350.20	SURFACE AND MINERAL	75-R4		8,046,804	1,815,297	6,231,507	99,326	1.23	62.7
353.00	SUBSTATION EQUIPMENT	50-R4		225,450,535	58,305,547	167,144,988	4,034,910	1.79	40.5
355.00	POLES, TOWERS AND FIXTURES	50-R1.5		103,103,429	21,362,218	81,741,211	1,952,026	1.89	41.3
356.00	CONDUCTORS AND DEVICES	53-R1.5		100,024,736	15,642,707	84,382,029	1,925,658	1.93	43.4
359.00	ROADS AND TRAILS	40-R3		1,120,930	210,319	910,611	32,336	2.88	28.2
	TOTAL TRANSMISSION PLANT			437,746,434	97,336,088	340,410,346	8,044,256	1.84	
	DISTRIBUTION PLANT								
360.20	SURFACE AND MINERAL	75-R4	•	10,455,571	1,672,212	8,783,359	128,902	1.23	68.1
362.00	SUBSTATION EQUIPMENT	50-R3		227,207,210	47,652,225	179,554,985	4,358,667	1.92	40.5
364.00	POLES, TOWERS AND FIXTURES	50-R2.5		177,311,677	46,806,768	130,504,909	3,257,159	1.84	38.8
365.00	CONDUCTORS AND DEVICES	49-R3	•	286,885,219	74,317,561	212,567,658	5,667,373	1.98	36.0
368.00	LINE TRANSFORMERS	45-R4		132,456,798	25,583,987	106,872,811	3,028,991	2.29	34.9
369.00	SERVICES	75-R4		9,520,831	6,586,048	2,934,783	47,190	0.50	62.2
370.00	METERS	20-R1		14,209,792	5,471,584	8,738,208	8,738,207	61.49 	1.0 *
370.10	AMI METERS	20-SQ		8,137,057	- 100	8,137,057	406,853	2.00 *	19.5
3/1.00	INSTALLATIONS ON CUSTOMERS PREMISES STREET LICHTING AND SIGNAL SVETEMS	27 I 2		931,032	931,032	-	-	- 1	
00.010		21-12		879.251.104	211.426.090	667.825.012	26.134.004	2.97	t.
	GENERAL PLANT								
390.00	STRUCTURES - FRAME AND IRON	51-S1.5		337,364	279,280	58,084	1,898	0.56	30.6
390.10		41-S3		23,724,849	5,767,963	17,956,886	758,275	3.20	23.7
390.20		40-R4		16,035,423	5,648,397	10,387,026	343,620	2.14	30.2
00.195				0,283,331	10.308,117	915,220 E EOB 664	2000,GUT	1.00	2.6
391.10				24,403,351	18,934,087	5,5U8,004	2,410,847	9.00	6.7 7
02.180	AMI COMPUTER SUFTWARE	00.01		02,101,020 6 166 007	44,332,340	200,001,11	3,032,323 616 700	10.00 *	0.4 7
302.100		10-1	25	8 754 083	2 945 159	3 621 078	549.221	6.27	
392.20		15-L3	25	15.209.197	3.175.734	8.231.164	890.642	5.86	9.2
394.00	TOOLS AND WORK EQUIPMENT	15-SQ		13.056.692	9.841.426	3.215.266	325,685	2.49	6.6
397.00	COMMUNICATIONS STRUCTURES AND EQUIPMENT	15-SQ		28,493,761	15,904,116	12,589,645	1,565,121	5.49	8.0
397.20	AMI COMMUNICATIONS STRUCTURE AND EQUIPMENT	15-SQ		2,274,693		2,274,693	151,722	6.67 *	14.5
	TOTAL GENERAL PLANT			206,952,176	112,817,825	88,143,305	11,552,160	5.58	
	TOTAL DEPRECIABLE PLANT			1,756,702,347	464,874,934	1,285,836,366	49,384,744	2.81	
111.00				11 012 000	E 720 050				
350.10	UTILIT FLANT אלעטטוו וטא אליטט וואבועי LAND RIGHTS			8,816,733	0,103,000				
360.10	LAND RIGHTS			4,575,942	-				
389.00	LAND			11,116,222	(11,145)				
390.90 999.90	LEASEHOLD IMPROVEMENTS CONTRIBUTION IN AID OF CONSTRUCTION			3,728,028 (159,783,349)	3,340,330 (57,087,751)				
	TOTAL NON - DEPRECIABLE PLANT			(119,634,423)	(48,172,146)				
	a			100 100 100 1		1 000 000 000			
	TOTAL PLANT			1,637,067,924	416,702,788	1,285,836,366	49,384,744		

\*

\* In accordance with the rates as per BCUC Decision C-7-13 dated July 23, 2013.

🎽 Gannett Fleming

FortisBC Inc. 2014 Depreciation Study

IV-4

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# TABLE 2. ESTIMATED SURVIVOR CURVE, ORIGINAL COST, BOOK DEPRECIATION RESERVE AND CALCULATED ANNUAL DEPRECIATION ACCRUALS RELATED TO UTILITY PLANT AS OF DECEMBER 31, 2014 DEPRECIATION RELATED TO RECOVERY OF COST OF REMOVAL

COMPOSITE L REMAINING	4) (9)=(6)/(7)		•	0.10 55.4	0.4C 0.4.C	1.51 43.2	0.26 40.1		1.33			0.64 41.3	).59 43.4	ļ	0.62		·	2.05 40.5 28.8	36.0	).45 34.9		•			1.71 13.4						•					. .	1	0.55							
ULATED ANNUAL L ACCRUA	(8)=(7)/(2		•	351 U	382 U 356	201	343		733 0		- 10 - 10 - 10 - 10 - 10 - 10 - 10 - 10	785 0	554 0		135 0		'	218 C	392	295 0					<u>342</u> 0													310 0						•].	
		2		13,5	305.5	218.2	113.5		2 761,7		1 484 7	7 652,7	4 593,5		5 2,731,1			1,174,1	2,623,5	6009					<u>6,238,9</u>													9,731,8							
	AUCKUALS (6)			143,55	4,738,391 10 367 84	8.542.54	4.435.82	10,001,1	37,848,15		56 362 63	25,775,85	25,006,18		107,144,67			56,801,80	86.065.56	19,868,520				10010101	217,142,30													362,135,13							
BOOK DEPRECIATION	(5)																					•	•	•	'								•										•		
ORIGINAL COST AS OF	UECEMBER 31, 2014 (4)		961,358	14,8/1,098	31,722,604 06 830 221	42,712,705	44.358.214	1 282 434	232,752,634	0 046 004	0,040,004 225 450 535	103, 103, 429	100,024,736	1,120,930	437,746,434		10,455,571	227,207,210	286,885,219	132,456,798	9,520,831	14,209,792	8, 137, 057	931,832 12 120 11E	879,251,104	337.364	23,724,849	16,035,423	6,283,337	24,463,351	200 991 9 200 991 9	8.754.983	15,209,197	13,056,692	28,493,761	2,274,693 206.952.176		1,756,702,347		11,912,000	8,816,733 4,575,942	11,116,222	3,728,028	(159,783,349)	(113,004,420)
	3ALVAGE (%) (3)	2	. <sup>i</sup>	(5)	(02)	(20)	(10)				- (25)	(25)	(25)	•			' (	(GZ)	(0C)	(15)		•	•	- 1017	(01)							25	25		•										
SURVIVOR	CURVE (2)		75-R4	68-S2.5	70-B2.55	50-R1.5	51-R4	75-54	5	76 D.4	50-R4	50-R1.5	53-R1.5	40-R3			75-R4	50-K3 F0-P2 F	49-R3	45-R4	75-R4	20-R1	20-SQ	20-K1	21-12	51-S1.5	41-S3	40-R4	15-SQ	5-50	00-01	10-F1	15-L3	15-SQ	15-SQ	T 15-SQ									
		GENERATION PLANT	LAND RIGHTS	SIRUCIURES AND IMPROVEMENTS	KESERVOIRS, DAMS AND WATERWATS WATER WHEELS THRINES AND GENERATORS	ACCESSORY ELECTRICAL FOLIPMENT	OTHER POWER PLANT EQUIPMENT	ROADS RAIL ROADS AND RRIDGES	TOTAL GENERATION PLANT		SUN ACE AND MININERAL	POLES, TOWERS AND FIXTURES	CONDUCTORS AND DEVICES	ROADS AND TRAILS	TOTAL TRANSMISSION PLANT	DISTRIBUTION PLANT	SURFACE AND MINERAL	BUBSTATION EQUIPMENT		LINE TRANSFORMERS	SERVICES	METERS	AMI METERS			GENERAL PLANI Structures - Frame and Iron	STRUCTURES - MASONRY	OPERATIONS BUILDINGS	OFFICE FURNITURE AND EQUIPMENT		OUMPUTER SOFTWARE AMI COMPLITED SOFTWARE		HEAVY DUTY VEHICLES	TOOLS AND WORK EQUIPMENT	COMMUNICATIONS STRUCTURES AND EQUIPMENT	AMI COMMUNICATIONS STRUCTURE AND EQUIPMEN TOTAL GENERAL PLANT		TOTAL DEPRECIABLE PLANT	PLANT NOT STUDIED		LAND RIGHTS LAND RIGHTS	LAND	LEASEHOLD IMPROVEMENTS	CONTRIBUTION IN AID OF CONSTRUCTION TOTAL MON - DEPRECIARI E PLANT	
THIODOV	ACCOUNT		330.10	331.00	332.00	334.00	335.00	336.00	00.000	360.30	353.00	355.00	356.00	359.00			360.20	362.00	365.00	368.00	369.00	370.00	370.10	3/1.00	00.010	390.00	390.10	390.20	391.00	391.10	391.20	392.10	392.20	394.00	397.00	397.20				114.00	350.10 360.10	389.00	390.90	999.90	

## PART V. SERVICE LIFE STATISTICS



FORTISBC INC. ACCOUNT 330.10 - LAND RIGHTS ORIGINAL AND SMOOTH SURVIVOR CURVES



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### ACCOUNT 330.10 - LAND RIGHTS

### ORIGINAL LIFE TABLE

PLACEMENT BAND 1980-2008

EXPERIENCE	BAND	1940-	201	. 4

AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
0.0 0.5 1.5 2.5 3.5 4.5 5.5 6.5 7.5 8.5	961,358 961,358 961,358 961,358 961,358 961,358 961,358 961,358 846,775 119,897 119,897		0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000	1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000	$100.00 \\ 1$
9.5 10.5 11.5 12.5 13.5 14.5 15.5 16.5 17.5 18.5	98,939 98,939 98,939 98,939 98,939 98,939 98,939 98,939 98,939 98,939 98,939		$\begin{array}{c} 0.0000\\ 0.0000\\ 0.0000\\ 0.0000\\ 0.0000\\ 0.0000\\ 0.0000\\ 0.0000\\ 0.0000\\ 0.0000\\ 0.0000\\ 0.0000\\ 0.0000\\ 0.0000\end{array}$	1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000	$100.00 \\ 1$
19.5 20.5 21.5 22.5 23.5 24.5 25.5 26.5 27.5 28.5	98,939 98,939 98,939 98,939 98,939 98,939 98,939 98,939 98,939 98,939 98,939		0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000	1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000	100.00 100.00 100.00 100.00 100.00 100.00 100.00 100.00 100.00
29.5 30.5 31.5 32.5 33.5 34.5	98,939 98,939 83,965 83,965 83,965		0.0000 0.0000 0.0000 0.0000 0.0000	1.0000 1.0000 1.0000 1.0000 1.0000	100.00 100.00 100.00 100.00 100.00 100.00

FORTISBC INC. ACCOUNT 331.00 - STRUCTURES AND IMPROVEMENTS ORIGINAL AND SMOOTH SURVIVOR CURVES



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### ACCOUNT 331.00 - STRUCTURES AND IMPROVEMENTS

### ORIGINAL LIFE TABLE

PLACEMENT BAND 1950-2014

EXPERIENCE BAND 1940-2014

AGE AT	EXPOSURES AT	RETIREMENTS			PCT SURV
BEGIN OF	BEGINNING OF	DURING AGE	RETMT	SURV	BEGIN OF
INTERVAL	AGE INTERVAL	INTERVAL	RATIO	RATIO	INTERVAL
0.0	15,360,780	5	0.0000	1.0000	100.00
0.5	14,459,155	2	0.0000	1.0000	100.00
1.5	14,282,999		0.0000	1.0000	100.00
2.5	13,257,441	1	0.0000	1.0000	100.00
3.5	13,073,271	24	0.0000	1.0000	100.00
4.5	12,477,294	15	0.0000	1.0000	100.00
5.5	12,181,831		0.0000	1.0000	100.00
6.5	11,409,875	3,658	0.0003	0.9997	100.00
7.5	10,785,208	24,712	0.0023	0.9977	99.97
8.5	10,543,066	4,112	0.0004	0.9996	99.74
9.5	10,137,604	7,531	0.0007	0.9993	99.70
10.5	9,920,124	20,649	0.0021	0.9979	99.63
11.5	9,323,283	10,523	0.0011	0.9989	99.42
12.5	8,935,137	3,804	0.0004	0.9996	99.31
14 5	7,909,942	10 100	0.0000	1.0000	99.26
14.5 15 5	7,444,971	12,106	0.0016	0.9984	99.20
15.5	7,302,500	20 104	0.0000	1.0000	99.10
10.5 17 E	0,907,132 6 772 252	39,184	0.0057	0.9943	99.10
10 E	0,773,232	2 0 2 2	0.0000	1.0000	90.54 00 E1
10.5	0,017,078	2,932	0.0004	0.9990	90.94
19.5	4,428,978		0.0000	1.0000	98.50
20.5	3,025,207		0.0000	1.0000	98.50
21.5	1,864,963		0.0000	1.0000	98.50
22.5	1,597,365		0.0000	1.0000	98.50
23.5	/86,281	247,630	0.3149	0.6851	98.50
24.5	431,972		0.0000	1.0000	67.48
25.5	402,933		0.0000	1.0000	67.48
20.5 27 E	382,076	1 624	0.0000	1.0000	67.48
27.5	300,435	1,034	0.0045	0.9955	07.48 67.10
28.5	308,239		0.0000	1.0000	07.18
29.5	279,351	69,778	0.2498	0.7502	67.18
30.5	205,915		0.0000	1.0000	50.40
31.5	205,915	10,451	0.0508	0.9492	50.40
32.5	30,931		0.0000	1.0000	47.84
33.5	30,931		0.0000	1.0000	47.84
34.5	30,931		0.0000	1.0000	47.84
35.5	30,931	20.021	0.0000	T.0000	47.84
30.5	30,931	30,931	T.0000		47.84
37.5					



FORTISBC INC. ACCOUNT 332.00 - RESERVOIRS, DAMS AND WATERWAYS ORIGINAL AND SMOOTH SURVIVOR CURVES



### ACCOUNT 332.00 - RESERVOIRS, DAMS AND WATERWAYS

### ORIGINAL LIFE TABLE

PLACEMENT BAND 1940-2014

EXPERIENCE BAND 1940-2014

EXPOSURES AT	RETIREMENTS			PCT SURV
BEGINNING OF	DURING AGE	RETMT	SURV	BEGIN OF
AGE INTERVAL	INTERVAL	RATIO	RATIO	INTERVAL
32,677,973		0.0000	1.0000	100.00
30,513,630	8,191	0.0003	0.9997	100.00
30,273,405	13	0.0000	1.0000	99.97
28,192,695	859	0.0000	1.0000	99.97
27,486,488	б	0.0000	1.0000	99.97
25,276,645	145	0.0000	1.0000	99.97
23,727,939	108	0.0000	1.0000	99.97
20,241,439	23,135	0.0011	0.9989	99.97
18,030,313	3,130	0.0002	0.9998	99.85
15,129,810	1	0.0000	1.0000	99.84
14,886,387	2,949	0.0002	0.9998	99.84
13,779,066	2,491	0.0002	0.9998	99.82
12,928,809	8,049	0.0006	0.9994	99.80
12,920,760	14	0.0000	1.0000	99.74
12,916,120		0.0000	1.0000	99.74
12,534,792	6/,54/	0.0054	0.9946	99.74
12,407,245	600	0.0000	1.0000	99.20
11,709,579 11 727 702	090 167	0.0001	0.9999	99.20
11,737,423 11,718,278	3 289	0.0000	1.0000	99.19
11,710,270	5,205	0.0005	0.557	JJ.1J
11,714,989		0.0000	1.0000	99.16
11,207,828	20,086	0.0018	0.9982	99.16
10,434,321	26,030	0.0025	0.9975	98.99
10,408,291		0.0000	1.0000	98.74
10,392,941		0.0000	1.0000	98.74
10,392,941		0.0000	1.0000	98.74
10, 327, 873 10, 227, 873		0.0000	1.0000	90.74
10,327,873	271 167	0.0000	1.0000	90.74
9,968,923	2/1,10/	0.0203	1.0000	96.12
9,968,923	85,735	0.0086	0.9914	96.12
9,883,188	50	0.0000	1.0000	95.30
9,883,138	1.528	0.0002	0.9998	95.30
430,634	2,020	0.0000	1.0000	95.28
430,634		0.0000	1.0000	95.28
430,634		0.0000	1.0000	95.28
430,634		0.0000	1.0000	95.28
430,634	0	0.0000	1.0000	95.28
430,634		0.0000	1.0000	95.28
430,634		0.0000	1.0000	95.28
	EXPOSURES AT BEGINNING OF AGE INTERVAL 32,677,973 30,513,630 30,273,405 28,192,695 27,486,488 25,276,645 23,727,939 20,241,439 18,030,313 15,129,810 14,886,387 13,779,066 12,928,809 12,920,760 12,916,120 12,534,792 12,467,245 11,769,579 11,737,423 11,714,989 11,207,828 10,434,321 10,408,291 10,392,941 10,392,941 10,392,941 10,392,941 10,392,941 10,392,941 10,392,941 10,392,941 10,392,941 10,327,873 10,240,090 9,968,923 9,968,923 9,968,923 9,883,138 430,634 430,634 430,634	EXPOSURES AT BEGINNING OF AGE INTERVALRETIREMENTS DURING AGE INTERVAL32,677,973 30,513,630 30,273,4058,191 30,273,40530,273,405 27,486,488 25,276,64513 28,192,69527,486,488 23,727,9396 145 23,727,93920,241,439 23,13523,135 18,030,31318,030,313 15,129,810114,886,387 2,9492,949 12,920,76012,928,809 12,920,7608,049 12,920,76012,534,792 2,534,79267,547 12,467,245 88 11,737,42311,714,989 11,207,828 10,392,941 10,392,941 10,392,941 10,327,873 10,240,090 9,968,92320,086 20,086 20,086 20,086 20,086 20,086 20,086 20,086 20,086 20,086 20,086 20,086 20,086 20,086 20,086 20,086 20,086 20,086 20,086 21,167 9,968,9239,968,923 9,968,923 9,968,923 9,968,923 9,968,923 9,968,923 9,968,923 9,968,923 9,968,923 9,968,923 9,968,923 9,968,923 9,968,923 9,968,923 9,968,923 9,963,138 1,528 430,634 430,634 430,634 430,634 430,634 430,634 430,634 430,634	EXPOSURES AT BEGINNING OF AGE INTERVALRETIREMENTS DURING AGE NTERVALRETMT RATIO32,677,9730.000030,513,6308,1910.000330,273,405130.000028,192,6958590.000027,486,48860.000025,276,6451450.000120,241,43923,1350.001118,030,3133,1300.000215,129,81010.000014,886,3872,9490.000212,928,8098,0490.000612,920,760140.000012,916,1200.000012,779,0662,4910.000112,928,8098,0490.000612,928,7967,5470.005412,467,245880.000111,769,5796980.001111,714,9890.000011,207,82820,0860.001810,434,32126,0300.002510,408,2910.000010,327,8730.000010,327,8730.000010,327,8730.000010,327,8730.00009,968,92385,7350.08669,968,92385,7350.08669,883,1881,5280.0000430,6340.0000430,6340.0000430,6340.0000430,6340.0000430,6340.0000430,6340.0000430,6340.0000430,6340.0000430,6340.0000	EXPOSURES AT BEGINNING OF AGE INTERVALRETIREMENTS DURING AGE NTERVALRETMT RATIOSURV RATIO32,677,973 30,513,6300.00001.000030,513,630 8,1918,1910.00001.000028,192,695 5,276,645130.00001.000025,276,6451450.00001.000020,241,43923,1350.00110.998918,030,3133,1300.00020.999815,129,81010.00001.000014,886,3872,9490.00020.999812,928,8098,0490.00060.999412,920,760140.00001.000012,534,79267,5470.00540.994612,467,245880.00011.000011,769,5796980.00011.000011,714,9890.00001.00001.000011,714,9890.00001.00001.000011,714,9890.00001.000010,322,9410.00001.000010,322,9410.00001.000010,327,8730.00001.000010,327,8730.00001.000010,327,8730.00001.000010,240,090271,1670.2650.99139,968,92385,7350.00860.99149,883,1381,5280.00001.0000430,6340.00001.0000430,6340.00001.0000430,6340.00001.0000430,6340.00001.0000

### ACCOUNT 332.00 - RESERVOIRS, DAMS AND WATERWAYS

### ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1940-2014

### EXPERIENCE BAND 1940-2014

AGE AT	EXPOSURES AT	RETIREMENTS			PCT SURV
BEGIN OF	BEGINNING OF	DURING AGE	RETMT	SURV	BEGIN OF
INTERVAL	AGE INTERVAL	INTERVAL	RATIO	RATIO	INTERVAL
39.5	430,634		0.0000	1.0000	95.28
40.5	430,634		0.0000	1.0000	95.28
41.5	430,634		0.0000	1.0000	95.28
42.5	430,634	15,405	0.0358	0.9642	95.28
43.5	415,229		0.0000	1.0000	91.87
44.5	415,229		0.0000	1.0000	91.87
45.5	422,498		0.0000	1.0000	91.87
46.5	422,498	367,027	0.8687	0.1313	91.87
47.5	55,471		0.0000	1.0000	12.06
48.5	55,471	55,471	1.0000		12.06

49.5



FORTISBC INC. ACCOUNT 333.00 - WATER WHEELS, TURBINES AND GENERATORS ORIGINAL AND SMOOTH SURVIVOR CURVES



ACCOUNT 333.00 - WATER WHEELS, TURBINES AND GENERATORS

### ORIGINAL LIFE TABLE

PLACEMENT BAND 1960-2014

EXPERIENCE BAND 1940-2014

AGE AT	EXPOSURES AT	RETIREMENTS			PCT SURV
BEGIN OF	BEGINNING OF	DURING AGE	RETMT	SURV	BEGIN OF
INTERVAL	AGE INTERVAL	INTERVAL	RATIO	RATIO	INTERVAL
0.0	99,092,983	2	0.0000	1.0000	100.00
0.5	97,975,970	81	0.0000	1.0000	100.00
1.5	97,749,335		0.0000	1.0000	100.00
2.5	96,362,507	11,780	0.0001	0.9999	100.00
3.5	75,686,206	143	0.0000	1.0000	99.99
4.5	63,358,591	12,549	0.0002	0.9998	99.99
5.5	55,089,999		0.0000	1.0000	99.97
6.5	55,089,999	442	0.0000	1.0000	99.97
7.5	47,283,212	919	0.0000	1.0000	99.97
8.5	37,144,636	13,082	0.0004	0.9996	99.96
9.5	36,904,908	357,852	0.0097	0.9903	99.93
10.5	22,736,964		0.0000	1.0000	98.96
11.5	22,625,422		0.0000	1.0000	98.96
12.5	22,457,480		0.0000	1.0000	98.96
13.5	20,779,970	3,850	0.0002	0.9998	98.96
14.5	11,792,129	34	0.0000	1.0000	98.94
15.5	11,616,511	200	0.0000	1.0000	98.94
16.5	11,052,366	169,288	0.0153	0.9847	98.94
17.5	10,640,607	1,844	0.0002	0.9998	97.42
18.5	10,028,979	370,968	0.0370	0.9630	97.41
19.5	9,394,508		0.0000	1.0000	93.81
20.5	9,192,161	11,543	0.0013	0.9987	93.81
21.5	9,105,619		0.0000	1.0000	93.69
22.5	9,028,856		0.0000	1.0000	93.69
23.5	8,764,178	4,535	0.0005	0.9995	93.69
24.5	8,689,445	0 604	0.0000	1.0000	93.64
25.5	8,564,605	8,624	0.0010	0.9990	93.64
20.5	8,535,649	26,293	0.0031	0.9969	93.54
∠7.5 28.5	8,480,117 8 344 444		0.0000	1 0000	93.20 93.26
20.5	0,311,111		0.0000	1 0000	23.20
29.5	8,320,182		0.0000	1.0000	93.26
30.5	8,243,785	166 070	0.0000	1.0000	93.20
31.5 22 E	8,243,759	100,278	0.0202	0.9798	93.20
34.5 22 E	⊥,//8,020 1 770 606		0.0000	1 0000	91.38 01 20
34 5	1,770,020 1,770 696		0.0000	1 0000	91.30 Q1 20
37.5	1 778 KOK		0.0000	1 0000	91.30 Q1 20
36 5	$\pm,,,0,020$ 1 778 626		0.0000	1 0000	01 20
37 5	1,772,020	110	0 0001	1 9999	91 28
38.5	1,773.062	1 1 Z	0.0000	1.0000	91.37

### ACCOUNT 333.00 - WATER WHEELS, TURBINES AND GENERATORS

### ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1960-2014

EXPERIENCE BAND 1940-2014

AGE AT	EXPOSURES AT	RETIREMENTS			PCT SURV
BEGIN OF	BEGINNING OF	DURING AGE	RETMT	SURV	BEGIN OF
INTERVAL	AGE INTERVAL	INTERVAL	RATIO	RATIO	INTERVAL
39.5	1,773,062		0.0000	1.0000	91.37
40.5	1,773,062		0.0000	1.0000	91.37
41.5	1,773,062		0.0000	1.0000	91.37
42.5	1,773,062		0.0000	1.0000	91.37
43.5	1,772,742		0.0000	1.0000	91.37
44.5	1,772,742		0.0000	1.0000	91.37
45.5	1,772,446		0.0000	1.0000	91.37
46.5	1,772,446	266,032	0.1501	0.8499	91.37
47.5	1,506,414		0.0000	1.0000	77.66
48.5	1,506,414		0.0000	1.0000	77.66
49.5	1,506,148		0.0000	1.0000	77.66
50.5	671,949		0.0000	1.0000	77.66
51.5	10,021		0.0000	1.0000	77.66
52.5	10,021		0.0000	1.0000	77.66
53.5	10,021		0.0000	1.0000	77.66
54.5					77.66

FORTISBC INC. ACCOUNT 334.00 - ACCESSORY ELECTRICAL EQUIPMENT ORIGINAL AND SMOOTH SURVIVOR CURVES



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### ACCOUNT 334.00 - ACCESSORY ELECTRICAL EQUIPMENT

### ORIGINAL LIFE TABLE

PLACEMENT BAND 1950-2014

EXPERIENCE BAND 1940-2014

AGE AT	EXPOSURES AT	RETIREMENTS			PCT SURV
BEGIN OF	BEGINNING OF	DURING AGE	RETMT	SURV	BEGIN OF
INTERVAL	AGE INTERVAL	INTERVAL	RATIO	RATIO	INTERVAL
0.0	46,287,962	8	0.0000	1.0000	100.00
0.5	45,397,962		0.0000	1.0000	100.00
1.5	44,856,157	11,938	0.0003	0.9997	100.00
2.5	41,370,510	6,685	0.0002	0.9998	99.97
3.5	34,715,069	1	0.0000	1.0000	99.96
4.5	28,895,768		0.0000	1.0000	99.96
5.5	24,012,699	12,203	0.0005	0.9995	99.96
6.5	23,472,953	б	0.0000	1.0000	99.91
7.5	20,700,402	16,472	0.0008	0.9992	99.91
8.5	18,583,121	102,496	0.0055	0.9945	99.83
9.5	18,375,670	444,870	0.0242	0.9758	99.28
10.5	12,671,673	611,492	0.0483	0.9517	96.87
11.5	11,863,857	65,309	0.0055	0.9945	92.20
12.5	11,330,770	133,290	0.0118	0.9882	91.69
13.5	7,235,534	50,660	0.0070	0.9930	90.61
14.5	5,908,136	252,891	0.0428	0.9572	89.98
15.5	5,618,478	71,759	0.0128	0.9872	86.13
16.5	5,201,025	67,855	0.0130	0.9870	85.03
17.5	5,102,357	33,268	0.0065	0.9935	83.92
18.5	4,868,577	5,911	0.0012	0.9988	83.37
19.5	4,862,666	206,860	0.0425	0.9575	83.27
20.5	4,655,573	7,707	0.0017	0.9983	79.73
21.5	4,571,917	147,574	0.0323	0.9677	79.59
22.5	4,376,417	126,619	0.0289	0.9711	77.03
23.5	4,115,343		0.0000	1.0000	74.80
24.5	4,081,092		0.0000	1.0000	74.80
25.5	4,026,114		0.0000	1.0000	74.80
26.5	4,022,924	11,492	0.0029	0.9971	74.80
27.5	4,011,432	7,386	0.0018	0.9982	74.58
28.5	3,907,055		0.0000	1.0000	74.45
29.5	3,907,055	241,006	0.0617	0.9383	74.45
30.5	3,624,758	4 = 6 4	0.0000	1.0000	69.85
31.5	3,624,758	4,594	0.0013	0.9987	69.85
32.5	3,620,164		0.0000	1.0000	69.76
33.5	3,620,164		0.0000	1.0000	69.76
34.5	3,620,164	5,466	0.0015	0.9985	69.76
35.5	3,612,3/3		0.0000	1 0000	69.66
30.5	3,599,863		0.0000	1,0000	69.66
3/.5 20 E	3,395,004		0.0000	1 0000	09.00
20.2	3,000,0/4		0.0000	T.0000	07.00

### ACCOUNT 334.00 - ACCESSORY ELECTRICAL EQUIPMENT

### ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1950-2014

EXPERIENCE BAND 1940-2014

AGE AT	EXPOSURES AT	RETIREMENTS			PCT SURV
BEGIN OF	BEGINNING OF	DURING AGE	RETMT	SURV	BEGIN OF
INTERVAL	AGE INTERVAL	INTERVAL	RATIO	RATIO	INTERVAL
39.5	3,585,332	21,593	0.0060	0.9940	69.66
40.5	3,557,577		0.0000	1.0000	69.24
41.5	3,554,533		0.0000	1.0000	69.24
42.5	3,554,533	56,212	0.0158	0.9842	69.24
43.5	3,332,279	130,039	0.0390	0.9610	68.15
44.5	3,202,240		0.0000	1.0000	65.49
45.5	3,197,708		0.0000	1.0000	65.49
46.5	3,194,558	4,140	0.0013	0.9987	65.49
47.5	3,190,419		0.0000	1.0000	65.40
48.5	3,189,485		0.0000	1.0000	65.40
49.5	3,189,485		0.0000	1.0000	65.40
50.5	3,185,109	717,072	0.2251	0.7749	65.40
51.5	2,432,028		0.0000	1.0000	50.68
52.5	2,432,028		0.0000	1.0000	50.68
53.5	2,432,028		0.0000	1.0000	50.68
54.5					50.68

FORTISBC INC. ACCOUNT 335.00 - OTHER POWER PLANT EQUIPMENT ORIGINAL AND SMOOTH SURVIVOR CURVES



🎽 Gannett Fleming
# ACCOUNT 335.00 - OTHER POWER PLANT EQUIPMENT

### ORIGINAL LIFE TABLE

PLACEMENT BAND 1957-2014

AGE AT	EXPOSURES AT	RETIREMENTS			PCT SURV
BEGIN OF	BEGINNING OF	DURING AGE	RETMT	SURV	BEGIN OF
INTERVAL	AGE INTERVAL	INTERVAL	RATIO	RATIO	INTERVAL
0.0	49,363,810	272	0.0000	1.0000	100.00
0.5	48,131,554	95,862	0.0020	0.9980	100.00
1.5	47,916,237		0.0000	1.0000	99.80
2.5	46,412,376	2,565	0.0001	0.9999	99.80
3.5	46,150,597	81,442	0.0018	0.9982	99.79
4.5	45,313,227	36,311	0.0008	0.9992	99.62
5.5	42,968,478	2,919	0.0001	0.9999	99.54
6.5	42,592,269	2,315	0.0001	0.9999	99.53
7.5	41,905,798	680	0.0000	1.0000	99.53
8.5	41,127,508	3,046	0.0001	0.9999	99.53
9.5	40,202,352	9,262	0.0002	0.9998	99.52
10.5	29,789,751	<b>CO</b> 20 <b>C</b>	0.0000	1.0000	99.49
11.5	11,551,143	60,396	0.0052	0.9948	99.49
12.5	10,995,637	1,580	0.0001	0.9999	98.97
14 5	10,994,050		0.0000	1.0000	90.90
14.5	9,019,175	25 182	0.0000	1.0000	98.90
16 5	5 612 664	23,102	0.0000	1 0000	98 67
17 5	5 029 674	22 758	0.0000	0 9955	98 67
18.5	4,510,854	68,021	0.0151	0.9849	98.22
19.5	4,182,440	33,312	0.0080	0.9920	96.74
20.5	3,914,344	5,827	0.0015	0.9985	95.97
21.5	3,698,405		0.0000	1.0000	95.83
22.5	3,622,934		0.0000	1.0000	95.83
23.5	3,443,401	3,529	0.0010	0.9990	95.83
24.5	3,036,947	3,994	0.0013	0.9987	95.73
25.5	2,874,934	42,951	0.0149	0.9851	95.60
26.5	2,671,223		0.0000	1.0000	94.17
27.5	2,481,259	36,609	0.0148	0.9852	94.17
28.5	2,131,013		0.0000	1.0000	92.78
29.5	2,047,668		0.0000	1.0000	92.78
30.5	1,986,502		0.0000	1.0000	92.78
31.5	1,986,502		0.0000	1.0000	92.78
32.5	1,661,190		0.0000	1.0000	92.78
33.5	1,661,190		0.0000	1.0000	92.78
34.5	1,661,190		0.0000	1.0000	92.78
35.5	1,661,185		0.0000	1.0000	92.78
36.5	1,640,350	<i>c</i>	0.0000	1.0000	92.78
37.5	1,619,320	6,310	0.0039	0.9961	92.78
38.5	1,599,976		0.0000	1.0000	92.42

# ACCOUNT 335.00 - OTHER POWER PLANT EQUIPMENT

# ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1957-2014

AGE AT	EXPOSURES AT	RETIREMENTS			PCT SURV
BEGIN OF	BEGINNING OF	DURING AGE	RETMT	SURV	BEGIN OF
INTERVAL	AGE INTERVAL	INTERVAL	RATIO	RATIO	INTERVAL
39.5	1,598,416		0.0000	1.0000	92.42
40.5	1,597,496		0.0000	1.0000	92.42
41.5	1,597,496		0.0000	1.0000	92.42
42.5	1,597,496	6,006	0.0038	0.9962	92.42
43.5	1,591,490		0.0000	1.0000	92.07
44.5	1,591,490		0.0000	1.0000	92.07
45.5	1,591,490	7,418	0.0047	0.9953	92.07
46.5	1,584,072	970,828	0.6129	0.3871	91.65
47.5	613,244	297,278	0.4848	0.5152	35.48
48.5	312,171	15,472	0.0496	0.9504	18.28
49.5	296,699		0.0000	1.0000	17.37
50.5	296,699		0.0000	1.0000	17.37
51.5	296,699		0.0000	1.0000	17.37
52.5	296,699		0.0000	1.0000	17.37
53.5	296,699		0.0000	1.0000	17.37
54.5					17.37

