Dennis Swanson
Director, Regulatory Affairs

FortisBC Inc.
Suite 100 - 1975 Springfield Road
Kelowna, BC V1Y 7V7
Ph: (250) 717-0890
Fax: 1-866-335-6295
electricity.regulatory.affairs@fortisbc.com
www.fortisbc.com

October 5, 2012

Via Email
Original via mail

Ms. Erica Hamilton
Commission Secretary
BC Utilities Commission
Sixth Floor, 900 Howe Street, Box 250
Vancouver, BC V6Z 2N3

Dear Ms. Hamilton:

Re: ***FortisBC Inc. Application for a Certificate of Public Convenience and Necessity for the Advanced Metering Infrastructure Project – Errata 1***

FortisBC Inc. (FortisBC or the Company) provides the following errata to its application for a Certificate of Public Convenience and Necessity for the Advanced Metering Infrastructure Project. Replacement pages are attached.

Please note, an updated working electronic Excel model for the financial analysis of the Project is provided as an electronic attachment to this submission.

1 **FortisBC AMI CPCN Application, Executive Summary, page 5, line 17**
"19" should read "18"

2 **FortisBC AMI CPCN Application, Tab 3, page 19, line 5**
"19" should read "18"

3 **FortisBC AMI CPCN Application, Tab 3, page 30, line 9**
"19" should read "18"

4 **FortisBC AMI CPCN Application, Tab 5, page 69, line 4**
"18.6" should read "17.6"

5 FortisBC AMI CPCN Application, Tab 5, page 69, Table 5.0
Meter Exchanges - “797” should read “1,478”
Depreciation Costs - “14,686” should read “16,464”
Carrying Costs - “17,239” should read “17,163”
Income Tax - “4,043” should read “3,982”
Total - “18,589” should read “17,629”

6 FortisBC AMI CPCN Application, Tab 5, page 72, Table 5.1.b
Meter Growth and Replacement - “(183)” should read “99”
Meter Growth and Replacement - “(169)” should read “100”
Meter Growth and Replacement - “(243)” should read “85”
Meter Growth and Replacement - “3,854” should read “4,001”
Meter Growth and Replacement - “3,259” should read “4,286”
Total Capital - “(1,050)” should read “(767)”
Total Capital - “(504)” should read “(234)”
Total Capital - “(1,143)” should read “(815)”
Total Capital - “(836)” should read “(688)”
Total Capital - “(3,678)” should read “(2,652)”
Meter Exchanges - “915” should read “(713)”
Meter Exchanges - “(174)” should read “(1,802)”
Total Operating Expenses - “(38,762)” should read “(40,390)”
Total Operating Expenses - “(40,518)” should read “(42,146)”

7 FortisBC AMI CPCN Application, Tab 5, page 73, Table 5.1.1a
Line 1 - “291” should read “275”
Line 2 - “1,687” should read “2,217”
Line 3 - "275” should read “423”
Line 4 – “2,660” should read “2,000”
Line 5 – “4,913” should read “4,915”

8 FortisBC AMI CPCN Application, Tab 5, page 76, Line 2
“5.22” should read “5.40”

9 FortisBC AMI CPCN Application, Tab 5, page 76, Line 14
“15.72” should read “16.24”

10 FortisBC AMI CPCN Application, Tab 5, page 77, Line 2
“18.6” should read “17.6”

11 FortisBC AMI CPCN Application, Tab 5, page 95, Table 5.3.5.a
“511” should read “166”
“542” should read “190”
“573” should read “215”

“626” should read “262”
“245” should read “(46)
“218” should read “(78)
“(151) should read “(60)
“(155)” should read “(63)”
“(193) should read “(99)”
“(116)” should read “(21)”
“357” should read “364”

12 FortisBC AMI CPCN Application, Tab 5, page 95, line 3
“0.8” should read “1.5”

13 FortisBC AMI CPCN Application, Tab 7, page 106, Table 7.1.a
Meter Growth and Replacement - “406” should read “160”
Meter Growth and Replacement - “474” should read “192”
Meter Growth and Replacement - “453” should read “184”
Meter Growth and Replacement - “533” should read “205”
Meter Growth and Replacement - "5,942” should read “2,764”
Meter Growth and Replacement - "7,808” should read “3,505”
Total Capital - “552” should read “307”
Total Capital - “1,633” should read “1,350”
Total Capital - “1,356” should read “1,087”
Total Capital - “2,011” should read “1,683”
Total Capital - “21,960” should read “18,782”
Total Capital - "27,513” should read “23,209”
Meter Exchanges - "311” should read “242”
Meter Exchanges - "5,371” should read “5,297”
Total Operating Expenses - "3,822” should read “3,752”
Total Operating Expenses - "107,387” should read “107,313

14 FortisBC AMI CPCN Application, Tab 7, page 109, Table 7.2.a
Project Capital - “6,923” should read “6,891”
Project Capital - “28,302” should read “28,270”
Meter Growth and Replacement - “406” should read “160”
Meter Growth and Replacement - "8,672” should read “5,642”
Meter Growth and Replacement – “9,349” should read “6,479”
Total Capital - “7,297” should read “7,051”
Total Capital - "9,830” should read “6,799”
Total Capital - "39,283” should read “36,006”
Meter Exchanges - "312” should read “242”
Meter Exchanges - "4,644” should read “3,015”
Meter Exchanges - "5,198” should read “3,495”
Total Operating Expenses - "3,822” should read “3,752”
Total Operating Expenses - "55,340” should read “53,712”
Total Operating Expenses - "71,738” should read “70,036”

15 FortisBC AMI CPCN Application, Tab 7, page 110, Table 7.2.b

Meter Growth and Replacement - “(427)” should read “36”
Meter Growth and Replacement - “(231)” should read “38”
Meter Growth and Replacement - “(306)” should read “22”

Meter Growth and Replacement - "2,731” should read “2,878”
Meter Growth and Replacement - “1,947” should read “2,974”
Total Capital - “6,777” should read “6,744”
Total Capital - “9,815” should read “10,098”
Total Capital - “9,090” should read “9,359”
Total Capital - “(1,748)” should read “(1,421)”
Total Capital - "(12,131)” should read “(11,983)”
Total Capital - "11,770” should read “12,797”
Meter Exchanges - "915” should read “(713)”
Meter Exchanges - "(174)” should read “(1,802)”
Total Operating Expenses - "(32,067)” should read “(33,696)”
Total Operating Expenses - "(35,649)” should read “(37,277)”

16 FortisBC AMI CPCN Application, Tab 7, page 113, Table 7.3.a
Meter Growth and Replacement - “406” should read “160”
Meter Growth and Replacement - "9,796” should read “6,765"
Meter Growth and Replacement – “11,067” should read “7,791”
Total Capital - “16,768” should read “16,523”
Total Capital - "21,081” should read “18,050”
Total Capital - "90,139” should read “86,862”
Meter Exchanges - "312” should read “242”
Meter Exchanges - "4,644” should read “3,015”
Meter Exchanges - "5,198” should read “3,495”
Total Operating Expenses - "3,822” should read “3,752”
Total Operating Expenses - "45,524” should read “43,896”
Total Operating Expenses - "63,304” should read “61,601”

17 FortisBC AMI CPCN Application, Tab 7, page 114, Table 7.3.b
Meter Growth and Replacement - “(183)” should read “99”
Meter Growth and Replacement - “(169)” should read “100”
Meter Growth and Replacement - “(243)” should read “85”
Meter Growth and Replacement - “3,854” should read “4,001”
Meter Growth and Replacement - "3,259” should read “4,286”
Total Capital - "24,643” should read “24,925”
Total Capital - "23,792” should read “24,061”
Total Capital - "(1,144)” should read “(816)”
Total Capital - "(879)” should read “(732)”
Total Capital - "62,626” should read “63,653”
Meter Exchanges - "915” should read “(713)”
Meter Exchanges - "(174)” should read “(1,802)”
Total Operating Expenses - "(41,883)” should read “(43,512)”
Total Operating Expenses - "(44,083)” should read “(45,712)”

18 FortisBC AMI CPCN Application, Tab 7, page 116, Table 7.4.a
Meter Growth and Replacement - “406” should read “160”
Meter Growth and Replacement - "9,796” should read “6,765"
Meter Growth and Replacement – “11,067” should read “7,791”
Total Capital - “14,136” should read “13,891”
Total Capital - "21,125” should read “18,094”
Total Capital - "71,523” should read “68,247”
Meter Exchanges - "312” should read “242”
Meter Exchanges - "4,644” should read “3,015”
Meter Exchanges - "5,198” should read “3,495”
Total Operating Expenses - "3,822” should read “3,752”
Total Operating Expenses - "48,646” should read “47,017”
Total Operating Expenses - "66,869” should read “65,167”

19 FortisBC AMI CPCN Application, Tab 7, page 117, Table 7.4.b
Meter Growth and Replacement - “(183)” should read “99”
Meter Growth and Replacement - “(169)” should read “100”
Meter Growth and Replacement - “(243)” should read “85”
Meter Growth and Replacement - “3,854” should read “4,001”
Meter Growth and Replacement - "3,259” should read “4,286”
Total Capital - "(15,743)” should read “(16,026)”
Total Capital - "(16,682)” should read “(16,931)”
Total Capital - "(1,143)” should read “(815)”
Total Capital - "(836)” should read “(688)”
Total Capital - "44,011” should read “45,037”
Meter Exchanges - "915” should read “(713)”
Meter Exchanges - "(174)” should read “(1,802)”
Total Operating Expenses - "(38,762)” should read “(40,390)”
Total Operating Expenses - "(40,518)” should read “(42,146)”

20 FortisBC AMI CPCN Application, Tab 7, page 119, Table 7.5.a
Total Capital (Status Quo) - “552” should read “307”
Total Capital (Status Quo) - “1,633” should read “1,350”
Total Capital (Status Quo) - “1,356” should read “1,087”
Total Capital (Status Quo) - “2,011” should read “1,683”
Total Capital (Status Quo) - “21,960” should read “18,782”
Total Capital (Status Quo) - “27,513” should read “23,209”
Total Operating Expenses (Status Quo) - “3,822” should read “3,752”
Total Operating Expenses (Status Quo) - “107,387” should read “107,313”
Total Capital (AMR) - “7,329” should read “7,051”
Total Capital (AMR) - “9,830” should read “6,799”
Total Capital (AMR) - “39,315” should read “36,006”
Total Operating Expenses (AMR) - “3,822” should read “3,752”
Total Operating Expenses (AMR) - “55,340” should read “53,712”
Total Operating Expenses (AMR) - “71,738” should read “70,036”
Total Capital (PLC) - “16,768” should read “16,523”
Total Capital (PLC) - “21,081” should read “18,050”
Total Capital (PLC) - “90,139” should read “86,862”