FORTISBC INC. ACCOUNT 336.00 - ROADS, RAILROADS AND BRIDGES ORIGINAL AND SMOOTH SURVIVOR CURVES



# ACCOUNT 336.00 - ROADS, RAILROADS AND BRIDGES

# ORIGINAL LIFE TABLE

PLACEMENT BAND 1982-2008

AGE AT	EXPOSURES AT	RETIREMENTS			PCT SURV
BEGIN OF	BEGINNING OF	DURING AGE	RETMT	SURV	BEGIN OF
INTERVAL	AGE INTERVAL	INTERVAL	RATIO	RATIO	INTERVAL
0.0	1,287,434		0.0000	1.0000	100.00
0.5	1,287,434		0.0000	1.0000	100.00
1.5	1,287,434		0.0000	1.0000	100.00
2.5	1,287,434		0.0000	1.0000	100.00
3.5	1,287,434		0.0000	1.0000	100.00
4.5	1,287,434		0.0000	1.0000	100.00
5.5	1,287,434		0.0000	1.0000	100.00
6.5	1,053,045		0.0000	1.0000	100.00
7.5	1,053,045		0.0000	1.0000	100.00
8.5	1,046,226		0.0000	1.0000	100.00
9.5	1,046,226		0.0000	1.0000	100.00
10.5	1,045,307		0.0000	1.0000	100.00
11.5	1,043,069		0.0000	1.0000	100.00
12.5	1,043,069		0.0000	1.0000	100.00
13.5	998,633		0.0000	1.0000	100.00
14.5	998,633		0.0000	1.0000	100.00
15.5	895,359		0.0000	1.0000	100.00
16.5	895,359		0.0000	1.0000	100.00
17.5	895,359		0.0000	1.0000	100.00
18.5	895,359		0.0000	1.0000	100.00
19.5	895,359		0.0000	1.0000	100.00
20.5	895,359		0.0000	1.0000	100.00
21.5	895,359		0.0000	1.0000	100.00
22.5	794,709		0.0000	1.0000	100.00
23.5	783,776		0.0000	1.0000	100.00
24.5	659,334		0.0000	1.0000	100.00
25.5	625,867		0.0000	1.0000	100.00
26.5	613,505		0.0000	1.0000	100.00
27.5	613,505		0.0000	1.0000	100.00
28.5	613,505		0.0000	1.0000	100.00
29.5	613,505		0.0000	1.0000	100.00
30.5	589,100		0.0000	1.0000	100.00
31.5	589,100		0.0000	1.0000	100.00
32.5					100.00

FORTISBC INC. ACCOUNT 350.20 - SURFACE AND MINERAL ORIGINAL AND SMOOTH SURVIVOR CURVES



#### ACCOUNT 350.20 - SURFACE AND MINERAL

### ORIGINAL LIFE TABLE

PLACEMENT BAND 1957-2014

AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
0.0	8,046,804 7,993,273		0.0000	1.0000	100.00
1.5	7,980,696		0.0000	1.0000	100.00
2.5	7,936,064		0.0000	1.0000	100.00
3.5	7,849,780		0.0000	1.0000	100.00
+.J 5 5	6 961 797		0.0000	1 0000	100.00
6 5	5,847,236		0.0000	1 0000	100.00
7.5	4,363,677		0.0000	1.0000	100.00
8.5	4,292,061		0.0000	1.0000	100.00
9.5	3,202,451		0.0000	1.0000	100.00
10.5	3,032,990		0.0000	1.0000	100.00
11.5	2,743,465		0.0000	1.0000	100.00
12.5	2,743,465		0.0000	1.0000	100.00
13.5 14 E	2,623,386		0.0000	1.0000	100.00
14.5 15 5	2,398,250 2,320,120		0.0000	1.0000	100.00
16 5	2,320,120		0.0000	1 0000	
175	2,107,190		0.0000	1 0000	100.00
18.5	1,716,420		0.0000	1.0000	100.00
19.5	1,665,506		0.0000	1.0000	100.00
20.5	1,355,675		0.0000	1.0000	100.00
21.5	1,294,168		0.0000	1.0000	100.00
22.5	1,244,067		0.0000	1.0000	100.00
23.5	1,178,569		0.0000	1.0000	100.00
24.5	1,119,640		0.0000	1.0000	100.00
25.5	1,070,424		0.0000	1.0000	100.00
20.5 27 E	9/3,9/0		0.0000	1.0000	100.00
28.5	762,809		0.0000	1.0000	100.00
29.5	658,417		0.0000	1.0000	100.00
30.5	520,434		0.0000	1.0000	100.00
31.5	470,331		0.0000	1.0000	100.00
32.5	428,696		0.0000	1.0000	100.00
33.5	408,973		0.0000	1.0000	100.00
34.5	357,588		0.0000	1.0000	100.00
35.5	331,094		0.0000	1.0000	100.00
36.5	320,262		0.0000	1.0000	100.00
3/.5 20 E	310,199 224 221		0.0000	1 0000	100.00
20.2	∠∠4,33⊥		0.0000	T.0000	T00.00

# ACCOUNT 350.20 - SURFACE AND MINERAL

# ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1957-2014

AGE AT BEGIN OF	EXPOSURES AT BEGINNING OF	RETIREMENTS DURING AGE	RETMT	SURV	PCT SURV BEGIN OF
INTERVAL	AGE INTERVAL	INTERVAL	RATIO	RATIO	INTERVAL
39.5	216,135		0.0000	1.0000	100.00
40.5	211,637		0.0000	1.0000	100.00
41.5	210,804		0.0000	1.0000	100.00
42.5	210,325		0.0000	1.0000	100.00
43.5	208,682		0.0000	1.0000	100.00
44.5	207,813		0.0000	1.0000	100.00
45.5	206,616		0.0000	1.0000	100.00
46.5	206,020		0.0000	1.0000	100.00
47.5	203,661		0.0000	1.0000	100.00
48.5	199,710		0.0000	1.0000	100.00
49.5	180,436		0.0000	1.0000	100.00
50.5	163,443		0.0000	1.0000	100.00
51.5	132,182		0.0000	1.0000	100.00
52.5	112,026		0.0000	1.0000	100.00
53.5	109,176		0.0000	1.0000	100.00
54.5	108,593		0.0000	1.0000	100.00
55.5	105,830		0.0000	1.0000	100.00
56.5	71,278		0.0000	1.0000	100.00
57.5					100.00

FORTISBC INC. ACCOUNT 353.00 - SUBSTATION EQUIPMENT ORIGINAL AND SMOOTH SURVIVOR CURVES



🎽 Gannett Fleming

# ACCOUNT 353.00 - SUBSTATION EQUIPMENT

### ORIGINAL LIFE TABLE

PLACEMENT BAND 1940-2014

AGE AT BEGIN OF	EXPOSURES AT BEGINNING OF	RETIREMENTS DURING AGE	RETMT	SURV	PCT SURV BEGIN OF
INTERVAL	AGE INTERVAL	INTERVAL	RATIO	RATIO	INTERVAL
0.0	182,971,780	61,913	0.0003	0.9997	100.00
0.5	176,455,072	12,672	0.0001	0.9999	99.97
1.5	175,862,134	889	0.0000	1.0000	99.96
2.5	170,895,788	1,895	0.0000	1.0000	99.96
3.5	131,066,286	3,359	0.0000	1.0000	99.96
4.5	120,933,140	243,714	0.0020	0.9980	99.95
5.5	118,932,087	60,553	0.0005	0.9995	99.75
6.5	118,711,000	22,102	0.0002	0.9998	99.70
7.5	104,981,825	4,635	0.0000	1.0000	99.68
8.5	92,830,366	11,949	0.0001	0.9999	99.68
9.5	47,763,361	6,909	0.0001	0.9999	99.67
10.5	38,692,655	162,000	0.0042	0.9958	99.65
11.5	28,322,655	12,448	0.0004	0.9996	99.24
12.5	28,276,476	42,330	0.0015	0.9985	99.19
13.5	26,943,010	574	0.0000	1.0000	99.04
14.5	26,579,557	6,244	0.0002	0.9998	99.04
15.5	26,257,199	22,135	0.0008	0.9992	99.02
16.5	25,430,717	93,327	0.0037	0.9963	98.93
17.5	25,034,505		0.0000	1.0000	98.57
18.5	21,333,892	30,539	0.0014	0.9986	98.57
19.5	21,093,224	10,705	0.0005	0.9995	98.43
20.5	20,444,416	510	0.0000	1.0000	98.38
21.5	18,775,837	251,691	0.0134	0.9866	98.38
22.5	18,094,469	150,320	0.0083	0.9917	97.06
23.5	17,846,137		0.0000	1.0000	96.25
24.5	17,650,948	78,454	0.0044	0.9956	96.25
25.5	17,372,968	2,403	0.0001	0.9999	95.82
26.5	17,336,120	- 4	0.0000	1.0000	95.81
27.5	14,765,378	54,795	0.0037	0.9963	95.81
28.5	14,224,939	/,596	0.0005	0.9995	95.46
29.5	10,423,427	32,412	0.0031	0.9969	95.40
30.5	9,613,603	68,117	0.0071	0.9929	95.11
31.5	9,484,389	30,205	0.0032	0.9968	94.43
32.5	6,755,641	10,998	0.0016	0.9984	94.13
33.5	6,740,298	92,236	0.0137	0.9863	93.98
34.5	6,548,200	166,394	0.0254	0.9746	92.69
35.5	4,803,348	320,075	0.0666	0.9334	90.34
36.5	3,075,382	17,358	0.0056	0.9944	84.32
37.5	1,572,533		0.0000	1.0000	83.84
38.5	1,570,382	372,043	0.2369	0.7631	83.84



# ACCOUNT 353.00 - SUBSTATION EQUIPMENT

# ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1940-2014

AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
39.5 40.5 41.5 42.5 43.5 44.5 45.5 46.5 47.5	1,192,645 1,153,194 1,074,322 1,072,306 1,057,254 1,046,743 845,381 546,169 520,576	38,120 76,264 1,257 2,354 1,267 73,764 299,212 323 2,276	0.0320 0.0661 0.0012 0.0022 0.0012 0.0705 0.3539 0.0006 0.0044	0.9680 0.9339 0.9988 0.9978 0.9988 0.9295 0.6461 0.9994 0.9956	63.98 61.93 57.84 57.77 57.64 57.58 53.52 34.58 34.56
48.5 49.5	343,819 343,726	93 470	0.0003	0.9997 0.9986	34.40 34.40
50.5 51.5	343,256 343,256 343,256	21.2 0.29	0.0000	1.0000	34.35 34.35 34.35
53.5 54.5 55.5	31,217 28,028 14,107	3,189 13,920	0.1022 0.4967 0.0000	0.8978 0.5033 1.0000	3.12 2.80 1.41
56.5 57.5	14,107	14,107	1.0000		1.41

FORTISBC INC. ACCOUNT 355.00 - POLES, TOWERS AND FIXTURES ORIGINAL AND SMOOTH SURVIVOR CURVES



ACCOUNT 355.00 - POLES, TOWERS AND FIXTURES

### ORIGINAL LIFE TABLE

PLACEMENT BAND 1950-2014

AGE AT	EXPOSURES AT	RETIREMENTS			PCT SURV
BEGIN OF	BEGINNING OF	DURING AGE	RETMT	SURV	BEGIN OF
INTERVAL	AGE INTERVAL	INTERVAL	RATIO	RATIO	INTERVAL
0.0	111,060,600	3,015	0.0000	1.0000	100.00
0.5	102,210,756	68,974	0.0007	0.9993	100.00
1.5	101,561,896	150,928	0.0015	0.9985	99.93
2.5	99,176,714	23,901	0.0002	0.9998	99.78
3.5	96,307,325	48,875	0.0005	0.9995	99.76
4.5	75,883,224	882,493	0.0116	0.9884	99.71
5.5	70,502,395	237,858	0.0034	0.9966	98.55
6.5	67,193,683	100,379	0.0015	0.9985	98.21
7.5	58,966,106	355,616	0.0060	0.9940	98.07
8.5	55,850,407	37,735	0.0007	0.9993	97.48
9.5	50,134,942	150,135	0.0030	0.9970	97.41
10.5	42,945,436	294,780	0.0069	0.9931	97.12
11.5	34,187,429	121,455	0.0036	0.9964	96.45
12.5	33,595,784	97,346	0.0029	0.9971	96.11
13.5	32,056,337	222,798	0.0070	0.9930	95.83
14.5	29,232,644	427,632	0.0146	0.9854	95.17
15.5	27,946,466	204,986	0.0073	0.9927	93.77
10.5	25,342,539	193,800	0.00/6	0.9924	93.09
10 5	24,308,815	2/5,86/	0.0113	0.9887	92.37
18.5	20,397,605	391,191	0.0192	0.9808	91.32
19.5	19,440,040	214,752	0.0110	0.9890	89.57
20.5	15,661,976	246,943	0.0158	0.9842	88.58
21.5	14,950,285	448,928	0.0300	0.9700	87.19
22.5	14,098,413	447,688	0.0318	0.9682	84.57
23.5	13,171,736	136,209	0.0103	0.9897	81.88
24.5	12,509,945	90,992	0.0073	0.9927	81.04
25.5	12,088,738	167,107	0.0138	0.9862	80.45
26.5	11,136,759	90,756	0.0081	0.9919	79.34
27.5	10,514,64/	132,198	0.0126	0.9874	/8.69
28.5	8,948,254	42,101	0.004/	0.9953	//./0
29.5	7,879,010	51,193	0.0065	0.9935	77.33
30.5	6,365,233	249,779	0.0392	0.9608	76.83
31.5	5,528,032	74,847	0.0135	0.9865	73.82
32.5	5,029,693	74,098	0.0147	0.9853	72.82
33.5	4,780,276	5,236	0.0011	0.9989	71.74
34.5	4,177,746	40,899	0.0098	0.9902	71.67
35.5	4,037,708	138,156	0.0342	0.9658	70.96
36.5	3,780,284	1,428	0.0004	0.9996	68.54
37.5	3,708,667	680	0.0002	0.9998	68.51
38.5	2,706,981	34,091	0.0126	0.9874	68.50

# ACCOUNT 355.00 - POLES, TOWERS AND FIXTURES

# ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1950-2014

AGE AT	EXPOSURES AT	RETIREMENTS			PCT SURV
BEGIN OF	BEGINNING OF	DURING AGE	RETMT	SURV	BEGIN OF
INTERVAL	AGE INTERVAL	INTERVAL	RATIO	RATIO	INTERVAL
39.5	2,579,100	88,503	0.0343	0.9657	67.64
40.5	2,459,201	1,995	0.0008	0.9992	65.31
41.5	2,450,961	136	0.0001	0.9999	65.26
42.5	2,447,005	3,560	0.0015	0.9985	65.26
43.5	2,439,693		0.0000	1.0000	65.16
44.5	2,436,662	216,149	0.0887	0.9113	65.16
45.5	2,214,692	11,960	0.0054	0.9946	59.38
46.5	2,199,043	17,905	0.0081	0.9919	59.06
47.5	2,159,202	3,243	0.0015	0.9985	58.58
48.5	2,121,097	14,331	0.0068	0.9932	58.49
49.5	2,053,356	4,140	0.0020	0.9980	58.10
50.5	1,877,724	18,208	0.0097	0.9903	57.98
51.5	1,537,359	218,881	0.1424	0.8576	57.42
52.5	1,101,794	330,581	0.3000	0.7000	49.24
53.5	766,508	3,189	0.0042	0.9958	34.47
54.5	752,171	15,363	0.0204	0.9796	34.32
55.5	638,767		0.0000	1.0000	33.62
56.5	436,458	31,184	0.0714	0.9286	33.62
57.5					31.22



FORTISBC INC. ACCOUNT 356.00 - CONDUCTORS AND DEVICES ORIGINAL AND SMOOTH SURVIVOR CURVES

🎽 Gannett Fleming

#### ACCOUNT 356.00 - CONDUCTORS AND DEVICES

### ORIGINAL LIFE TABLE

PLACEMENT BAND 1940-2014

AGE AT	EXPOSURES AT	RETIREMENTS			PCT SURV
BEGIN OF	BEGINNING OF	DURING AGE	RETMT	SURV	BEGIN OF
INTERVAL	AGE INTERVAL	INTERVAL	RATIO	RATIO	INTERVAL
0.0	107,667,426	333,465	0.0031	0.9969	100.00
0.5	99,723,294	65,274	0.0007	0.9993	99.69
1.5	98,678,543	13,498	0.0001	0.9999	99.63
2.5	96,429,600	124,592	0.0013	0.9987	99.61
3.5	93,506,925	15,210	0.0002	0.9998	99.48
4.5	73,116,373	643,958	0.0088	0.9912	99.47
5.5	67,737,799	176,181	0.0026	0.9974	98.59
6.5	64,494,566	48,893	0.0008	0.9992	98.33
7.5	58,877,124	412,526	0.0070	0.9930	98.26
8.5	55,910,992	77,249	0.0014	0.9986	97.57
9.5	51,619,707	677,234	0.0131	0.9869	97.44
10.5	43,668,009	126,572	0.0029	0.9971	96.16
11.5	35,072,598	43,857	0.0013	0.9987	95.88
12.5	34,569,218	122,916	0.0036	0.9964	95.76
14 5	32,974,623	LU/,UZ/	0.0032	0.9968	95.42
14.5 15 5	30,199,006	115,811 225 124	0.0038	0.9962	95.11
15.5	29,129,849	235,134	0.0081	0.9919	94.74
10.5 17 E	20,341,704 25,200,624	109,081 222 120	0.0064	0.9936	93.98
19 5	23,299,024	255,159	0.0092	0.9908	93.30
10.5	21,205,750	557,594	0.0100	0.9052	92.52
19.5	20,313,977	38,920	0.0019	0.9981	90.96
20.5	16,585,854	381,248	0.0230	0.9770	90.79
21.5	15,694,678	674,363	0.0430	0.9570	88.70
22.5	14,590,265	407,523	0.0279	0.9721	84.89
23.5	13,680,841	105,238 45,205	0.0077	0.9923	82.52
24.5	13,034,015	45,395	0.0035	0.9965	81.88
25.5 26 F	12,049,324 11 602 041	157,003	0.0125	0.9675	01.00
20.5	11,003,041 11,020,615	00,400 10 001	0.0076	0.9924	00.50
27.5	9,501,555	324,022	0.0039	0.9901	79.66
29.5	7.997.114	6.408	0.0008	0.9992	76.94
30.5	6,483,245	4,074	0.0006	0.9994	76.88
31.5	5,867,166	232,316	0.0396	0.9604	76.83
32.5	5,186,234	48,551	0.0094	0.9906	73.79
33.5	4,957,225	4,141	0.0008	0.9992	73.10
34.5	4,338,281	44,352	0.0102	0.9898	73.04
35.5	4,015,188	2,422	0.0006	0.9994	72.29
36.5	3,890,002	23,996	0.0062	0.9938	72.25
37.5	3,793,758	53,509	0.0141	0.9859	71.80
38.5	2,704,732	194,894	0.0721	0.9279	70.79

#### ACCOUNT 356.00 - CONDUCTORS AND DEVICES

# ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1940-2014

AGE AT	EXPOSURES AT	RETIREMENTS			PCT SURV
BEGIN OF	BEGINNING OF	DURING AGE	RETMT	SURV	BEGIN OF
INTERVAL	AGE INTERVAL	INTERVAL	RATIO	RATIO	INTERVAL
39.5	2,412,449	55,466	0.0230	0.9770	65.69
40.5	2,324,666	5,517	0.0024	0.9976	64.18
41.5	2,312,721	2,669	0.0012	0.9988	64.03
42.5	2,306,120	10,091	0.0044	0.9956	63.95
43.5	2,292,167	11,970	0.0052	0.9948	63.67
44.5	2,277,077	176,823	0.0777	0.9223	63.34
45.5	2,094,263	4,858	0.0023	0.9977	58.42
46.5	2,085,608	29,993	0.0144	0.9856	58.29
47.5	2,033,037	3,120	0.0015	0.9985	57.45
48.5	1,994,033	10,908	0.0055	0.9945	57.36
49.5	1,926,881	11,650	0.0060	0.9940	57.05
50.5	1,723,044	57,430	0.0333	0.9667	56.70
51.5	1,323,725	230,172	0.1739	0.8261	54.81
52.5	872,846	20,768	0.0238	0.9762	45.28
53.5	833,203	30,980	0.0372	0.9628	44.20
54.5	790,748		0.0000	1.0000	42.56
55.5	688,048		0.0000	1.0000	42.56
56.5	479,808		0.0000	1.0000	42.56
57.5					42.56

FORTISBC INC. ACCOUNT 359.00 - ROADS AND TRAILS ORIGINAL AND SMOOTH SURVIVOR CURVES



🎽 Gannett Fleming

#### ACCOUNT 359.00 - ROADS AND TRAILS

### ORIGINAL LIFE TABLE

PLACEMENT BAND 1950-2009

AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
0.0 0.5 1.5 2.5 3.5 4.5 5.5 6.5 7.5 8.5	1,230,779 1,230,745 1,230,745 1,230,740 1,230,595 1,230,536 926,250 925,995 925,714 925,475	34 5 145 59 36 256 281 239 36	$\begin{array}{c} 0.0000\\ 0.0000\\ 0.0000\\ 0.0001\\ 0.0000\\ 0.0000\\ 0.0003\\ 0.0003\\ 0.0003\\ 0.0003\\ 0.0003\\ 0.0003\\ 0.0000\end{array}$	1.0000 1.0000 0.9999 1.0000 1.0000 0.9997 0.9997 0.9997 1.0000	100.00 100.00 100.00 99.99 99.98 99.98 99.95 99.92 99.89
9.5 10.5 11.5 12.5 13.5 14.5 15.5 16.5 17.5 18.5	867,952 467,171 263,336 262,550 256,077 243,327 238,817 216,021 211,800 193,413	4 20 786 5 16 4 10,710 376	$\begin{array}{c} 0.0000\\ 0.0000\\ 0.0030\\ 0.0000\\ 0.0001\\ 0.0000\\ 0.0448\\ 0.0000\\ 0.0018\\ 0.0000\end{array}$	1.0000 1.0000 0.9970 1.0000 0.9999 1.0000 0.9552 1.0000 0.9982 1.0000	99.89 99.89 99.88 99.59 99.58 99.58 99.58 95.11 95.11 94.94
19.5 20.5 21.5 22.5 23.5 24.5 25.5 26.5 27.5 28.5	190,518 172,846 169,350 166,589 162,865 159,515 156,718 151,235 146,649 139,169	59 511 36	0.0003 0.0000 0.0030 0.0000 0.0000 0.0000 0.0000 0.0000 0.0002 0.0000	0.9997 1.0000 0.9970 1.0000 1.0000 1.0000 1.0000 1.0000 0.9998 1.0000	94.94 94.91 94.63 94.63 94.63 94.63 94.63 94.63 94.63 94.63
29.5 30.5 31.5 32.5 33.5 34.5 35.5 36.5 37.5 38.5	133,235 125,391 122,397 120,030 118,909 115,753 114,247 113,631 113,059 107,815	235 363 52	0.0000 0.0000 0.0000 0.0020 0.0000 0.0000 0.0000 0.0000 0.0032 0.0005	1.0000 1.0000 1.0000 0.9980 1.0000 1.0000 1.0000 0.9968 0.9995	94.60 94.60 94.60 94.60 94.42 94.42 94.42 94.42 94.42 94.42 94.11



# ACCOUNT 359.00 - ROADS AND TRAILS

# ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1950-2009

AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
39.5 40.5 41.5 42.5 43.5 44.5 45.5 46.5 47.5 48.5	107,297 107,042 106,994 106,967 106,874 106,824 12,174 12,140 12,006 11,778	94,582	$\begin{array}{c} 0.0000\\ 0.0000\\ 0.0000\\ 0.0000\\ 0.0000\\ 0.8854\\ 0.0000\\ 0.0000\\ 0.0000\\ 0.0000\\ 0.0000\\ 0.0000\\ 0.0000\end{array}$	1.0000 1.0000 1.0000 1.0000 0.1146 1.0000 1.0000 1.0000 1.0000	94.07 94.07 94.07 94.07 94.07 94.07 10.78 10.78 10.78 10.78
49.5 50.5 51.5 52.5 53.5 54.5 55.5 56.5 57.5	10,682 9,716 7,939 6,793 6,631 6,557 6,016 4,052		$\begin{array}{c} 0.0000\\ 0.0000\\ 0.0000\\ 0.0000\\ 0.0000\\ 0.0000\\ 0.0000\\ 0.0000\\ 0.0000\\ 0.0000\end{array}$	1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000	10.78 10.78 10.78 10.78 10.78 10.78 10.78 10.78 10.78 10.78



FORTISBC INC. ACCOUNT 360.20 - SURFACE AND MINERAL ORIGINAL AND SMOOTH SURVIVOR CURVES

🎽 Gannett Fleming

#### ACCOUNT 360.20 - SURFACE AND MINERAL

### ORIGINAL LIFE TABLE

PLACEMENT BAND 1960-2014

AGE AT	EXPOSURES AT	RETIREMENTS			PCT SURV
BEGIN OF	BEGINNING OF	DURING AGE	RETMT	SURV	BEGIN OF
INTERVAL	AGE INTERVAL	INTERVAL	RATIO	RATIO	INTERVAL
0.0	9,802,617		0.0000	1.0000	100.00
0.5	9,669,201		0.0000	1.0000	100.00
1.5	9,558,504		0.0000	1.0000	100.00
2.5	9,363,673		0.0000	1.0000	100.00
3.5	9,310,428		0.0000	1.0000	100.00
4.5	7,824,146		0.0000	1.0000	100.00
5.5	5,711,012		0.0000	1.0000	100.00
6.5	5,202,816		0.0000	1.0000	100.00
7.5	3,500,186		0.0000	1.0000	100.00
8.5	2,504,823		0.0000	1.0000	100.00
9.5	2,141,313		0.0000	1.0000	100.00
10.5	1,329,819		0.0000	1.0000	100.00
11.5	287,568		0.0000	1.0000	100.00
12.5	287,568		0.0000	1.0000	100.00
13.5	271,638		0.0000	1.0000	100.00
14.5	256,157		0.0000	1.0000	100.00
15.5	242,176		0.0000	1.0000	100.00
16.5	230,180		0.0000	1.0000	100.00
17.5	211,606		0.0000	1.0000	100.00
18.5	199,346		0.0000	1.0000	100.00
19.5	181,879		0.0000	1.0000	100.00
20.5	164,624		0.0000	1.0000	100.00
21.5	151,743		0.0000	1.0000	100.00
22.5	141,843		0.0000	1.0000	100.00
23.5	131,147		0.0000	1.0000	100.00
24.5	120,978		0.0000	1.0000	100.00
25.5	112,540		0.0000	1.0000	100.00
26.5	105,118		0.0000	1.0000	100.00
27.5	99,109		0.0000	1.0000	100.00
28.5	92,153		0.0000	1.0000	100.00
29.5	85,186		0.0000	1.0000	100.00
30.5	78,690		0.0000	1.0000	100.00
31.5	72,132		0.0000	1.0000	100.00
32.5	63,976		0.0000	1.0000	100.00
33.5	54,855		0.0000	1.0000	100.00
34.5	47,999		0.0000	1.0000	100.00
35.5	42,769		0.0000	1.0000	100.00
36.5	36,852		0.0000	1.0000	100.00
37.5	32,596		0.0000	1.0000	100.00
38.5	28,267		0.0000	1.0000	100.00



# ACCOUNT 360.20 - SURFACE AND MINERAL

# ORIGINAL LIFE TABLE, CONT.

#### PLACEMENT BAND 1960-2014

AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
39 5	24 741		0 0000	1 0000	100 00
40 5	21,711		0.0000	1 0000	100.00
40.J	22,373		0.0000	1 0000	100.00
41.5	20,903		0.0000	1.0000	100.00
42.5	19,522		0.0000	1.0000	100.00
43.5	18,470		0.0000	1.0000	100.00
44.5	17,492		0.0000	1.0000	100.00
45.5	16,460		0.0000	1.0000	100.00
46.5	15,447		0.0000	1.0000	100.00
47.5	14,490		0.0000	1.0000	100.00
48.5	13,548		0.0000	1.0000	100.00
49.5	11,575		0.0000	1.0000	100.00
50.5	10,897		0.0000	1.0000	100.00
51.5	10,064		0.0000	1.0000	100.00
52.5	9,375		0.0000	1.0000	100.00
53.5	8,862		0.0000	1.0000	100.00
54.5	-,				100.00

FORTISBC INC. ACCOUNT 362.00 - SUBSTATION EQUIPMENT ORIGINAL AND SMOOTH SURVIVOR CURVES



🎽 Gannett Fleming

# ACCOUNT 362.00 - SUBSTATION EQUIPMENT

### ORIGINAL LIFE TABLE

PLACEMENT BAND 1950-2014

AGE AT BEGIN OF	EXPOSURES AT BEGINNING OF	RETIREMENTS DURING AGE	RETMT	SURV	PCT SURV BEGIN OF
INIERVAL	AGE INTERVAL	INTERVAL	RATIO	RAIIO	INIERVAL
0.0	281,089,114	165,876	0.0006	0.9994	100.00
0.5	263,075,325	37,184	0.0001	0.9999	99.94
1.5	259,421,388	63,271	0.0002	0.9998	99.93
2.5	253,583,927	65,926	0.0003	0.9997	99.90
3.5	233,668,742	30,379	0.0001	0.9999	99.88
4.5	213,334,092	109,545	0.0005	0.9995	99.86
5.5	180,825,503	38,929	0.0002	0.9998	99.81
6.5	144,336,579	114,656	0.0008	0.9992	99.79
7.5	126,855,465	18,776	0.0001	0.9999	99.71
8.5	103,177,934	47,387	0.0005	0.9995	99.70
9.5	90,926,775	297,167	0.0033	0.9967	99.65
10.5	89,104,011	105,421	0.0012	0.9988	99.33
11.5	62,673,596	19,527	0.0003	0.9997	99.21
12.5	61,810,286	26,211	0.0004	0.9996	99.18
13.5	59,156,854	68,550	0.0012	0.9988	99.13
14.5	57,602,635	593,692	0.0103	0.9897	99.02
15.5	53,951,206	58,042	0.0011	0.9989	98.00
16.5	51,908,801	87,392	0.0017	0.9983	97.89
17.5	49,489,412	141,481	0.0029	0.9971	97.73
18.5	45,128,807	326,543	0.0072	0.9928	97.45
19.5	39,254,492	137,950	0.0035	0.9965	96.74
20.5	35,932,844	84,638	0.0024	0.9976	96.40
21.5	34,187,880	206,590	0.0060	0.9940	96.18
22.5	33,123,077	287,671	0.0087	0.9913	95.60
23.5	28,643,296	67,913	0.0024	0.9976	94.77
24.5	26,119,543	206,891	0.0079	0.9921	94.54
25.5	24,068,000	195,182	0.0081	0.9919	93.79
26.5	22,900,022	407,194	0.0178	0.9822	93.03
27.5	20,666,980	11,455	0.0006	0.9994	91.38
28.5	18,385,992	283,774	0.0154	0.9846	91.33
29.5	16,779,411	326,354	0.0194	0.9806	89.92
30.5	15,874,162	49,886	0.0031	0.9969	88.17
31.5	13,166,921	41,459	0.0031	0.9969	87.89
32.5	10,221,444	333,123	0.0326	0.9674	87.61
33.5	9,223,040	44,640	0.0048	0.9952	84.76
34.5	6,749,057	157,792	0.0234	0.9766	84.35
35.5	6,496,620	276,915	0.0426	0.9574	82.38
36.5	5,445,954	76,209	0.0140	0.9860	78.87
37.5	4,819,416	22,977	0.0048	0.9952	77.76
38.5	4,449,455	22,654	0.0051	0.9949	77.39



# ACCOUNT 362.00 - SUBSTATION EQUIPMENT

# ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1950-2014

AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
39.5	4,120,781	14,659	0.0036	0.9964	77.00
40.5	3,856,122	70,086	0.0182	0.9818	76.72
41.5	3,773,813	53,319	0.0141	0.9859	75.33
42.5	3,315,742	102,993	0.0311	0.9689	74.26
43.5	3,159,319	34,499	0.0109	0.9891	71.96
44.5	3,066,063	120,783	0.0394	0.9606	71.17
45.5	2,553,093	36,402	0.0143	0.9857	68.37
46.5	2,490,539	159,804	0.0642	0.9358	67.39
47.5	2,329,312	499,328	0.2144	0.7856	63.07
48.5	1,548,320	525,989	0.3397	0.6603	49.55
49.5	986,026	27,189	0.0276	0.9724	32.72
50.5	947,352	3,162	0.0033	0.9967	31.81
51.5	943,723	29,422	0.0312	0.9688	31.71
52.5	887,138	263,905	0.2975	0.7025	30.72
53.5	622,449	500,232	0.8037	0.1963	21.58
54.5					4.24

FORTISBC INC. ACCOUNT 364.00 - POLES, TOWERS AND FIXTURES ORIGINAL AND SMOOTH SURVIVOR CURVES



ACCOUNT 364.00 - POLES, TOWERS AND FIXTURES

### ORIGINAL LIFE TABLE

PLACEMENT BAND 1940-2014

AGE AT	EXPOSURES AT	RETIREMENTS			PCT SURV
BEGIN OF	BEGINNING OF	DURING AGE	RETMT	SURV	BEGIN OF
INTERVAL	AGE INTERVAL	INTERVAL	RATIO	RATIO	INTERVAL
0.0	185,319,723	253,644	0.0014	0.9986	100.00
0.5	172,505,456	113,553	0.0007	0.9993	99.86
1.5	166,686,635	90,475	0.0005	0.9995	99.80
2.5	156,027,891	361,746	0.0023	0.9977	99.74
3.5	147,237,821	250,415	0.0017	0.9983	99.51
4.5	135,757,161	160,808	0.0012	0.9988	99.34
5.5	124,534,839	117,629	0.0009	0.9991	99.23
6.5	111,877,747	94,504	0.0008	0.9992	99.13
7.5	101,755,619	121,812	0.0012	0.9988	99.05
8.5	89,911,644	177,111	0.0020	0.9980	98.93
9.5	81,604,213	583,503	0.0072	0.9928	98.73
10.5	75,479,225	109,183	0.0014	0.9986	98.03
11.5	69,411,612	95,930	0.0014	0.9986	97.89
12.5	66,280,797	243,886	0.0037	0.9963	97.75
13.5	61,647,430	101,575	0.0016	0.9984	97.39
14.5	58,449,447	128,415	0.0022	0.9978	97.23
15.5	55,543,776	79,289	0.0014	0.9986	97.02
10.5	52,886,705	205,839	0.0039	0.9961	96.88
10 F	48,975,035	249,320	0.0051	0.9949	96.50
10.5	40,270,990	05,241	0.0014	0.9966	90.01
19.5	42,642,791	335,455	0.0079	0.9921	95.88
20.5	38,889,403	367,592	0.0095	0.9905	95.12
21.5	35,839,439	48,965	0.0014	0.9986	94.22
22.5	33,741,486	98,511	0.0029	0.9971	94.09
23.5	31,455,165	401,162	0.0128	0.9872	93.82
24.5	28,985,041	57,917	0.0020	0.9980	92.62
25.5	27,150,840	23,1/3	0.0009	0.9991	92.44
26.5	25,636,636	3/8,142	0.0148	0.9852	92.36
27.5	24,055,191 21,985,771	33,762	0.0288	0.9712	91.00 88.38
29 5	16 137 063	270 941	0 0168	0 9832	88 24
30 5	14,587,967	119,795	0 0082	0 9918	86 76
31 5	13,176,233	332,093	0 0252	0 9748	86 05
32.5	11,232,325	106.627	0 0095	0 9905	83 88
33.5	9,340.299	19.685	0.0021	0.9979	83.08
34.5	9,320,614	26,494	0.0028	0.9972	82.91
35.5	8,278,722	147,129	0.0178	0.9822	82.67
36.5	6,986,015	20,525	0.0029	0.9971	81.20
37.5	6,177,995	54,284	0.0088	0.9912	80.96
38.5	5,303,597	15,801	0.0030	0.9970	80.25



# ACCOUNT 364.00 - POLES, TOWERS AND FIXTURES

# ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1940-2014

AGE AT	EXPOSURES AT	RETIREMENTS			PCT SURV
BEGIN OF	BEGINNING OF	DURING AGE	RETMT	SURV	BEGIN OF
INTERVAL	AGE INTERVAL	INTERVAL	RATIO	RATIO	INTERVAL
39.5	4,625,238	13,664	0.0030	0.9970	80.01
40.5	4,171,011	8,982	0.0022	0.9978	79.78
41.5	3,876,570	10,777	0.0028	0.9972	79.60
42.5	3,612,283	29,525	0.0082	0.9918	79.38
43.5	3,383,908	10,526	0.0031	0.9969	78.73
44.5	3,200,670	13,882	0.0043	0.9957	78.49
45.5	2,998,088	212,533	0.0709	0.9291	78.15
46.5	2,601,174	33,474	0.0129	0.9871	72.61
47.5	2,381,819	17,001	0.0071	0.9929	71.67
48.5	2,201,614	12,356	0.0056	0.9944	71.16
49.5	1,980,854	12,138	0.0061	0.9939	70.76
50.5	1,848,169	16,445	0.0089	0.9911	70.33
51.5	1,677,839	5,577	0.0033	0.9967	69.70
52.5	1,546,781	4,263	0.0028	0.9972	69.47
53.5	1,450,586	440,909	0.3040	0.6960	69.28
54.5	11,555		0.0000	1.0000	48.22
55.5	11,555		0.0000	1.0000	48.22
56.5	11,555		0.0000	1.0000	48.22
57.5	11,555		0.0000	1.0000	48.22
58.5	11,555		0.0000	1.0000	48.22
59.5 60.5	11,555	11,555	1.0000		48.22

FORTISBC INC. ACCOUNT 365.00 - CONDUCTORS AND DEVICES ORIGINAL AND SMOOTH SURVIVOR CURVES



#### ACCOUNT 365.00 - CONDUCTORS AND DEVICES

### ORIGINAL LIFE TABLE

PLACEMENT BAND 1950-2014

AGE AT	EXPOSURES AT	RETIREMENTS			PCT SURV
BEGIN OF	BEGINNING OF	DURING AGE	RETMT	SURV	BEGIN OF
INTERVAL	AGE INTERVAL	INTERVAL	RATIO	RATIO	INTERVAL
0.0	316,747,476	116,418	0.0004	0.9996	100.00
0.5	279,578,499	172,337	0.0006	0.9994	99.96
1.5	270,396,597	64,493	0.0002	0.9998	99.90
2.5	255,564,375	55,573	0.0002	0.9998	99.88
3.5	241,210,090	132,037	0.0005	0.9995	99.86
4.5	223,982,550	228,661	0.0010	0.9990	99.80
5.5	206,813,076	327,962	0.0016	0.9984	99.70
6.5	186,814,898	69,243	0.0004	0.9996	99.54
7.5	169,528,771	209,085	0.0012	0.9988	99.50
8.5	150,705,628	150,128	0.0010	0.9990	99.38
9.5	138,822,477	1,539,843	0.0111	0.9889	99.28
10.5	129,181,191	60,861	0.0005	0.9995	98.18
11.5	120,112,415	282,199	0.0023	0.9977	98.14
12.5	115,018,472	48,785	0.0004	0.9996	97.90
13.5	107,102,369	133,857	0.0012	0.9988	97.86
14.5	101,412,220	4/1,911	0.004/	0.9953	97.74
15.5	96,002,972	197,065	0.0021	0.9979	97.29
10.5 17 F	91,356,632	113,188	0.0012	0.9988	97.09
10 F	84,5/5,425 00 110 010	39,338	0.0005	0.9995	96.97
10.5	00,112,212	103,030	0.0013	0.9907	90.92
19.5	73,652,073	104,990	0.0014	0.9986	96.80
20.5	67,668,056	629,379	0.0093	0.9907	96.66
21.5	62,299,186	72,706	0.0012	0.9988	95.76
22.5	58,594,905	65,635	0.0011	0.9989	95.65
23.5	54,605,229	74,162	0.0014	0.9986	95.54
24.5	50,686,331	194,793	0.0038	0.9962	95.41
25.5	4/,331,408	35,796	0.0008	0.9992	95.04
26.5	44,580,744	123,045	0.0028	0.9972	94.97
27.5 20 F	42,2/5,//0	772,052	0.0183	0.9817	94.71
20.5	39,007,095	30,017	0.0010	0.9990	92.90
29.5	32,781,554	628,699	0.0192	0.9808	92.89
30.5	29,826,709	218,291	0.0073	0.9927	91.10
31.5	27,260,688	252,404	0.0093	0.9907	90.44
32.5	24,112,023	695,634	0.0289	0.9711	89.60
33.5	20,167,251	234,772	0.0116	0.9884	87.02
34.5	19,932,479	13,369	0.0007	0.9993	86.00
35.5	18,055,625	443,895	0.0246	0.9754	85.95
36.5	15,505,509	1,119,830	0.0722	0.9278	83.83
31.5	12,891,793	185,731	0.0144	0.9856	//./8
38.5	11,1/4,248	140,625	0.0126	0.9874	/6.66

#### ACCOUNT 365.00 - CONDUCTORS AND DEVICES

# ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1950-2014

AGE AT	EXPOSURES AT	RETIREMENTS			PCT SURV
BEGIN OF	BEGINNING OF	DURING AGE	RETMT	SURV	BEGIN OF
INTERVAL	AGE INTERVAL	INTERVAL	RATIO	RATIO	INTERVAL
39.5	9,796,709	39,184	0.0040	0.9960	75.69
40.5	8,923,086	14,471	0.0016	0.9984	75.39
41.5	8,385,219	566,631	0.0676	0.9324	75.27
42.5	7,340,854	5,447	0.0007	0.9993	70.18
43.5	6,963,036	5,069	0.0007	0.9993	70.13
44.5	6,623,947	640,252	0.0967	0.9033	70.08
45.5	5,621,986	25,326	0.0045	0.9955	63.30
46.5	5,241,319	3,301	0.0006	0.9994	63.02
47.5	4,896,668	446,463	0.0912	0.9088	62.98
48.5	4,146,657	18,042	0.0044	0.9956	57.24
49.5	3,731,319	73,409	0.0197	0.9803	56.99
50.5	3,422,271	1,772	0.0005	0.9995	55.87
51.5	3,127,610	1,188	0.0004	0.9996	55.84
52.5	2,885,083	776	0.0003	0.9997	55.82
53.5	2,709,473		0.0000	1.0000	55.80
54.5					55.80

FORTISBC INC. ACCOUNT 368.00 - LINE TRANSFORMERS ORIGINAL AND SMOOTH SURVIVOR CURVES



#### ACCOUNT 368.00 - LINE TRANSFORMERS

### ORIGINAL LIFE TABLE

PLACEMENT BAND 1940-2014

AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
0.0	146,382,209	185,648	0.0013	0.9987	100.00
0.5	133,350,343	270,803	0.0021	0.9979	99.87
1.5	128,559,824	353,520	0.0027	0.9973	99.07
2.5	121,305,200 112,911,522	240,109	0.0020	0.9980	99.39
3.J 4 5	104 552 349	1 048 308		0.9971	98 90
55	94 338 003	265 728	0.0100	0.9972	97 91
65	83,673,596	179,627	0 0021	0 9979	97.51 97.63
7.5	72,221,994	268,149	0.0037	0.9963	97.42
8.5	60,138,137	210,552	0.0035	0.9965	97.06
9.5	53,843,050	246,004	0.0046	0.9954	96.72
10.5	48,950,613	113,480	0.0023	0.9977	96.28
11.5	44,126,562	164,645	0.0037	0.9963	96.06
12.5	40,426,996	408,461	0.0101	0.9899	95.70
13.5	37,338,662	193,503	0.0052	0.9948	94.73
14.5	35,293,166	959,110	0.0272	0.9728	94.24
15.5	32,793,877	173,306	0.0053	0.9947	91.68
16.5	31,132,032	66,651	0.0021	0.9979	91.20
17.5	28,815,734	139,327	0.0048	0.9952	91.00
18.5	27,207,107	231,488	0.0085	0.9915	90.56
19.5	24,826,598	106,611	0.0043	0.9957	89.79
20.5	22,982,175	83,470	0.0036	0.9964	89.40
21.5	21,376,413	123,936	0.0058	0.9942	89.08
22.5	20,059,302	65,482	0.0033	0.9967	88.56
23.5	18,698,145	89,369	0.0048	0.9952	88.27
24.5	17,419,113	41,385	0.0024	0.9976	87.85
25.5	16,331,065	79,115	0.0048	0.9952	87.64
26.5	15,387,088	157,568	0.0102	0.9898	87.22
27.5	14,515,565	284,387 219,524	$0.0196 \\ 0.0164$	0.9804 0.9836	86.33 84.63
29 5	10 413 083	48 662	0 0047	0 9953	83.25
30 5	9 612 158	177 625	0.0047	0.9915	82 86
31 5	8 666 539	44 346	0.0105	0.9019	81 33
32 5	7 673 251	56 399	0 0074	0.9926	80 91
33.5	6,598,669	122.209	0.0185	0.9815	80.32
34.5	6,476,460	314.819	0.0486	0.9514	78.83
35.5	5,854,260	801,910	0.1370	0.8630	75.00
36.5	5,052,350	519.782	0.1029	0.8971	64.73
37.5	4,532,568	244,480	0.0539	0.9461	58.07
38.5	4,288,089	131,526	0.0307	0.9693	54.93

#### ACCOUNT 368.00 - LINE TRANSFORMERS

# ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1940-2014

AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
39.5	4,156,563	98,636	0.0237	0.9763	53.25
40.5	4,057,926	333,162	0.0821	0.9179	51.99
41.5	3,724,764	173,726	0.0466	0.9534	47.72
42.5	3,551,038	177,296	0.0499	0.9501	45.49
43.5	3,373,742	381,155	0.1130	0.8870	43.22
44.5	2,992,587	168,069	0.0562	0.9438	38.34
45.5	2,824,517	1,494,823	0.5292	0.4708	36.18
46.5	1,329,694	53,834	0.0405	0.9595	17.03
47.5	1,275,860	15,121	0.0119	0.9881	16.35
48.5	1,260,739	1,224,850	0.9715	0.0285	16.15
49.5	35,889		0.0000	1.0000	0.46
50.5	35,889		0.0000	1.0000	0.46
51.5	35,889	24,891	0.6935	0.3065	0.46
52.5	10,998		0.0000	1.0000	0.14
53.5	10,998	10,998	1.0000		0.14
54.5					



FORTISBC INC. ACCOUNT 369.00 - SERVICES ORIGINAL AND SMOOTH SURVIVOR CURVES

🎽 Gannett Fleming

# ACCOUNT 369.00 - SERVICES

# ORIGINAL LIFE TABLE

PLACEMENT BAND 1960-2012

AGE AT	EXPOSURES AT	RETIREMENTS			PCT SURV
BEGIN OF	BEGINNING OF	DURING AGE	RETMT	SURV	BEGIN OF
INTERVAL	AGE INTERVAL	INTERVAL	RATIO	RATIO	INTERVAL
0.0	15,041,450		0.0000	1.0000	100.00
0.5	15,041,450		0.0000	1.0000	100.00
1.5	15,041,450		0.0000	1.0000	100.00
2.5	14,752,695	94	0.0000	1.0000	100.00
3.5	14,373,843	28	0.0000	1.0000	100.00
4.5	14,367,167	5,454,915	0.3797	0.6203	100.00
5.5	8,707,070	312	0.0000	1.0000	62.03
6.5	8,525,391		0.0000	1.0000	62.03
7.5	8,384,430		0.0000	1.0000	62.03
8.5	8,201,734	1,996	0.0002	0.9998	62.03
9.5	7,991,370		0.0000	1.0000	62.01
10.5	7,887,036		0.0000	1.0000	62.01
11.5	7,829,228	2	0.0000	1.0000	62.01
12.5	7,811,323	220	0.0000	1.0000	62.01
14 5	/,300,882	238	0.0000	1.0000	62.UI
14.5 15 5	0,958,107 6 652 452	2 077	0.0000	1.0000	62.UI
15.5 16 E	0,052,455	3,0//	0.0008	1 0000	62.UI
17 5	0,332,102 5 927 902	29	0.0000	1 0000	61 98
18.5	5,670,027		0.0000	1.0000	61.98
10 5	5,070,027	0	0.0000	1 0000	61.00
19.5	5,271,405	0	0.0000	1.0000	61.98
20.5 01 E	4,007,010	0	0.0000	1.0000	61.90
21.5 22 5	4,010,000	0	0.0000	1 0000	61 98
22.5	4,300,227		0.0000	1 0000	61 98
23.5	3 891 199		0.0000	1 0000	61 98
25 5	3,656,828	0	0 0000	1 0000	61 98
26.5	3,472,105	Ŭ	0.0000	1.0000	61.98
27.5	3,332,862		0.0000	1.0000	61.98
28.5	3,178,139		0.0000	1.0000	61.98
29.5	1,817,529		0.0000	1.0000	61.98
30.5	1,680,437	48,297	0.0287	0.9713	61.98
31.5	1,494,447		0.0000	1.0000	60.19
32.5	1,324,332	16	0.0000	1.0000	60.19
33.5	1,134,091		0.0000	1.0000	60.19
34.5	991,094		0.0000	1.0000	60.19
35.5	881,999		0.0000	1.0000	60.19
36.5	758,605		0.0000	1.0000	60.19
37.5	669,839		0.0000	1.0000	60.19
38.5	579,539		0.0000	1.0000	60.19


#### ACCOUNT 369.00 - SERVICES

#### ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1960-2012

AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
39.5	505,998		0.0000	1.0000	60.19
40.5	456,656		0.0000	1.0000	60.19
41.5	425,951		0.0000	1.0000	60.19
42.5	397,148		0.0000	1.0000	60.19
43.5	375,204		0.0000	1.0000	60.19
44.5	354,800		0.0000	1.0000	60.19
45.5	333,280		0.0000	1.0000	60.19
46.5	312,151		0.0000	1.0000	60.19
47.5	292,192	9,814	0.0336	0.9664	60.19
48.5	264,611		0.0000	1.0000	58.17
49.5	241,414		0.0000	1.0000	58.17
50.5	227,272		0.0000	1.0000	58.17
51.5	209,906		0.0000	1.0000	58.17
52.5	195,533		0.0000	1.0000	58.17
53.5	184,837		0.0000	1.0000	58.17
54.5					58.17

FORTISBC INC. ACCOUNT 370.00 - METERS ORIGINAL AND SMOOTH SURVIVOR CURVES



#### ACCOUNT 370.00 - METERS

### ORIGINAL LIFE TABLE

PLACEMENT BAND 1950-2014

AGE AT	EXPOSURES AT	RETIREMENTS			PCT SURV
BEGIN OF	BEGINNING OF	DURING AGE	RETMT	SURV	BEGIN OF
INTERVAL	AGE INTERVAL	INTERVAL	RATIO	RATIO	INTERVAL
0.0	19,287,583	3,405	0.0002	0.9998	100.00
0.5	18,086,735	5,723	0.0003	0.9997	99.98
1.5	17,806,276	5,006	0.0003	0.9997	99.95
2.5	17,354,962	4,311	0.0002	0.9998	99.92
3.5	16,938,244	5,330	0.0003	0.9997	99.90
4.5	16,332,670	3,180	0.0002	0.9998	99.87
5.5	15,921,764	222,520	0.0140	0.9860	99.85
6.5	15,179,323	49,534	0.0033	0.9967	98.45
7.5	14,332,633	1,991	0.0001	0.9999	98.13
8.5	13,615,488	48,372	0.0036	0.9964	98.12
9.5	12,997,534	243,575	0.0187	0.9813	97.77
10.5	12,181,483	3,370	0.0003	0.9997	95.94
11.5	11,444,657	253,985	0.0222	0.9778	95.91
12.5	10,913,904	1,975	0.0002	0.9998	93.78
13.5	10,568,367	170,030	0.0161	0.9839	93.76
14.5	9,683,284	70,959	0.0073	0.9927	92.26
15.5	9,162,733	180,512	0.0197	0.9803	91.58
16.5	8,482,300	1,082	0.0001	0.9999	89.78
17.5	8,170,315	86,418	0.0106	0.9894	89.76
18.5	7,748,289	59,393	0.0077	0.9923	88.81
19.5	7,457,019	52,064	0.0070	0.9930	88.13
20.5	7,195,796	6,899	0.0010	0.9990	87.52
21.5	7,006,313	1,764	0.0003	0.9997	87.43
22.5	6,821,001	34,670	0.0051	0.9949	87.41
23.5	6,591,629	116,880	0.0177	0.9823	86.97
24.5	6,366,881	96	0.0000	1.0000	85.43
25.5	6,270,827	127,402	0.0203	0.9797	85.42
26.5	6,087,644	1,851	0.0003	0.9997	83.69
27.5	6,025,920	258	0.0000	1.0000	83.66
28.5	5,952,168	262,064	0.0440	0.9560	83.66
29.5	4,280,021		0.0000	1.0000	79.98
30.5	3,865,890	1,493,181	0.3862	0.6138	79.98
31.5	1,565,989	27,685	0.0177	0.9823	49.09
32.5	1,538,303	16,852	0.0110	0.9890	48.22
33.5	1,521,451	639,029	0.4200	0.5800	47.69
34.5	882,422	5,729	0.0065	0.9935	27.66
35.5	876,693	6,323	0.0072	0.9928	27.48
36.5	870,370	52,171	0.0599	0.9401	27.28
37.5	818,199	7,415	0.0091	0.9909	25.65
38.5	810,784		0.0000	1.0000	25.41



#### ACCOUNT 370.00 - METERS

#### ORIGINAL LIFE TABLE, CONT.

EXPERIENCE BAND 1940-2014

#### PLACEMENT BAND 1950-2014

#### AGE AT EXPOSURES AT RETIREMENTS PCT SURV BEGIN OF BEGINNING OF DURING AGE RETMT SURV BEGIN OF INTERVAL AGE INTERVAL INTERVAL INTERVAL RATIO RATIO 39.5 810,784 48,015 0.0592 0.9408 25.41 40.5 762,770 254 0.0003 0.9997 23.91 41.5 762,516 102 0.0001 23.90 0.9999 762,414 42.5 0.0000 23.90 1.0000 762,414 43.5 3,539 0.0046 0.9954 23.90 758,875 44.5 273,643 0.3606 0.6394 23.79 45.5 485,231 418,066 0.8616 0.1384 15.21 67,165 46.5 0.0000 1.0000 2.11 47.5 67,165 0.0000 1.0000 2.11 48.5 67,165 34,165 0.5087 0.4913 2.11 49.5 33,001 0.0000 1.0000 1.03 50.5 33,001 0.0000 1.0000 1.03 51.5 33,001 0.0000 1.0000 1.03 52.5 33,001 0.0000 1.0000 1.03 53.5 33,001 33,001 1.0000 1.03 54.5

FORTISBC INC. ACCOUNT 371.00 - INSTALLATIONS ON CUSTOMER PREMISES ORIGINAL AND SMOOTH SURVIVOR CURVES



#### ACCOUNT 371.00 - INSTALLATIONS ON CUSTOMER PREMISES

#### ORIGINAL LIFE TABLE

PLACEMENT BAND 1960-2001

AGE AT	EXPOSURES AT	RETIREMENTS			PCT SURV
BEGIN OF	BEGINNING OF	DURING AGE	RETMT	SURV	BEGIN OF
INTERVAL	AGE INTERVAL	INTERVAL	RATIO	RATIO	INTERVAL
0.0	1,282,160	519	0.0004	0.9996	100.00
0.5	1,281,641	948	0.0007	0.9993	99.96
1.5	1,280,693	4,867	0.0038	0.9962	99.89
2.5	1,275,827	1,904	0.0015	0.9985	99.51
3.5	1,273,923	1,219	0.0010	0.9990	99.36
4.5	1,272,703	86,050	0.0676	0.9324	99.26
5.5	1,186,653	21,600	0.0182	0.9818	92.55
6.5	1,165,053	18,044	0.0155	0.9845	90.87
7.5	1,147,010	16,993	0.0148	0.9852	89.46
8.5	1,130,017	10,800	0.0096	0.9904	88.13
9.5	1,119,217	69,046	0.0617	0.9383	87.29
10.5	1,050,171	7,652	0.0073	0.9927	81.91
11.5	1,042,519	13,029	0.0125	0.9875	81.31
12.5	1,029,489	24,737	0.0240	0.9760	80.29
13.5	936,984	4,893	0.0052	0.9948	78.36
14.5 15 5	882,332 977 /59	9,933	0.0113	0.9887	77.95
15.5	027,400	4,002	0.0048	0.9952	77.08
17 5	704,090	0,014	0.0110	1 0000	75.26
18.5	677,174	44	0.0001	0.9999	75.86
19 5	620 985	2 353	0 0038	0 9962	75 86
20.5	563,168	2,355	0.0000	1.0000	75.57
21.5	521,767	3,473	0.0067	0.9933	75.57
22.5	486,473	706	0.0015	0.9985	75.07
23.5	451,387	84	0.0002	0.9998	74.96
24.5	418,617	30,528	0.0729	0.9271	74.94
25.5	360,966		0.0000	1.0000	69.48
26.5	337,109		0.0000	1.0000	69.48
27.5	317,795		0.0000	1.0000	69.48
28.5	295,438	677	0.0023	0.9977	69.48
29.5	272,365		0.0000	1.0000	69.32
30.5	251,487		0.0000	1.0000	69.32
31.5	230,406		0.0000	1.0000	69.32
32.5	204,190	112	0.0005	0.9995	69.32
33.5	174,762		0.0000	1.0000	69.28
34.5	152,725		0.0000	1.0000	69.28
35.5	135,912	222	0.0016	0.9984	69.28
36.5	116,674		0.0000	1.0000	69.17
37.5	102,994		0.0000	1.0000	69.17
38.5	89.078		0.0000	1.0000	69.17

#### ACCOUNT 371.00 - INSTALLATIONS ON CUSTOMER PREMISES

#### ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1960-2001

AGE AT	EXPOSURES AT	RETIREMENTS			PCT SURV
BEGIN OF	BEGINNING OF	DURING AGE	RETMT	SURV	BEGIN OF
INTERVAL	AGE INTERVAL	INTERVAL	RATIO	RATIO	INTERVAL
39.5	77,745		0.0000	1.0000	69.17
40.5	70,141		0.0000	1.0000	69.17
41.5	65,409		0.0000	1.0000	69.17
42.5	60,970	1,278	0.0210	0.9790	69.17
43.5	56,310		0.0000	1.0000	67.72
44.5	53,166		0.0000	1.0000	67.72
45.5	49,849		0.0000	1.0000	67.72
46.5	46,593		0.0000	1.0000	67.72
47.5	43,517		0.0000	1.0000	67.72
48.5	40,779		0.0000	1.0000	67.72
49.5	37,204		0.0000	1.0000	67.72
50.5	35,025		0.0000	1.0000	67.72
51.5	32,349		0.0000	1.0000	67.72
52.5	30,134		0.0000	1.0000	67.72
53.5	28,485		0.0000	1.0000	67.72
54.5					67.72

FORTISBC INC. ACCOUNT 373.00 - STREET LIGHTING AND SIGNAL SYSTEMS ORIGINAL AND SMOOTH SURVIVOR CURVES



#### ACCOUNT 373.00 - STREET LIGHTING AND SIGNAL SYSTEMS

#### ORIGINAL LIFE TABLE

PLACEMENT BAND 1950-2014

AGE AT	EXPOSURES AT	RETIREMENTS			PCT SURV
BEGIN OF	BEGINNING OF	DURING AGE	RETMT	SURV	BEGIN OF
INTERVAL	AGE INTERVAL	INTERVAL	RATIO	RATIO	INTERVAL
0.0	13,639,964	402	0.0000	1.0000	100.00
0.5	13,544,779	66,370	0.0049	0.9951	100.00
1.5	13,467,534	9,989	0.0007	0.9993	99.51
2.5	13,435,233	6,705	0.0005	0.9995	99.43
3.5	12,734,548	43,254	0.0034	0.9966	99.38
4.5	11,427,418	35,813	0.0031	0.9969	99.05
5.5	10,046,227	13,004	0.0013	0.9987	98.74
6.5	8,297,233	14,011	0.0017	0.9983	98.61
7.5	6,609,380	7,607	0.0012	0.9988	98.44
8.5	5,013,467	10,225	0.0020	0.9980	98.33
9.5	3,929,489	24,190	0.0062	0.9938	98.13
10.5	3,029,039	12,717	0.0042	0.9958	97.52
11.5	2,065,527	4,366	0.0021	0.9979	97.11
12.5	2,061,161	1,827	0.0009	0.9991	96.91
13.5	1,977,564	26,278	0.0133	0.9867	96.82
14.5	1,896,978	37,949	0.0200	0.9800	95.54
15.5	1,818,642	93,393	0.0514	0.9486	93.63
16.5	1,683,949	130,706	0.0776	0.9224	88.82
10 E	1,486,064 1,024,007	425,223	0.2861	0.7139	81.92 E0 10
10.5	1,024,907	20,133	0.0200	0.9720	50.40
19.5	933,249	2,231	0.0024	0.9976	56.84
20.5	882,744	54,955	0.0623	0.9377	56.71
21.5	781,235	2,170	0.0028	0.9972	53.18
22.5	743,212	2,037	0.0027	0.9973	53.03
23.5	/03,558	6,018	0.0086	0.9914	52.88
24.5	663,247	2,529	0.0038	0.9962	52.43
25.5 26 E	600 277	10,504	0.0166	0.9034	54.43 E1 26
20.5	600,277 E70 2E2	4,064	0.0068	0.9932	51.30 E1 02
27.5	554,760	24,392	0.0424 0.0483	0.9517	48.85
20 5	292 194	112 20/	0 2067	0 7033	16 19
30 5	268 800	7 116	0.2907	0.7033	32 70
31 5	261 684	20 309	0.0205	0.9735	31 83
32 5	241 374	189 764	0.7862	0.2138	29 36
33.5	51,610	107,101	0.0000	1,0000	6 28
34.5	51,610		0.0000	1.0000	6.28
35.5	51,610		0.0000	1.0000	6.28
36.5	51,610		0.0000	1.0000	6.28
37.5	51.610		0.0000	1.0000	6.28
38.5	51,610	21	0.0004	0.9996	6.28

#### ACCOUNT 373.00 - STREET LIGHTING AND SIGNAL SYSTEMS

#### ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1950-2014

AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
39.5	51,589		0.0000	1.0000	6.28
40.5	51,589	49,629	0.9620	0.0380	6.28
41.5	1,960	12	0.0063	0.9937	0.24
42.5	1,947		0.0000	1.0000	0.24
43.5	1,947	1,947	1.0000		0.24
44.5					



FORTISBC INC. ACCOUNT 390.00 - STRUCTURES - FRAME AND IRON ORIGINAL AND SMOOTH SURVIVOR CURVES



#### ACCOUNT 390.00 - STRUCTURES - FRAME AND IRON

#### ORIGINAL LIFE TABLE

PLACEMENT BAND 1970-1999

AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
0.0	353,427	923	0.0026	0.9974	100.00
0.5	352,504	б	0.0000	1.0000	99.74
1.5	352,499	0	0.0000	1.0000	99.74
2.5	352,499	106	0.0003	0.9997	99.74
3.5	352,392	2	0.0000	1.0000	99.71
4.5	352,390	192	0.0005	0.9995	99.71
5.5	352,198	9	0.0000	1.0000	99.65
6.5	352,189	203	0.0006	0.9994	99.65
7.5	351,986	1	0.0000	1.0000	99.59
8.5	351,985	0	0.0000	1.0000	99.59
9.5	351,985	21	0.0001	0.9999	99.59
10.5	351,964	1,342	0.0038	0.9962	99.59
11.5	350,622	13	0.0000	1.0000	99.21
12.5	350,608	4	0.0000	1.0000	99.20
13.5	350,605	13	0.0000	1.0000	99.20
14.5	350,592		0.0000	1.0000	99.20
15.5	350,592	460	0.0013	0.9987	99.20
16.5	350,131	12,428	0.0355	0.9645	99.07
17.5	337,703	1	0.0000	1.0000	95.55
18.5	337,702		0.0000	1.0000	95.55
19.5	337,702	338	0.0010	0.9990	95.55
20.5	337,364		0.0000	1.0000	95.46
21.5	337,364		0.0000	1.0000	95.46
22.5	0		0.0000	1.0000	95.46
23.5	0	0	0.5000	0.5000	95.46
24.5	0		0.0000	1.0000	47.73
25.5	0		0.0000	1.0000	47.73
26.5	0	0	1.0000		47.73
27.5					

FORTISBC INC. ACCOUNT 390.10 - STRUCTURES - MASONRY ORIGINAL AND SMOOTH SURVIVOR CURVES



#### ACCOUNT 390.10 - STRUCTURES - MASONRY

#### ORIGINAL LIFE TABLE

PLACEMENT BAND 1940-2014

AGE AT	EXPOSURES AT	RETIREMENTS			PCT SURV
BEGIN OF	BEGINNING OF	DURING AGE	RETMT	SURV	BEGIN OF
INTERVAL	AGE INTERVAL	INTERVAL	RATIO	RATIO	INTERVAL
0.0	24,471,566	6,648	0.0003	0.9997	100.00
0.5	23,772,941		0.0000	1.0000	99.97
1.5	10,486,455	2,081	0.0002	0.9998	99.97
2.5	10,328,767	18,554	0.0018	0.9982	99.95
3.5	9,956,486	1,317	0.0001	0.9999	99.77
4.5	9,649,942		0.0000	1.0000	99.76
5.5	9,208,295	7,157	0.0008	0.9992	99.76
6.5	8,752,722	14,399	0.0016	0.9984	99.68
7.5	8,082,545	19,119	0.0024	0.9976	99.52
8.5	7,808,527	1,624	0.0002	0.9998	99.28
9.5	7,702,077		0.0000	1.0000	99.26
10.5	7,560,425	1,535	0.0002	0.9998	99.26
11.5	7,323,448	32,931	0.0045	0.9955	99.24
12.5	7,162,043		0.0000	1.0000	98.80
13.5	6,784,029	114 700	0.0000	1.0000	98.80
14.5	6,/51,52/ C 207 171	114,790	0.01/0	0.9830	98.80
15.5	6,207,171		0.0000	1.0000	97.12
10.5 17 E	0,120,030 E 064 41E	160 522	0.0000	1.0000	97.12
18 5	5,711,453	2.710	0.0284	0.9995	94 36
10 E		_,,	0 0000	1 0000	04 21
19.5	5,059,900 E 224 240		0.0000	1.0000	94.31 04.21
20.5	J, ZJ4, Z49 A 070 205		0.0000	1.0000	94.31 04 21
21.5	4,070,200	1 295	0.0000	1.0000	94.31 0/ 21
22.5	4,755,000	т,505	0.0009	1 0000	94.31
23.5	4 308 277	1 830	0.0000	1.0000	94.22
25 5	3 636 836	1,050	0 0000	1 0000	94 18
26 5	2,992,342		0 0000	1 0000	94 18
27.5	2,749,346		0.0000	1.0000	94.18
28.5	2,699,833		0.0000	1.0000	94.18
29.5	1,436,134		0.0000	1.0000	94.18
30.5	1,412,168		0.0000	1.0000	94.18
31.5	1,301,429	825	0.0006	0.9994	94.18
32.5	1,282,577		0.0000	1.0000	94.12
33.5	1,274,072		0.0000	1.0000	94.12
34.5	1,268,079		0.0000	1.0000	94.12
35.5	597,755		0.0000	1.0000	94.12
36.5	597,755	227,314	0.3803	0.6197	94.12
37.5	362,977		0.0000	1.0000	58.33
38.5	317,885		0.0000	1.0000	58.33

#### ACCOUNT 390.10 - STRUCTURES - MASONRY

#### ORIGINAL LIFE TABLE, CONT.

#### PLACEMENT BAND 1940-2014

AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
39.5 40.5 41.5 42.5 43.5 44.5 45.5 46.5	119,964 108,146 108,146 108,146 108,146 108,146 52,676 52,676	11,818 55,471 52,676	0.0985 0.0000 0.0000 0.0000 0.0000 0.5129 0.0000 1.0000	0.9015 1.0000 1.0000 1.0000 1.0000 0.4871 1.0000	58.33 52.58 52.58 52.58 52.58 52.58 52.58 25.61 25.61

FORTISBC INC. ACCOUNT 390.20 - OPERATIONS BUILDINGS ORIGINAL AND SMOOTH SURVIVOR CURVES



#### ACCOUNT 390.20 - OPERATIONS BUILDINGS

#### ORIGINAL LIFE TABLE

PLACEMENT BAND 1980-2014

AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
0.0 0.5 1.5 2.5 3.5 4.5 5.5 6.5 7.5 8.5	16,067,148 15,653,189 14,987,510 13,679,226 13,042,880 12,781,853 12,046,893 11,663,526 11,120,498 10,534,999		0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000	1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000	100.00 100.00 100.00 100.00 100.00 100.00 100.00 100.00 100.00 100.00
9.5 10.5 11.5 12.5 13.5 14.5 15.5 16.5 17.5 18.5	10,356,688 10,350,256 5,495,407 2,581,853 2,581,853 2,501,322 2,362,019 2,362,019 2,206,422 2,090,160		0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000	1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000	100.00 100.00 100.00 100.00 100.00 100.00 100.00 100.00 100.00
19.5 20.5 21.5 22.5 23.5 24.5 25.5 26.5 27.5 28.5	2,052,688 1,983,680 1,964,477 1,936,434 1,922,806 1,890,074 1,890,074 1,706,465 1,693,574 1,685,380		$\begin{array}{c} 0.0000\\ 0.0000\\ 0.0000\\ 0.0000\\ 0.0000\\ 0.0000\\ 0.0000\\ 0.0000\\ 0.0000\\ 0.0000\\ 0.0000\\ 0.0000\\ 0.0000\\ 0.0000\\ 0.0000\\ \end{array}$	1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000	100.00 100.00 100.00 100.00 100.00 100.00 100.00 100.00 100.00
29.5 30.5 31.5 32.5 33.5 34.5	1,684,781 1,673,051 1,659,668 1,643,713 1,630,325		0.0000 0.0000 0.0000 0.0000 0.0000	1.0000 1.0000 1.0000 1.0000 1.0000	100.00 100.00 100.00 100.00 100.00 100.00