Total Operating Expenses (PLC) - “3,822” should read “3,752”
Total Operating Expenses (PLC) - “45,524” should read “43,896”
Total Operating Expenses (PLC) - “63,304” should read “61,601”
Total Capital (AMI) - “14,136” should read “13,891 ”
Total Capital (AMI) - “21,125” should read “18,094”
Total Capital (AMI) - “71,523” should read “68,247”
Total Operating Expenses (AMI) - “3,822” should read “3,752”
Total Operating Expenses (AMI) - “48,646” should read “47,017”
Total Operating Expenses (AMI) - “66,869” should read “65,167”

21 FortisBC AMI CPCN Application, Tab 7, page 120, Table 7.5.b
Total Capital (AMR) - “9,815” should read “10,098”
Total Capital (AMR) - “9,090” should read “9,359”
Total Capital (AMR) - “(1,748)” should read “(1,421)”
Total Capital (AMR) - “(12,131)” should read “(11,983)”
Total Capital (AMR) - “11,770” should read “12,797”
Total Operating Expenses (AMR) - “(32,067)” should read “(33,696)”
Total Operating Expenses (AMR) - “(35,649)” should read “(37,277)”
Total Capital (PLC) - “24,643” should read “24,925”
Total Capital (PLC) - “23,792” should read “24,061”
Total Capital (PLC) - “(1,144)” should read “(816)”
Total Capital (PLC) - “(879)” should read “(732)”
Total Capital (PLC) - “62,626” should read “63,653”
Total Operating Expenses (PLC) - “(41,883)” should read “(43,512)”
Total Operating Expenses (PLC) - “(44,083)” should read “(45,712)
Total Capital (AMI) - “(13,584)” should read “13,584”
Total Capital (AMI) - “(15,743)” should read “16,026”
Total Capital (AMI) - “(16,682)” should read “16,931”
Total Capital (AMI) - “(1,143)” should read “(815)”
Total Capital (AMI) - “(836)” should read “(688)”
Total Capital (AMI) - “44,011” should read “45,037”
Total Operating Expenses (AMI) - “(38,762)” should read “(40,390)”
Total Operating Expenses (AMI) - “(40,518)” should read “(42,146)”

22 FortisBC AMI CPCN Application, Tab 7, page 121, Table 7.5.c
“815” should read “1,320”
“(4,969)” should read “(4,074)
“(18,589)” should read “(17,629)”

23 FortisBC AMI CPCN Application, Tab 7, page 121, Figure 7.5.a
Replacement Figure attached.

24 FortisBC AMI CPCN Application, Tab 7, page 122, Figure 7.5.b
Replacement Figure attached.

25 FortisBC AMI CPCN Application, Tab 7, page 122, Table 7.6.d
“0.19” should read “0.15”

"-0.63" should read "-0.73"
"-0.99" should read "-1.02"

26 FortisBC AMI CPCN Application, Tab 7, page 122, Figure 7.5.c
Replacement Figure attached.

27 FortisBC AMI CPCN Application, Appendix D
Updated appendix attached.

If further information is required, please contact the undersigned at (250) 717-0890.

Sincerely,

Dennis Swanson
Director, Regulatory Affairs

communications network and meter deployment (Items 1, 2 and 3). BC Hydro has also selected Itron Canada as the vendor for its AMI system. Further discussion of the RFP process is provided in Section 4.2.

The Project milestones described within this Application presume a BCUC decision regarding the CPCN application by the second quarter of 2013 (Item 5).

During 2013 the Company plans to focus on building and testing the software components of the AMI Project, inclusive of integration with existing FortisBC systems. This work is anticipated to proceed into 2014 (Item 6).

Deployment of the communications network is expected to commence in late 2013 and meters in early 2014 (Items 7 and 8). Field and acceptance testing, and final Project completion will take two years (Item 9), with an expected completion date in 2015.

In addition to the various non-financial benefits discussed above, financial analysis of the Project, as evaluated over a 20 year period, shows that rates will be lower than they would be without the AMI Project, due primarily to cost savings from reduced electricity theft and a reduction in manual meter reading costs. It is expected that advanced metering will provide a rate decrease of approximately 1 percent over the life of the Project, saving customers approximately $18 million on a net present value basis using an 8 percent discount rate. In summary, FortisBC believes that the Application demonstrates that the AMI Project is in the public interest and asks that a CPCN be granted to the Company for the Project.

2. Consistency with British Columbia's energy objectives;
3. Is a prerequisite step in the evolution of the Company's long-term smart grid vision;
4. Provides numerous non-financial benefits to the Company's customers; and
5. Results in approximately $18 million in savings (on a net present value basis) as evaluated over a 20 year period (associated rate reduction of approximately 1 percent).

Each of these benefits is discussed in further detail below.

3.2.1 BETTER INFORMATION AND BETTER COST MANAGEMENT ABILITY

As discussed above, AMI has the ability to provide more and better information regarding energy consumption. This, in turn, will provide an improved ability to manage the cost of electricity from both customers' and the Company's perspective.

From the customers' perspective, FortisBC expects that the capability afforded by the AMI system for customers to access their usage history and statistics through an online customer information portal or through an optional IHD will result in greater customer satisfaction since they will be able to get detailed information about the quantity and timing of their energy consumption. FortisBC plans to provide an overlay of ambient temperatures coinciding with the hourly meter readings in the proposed customer information portal, helping customers better understand the relationship between temperature and electricity consumption for their particular premises. This information will help customers make decisions regarding their energy consumption relative to their personal needs. Additionally, for customers who require FortisBC's assistance in resolving unexplained high consumption, the capability of an AMI system to provide readings at regular intervals will allow customers (through the online customer information portal), as well as FortisBC customer service representatives, to examine electric usage in a timely and unobtrusive manner. In particular, for customers requesting the assistance of the FortisBC PowerSense department, this capability will improve the timeliness with which the Company can provide energy efficiency recommendations to a customer.

From the Company's perspective, the existing manual meter reading process inherently makes it expensive to obtain customer consumption data beyond the single readings typically obtained every two months. AMI will reduce the incremental cost of additional

The technology of AMI is a fundamental prerequisite for FortisBC's smart grid vision since it includes deployment of a widespread communication network throughout the Company's service territory. The new network infrastructure associated with AMI has the potential to change the way that FortisBC operates its distribution infrastructure and how the Company interacts with its customers, and will help prepare the electrical infrastructure for new customer loads and technologies such as distributed generation and plug-in hybrid electric vehicles.

3.2.4 FINANCIAL BENEFITS TO CUSTOMERS

The installation of AMI will save customers approximately $18 million on a net present value basis over the 20 year evaluation of the Project. The financial benefits provided by AMI will mitigate future rate increases. In absence of the Project rates will be higher than they would be with implementation of the Project. Section 5.3 below provides details on the financial benefits, including costs savings and reduction of revenue loss, associated with the AMI Project. The main cost savings include:

1. Reductions in costs related to manual meter reading function;
2. Reduction of revenue loss associated with electricity theft;
3. Avoided cost of accelerated replacement of existing meters associated with the new Measurement Canada sampling plan (S-S-06);
4. Reductions in costs related to meter exchanges and meter compliance testing; and
5. Reduction in costs related to disconnection/reconnection of meters for non-payment.

Financial analysis of the Project shows that rates will be approximately 1 percent lower than they would without the AMI Project over the 20 year study period.

Although not included in the financial model, there is also an inherent opportunity cost if AMI is not pursued at this time due to the non-financial customer service and operational benefits associated with the Project that will not be realized should the Project not proceed. Further discussion of these non-financial benefits is provided below.

5.0 PROJECT COSTS AND BENEFITS

This section of the Application describes in detail the costs and benefits expected from implementation of the FortisBC AMI Project.

The capital cost of the Project is $47.7 million and will provide customers with $17.6 million in net benefits over the economic life of the Project, in addition to a number of operational and customer service benefits. Financial analysis of the Project shows that rates will be lower than they would be without the AMI Project as evaluated over the 20 year study period, due primarily to cost savings from reduced electricity theft and a reduction in manual meter reading. In the analysis of net benefits, FortisBC has accounted for all known and foreseeable capital and operating costs and savings related to the Project.

The summary table below displays the total savings to FortisBC customers between 2015 and 2030 and calculates the net present value of these savings in 2012 dollars.

Table 5.0 - AMI Cost and Benefit Summary

Benefits		**2012 NPV ($000s)**
	Meter Reading	(23,785)
	Theft Reduction	(38,386)
	Remote Disconnect/Reconnect	(5,466)
	Meter Exchanges	(1,478)
	Contact Centre	(441)
Costs		
	Operating Costs	14,320
	Depreciation Costs	16,464
	Carrying Costs	17,163
	Income Tax	3,982
Total		**(17,629)**

This section of the Application describes in detail the estimated capital expenditures and cost savings expected from implementation of the AMI Project. Section 5.1 provides information regarding the costs of implementing AMI. Section 5.2 summarizes the revenue requirement and rate impact related to the AMI Project. Section 5.3 details the quantifiable financial benefits that will be realized from the Project.

Table 5.1.b – Summary of All Incremental Non-Project Costs and Benefits

AMI	2013	2014	2015	2016	2017 – 2032	Total
Sustaining Capital						
Meter Growth and Replacement	-	99	100	85	4,001	4,286
Handheld Replacement	-	(250)	-	-	(899)	(1,149)
IT Hardware, Licensing, and Support Costs	-	292	568	578	11,329	12,767
Measurement Canada Compliance	(146)	(909)	(903)	(1,478)	(15,119)	(18,555)
Total Capital	**(146)**	**(767)**	**(234)**	**(815)**	**(688)**	**(2,652)**
Operating Expenses						
New Operating Costs	-	875	1,529	1,556	28,236	32,196
Meter Reading	-	-	(998)	(2,544)	(54,574)	(58,116)
Disconnect/Reconnect	-	(133)	(414)	(544)	(12,176)	(13,267)
Meter Exchanges	-	(349)	(331)	(408)	(713)	(1,802)
Contact Centre	-	20	7	(20)	(1,163)	(1,157)
Total Operating Expenses	**-**	413	(208)	(1,961)	(40,390)	(42,146)
Theft Reduction	(383)	(987)	(1,711)	(2,835)	(87,789)	(93,705)

The financial analysis of the proposed AMI Project includes the impact of the net sustaining capital and operating costs as shown in the table above. A copy of the financial NPV analysis of the AMI Project is provided in Appendix D, and has also been included as an embedded electronic Excel file with this filing.

5.1.1 CPCN DEVELOPMENT/APPROVAL COSTS

FortisBC has been developing this CPCN Application over the past several years, capturing the costs in a non-rate base deferral account, and reporting the details to the Commission in relevant revenue requirements filings. These deferred expenditures have been included in this Application as part of the Project and for Commission approval as part of the CPCN Application, and, following Project approval, will be amortized over the life of the Project. The following are the costs incurred by the Project at the date of filing.