FORTISBC INC. ACCOUNT 392.10 - LIGHT DUTY VEHICLES ORIGINAL AND SMOOTH SURVIVOR CURVES



#### ACCOUNT 392.10 - LIGHT DUTY VEHICLES

### ORIGINAL LIFE TABLE

PLACEMENT BAND 1966-2014

AGE AT	EXPOSURES AT	RETIREMENTS			PCT SURV
BEGIN OF	BEGINNING OF	DURING AGE	RETMT	SURV	BEGIN OF
INTERVAL	AGE INTERVAL	INTERVAL	RATIO	RATIO	INTERVAL
0.0	21,379,202	70,556	0.0033	0.9967	100.00
0.5	21,226,530	40,162	0.0019	0.9981	99.67
1.5	20,864,278	821,718	0.0394	0.9606	99.48
2.5	18,806,549	2,184,762	0.1162	0.8838	95.56
3.5	15,825,479	96,949	0.0061	0.9939	84.46
4.5	15,728,530	297,935	0.0189	0.9811	83.94
5.5	14,846,613	688,889	0.0464	0.9536	82.35
6.5	13,472,839	623,501	0.0463	0.9537	78.53
7.5	12,145,435	472,998	0.0389	0.9611	74.90
8.5	10,342,525	219,522	0.0212	0.9788	71.98
9.5	9,164,001	280,820	0.0306	0.9694	70.45
10.5	8,883,181	2,691	0.0003	0.9997	68.29
11.5	8,880,490	1,403,820	0.1581	0.8419	68.27
12.5	7,476,670	3,384,920	0.4527	0.5473	57.48
13.5	4,091,750	221,807	0.0542	0.9458	31.46
14.5	3,869,943	586,030	0.1514	0.8486	29.75
15.5	3,283,913	//0,595	0.234/	0.7653	25.25
10.5	2,513,318	369,100	0.1469	0.8531	19.32
10 5	Z,144,Z18 1 750 100	392,090	0.1829	0.81/1	10.48
18.5	1,/52,128		0.0000	1.0000	13.4/
19.5	1,633,210	193,943	0.1187	0.8813	13.47
20.5	1,415,725	183,140	0.1294	0.8706	11.87
21.5	1,232,585		0.0000	1.0000	10.34
22.5	1,232,585	39,922	0.0324	0.9676	10.34
23.5	1,192,663	185,109	0.1552	0.8448	10.00
24.5	979,339	000 050	0.0000	1.0000	8.45
25.5	979,339	882,850	0.9015	0.0985	8.45
26.5	96,489	35,514	0.3681	0.6319	0.83
27.5	60,975		0.0000	1.0000	0.53
28.5	60,975		0.0000	1.0000	0.53
29.5	60,975		0.0000	1.0000	0.53
30.5	60,975		0.0000	1.0000	0.53
31.5	60,975	11,287	0.1851	0.8149	0.53
32.5	49,688		0.0000	1.0000	0.43
33.5	49,688	3,891	0.0783	0.9217	0.43
34.5	45,797		0.0000	1.0000	0.40
35.5	45,797		0.0000	1.0000	0.40
36.5	45,797		0.0000	1.0000	0.40
3/.5	45,797	10 405	0.0000	1.0000	0.40
38.5	45, /97	1/,435	0.3807	0.6193	0.40

#### ACCOUNT 392.10 - LIGHT DUTY VEHICLES

#### ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1966-2014

AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
39.5 40.5	28,362 28,362 28,362		0.0000	1.0000	0.24 0.24
42.5	28,362	28,362	1.0000	1.0000	0.24



FORTISBC INC. ACCOUNT 392.20 - HEAVY DUTY VEHICLES ORIGINAL AND SMOOTH SURVIVOR CURVES



#### ACCOUNT 392.20 - HEAVY DUTY VEHICLES

#### ORIGINAL LIFE TABLE

PLACEMENT BAND 1972-2014

AGE AT BEGIN OF	EXPOSURES AT BEGINNING OF	RETIREMENTS DURING AGE	RETMT	SURV	PCT SURV BEGIN OF
INTERVAL	AGE INTERVAL	INTERVAL	RATIO	RATIO	INTERVAL
0.0	29,409,530		0.0000	1.0000	100.00
0.5	28,072,943	124,041	0.0044	0.9956	100.00
1.5	25,633,662	1,230	0.0000	1.0000	99.56
2.5	23,717,663	41,862	0.0018	0.9982	99.55
3.5	23,675,801	111,697	0.0047	0.9953	99.38
4.5	23,564,105		0.0000	1.0000	98.91
5.5	21,883,352	90,644	0.0041	0.9959	98.91
6.5	21,043,790	98,690	0.0047	0.9953	98.50
7.5	1/,8/9,645	8,446	0.0005	0.9995	98.04
8.5	16,510,234	24,435	0.0015	0.9985	97.99
9.5	15,924,710	78,276	0.0049	0.9951	97.85
10.5	15,762,070	44,024	0.0028	0.9972	97.36
11.5	15,567,165	1 000 040	0.0117	0.9883	97.09
12.5	14 067 125	1,000,840 450,001	0.0008	0.9332	95.90
14 5	14,007,125	459,221	0.0320	0.9074	09.55
15 5	9 150 992	4,300,040	0.3220	0.0780	58 74
16 5	9 087 725	2 056 740	0.2263	0.7737	58 33
17 5	7,030,985	2,009,716	0 2858	0.7142	45 13
18.5	4,947,744	435,935	0.0881	0.9119	32.23
19.5	4,258,237	397,650	0.0934	0.9066	29.39
20.5	3,684,346	19,620	0.0053	0.9947	26.64
21.5	3,615,339	1,475,764	0.4082	0.5918	26.50
22.5	2,133,414	402,900	0.1889	0.8111	15.68
23.5	1,722,363	579,467	0.3364	0.6636	12.72
24.5	1,142,896	14,980	0.0131	0.9869	8.44
25.5	1,084,544	85,744	0.0791	0.9209	8.33
26.5	998,800		0.0000	1.0000	7.67
27.5	982,956	273,824	0.2786	0.7214	7.67
28.5	709,132	102,374	0.1444	0.8556	5.54
29.5	588,978	235,223	0.3994	0.6006	4.74
30.5	338,090	8,215	0.0243	0.9757	2.84
31.5	303,392	91,541	0.3017	0.6983	2.78
32.5	201,151	67,041	0.3333	0.6667	1.94
33.5	134,110		0.0000	1.0000	1.29
34.5	55,440		0.0000	1.0000	1.29
35.5	43,/35		0.0000	1.0000	1.29
30.5 27 F	43,/35 10 705	10 705	1 0000	T.0000	1.29
3/.3 20 E	43,/33	43,/35	T.0000		1.29
20.2					



# PART VI. NET SALVAGE STATISTICS



#### ACCOUNT 330.10 - LAND RIGHTS

#### SUMMARY OF BOOK SALVAGE

DEC		COST OF		GROSS	-	NET	
κές νέλο οτητο	ULAR Emente		DCT		л <u>ы</u> DCm		DOT
ILAK KLIIK.	EMEN 12	AMOUNI	PCI	AMOUNT	PCI	AMOUNT	PCI
2007		4,734				4,734-	
2008		2,893				2,893-	
2009							
2010							
2011							
2012							
2013							
2014							
TOTAL		7,627				7,627-	
THREE-YEAR MOVI	ING AVERAGE	IS					
07-09		2,542				2,542-	
08-10		964				964-	
09-11							
10-12							
11-13							
12-14							

FIVE-YEAR AVERAGE

10-14

# ACCOUNT 331.00 - STRUCTURES AND IMPROVEMENTS

		COST OF	COST OF		GROSS		
	REGULAR	REMOVAL	Dam	SALVAG	E DOM	SALVAGE	Dam
YEAR	RETTREMENTS	AMOUNT	PCT	AMOUNT	PCT	AMOUNT	PCT
1995	14,776		0		0		0
1996							
1997							
1998							
1999							
2000		10				10-	
2001							
2002							
2003							
2004	40,943	409	1		0	409-	1-
2005	51,854	455	1		0	455-	1-
2006	3,832	45	1		0	45-	1-
2007	10,530	73	1		0	73-	1-
2008		372				372-	
2009		34,323				34,323-	
2010	1,634	11,001	673		0	11,001-	673-
2011		38,355				38,355-	
2012	13,159	74,904	569		0	74,904-	569-
2013							
2014	12,872	349,560			0	349,560-	
TOTAL	149,599	509,509	341		0	509,509-	341-
THREE-YEA	AR MOVING AVERAG	ES					
95-97	4,925		0		0		0
96-98							
97-99							
98-00		3				3-	
99-01		3				3-	
00-02		3				3-	
01-03							
02 - 04	13,648	136	1		0	136-	1-
03-05	30,932	288	1		0	288-	1-
04-06	32,210	303	1		0	303-	1-
05-07	22,072	191	1		0	191-	1-
06-08	4,787	164	3		0	164-	3 –
07-09	3,510	11,589	330		0	11,589-	330-
08-10	545	15,232			0	15,232-	
09-11	545	27,893			0	27,893-	
10-12	4,931	41,420	840		0	41,420-	840-

#### ACCOUNT 331.00 - STRUCTURES AND IMPROVEMENTS

YEAR	REGULAR	COST OF REMOVAL AMOUNT	рст	GROSS SALVAGE AMOUNT PCT	NET SALVAGE AMOIINT P	ост
THREE-YEA	AR MOVING AVERAGES	;	101			01
11-13 12-14	4,386 8,677	37,753 141,488	861	0 0	37,753- 8 141,488-	61-
FIVE-YEAF	R AVERAGE					
10-14	5,533	94,764		0	94,764-	

# ACCOUNT 332.00 - RESERVOIRS, DAMS AND WATERWAYS

		COST OF		GROSS	NET	
	REGULAR	REMOVAL		SALVAGE	SALVAGE	
YEAR	RETIREMENTS	AMOUNT	PCT	AMOUNT PCT	AMOUNT	PCT
2003						
2004	68,452	685	1	0	685-	1-
2005	369,177	655	0	0	655-	0
2006	3,015	806	27	0	806-	27-
2007	76,239	1,474	2	0	1,474-	2-
2008	4,551	47	1	0	47-	1-
2009	19,693	213,012		0	213,012-	
2010	9,503	35,678	375	0	35,678-	375-
2011		48,265			48,265-	
2012	73,047	85,181	117	0	85,181-	117-
2013		11,455			11,455-	
2014	30,533	22,140	73	0	22,140-	73-
TOTAL	654,210	419,399	64	0	419,399-	64-
THREE-YEA	AR MOVING AVERAG	ES				
03-05	145,876	446	0	0	446-	0
04-06	146,881	715	0	0	715-	0
05-07	149,477	978	1	0	978-	1-
06-08	27,935	776	3	0	776-	3 –
07-09	33,494	71,511	214	0	71,511-	214-
08-10	11,249	82,913	737	0	82,913-	737-
09-11	9,732	98,985		0	98,985-	
10-12	27,517	56,375	205	0	56,375-	205-
11-13	24,349	48,300	198	0	48,300-	198-
12-14	34,527	39,592	115	0	39,592-	115-
FTVE-YEAF	AVERAGE					
10 14	00 (17		1 7 0	^		1 7 0
$\pm 0 - \pm 4$	22,617	40,544	T.1.9	0	40,544-	T./.9-



# ACCOUNT 333.00 - WATER WHEELS, TURBINES AND GENERATORS

#### SUMMARY OF BOOK SALVAGE

	PFCIII.AP	COST OF		GROSS		NET	
YEAR	RETIREMENTS	AMOUNT	PCT	AMOUNT F	СТ	AMOUNT	PCT
1995		149				149-	
1996							
1997							
1998							
1999		433			0	433-	
2000	33,568	563	2		0	563-	2-
2001		17				17-	
2002							
2003	362,133	5	0		0	5-	0
2004	170,821	4,290	3		0	4,290-	3 –
2005		3,442				3,442-	
2006	1,083	138	13		0	138-	13-
2007	367,027	3,509	1		0	3,509-	1-
2008	181,067	4,722	3		0	4,722-	3 –
2009	368,480	491,636	133		0	491,636-	133-
2010	261,664	572,346	219		0	572,346-	219-
2011		458,607				458,607-	
2012	2,376	48,160			0	48,160-	
2013		3,593				3,593-	
2014	1,528		0		0		0
TOTAL	1,749,747	1,591,611	91		0	1,591,611-	91-

#### THREE-YEAR MOVING AVERAGES

95-97		50			50-	
96-98						
97-99		144			144-	
98-00	11,189	332	3	0	332-	3 –
99-01	11,189	338	3	0	338-	3 –
00-02	11,189	193	2	0	193-	2-
01-03	120,711	7	0	0	7-	0
02 - 04	177,651	1,432	1	0	1,432-	1-
03-05	177,651	2,579	1	0	2,579-	1-
04-06	57,301	2,623	5	0	2,623-	5 -
05-07	122,703	2,363	2	0	2,363-	2-
06-08	183,059	2,790	2	0	2,790-	2-
07-09	305,525	166,623	55	0	166,623-	55-
08-10	270,404	356,235	132	0	356,235-	132-
09-11	210,048	507,530	242	0	507,530-	242-
10-12	88,013	359,704	409	0	359,704-	409-

# ACCOUNT 333.00 - WATER WHEELS, TURBINES AND GENERATORS

	REGULAR	COST OF REMOVAL		GROSS SALVAGE	NET SALVAGE	
YEAR	RETIREMENTS	AMOUNT	PCT	AMOUNT PCT	AMOUNT PCT	
THREE-YEA	AR MOVING AVERAGES					
11-13	792	170,120		0	170,120-	
12-14	1,301	17,251		0	17,251-	
FIVE-YEAF	R AVERAGE					
10-14	53,114	216,541	408	0	216,541- 408	_



#### ACCOUNT 334.00 - ACCESSORY ELECTRICAL EQUIPMENT

#### SUMMARY OF BOOK SALVAGE

	REGILAR	COST OF REMOVAL		GROSS		NET Salvage	
YEAR	RETIREMENTS	AMOUNT	PCT	AMOUNT	PCT	AMOUNT	PCT
1999		440				440-	
2000		653				653-	
2001							
2002		473				473-	
2003	188,915	2	0		0	2-	0
2004	69,020	690	1		0	690-	1-
2005	70,164	2,527	4		0	2,527-	4 -
2006	37,818	247	1		0	247-	1-
2007	132,922	1,073	1		0	1,073-	1-
2008	93,009	1,160	1		0	1,160-	1-
2009	194,348	209,855	108		0	209,855-	108-
2010	378,810	236,934	63		0	236,934-	63-
2011	592,930	236,004	40		0	236,004-	40-
2012	446,687	175,354	39		0	175,354-	39-
2013	685,532	36,883	5		0	36,883-	5-
2014	49,980	67,019	134		0	67,019-	134-
TOTAL	2,940,138	969,314	33		0	969,314-	33-
THREE-YE	EAR MOVING AVERAG	ES					
99-01		364				364-	
00-02		375				375-	
01-03	62,972	158	0		0	158-	0
02-04	85,979	388	0		0	388-	0
03-05	109,366	1,073	1		0	1,073-	1-
04-06	59,001	1,155	2		0	1,155-	2-
05-07	80,302	1,283	2		0	1,283-	2-
06-08	87,917	827	1		0	827-	1-
07-09	140,093	70,696	50		0	70,696-	50-
08-10	222,056	149,316	67		0	149,316-	67-
09-11	388,696	227,597	59		0	227,597-	59-
10-12	472,809	216,097	46		0	216,097-	46-

12-14	394,067	93,085	24	0	93,085-	24-
FIVE-YEAR A	AVERAGE					
10-14	430,788	150,439	35	0	150,439-	35-

26

149,413



575,050

11-13

149,413- 26-

0

# ACCOUNT 335.00 - OTHER POWER PLANT EQUIPMENT

		COST OF		GROSS	_	NET	
	REGULAR	REMOVAL		SALVAG	E ~ ~ ~	SALVAGE	
YEAR	RETIREMENTS	AMOUNT	PCT	AMOUNT	PCT	AMOUNT	PCT
2000	57,465	598	1		0	598-	1-
2001							
2002							
2003							
2004							
2005	76,417	84	0		0	84-	0
2006							
2007	30,528	227	1		0	227-	1-
2008	30,120	137	0		0	137-	0
2009	90,985		0		0		0
2010	7,386	13,556	184		0	13,556-	184-
2011							
2012	380,467	61,811	16		0	61,811-	16-
2013		1,830				1,830-	
2014	24,016	18,186	76		0	18,186-	76-
TOTAL	697,384	96,428	14		0	96,428-	14-
THREE-YE	EAR MOVING AVERAG	ES					
00-02	19,155	199	1		0	199-	1-
01-03							
02-04							
03-05	25,472	28	0		0	28-	0
04-06	25,472	28	0		0	28-	0
05-07	35,648	104	0		0	104-	0
06-08	20,216	121	1		0	121-	1-
07-09	50,544	121	0		0	121-	0
08-10	42,830	4,564	11		0	4,564-	11-
09-11	32,790	4,519	14		0	4,519-	14-
10-12	129,284	25,122	19		0	25,122-	19-
11-13	126,822	21,214	17		0	21,214-	17-
12-14	134,828	27,275	20		0	27,275-	20-
FIVE-YEA	AR AVERAGE						
10 14	00 274	10 070	22		0	10 076	<u></u>
10-14	82,3/4	19,0/6	23		U	19,0/6-	23-

#### ACCOUNT 350.10 - LAND RIGHTS

#### SUMMARY OF BOOK SALVAGE

		COST OF		GROSS		NET	
YEAR	RETIREMENTS	AMOUNT	PCT	AMOUNT	PCT	AMOUNT	PCT
2003	202,938	2	0		0	2-	0
2004	24,931	258	1		0	258-	1-
2005							
2006							
2007							
2008							
2009							
2010							
2011							
2012							
2013							
2014							
TOTAL	227,869	260	0		0	260-	0
THREE-YEA	AR MOVING AVERAGE	IS					
03-05	75,956	87	0		0	87-	0
04-06	8,310	86	1		0	86-	1-
05-07							
06-08							
07-09							
08-10							
09-11							
10-12							
11-13							
12-14							
FIVE-YEAF	R AVERAGE						

10-14

# ACCOUNT 353.00 - SUBSTATION EQUIPMENT

		COST OF		GROSS		NET	
	REGULAR	REMOVAL		SALVAG	E	SALVAGE	
YEAR	RETIREMENTS	AMOUNT	PCT	AMOUNT	PCT	AMOUNT	PCT
1996	7,794		0		0		0
1997							
1998		1,886				1,886-	
1999	50,703	68	0		0	68-	0
2000		382				382-	
2001		173				173-	
2002							
2003							
2004		901				901-	
2005		795				795-	
2006	496,251	2,350	0		0	2,350-	0
2007	75,512	3,370	4		0	3,370-	4 -
2008	49,236	5,005	10		0	5,005-	10-
2009	21,849	242,754			0	242,754-	
2010	76,624	535,418	699		0	535,418-	699-
2011	2,067,624	317,257	15		0	317,257-	15-
2012	67,971	210,447	310		0	210,447-	310-
2013	35,196	192,463	547		0	192,463-	547-
2014	671,807	450,636	67		0	450,636-	67-
TOTAL	3,620,567	1,963,904	54		0	1,963,904-	54-
THREE-YEA	AR MOVING AVERAG	ES					
96-98	2,598	629	24		0	629-	24-
97-99	16,901	651	4		0	651-	4-
98-00	16,901	779	5		0	779-	5 -
99-01	16,901	208	1		0	208-	1-
00-02		185				185-	
01-03		58				58-	
02 - 04		300				300-	
03-05		565				565-	
04-06	165,417	1,349	1		0	1,349-	1-
05-07	190,587	2,172	1		0	2,172-	1-
06-08	207,000	3,575	2		0	3,575-	2-
07-09	48,866	83,710	171		0	83,710-	171-
08-10	49,236	261,059	530		0	261,059-	530-
09-11	722,032	365,143	51		0	365,143-	51-
10-12	737,406	354,374	48		0	354,374-	48-



# ACCOUNT 353.00 - SUBSTATION EQUIPMENT

	REGULAR	COST OF REMOVAL		GROSS SALVAGE	NET SALVAGE
YEAR	RETIREMENTS	AMOUNT	PCT	AMOUNT PCT	AMOUNT PCT
THREE-YE	AR MOVING AVERAGE	S			
11-13	723,597	240,055	33	0	240,055- 33-
12-14	258,325	284,515	110	0	284,515- 110-
FIVE-YEAD	R AVERAGE				
10-14	583,844	341,244	58	0	341,244- 58-



# ACCOUNT 355.00 - POLES, TOWERS AND FIXTURES

		COST OF		GROSS		NET	
	REGULAR	REMOVAL		SALVAGE		SALVAGE	
YEAR	RETIREMENTS	AMOUNT	PCT	AMOUNT	PCT	AMOUNT	PCT
1995	99,949	974	1		0	974-	1-
1996	213,287	2,079	1		0	2,079-	1-
1997		883-	-			883	
1998							
1999	6,579	3,462	53		0	3,462-	53-
2000	100,351	1,251	1		0	1,251-	1-
2001	2,512	25	1		0	25-	1-
2002		454				454-	
2003	1,091,033	20	0		0	20-	0
2004	223,141	15,852	7		0	15,852-	7-
2005	64,253	3,428-	- 5-		0	3,428	5
2006	49,637	3,571	7		0	3,571-	7-
2007	2,154	2,282	106		0	2,282-	106-
2008	15,154	2,508	17		0	2,508-	17-
2009	24,891	330,850			0	330,850-	
2010	3,733,262	1,293,489	35		0	1,293,489-	35-
2011	79,952	939,959			0	939,959-	
2012	90,239	280,618	311		0	280,618-	311-
2013	5,646	71,710			0	71,710-	
2014	184,887	1,679,731	909	142,550	77	1,537,180-	831-
TOTAL	5,986,926	4,624,523	77	142,550	2	4,481,973-	75-
THREE-YE	AR MOVING AVERAG	ES					
95-97	104,412	723	1		0	723-	1-
96-98	71,096	399	1		0	399-	1-
97-99	2,193	860	39		0	860-	39-
98-00	35,643	1,571	4		0	1,571-	4 -
99-01	36,480	1,579	4		0	1,579-	4 -
00-02	34,288	577	2		0	577-	2-
01-03	364,515	166	0		0	166-	0
02 - 04	438,058	5,442	1		0	5,442-	1-
03-05	459,475	4,148	1		0	4,148-	1-
04-06	112,343	5,332	5		0	5,332-	5 -
05-07	38,681	808	2		0	808-	2-
06-08	22,315	2,787	12		0	2,787-	12-
07-09	14,066	111,880	795		0	111,880-	795-
08-10	1,257,769	542,282	43		0	542,282-	43-
09-11	1,279,368	854,766	67		0	854,766-	67-
10-12	1,301,151	838,022	64		0	838,022-	64-



# ACCOUNT 355.00 - POLES, TOWERS AND FIXTURES

YEAR	REGULAR RETIREMENTS	COST OF REMOVAL AMOUNT	PCT	GROSS SALVAGE AMOUNT	PCT	NET SALVAGE AMOUNT	PCT
THREE-YEA	AR MOVING AVERAGES	5					
11-13	58,612	430,762	735		0	430,762-	735-
12-14	93,591	677,353	724	47,517	51	629,836-	673-
FIVE-YEAR	AVERAGE						
10-14	818,797	853,101	104	28,510	3	824,591-	101-


### ACCOUNT 356.00 - CONDUCTORS AND DEVICES

		COST OF		GROSS		NET	
	REGULAR	REMOVAL		SALVAGE		SALVAGE	
YEAR	RETIREMENTS	AMOUNT	PCT	AMOUNT	PCT	AMOUNT	PCT
1995	13,192	125	1		0	125-	1-
1996	393,558	3,731	1		0	3,731-	1-
1997	124,398-	122-	- 0		0	122	0
1998			0		0		0
1999		3,619				3,619-	
2000	103,152	1,250	1		0	1,250-	1-
2001	6,887	69	1		0	69-	1-
2002							
2003	855,508	9	0		0	9–	0
2004	211,195	4,055	2		0	4,055-	2-
2005		4,976				4,976-	
2006		3,571				3,571-	
2007		2,069				2,069-	
2008		2,508				2,508-	
2009		419,432				419,432-	
2010	3,618,338	1,290,786	36		0	1,290,786-	36-
2011	79,952	924,568			0	924,568-	
2012	104,778	1,251,596			0	1,251,596-	
2013	6,992	36,924	528		0	36,924-	528-
2014	233,833	1,399,905	599	16,034	7	1,383,871-	592-
TOTAL	5,502,988	5,349,069	97	16,034	0	5,333,035-	97-
THREE-YEA	AR MOVING AVERAGI	ES					
95-97	94,118	1,245	1		0	1,245-	1-
96-98	89,720	1,203	1		0	1,203-	1-
97-99	41,466-	1,166	3-		0	1,166-	3
98-00	34,384	1,623	5		0	1,623-	5 -
99-01	36,680	1,646	4		0	1,646-	4 -
00-02	36,680	440	1		0	440-	1-
01-03	287,465	26	0		0	26-	0
02-04	355,568	1,355	0		0	1,355-	0
03-05	355,568	3,013	1		0	3,013-	1-
04-06	70,398	4,201	6		0	4,201-	б-
05-07		3,538				3,538-	
06-08		2,716				2,716-	
07-09		141,336				141,336-	
08-10	1,206,113	570,909	47		0	570,909-	47-
09-11	1,232,763	878,262	71		0	878,262-	71-
10-12	1,267,689	1,155,650	91		0	1,155,650-	91-



### ACCOUNT 356.00 - CONDUCTORS AND DEVICES

YEAR	REGULAR RETIREMENTS	COST OF REMOVAL AMOUNT	PCT	GROSS SALVAGE AMOUNT	PCT	NET SALVAGE AMOUNT	PCT
THREE-YEA	AR MOVING AVERAGES	5					
11-13	63,907	737,696			0	737,696-	
12-14	115,201	896,142	778	5,345	5	890,797-	773-
FIVE-YEAF	R AVERAGE						
10-14	808,778	980,756	121	3,207	0	977,549-	121-



## ACCOUNT 362.00 - SUBSTATION EQUIPMENT

		COST OF		GROSS		NET	
	REGULAR	REMOVAL		SALVAGE		SALVAGE	
YEAR	RETIREMENTS	AMOUNT	PCT	AMOUNT	PCT	AMOUNT	PCT
1995		3,074			0	3,074-	
1996	330,483	3,403	1		0	3,403-	1-
1997			0		0		0
1998	146,294		0		0		0
1999			0		0		0
2000	15,208	115	1		0	115-	1-
2001	17,841	307	2		0	307-	2-
2002		83				83-	
2003	383,051	4	0		0	4-	0
2004	161,630	1,877	1		0	1,877-	1-
2005		328				328-	
2006	780,412	768	0		0	768-	0
2007	233,118	2,769	1		0	2,769-	1-
2008	73,108	1,302	2		0	1,302-	2-
2009	2,018,319	77,851	4		0	77,851-	4 -
2010	445,859	976,059	219		0	976,059-	219-
2011	1,632,523	288,635	18		0	288,635-	18-
2012	104,276	160,924	154		0	160,924-	154-
2013	230,930	131,391	57		0	131,391-	57-
2014	518,455	1,132,395	218	2,358	0	1,130,037-	218-
TOTAL	7,091,507	2,781,287	39	2,358	0	2,778,929-	39-
THREE-YE	AR MOVING AVERAG	ES					
95-97	110,161	2,159	2		0	2,159-	2-
96-98	158,926	1,134	1		0	1,134-	1-
97-99	48,765		0		0		0
98-00	53,834	38	0		0	38-	0
99-01	11,016	141	1		0	141-	1-
00-02	11,016	169	2		0	169-	2-
01-03	133,631	132	0		0	132-	0
02 - 04	181,560	655	0		0	655-	0
03-05	181,560	737	0		0	737-	0
04-06	314,014	991	0		0	991-	0
05-07	337,844	1,288	0		0	1,288-	0
06-08	362,213	1,613	0		0	1,613-	0
07-09	774,849	27,307	4		0	27,307-	4 -
08-10	845,762	351,738	42		0	351,738-	42-
09-11	1,365,567	447,515	33		0	447,515-	33-
10-12	727,552	475,206	65		0	475,206-	65-



## ACCOUNT 362.00 - SUBSTATION EQUIPMENT

YEAR	REGULAR RETIREMENTS	COST OF REMOVAL AMOUNT	PCT	GROSS SALVAGE AMOUNT	PCT	NET SALVAGE AMOUNT	PCT
THREE-YE	AR MOVING AVERAGE:	S					
11-13	655,909	193,650	30		0	193,650-	30-
12-14	284,553	474,903	167	786	0	474,117-	167-
FIVE-YEAD	R AVERAGE						
10-14	586,408	537,881	92	472	0	537,409-	92-



## ACCOUNT 364.00 - POLES, TOWERS AND FIXTURES

		COST OF		GROSS		NET	
	REGULAR	REMOVAL		SALVAGE		SALVAGE	
YEAR	RETIREMENTS	AMOUNT	PCT	AMOUNT	PCT	AMOUNT	PCT
1995	358,733	4,178	1		0	4,178-	1-
1996	249,180	83	0		0	83-	0
1997	361,979	865	0		0	865-	0
1998	261,380	1,154	0		0	1,154-	0
1999	102,575	2,893	3		0	2,893-	3 -
2000	105,334	3,773	4		0	3,773-	4 -
2001	87,504	3,368	4		0	3,368-	4 -
2002		5,836				5,836-	
2003		2				2-	
2004	152,450	4,070	3		0	4,070-	3 –
2005	124,134	12	0		0	12-	0
2006	249,103	4	0		0	4-	0
2007	285,089	70-	0		0	70	0
2008	354,093	56-	0		0	56	0
2009	433,826	899,583	207		0	899,583-	207-
2010	397,516	826,460	208		0	826,460-	208-
2011	182,667	563,990	309		0	563,990-	309-
2012	461,965	427,020	92		0	427,020-	92-
2013	495,508	342,056	69		0	342,056-	69-
2014	786,935	900,638	114	853	0	899,785-	114-
TOTAL	5,449,971	3,985,858	73	853	0	3,985,005-	73-
THREE-YEA	R MOVING AVERAG	ES					
95-97	323,297	1,709	1		0	1,709-	1-
96-98	290,846	701	0		0	701-	0
97-99	241,978	1,637	1		0	1,637-	1-
98-00	156,430	2,607	2		0	2,607-	2-
99-01	98,471	3,345	3		0	3,345-	3 –
00-02	64,279	4,326	7		0	4,326-	7-
01-03	29,168	3,068	11		0	3,068-	11-
02-04	50,817	3,302	6		0	3,302-	б-
03-05	92,194	1,361	1		0	1,361-	1-
04-06	175,229	1,362	1		0	1,362-	1-
05-07	219,442	18-	0		0	18	0
06-08	296,095	40-	0		0	40	0
07-09	357,669	299,819	84		0	299,819-	84-
08-10	395,145	575,329	146		0	575,329-	146-
09-11	338,003	763,344	226		0	763,344-	226-
10-12	347,383	605,823	174		0	605,823-	174-



## ACCOUNT 364.00 - POLES, TOWERS AND FIXTURES

YEAR	REGULAR RETIREMENTS	COST OF REMOVAL AMOUNT	PCT	GROSS SALVAGE AMOUNT	PCT	NET SALVAGE AMOUNT PCT
THREE-YEA	AR MOVING AVERAGES	5				
11-13	380,047	444,355	117		0	444,355- 117-
12-14	581,470	556,571	96	284	0	556,287- 96-
FIVE-YEAR	R AVERAGE					
10-14	464,918	612,033	132	171	0	611,862- 132-



### ACCOUNT 365.00 - CONDUCTORS AND DEVICES

		COST OF		GROSS		NET	
	REGULAR	REMOVAL		SALVAGE		SALVAGE	
YEAR	RETIREMENTS	AMOUNT	PCT	AMOUNT	PCT	AMOUNT	PCT
1995	825,623	1,670	0		0	1,670-	0
1996	193,306	3,212-	- 2-		0	3,212	2
1997	336,433	5,100	2		0	5,100-	2-
1998	216,234	1,261	1		0	1,261-	1-
1999		2,090				2,090-	
2000	93,238	3,744	4		0	3,744-	4 -
2001	44,968	3,034	7		0	3,034-	7-
2002		368-	-			368	
2003	75,543	1	0		0	1-	0
2004	113,231	5,802	5		0	5,802-	5-
2005	273,643	296-	- 0		0	296	0
2006	417,711	1,269-	- 0		0	1,269	0
2007	428,815	274-	- 0		0	274	0
2008	587,763		0		0		0
2009	708,815	1,393,766	197		0	1,393,766-	197-
2010	769,802	1,318,948	171		0	1,318,948-	171-
2011	300,103	903,468	301		0	903,468-	301-
2012	376,145	688,743	183		0	688,743-	183-
2013	386,350	398,316	103		0	398,316-	103-
2014	1,033,015	1,428,938	138	1,375	0	1,427,563-	138-
TOTAL	7,180,739	6,149,460	86	1,375	0	6,148,085-	86-
THREE-YEA	AR MOVING AVERAG	ES					
95-97	451,787	1,186	0		0	1,186-	0
96-98	248,658	1,050	0		0	1,050-	0
97-99	184,222	2,817	2		0	2,817-	2-
98-00	103,157	2,365	2		0	2,365-	2-
99-01	46,069	2,956	6		0	2,956-	6-
00-02	46,069	2,136	5		0	2,136-	5-
01-03	40,170	889	2		0	889-	2-
02-04	62,925	1,812	3		0	1,812-	3-
03-05	154,139	1,836	1		0	1,836-	1-
04-06	268,195	1,412	1		0	1,412-	1-
05-07	373,390	613-	- 0		0	613	0
06-08	478,097	514-	- 0		0	514	0
07-09	575,131	464,497	81		0	464,497-	81-
08-10	688,793	904,238	131		0	904,238-	131-
09-11	592,907	1,205,394	203		0	1,205,394-	203-
10-12	482,017	970,386	201		0	970,386-	201-



### ACCOUNT 365.00 - CONDUCTORS AND DEVICES

YEAR	REGULAR RETIREMENTS	COST OF REMOVAL AMOUNT	PCT	GROSS SALVAGE AMOUNT	PCT	NET SALVAGE AMOUNT	PCT
THREE-YEA	AR MOVING AVERAGES	5					
11-13	354,199	663,509	187		0	663,509-	187-
12-14	598,503	838,666	140	458	0	838,207-	140-
FIVE-YEAR	R AVERAGE						
10-14	573,083	947,683	165	275	0	947,407-	165-



### ACCOUNT 368.00 - LINE TRANSFORMERS

		COST OF		GROSS		NET	
	REGULAR	REMOVAL		SALVAGI	Ξ	SALVAGE	
YEAR	RETIREMENTS	AMOUNT	PCT	AMOUNT	PCT	AMOUNT	PCT
1995	5,468	492	9		0	492-	9-
1996		85-	-			85	
1997	146,975		0		0		0
1998							
1999	127,125	2,340	2		0	2,340-	2-
2000		308				308-	
2001	227,756	2,407	1		0	2,407-	1-
2002		2,017				2,017-	
2003	234,683	3	0		0	3-	0
2004	481,295	7,569	2		0	7,569-	2-
2005	577,784	277	0		0	277-	0
2006	942,950	1,308	0		0	1,308-	0
2007	1,026,299	3,020	0		0	3,020-	0
2008	1,461,654	2,048	0		0	2,048-	0
2009	1,632,016	737,628	45		0	737,628-	45-
2010	1,384,063	712,410	51		0	712,410-	51-
2011	781,632	538,093	69		0	538,093-	69-
2012	964,590	478,654	50		0	478,654-	50-
2013	925,054	279,130	30		0	279,130-	30-
2014	1,983,414	807,074	41	523	0	806,551-	41-
TOTAL	12,902,758	3,574,690	28	523	0	3,574,167-	28-
THREE-YEA	R MOVING AVERAG	ES					
95-97	50,815	136	0		0	136-	0
96-98	48,992	28-	- 0		0	28	0
97-99	91,367	780	1		0	780-	1-
98-00	42,375	883	2		0	883-	2-
99-01	118,294	1,685	1		0	1,685-	1-
00-02	75,919	1,577	2		0	1,577-	2-
01-03	154,146	1,476	1		0	1,476-	1-
02-04	238,659	3,196	1		0	3,196-	1-
03-05	431,254	2,616	1		0	2,616-	1-
04-06	667,343	3,051	0		0	3,051-	0
05-07	849,011	1,535	0		0	1,535-	0
06-08	1,143,634	2,125	0		0	2,125-	0
07-09	1,373,323	247,565	18		0	247,565-	18-
08-10	1,492,578	484,028	32		0	484,028-	32-
09-11	1,265,904	662,710	52		0	662,710-	52-
10-12	1,043,429	576,385	55		0	576,385-	55-



### ACCOUNT 368.00 - LINE TRANSFORMERS

	REGULAR	COST OF REMOVAL		GROSS SALVAGE		NET SALVAGE	
YEAR	RETIREMENTS	AMOUNT	PCT	AMOUNT	PCT	AMOUNT	PCT
THREE-YE	AR MOVING AVERAGE	S					
11-13	890,426	431,959	49		0	431,959-	49-
12-14	1,291,020	521,619	40	174	0	521,445-	40-
FIVE-YEAD	R AVERAGE						
10-14	1,207,751	563,072	47	105	0	562,968-	47-



#### ACCOUNT 370.00 - METERS

#### SUMMARY OF BOOK SALVAGE

		COST OF		GROSS		NET	
	REGULAR	REMOVAL		SALVAG	Ξ	SALVAGE	
YEAR	RETIREMENTS	AMOUNT	PCT	AMOUNT	PCT	AMOUNT	PCT
2003	2,804,975	29	0		0	29-	0
2004	59	105-	178-		0	105	178
2005	1,399	1,234-	88-		0	1,234	88
2006	1,455	769	53		0	769-	53-
2007	3,548	610-	17-		0	610	17
2008	3,831-	1,635-	43		0	1,635	43-
2009	4,100	295,044-			0	295,044	
2010	1,638	5,657-	345-		0	5,657	345
2011	2,596	84,216-			0	84,216	
2012	2,066	152,264-			0	152,264	
2013	2,218	37,829-			0	37,829	
2014	1,538,159	81,153-	5-		0	81,153	5
TOTAL	4,358,382	658,948-	15-		0	658,948	15
THREE-YE	EAR MOVING AVERAG	ES					
03-05	935,478	436-	0		0	436	0
04-06	971	190-	20-		0	190	20
05-07	2,134	358-	17-		0	358	17
06-08	391	492-	126-		0	492	126
07-09	1,273	99,096-			0	99,096	
08-10	636	100,779-			0	100,779	

128,305-

80,712-

91,436-

72,224- 23-

90,415- 18-



2,778

2,100

2,293

514,147

309,335

09-11

10-12

11-13

12-14

10-14

FIVE-YEAR AVERAGE

128,305

80,712

91,436

90,415

72,224

18

23

0

0

0

0

0

### ACCOUNT 373.00 - STREET LIGHTING AND SIGNAL SYSTEMS

	REGULAR	COST OF REMOVAL		GROSS SALVAG	E	NET SALVAGE	
YEAR	RETIREMENTS	AMOUNT	PCT	AMOUNT	PCT	AMOUNT	PCT
1995		157				157-	
1996							
1997							
1998							
1999	1,622	27	2		0	27-	2-
2000	417,141	113	0		0	113-	0
2001							
2002							
2003	8,100		0		0		0
2004	26,253	660	3		0	660-	3 –
2005	23,390	2	0		0	2-	0
2006	49,475		0		0		0
2007	52,676	1-	- 0		0	1	0
2008	46,051	1	0		0	1-	0
2009	52,739	124,577	236		0	124,577-	236-
2010	47,370	118,203	250		0	118,203-	250-
2011	23,470	80,753	344		0	80,753-	344-
2012	57,331		0		0		0
2013	59,168		0		0		0
2014	92,239		0		0		0
TOTAL	957,023	324,492	34		0	324,492-	34-
THREE-YE	EAR MOVING AVERAG	ES					
95-97		52				52-	
96-98							
97-99	541	9	2		0	9–	2-
98-00	139,588	47	0		0	47-	0
99-01	139,588	47	0		0	47-	0
00-02	139,047	38	0		0	38-	0
01-03	2,700		0		0		0
02-04	11,451	220	2		0	220-	2-
03-05	19,247	221	1		0	221-	1-
04-06	33,039	220	1		0	220-	1-
05-07	41,847		0		0		0
06-08	49,400		0		0		0
07-09	50,488	41,525	82		0	41,525-	82-
08-10	48,720	80,927	166		0	80,927-	166-
09-11	41,193	107,844	262		0	107,844-	262-
10-12	42,724	66,319	155		0	66,319-	155-



### ACCOUNT 373.00 - STREET LIGHTING AND SIGNAL SYSTEMS

	REGULAR	COST OF REMOVAL		GROSS SALVAGE	NET SALVAGE	
YEAR	RETIREMENTS	AMOUNT	PCT	AMOUNT PCT	AMOUNT PCT	1
THREE-YEA	AR MOVING AVERAGES					
11-13	46,656	26,918	58	0	26,918- 58	_
12-14	69,579		0	0	0	
FIVE-YEAR	R AVERAGE					
10-14	55,916	39,791	71	0	39,791- 71	-



### ACCOUNT 390.10 - STRUCTURES - MASONRY

#### SUMMARY OF BOOK SALVAGE

		COST OF		GROSS	5 	NET	
YEAR	RETIREMENTS	AMOUNT	PCT	AMOUNT	PCT	AMOUNT	PCT
2002	132,286	127-	- 0		0	127	0
2003	572,749	б	0		0	6-	0
2004	20,325	204	1		0	204-	1-
2005	18,600	4	0		0	4-	0
2006	11,835	489	4		0	489-	4-
2007		2,547				2,547-	
2008		723				723-	
2009		525				525-	
2010							
2011							
2012							
2013							
2014							
TOTAL	755,795	4,371	1		0	4,371-	1-
THREE-YE	CAR MOVING AVERAGES						
02-04	241,787	27	0		0	27-	0
03-05	203,891	71	0		0	71-	0
04-06	16,920	232	1		0	232-	1-
05-07	10,145	1,013	10		0	1,013-	10-
06-08	3,945	1,253	32		0	1,253-	32-
07-09		1,265				1,265-	
08-10		416				416-	
09-11		175				175-	
10-12							
11-13							

12-14

FIVE-YEAR AVERAGE 10-14

## ACCOUNT 392.00 - TRANSPORTATION EQUIPMENT

	REGULAR	COST OF REMOVAL		GROSS SALVAG	E	NET SALVAGE	
YEAR	RETIREMENTS	AMOUNT	PCT	AMOUNT	PCT	AMOUNT	PCT
1995	79,994	1,883	2		0	1,883-	2-
1996	110,671	2,531	2		0	2,531-	2-
1997	106,652	2,201	2		0	2,201-	2-
1998	135,667	26,938	20		0	26,938-	20-
1999	42,272	1,221	3		0	1,221-	3-
2000	136,464-	3,575	3-		0	3,575-	3
2001	16,516	749	5		0	749-	5-
2002	204,972	2,158	1		0	2,158-	1-
2003	946,226		0		0		0
2004		30				30-	
2005							
2006	404,006	600-	0		0	600	0
2007	649,230	427-	0		0	427	0
2008	1,485,654-	3,506-	0		0	3,506	0
2009	1,352,845		0		0		0
2010	6,099		0		0		0
2011	37,116		0		0		0
2012							
2013							
2014	187,838		0		0		0
TOTAL	2,657,986	36,753	1		0	36,753-	1-
THREE-YI	EAR MOVING AVERAG	ES					
95-97	99,106	2,205	2		0	2,205-	2-
96-98	117,663	10,557	9		0	10,557-	9-
97-99	94,864	10,120	11		0	10,120-	11-
98-00	13,825	10,578	77		0	10,578-	77-
99-01	25,892-	1,848	7-		0	1,848-	7
00-02	28,342	2,161	8		0	2,161-	8-
01-03	389,238	969	0		0	969-	0
02-04	383,733	729	0		0	729-	0
03-05	315,409	10	0		0	10-	0
04-06	134,669	190-	0		0	190	0
05-07	351,079	342-	0		0	342	0
06-08	144,139-	1,511-	1		0	1,511	1-
07-09	172,140	1,311-	1-		0	1,311	1
08-10	42,237-	1,169-	3		0	1,169	3-
09-11	465,353		0		0		0
10-12	14,405		0		0		0



### ACCOUNT 392.00 - TRANSPORTATION EQUIPMENT

	REGULAR	COST OF REMOVAL		GROSS SALVAGE	C	NET SALVAGE	
YEAR	RETIREMENTS	AMOUNT	PCT	AMOUNT	PCT	AMOUNT	PCT
THREE-YE.	AR MOVING AVERAGES						
11-13	12,372		0		0		0
12-14	62,613		0		0		0
FIVE-YEA	R AVERAGE						
10-14	46,211		0		0		0



### ACCOUNT 392.10 - LIGHT DUTY VEHICLES

		COST O	F	GROSS	_	NET	_
	REGULAR	REMOVA	.L	SALVAG	E	SALVAGI	5
YEAR	RETIREMENTS	AMOUNT	PCT	AMOUNT	PCT	AMOUNT	PCT
2010	249,544		0		0		0
2011	41,862		0		0		0
2012	409,701		0		0		0
2013	443,467		0		0		0
2014	1,219,183		0		0		0
TOTAL	2,363,757		0		0		0
THREE-YE	AR MOVING AVERAG	ES					
10-12	233,702		0		0		0
11-13	298,343		0		0		0
12-14	690,784		0		0		0
F.TAR-AFY	R AVERAGE						
10-14	472,751		0		0		0

### ACCOUNT 392.20 - HEAVY DUTY VEHICLES

YEAR	REGULAR RETIREMENTS	COST OF REMOVAL AMOUNT	PCT	GROSS SALVAGE AMOUNT	PCT	NET SALVAGE AMOUNT	PCT
2010	172 210	9 695	С	102 761	າາ	93 076	20
2010	473,310 195 100	2,005	2	102,701	22	2 015	20
2011	105,109	5,392	2	0,207	2	2,815	2
2012	3/1,136	5,682	2	86,4//	23	80,795	22
2013	15,652	3,613	23	67,004	428	63,392	405
2014	862,544	13,658	2	329,182	38	315,523	37
TOTAL	1,907,751	36,031	2	591,631	31	555,600	29
THREE-YE	AR MOVING AVERAG	ES					
10-12	343,185	6,253	2	65,148	19	58,895	17
11-13	190,632	4,229	2	53,230	28	49,000	26
12-14	416,444	7,651	2	160,888	39	153,236	37
FIVE-YEA	R AVERAGE						
10-14	381,550	7,206	2	118,326	31	111,120	29

## ACCOUNT 397.00 - COMMUNICATION EQUIPMENT

		COST OF		GROSS	_	NET	
	REGULAR	REMOVAL		SALVAG	E	SALVAGE	
YEAR	RETIREMENTS	AMOUNT	PCT	AMOUNT	PCT	AMOUNT	PCT
1995	60,914-		0		0		0
1996	99,252		0		0		0
1997	58,157-		0		0		0
1998	1,052,266		0		0		0
1999	765,028-	73	0		0	73-	0
2000	673,866-	14	0		0	14-	0
2001							
2002							
2003							
2004							
2005							
2006	129,725	53	0		0	53-	0
2007		74				74-	
2008		461				461-	
2009	54,750	16,118	29		0	16,118-	29-
2010		29,139				29,139-	
2011		16,171				16,171-	
2012							
2013		3,924				3,924-	
2014		30,856				30,856-	
TOTAL	221,970-	96,883	44-		0	96,883-	44
THREE-YI	EAR MOVING AVERAG	ES					
95-97	6,606-		0		0		0
96-98	364,454		0		0		0
97-99	76,360	24	0		0	24-	0
98-00	128,876-	29	0		0	29-	0
99-01	479,631-	29	0		0	29-	0
00-02	224,622-	5	0		0	5-	0
01-03							
02-04							
03-05							
04-06	43,242	17	0		0	17-	0
05-07	43,242	42	0		0	42-	0
06-08	43,242	196	0		0	196-	0
07-09	18,250	5,551	30		0	5,551-	30-
08-10	18,250	15,239	84		0	15,239-	84-
09-11	18,250	20,476	112		0	20,476-	112-
10-12		15,104				15,104-	



## ACCOUNT 397.00 - COMMUNICATION EQUIPMENT

	REGULAR	COST OF REMOVAL	DOM	GROSS SALVAGE	DOM	NET SALVAGE	DOM
ILAR	REIIREMENIS	AMOUNT	PCT	AMOUNT	PCT	AMOUNT	PCT
THREE-YE	AR MOVING AVERAGES	5					
11-13		6,698				6,698-	
12-14		11,593				11,593-	
FIVE-YEA	R AVERAGE						

10-14	16,018	16,018-



## DEPRECIATION CALCULATIONS



### ACCOUNT 330.10 - LAND RIGHTS

YEAR (1)	ORIGINAL C COST (2)	ALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVI	VOR CURVE IOWA 7	5-R4				
NET S	ALVAGE PERCENT 0					
1980	83,965.00	37,885	161,189-	245,154	41.16	5,956
1983	14,974.00	6,193	26,349-	41,323	43.98	940
2005	20,957.55	2,649	11,271-	32,229	65.52	492
2007	726,878.34	72,593	308,860-	1,035,738	67.51	15,342
2008	114,583.26	9,915	42,185-	156,768	68.51	2,288
	961,358.15	129,235	549,854-	1,511,212		25,018
	COMPOSITE REMAININ	G LIFE AND	ANNUAL ACCRUAL	RATE, PERCENT	60.4	2.60

#### ACCOUNT 331.00 - STRUCTURES AND IMPROVEMENTS

	ORIGINAL	CALCULATED	ALLOC. BOOK	FUTURE BOOK	REM.	ANNUAL
YEAR	COST	ACCRUED	RESERVE	ACCRUALS	LIFE	ACCRUAL
(1)	(2)	(3)	(4)	(5)	(6)	(7)
SURVI	VOR CURVE IOWA	68-S2.5				
NET S	SALVAGE PERCENT	-5				
1982	164,532.98	79,317	127,553	45,207	36.78	1,229
1984	3,658.00	1,666	2,679	1,162	38.50	30
1985	28,887.75	12,766	20,529	9,803	39.38	249
1986	56,563.00	24,219	38,948	20,443	40.27	508
1987	15,641.14	6,480	10,421	6,002	41.17	146
1988	20,857.00	8,351	13,430	8,470	42.07	201
1989	29,039.00	11,214	18,034	12,457	42.99	290
1990	106,678.46	39,666	63,788	48,224	43.92	1,098
1991	811,084.00	289,932	466,251	385,387	44.85	8,593
1992	267,598.00	91,731	147,516	133,462	45.80	2,914
1993	1,160,244.00	380,705	612,226	606,030	46.75	12,963
1994	1,403,771.00	440,021	707,615	766,345	47.70	16,066
1995	2,185,168.00	652,214	1,048,850	1,245,576	48.67	25,592
1996	156,174.00	44,300	71,241	92,742	49.63	1,869
1997	94,696.00	25,428	40,892	58,539	50.61	1,157
1998	455,428.07	115,471	185,693	292,506	51.58	5,671
1999	70,304.00	16,761	26,954	46,865	52.56	892
2000	464,971.00	103,747	166,839	321,381	53.55	6,002
2001	1,021,391.00	212,283	341,380	731,081	54.54	13,404
2002	377,623.44	72,711	116,929	279,576	55.53	5,035
2003	576,192.10	102,136	164,249	440,753	56.52	7,798
2004	209,949.46	34,006	54,686	165,761	57.51	2,882
2005	401,350.75	58,813	94,580	326,838	58.51	5,586
2006	217,430.19	28,538	45,893	182,409	59.50	3,066
2007	621,007.69	71,915	115,649	536,409	60.50	8,866
2008	771,956.58	77,481	124,600	685,954	61.50	11.154
2009	295,448.33	25,091	40,350	269,871	62.50	4,318
2010	595,952,42	41,412	66,597	559,153	63.50	8,806
2011	184,169.62	9,953	16,006	177,372	64.50	2.750
2012	1,025,557.38	39,584	63,656	1.013.179	65.50	15,468
2013	176.153.41	4.080	6,561	178,400	66.50	2.683
2014	901,620.00	6,958	11,190	935,511	67.50	13,859
	14,871,097.77	3,128,950	5,031,785	10,582,868		191,145
	COMPOSITE REMAIN	ING LIFE AND	ANNUAL ACCRUAI	L RATE, PERCEN	г 55.4	1.29

### ACCOUNT 332.00 - RESERVOIRS, DAMS AND WATERWAYS

	ORIGINAL	CALCULATED	ALLOC. BOOK	FUTURE BOOK	REM.	ANNUAL
YEAR	COST	ACCRUED	RESERVE	ACCRUALS	LIFE	ACCRUAL
(1)	(2)	(3)	(4)	(5)	(6)	(7)
SURVI	VOR CURVE IOWA	70-S2.5				
NET S	SALVAGE PERCENT	-15				
1982	9,450,975.78	4,862,948	3,593,256	7,275,366	38.68	188,091
1987	87,783.00	38,779	28,654	72,296	43.11	1,677
1989	65,068.00	26,778	19,786	55,042	44.95	1,225
1991	15,350.00	5,845	4,319	13,334	46.82	285
1993	753,420.88	263,275	194,535	671,899	48.73	13,788
1994	507,161.00	169,220	125,038	458,197	49.69	9,221
1996	18,978.00	5,731	4,235	17,590	51.62	341
1997	31,458.00	8,992	6,644	29,533	52.60	561
1998	697,578.41	188,176	139,044	663,171	53.58	12,377
2000	381,328.00	90,587	66,935	371,592	55.54	6,691
2001	4,626.00	1,024	757	4,563	56.53	81
2003	847,766.00	159,889	118,143	856,788	58.52	14,641
2004	1,104,371.66	190,326	140,633	1,129,394	59.51	18,978
2005	243,422.90	37,951	28,042	251,894	60.51	4,163
2006	2,897,371.90	404,602	298,962	3,033,016	61.50	49,317
2007	2,188,732.51	269,676	199,265	2,317,777	62.50	37,084
2008	3,486,392.04	372,308	275,100	3,734,251	63.50	58,807
2009	1,548,559.95	139,921	103,389	1,677,455	64.50	26,007
2010	2,209,837.24	163,381	120,723	2,420,590	65.50	36,956
2011	705,347.99	40,558	29,969	781,181	66.50	11,747
2012	2,080,696.83	85,447	63,137	2,329,664	67.50	34,514
2013	232,034.36	5,718	4,225	262,615	68.50	3,834
2014	2,164,343.07	17,771	13,131	2,475,864	69.50	35,624
	31,722,603.52	7,548,903	5,577,922	30,903,072		566,010
	COMPOSITE REMAIN	ING LIFE AND	ANNUAL ACCRUA	L RATE, PERCEN'	г 54.6	1.78

ACCOUNT 333.00 - WATER WHEELS, TURBINES AND GENERATORS

	ORIGINAL	CALCULATED	ALLOC. BOOK	FUTURE BOOK	REM.	ANNUAL
YEAR	COST	ACCRUED	RESERVE	ACCRUALS	LIFE	ACCRUAL
(1)	(2)	(3)	(4)	(5)	(6)	(7)
SURVIN	VOR CURVE IOWA	70-R2.5				
NET SA	ALVAGE PERCENT	-20				
1960	10,021.32	7,684	5,798	6,228	25.27	246
1963	661,927.48	485,436	366,270	428,043	27.22	15,725
1964	834,199.00	602,335	454,473	546,566	27.88	19,604
1965	266.36	189	143	177	28.56	б
1969	296.00	196	148	207	31.35	7
1971	320.00	204	154	230	32.79	7
1977	5,452.00	3,057	2,307	4,235	37.29	114
1982	6,298,880.75	3,106,608	2,343,992	5,214,665	41.23	126,477
1984	76,397.00	35,558	26,829	64,847	42.85	1,513
1985	24,262.00	10,951	8,263	20,851	43.67	477
1986	141,673.00	61,956	46,747	123,261	44.49	2,771
1987	23,239.00	9,832	7,418	20,469	45.32	452
1988	20,333.00	8,310	6,270	18,130	46.16	393
1989	124,840.00	49,222	37,139	112,669	47.00	2,397
1990	70,198.00	26,655	20,112	64,126	47.85	1,340
1991	264,678.00	96,647	72,922	244,692	48.70	5,024
1992	76,763.00	26,898	20,295	71,821	49.56	1,449
1993	74,999.00	25,174	18,994	71,005	50.42	1,408
1994	202,347.00	64,902	48,970	193,846	51.29	3,779
1995	263,503.00	80,588	60,805	255,399	52.16	4,896
1996	609,784.00	177,293	133,771	597,970	53.04	11,274
1997	242,471.00	66,797	50,400	240,565	53.93	4,461
1998	563,945.00	146,851	110,802	565,932	54.81	10,325
1999	175,583.00	43,044	32,477	178,223	55.70	3,200
2000	8,983,992.00	2,063,767	1,557,150	9,223,640	56.60	162,962
2001	1,677,510.00	359,464	271,222	1,741,790	57.50	30,292
2002	167,941.99	33,367	25,176	176,354	58.41	3,019
2003	111,541.33	20,440	15,422	118,428	59.31	1,997
2004	13,810,092.50	2,312,970	1,745,178	14,826,933	60.23	246,172
2005	226,645.86	34,424	25,974	246,001	61.14	4,024
2006	10,137,657.60	1,379,897	1,041,157	11,124,032	62.06	179,246
2007	6,923,415.74	833,219	628,679	7,679,420	62.98	121,934
2008	55,618.46	5,807	4,381	62,361	63.91	976
2009	8,256,043.52	730,264	550,997	9,356,255	64.84	144,298
2010	12,327,471.75	893,939	674,493	14,118,473	65.77	214,664
2011	20,664,520.99	1,165,479	879,375	23,918,050	66.71	358,538

ACCOUNT 333.00 - WATER WHEELS, TURBINES AND GENERATORS

YEAR	ORIGINAL COST	CALCULATED ACCRUED	ALLOC. BOOK RESERVE	FUTURE BOOK ACCRUALS	REM. LIFE	ANNUAL ACCRUAL
( 1 )	(2)	(3)	( 1)		(0)	( / )
SURVI	VOR CURVE IOWA	70-R2.5				
NET S	ALVAGE PERCENT	-20				
2012	1,386,828.00	56,100	42,329	1,621,865	67.64	23,978
2013	226,553.72	5,516	4,162	267,702	68.58	3,903
2014	1,117,010.02	8,994	6,786	1,333,626	69.53	19,181
	96,839,221.39	15,040,034	11,347,980	104,859,086		1,732,529
	COMPOSITE REMAIN	ING LIFE AND	ANNUAL ACCRUAL	RATE, PERCENT	60.5	1.79



### ACCOUNT 334.00 - ACCESSORY ELECTRICAL EQUIPMENT

	ORIGINAL	CALCULATED	ALLOC. BOOK	FUTURE BOOK	REM.	ANNUAL
YEAR	COST	ACCRUED	RESERVE	ACCRUALS	LIFE	ACCRUAL
(1)	(2)	(3)	(4)	(5)	(6)	(7)
SURVIV	OR CURVE IOWA	50-R1.5				
NET SA	LVAGE PERCENT	-20				
1960	2,432,027.73	2,097,186	2,459,628	458,805	14.07	32,609
1963	36,009.00	29,919	35,090	8,121	15.38	528
1964	4,376.00	3,588	4,208	1,043	15.84	66
1966	934.00	744	873	248	16.79	15
1968	3,150.00	2,436	2,857	923	17.78	52
1969	4,532.00	3,449	4,045	1,393	18.29	76
1971	166,041.00	122,140	143,249	56,000	19.35	2,894
1973	3,044.00	2,160	2,533	1,120	20.44	55
1974	6,163.00	4,289	5,030	2,366	21.00	113
1975	242.00	165	194	96	21.58	4
1976	10,090.00	6,742	7,907	4,201	22.16	190
1977	4,199.00	2,746	3,221	1,818	22.75	80
1978	12,510.00	8,001	9,384	5,628	23.35	241
1979	2,324.00	1,452	1,703	1,086	23.96	45
1984	41,292.00	22,654	26,569	22,981	27.14	847
1986	96,990.47	50,117	58,778	57,611	28.47	2,024
1988	3,190.00	1,544	1,811	2,017	29.83	68
1989	54,978.00	25,703	30,145	35,829	30.52	1,174
1990	34,251.00	15,438	18,106	22,995	31.22	737
1991	134,455.00	58,343	68,426	92,920	31.92	2,911
1992	47,926.00	19,979	23,432	34,079	32.63	1,044
1993	75,949.00	30,349	35,594	55,545	33.35	1,666
1994	233.00	89	104	176	34.07	5
1996	200,512.00	69,634	81,668	158,946	35.53	4,474
1997	30,813.00	10,153	11,908	25,068	36.27	691
1998	345,695.00	107,691	126,302	288,532	37.02	7,794
1999	36,767.00	10,792	12,657	31,463	37.77	833
2000	1,276,738.17	351,767	412,560	1,119,526	38.52	29,063
2001	3,961,946.16	1,019,330	1,195,494	3,558,841	39.28	90,602
2002	467,778.08	111,705	131,010	430,324	40.05	10,745
2003	196,323.46	43,254	50,729	184,859	40.82	4,529
2004	5,259,126.66	1,061,502	1,244,954	5,065,998	41.59	121,808
2005	104,954.72	19,219	22,540	103,406	42.37	2,441
2006	2,100,809.02	345,373	405,061	2,115,910	43.15	49,036
2007	2,772,544.74	403,239	472,928	2,854,126	43.94	64,955
2008	527,543.72	66,724	78,255	554,797	44.73	12,403
2009	4,883,068.59	523,856	614,391	5,245,291	45.53	115,205
2010	5,819,300.59	512,564	601,147	6,382,014	46.33	137,751
2011	6,648,755.68	456,371	535,242	7,443,265	47.14	157,897

## ACCOUNT 334.00 - ACCESSORY ELECTRICAL EQUIPMENT

YEAR	ORIGINAL COST	CALCULATED ACCRUED	ALLOC. BOOK RESERVE	FUTURE BOOK ACCRUALS	REM. LIFE	ANNUAL ACCRUAL
(1)	(2)	(3)	(4)	(5)	(6)	(7)
SURVI NET S	VOR CURVE IOWA ALVAGE PERCENT	50-R1.5 -20				
2012	3,473,708.77	170,906	200,443	3,968,008	47.95	82,753
2013	541,805.27	15,994	18,758	631,408	48.77	12,947
2014	889,608.10	8,754	10,267	1,057,263	49.59	21,320
	42,712,704.93	7,818,061	9,169,201	42,086,045		974,691
	COMPOSITE REMAIN	ING LIFE AND	ANNUAL ACCRUAL	RATE, PERCENT	43.2	2.28

### ACCOUNT 335.00 - OTHER POWER PLANT EQUIPMENT

	ORIGINAL	CALCULATED	ALLOC. BOOK	FUTURE BOOK	REM.	ANNUAL
YEAR	COST	ACCRUED	RESERVE	ACCRUALS	LIFE	ACCRUAL
(1)	(2)	(3)	(4)	(5)	(6)	(7)
SURVIN	/OR CURVE IOWA	51-R4				
NET SA	ALVAGE PERCENT	-10				
1960	296,699.41	287,910	326,369			
1966	3,794.00	3,459	3,971	202	8.73	23
1974	920.00	737	846	166	13.87	12
1975	1,560.00	1,225	1,406	310	14.59	21
1976	13,034.00	10,031	11,517	2,820	15.32	184
1977	21,030.00	15,848	18,195	4,938	16.06	307
1978	20,835.00	15,360	17,635	5,284	16.82	314
1979	5.00	4	5			
1982	325,311.97	217,443	249,649	108,194	20.01	5,407
1984	61,166.00	38,668	44,395	22,888	21.69	1,055
1985	83,345.00	51,142	58,717	32,962	22.55	1,462
1986	313,637.48	186,504	214,128	130,873	23.43	5,586
1987	189,964.27	109,355	125,552	83,409	24.31	3,431
1988	160,759.00	89,424	102,669	74,166	25.21	2,942
1989	158,020.00	84,832	97,397	76,425	26.11	2,927
1990	402,925.00	208,312	239,166	204,052	27.03	7,549
1991	179,533.00	89,256	102,476	95,010	27.95	3,399
1992	75,471.00	35,991	41,322	41,696	28.89	1,443
1993	210,112.20	95,939	110,149	120,974	29.83	4,055
1994	234,783.00	102,393	117,559	140,702	30.78	4,571
1995	260,393.00	108,171	124,193	162,239	31.74	5,111
1996	496,063.00	195,797	224,797	320,872	32.70	9,813
1997	582,990.00	218,038	250,332	390,957	33.66	11,615
1998	328,140.00	115,787	132,937	228,017	34.64	6,582
1999	553,189.00	183,623	210,820	397,688	35.61	11,168
2000	595,694.00	185,145	212,568	442,695	36.59	12,099
2001	710,087.00	205,686	236,151	544,945	37.57	14,505
2002	495,110.01	132,844	152,520	392,101	38.56	10,169
2003	18,238,607.57	4,504,225	5,171,364	14,891,104	39.55	376,513
2004	10,403,339.19	2,347,097	2,694,735	8,748,938	40.54	215,810
2005	922,110.20	188,349	216,246	798,075	41.53	19,217
2006	777,610.65	142,223	163,288	692,084	42.52	16,277
2007	684,155.32	110,380	126,729	625,842	43.52	14,381
2008	373,290.15	52,251	59,990	350,629	44.51	7,878
2009	2,308,438.00	273,354	313,842	2,225,440	45.51	48,900
2010	755,928.57	73,207	84,050	747,471	46.51	16,071
2011	259,214.50	19,569	22,467	262,669	47.50	5,530



### ACCOUNT 335.00 - OTHER POWER PLANT EQUIPMENT

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVI NET S	VOR CURVE IOWA ALVAGE PERCENT	51-R4 -10				
2012 2013 2014	1,503,860.41 126,103.57 1,230,984.12	81,091 4,080 13,270	93,102 4,684 15,236	1,561,144 134,030 1,338,847	48.50 49.50 50.50	32,189 2,708 26,512
	44,358,213.59	10,798,020	12,393,174	36,400,861		907,736
	COMPOSITE REMAIN	ING LIFE AND	ANNUAL ACCRUAL	RATE, PERCENT	40.1	2.05



ACCOUNT 336.00 - ROADS, RAILROADS AND BRIDGES

## CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL RELATED TO ORIGINAL COST OF INVESTMENT AS OF DECEMBER 31, 2014

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR NET SALV	CURVE IOWA AGE PERCENT	75-S4 0				
1982	589,100.00	255,198	204,088	385,012	42.51	9,057
1984	24,405.00	9,925	7,937	16,468	44.50	370
1988	12,362.00	4,368	3,493	8,869	48.50	183
1989	33,467.00	11,379	9,100	24,367	49.50	492
1990	124,442.00	40,651	32,510	91,932	50.50	1,820
1991	10,933.00	3,426	2,740	8,193	51.50	159
1992	100,650.00	30,195	24,148	76,502	52.50	1,457
1999	103,274.00	21,344	17,069	86,205	59.50	1,449
2001	44,436.00	7,998	6,396	38,040	61.50	619
2003	2,238.48	343	274	1,964	63.50	31
2004	918.03	129	103	815	64.50	13
2006	6,819.52	773	618	6,202	66.50	93
2008	234,389.25	20,315	16,247	218,142	68.50	3,185
2	1,287,434.28	406,044	324,723	962,711		18,928

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 50.9 1.47

#### ACCOUNT 350.20 - SURFACE AND MINERAL

	ORIGINAL	CALCULATED	ALLOC. BOOK	FUTURE BOOK	REM.	ANNUAL
I LAR	COST	ACCRUED	RESERVE	ACCRUALS		ACCRUAL
( 1 )	(2)	(3)	(4)	(5)	(6)	( / )
SURVIVC	R CURVE IOWA	75-R4				
NET SAL	VAGE PERCENT	0				
1957	71,278.06	50,484	64,341	6,937	21.88	317
1958	34,551.79	24,135	30,759	3,793	22.61	168
1959	2,763.34	1,903	2,425	338	23.36	14
1960	582.44	395	503	79	24.11	3
1961	2,850.33	1,905	2,428	422	24.88	17
1962	20,156.50	13,263	16,903	3,254	25.65	127
1963	31,260.31	20,240	25,795	5,465	26.44	207
1964	16,993.61	10,824	13,795	3,199	27.23	117
1965	19,273.35	12,068	15,380	3,893	28.04	139
1966	3,950.77	2,431	3,098	853	28.85	30
1967	2,359.50	1,426	1,817	542	29.68	18
1968	595.99	354	451	145	30.51	5
1969	1,196.56	696	887	310	31.35	10
1970	869.76	496	632	238	32.21	7
1971	1,642.63	918	1,170	473	33.07	14
1972	479.26	262	334	145	33.94	4
1973	832.69	446	568	265	34.81	8
1974	4.497.72	2.357	3.004	1.494	35.70	42
1975	8,196,07	4.197	5,349	2.847	36.59	78
1976	85,868,53	42,945	54.732	31,137	37.49	831
1977	10,063.09	4,911	6,259	3,804	38.40	99
1978	10.831.78	5,153	6,567	4,265	39.32	108
1979	26,493,79	12.279	15,649	10.845	40.24	270
1980	51,385,22	23,185	29,549	21,836	41.16	531
1981	19,722.84	8,652	11,027	8,696	42.10	207
1982	41.635.32	17.742	22.612	19.023	43.04	442
1983	50.103.21	20.723	26,411	23,692	43.98	539
1984	137,982,87	55,321	70.505	67.478	44.93	1.502
1985	104.391.94	40.532	51,657	52.735	45.88	1,149
1986	130,939,68	49,164	62,658	68,282	46.84	1,458
1987	80,226,62	29,096	37,082	43,145	47 80	903
1988	96,448,17	33,731	42,989	53,459	48 77	1.096
1989	49,216,47	16,583	21,135	28,081	49 73	565
1990	58,928,31	19.085	24,323	34.605	50.71	682
1991	65 498 62	20 365	25 955	39 544	51 68	765
1992	50 101 05	14 924	19 020	31 081	52.66	590
1993	61 506 44	17 517	22 325	39 181	53 64	730
1994	309,831 48	84,191	107,300	202.531	54.62	3,708
1995	50,912,71	12 170	16 785	34 129	55 60	614
1996	316 525 12	77 K97	99 022	217 502	56 59	2 842
1997	74 245 06	17 045	21 978	50 267	57 58	0,010 002
1998	212 920 29	46 647	59 451	152,207	58 57	2 620
エンン0		10,01/	JJ, IJI	±JJ,±/J	50.57	2,020