Table 5.1.1.a - AMI Project Development and Regulatory Costs

	Activity	Cost
	($000s)	
1	2007 AMI Application	275
2	2012 AMI Application	2,217
3	Consultants	423
4	Regulatory Process (forecast)	2,000
5	**Total**	**4,915**

As detailed above, the Company expects to incur costs of approximately $4.9 million, inclusive of the CPCN development cost, the proposed 2012 hybrid written/oral regulatory process, and additional public communications.

In the event that the proposed Project is not approved, FortisBC intends to apply, as part of its next revenue requirement, for recovery of the Project development costs incurred. FortisBC submits that these costs have been prudently incurred, particularly in consideration of the following:

- Section 17 of the CEA, which includes the government's goal of having smart metres, other advanced meters and a smart gird in use with respect to customers other than those of the authority;
- The Commission's Reasons for Decision accompanying Order G-168-08, and in particular the Commission Panel's encouragement to FortisBC to continue its efforts to develop and, in due course, reapply for approval of a comprehensive and complete program for the installation and implementation of Advanced Metering Infrastructure and related technologies; and
- Recognition that a majority of Canadian utilities are transitioning to the use of advanced metering systems as the industry standard in metering.

Based on FortisBC's submission regarding the prudency of the incurred Project development costs, the recovery of these costs has been included as part of the proposed AMI Project, as well as in all alternative scenarios as discussed in Section 7.0.

5.2.3 COMPOSITE DEPRECIATION RATE

The composite depreciation rate of 5.40 percent for the Project was calculated based on the following estimated depreciation rate of each asset class as below:

- Meters - Assumptions regarding depreciation rates for the AMI meters have been determined based on the observed useful lives as established through industry experience, as well as through the manufacturer's recommendations. This has resulted in a 5 percent depreciation rate based on an estimated economic life of 20 years;
- Computer Equipment and Software – 5.01 percent depreciation rate based on the 2011 Depreciation Study; and
- Communication Structures and Equipment – 8.05 percent depreciation rate based on the 2011 Depreciation Study.

5.2.4 COMPOSITE CCA RATE

The Project composite CCA rate of 16.24 percent was calculated based on the following CCA rate of each asset class as below:

- Computer Hardware and Software associated with AMI – 30 percent declining balance per CCA Class 46; and
- Meters – 8 percent declining balance per CCA Class 50.

5.2.5 COMBINED INCOME TAX RATE

The combined income tax rate is the combined Canadian federal and BC provincial rates. The 2012 combined rate is 25 percent and is assumed to remain at that level over the analysis period.

5.2.6 CARRYING COSTS

The Project carrying costs were calculated assuming FortisBC's deemed capital structure of 60 percent debt and 40 percent equity. Interest expense was calculated assuming a weighted average cost of approximately 6 percent. The cost of equity was calculated assuming a return on equity of 9.9 percent.

All expenditures in this analysis are presented on an incremental basis to the base case, which is the status quo alternative identified in Section 7.1.

The implementation of AMI has a net present value impact on rates of -1 percent and an associated net benefit of $17.6 million as evaluated over a 20 year period. The maximum incremental annual rate impact is 1.7 percent in 2014.

5.2.7 ACCOUNTING TREATMENT OF EXISTING METERS

FortisBC has considered three options for the accounting treatment of the existing meters to be removed from service as part of the proposed AMI Project. They are:

1. In accordance with generally accepted accounting principles, the existing meters would be written off over the 2014 to 2015 period as they are removed from service; or
2. Depreciate the existing meters based upon the depreciation rate from the 2011 Depreciation Study included in the 2012-13 Revenue Requirements Application. This would mean the existing meters would continue to be depreciated at the rate derived from the life estimate of approximately 7 years as determined in the 2011 Depreciation Study; or
3. Depreciate the existing meters over a period longer than those proposed in the first two options. In the absence of the AMI Project, the Company would be writing off approximately 88,000 of its meters under Measurement Canada's new sampling plan (S-S-06) over 21 years beginning in 2014.

FortisBC recommends option 1 which does not require an accounting variance.

5.3 Financial Benefits

The AMI Project has various benefits. Many of those benefits will result in cost savings to customers. The benefits that can be quantified are detailed below and have been included as part of the financial analysis of the AMI Project.

5.3.1 METER READING

The existing meter reading system is a labour intensive manual process. Because of this, it is inherently expensive to obtain additional consumption data beyond the bimonthly readings obtained for the majority of customers today. AMI will reduce the cost of meter readings by virtually eliminating the need for a manual meter reading process. As well, the inevitable, inadvertent errors resulting from the manual keying of meter reads will be eliminated.

Table 5.3.5.a - Forecast Meter Exchange Savings

Forecast Savings ($000s)							
Meter Exchange	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**
	-	(349)	(331)	(408)	(310)	(531)	(302)
	2020	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**
	(187)	(212)	166	190	215	262	(46)
	2027	**2028**	**2029**	**2030**	**2031**	**2032**	
	(78)	(60)	(63)	(99)	(21)	364	

The avoidance of costs related to ongoing meter exchanges represents a benefit to FortisBC customers of $1.5 million as evaluated on a net present value basis.

5.3.6 CONTACT CENTRE

The majority of FortisBC's meters are read on a bimonthly schedule (approximately every 60 days), with the remaining meters (approximately 1,900 customers subject to a demand billing determinant) read on a monthly schedule (approximately every 30 days). However, there are several reasons that a meter may need to be read between its regular scheduled intervals, including when a customer moves into or out of a premises or to verify assumed inaccuracies in the reading, either as a result of customer request or as part of the standard billing verification process. The office administration related to the off-cycle readings is termed "soft reads". Detailed below is the sequence of events that currently occur for a typical soft read:

- Meter readers print off a report daily with addresses of customers requiring a soft read;
- A meter reader drives to all premises requiring a soft read, reads the meter and records the results;
- The results are faxed to the FortisBC Contact Centre in Trail, B.C.;
- The soft read is entered into the billing system; and
- The account is flagged to ensure steps are taken to verify if/when a new customer hooks up service at the premises, or alternatively the service is disconnected.

In 2011, there were over 19,000 soft reads completed by FortisBC meter reading staff. An AMI system would change this work from its existing manual process to one that could be accomplished from the Company's offices using AMI technology. The cost savings for the meter readers has already been accounted for in the reduction of manual meter reading

Table 7.1.a – Status Quo Capital and Operating Costs

Status Quo	2013	2014	2015	2016	2017 – 2032	Total
Capital						
Project Capital	-	-	-	-	-	-
Sustaining Capital						
Meter Growth and Replacement	160	192	184	205	2,764	3,505
Handheld Replacement	-	250	-	-	899	1,149
IT Hardware, Licensing, and Support Costs	-	-	-	-	-	-
Measurement Canada Compliance	146	909	903	1,478	15,119	18,556
Total Capital	**307**	**1,350**	**1,087**	**1,683**	**18,782**	**23,209**
Operating Expenses						
New Operating Costs	-	-	-	-	-	-
Meter Reading	2,518	2,684	2,733	2,782	59,705	72,896
Disconnect/Reconnect	513	532	552	573	12,817	15,481
Meter Exchanges	242	349	331	408	3,729	5,297
Contact Centre	479	497	511	530	11,157	13,639
Total Operating Expenses	**3,752**	**4,062**	**4,127**	**4,294**	**87,408**	**107,313**
Theft Reduction	(4,970)	(5,484)	(6,143)	(6,791)	(99,065)	(127,218)

As evident in the table above, the most significant capital costs associated with the status quo relate to the required *Measurement Canada Compliance* costs as further discussed in Section 5.3.4. These costs are related to the need to replace the approximately 88,000 meters in response to new Measurement Canada regulations.

Sustaining Capital expenditures consist of the forecast annual costs related to the ongoing replacement of meters and the addition of new meters required throughout the service territory. *Handheld Replacement* costs are related to the routine replacement of the meter reading handheld devices that are used to manually collect meter readings.

Meter Reading, Disconnect/Reconnect, Meter Exchanges, Contact Centre, and Theft Reduction cost categories are described in Sections 5.3.1 through 5.3.6. In those sections, the net difference between the proposed AMI Project and status quo alternatives are presented. In the table above, only the gross costs related to these categories in the status

Table 7.2.a - – Gross AMR Capital and Operating Costs

Automated Meter Reading	2013	2014	2015	2016	2017 – 2032	Total
Capital						
Project Capital	6,891	11,191	10,188	-	-	28,270
Sustaining Capital						
Meter Growth and Replacement	160	227	223	227	5,642	6,479
Handheld Replacement	-	-	-	-	-	-
IT Hardware, Licensing, and Support Costs		30	35	36	1,157	1,258
Measurement Canada Compliance	-	-	-	-	-	-
Total Capital	**7,051**	**11,448**	**10,446**	**263**	**6,799**	**36,006**
Operating Expenses						
New Operating Costs	-	89	162	165	3,093	3,509
Meter Reading	2,518	2,684	1,242	1,265	23,629	33,813
Disconnect/Reconnect	513	532	552	573	12,817	15,481
Meter Exchanges	242	-	-	-	3,015	3,495
Contact Centre	479	529	544	564	11,157	13,738
Total Operating Expenses	**3,752**	**3,834**	**2,501**	**2,567**	**53,712**	**70,036**
Theft Reduction	(4,970)	(5,485)	(6,143)	(6,791)	(99,065)	(127,218)

The table provided below details the ongoing operating and capital costs associated with the AMR alternative option net of status quo. These costs have been calculated based on the difference between the status quo costs shown in Table 7.1.a and the gross costs shown above in Table 7.2.a.

Table 7.2.b – Net AMR Capital and Operating Costs

Automated Meter Reading	**2013**	**2014**	**2015**	**2016**	**2017 – 2032**	**Total**
Capital						
Project Capital	6,891	11,191	10,188	-	-	28,270
Sustaining Capital						
Meter Growth and Replacement	-	36	38	22	2,878	2,974
Handheld Replacement	-	(250)	-	-	(899)	(1,149)
IT Hardware, Licensing, and Support Costs		30	35	36	1,157	1,258
Measurement Canada Compliance	(146)	(909)	(903)	(1,478)	(15,119)	(18,556)
Total Capital	**6,744**	**10,098**	**9,359**	**(1,421)**	**(11,983)**	**12,797**
Operating Expenses						
New Operating Costs	-	89	162	165	3,093	3,509
Meter Reading	-	-	(1,490)	(1,517)	(36,075)	(39,083)
Disconnect/Reconnect	-	-	-	-	-	-
Meter Exchanges	-	(349)	(331)	(408)	(713)	(1,802)
Contact Centre	-	32	33	34	-	98
Total Operating Expenses	**-**	**(229)**	**(1,627)**	**(1,727)**	**(33,696)**	**(37,277)**
Theft Reduction	-	-	-	-	-	-

In addition to the cost categories identified in Section 7.1, the AMR alternative includes costs in the category *New Operating Costs*. These costs are for a technical analyst and additional AMR-related software and hardware costs.