#### ACCOUNT 350.20 - SURFACE AND MINERAL

	ORIGINAL	CALCULATED	ALLOC. BOOK	FUTURE BOOK	REM.	ANNUAL
YEAR	COST	ACCRUED	RESERVE	ACCRUALS	LIFE	ACCRUAL
(1)	(2)	(3)	(4)	(5)	(6)	(7)
SURVI	VOR CURVE IOWA	75-R4				
NET S	SALVAGE PERCENT	0				
1999	78,129.38	16,084	20,499	57,630	59.56	968
2000	225,136.61	43,377	55,283	169,854	60.55	2,805
2001	120,078.37	21,550	27,465	92,613	61.54	1,505
2003	289,525.31	44,277	56,430	233,095	63.53	3,669
2004	169,460.57	23,679	30,178	139,283	64.52	2,159
2005	1,089,610.87	137,727	175,531	914,080	65.52	13,951
2006	71,615.33	8,098	10,321	61,294	66.52	921
2007	1,483,559.61	148,163	188,831	1,294,729	67.51	19,178
2008	1,114,560.16	96,443	122,915	991,645	68.51	14,474
2009	450,433.59	32,972	42,022	408,412	69.51	5,876
2010	437,550.01	26,196	33,386	404,164	70.51	5,732
2011	86,283.89	4,027	5,132	81,152	71.50	1,135
2012	44,631.51	1,488	1,897	42,735	72.50	589
2013	12,577.56	252	321	12,257	73.50	167
2014	53,530.73	357	455	53,076	74.50	712
	8,046,803.80	1,424,348	1,815,297	6,231,507		99,326
	COMPOSITE REMAIN	ING LIFE AND	ANNUAL ACCRUA	L RATE, PERCEN	т 62.7	1.23

### ACCOUNT 353.00 - SUBSTATION EQUIPMENT

	ORIGINAL	CALCULATED	ALLOC. BOOK	FUTURE BOOK	REM.	ANNUAL
ILAR	COSI	ACCRUED	RESERVE			ACCRUAL
(⊥)	(2)	(3)	(4)	(5)	(6)	( / )
SURVIN	/OR CURVE IOWA	50-R4				
NET SA	ALVAGE PERCENT	-25				
1960	56,830.00	63,209	67,231	3,806	5.51	691
1961	142.00	157	167	10	5.87	2
1964	12.00	13	14	1	7.09	
1965	6,772.00	7,187	7,644	821	7.55	109
1966	391,315.07	410,392	436,506	52,638	8.05	6,539
1967	25,270.00	26,167	27,832	3,756	8.58	438
1968	47.00	48	51	8	9.14	1
1969	458,346.17	461,325	490,680	82,253	9.74	8,445
1970	9,963.00	9,873	10,501	1,953	10.36	189
1971	16,270.00	15,863	16,872	3,466	11.00	315
1972	383,550.00	367,537	390,924	88,514	11.67	7,585
1973	6,389.53	6,014	6,397	1,590	12.35	129
1974	2,803.00	2,590	2,755	749	13.04	57
1975	85,421.00	77,434	82,361	24,415	13.74	1,777
1976	12,139.00	10,786	11,472	3,702	14.46	256
1977	1,486,527.00	1,293,278	1,375,571	482,588	15.20	31,749
1978	1,413,697.27	1,203,410	1,279,984	487,138	15.95	30,542
1979	1,579,780.00	1,314,772	1,398,433	576,292	16.71	34,488
1980	168,265.00	136,757	145,459	64,872	17.49	3,709
1981	15,936.00	12,633	13,437	6,483	18.29	354
1982	2,719,436.00	2,100,764	2,234,438	1,164,857	19.10	60,987
1983	82,076.00	61,721	65,648	36,947	19.92	1,855
1984	817,024.00	597,245	635,248	386,032	20.76	18,595
1985	3,896,531.85	2,765,563	2,941,539	1,929,126	21.61	89,270
1986	500,402.95	344,277	366,184	259,320	22.48	11,536
1987	2,576,226.99	1,715,767	1,824,943	1,395,341	23.36	59,732
1988	46,051.00	29,645	31,531	26,033	24.25	1,074
1989	234,355.00	145,593	154,857	138,087	25.15	5,491
1990	222,574.00	133,211	141,687	136,530	26.06	5,239
1991	796,892.00	458,611	487,793	508,322	26.98	18,841
1992	569,210.00	314,346	334,348	377,164	27.91	13,514
1993	1,694,981.00	896,221	953,249	1,165,477	28.85	40,398
1994	687,569.00	347,394	369,499	489,962	29.79	16,447
1995	1,416,953.00	681,909	725,300	1,045,891	30.75	34,013
1996	3,706,520.00	1,694,806	1,802,649	2,830,501	31.71	89,262
1997	457,406.00	198,171	210,781	360,976	32.67	11,049
1998	809,687.00	331,162	352,234	659,875	33.64	19,616
1999	350,200.00	134,652	143,220	294,530	34.62	8,508
2000	612,408.00	220,467	234,496	531,014	35.60	14,916
2001	1,480,363.00	496,662	528,265	1,322,189	36.58	36,145
2002	43,751.97	13,607	14,473	40,217	37.56	1,071
2003	32,849,968.37	9,403,303	10,001,647	31,060,813	38.55	805,728



### ACCOUNT 353.00 - SUBSTATION EQUIPMENT

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVI NET S	VOR CURVE IOWA ALVAGE PERCENT	50-R4 -25				
2004	9,732,940.93	2,545,164	2,707,116	9,459,060	39.54	239,228
2005	50,098,878.52	11,860,909	12,615,633	50,007,965	40.53	1,233,851
2006	19,011,886.45	4,030,520	4,286,987	19,477,871	41.52	469,120
2007	9,572,790.31	1,790,112	1,904,019	10,061,969	42.52	236,641
2008	2,220,920.31	360,344	383,273	2,392,877	43.51	54,996
2009	2,849,461.85	391,089	415,974	3,145,853	44.51	70,677
2010	10,145,633.44	1,138,847	1,211,313	11,470,729	45.51	252,049
2011	41,333,490.62	3,616,680	3,846,814	47,820,049	46.50	1,028,388
2012	6,303,160.17	393,948	419,016	7,459,934	47.50	157,051
2013	1,666,020.09	62,476	66,451	2,016,074	48.50	41,569
2014	9,825,290.09	122,816	130,631	12,150,982	49.50	245,474
	225,450,534.95	54,817,447	58,305,547	223,507,622		5,519,706
	COMPOSITE REMAIN	ING LIFE AND	ANNUAL ACCRUAL	RATE, PERCENT	40.5	2.45

## ACCOUNT 355.00 - POLES, TOWERS AND FIXTURES

VEND	ORIGINAL	CALCULATED	ALLOC. BOOK	FUTURE BOOK	REM.	ANNUAL
		ACCRUED	KESERVE			ACCRUAL
( 1 )	(2)	(3)	(4)	(5)	(6)	( / )
SURVIV	OR CURVE IOWA	50-R1.5				
NET SA	LVAGE PERCENT	-25				
1957	405,274.21	376,500	361,565	145,028	12.84	11,295
1958	202,308.91	185,922	178,547	74,339	13.24	5,615
1959	98,041.50	89,095	85,561	36,991	13.65	2,710
1960	11,147.41	10,013	9,616	4,318	14.07	307
1961	4,704.40	4,176	4,010	1,870	14.49	129
1962	216,684.52	189,978	182,442	88,414	14.93	5,922
1963	322,157.80	278,828	267,767	134,930	15.38	8,773
1964	171,492.24	146,454	140,644	73,721	15.84	4,654
1965	53,410.48	44,985	43,200	23,563	16.31	1,445
1966	34,862.30	28,944	27,796	15,782	16.79	940
1967	21,935.03	17,943	17,231	10,188	17.28	590
1968	3,689.05	2,972	2,854	1,757	17.78	99
1969	5,820.97	4,615	4,432	2,844	18.29	155
1970	3,031.16	2,364	2,270	1,519	18.81	81
1971	3,752.55	2,875	2,761	1,930	19.35	100
1972	3,819.70	2,875	2,761	2,014	19.89	101
1973	6,245.18	4,615	4,432	3,374	20.44	165
1974	31,396.03	22,762	21,859	17,386	21.00	828
1975	93,790.68	66,638	63,995	53,243	21.58	2,467
1976	1,001,005.66	696,700	669,062	582,195	22.16	26,272
1977	70,189.20	47,816	45,919	41,818	22.75	1,838
1978	119,267.74	79,462	76,310	72,775	23.35	3,117
1979	99,138.90	64,539	61,979	61,945	23.96	2,585
1980	597,293.80	379,580	364,522	382,095	24.58	15,545
1981	175,319.22	108,654	104,344	114,805	25.21	4,554
1982	423,491.13	255,789	245,642	283,722	25.84	10,980
1983	587,422.98	345,258	331,562	402,717	26.49	15,203
1984	1,462,583.93	835,867	802,709	1,025,521	27.14	37,786
1985	1,027,142.16	570,064	547,450	736,478	27.80	26,492
1986	1,434,195.42	771,956	741,333	1,051,411	28.47	36,930
1987	531,355.32	277,102	266,110	398,084	29.14	13,661
1988	784,872.42	395,772	380,072	601,019	29.83	20,148
1989	330,215.38	160,815	154,436	258,333	30.52	8,464
1990	525,581.21	246,760	236,971	420,006	31.22	13,453
1991	478,989.45	216,503	207,914	390,823	31.92	12,244
1992	402,943.80	174,978	168,037	335,643	32.63	10,286
1993	464,748.92	193,452	185,778	395,158	33.35	11,849
1994	3,563,311.72	1,419,089	1,362,795	3,091,345	34.07	90,735
1995	566,373.73	215,222	206,684	501,283	34.80	14,405
1996	3,635,343.63	1,315,086	1,262,917	3,281,263	35.53	92,352
1997	839,923.95	288,304	276,867	773,038	36.27	21,313
1998	2,398,940.79	778,456	747,575	2,251,101	37.02	60,808


#### ACCOUNT 355.00 - POLES, TOWERS AND FIXTURES

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVI	VOR CURVE IOWA	50-R1.5				
NET S	ALVAGE PERCENT	-25				
1999	858,545.98	262,500	252,087	821,095	37.77	21,739
2000	2,600,895.23	746,457	716,845	2,534,274	38.52	65,791
2001	1,442,100.62	386,483	371,151	1,431,475	39.28	36,443
2002	470,190.03	116,960	112,320	475,418	40.05	11,871
2003	8,463,226.89	1,942,311	1,865,261	8,713,773	40.82	213,468
2004	7,039,370.85	1,480,028	1,421,316	7,377,898	41.59	177,396
2005	5,677,730.83	1,083,027	1,040,064	6,057,100	42.37	142,957
2006	2,760,083.55	472,664	453,914	2,996,190	43.15	69,437
2007	8,127,196.82	1,231,270	1,182,426	8,976,570	43.94	204,292
2008	3,070,855.07	404,585	388,535	3,450,034	44.73	77,130
2009	4,498,334.78	502,689	482,748	5,140,170	45.53	112,896
2010	20,375,227.14	1,869,427	1,795,269	23,673,765	46.33	510,981
2011	2,845,486.69	203,452	195,381	3,361,477	47.14	71,308
2012	2,234,254.45	114,506	109,964	2,682,854	47.95	55,951
2013	579,886.16	17,831	17,124	707,734	48.77	14,512
2014	8,846,829.33	90,680	87,082	10,971,455	49.59	221,243
	103,103,429.00	22,244,648	21,362,218	107,517,068		2,604,811
	COMPOSITE REMAIN	ING LIFE AND	ANNUAL ACCRUAL	RATE, PERCENT	41.3	2.53



#### ACCOUNT 356.00 - CONDUCTORS AND DEVICES

	ORIGINAL	CALCULATED	ALLOC. BOOK	FUTURE BOOK	REM.	ANNUAL
YEAR	COST	ACCRUED	RESERVE	ACCRUALS	LIFE	ACCRUAL
(1)	(2)	(3)	(4)	(5)	(6)	(7)
SURVIV	OR CURVE IOWA	53-R1.5				
NET SA	LVAGE PERCENT	-25				
1957	479,808.14	429,788	316,718	283,042	15.02	18,844
1958	208,239.51	184,420	135,902	124,397	15.45	8,052
1959	102,700.47	89,887	66,239	62,137	15.89	3,910
1960	11,474.18	9,921	7,311	7,032	16.34	430
1961	18,875.56	16,115	11,875	11,719	16.80	698
1962	220,706.36	185,986	137,056	138,827	17.27	8,039
1963	341,889.12	284,234	209,457	217,904	17.75	12,276
1964	192,186.62	157,557	116,107	124,126	18.24	6,805
1965	56,244.09	45,447	33,491	36,814	18.74	1,964
1966	35,884.28	28,563	21,049	23,806	19.25	1,237
1967	22,578.07	17,695	13,040	15,183	19.77	768
1968	3,797.18	2,928	2,158	2,588	20.30	127
1969	5,991.61	4,545	3,349	4,141	20.84	199
1970	3,120.03	2.327	1,715	2,185	21.38	102
1971	3,862,56	2,830	2,085	2,743	21.94	125
1972	3,931.67	2,827	2,083	2,832	22.51	126
1973	6,428,26	4.536	3,343	4,692	23.08	203
1974	32,316,39	22.355	16.474	23,921	23.67	1.011
1975	97.389.12	66.013	48,646	73.090	24.26	3.013
1976	1,035,518.33	687,002	506,264	788,134	24.87	31,690
1977	72,246.78	46,893	34,556	55,752	25.48	2,188
1978	122.764.02	77.886	57.396	96.059	26.10	3,680
1979	278.741.15	172.767	127.315	221,111	26.72	8,275
1980	614,803.16	371,779	273,971	494,533	27.36	18,075
1981	180,458.61	106,403	78,410	147,163	28.00	5,256
1982	448.615.87	257.534	189.781	370,989	28.66	12,944
1983	612,004,90	341,797	251,876	513,130	29.32	17,501
1984	1.507.461.32	818,438	603,122	1,281,205	29.98	42.735
1985	1,180,418,35	621,948	458.325	1.017.198	30.66	33,177
1986	1,476,238,18	754,136	555.736	1,289,562	31.34	41,147
1987	574,757,75	284,397	209,577	508.870	32 02	15,892
1988	807,880 59	386,409	284,752	725,099	32.72	22,161
1989	339,895 51	156,959	115,666	309,203	33 42	9,252
1990	540,988,38	240,767	177,426	498,809	34 13	14,615
1991	501 900 33	214 964	158 411	468 964	34 84	13 461
1992	430 050 66	176 891	130,111	407 209	35 56	11 451
1993	509 928 32	201 084	148 182	489 228	36.28	13 485
1994	3.689.202.45	1,391,004	1.025 267	3,586,236	37 01	96 899
1995	614 285 26	220 970 979	162 842	5,500,250 605 120	37 75	16 030
1996	3 780 728 16	1 293 812	953 422	3 772 477	38 49	98 012
1997	873 000 01	-,2,3,012 283 510	208 030 222'±22	2,772,477 882 200	20.72	20,012 22 AQ1
1998	2 553 010 07	203,J10 783 966	577 71Q	2 612 544	39 98	65 271
エンノロ		100,000				0



#### ACCOUNT 356.00 - CONDUCTORS AND DEVICES

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVI NET S	VOR CURVE IOWA ALVAGE PERCENT	53-R1.5 -25				
1999	953,346.35	275,887	203,306	988,377	40.73	24,267
2000	2,668,590.17	724,422	533,840	2,801,898	41.49	67,532
2001	1,471,678.62	372,776	274,705	1,564,893	42.26	37,030
2002	459,522.30	108,051	79,625	494,778	43.03	11,498
2003	8,468,839.19	1,837,526	1,354,106	9,231,943	43.80	210,775
2004	7,274,464.92	1,446,345	1,065,837	8,027,244	44.57	180,104
2005	4,214,035.08	759,316	559,553	4,707,991	45.36	103,792
2006	2,553,606.24	413,142	304,452	2,887,556	46.14	62,582
2007	5,568,549.12	797,207	587,476	6,373,210	46.93	135,802
2008	3,067,051.68	381,196	280,910	3,552,905	47.73	74,438
2009	4,734,616.55	499,147	367,830	5,550,441	48.53	114,371
2010	20,375,342.07	1,763,741	1,299,733	24,169,445	49.33	489,954
2011	2,798,083.59	188,731	139,079	3,358,525	50.14	66,983
2012	2,235,444.73	108,084	79,649	2,714,657	50.95	53,281
2013	979,476.92	28,417	20,941	1,203,405	51.77	23,245
2014	7,609,667.41	73,624	54,255	9,457,829	52.59	179,841
	100,024,736.35	21,227,205	15,642,707	109,388,213		2,519,212
	COMPOSITE REMAIN	ING LIFE AND	ANNUAL ACCRUAL	RATE, PERCENT	5 43.4	2.52

#### ACCOUNT 359.00 - ROADS AND TRAILS

	ORIGINAL	CALCULATED	ALLOC. BOOK	FUTURE BOOK	REM.	ANNUAL
YEAR	COST	ACCRUED	RESERVE	ACCRUALS	LIFE	ACCRUAL
(1)	(2)	(3)	(4)	(5)	(6)	(7)
SURVIVO	R CURVELL TOWA	40-R3				
NET SAL	VAGE PERCENT.	0				
		Ū				
1957	4,051.98	3,802	2,707	1,345	2.47	545
1958	1,964.19	1,830	1,303	661	2.73	242
1959	540.81	500	356	185	2.99	62
1960	74.44	68	48	26	3.25	8
1961	162.04	148	105	57	3.50	16
1962	1,145.84	1,038	739	407	3.76	108
1963	1,777.07	1,598	1,138	639	4.03	159
1964	966.04	862	614	352	4.30	82
1965	1,095.64	970	691	405	4.58	88
1966	227.59	200	142	86	4.87	18
1967	134.14	117	83	51	5.18	10
1968	33.89	29	21	13	5.50	2
1969	68.02	58	41	27	5.83	5
1970	49.43	42	30	19	6.19	3
1971	93.39	78	56	37	6.57	6
1972	27.25	23	16	11	6.97	2
1973	47.34	39	28	19	7.39	3
1974	255.71	206	147	109	7.84	14
1975	465.91	369	263	203	8.31	24
1976	4,881.41	3,807	2,710	2,171	8.80	247
1977	572.07	439	313	259	9.32	28
1978	615.76	464	330	286	9.86	29
1979	1,506.11	1,114	793	713	10.42	68
1980	2,921.12	2,117	1,507	1,414	11.01	128
1981	1,121.19	795	566	555	11.62	48
1982	2,366.86	1,642	1,169	1,198	12.25	98
1983	2,993.83	2,029	1,444	1,550	12.89	120
1984	7,843.97	5,185	3,691	4,153	13.56	306
1985	5,934.42	3,820	2,719	3,215	14.25	226
1986	7,443.59	4,662	3,319	4,125	14.95	276
1987	4,585.54	2,789	1,985	2,601	15.67	166
1988	5,482.85	3,235	2,303	3,180	16.40	194
1989	2,797.83	1,598	1,138	1,660	17.15	97
1990	3,349.93	1,850	1,317	2,033	17.91	114
1991	3,723.43	1,984	1,412	2,311	18.69	124
1992	2,249.64	1,154	821	1,429	19.48	73
1993	3,496.50	1,723	1,227	2,270	20.29	112
1994	17,613.14	8,322	5,924	11,689	21.10	554
1995	2,894.32	1,308	931	1,963	21.93	90
1996	18,011.74	7,754	5,520	12,492	22.78	548
1997	4,220.63	1,727	1,229	2,992	23.63	127
1998	12,086.53	4,687	3,337	8,750	24.49	357



#### ACCOUNT 359.00 - ROADS AND TRAILS

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVI NET S	CVOR CURVE IOWA 4 SALVAGE PERCENT (	10-R3 )				
1999	4,505.92	1,648	1,173	3,333	25.37	131
2000	12,734.01	4,374	3,114	9,620	26.26	366
2001	6,467.55	2,078	1,479	4,989	27.15	184
2003	203,814.63	56,151	39,972	163,843	28.98	5,654
2004	400,777.56	101,196	72,039	328,739	29.90	10,995
2005	57,486.72	13,179	9,382	48,105	30.83	1,560
2009	303,250.00	40,636	28,927	274,323	34.64	7,919
	1,120,929.52	295,444	210,319	910,611		32,336
	COMPOSITE REMAINI	NG LIFE AND	ANNUAL ACCRUAL	RATE, PERCEN	т 28.2	2.88



#### ACCOUNT 360.20 - SURFACE AND MINERAL

νένρ	ORIGINAL	CALCULATED	ALLOC. BOOK	FUTURE BOOK	REM.	ANNUAL
(1)	(2)	(2)	(A)	(E)	(6)	ACCRUAL (7)
( 1 )	(2)	(3)	(4)	(5)	(0)	(7)
SURVIVO	R CURVE IOWA	75-R4				
NET SAL	VAGE PERCENT	0				
1960	8,862.06	6,013	8,862			
1961	512.83	343	513			
1962	689.10	453	689			
1963	832.63	539	833			
1964	678.06	432	678			
1965	1,973.13	1,235	1,973			
1966	942.31	580	942			
1967	956.96	578	957			
1968	1,013.01	601	1,004	9	30.51	
1969	1,031.77	600	1,002	30	31.35	1
1970	978.30	558	932	46	32.21	1
1971	1,052.12	588	982	70	33.07	2
1972	1,380.94	756	1,263	118	33.94	3
1973	1,472.18	789	1,318	154	34.81	4
1974	2,365.72	1,240	2,071	295	35.70	8
1975	3,525.93	1,806	3,017	509	36.59	14
1976	4,329.44	2,165	3,617	712	37.49	19
1977	4,255,93	2.077	3,470	786	38.40	20
1978	5,916.12	2,814	4,701	1,215	39.32	31
1979	5,230,62	2,424	4,049	1,182	40.24	29
1980	6,856.02	3,093	5,167	1,689	41.16	41
1981	9,120.39	4.001	6,684	2,436	42.10	58
1982	8,156,20	3,476	5,807	2,349	43.04	55
1983	6,558,69	2,713	4,532	2,027	43.98	46
1984	6,495.14	2,604	4,350	2,145	44.93	48
1985	6,967,88	2.705	4,519	2,449	45.88	53
1986	6,955,58	2,612	4,363	2,593	46.84	55
1987	6,008,60	2,179	3,640	2,369	47.80	50
1988	7,422.32	2,596	4,337	3,085	48.77	63
1989	8,438.39	2,843	4,749	3,689	49.73	74
1990	10,168,89	3,293	5,501	4,668	50 71	92
1991	10,696,00	3,326	5,556	5,140	51.68	99
1992	9,900 16	2,949	4,926	4,974	52 66	94
1993	12,880,28	3,668	6,128	6.752	53 64	126
1994	17 255 09	4 689	7 833	9 4 2 2	54 62	173
1995	17 467 66	4 518	7,655	9 920	55 60	178
1996	12 259 58	3 009	5 027	7 233	56 59	128
1997	18 573 59	4 314	7 207	11 367	57 58	197
1998	11 996 28	7,514 2,620	4 390	7 606	58 57	120
1000	13 001 55	2,020	7,570 A QAQ	0 17/	50.57	1 = 1
2000	15 <u>4</u> 80 62	2,070 2 QQ2	7,000 1 002	2,174 1Λ ΔΟΩ	55.50	172
2000	15 020 20	2,903 2 QEO	7,203 1 776	11 1E1	61 54	101
ZUUT	10,900.49	4,009	4,//0	11,104	01.04	T0T



#### ACCOUNT 360.20 - SURFACE AND MINERAL

	ORIGINAL	CALCULATED	ALLOC. BOOK	FUTURE BOOK	REM.	ANNUAL
YEAR	COST	ACCRUED	RESERVE	ACCRUALS	LIFE	ACCRUAL
(1)	(2)	(3)	(4)	(5)	(6)	(7)
SURVI	VOR CURVE IOWA	75-R4				
NET S	SALVAGE PERCENT	0				
2003	1,042,250.77	159,391	266,271	775,980	63.53	12,214
2004	811,493.91	113,390	189,424	622,070	64.52	9,642
2005	363,509.94	45,948	76,759	286,751	65.52	4,377
2006	995,363.15	112,546	188,014	807,349	66.52	12,137
2007	1,702,630.22	170,042	284,064	1,418,566	67.51	21,013
2008	508,195.45	43,974	73,461	434,734	68.51	6,346
2009	2,113,133.73	154,681	258,402	1,854,732	69.51	26,683
2010	1,486,282.22	88,984	148,652	1,337,630	70.51	18,971
2011	53,244.96	2,485	4,151	49,094	71.50	687
2012	194,831.63	6,494	10,849	183,983	72.50	2,538
2013	110,696.29	2,214	3,699	106,997	73.50	1,456
2014	786,370.65	5,245	8,762	777,609	74.50	10,438
	10,455,571.29	1,001,921	1,672,212	8,783,359		128,902
	COMPOSITE REMAIN	ING LIFE AND	ANNUAL ACCRUAL	RATE, PERCEN	г 68.1	1.23

#### ACCOUNT 362.00 - SUBSTATION EQUIPMENT

νένρ	ORIGINAL	CALCULATED	ALLOC. BOOK	FUTURE BOOK	REM.	ANNUAL
(1)	(2)	(3)		(5)	(6)	(7)
( 1 )	(2)	(3)	( = )		(0)	(7)
SURVIV	OR CURVE IOWA	50-R3				
NET SA	LVAGE PERCENT	-25				
1060	65 207 00	69 205	62 279	10 456	0 16	2 204
1960	65,387.00	00,395	02,270	19,450	0.10	2,304
1961			000	190	8.50	23
1962	27,163.43	27,803	∠5,3/⊥ 420	8,583	8.97	957
1064	407.00	4/4 11 E17	432	2 956	9.40	201
1964	11,4/4.00	11,51/	10,487	3,850	9.85	391
1965	29,533.31	29,297	20,0//	10,240	10.32	992
1966	64,829.45	63,51/ 1 277	57,836	23,201	10.81	2,146
1967	1,424.00	1,3//	1,254	526	11.32	46
1968	20,104.90	24,898	22,671	9,960	12.85	841 1 052
1969 1070	61,439.95	5/,/69	52,602	24,198	12.39	1,953
1970	58,037.68	53,/43	48,936	23,611	12.96	1,822
1971	49,858.15	45,446	41,381	20,942	13.54	1,54/
1972	21,961.00	19,688	17,927	9,524	14.14	6/4
19/3	8,441.00	7,439	6,//4	3,///	14.75	256
1974	248,528.60	215,039	195,806	114,855	15.39	7,463
1975	226,292.75	192,179	1/4,990	107,876	16.03	6,/30
1976	336,995.42	280,549	255,457	165,787	16.70	9,927
1977	549,293.49	447,949	407,884	278,733	17.38	16,038
1978	767,944.64	613,012	558,184	401,747	18.07	22,233
1979	93,323.78	72,863	66,346	50,309	18.77	2,680
1980	2,360,939.50	1,800,807	1,639,742	1,311,432	19.49	67,287
1981	653,690.14	486,672	443,144	373,969	20.22	18,495
1982	2,883,125.39	2,092,428	1,905,280	1,698,627	20.97	81,003
1983	2,636,375.69	1,863,918	1,697,208	1,598,262	21.72	73,585
1984	539,283.13	370,892	337,719	336,385	22.49	14,957
1985	1,220,191.26	815,698	742,741	782,498	23.26	33,641
1986	2,254,774.51	1,462,785	1,331,952	1,486,516	24.05	61,809
1987	1,820,362.89	1,144,553	1,042,183	1,233,271	24.85	49,629
1988	961,190.24	584,884	532,572	668,916	25.66	26,068
1989	1,809,821.88	1,064,175	968,994	1,293,283	26.48	48,840
1990	2,428,455.00	1,377,541	1,254,333	1,781,236	27.31	65,223
1991	3,493,229.69	1,908,177	1,737,508	2,629,029	28.15	93,394
1992	718,679.00	377,306	343,559	554,790	29.00	19,131
1993	1,633,414.00	822,424	748,866	1,292,902	29.86	43,299
1994	3,134,232.00	1,509,916	1,374,868	2,542,922	30.73	82,750
1995	4,340,947.69	1,996,836	1,818,238	3,607,947	31.60	114,176
1996	4,213,216.34	1,844,335	1,679,376	3,587,144	32.49	110,408
1997	2,177,476.00	904,741	823,820	1,898,025	33.38	56,861
1998	1,979,023.32	777,756	708,193	1,765,586	34.28	51,505
1999	3,023,650.78	1,119,507	1,019,378	2,760,185	35.19	78,437
2000	1,236,140.00	429,250	390,858	1,154,317	36.11	31,967
2001	2,437,994.00	790,520	719,815	2,327,678	37.03	62,859



#### ACCOUNT 362.00 - SUBSTATION EQUIPMENT

# CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL RELATED TO ORIGINAL COST OF INVESTMENT AS OF DECEMBER 31, 2014

	ORIGINAL	CALCULATED	ALLOC. BOOK	FUTURE BOOK	REM.	ANNUAL
YEAR	COST	ACCRUED	RESERVE	ACCRUALS	LIFE	ACCRUAL
(1)	(2)	(3)	(4)	(5)	(6)	(7)
SURVI	VOR CURVE IOWA	50-R3				
NET S	ALVAGE PERCENT	-25				
2002	833,762.01	250,962	228,516	813,687	37.96	21,435
2003	3,683,024.98	1,022,960	931,466	3,672,315	38.89	94,428
2004	856,454.29	217,539	198,082	872,486	39.84	21,900
2005	7,159,948.66	1,650,368	1,502,758	7,447,178	40.78	182,618
2006	16,793,692.30	3,467,897	3,157,726	17,834,389	41.74	427,273
2007	21,500,739.58	3,929,260	3,577,824	23,298,100	42.69	545,751
2008	34,389,609.31	5,450,753	4,963,234	38,023,778	43.66	870,907
2009	31,306,921.52	4,210,781	3,834,166	35,299,486	44.62	791,114
2010	20,288,424.97	2,236,799	2,036,738	23,323,793	45.59	511,599
2011	18,343,374.97	1,572,944	1,432,259	21,496,960	46.57	461,605
2012	4,436,486.63	272,844	248,441	5,297,167	47.54	111,425
2013	2,530,999.58	93,647	85,271	3,078,478	48.52	63,448
2014	14,478,416.87	177,361	161,498	17,936,523	49.51	362,281
	227,207,209.73	52,332,915	47,652,225	236,356,787		5,830,227

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 40.5 2.57



#### ACCOUNT 364.00 - POLES, TOWERS AND FIXTURES

VFAR	ORIGINAL	CALCULATED	ALLOC. BOOK	FUTURE BOOK	REM.	ANNUAL
(1)	(2)	(3)	(4)	(5)	(6)	(7)
( 1 )	(2)	(3)	( = )	(3)	(0)	(7)
SURVIV	OR CURVE IOWA	50-R2.5				
NET SA	LVAGE PERCENT	-30				
1960	998,121.61	1,036,489	963,570	333,988	10.06	33,200
1961	91,932.06	94,534	87,883	31,629	10.45	3,027
1962	125,481.37	127,727	118,741	44,385	10.85	4,091
1963	153,885.36	154,919	144,020	56,031	11.28	4,967
1964	120,547.50	119,979	111,538	45,174	11.72	3,854
1965	208,404.19	204,928	190,511	80,414	12.18	6,602
1966	163,203.86	158,445	147,298	64,867	12.66	5,124
1967	185,881.29	178,093	165,564	76,082	13.15	5,786
1968	184,380.56	174,210	161,954	77,741	13.66	5,691
1969	188,700.17	175,691	163,331	81,979	14.19	5,777
1970	172,711.52	158,380	147,238	77,287	14.73	5,247
1971	198,850.20	179,454	166,829	91,676	15.29	5,996
1972	253,509.47	224,959	209,133	120,429	15.87	7,588
1973	285,459.43	248,932	231,419	139,678	16.46	8,486
1974	440,562.64	377,201	350,664	222,067	17.07	13,009
1975	662,557.91	556,588	517,431	343,894	17.69	19,440
1976	820,114.58	675,512	627,989	438,160	18.32	23,917
1977	787,494.42	635,335	590,638	433,105	18.97	22,831
1978	1,145,577.62	904,571	840,933	648,318	19.63	33,027
1979	1,015,398.36	784,091	728,929	591,089	20.30	29,118
1981	1,785,398.81	1,314,625	1,222,139	1,098,879	21.68	50,686
1982	1,611,815.58	1,157,058	1,075,657	1,019,703	22.39	45,543
1983	1,291,938.95	903,246	839,701	839,820	23.11	36,340
1984	1,278,155.16	869,350	808,190	853,412	23.84	35,797
1985	5,814,946.36	3,843,214	3,572,839	3,986,591	24.58	162,188
1986	1,376,917.88	883,183	821,050	968,943	25.33	38,253
1987	1,203,303.02	748,045	695,419	868,875	26.09	33,303
1988	1,491,031.26	897,064	833,954	1,104,387	26.86	41,116
1989	1,776,283.60	1,033,122	960,440	1,348,729	27.63	48,814
1990	2,068,961.94	1,160,853	1,079,185	1,610,466	28.42	56,667
1991	2,187,809.94	1,182,030	1,098,873	1,745,280	29.22	59,729
1992	2,048,988.77	1,064,409	989,526	1,674,159	30.02	55,768
1993	2,682,371.53	1,336,250	1,242,243	2,244,840	30.84	72,790
1994	3,417,933.32	1,629,807	1,515,148	2,928,165	31.66	92,488
1995	3,568,964.28	1,624,807	1,510,500	3,129,154	32.49	96,311
1996	2,449,312.69	1,061,581	986,897	2,197,209	33.33	65,923
1997	3,705,230.34	1,524,035	1,416,817	3,399,982	34.18	99,473
1998	2,577,781.64	1,003,324	932,739	2,418,377	35.03	69,037
1999	2,777,255.63	1,018,864	947,185	2,663,247	35.89	74,206
2000	3,096,407.53	1,065,907	990,919	3,034,411	36.76	82,547
2001	4,389,481.27	1,410,604	1,311,366	4,394,960	37.64	116,763
2002	3,034,884.78	905,852	842,124	3,103,226	38.52	80,561



#### ACCOUNT 364.00 - POLES, TOWERS AND FIXTURES

	ORIGINAL	CALCULATED	ALLOC. BOOK	FUTURE BOOK	REM.	ANNUAL
YEAR	COST	ACCRUED	RESERVE	ACCRUALS	LIFE	ACCRUAL
(1)	(2)	(3)	(4)	(5)	(6)	(7)
SURVI	VOR CURVE IOWA	50-R2.5				
NET S	ALVAGE PERCENT	-30				
2003	5 958 430 40	1 640 594	1 525 176	6 220 784	39 41	157 848
2003	E E 41 4 94 90	1 207 562	1,323,170	5 004 600	40.20	1/6 510
2004	5,541,464.89	1,397,302	1,299,242	5,904,000	40.30	140,510
2005	8,130,320.22	1,860,217	1,729,348	8,840,068	41.20	214,565
2006	11,722,162.77	2,404,684	2,235,511	13,003,301	42.11	308,794
2007	10,027,623.99	1,819,813	1,691,787	11,344,124	43.02	263,694
2008	12,539,462.84	1,978,978	1,839,754	14,461,548	43.93	329,195
2009	11,061,513.77	1,478,261	1,374,263	13,005,705	44.86	289,918
2010	11,230,245.74	1,232,183	1,145,497	13,453,822	45.78	293,880
2011	8,428,324.12	720,959	670,239	10,286,582	46.71	220,222
2012	10,568,268.97	645,721	600,294	13,138,456	47.65	275,728
2013	5,705,268.28	209,155	194,440	7,222,409	48.59	148,640
2014	12,560,622.65	153,491	142,693	16,186,116	49.53	326,794
	177,311,677.04	50,348,886	46,806,768	183,698,412		4,736,877
	COMPOSITE REMAIN	ING LIFE AND	ANNUAL ACCRUAL	RATE, PERCENI	38.8	2.67

#### ACCOUNT 365.00 - CONDUCTORS AND DEVICES

VEAD	ORIGINAL	CALCULATED	ALLOC. BOOK	FUTURE BOOK	REM.	ANNUAL
ILAR	COSI	ACCRUED	KESERVE	ACCRUALS		ACCRUAL
( 1 )	(Z)	(3)	(4)	(5)	(6)	(7)
SURVIV	OR CURVE IOWA	49-R3				
NET SA	LVAGE PERCENT	-30				
1960	2,709,473.15	2,976,708	2,438,195	1,084,120	7.59	142,835
1961	174,834.11	190,317	155,887	71,397	7.97	8,958
1962	241,338.84	260,213	213,138	100,602	8.36	12,034
1963	292,889.17	312,608	256,054	124,702	8.77	14,219
1964	235,638.99	248,814	203,801	102,530	9.20	11,145
1965	397,296.11	414,768	339,733	176,752	9.65	18,316
1966	303,547.79	313,113	256,468	138,144	10.12	13,651
1967	341,350.27	347,669	284,773	158,982	10.61	14,984
1968	355,341.21	357,110	292,506	169,438	11.12	15,237
1969	361,708.09	358,421	293,579	176,642	11.65	15,162
1970	334,019.39	326,112	267,115	167,110	12.20	13,698
1971	372,371.35	358,023	293,253	190,830	12.76	14,955
1972	477,734.11	451,848	370,105	250,949	13.35	18,798
1973	523,396.75	486,708	398,658	281,758	13.95	20,198
1974	834,438.16	762,213	624,322	460,448	14.57	31,602
1975	1,236,913.89	1,109,190	908,527	699,461	15.20	46,017
1976	1,531,814,70	1.347.214	1.103.491	887,868	15.85	56.017
1977	1,493,886.45	1,287,309	1,054,423	887,629	16.52	53,731
1978	2,106,219.78	1,776,963	1,455,494	1,282,592	17.20	74,569
1979	1,863,484,98	1,537,556	1,259,398	1,163,132	17.90	64,979
1981	3,249,137.73	2,557,601	2,094,908	2,128,971	19.33	110,138
1982	2,896,261.72	2.223.729	1,821,436	1,943,704	20.06	96,895
1983	2,347,730.15	1,755,874	1,438,221	1,613,828	20.81	77,551
1984	2,326,146.60	1,692,830	1,386,582	1,637,409	21.57	75,911
1985	6,186,923.56	4,376,036	3,584,371	4,458,630	22.34	199,581
1986	2,496,028,41	1.713.793	1,403,752	1,841,085	23.12	79,632
1987	2,181,922.90	1,451,834	1,189,184	1,647,316	23.92	68,868
1988	2,714,867.84	1,748,817	1,432,440	2,096,888	24.72	84,826
1989	3,160,130.45	1,967,731	1,611,751	2,496,419	25.53	97,784
1990	3,844,736.15	2,309,348	1,891,566	3,106,591	26.36	117,852
1991	3,924,040.67	2,270,568	1,859,802	3,241,451	27.19	119,215
1992	3,631,574.72	2,019,475	1,654,134	3,066,913	28.04	109,376
1993	4,739,491.91	2,528,675	2,071,215	4,090,124	28.89	141,576
1994	5,879,027.45	3,000,920	2,458,026	5,184,710	29.76	174,217
1995	6,356,509.14	3,097,972	2,537,521	5,725,941	30.63	186,939
1996	4,423,875.10	2,052,775	1,681,409	4,069,629	31.51	129,154
1997	6,668,018,92	2,936,689	2,405,415	6,263,010	32.40	193,303
1998	4,449,274,75	1,853,270	1,517,997	4,266,060	33.30	128,110
1999	4,937,337.14	1,938.655	1,587,935	4,830,603	34.20	141.246
2000	5.556.291 96	2,046,110	1,675,950	5,547,230	35,12	157,951
2001	7.867.318.26	2,705,075	2,215,703	8,011,811	36.04	222,303
2002	4,811,743.84	1,535.731	1,257,903	4,997.364	36.97	135.173
	, . ,	, ,	, ,	, ,		



#### ACCOUNT 365.00 - CONDUCTORS AND DEVICES

# CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL RELATED TO ORIGINAL COST OF INVESTMENT AS OF DECEMBER 31, 2014

	ORIGINAL	CALCULATED	ALLOC. BOOK	FUTURE BOOK	REM.	ANNUAL
YEAR	COST	ACCRUED	RESERVE	ACCRUALS	LIFE	ACCRUAL
(1)	(2)	(3)	(4)	(5)	(6)	(7)
SURVI	VOR CURVE IOWA	49-R3				
NET S	ALVAGE PERCENT	-30				
2003	9,007,915.58	2,652,732	2,172,829	9,537,461	37.90	251,648
2004	8,101,442.49	2,183,784	1,788,718	8,743,157	38.84	225,107
2005	11,794,424.05	2,881,944	2,360,574	12,972,177	39.79	326,016
2006	18,614,057.11	4,079,103	3,341,156	20,857,118	40.74	511,957
2007	17,216,884.19	3,334,463	2,731,229	19,650,720	41.70	471,240
2008	19,670,215.77	3,308,668	2,710,100	22,861,181	42.66	535,893
2009	16,940,813.68	2,418,132	1,980,670	20,042,388	43.62	459,477
2010	17,095,503.17	2,000,174	1,638,325	20,585,829	44.59	461,669
2011	14,298,711.54	1,301,183	1,065,787	17,522,538	45.57	384,519
2012	14,767,728.97	959,902	786,247	18,411,801	46.55	395,527
2013	9,009,566.08	351,373	287,806	11,424,630	47.53	240,367
2014	19,531,870.15	253,914	207,979	25,183,452	48.51	519,139
	286,885,219.44	90,731,757	74,317,561	298,633,224		8,291,265
	COMPOSITE REMAIN	ING LIFE AND	ANNUAL ACCRUAL	RATE, PERCENT	36.0	2.89



VII-29

#### ACCOUNT 368.00 - LINE TRANSFORMERS

	ORIGINAL	CALCULATED	ALLOC. BOOK	FUTURE BOOK	REM.	ANNUAL
YEAR	COST	ACCRUED	RESERVE	ACCRUALS	LIFE	ACCRUAL
(1)	(2)	(3)	(4)	(5)	(6)	(7)
SURVI	VOR CURVE TOWA	45-R4				
NET S	ALVAGE PERCENT	-15				
		10				
1979	307,380.77	256,003	204,628	148,860	12.41	11,995
1981	1,018,183.24	810,270	647,665	523,246	13.86	37,752
1982	948,942.64	736,737	588,889	502,395	14.62	34,364
1983	767,992.99	581,140	464,517	418,675	15.39	27,204
1984	752,263.40	554,047	442,861	422,242	16.18	26,097
1985	2,789,314.64	1,997,346	1,596,519	1,611,193	16.98	94,888
1986	809,256.02	562,314	449,469	481,175	17.81	27,017
1987	713,954.72	480,953	384,435	436,613	18.64	23,423
1988	864,862.61	563,824	450,676	543,916	19.49	27,907
1989	1,046,663.52	659,078	526,814	676,849	20.36	33,244
1990	1,189,662.19	722,363	577,399	790,713	21.24	37,228
1991	1,295,674.70	756,933	605,032	884,994	22.14	39,973
1992	1,193,175.05	669,610	535,233	836,918	23.04	36,325
1993	1,522,291.41	818,527	654,265	1,096,370	23.96	45,758
1994	1,737,811.62	893,102	713,874	1,284,609	24.89	51,611
1995	2,149,021.88	1,053,350	841,964	1,629,411	25.82	63,107
1996	1,469,299.59	684,512	547,144	1,142,551	26.77	42,680
1997	2,249,647.54	993,444	794,080	1,793,015	27.72	64,683
1998	1,488,538.40	620,825	496,238	1,215,581	28.68	42,384
1999	1,540,178.53	604,176	482,930	1,288,275	29.65	43,449
2000	1,851,993.71	680,597	544,015	1,585,778	30.62	51,789
2001	2,679,873.64	918,393	734,090	2,347,765	31.59	74,320
2002	3,534,920.40	1,121,984	896,824	3,168,334	32.58	97,248
2003	4,710,570.65	1,377,149	1,100,783	4,316,373	33.56	128,617
2004	4,646,433.02	1,240,844	991,832	4,351,566	34.55	125,950
2005	6,084,534.57	1,470,954	1,175,763	5,821,452	35.54	163,800
2006	11,815,707.45	2,557,545	2,044,297	11,543,767	36.53	316,008
2007	11,271,974.84	2,154,672	1,722,273	11,240,498	37.52	299,587
2008	10,398,679.84	1,724,652	1,378,549	10,579,933	38.51	274,732
2009	9,166,038.72	1,285,995	1,027,922	9,513,023	39.51	240,775
2010	8,926,581.85	1,024,298	818,742	9,446,827	40.51	233,197
2011	7,447,654.82	666,170	532,483	8,032,320	41.50	193,550
2012	6,701,011.24	428,154	342,232	7,363,931	42.50	173,269
2013	4,513,716.05	173,008	138,289	5,052,484	43.50	116,149
2014	12,852,991.84	164,216	131,261	14,649,680	44.50	329,206
	132,456,798.10	32,007,185	25,583,987	126,741,331		3,629,286
	COMPOSITE REMAIN	ING LIFE AND	ANNUAL ACCRUAL	RATE, PERCENT	г 34.9	2.74



### ACCOUNT 369.00 - SERVICES

VEND	ORIGINAL	CALCULATED	ALLOC. BOOK	FUTURE BOOK	REM.	ANNUAL
I LAR	COST	ACCRUED	RESERVE	ACCRUALS		ACCRUAL
( 1 )	(2)	(3)	(4)	(5)	(6)	( / )
SURVIVO	OR CURVE IOWA	75-R4				
NET SAI	LVAGE PERCENT	0				
1960	184,837.08	125,418	184,837			
1961	10,696.17	7,148	10,696			
1962	14,372.55	9,457	14,373			
1963	17,366.13	11,244	17,366			
1964	14,142.19	9,008	14,142			
1965	23,196.44	14,524	23,196			
1966	17,767.49	10,933	17,767			
1967	19,959.39	12,061	19,959			
1968	21,128.77	12,534	21,129			
1969	21,519.60	12,524	21,520			
1970	20,404.53	11,641	20,405			
1971	21,944.07	12,268	21,944			
1972	28,802.58	15,769	28,803			
1973	30,705.30	16,454	30,705			
1974	49,342.16	25,855	49,342			
1975	73,540.83	37,662	73,541			
1976	90,299.70	45,162	90,300			
1977	88,766.42	43,318	88,766			
1978	123,393.52	58,702	123,394			
1979	109,095.19	50,562	109,095			
1980	142,996.75	64,520	142,997			
1981	190,225.29	83,446	190,225			
1982	170,114.73	72,491	170,115			
1983	137,693.18	56,950	137,693			
1984	137,091.67	54,964	137,092			
1985	1,360,610.28	528,284	1,353,614	6,996	45.88	152
1986	154,723.04	58,094	148,853	5,870	46.84	125
1987	139,243.02	50,499	129,393	9,850	47.80	206
1988	184,723.14	64,603	165,531	19,192	48.77	394
1989	234,370.58	78,966	202,333	32,038	49.73	644
1990	246,978.64	79,989	204,955	42,024	50.71	829
1991	242,049.47	75,260	192,837	49,212	51.68	952
1992	237,839.34	70,845	181,525	56,314	52.66	1,069
1993	269,743.23	76,823	196,842	72,901	53.64	1,359
1994	383,595.55	104,234	267,077	116,519	54.62	2,133
1995	398,622.09	103,112	264,202	134,420	55.60	2,418
1996	267,875.31	65,755	168,483	99,392	56.59	1,756
1997	394,170.57	91,554	234,588	159,583	57.58	2,772
1998	316,473.98	69,330	177,643	138,831	58.57	2,370
1999	305,653.95	62,925	161,232	144,422	59.56	2,425
2000	342,536.90	65,997	169,103	173,434	60.55	2,864
2001	510,441.16	91,609	234,728	275,713	61.54	4,480



#### ACCOUNT 369.00 - SERVICES

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVI	VOR CURVE IOWA	75-R4				
NEI S	ALVAGE PERCENI	0				
2002	17,902.39	2,977	7,628	10,274	62.53	164
2003	57,808.58	8,841	22,653	35,156	63.53	553
2004	104,333.96	14,579	37,356	66,978	64.52	1,038
2005	208,367.82	26,338	67,485	140,883	65.52	2,150
2006	182,695.99	20,657	52,929	129,767	66.52	1,951
2007	140,960.30	14,078	36,072	104,888	67.51	1,554
2008	181,367.53	15,694	40,213	141,155	68.51	2,060
2009	205,182.31	15,019	38,483	166,699	69.51	2,398
2010	6,647.25	398	1,020	5,627	70.51	80
2011	378,758.20	17,677	45,293	333,465	71.50	4,664
2012	287,754.86	9,591	24,575	263,180	72.50	3,630
	9,520,831.17	2,758,343	6,586,048	2,934,783		47,190
	COMPOSITE REMAIN	ING LIFE AND	ANNUAL ACCRUAI	L RATE, PERCEN	т 62.2	0.50

#### ACCOUNT 370.00 - METERS

## CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL RELATED TO ORIGINAL COST OF INVESTMENT AS OF DECEMBER 31, 2014

	ORIGINAL	CALCULATED	ALLOC. BOOK	FUTURE BOOK	REM.	ANNUAL
YEAR	COST	ACCRUED	RESERVE	ACCRUALS	LIFE	ACCRUAL
(1)	(2)	(3)	(4)	(5)	(6)	(7)
TNTERI	M SURVIVOR CURV		21			
PROBA	SLE RETIREMENT Y	EAR., 12-201	5			
NET SZ	ALVAGE PERCENT.	0				
		C C				
1983	806,720.47	770,846	349,531	457,189	0.88	457,189
1984	414,130.42	395,201	179,199	234,931	0.90	234,931
1985	1,410,083.99	1,344,515	609,654	800,430	0.91	800,430
1986	73,493.79	70,010	31,745	41,749	0.92	41,749
1987	59,872.48	56,975	25,835	34,037	0.93	34,037
1988	55,781.66	53,051	24,055	31,727	0.93	31,727
1989	95,957.15	91,144	41,328	54,629	0.94	54,629
1990	107,867.93	102,311	46,392	61,476	0.95	61,476
1991	194,702.70	184,489	83,654	111,049	0.95	111,049
1992	183,548.06	173,714	78,769	104,779	0.95	104,779
1993	182,582.89	172,462	78,201	104,382	0.96	104,382
1994	209,158.44	197,255	89,443	119,715	0.96	119,715
1995	231,877.90	218,139	98,913	132,965	0.97	132,965
1996	335,607.72	315,069	142,864	192,744	0.97	192,744
1997	310,902.94	291,167	132,026	178,877	0.97	178,877
1998	499,920.70	466,886	211,704	288,217	0.97	288,217
1999	449,592.22	418,233	189,643	259,949	0.98	259,949
2000	715,051.93	662,682	300,485	414,567	0.98	414,567
2001	343,561.90	317,008	143,743	199,819	0.98	199,819
2002	276,768.04	254,090	115,214	161,554	0.98	161,554
2003	733,455.80	669,278	303,476	429,980	0.98	429,980
2004	572,476.40	518,085	234,919	337,557	0.99	337,557
2005	569,581.46	510,966	231,691	337,890	0.99	337,890
2006	715,153.83	634,606	287,755	427,399	0.99	427,399
2007	797,155.55	697,758	316,390	480,766	0.99	480,766
2008	519,921.20	447,221	202,787	317,134	0.99	317,134
2009	407,725.83	342,514	155,309	252,417	0.99	252,417
2010	600,244.03	487,698	221,141	379,103	0.99	379,103
2011	412,406.44	318,765	144,540	267,866	0.99	267,866
2012	446,308.31	316,736	143,620	302,688	0.99	302,688
2013	274,735.75	164,171	74,441	200,295	0.99	200,295
2014	1,203,444.17	403,840	183,117	1,020,327	0.99	1,020,327
	14,209,792.10	12,066,885	5,471,584	8,738,208		8,738,207

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 1.0 61.49



#### ACCOUNT 370.10 - AMI METERS

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVI NET S	VOR CURVE 20-SÇ ALVAGE PERCENT	QUARE O				
2014	8,137,057.23	203,426		8,137,057	19.50	417,285
	8,137,057.23	203,426		8,137,057		417,285
	COMPOSITE REMAIN	ING LIFE AND	ANNUAL ACCRUAI	RATE, PERCEN	r 19.5	5.13



ACCOUNT 371.00 - INSTALLATION ON CUSTOMER PREMISES

	ORIGINAL	CALCULATED	ALLOC. BOOK	FUTURE BOOK	REM.	ANNUAL
YEAR	COST	ACCRUED	RESERVE	ACCRUALS	LIFE	ACCRUAL
(1)	(2)	(3)	(4)	(5)	(6)	(7)
SURVIVOR	CURVE IOWA	20-R1				
NET SALV	AGE PERCENT	0				
1960	28,485.17	28,485	28,485			
1961	1,648.38	1,648	1,648			
1962	2,214.95	2,215	2,215			
1963	2,676.30	2,676	2,676			
1964	2,179.46	2,179	2,179			
1965	3,574.80	3,575	3,575			
1966	2,738.13	2,738	2,738			
1967	3,075.94	3,076	3,076			
1968	3,256.14	3,256	3,256			
1969	3,316.39	3,316	3,316			
1970	3,144.54	3,145	3,145			
1971	3,381.79	3,382	3,382			
1972	4,438.76	4,439	4,439			
1973	4,731.98	4,732	4,732			
1974	7,604.10	7,604	7,604			
1975	11,333.36	11,203	11,333			
1976	13,916.05	13,526	13,916			
1977	13,679.76	13,064	13,680			
1978	19,016.12	17,856	19,016			
1979	16,812.63	15,535	16,813			
1980	22,037.17	20,032	22,037			
1981	29,315.57	26,208	29,316			
1982	26,216.31	23,031	26,216			
1983	21,081.57	18,183	21,082			
1984	20,877.21	17,662	20,877			
1985	22,396.78	18,567	22,397			
1986	22,357.19	18,143	22,357			
1987	19,313.38	15,316	19,313			
1988	23,857.41	18,466	23,857			
1989	27,123.37	20,465	27,123			
1990	32,685.71	23,991	32,686			
1991	34,379.96	24,513	34,380			
1992	31,822.00	21,989	31,822			
1993	41,400.92	27,677	41,401			
1994	55,462.75	35,773	55,463			
1995	56,146.06	34,839	56,146			
1996	39,405.77	23,466	39,406			
1997	59,700.84	34,000	59,701			
1998	38,559.48	20,919	38,559			



ACCOUNT 371.00 - INSTALLATION ON CUSTOMER PREMISES

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL RELATED TO ORIGINAL COST OF INVESTMENT AS OF DECEMBER 31, 2014

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVO NET SAL	R CURVE IOWA VAGE PERCENT	20-R1 0				
1999	44,940.77	23,122	44,941			
2000	49,759.21	24,183	49,759			
2001	67,768.14	30,936	67,769			
	937,832.32	669,131	937,832			

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 0.0 0.00



#### ACCOUNT 373.00 - STREET LIGHTING AND SIGNAL SYSTEMS

ντλρ	ORIGINAL	CALCULATED	ALLOC. BOOK	FUTURE BOOK	REM.	ANNUAL
(1)	(2)	(3)	(A)	(5)	(6)	(7)
( 1 )	(2)	(3)	( 1)	(3)	(0)	(
SURVI	VOR CURVE IOWA	27-L2				
NET S	SALVAGE PERCENT	-10				
1985	145,773.01	101,495	66,690	93,660	9.91	9,451
1987	16,861.27	11,410	7,497	11,050	10.39	1,064
1988	21,419.57	14,285	9,386	14,176	10.63	1,334
1989	28,518.11	18,741	12,314	19,056	10.87	1,753
1990	34,293.16	22,186	14,578	23,144	11.12	2,081
1991	37,617.33	23,954	15,740	25,639	11.37	2,255
1992	35,852.43	22,436	14,742	24,696	11.64	2,122
1993	46,554.14	28,583	18,781	32,429	11.93	2,718
1994	48,273.37	29,048	19,087	34,014	12.23	2,781
1995	62,925.43	37,018	24,324	44,894	12.56	3,574
1996	35,933.26	20,598	13,534	25,993	12.93	2,010
1997	67,179.39	37,442	24,602	49,295	13.32	3,701
1998	41,300.39	22,278	14,638	30,792	13.76	2,238
1999	40,387.16	20,979	13,785	30,641	14.25	2,150
2000	54,307.69	27,037	17,765	41,973	14.78	2,840
2001	81,769.85	38,744	25,458	64,489	15.37	4,196
2003	950,794.28	398,206	261,652	784,222	16.72	46,903
2004	876,259.69	340,213	223,546	740,340	17.47	42,378
2005	1,073,752.91	382,331	251,221	929,907	18.26	50,926
2006	1,588,306.12	512,488	336,745	1,410,392	19.08	73,920
2007	1,673,842.55	482,125	316,794	1,524,433	19.93	76,489
2008	1,735,989.58	438,499	288,128	1,621,461	20.80	77,955
2009	1,345,378.07	291,055	191,246	1,288,670	21.69	59,413
2010	1,263,876.88	226,043	148,528	1,241,737	22.61	54,920
2011	693,980.36	97,262	63,908	699,470	23.56	29,689
2012	22,311.16	2,254	1,481	23,061	24.52	940
2013	10,874.94	660	434	11,528	25.51	452
2014	94,783.12	1,931	1,269	102,992	26.50	3,886
	12,129,115.22	3,649,301	2,397,873	10,944,154		564,139
	COMPOSITE REMAIN	TNG LIFE AND	ANNUAL ACCRUA	I RATE. PERCEN	т., 19.4	4.65

#### ACCOUNT 390.00 - STRUCTURES AND IMPROVEMENTS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL RELATED TO ORIGINAL COST OF INVESTMENT AS OF DECEMBER 31, 2014

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR NET SALV	CURVE IOWA VAGE PERCENT	51-S1.5 0				
1992	337,364.00	134,946	279,280	58,084	30.60	1,898
	337,364.00	134,946	279,280	58,084		1,898

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 30.6 0.56



### ACCOUNT 390.10 - STRUCTURES - MASONRY

	ORIGINAL	CALCULATED	ALLOC. BOOK	FUTURE BOOK	REM.	ANNUAL
YEAR	COST	ACCRUED	RESERVE	ACCRUALS	LIFE	ACCRUAL
(1)	(2)	(3)	(4)	(5)	(6)	(7)
SURVIV	OR CURVE IOWA	41-S3				
NET SA	LVAGE PERCENT	0				
1975	197 921 00	155 922	99 831	98 090	8 70	11 275
1976	45 092 00	35 062	22 449	22 643	9 1 2	2 483
1077	7 464 00	55,002	22,449	22,043	9.12	2,403
1070	670 224 00	100 102	210 166	251 159	10 51	22 /12
1000	5 993 00	490,493	319,100 2 807	3 1 9 6	11 01	220,712
1001	9 505 00	4,304	2,007	3,100	11 55	209
1000	10 007 00	10,109	3,9⊥⊥ 0 122	4,594	10 11	010
1002	10,027.00	12,702	0,133	9,094	12.11	01/
1004	110,739.00	16 102	40,957	01,702 12 E00	12.09	4,009
1904 1005	23,900.00	10,192	IU,307	13,599	12.30	I,UZZ
1985	1,263,699.11	834,041 21 070	534,005	/29,694	13.94	52,345
1007	49,513.00	31,870	20,405	29,108 145 472	14.01	1,992
1987	242,995.75	152,317	97,523	145,4/3	15.30	9,508
1988	644,493.92	392,510	251,309	393,185	16.03	24,528
1989	689,611.00	407,374	260,826	428,785	16./8	25,553
1990	63,722.00	36,431	23,325	40,397	17.56	2,301
1991	339,505.00	187,475	120,033	219,472	18.36	11,954
1992	134,397.00	71,492	45,774	88,623	19.19	4,618
1993	9,207,830.35	4,705,017	3,012,444	6,195,386	20.05	308,997
1994	425,717.00	208,499	133,494	292,223	20.92	13,969
1995	48,776.00	22,817	14,609	34,167	21.82	1,566
1996	83,430.00	37,157	23,790	59,640	22.74	2,623
1997	164,423.00	69,459	44,472	119,951	23.68	5,065
1998	78,333.00	31,295	20,037	58,296	24.62	2,368
1999	429,566.00	161,452	103,372	326,194	25.59	12,747
2000	32,502.00	11,447	7,329	25,173	26.56	948
2001	378,014.00	124,098	79,455	298,559	27.54	10,841
2002	128,474.49	39,106	25,038	103,436	28.52	3,627
2003	235,441.60	65,980	42,245	193,197	29.51	6,547
2004	141,651.72	36,242	23,204	118,448	30.51	3,882
2005	104,826.39	24,289	15,551	89,275	31.50	2,834
2006	254,898.59	52,846	33,835	221,064	32.50	6,802
2007	655,778.50	119,962	76,807	578,972	33.50	17,283
2008	448,415.41	71,092	45,518	402,897	34.50	11,678
2009	441,646.91	59,247	37,934	403,713	35.50	11,372
2010	305,227.37	33,502	21,450	283,777	36.50	7,775
2011	353,726.09	30,198	19,335	334,391	37.50	8,917



#### ACCOUNT 390.10 - STRUCTURES - MASONRY

	ORIGINAL	CALCULATED	ALLOC. BOOK	FUTURE BOOK	REM.	ANNUAL
YEAR	COST	ACCRUED	RESERVE	ACCRUALS	LIFE	ACCRUAL
(1)	(2)	(3)	(4)	(5)	(6)	(7)
SURVI NET S	VOR CURVE IOWA ALVAGE PERCENT	41-S3 0				
2012	155,606.88	9,489	6,075	149,532	38.50	3,884
2013	4,442,620.63	162,555	104,078	4,338,543	39.50	109,837
2014	691,975.78	8,442	5,405	686,571	40.50	16,952
	23,724,849.49	9,008,753	5,767,963	17,956,886		758,275
	COMPOSITE REMAIN	ING LIFE AND	ANNUAL ACCRUAL	RATE, PERCENT	г 23.7	3.20



#### ACCOUNT 390.20 - OPERATIONS BUILDINGS

	ORIGINAL	CALCULATED	ALLOC. BOOK	FUTURE BOOK	REM.	ANNUAL
YEAR	COST	ACCRUED	RESERVE	ACCRUALS	LIFE	ACCRUAL
(1)	(2)	(3)	(4)	(5)	(6)	(7)
SURVI	VOR CURVE IOWA	40-R4				
NET S	SALVAGE PERCENT	0				
1980	1,630,325.00	1,263,502	1,534,836	95,489	9.00	10,610
1981	13,388.00	10,151	12,331	1,057	9.67	109
1982	15,955.00	11,823	14,362	1,593	10.36	154
1983	13,383.00	9,679	11,758	1,625	11.07	147
1984	11,730.00	8,273	10,050	1,680	11.79	142
1985	599.00	411	499	100	12.53	8
1986	8,194.00	5,472	6,647	1,547	13.29	116
1987	12,891.00	8,357	10,152	2,739	14.07	195
1988	183,609.00	115,352	140,124	43,485	14.87	2,924
1990	32,732.00	19,214	23,340	9,392	16.52	569
1991	13,628.00	7,707	9,362	4,266	17.38	245
1992	28,043.00	15,255	18,531	9,512	18.24	521
1993	19,203.00	10,019	12,171	7,032	19.13	368
1994	69,008.00	34,452	, 41,850	27,158	20.03	1,356
1995	37,472.00	17,855	21,689	15,783	20.94	754
1996	116,262.00	52,725	64,048	52,214	21.86	2,389
1997	155,597.00	66,907	81,275	74,322	22.80	3,260
1999	139,303.00	53,318	64,768	74,535	24.69	3,019
2000	80,531.00	28,890	35,094	45,437	25.65	1,771
2002	2,913,554.21	903,202	1,097,163	1,816,391	27.60	65,811
2003	4,823,124.18	1,378,208	1,674,175	3,148,949	28.57	110,219
2004	6,431.92	1,679	2,040	4,392	29.56	149
2005	178,311.07	42,171	51,227	127,084	30.54	4,161
2006	585,498.10	123,979	150,603	434,895	31.53	13,793
2007	543,028.60	101,546	123,353	419,676	32.52	12,905
2008	383,366.66	62,105	75,442	307,925	33.52	9,186
2009	734,960.51	100,873	122,535	612,426	34.51	17,746
2010	261,026.71	29,300	35,592	225,435	35.51	6,348
2011	636,345.64	55,521	67,444	568,902	36.51	15,582
2012	1,308,284.26	81,768	99,327	1,208,957	37.50	32,239
2013	665,679.56	24,963	30,324	635,356	38.50	16,503
2014	413,958.50	5,174	6,285	407,674	39.50	10,321
	16,035,422.92	4,649,851	5,648,397	10,387,026		343,620
	COMPOSITE REMAIN	ING LIFE AND	ANNUAL ACCRUAI	L RATE, PERCEN	т 30.2	2.14

#### ACCOUNT 391.00 - OFFICE FURNITURE AND EQUIPMENT

## CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL RELATED TO ORIGINAL COST OF INVESTMENT AS OF DECEMBER 31, 2014

YEAR	ORIGINAL COST	CALCULATED ACCRUED	ALLOC. BOOK RESERVE	FUTURE BOOK ACCRUALS	REM. LIFE	ANNUAL ACCRUAL
( 1 )	(2)	(3)	(4)	(5)	(0)	(
SURVIV	OR CURVE 15-S	QUARE				
NET SA	LVAGE PERCENT	0				
1005	E4 020 20	E4 020	E4 020			
1905	54,039.39	54,039	54,039			
1998	2,561,3/9.01	2,561,379	2,561,379			
1999	284,447.00	284,447	284,447			
2000	128,875.00	124,580	128,875			
2001	144,211.00	129,790	144,211			
2002	202,331.03	168,609	202,331			
2003	451,130.69	345,868	450,529	602	3.50	172
2004	601,075.73	420,753	548,075	53,001	4.50	11,778
2005	314,887.27	199,428	259,776	55,111	5.50	10,020
2006	242,960.20	137,678	179,340	63,620	6.50	9,788
2007	248,080.29	124,040	161,575	86,505	7.50	11,534
2008	236,641.24	102,544	133,574	103,067	8.50	12,126
2009	5,119.92	1,877	2,445	2,675	9.50	282
2010	254,717.42	76,415	99,539	155,178	10.50	14.779
2011	172,864.70	40,335	52,541	120,324	11.50	10,463
2012	112,903 31	18,818	24,512	88.391	12 50	7,071
2012	107 166 27	10,010	13 960	93 206	13 50	6 904
2013	160 507 94	±0,7±7 E 2E0	5,000	152 520	14 50	10 500
201 <del>4</del>	100,007.04	5,350	0,909	100,009	14.50	10,309
	6,283,337.31	4,806,667	5,308,117	975,220		105,506

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 9.2 1.68



### ACCOUNT 391.10 - COMPUTER HARDWARE

# CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL RELATED TO ORIGINAL COST OF INVESTMENT AS OF DECEMBER 31, 2014

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIN	VOR CURVE 5-SQ	UARE				
NET SF	ALVAGE PERCENT	0				
1994	218,967.68	218,968	218,968			
1995	298,595.51	298,596	298,596			
1996	196,187.00	196,187	196,187			
1997	81,457.00	81,457	81,457			
1998	3,839,752.35	3,839,752	3,839,752			
1999	536,059.00	536,059	536,059			
2000	650,730.42	650,730	650,730			
2001	356,419.00	356,419	356,419			
2002	783,237.04	783,237	783,237			
2003	1,036,127.87	1,036,128	1,036,128			
2004	797,732.99	797,733	797,733			
2005	1,583,329.12	1,583,329	1,583,329			
2006	2,044,106.59	2,044,107	2,044,107			
2007	427,889.76	427,890	427,890			
2008	2,470,888.35	2,470,888	2,470,888			
2009	1,148,550.06	1,148,550	1,148,550			
2010	1,658,996.28	1,493,097	954,161	704,835	0.50	704,835
2011	1,833,555.51	1,283,489	820,211	1,013,345	1.50	675,563
2012	1,003,907.39	501,954	320,773	683,134	2.50	273,254
2013	1,299,170.33	389,751	249,069	1,050,101	3.50	300,029
2014	2,197,691.53	219,769	140,443	2,057,249	4.50	457,166
	24,463,350.78	20,358,090	18,954,687	5,508,664		2,410,847