The *Project Capital* costs are related to the replacement of nearly all existing meters with wireless AMR meters that allow drive-by reading, as well as the related vehicle-mounted reading equipment. The replacement of the meters as part of *Project Capital* also means no *Measurement Canada Compliance* capital is required.

When considered in comparison to the proposed AMI Project, AMR does not provide a similarly complete solution. The current process for collecting off-cycle reads (on/off, re-reads) would not see any improvements via AMR as the off-cycle reads would still need to be entered into the billing system manually. Similarly, the disconnect/reconnect process remains a manual procedure. Significantly, AMR does not improve the quality or quantity of information available to either the Company or customers and therefore does not provide

Table 7.3.a – Gross PLC Capital and Operating Costs

Power Line Carrier	2013	2014	2015	2016	2017 – 2032	Total
Capital						
Project Capital	16,362	25,692	24,296	-	-	66,351
Sustaining Capital						
Meter Growth and Replacement	160	291	285	290	6,765	7,791
Handheld Replacement	-	-	-	-	-	-
IT Hardware, Licensing, and Support Costs	-	292	567	577	11,285	12,721
Measurement Canada Compliance	-	-	-	-	-	-
Total Capital	**16,523**	**26,275**	**25,148**	**867**	**18,050**	**86,862**
Operating Expenses						
New Operating Costs	-	768	1,362	1,387	25,115	28,631
Meter Reading	2,518	2,684	1,734	238	5,130	14,779
Disconnect/Reconnect	513	399	138	29	641	2,214
Meter Exchanges	242	-	-	-	3,015	3,495
Contact Centre	479	516	518	510	9,994	12,482
Total Operating Expenses	**3,752**	**4,368**	**3,752**	**2,163**	**43,896**	**61,601**
Theft Reduction	(5,353)	(6,471)	(7,855)	(9,626)	(186,854)	(220,923)

The table provided below details the ongoing operating and capital costs associated with the PLC alternative option net of status quo. These costs have been calculated based on the difference between the status quo costs shown in Table 7.1.a and the gross costs shown above in Table 7.3.a.

Table 7.3.b – Net PLC Capital and Operating Costs

Power Line Carrier	2013	2014	2015	2016	2017 – 2032	Total
Capital						
Project Capital	16,362	25,692	24,296	-	-	66,351
Sustaining Capital						
Meter Growth and Replacement	-	99	100	85	4,001	4,286
Handheld Replacement	-	(250)	-	-	(899)	(1,149)
IT Hardware, Licensing, and Support Costs	-	292	567	577	11,285	12,721
Measurement Canada Compliance	(146)	(909)	(903)	(1,478)	(15,119)	(18,556)
Total Capital	**16,216**	**24,925**	**24,061**	**(816)**	**(732)**	**63,653**
Operating Expenses						
New Operating Costs	-	768	1,362	1,387	25,115	28,631
Meter Reading	-	-	(998)	(2,544)	(54,574)	(58,116)
Disconnect/Reconnect	-	(133)	(414)	(544)	(12,176)	(13,627)
Meter Exchanges	-	(349)	(331)	(408)	(713)	(1,802)
Contact Centre	-	19	7	(20)	(1,163)	(1,157)
Total Operating Expenses	**-**	**305**	**(375)**	**(2,130)**	**(43,512)**	**(45,712)**
Theft Reduction	(383)	(987	(1,711)	(2,835)	(87,789)	(93,705)

The cost categories shown above are described in Section 7.1 status quo and Section 7.3 Automated Meter Reading.

New Operating Costs, although higher than the status quo, are lower than the AMI alternative, primarily due to lower WAN data backhaul costs.

The costs of the PLC alternative are similar to AMI as described in Section 7.5, aside from *Project Capital* costs which are higher with PLC. The scope of the PLC project is also similar to the AMI project, with all meters being replaced with meters that communicate over a fixed network to FortisBC. The replacement of the meters as part of *Project Capital* also means no *Measurement Canada Compliance* capital is required.

A copy of the financial NPV analysis of the PLC solution is provided in Appendix D, and has also been included as an embedded electronic Excel file with this filing. On a net present value basis, FortisBC determined that the cost of implementing a 100 percent PLC AMI solution in FortisBC service territory would not be cost competitive relative to the proposed

7.4 Advanced Metering Infrastructure

The table provided below details the gross ongoing operating and capital costs associated with the proposed AMI Project.

Table 7.4.a – Gross AMI Capital and Operating Costs

AMI	2013	2014	2015	2016	2017 – 2032	Total
Capital						
Project Capital	13,730	16,793	17,166	-	-	47,689
Sustaining Capital						
Meter Growth and Replacement	160	291	285	290	6,765	7,791
Handheld Replacement	-	-	-	-	-	-
IT Hardware, Licensing, and Support Costs	-	292	568	578	11,329	12,767
Measurement Canada Compliance	-	-	-	-	-	-
Total Capital	**13,891**	**17,376**	**18,018**	**868**	**18,094**	**68,247**
Operating Expenses						
New Operating Costs	-	875	1,529	1,556	28,236	32,196
Meter Reading	2,518	2,684	1,734	241	5,130	14,779
Disconnect/Reconnect	513	399	138	29	641	2,214
Meter Exchanges	242	-	-	-	3,015	3,495
Contact Centre	479	516	518	510	9,994	12,462
Total Operating Expenses	**3,752**	**4,475**	**3,919**	**2,333**	**47,017**	**65,167**
Theft Reduction	(5,353)	(6,471)	(7,855)	(9,626)	(186,854)	(220,923)

The table below summarizes AMI capital and operating costs net of status quo. These costs have been calculated based on the difference between the status quo costs shown in Table 7.1.a and the gross costs shown above in Table 7.4.a.

Table 7.4.b – Net AMI Capital and Operating Costs

AMI	2013	2014	2015	2016	2017 – 2032	Total
Capital						
Project Capital	13,730	16,793	17,166	-	-	47,689
Sustaining Capital						
Meter Growth and Replacement	-	99	100	85	4,001	4,286
Handheld Replacement	-	(250)	-	-	(899)	(1,149)
IT Hardware, Licensing, and Support Costs	-	292	568	578	11,329	12,767
Measurement Canada Compliance	(146)	(909)	(903)	(1,478)	(15,119)	(18,555)
Total Capital	**13,584**	**16,026**	**16,931**	**(815)**	**(688)**	**45,037**
Operating Expenses						
New Operating Costs	-	875	1,529	1,556	28,236	32,196
Meter Reading	-	-	(998)	(2,544)	(54,574)	(58,116)
Disconnect/Reconnect	-	(133)	(414)	(544)	(12,176)	(13,267)
Meter Exchanges	-	(349)	(331)	(408)	(713)	(1,802)
Contact Centre	-	20	7	(20)	(1,163)	(1,157)
Total Operating Expenses	**-**	413	(208)	(1,961)	(40,390)	(42,146)
Theft Reduction	(383)	(987	(1,711)	(2,835)	(87,789)	(93,705)

The cost categories shown above are described in Section 7.1 and Section 7.2 and are further discussed in Section 5.3.

The replacement of the meters as part of *Project Capital* also means no *Measurement Canada Compliance* capital is required. *New Operating Costs* are detailed in Section 5.1.2.

Contact Centre costs are expected to be less than the status quo due to reduction in soft read data entry as described in Section 5.3.6. FortisBC expects higher call volume during meter deployment, which is reflected in the costs above.

Meter Reading costs decline as compared to the status quo alternative beginning in 2014 as manual meter reading begins to be phased out. The savings are expected to be fully embedded by 2016, although a small manual meter reading budget will be required to allow manual download of data from AMI meters that cannot be economically connected to the AMI network. The number of meters requiring manual download of data is expected to be less than 1 percent of the total meter population.

Table 7.5.a – Meter Reading Options – Gross Capital, Operating and Theft Reduction Costs/Benefits

	Dec-13	Dec-14	Dec-15	Dec-16	Total 2017 - 2032	Total
STATUS QUO	**($000s)**					
Total Capital	307	1,350	1,087	1,683	18,782	23,209
Total Operating Expenses	3,752	4,062	4,127	4,294	87,408	107,313
Theft Reduction	(4,970)	(5,484)	(6,143)	(6,791)	(99,065)	(127,218)
Automated Meter Reading (AMR)						
Total Capital	7,051	11,448	10,446	263	6,799	36,006
Total Operating Expenses	3,752	3,834	2,501	2,567	53,712	70,036
Theft Reduction	(4,970)	(5,484)	(6,143)	(6,791)	(99,065)	(127,218)
PLC AMI						
Total Capital	16,523	26,275	25,148	867	18,050	86,862
Total Operating Expenses	3,752	4,368	3,752	2,163	43,896	61,601
Theft Reduction	(5,353)	(6,471)	(7,855)	(9,626)	(186,854)	(220,923)
AMI						
Total Capital	13,891	17,376	18,018	868	18,094	68,247
Total Operating Expenses	3,752	4,475	3,919	2,333	47,017	65,167
Theft Reduction	(5,353)	(6,471)	(7,855)	(9,626)	(186,854)	(220,923)

Table 7.6.b, following, summarizes the capital, operating and theft reduction costs/benefits of the alternate options net of the status quo.

Table 7.5.b – Meter Reading Options – Net Capital, Operating and Theft Reduction Costs/Benefits

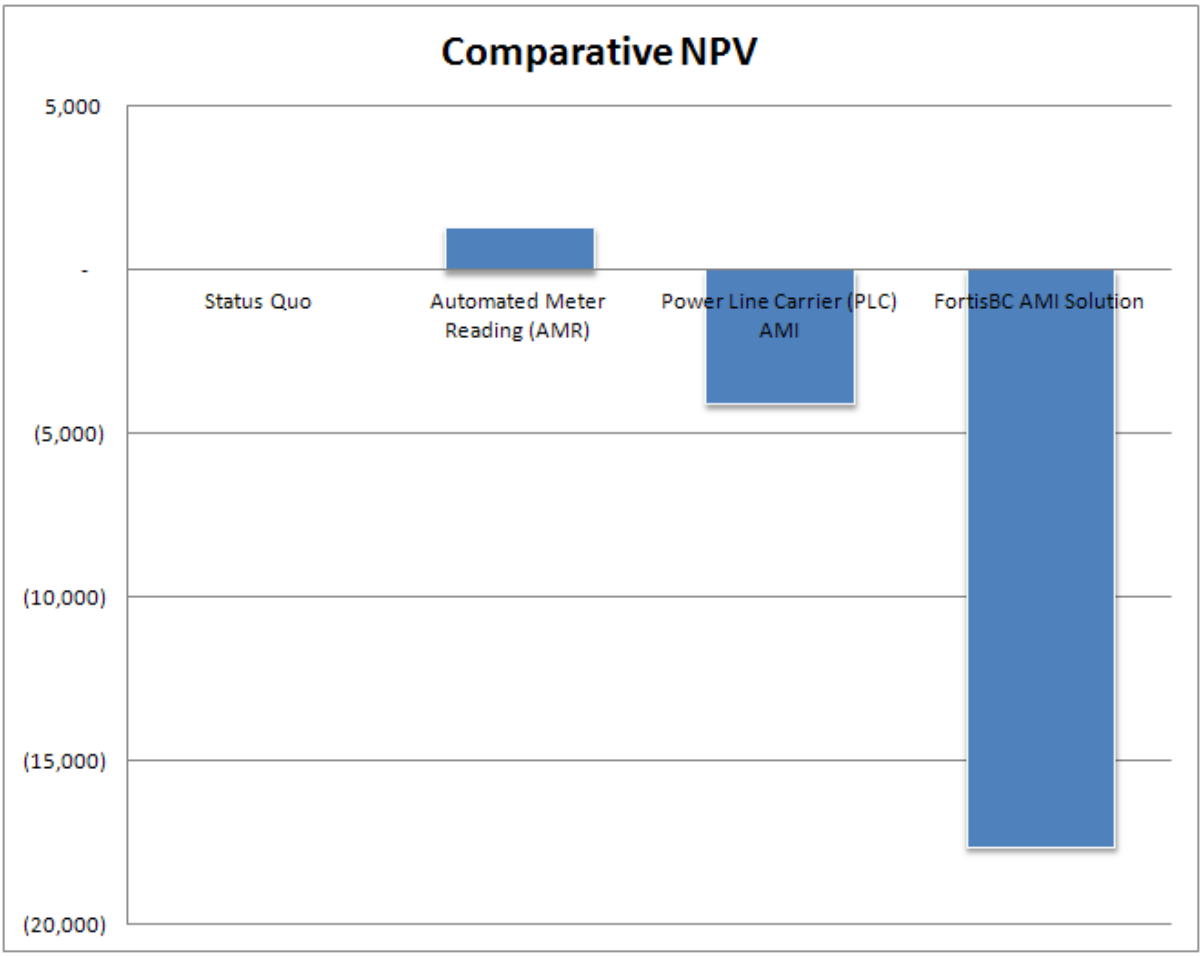
	Dec-13	Dec-14	Dec-15	Dec-16	Total 2017 - 2032	Total
STATUS QUO	**($000s)**					
Total Capital	-	-	-	-	-	-
Total Operating Expenses	-	-	-	-	-	-
Theft Reduction	-	-	-	-	-	-
Automated Meter Reading (AMR)						
Total Capital	6,744	10,098	9,359	(1,421)	(11,983)	12,797
Total Operating Expenses	-	(229)	(1,627)	(1,727)	(33,696)	(37,277)
Theft Reduction	-	-	-	-	-	-
PLC AMI						
Total Capital	16,216	24,925	24,061	(816)	(732)	63,653
Total Operating Expenses	-	305	(375)	(2,130)	(43,512)	(45,712)
Theft Reduction	(383)	(987	(1,711)	(2,835)	(87,789)	(93,705)
AMI						
Total Capital	13,584	16,026	16,931	(815)	(688)	45,037
Total Operating Expenses	-	413	(208)	(1,961)	(40,390)	(42,146)
Theft Reduction	(383)	(987	(1,711)	(2,835)	(87,789)	(93,705)

FortisBC has considered the NPV revenue requirements impact of the alternative options discussed above. Table 7.5.c below compares this impact, while Figure 7.5.a graphically illustrates the NPV of the revenue requirements impact for the various Project alternatives as compared to the proposed AMI solution.

Table 7.5.c – Meter Reading Options – NPV of Revenue Requirements Impact

Meter Reading Option	Revenue Requirements 2012 NPV ($000s)
Status Quo	-
Automated Meter Reading	1,320
Power Line Carrier AMI	(4,074)
FortisBC AMI Solution	(17,629)

Figure 7.5.a - Comparative NPV of Alternate Options



The Company has also examined both the yearly incremental rate and cumulative rate impacts of the Project alternatives. Figure 7.6.b, following, presents the yearly incremental rate impact of the alternates. Figure 7.6.c, and Table 7.6.d, demonstrate the cumulative rate impacts of the alternates.

Figure 7.5.b – Comparative Yearly Rate Impact

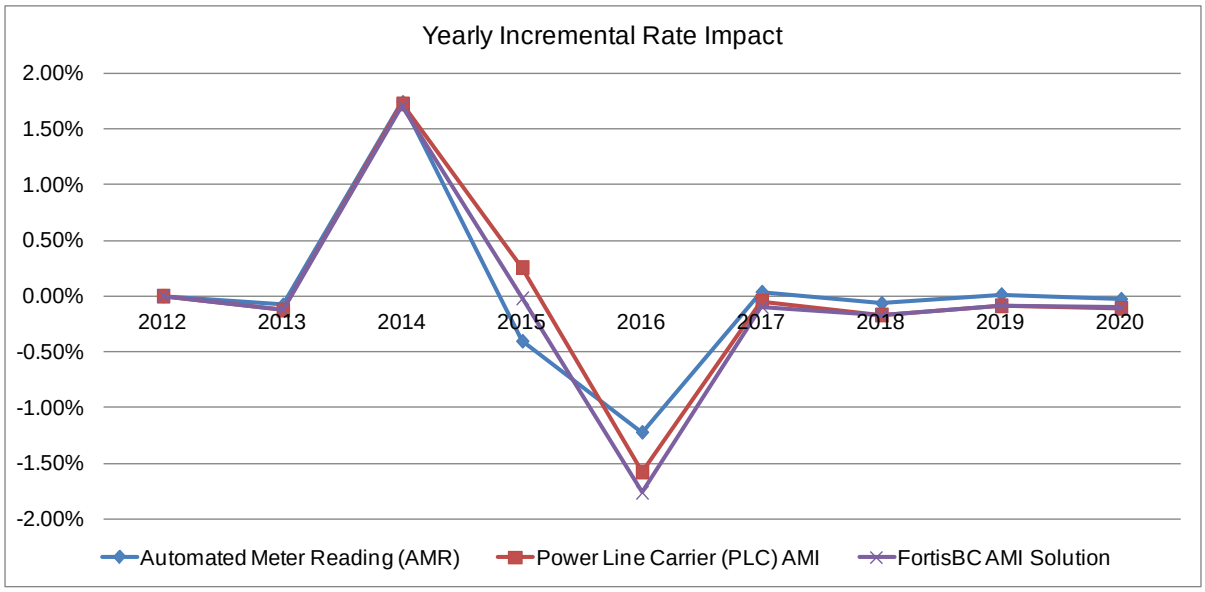
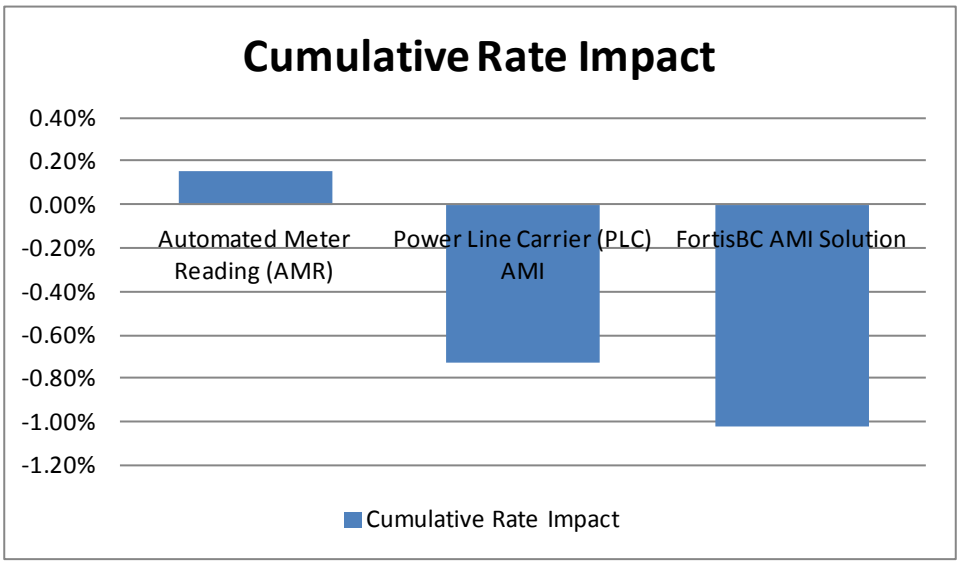


Table 7.6.d – Comparative Cumulative Rate Impact

Alternate	Cumulative Rate Impact
Automated Meter Reading	0.15%
Power Line Carrier	-0.73%
FortisBC AMI Solution	-1.02%