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 2.3 9.85



### ACCOUNT 391.20 - COMPUTER SOFTWARE

# CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL RELATED TO ORIGINAL COST OF INVESTMENT AS OF DECEMBER 31, 2014

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIN NET SA	/OR CURVE 8-SQ ALVAGE PERCENT	UARE 0				
1994	56,834.00	56,834	56,834			
1995	240,563.00	240,563	240,563			
1996	363,228.00	363,228	363,228			
1997	352,819.00	352,819	352,819			
1998	4,496,541.00	4,496,541	4,496,541			
1999	416,862.00	416,862	416,862			
2000	3,583,706.00	3,583,706	3,583,706			
2001	1,756,611.00	1,756,611	1,756,611			
2002	8,629,000.18	8,629,000	8,629,000			
2003	1,109,406.59	1,109,407	1,109,407			
2004	284,942.95	284,943	284,943			
2005	1,318,828.56	1,318,829	1,318,829			
2006	3,561,084.10	3,561,084	3,561,084			
2007	2,279,850.19	2,137,360	2,267,159	12,691	0.50	12,691
2008	6,648,890.53	5,402,224	5,730,295	918,596	1.50	612,397
2009	4,688,518.64	3,223,357	3,419,108	1,269,411	2.50	507,764
2010	4,441,171.09	2,498,159	2,649,869	1,791,302	3.50	511,801
2011	4,407,259.70	1,928,176	2,045,272	2,361,988	4.50	524,886
2012	4,749,776.85	1,484,305	1,574,445	3,175,332	5.50	577,333
2013	4,187,674.17	785,189	832,872	3,354,802	6.50	516,123
2014	4,577,960.47	286,123	303,499	4,274,461	7.50	569,928
	62,151,528.02	43,915,320	44,992,946	17,158,582		3,832,923

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 4.5 6.17



#### ACCOUNT 392.10 - LIGHT DUTY VEHICLES

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVI	VOR CURVE IOWA	10-L1				
NET S	ALVAGE PERCENT	+25				
1990	28,215.00	18,431	21,161			
1994	23,542.00	14,037	17,568	88	2.05	43
1995	118,918.00	69,121	86,510	2,678	2.25	1,190
2005	959,001.58	371,134	464,499	254,752	4.84	52,635
2006	1,329,912.14	481,761	602,956	394,478	5.17	76,301
2007	703,902.66	236,511	296,009	231,918	5.52	42,014
2008	684,885.63	211,116	264,226	249,438	5.89	42,349
2009	583,982.24	162,493	203,371	234,616	6.29	37,300
2010	320,732.14	78,660	98,448	142,101	6.73	21,115
2011	2,288,344.23	470,255	588,556	1,127,702	7.26	155,331
2012	1,309,341.29	206,221	258,099	723,907	7.90	91,634
2013	322,089.82	32,128	40,210	201,357	8.67	23,225
2014	82,116.18	2,833	3,546	58,041	9.54	6,084
	8,754,982.91	2,354,701	2,945,159	3,621,078		549,221
	COMPOSITE REMAIN	ING LIFE AND	ANNUAL ACCRUAL	RATE, PERCENT	Г б.б	6.27



#### ACCOUNT 392.20 - HEAVY DUTY VEHICLES

	ORIGINAL	CALCULATED	ALLOC. BOOK	FUTURE BOOK	REM.	ANNUAL
YEAR	COST	ACCRUED	RESERVE	ACCRUALS	LIFE	ACCRUAL
(1)	(2)	(3)	(4)	(5)	(6)	(7)
SURVI	IVOR CURVE IOWA	15-L3				
NET S	SALVAGE PERCENT	+25				
1979	11,705.00	8,720	6,967	1,812	0.10	1,812
1980	78,670.00	57,862	46,228	12,774	0.29	12,774
1982	10,700.00	7,677	6,133	1,892	0.65	1,892
1983	26,483.00	18,750	14,980	4,882	0.84	4,882
1984	15,665.00	10,942	8,742	3,007	1.03	2,919
1985	17,780.00	12,242	9,781	3,554	1.23	2,889
1987	15,844.00	10,576	8,449	3,434	1.65	2,081
1989	43,372.00	27,997	22,368	10,161	2.09	4,862
1991	8,151.00	5,066	4,047	2,066	2.57	804
1992	6,161.00	3,752	2,998	1,623	2.82	576
1993	49,387.00	29,459	23,536	13,504	3.07	4,399
1994	176,241.00	102,837	82,160	50,021	3.33	15,021
1995	253,572.00	144,663	115,576	74,603	3.59	20,781
1996	73,525.00	41,064	32,807	22,337	3.83	5,832
1999	47,496.00	25,125	20,073	15,549	4.42	3,518
2000	41,376.00	21,536	17,206	13,826	4.59	3,012
2002	311,600.78	155,177	123,976	109,725	5.04	21,771
2003	150,881.66	72,574	57,982	55,179	5.38	10,256
2004	84,363.75	38,639	30,870	32,403	5.84	5,548
2005	561,088.18	240,707	192,308	228,508	6.42	35,593
2006	1,360,964.62	536,901	428,947	591,776	7.11	83,232
2007	3,065,455.42	1,089,769	870,649	1,428,443	7.89	181,045
2008	748,918.60	234,410	187,277	374,412	8.74	42,839
2009	1,718,537.80	461,427	368,648	920,255	9.63	95,561
2010	477,831.70	106,079	84,750	273,624	10.56	25,911
2011	1,107,876.17	192,770	154,010	676,897	11.52	58,758
2012	612,001.57	76,502	61,120	397,881	12.50	31,830
2013	2,768,407.37	207,631	165,883	1,910,423	13.50	141,513
2014	1,365,141.45	34,125	27,263	996,593	14.50	68,731
	15,209,197.07	3,974,979	3,175,734	8,231,164		890,642
	COMPOSITE REMAIN	ING LIFE AND	ANNUAL ACCRUA	L RATE, PERCEN	Т 9.2	5.86



#### ACCOUNT 394.00 - TOOLS AND WORK EQUIPMENT

VEND	ORIGINAL	CALCULATED	ALLOC. BOOK	FUTURE BOOK	REM.	ANNUAL
YEAR	COST	ACCRUED	RESERVE	ACCRUALS		ACCRUAL
(1)	(2)	(3)	(4)	(5)	(6)	( / )
SURVI	VOR CURVE 15-S	QUARE				
NET S	SALVAGE PERCENT	0				
1982	41,453.82	41,454	41,454			
1983	65,245.00	65,245	65,245			
1984	115,409.00	115,409	115,409			
1985	473,348.43	473,348	473,348			
1986	198,825.00	198,825	198,825			
1987	120,168.00	120,168	120,168			
1988	175,882.00	175,882	175,882			
1989	404,733.00	404,733	404,733			
1990	206,564.00	206,564	206,564			
1991	223,808.00	223,808	223,808			
1992	160,370.00	160,370	160,370			
1993	288,316.00	288,316	288,316			
1995	215,015.00	215,015	215,015			
1996	88,890.00	88,890	88,890			
1997	461,604.00	461,604	461,604			
1998	498,925.00	498,925	498,925			
1999	545,506.00	545,506	545,506			
2000	351,604.00	339,885	351,604			
2001	664,907.00	598,416	664,907			
2002	449,257.79	374,380	449,258			
2003	514,101.97	394,147	514,102			
2004	518,418.44	362,893	479,295	39,123	4.50	8,694
2005	758,607.61	480,449	634,558	124,050	5.50	22,555
2006	859,648.67	487,137	643,391	216,258	6.50	33,270
2007	936,499.18	468,250	618,446	318,053	7.50	42,407
2008	587,124.42	254,419	336,027	251,097	8.50	29,541
2009	657,856.91	241,216	318,589	339,268	9.50	35,712
2010	495,084.56	148,525	196,166	298,919	10.50	28,468
2011	491,900.92	114,775	151,590	340,311	11.50	29,592
2012	530,907.08	88,486	116,869	414,038	12.50	33,123
2013	459,332.99	45,933	60,666	398,667	13.50	29,531
2014	497,378.07	16,578	21,896	475,482	14.50	32,792
	13,056,691.86	8,699,551	9,841,426	3,215,266		325,685
	COMPOSITE REMAIN	ING LIFE AND	ANNUAL ACCRUA	L RATE, PERCEN	т9.9	2.49

#### ACCOUNT 397.00 - COMMUNICATION EQUIPMENT

	ORIGINAL	CALCULATED	ALLOC. BOOK	FUTURE BOOK	REM.	ANNUAL
YEAR	COST	ACCRUED	RESERVE	ACCRUALS	LIFE	ACCRUAL
(1)	(2)	(3)	(4)	(5)	(6)	(7)
SURVI	VOR CURVE 15-S	QUARE				
NET S	ALVAGE PERCENT	0				
1977	15,726,00	15.726	15.726			
1978	42,197,00	42,197	42,197			
1979	48,433,00	48,433	48,433			
1980	66,469.00	66,469	66,469			
1982	39,708.00	39,708	39,708			
1983	97,820.00	97,820	97,820			
1984	166,808.00	166,808	166,808			
1985	52,071.00	52,071	52,071			
1986	33,009.00	33,009	33,009			
1987	28,033.00	28,033	28,033			
1988	168,129.52	168,130	168,130			
1989	3,077.00	3,077	3,077			
1990	115,099.00	115,099	115,099			
1991	135,481.00	135,481	135,481			
1992	221,699.00	221,699	221,699			
1993	61,008.00	61,008	61,008			
1994	105,674.00	105,674	105,674			
1995	193,317.00	193,317	193,317			
1996	916,634.00	916,634	916,634			
1997	591,987.00	591,987	591,987			
1998	264,756.00	264,756	264,756			
1999	569,024.00	569,024	569,024			
2000	114,826.00	110,999	114,409	417	0.50	417
2001	212,907.00	191,616	197,502	15,405	1.50	10,270
2002	29,998.55	24,999	25,767	4,232	2.50	1,693
2003	2,752,554.17	2,110,301	2,175,125	577,429	3.50	164,980
2004	315,586.15	220,910	227,696	87,890	4.50	19,531
2005	5,360,030.39	3,394,668	3,498,945	1,861,085	5.50	338,379
2006	1,710,297.18	969,174	998,945	711,352	6.50	109,439
2007	5,528,980.52	2,764,490	2,849,410	2,679,571	7.50	357,276
2008	1,653,946.22	716,705	738,721	915,225	8.50	107,674
2009	1,083,117.36	397,147	409,346	6/3,//L	9.50	70,923
2010	539,966.15	161,990	166,966	3/3,000	10.50	35,524
2011	093,797.25	101,884	100,857	526,940	12.50	45,821
2012	1,540,415.00	250,/41 42 440	204,02/	1,2/5,789	12.50	102,003
2013	434,404.28	43,440	44,//4	389,030	14 50	28,801 172 270
2014	2,500,774.94	00,217	00,000	2,497,909	14.50	172,270
	28,493,761.34	15,547,441	15,904,116	12,589,645		1,565,121
	COMPOSITE REMAIN	IING LIFE AND	ANNUAL ACCRUA	L RATE, PERCEN	т 8.0	5.49

# APPENDIX A ESTIMATION OF SURIVOR CURVES

### **ESTIMATION OF SURVIVOR CURVES**

### Average Service Life

The use of an average service life for a property group implies that the various units in the group have different lives. Thus, the average life may be obtained by determining the separate lives of each of the units, or by constructing a survivor curve by plotting the number of units which survive at successive ages. A discussion of the general concept of survivor curves is presented. Also, the lowa type survivor curves are reviewed.

### SURVIVOR CURVES

The survivor curve graphically depicts the amount of property existing at each age throughout the life of an original group. From the survivor curve, the average life of the group, the remaining life expectancy, the probable life, and the frequency curve can be calculated. In Figure 1, a typical smooth survivor curve and the derived curves are illustrated. The average life is obtained by calculating the area under the survivor curve, from age zero to the maximum age, and dividing this area by the ordinate at age zero. The remaining life expectancy at any age can be calculated by obtaining the area under the curve, from the observation age to the maximum age, and dividing this area by the percent surviving at the observation age. For example, in Figure 1, the remaining life at age 30 is equal to the crosshatched area under the survivor curve divided by 29.5 percent surviving at age 30. The probable life at any age is developed by adding the age and remaining life. If the probable life of the property is calculated for each year of age, the probable life curve shown in the chart can be developed. The frequency curve presents the number of units retired in each age interval. It is derived by obtaining the differences between the amount of property surviving at the beginning and at the end of each interval.

### lowa Type Curves

The range of survivor characteristics usually experienced by utility and industrial properties is encompassed by a system of generalized survivor curves known as the



lowa type curves. There are four families in the lowa system, labeled in accordance with the location of the modes of the retirements in relationship to the average life and the relative height of the modes. The left moded curves, presented in Figure 2, are those in which the greatest frequency of retirement occurs to the left of, or prior to, average service life. The symmetrical moded curves, presented in Figure 3, are those in which the greatest frequency of retirement occurs at average service life. The right moded curves, presented in Figure 4, are those in which the greatest frequency occurs to the right of, or after, average service life. The origin moded curves, presented in Figure 5, are those in which the greatest frequency of retirement occurs at the origin, or immediately after age zero. The letter designation of each family of curves (L, S, R or O) represents the location of the mode of the associated frequency curve with respect to the average service life. The numbers represent the relative heights of the modes of the frequency curves within each family.

The lowa curves were developed at the lowa State College Engineering Experiment Station through an extensive process of observation and classification of the ages at which industrial property had been retired. A report of the study which resulted in the classification of property survivor characteristics into 18 type curves, which constitute three of the four families, was published in 1935 in the form of the Experiment Station's Bulletin 125.<sup>1</sup> These curve types have also been presented in subsequent Experiment Station bulletins and in the text, "Engineering Valuation and Depreciation."<sup>2</sup> In 1957, Frank V. B. Couch, Jr., an Iowa State College graduate student, submitted a thesis<sup>3</sup> presenting his development of the fourth family consisting of the four O type survivor curves.

<sup>&</sup>lt;sup>1</sup> Winfrey, Robley. <u>Statistical Analyses of Industrial Property Retirements</u>. Iowa State College, Engineering Experiment Station, Bulletin 125. 1935.

<sup>&</sup>lt;sup>2</sup>Marston, Anson, Robley Winfrey and Jean C. Hempstead. Engineering Valuation and Depreciation, 2nd Edition. New York, McGraw-Hill Book Company. 1953.

<sup>&</sup>lt;sup>3</sup>Couch, Frank V. B., Jr. "Classification of Type O Retirement Characteristics of Industrial Property." Unpublished M.S. thesis (Engineering Valuation). Library, Iowa State College, Ames, Iowa. 1957.






Symmetrical or "S" lowa Type Survivor Curves . ო Figure



Right Modal or "R" lowa Type Survivor Curves Figure 4.



Origin Modal or "O" lowa Type Survivor Curves Figure 5.

🎽 Gannett Fleming

### **Retirement Rate Method of Analysis**

The retirement rate method is an actuarial method of deriving survivor curves using the average rates at which property of each age group is retired. The method relates to property groups for which aged accounting experience is available and is the method used to develop the original stub survivor curves in this study. The method (also known as the annual rate method) is illustrated through the use of an example in the following text, and is also explained in several publications, including "Statistical Analyses of Industrial Property Retirements,"<sup>4</sup> "Engineering Valuation and Depreciation,"<sup>5</sup> and "Depreciation Systems."<sup>6</sup>

The average rate of retirement used in the calculation of the percent surviving for the survivor curve (life table) requires two sets of data: first, the property retired during a period of observation, identified by the property's age at retirement; and second, the property exposed to retirement at the beginning of the age intervals during the same period. The period of observation is referred to as the <u>experience band</u>, and the band of years which represent the installation dates of the property exposed to retirement during the experience band is referred to as the <u>placement band</u>. An example of the calculations used in the development of a life table follows. The example includes schedules of annual aged property transactions, a schedule of plant exposed to retirement, a life table and illustrations of smoothing the stub survivor curve.

## **Schedules of Annual Transactions in Plant Records**

The property group used to illustrate the retirement rate method is observed for the experience band 2005-2014 during which there were placements during the years 2000-2014. In order to illustrate the summation of the aged data by age interval, the data were compiled in the manner presented in Schedules 1 and 2 on the following pages. In Schedule 1, the year of installation (year placed) and the year of retirement are shown. The age interval during which a retirement occurred is determined from this information. In the example which follows, \$10,000 of the dollars invested in 2000 were

<sup>5</sup>Marston, Anson, Robley Winfrey, and Jean C. Hempstead, Supra Note 2.

<sup>&</sup>lt;sup>4</sup>Winfrey, Robley, Supra Note 1.

<sup>&</sup>lt;sup>6</sup>Wolf, Frank K. and W. Chester Fitch. <u>Depreciation Systems</u>. Iowa State University Press. 1994.

Experi	ence Ban	id 2005-20	14							ш	Placement Band	2000-2014
Year Placed				Retiren	<u>nents, Tho</u> Durinc	usands of I Year	Dollars				Total During Age Interval	Age Interval
(1)	<u>2005</u> (2)	<u>2006</u> (3)	<u>2007</u> (4)	<u>2008</u> (5)	(6)	<u>2010</u> (7)	<u>2011</u> (8)	<u>2012</u> (9)	<u>2013</u> (10)	<u>2014</u> (11)	(12)	(13)
1999 2000	10	L 5	12 13	13 15	14 16	16 18	23 20	24 21	25 22	26 19	26 44	13½-14½ 12%-13½
2001	: [	12	13	5 4	16	17	19	21	22	18	64	11½-12½
2002	8	ი	10	11	11	13	14	15	16	17	83	10½-111/2
2003	ი	10	1	12	13	14	16	17	19	20	93	9½-10½
2004	4	6	10	11	12	13	14	15	16	20	105	81⁄2-91⁄2
2005		S	11	12	13	14	15	16	18	20	113	7½-81⁄2
2006			9	12	13	15	16	17	19	19	124	61/2-71/2
2007				9	13	15	16	17	19	19	131	5½-6½
2008					7	14	16	17	19	20	143	4½-5½
2009						8	18	20	22	23	146	3½-41⁄2
2010							ი	20	22	25	150	21⁄2-31⁄2
2011								1	23	25	151	11/2-21/2
2012									11	24	153	11/2-11/2
2013										13	80	0-1⁄2
Total	53	68	86	106	128	157	196	231	273	308	1,606	

SCHEDULE 1. RETIREMENTS FOR EACH YEAR 2005-2014 SUMMARIZED BY AGE INTERVAL

FortisBC Inc. 2014 Depreciation Study

SCHEDULE 2. OTHER TRANSACTIONS FOR EACH YEAR 2005-2014 SUMMARIZED BY AGE INTERVAL
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Experience Band 2005-2014

Placement Band 2000-2014

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		Age	Interval	(13)	13½-14½	12½-13½	111/2-121/2	10½-11½	9½-10½	8½-9½	7½-8½	61⁄2-71⁄2	5½-6½	4½-5½	31⁄2-41⁄2	21⁄2-31⁄2	11⁄2-21⁄2	11/2-11/2	0-½		
		Total During	<u>Age Interval</u>	(12)		ı	ı	60		(2)	ı	ı	ı	ı	10	ı	(121)			(50)	
			2014	(11)	ı		ı	ı	·	ı		ı	ı	ı	ı	ı	(102) <sup>c</sup>	ı		(102)	
			2013	(10)	ı		ı	ı	ı	ı		ı	ı	$22^{a}$	ı	ı	ı	ı		22	
of Dollars			2012	(6)	·		ı	(5) <sup>b</sup>	6 <sup>a</sup>	·			(12) <sup>b</sup>	•	(19) <sup>b</sup>		•			(30)	
ousands c			2011	(8)	60 <sup>a</sup>		ı			·			·	•						60	
Acquisitions, Transfers and Sales, Th During Year	g Year		2010	()	ı	·	ı	ı		ı		ı	ı	ı						ı	
	Durinç		2009	(9)	ı	,	ı	ı		ı	,	ı	ı	ı							
			2008	(2)	ı	,	ı	ı		ı	,	ı	ı								
			2007	(4)	ı	,	ı	·		ı	,	ı									
			2006	(3)	ı	,	ı	·		ı	,										
			2005	(2)	ı		ı	ı		ı										ı	
	-	Year	Placed	(1)	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	Total	

<sup>a</sup> Transfer Affecting Exposures at Beginning of Year  $^{\rm b}$  Transfer Affecting Exposures at End of Year

Parentheses Denote Credit Amount.  $^{\circ}$  Sale with Continued Use

retired in 2005. The \$10,000 retirement occurred during the age interval between 4½ and 5½ years on the basis that approximately one-half of the amount of property was installed prior to and subsequent to July 1 of each year. That is, on the average, property installed during a year is placed in service at the midpoint of the year for the purpose of the analysis. All retirements also are stated as occurring at the midpoint of a one-year age interval of time, except the first age interval which encompasses only one-half year.

The total retirements occurring in each age interval in a band are determined by summing the amounts for each transaction year-installation year combination for that age interval. For example, the total of \$143,000 retired for age interval  $4\frac{1}{2}-5\frac{1}{2}$  is the sum of the retirements entered on Schedule 1 immediately above the stair step line drawn on the table beginning with the 2005 retirements of 2000 installations and ending with the 2014 retirements of the 2009 installations. Thus, the total amount of 143 for age interval  $4\frac{1}{2}-5\frac{1}{2}$  equals the sum of:

10 + 12 + 13 + 11 + 13 + 13 + 15 + 17 + 19 + 20.

In Schedule 2, other transactions which affect the group are recorded in a similar manner. The entries illustrated include transfers and sales. The entries which are credits to the plant account are shown in parentheses. The items recorded on this schedule are not totaled with the retirements, but are used in developing the exposures at the beginning of each age interval.

## Schedule of Plant Exposed to Retirement

The development of the amount of plant exposed to retirement at the beginning of each age interval is illustrated in Schedule 3 on the following page. The surviving plant at the beginning of each year from 2005 through 2014 is recorded by year in the portion of the table headed "Annual Survivors at the Beginning of the Year." The last amount entered in each column is the amount of new plant added to the group during the year. The amounts entered in Schedule 3 for each successive year following the beginning balance or addition, are obtained by adding or subtracting the net entries



Placement Band 2000-2014

SCHEDULE 3. PLANT EXPOSED TO RETIREMENT JANUARY 1 OF EACH YEAR 2005-2014 SUMMARIZED BY AGE INTERVAL

Experience Band 2005-2014

ו ומכפווופווו חמוות בססס-בס

		Age	Interval	(13)	13½-14½	12½-13½	111/2-121/2	10½-11½	9½-10½	8½-9½	7½-8½	6½-7½	5½-6½	4½-5½	3½-4½	2½-3½	11⁄2-21⁄2	11/2-11/2	0-1⁄2	
Total at	Beginning	of Age	Interval	(12)	167	323	531	823	1,097	1,503	1,952	2,463	3,057	3,789	4,332	4,955	5,719	6,579	7,490	44,780
			2014	(11)	167	131	162	226	261	316	356	412	482	609	663	799	923	1,069	1,220 <sup>a</sup>	7,799
			2013	(10)	192	153	184	242	280	332	374	431	501	628	685	821	949	1,080 <sup>a</sup>		6,852
	ar		2012	(6)	216	174	205	262	267	347	390	448	530	623	724	841	960 <sup>a</sup>			6,017
isands of Dollars	g of the Ye		2011	(8)	239	194	224	276	307	361	405	464	546	639	742	850 <sup>a</sup>				5,247
	Beginninç		2010	(2)	195	212	241	289	321	374	419	479	561	653	750 <sup>a</sup>					4,494
ures, Thou	vors at the		2009	(9)	209	228	257	300	334	386	432	492	574	660 <sup>a</sup>						3,872
Exposu	nual Survi		2008	(5)	222	243	271	311	346	397	444	504	$580^{a}$							3,318
	An		2007	(4)	234	256	284	321	257	407	455	$510^{a}$								2,824
			2006	(3)	245	268	296	330	367	416	$460^{a}$									2,382
			2005	(2)	255	279	307	338	376	420 <sup>a</sup>										1,975
		Year	Placed	(1)	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	Total

<sup>a</sup> Additions during the year.

shown on Schedules 1 and 2. For the purpose of determining the plant exposed to retirement, transfers-in are considered as being <u>exposed</u> to retirement in this group <u>at</u> the beginning of the year in which they occurred, and the sales and transfers-out are considered to be removed from the plant exposed to retirement at the <u>beginning of</u> the following year. Thus, the amounts of plant shown at the beginning of each year are the amounts of plant from each placement year considered to be exposed to retirement at the beginning of each successive transaction year. For example, the exposures for the installation year 2006 are calculated in the following manner:

Exposures at age 0	= amount of addition	= \$750,000
Exposures at age 1/2	= \$750,000 - \$ 8,000	= \$742,000
Exposures at age 1 <sup>1</sup> / <sub>2</sub>	= \$742,000 - \$18,000	= \$724,000
Exposures at age 2 <sup>1</sup> / <sub>2</sub>	= \$724,000 - \$20,000 - \$19,000	= \$685,000
Exposures at age 3 <sup>1</sup> / <sub>2</sub>	= \$685,000 - \$22,000	= \$663,000

For the entire experience band 2005-2014, the total exposures at the beginning of an age interval are obtained by summing diagonally in a manner similar to the summing of the retirements during an age interval (Schedule 1). For example, the figure of 3,789, shown as the total exposures at the beginning of age interval  $4\frac{1}{2}-5\frac{1}{2}$ , is obtained by summing:

255 + 268 + 284 + 311 + 334 + 374 + 405 + 448 + 501 + 609.

# **Original Life Table**

The original life table, illustrated in Schedule 4 on the following page, is developed from the totals shown on the schedules of retirements and exposures, Schedules 1 and 3, respectively. The exposures at the beginning of the age interval are obtained from the corresponding age interval of the exposure schedule, and the retirements during the age interval are obtained from the corresponding age interval of the retirement schedule. The retirement ratio is the result of dividing the retirements during the age interval by the exposures at the beginning of the age interval. The percent surviving at the beginning of each age interval is derived from survivor ratios, each of which equals one minus the retirement ratio. The percent surviving is developed by starting with 100% at age zero and successively multiplying the percent



### SCHEDULE 4. ORIGINAL LIFE TABLE

### CALCULATED BY THE RETIREMENT RATE METHOD

### Experience Band 2005-2014

### Placement Band 2000-2014

### (Exposure and Retirement Amounts are in Thousands of Dollars)

Age at Beginning of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retirement Ratio	Survivor Ratio	Percent Surviving at Beginning of Age Interval
(1)	(2)	(3)	(4)	(5)	(6)
0.0	7,490	80	0.0107	0.9893	100.00
0.5	6,579	153	0.0233	0.9767	98.93
1.5	5,719	151	0.0264	0.9736	96.62
2.5	4,955	150	0.0303	0.9697	94.07
3.5	4,332	146	0.0337	0.9663	91.22
4.5	3,789	143	0.0377	0.9623	88.15
5.5	3,057	131	0.0429	0.9571	84.83
6.5	2,463	124	0.0503	0.9497	81.19
7.5	1,952	113	0.0579	0.9421	77.11
8.5	1,503	105	0.0699	0.9301	72.65
9.5	1,097	93	0.0848	0.9152	67.57
10.5	823	83	0.1009	0.8991	61.84
11.5	531	64	0.1205	0.8795	55.60
12.5	323	44	0.1362	0.8638	48.90
13.5	<u>    167</u>	<u>26</u>	0.1557	0.8443	42.24
					35.66
Total	<u>44,780</u>	<u>1,606</u>			

Column 2 from Schedule 3, Column 12, Plant Exposed to Retirement. Column 3 from Schedule 1, Column 12, Retirements for Each Year. Column 4 = Column 3 divided by Column 2. Column 5 = 1.0000 minus Column 4. Column 6 = Column 5 multiplied by Column 6 as of the Preceding Age Interval. surviving at the beginning of each interval by the survivor ratio, i.e., one minus the retirement ratio for that age interval. The calculations necessary to determine the percent surviving at age 5<sup>1</sup>/<sub>2</sub> are as follows:

Percent surviving at age 4 <sup>1</sup> / <sub>2</sub>	=	88.15				
Exposures at age 41/2	=	3,789,000				
Retirements from age 4 <sup>1</sup> / <sub>2</sub> to 5 <sup>1</sup> / <sub>2</sub>	=	143,000				
Retirement Ratio	=	143,000	÷:	3,789,000	=	0.0377
Survivor Ratio	=	1.000	-	0.0377	=	0.9623
Percent surviving at age 5 <sup>1</sup> / <sub>2</sub>	=	(88.15)	х	(0.9623)	=	84.83

The totals of the exposures and retirements (columns 2 and 3) are shown for the purpose of checking with the respective totals in Schedules 1 and 3. The ratio of the total retirements to the total exposures, other than for each age interval, is meaningless. The original survivor curve is plotted from the original life table (column 6, Schedule 4). When the curve terminates at a percent surviving greater than zero, it is called a stub survivor curve. Survivor curves developed from retirement rate studies generally are stub curves.

## Smoothing the Original Survivor Curve

The smoothing of the original survivor curve eliminates any irregularities and serves as the basis for the preliminary extrapolation to zero percent surviving of the original stub curve. Even if the original survivor curve is complete from 100% to zero percent, it is desirable to eliminate any irregularities, as there is still an extrapolation for the vintages which have not yet lived to the age at which the curve reaches zero percent. In this study, the smoothing of the original curve with established type curves was used to eliminate irregularities in the original curve.

The lowa type curves are used in this study to smooth those original stub curves which are expressed as percents surviving at ages in years. Each original survivor curve was compared to the lowa curves using visual and mathematical matching in order to determine the better fitting smooth curves. In Figures 6, 7, and 8, the original curve developed in Schedule 4 is compared with the L, S, and R lowa type curves which most nearly fit the original survivor curve. In Figure 6, the L1 curve with an

average life between 12 and 13 years appears to be the best fit. In Figure 7, the S0 type curve with a 12-year average life appears to be the best fit and appears to be better than the L1 fitting. In Figure 8, the R1 type curve with a 12-year average life appears to be the best fit and appears to be better than either the L1 or the S0.

In Figure 9, the three fittings, 12-L1, 12-S0 and 12-R1 are drawn for comparison purposes. It is probable that the 12-R1 lowa curve would be selected as the most representative of the plotted survivor characteristics of the group.



FIGURE 6. ILLUSTRATION OF THE MATCHING OF AN ORIGINAL SURVIVOR CURVE WITH AN L1 IOWA TYPE CURVE ORIGINAL AND SMOOTH SURVIVOR CURVES



FIGURE 7. ILLUSTRATION OF THE MATCHING OF AN ORIGINAL SURVIVOR CURVE WITH AN S0 IOWA TYPE CURVE ORIGINAL AND SMOOTH SURVIVOR CURVES



FIGURE 8. ILLUSTRATION OF THE MATCHING OF AN ORIGINAL SURVIVOR CURVE WITH AN R1 IOWA TYPE CURVE ORIGINAL AND SMOOTH SURVIVOR CURVES



FIGURE 9. ILLUSTRATION OF THE MATCHING OF AN ORIGINAL SURVIVOR CURVE WITH AN L1, S0 AND R1 IOWA TYPE CURVE ORIGINAL AND SMOOTH SURVIVOR CURVES



APPENDIX B ESTIMATION OF NET SALVAGE

### ESTIMATION OF NET SALVAGE

The estimates of net salvage were based primarily on the professional judgment of Gannett Fleming, in part on historical data, and in part through a comparison to peer companies. Gross salvage and cost of removal as recorded to the depreciation reserve account and related to experienced retirements are used. Percentages of the cost of plant retired are calculated for each component of net salvage on both annual and three-year moving average bases.

The net salvage percentages estimated is usually determined using the "Traditional Approach" for net salvage estimation. When a utility retires plant, the plant may be: (1) sold to a third party; (2) reused by the utility for additional service; (3) abandoned in place; or (4) physically removed. In the circumstances where the plant is sold or re-used, a salvage proceed (or positive salvage amount) is normally recognized. In circumstances where the plant is abandoned in place or physically removed, a cost of removal expenditure (or negative salvage) is incurred. The net of these estimated gross salvage proceeds and the estimated costs of removal are expressed as a percentage of the account's original cost to determine a net salvage percentage. In the circumstances where the salvage proceeds exceed the costs of removal expenditive salvage percentage exists. In the circumstances where the costs of removal exceed the salvage proceeds, a net negative salvage percentage results.

The estimation of the net salvage percentages developed using the traditional approach, includes the following steps:

- 1. The annual retirement, gross salvage and cost of removal transactions for the period of analysis are extracted from the plant accounting systems.
- 2. A net salvage amount (gross salvage proceeds less cost of retirement) is calculated for each historic year. Additionally, a net salvage amount is also calculated for each historic three-year rolling band and the most recent five-year rolling band.
- 3. The net salvage amount determined above is compared to the original booked costs retired for each period in the manner described, which results in a net salvage percentage of original costs retired for each year, in addition to three-year rolling bands and the most recent five-year rolling band.

- 4. The annual, the three-year rolling average, and the most recent five-year rolling average net salvage percentages are analyzed to determine a reasonable estimated net salvage percentage. At this point the net salvage percentage is based purely upon statistical analysis.
- 5. Each account is then compared to the net salvage percentage currently approved, compared to peer companies, and discussed with company engineering staff. Based on the statistical analysis, the review of current and peer company net salvage percentages, and with the professional judgment of Gannett Fleming, a net salvage percentage is determined for each account.
- 6. The net salvage percentage is then used in the depreciation rate calculations in the technical update.





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Appendix D DRAFT ORDER



BRITISH COLUMBIA UTILITIES COMMISSION

Order Number

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SIXTH FLOOR, 900 HOWE STREET, BOX 250 VANCOUVER, BC V6Z 2N3 CANADA web site: http://www.bcuc.com

#### DRAFT ORDER

IN THE MATTER OF the Utilities Commission Act, R.S.B.C. 1996, Chapter 473

and

An Application by FortisBC Inc. for Approval of 2016 Rates Pursuant to the Multi-Year Performance Based Ratemaking Plan Approved for 2014 through 2019 by Order G-139-14

**BEFORE:** 

(Date)

#### WHEREAS:

- A. On September 15, 2014, the British Columbia Utilities Commission (Commission) issued its Decision and Order G-139-14 (the PBR Decision) approving for FortisBC Inc. (FBC) a Multi-Year Performance Based Ratemaking (PBR) Plan for 2014 through 2019;
- B. Pursuant to the PBR Decision, under the PBR Plan, FBC is to conduct an Annual Review process to set rates for each year;
- C. On September 11, 2015, FBC submitted an application for its Annual Review of 2016 Rates (the Application);
- D. The Commission has reviewed the Application and concludes that approval is warranted.

**NOW THEREFORE** pursuant to Section 59 to 61 of the *Utilities Commission Act*, the Commission approves the following:

1. Interim rates for all customers effective January 1, 2016 as proposed in the Application, resulting in an increase of 1.98 per cent compared to 2015 rates.

BRITISH COLUMBIA UTILITIES COMMISSION

Order Number

2. The creation of non-rate base deferral accounts, for the following upcoming regulatory proceedings as described in Section 7.5 of the Application:

2

- 1. Capacity and Energy Purchase and Sale Agreement (CEPSA) application and regulatory proceeding, financed at FBC's short term interest rate; and
- 2. 2017 Rate Design Application, financed at FBC's weighted average cost of debt.
- 3. Amortization of \$6.201 million of the 2015 closing balance of the 2014 Interim Rate Variance deferral account, with the remainder to be amortized in 2017, as set out in Section 12.4.2.1 of the Application
- 4. Depreciation rates in the amounts set out in Table 12-2 in Section 12 of the Application.
- 5. Net salvage rates in the amounts set out in Table 12-3 in Section 12 of the Application.

**DATED** at the City of Vancouver, In the Province of British Columbia, this day of <<u>MONTH></u>, 2015.

BY ORDER