Figure 7.5.c – Comparative Cumulative Rate Impact



Revenue Requirements Analysis
Advanced Metering Infrastructure Project

AMI

Line No.		NPV @ 8.00%	0 Dec-12	1 Dec-13	2 Dec-14	3 Dec-15	4 Dec-16	5 Dec-17	6 Dec-18	7 Dec-19	8 Dec-20	9 Dec-21	10 Dec-22	11 Dec-23	12 Dec-24	13 Dec-25	14 Dec-26	15 Dec-27	16 Dec-28	17 Dec-29	18 Dec-30	19 Dec-31	20 Dec-32
	Summary																						
	Revenue Requirements																						
1	Operating Expense & Theft Reduction (Net)	**-55,237**	0	(383)	(574)	(1,919)	(4,796)	(5,663)	(6,424)	(6,699)	(7,124)	(7,426)	(7,213)	(7,477)	(7,615)	(7,763)	(8,418)	(8,655)	(8,859)	(9,283)	(9,571)	(9,794)	(10,196)
2	Depreciation Expense	**16,464**	-	-	4,006	4,528	1,401	1,335	1,313	1,190	1,137	1,068	1,025	1,017	975	958	928	941	963	992	2,634	3,063	3,012
3	Carrying Costs	**17,163**	-	-	975	2,411	2,730	2,594	2,430	2,253	2,113	1,983	1,894	1,810	1,722	1,643	1,581	1,548	1,522	1,484	1,384	1,216	1,026
4	Income Tax	**3,982**	-	5	807	123	(966)	(273)	(11)	213	398	553	672	777	868	946	1,014	1,065	1,111	1,151	1,176	1,181	1,178
5	Total Revenue Requirement for Project	**(17,629)**	0	(378)	5,214	5,143	(1,632)	(2,007)	(2,692)	(3,041)	(3,476)	(3,822)	(3,622)	(3,874)	(4,050)	(4,217)	(4,895)	(5,101)	(5,263)	(5,656)	(4,377)	(4,334)	(4,980)
6																							
7	Net Present Value of Revenue Requirements at	**6.0%**	**(23,591)**																				
8	Net Present Value of Revenue Requirements at	**8.0%**	**(17,629)**																				
9	Net Present Value of Revenue Requirements at	**10.0%**	**(13,131)**																				
10																							
11	**Rate Impact**																						
12	Forecast Revenue Requirements		287,441	310,378	327,609	365,860	383,868	390,778	397,812	404,972	412,262	419,682	427,237	434,927	442,756	450,725	458,838	467,097	475,505	484,064	492,777	501,647	510,677
13	Incremental Rate Impact		0.00%	(0.12%)	1.71%	(0.02%)	(1.76%)	(0.10%)	(0.17%)	(0.09%)	(0.11%)	(0.08%)	0.05%	(0.06%)	(0.04%)	(0.04%)	(0.15%)	(0.04%)	(0.03%)	(0.08%)	0.26%	0.01%	(0.13%)
14	Cummulative Incremental Rate Impact		0.00%	(0.12%)	1.58%	1.56%	(0.23%)	(0.32%)	(0.50%)	(0.58%)	(0.69%)	(0.77%)	(0.72%)	(0.78%)	(0.82%)	(0.86%)	(1.00%)	(1.05%)	(1.08%)	(1.16%)	(0.90%)	(0.90%)	(1.02%)
15																							
16	Cumulative Rate Impact of Entire Project		**(1.02%)**																				
17	Levelized Annual Rate Impact		**(0.05%)**																				
18	**Regulatory Assumptions**																						
19	Equity Component		40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%
20	Debt Component		60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%
21	Equity Return		9.90%	9.90%	9.90%	9.90%	9.90%	9.90%	9.90%	9.90%	9.90%	9.90%	9.90%	9.90%	9.90%	9.90%	9.90%	9.90%	9.90%	9.90%	9.90%	9.90%	9.90%
22	Debt Return		5.92%	5.82%	5.98%	5.93%	5.73%	5.73%	5.73%	5.73%	5.73%	5.73%	5.73%	5.73%	5.73%	5.73%	5.73%	5.73%	5.73%	5.73%	5.73%	5.73%	5.73%
23	AFUDC		6.60%	6.60%	6.70%	6.60%	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%
24																							
25																							
26	**Capital Cost**																						
27	Project Capital		-	13,562	15,900	17,166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	Sustaining Capital:		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29	Meter Growth and Replacement		-	-	99	100	85	110	60	120	147	145	412	422	437	454	194	188	195	197	189	210	520
30	Handheld Replacement		-	-	(250)	-	-	-	-	(273)	-	-	-	-	(299)	-	-	-	-	(327)	-	-	-
31	Measurement Canada Compliance		-	(146)	(909)	(903)	(1,478)	(976)	(2,310)	(1,072)	(1,645)	(1,229)	(1,070)	(1,452)	(820)	(1,324)	(486)	(501)	(293)	(306)	(302)	(432)	(901)
32	IT Hardware, Licencing, and Support Costs		-	-	292	568	578	736	599	610	640	632	805	655	667	679	691	880	738	729	742	756	769
33	AFUDC		-	168	893	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
34	Total Construction Cost in Year		-	13,584	16,026	16,931	(815)	(130)	(1,651)	(615)	(858)	(452)	147	(375)	(15)	(190)	399	567	640	293	629	533	389
35	Cumulative Construction Cost		-	13,584	29,609	46,540	45,725	45,596	43,945	43,330	42,472	42,020	42,167	41,792	41,777	41,587	41,986	42,552	43,192	43,485	44,115	44,648	45,037
36																							
37	Net Cost of Removal		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
38	Total Capital Cost in Year		-	13,584	16,026	16,931	(815)	(130)	(1,651)	(615)	(858)	(452)	147	(375)	(15)	(190)	399	567	640	293	629	533	389
39	Cumulative Capital Cost		-	13,584	29,609	46,540	45,725	45,596	43,945	43,330	42,472	42,020	42,167	41,792	41,777	41,587	41,986	42,552	43,192	43,485	44,115	44,648	45,037
40																							
41	Additions to Plant in Service		-	(307)	29,916	16,931	(815)	(130)	(1,651)	(615)	(858)	(452)	147	(375)	(15)	(190)	399	567	640	293	629	533	389
42	Cummulative Additions to Plant		-	(307)	29,609	46,540	45,725	45,596	43,945	43,330	42,472	42,020	42,167	41,792	41,777	41,587	41,986	42,552	43,192	43,485	44,115	44,648	45,037
43	CWIP		-	13,891	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
44																							
45	**Operating Expenses**																						
46	New Operating Costs		-	-	875	1,529	1,556	1,591	1,620	1,611	1,636	1,662	1,688	1,715	1,742	1,769	1,798	1,826	1,855	1,885	1,915	1,946	1,977
47	Meter Reading		-	-	-	(998)	(2,544)	(2,713)	(2,757)	(2,803)	(2,983)	(3,032)	(3,082)	(3,274)	(3,329)	(3,384)	(3,589)	(3,649)	(3,710)	(3,929)	(3,991)	(4,058)	(4,292)
48	Remote Disconnect/Reconnect		-	-	(133)	(414)	(544)	(564)	(584)	(605)	(627)	(648)	(671)	(694)	(717)	(741)	(766)	(791)	(817)	(843)	(870)	(898)	(1,339)
49	Meter Exchanges		-	-	(349)	(331)	(408)	(310)	(531)	(302)	(187)	(212)	166	190	215	262	(46)	(78)	(60)	(63)	(99)	(21)	364
50	Contact Centre		-	-	20	7	(20)	(56)	(58)	(60)	(62)	(64)	(66)	(69)	(71)	(73)	(76)	(78)	(81)	(83)	(86)	(89)	(91)
51	**Theft Reduction**		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
52	Theft Reduction		0	(383)	(987)	(1,711)	(2,835)	(3,611)	(4,114)	(4,540)	(4,901)	(5,131)	(5,248)	(5,346)	(5,455)	(5,596)	(5,739)	(5,885)	(6,046)	(6,249)	(6,440)	(6,675)	(6,815)
53	**Total Costs / (Savings)**		0	(383)	(574)	(1,919)	(4,796)	(5,663)	(6,424)	(6,699)	(7,124)	(7,426)	(7,213)	(7,477)	(7,615)	(7,763)	(8,418)	(8,655)	(8,859)	(9,283)	(9,571)	(9,794)	(10,196)
54																							
55																							
56																							

Revenue Requirements Analysis
Advanced Metering Infrastructure Project

AMI

Line No.		NPV @ 8.00%	0 Dec-12	1 Dec-13	2 Dec-14	3 Dec-15	4 Dec-16	5 Dec-17	6 Dec-18	7 Dec-19	8 Dec-20	9 Dec-21	10 Dec-22	11 Dec-23	12 Dec-24	13 Dec-25	14 Dec-26	15 Dec-27	16 Dec-28	17 Dec-29	18 Dec-30	19 Dec-31	20 Dec-32
57																							
58	**Depreciation Expense**																						
59	Opening Cash Outlay		-	-	(16,353)	13,563	30,494	29,679	29,550	27,899	27,284	26,426	25,974	26,121	25,746	25,731	25,541	25,940	26,506	27,146	27,439	28,069	28,602
60	Additions in Year		-	(16,353)	29,916	16,931	(815)	(130)	(1,651)	(615)	(858)	(452)	147	(375)	(15)	(190)	399	567	640	293	629	533	389
61	Cumulative Total		-	(16,353)	13,563	30,494	29,679	29,550	27,899	27,284	26,426	25,974	26,121	25,746	25,731	25,541	25,940	26,506	27,146	27,439	28,069	28,602	28,991
62																							
63	Depreciation Expense on Incremental Capital		-	-	(1,096)	501	1,401	1,335	1,313	1,190	1,137	1,068	1,025	1,017	975	958	928	941	963	992	2,634	3,063	3,012
64	Write Off Existing Meters (Term)		-	-	4,564	4,026	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
65	Status Quo Depreciation on Existing Meters		-	-	538	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
66	**Total Depreciation Expense**		-	-	4,006	4,528	1,401	1,335	1,313	1,190	1,137	1,068	1,025	1,017	975	958	928	941	963	992	2,634	3,063	3,012
67																							
68	**Net Book Value**																						
69	Gross Book Value New Capital		-	(307)	21,586	30,494	29,679	29,550	27,899	27,284	26,426	25,974	26,121	25,746	25,731	25,541	25,940	26,506	27,146	27,439	28,069	28,602	28,991
70	Accumulated Depreciation New Capital		-	-	4,555	7,512	6,112	4,777	3,464	2,274	1,137	69	(956)	(1,972)	(2,948)	(3,905)	(4,833)	(5,775)	(6,738)	(7,729)	(10,363)	(13,426)	(16,438)
71	Gross Book Value Existing Meters		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
72	Accumulated Depreciation Existing Meters		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
73	Incremental Net Book Value		-	(307)	26,141	38,007	35,791	34,327	31,363	29,558	27,563	26,043	25,165	23,774	22,783	21,635	21,106	20,732	20,408	19,710	17,706	15,176	12,553
74					569																		
75	**Carrying Costs on Average NBV**																						
76	Return on Equity		-	-	512	1,270	1,461	1,388	1,301	1,206	1,131	1,061	1,014	969	922	879	846	828	815	794	741	651	549
77	Interest Expense		-	-	463	1,141	1,269	1,205	1,129	1,047	982	921	880	841	800	764	735	719	707	690	643	565	477
78																							
79	**Total Carrying Costs**		-	-	975	2,411	2,730	2,594	2,430	2,253	2,113	1,983	1,894	1,810	1,722	1,643	1,581	1,548	1,522	1,484	1,384	1,216	1,026
80																							
81																							
82	**Income Tax Expense**																						
83	Combined Income Tax Rate		25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%
84																							
85	**Income Tax on Equity Return**																						
86	Return on Equity		-	-	512	1,270	1,461	1,388	1,301	1,206	1,131	1,061	1,014	969	922	879	846	828	815	794	741	651	549
87	Gross up for revenue (Return / (1- tax rate)		-	-	682	1,694	1,948	1,851	1,734	1,608	1,508	1,415	1,352	1,292	1,229	1,173	1,128	1,105	1,086	1,059	988	868	732
88	Income tax on Equity Return		-	-	171	423	487	463	434	402	377	354	338	323	307	293	282	276	272	265	247	217	183
89																							
90	**Income Tax on Timing Differences**																						
91	Depreciation Expense		-	-	5,102	5,714	2,660	2,706	2,762	2,810	2,860	2,910	2,961	3,036	3,104	3,172	3,242	3,299	3,366	3,425	3,484	3,544	3,605
92	Less: Capitalized Overhead			-	(875)	(999)	(1,073)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
93	Less: Capital Cost Allowance		-	(14)	(2,316)	(5,615)	(5,946)	(4,913)	(4,095)	(3,376)	(2,797)	(2,312)	(1,959)	(1,675)	(1,422)	(1,215)	(1,046)	(931)	(848)	(765)	(697)	(652)	(621)
94	Total Timing Differences		-	14	1,910	(901)	(4,359)	(2,207)	(1,333)	(566)	63	598	1,002	1,361	1,682	1,957	2,197	2,368	2,517	2,660	2,787	2,892	2,984
95	Gross up for tax (Total Timing Differences/(1-tax rate))		-	18	2,547	(1,201)	(5,812)	(2,942)	(1,778)	(755)	84	798	1,336	1,815	2,242	2,610	2,929	3,157	3,356	3,547	3,717	3,856	3,979
96	Income tax on Timing Differences		-	5	637	(300)	(1,453)	(736)	(444)	(189)	21	199	334	454	561	652	732	789	839	887	929	964	995
97																							
98	**Total Income Tax**		-	5	807	123	(966)	(273)	(11)	213	398	553	672	777	868	946	1,014	1,065	1,111	1,151	1,176	1,181	1,178
99																							
100																							
101	**Capital Cost Allowance**																						
102	Opening Balance - UCC		-	-	(155)	25,677	35,994	28,160	23,117	17,371	13,380	9,725	6,960	5,148	3,098	1,661	255	(391)	(755)	(964)	(1,435)	(1,503)	(1,621)
103																							
104	Additions		-	-	29,916	16,931	(815)	(130)	(1,651)	(615)	(858)	(452)	147	(375)	(15)	(190)	399	567	640	293	629	533	389
105	Less: Capitalized Overhead		-	-	(875)	(999)	(1,073)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
106	Less: AFUDC		-	(168)	(893)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
107	Net Additions		-	(168)	28,148	15,932	(1,888)	(130)	(1,651)	(615)	(858)	(452)	147	(375)	(15)	(190)	399	567	640	293	629	533	389
108																							
109	CCA on Opening Balance		-	-	(25)	4,277	6,030	4,876	4,124	3,363	2,793	2,292	1,896	1,639	1,370	1,169	987	857	777	708	626	584	546
110	CCA on Capital Expenditures (1/2 yr rule)		-	(14)	2,341	1,339	(84)	37	(29)	13	4	21	63	36	52	46	59	74	71	57	71	68	75
111	Total CCA		-	(14)	2,316	5,615	5,946	4,913	4,095	3,376	2,797	2,312	1,959	1,675	1,422	1,215	1,046	931	848	765	697	652	621
112	Ending Balance UCC		-	(155)	25,677	35,994	28,160	23,117	17,371	13,380	9,725	6,960	5,148	3,098	1,661	255	(391)	(755)	(964)	(1,435)	(1,503)	(1,621)	(1,853)

Revenue Requirements Analysis
Advanced Metering Infrastructure Project

AMR

Line No.		NPV @ 8.00%	0 Dec-12	1 Dec-13	2 Dec-14	3 Dec-15	4 Dec-16	5 Dec-17	6 Dec-18	7 Dec-19	8 Dec-20	9 Dec-21	10 Dec-22	11 Dec-23	12 Dec-24	13 Dec-25	14 Dec-26	15 Dec-27	16 Dec-28	17 Dec-29	18 Dec-30	19 Dec-31	20 Dec-32
	Summary																						
	Revenue Requirements																						
1	Operating Expense & Theft Reduction (Net)	**-16,138**	0	(242)	(229)	(1,627)	(1,727)	(1,814)	(2,061)	(1,860)	(1,907)	(1,963)	(1,617)	(1,766)	(1,776)	(1,765)	(2,259)	(2,330)	(2,353)	(2,555)	(2,636)	(2,603)	(2,430)
2	Depreciation Expense	**6,359**	-	-	4,006	3,836	301	202	147	(9)	(97)	(203)	(281)	(325)	(403)	(459)	(526)	(552)	(570)	(583)	1,019	1,406	1,313
3	Carrying Costs	**7,381**	-	-	492	1,190	1,291	1,193	1,068	932	833	747	704	668	630	602	593	615	646	667	628	524	399
4	Income Tax	**3,718**	-	(2)	1,186	573	(585)	(159)	12	160	281	383	458	525	585	637	685	718	749	778	793	791	781
5	Total Revenue Requirement for Project	**1,320**	0	(244)	5,454	3,973	(719)	(578)	(834)	(777)	(889)	(1,036)	(736)	(898)	(965)	(984)	(1,508)	(1,549)	(1,528)	(1,692)	(195)	118	63
6																							
7	Net Present Value of Revenue Requirements at	**6.0%**	**305**																				
8	Net Present Value of Revenue Requirements at	**8.0%**	**1,320**																				
9	Net Present Value of Revenue Requirements at	**10.0%**	**2,064**																				
10																							
11	**Rate Impact**																						
12	Forecast Revenue Requirements		287,441	310,378	327,609	365,860	383,868	390,778	397,812	404,972	412,262	419,682	427,237	434,927	442,756	450,725	458,838	467,097	475,505	484,064	492,777	501,647	510,677
13	Incremental Rate Impact		0.00%	(0.08%)	1.74%	(0.41%)	(1.22%)	0.04%	(0.06%)	0.01%	(0.03%)	(0.03%)	0.07%	(0.04%)	(0.02%)	(0.00%)	(0.11%)	(0.01%)	0.00%	(0.03%)	0.30%	0.06%	(0.01%)
14	Cummulative Incremental Rate Impact		0.00%	(0.08%)	1.66%	1.25%	0.01%	0.05%	(0.02%)	(0.00%)	(0.03%)	(0.07%)	0.00%	(0.03%)	(0.05%)	(0.05%)	(0.17%)	(0.18%)	(0.17%)	(0.20%)	0.10%	0.16%	0.15%
15																							
16	Cumulative Rate Impact of Entire Project		**0.15%**																				
17	Levelized Annual Rate Impact		**0.01%**																				
18	**Regulatory Assumptions**																						
19	Equity Component		40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%
20	Debt Component		60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%
21	Equity Return		9.90%	9.90%	9.90%	9.90%	9.90%	9.90%	9.90%	9.90%	9.90%	9.90%	9.90%	9.90%	9.90%	9.90%	9.90%	9.90%	9.90%	9.90%	9.90%	9.90%	9.90%
22	Debt Return		5.92%	5.82%	5.98%	5.93%	5.73%	5.73%	5.73%	5.73%	5.73%	5.73%	5.73%	5.73%	5.73%	5.73%	5.73%	5.73%	5.73%	5.73%	5.73%	5.73%	5.73%
23	AFUDC		6.60%	6.60%	6.70%	6.60%	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%
24																							
25																							
26	**Capital Cost**																						
27	Project Capital		-	6,807	10,739	10,188	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	Sustaining Capital:		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29	Meter Growth and Replacement		-	(41)	36	38	22	47	(5)	54	81	78	344	354	367	383	122	115	122	123	115	135	444
30	Handheld Replacement		-	-	(250)	-	-	-	-	(273)	-	-	-	-	(299)	-	-	-	-	(327)	-	-	-
31	Measurement Canada Compliance		-	(146)	(909)	(903)	(1,478)	(976)	(2,310)	(1,072)	(1,645)	(1,229)	(1,070)	(1,452)	(820)	(1,324)	(486)	(501)	(293)	(306)	(302)	(432)	(901)
32	IT Hardware, Licencing, and Support Costs		-	-	30	35	36	184	37	38	39	39	201	41	41	42	43	220	45	45	46	47	48
33	AFUDC		-	84	452	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
34	Total Construction Cost in Year		-	6,703	10,098	9,359	(1,421)	(745)	(2,278)	(1,253)	(1,525)	(1,112)	(524)	(1,058)	(711)	(898)	(321)	(166)	(127)	(465)	(141)	(250)	(409)
35	Cumulative Construction Cost		-	6,703	16,800	26,159	24,739	23,993	21,716	20,463	18,937	17,826	17,301	16,243	15,533	14,634	14,313	14,148	14,021	13,556	13,415	13,164	12,756
36																							
37	Net Cost of Removal		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
38	Total Capital Cost in Year		-	6,703	10,098	9,359	(1,421)	(745)	(2,278)	(1,253)	(1,525)	(1,112)	(524)	(1,058)	(711)	(898)	(321)	(166)	(127)	(465)	(141)	(250)	(409)
39	Cumulative Capital Cost		-	6,703	16,800	26,159	24,739	23,993	21,716	20,463	18,937	17,826	17,301	16,243	15,533	14,634	14,313	14,148	14,021	13,556	13,415	13,164	12,756
40																							
41	Additions to Plant in Service		-	(307)	17,107	9,359	(1,421)	(745)	(2,278)	(1,253)	(1,525)	(1,112)	(524)	(1,058)	(711)	(898)	(321)	(166)	(127)	(465)	(141)	(250)	(409)
42	Cummulative Additions to Plant		-	(307)	16,800	26,159	24,739	23,993	21,716	20,463	18,937	17,826	17,301	16,243	15,533	14,634	14,313	14,148	14,021	13,556	13,415	13,164	12,756
43	CWIP		-	7,010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
44																							
45	**Operating Expenses**																						
46	New Operating Costs		-	-	89	162	165	168	171	174	178	181	184	187	191	194	198	202	205	209	213	217	221
47	Meter Reading		-	-	-	(1,490)	(1,517)	(1,672)	(1,702)	(1,732)	(1,898)	(1,932)	(1,967)	(2,143)	(2,182)	(2,221)	(2,411)	(2,454)	(2,498)	(2,701)	(2,749)	(2,799)	(3,015)
48	Remote Disconnect/Reconnect		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
49	Meter Exchanges		-	(242)	(349)	(331)	(408)	(310)	(531)	(302)	(187)	(212)	166	190	215	262	(46)	(78)	(60)	(63)	(99)	(21)	364
50	Contact Centre		-	-	32	33	34	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
51	**Theft Reduction**		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
52	Theft Reduction		0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
53	**Total Costs / (Savings)**		0	(242)	(229)	(1,627)	(1,727)	(1,814)	(2,061)	(1,860)	(1,907)	(1,963)	(1,617)	(1,766)	(1,776)	(1,765)	(2,259)	(2,330)	(2,353)	(2,555)	(2,636)	(2,603)	(2,430)
54																							
55																							
56																							

Revenue Requirements Analysis
Advanced Metering Infrastructure Project

AMR

Line No.		NPV @ 8.00%	0 Dec-12	1 Dec-13	2 Dec-14	3 Dec-15	4 Dec-16	5 Dec-17	6 Dec-18	7 Dec-19	8 Dec-20	9 Dec-21	10 Dec-22	11 Dec-23	12 Dec-24	13 Dec-25	14 Dec-26	15 Dec-27	16 Dec-28	17 Dec-29	18 Dec-30	19 Dec-31	20 Dec-32
57																							
58	**Depreciation Expense**																						
59	Opening Cash Outlay		-	-	(16,353)	754	10,113	8,693	7,947	5,670	4,417	2,891	1,780	1,255	197	(513)	(1,412)	(1,733)	(1,898)	(2,025)	(2,490)	(2,631)	(2,882)
60	Additions in Year		-	(16,353)	17,107	9,359	(1,421)	(745)	(2,278)	(1,253)	(1,525)	(1,112)	(524)	(1,058)	(711)	(898)	(321)	(166)	(127)	(465)	(141)	(250)	(409)
61	Cumulative Total		-	(16,353)	754	10,113	8,693	7,947	5,670	4,417	2,891	1,780	1,255	197	(513)	(1,412)	(1,733)	(1,898)	(2,025)	(2,490)	(2,631)	(2,882)	(3,290)
62																							
63	Depreciation Expense on Incremental Capital		-	-	(1,096)	(190)	301	202	147	(9)	(97)	(203)	(281)	(325)	(403)	(459)	(526)	(552)	(570)	(583)	1,019	1,406	1,313
64	Write Off Existing Meters (Term)		-	-	4,564	4,026	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
65	Less: Status Quo Depreciation on Existing Meters		-	-	538	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
66	**Total Depreciation Expense**		-	-	4,006	3,836	301	202	147	(9)	(97)	(203)	(281)	(325)	(403)	(459)	(526)	(552)	(570)	(583)	1,019	1,406	1,313
67																							
68	**Net Book Value**																						
69	Gross Book Value New Capital		-	(16,353)	754	10,113	8,693	7,947	5,670	4,417	2,891	1,780	1,255	197	(513)	(1,412)	(1,733)	(1,898)	(2,025)	(2,490)	(2,631)	(2,882)	(3,290)
70	Accumulated Depreciation New Capital		-	6,918	8,014	8,204	7,903	7,701	7,554	7,563	7,660	7,862	8,143	8,468	8,872	9,330	9,857	10,409	10,979	11,561	10,543	9,136	7,823
71	Gross Book Value Existing Meters		-	6,611	(1,666)	(9,591)	(10,015)	(9,801)	(10,899)	(10,808)	(10,885)	(10,434)	(9,742)	(9,346)	(8,508)	(7,778)	(6,110)	(4,422)	(2,480)	(850)	(481)	(593)	(1,060)
72	Accumulated Depreciation Existing Meters		-	(6,918)	(3,459)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
73	Incremental Net Book Value		-	9,128	23,022	27,908	26,610	25,449	24,123	22,788	21,436	20,076	19,140	18,011	16,866	15,697	14,234	12,933	11,434	9,921	8,392	6,847	5,592
74																							
75	**Carrying Costs on Average NBV**																						
76	Return on Equity		-	342	637	1,008	1,079	1,031	982	929	876	822	776	736	691	645	593	538	482	423	363	302	246
77	Interest Expense		-	(342)	(145)	181	212	162	86	3	(42)	(75)	(72)	(67)	(61)	(43)	1	77	164	244	266	222	153
78																							
79	**Total Carrying Costs**		-	643	1,213	1,914	2,017	1,926	1,834	1,735	1,636	1,536	1,451	1,374	1,290	1,204	1,107	1,005	901	790	677	564	460
80																							
81																							
82	**Income Tax Expense**																						
83	Combined Income Tax Rate		25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%
84																							
85	**Income Tax on Equity Return**																						
86	Return on Equity		-	228	510	881	950	900	845	786	732	681	643	610	573	537	501	468	437	401	354	295	235
87	Gross up for revenue (Return / (1- tax rate)		-	456	849	1,345	1,439	1,374	1,309	1,238	1,168	1,096	1,035	981	921	860	790	717	643	564	483	402	328
88	Income tax on Equity Return		-	114	212	336	360	344	327	310	292	274	259	245	230	215	198	179	161	141	121	101	82
89																							
90	**Income Tax on Timing Differences**																						
91	Depreciation Expense		-	-	5,156	5,170	1,806	1,914	2,057	2,198	2,299	2,388	2,448	2,539	2,618	2,689	2,731	2,726	2,725	2,722	2,722	2,715	2,733
92	Less: Capitalized Overhead			-	(389)	(526)	(391)	340	461	587	674	747	793	844	893	933	943	921	892	871	853	828	828
93	Less: Capital Cost Allowance		-	7	(1,342)	(3,208)	(3,286)	(2,577)	(1,979)	(1,434)	(1,003)	(641)	(396)	(196)	(9)	144	263	327	367	418	460	480	501
94	Total Timing Differences		-	(7)	3,263	995	(2,609)	(1,343)	(844)	(410)	(51)	252	467	655	823	968	1,107	1,211	1,307	1,398	1,475	1,540	1,579
95	Gross up for tax (Total Timing Differences/(1-tax rate))		-	(9)	4,326	1,261	(3,588)	(1,942)	(1,330)	(808)	(368)	4	270	498	700	876	1,057	1,206	1,347	1,476	1,588	1,685	1,738
96	Income tax on Timing Differences		-	(116)	973	237	(944)	(503)	(315)	(149)	(11)	109	199	280	355	422	487	539	589	638	673	690	699
97																							
98	**Total Income Tax**		-	112	1,294	651	(537)	(142)	(5)	108	200	275	326	370	405	434	462	481	498	510	518	522	516
99																							
100																							
101	**Capital Cost Allowance**																						
102	Opening Balance - UCC		-	-	(77)	14,776	20,205	14,779	11,344	6,934	4,051	1,298	(704)	(1,888)	(3,423)	(4,440)	(5,505)	(5,878)	(6,024)	(6,081)	(6,418)	(6,384)	(6,430)
103																							
104	Additions		-	-	17,107	9,359	(1,421)	(745)	(2,278)	(1,253)	(1,525)	(1,112)	(524)	(1,058)	(711)	(898)	(321)	(166)	(127)	(465)	(141)	(250)	(409)
105	Less: Capitalized Overhead		-	-	(443)	(673)	(637)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
106	Less: AFUDC		-	(84)	(452)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
107	Net Additions		-	(84)	16,212	8,686	(2,057)	(745)	(2,278)	(1,253)	(1,525)	(1,112)	(524)	(1,058)	(711)	(898)	(321)	(166)	(127)	(465)	(141)	(250)	(409)
108																							
109	CCA on Opening Balance		-	-	(13)	2,506	3,466	2,703	2,212	1,668	1,278	923	651	496	311	178	51	(34)	(78)	(123)	(184)	(209)	(235)
110	CCA on Capital Expenditures (1/2 yr rule)		-	(7)	1,372	750	(98)	(13)	(80)	(39)	(50)	(33)	9	(19)	(5)	(12)	1	14	9	(5)	8	4	10
111	Total CCA		-	(7)	1,360	3,257	3,368	2,690	2,132	1,629	1,228	890	660	477	306	167	52	(20)	(70)	(128)	(175)	(205)	(225)
112	Ending Balance UCC		-	(77)	14,776	20,205	14,779	11,344	6,934	4,051	1,298	(704)	(1,888)	(3,423)	(4,440)	(5,505)	(5,878)	(6,024)	(6,081)	(6,418)	(6,384)	(6,430)	(6,614)

Revenue Requirements Analysis
Advanced Metering Infrastructure Project

PLC

Line No.		NPV @ 8.00%	0 Dec-12	1 Dec-13	2 Dec-14	3 Dec-15	4 Dec-16	5 Dec-17	6 Dec-18	7 Dec-19	8 Dec-20	9 Dec-21	10 Dec-22	11 Dec-23	12 Dec-24	13 Dec-25	14 Dec-26	15 Dec-27	16 Dec-28	17 Dec-29	18 Dec-30	19 Dec-31	20 Dec-32
	Summary																						
	Revenue Requirements																						
1	Operating Expense & Theft Reduction (Net)	**-57,000**	0	(383)	(682)	(2,086)	(4,966)	(5,835)	(6,599)	(6,877)	(7,305)	(7,609)	(7,821)	(7,675)	(7,816)	(7,967)	(8,298)	(8,860)	(9,067)	(9,494)	(9,786)	(10,013)	(10,783)
2	Depreciation Expense	**24,224**	-	-	4,006	5,148	2,405	2,339	2,317	2,195	2,142	2,071	2,028	2,020	1,978	1,961	1,931	1,944	1,966	1,994	3,637	4,065	4,014
3	Carrying Costs	**24,440**	-	-	1,409	3,520	4,024	3,814	3,575	3,325	3,109	2,904	2,741	2,582	2,420	2,267	2,130	2,023	1,922	1,810	1,636	1,394	1,129
4	Income Tax	**4,262**	-	(5)	531	(379)	(1,321)	(358)	(5)	292	537	739	896	1,030	1,143	1,238	1,318	1,377	1,426	1,469	1,492	1,494	1,486
5	Total Revenue Requirement for Project	**(4,074)**	0	(388)	5,264	6,203	143	(39)	(712)	(1,065)	(1,517)	(1,895)	(2,157)	(2,043)	(2,274)	(2,502)	(2,918)	(3,516)	(3,752)	(4,221)	(3,021)	(3,059)	(4,153)
6																							
7	Net Present Value of Revenue Requirements at	**6.0%**	**(7,424)**																				
8	Net Present Value of Revenue Requirements at	**8.0%**	**(4,074)**																				
9	Net Present Value of Revenue Requirements at	**10.0%**	**(1,648)**																				
10																							
11	**Rate Impact**																						
12	Forecast Revenue Requirements		287,441	310,378	327,609	365,860	383,868	390,778	397,812	404,972	412,262	419,682	427,237	434,927	442,756	450,725	458,838	467,097	475,505	484,064	492,777	501,647	510,677
13	Incremental Rate Impact		0.00%	(0.13%)	1.73%	0.26%	(1.58%)	(0.05%)	(0.17%)	(0.09%)	(0.11%)	(0.09%)	(0.06%)	0.03%	(0.05%)	(0.05%)	(0.09%)	(0.13%)	(0.05%)	(0.10%)	0.24%	(0.01%)	(0.21%)
14	Cummulative Incremental Rate Impact		0.00%	(0.13%)	1.60%	1.86%	0.25%	0.20%	0.03%	(0.05%)	(0.16%)	(0.25%)	(0.31%)	(0.29%)	(0.34%)	(0.39%)	(0.48%)	(0.61%)	(0.66%)	(0.75%)	(0.51%)	(0.52%)	(0.73%)
15																							
16	Cumulative Rate Impact of Entire Project		**(0.73%)**																				
17	Levelized Annual Rate Impact		**(0.04%)**																				
18	**Regulatory Assumptions**																						
19	Equity Component		40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%
20	Debt Component		60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%
21	Equity Return		9.90%	9.90%	9.90%	9.90%	9.90%	9.90%	9.90%	9.90%	9.90%	9.90%	9.90%	9.90%	9.90%	9.90%	9.90%	9.90%	9.90%	9.90%	9.90%	9.90%	9.90%
22	Debt Return		5.92%	5.82%	5.98%	5.93%	5.73%	5.73%	5.73%	5.73%	5.73%	5.73%	5.73%	5.73%	5.73%	5.73%	5.73%	5.73%	5.73%	5.73%	5.73%	5.73%	5.73%
23	AFUDC		6.60%	6.60%	6.70%	6.60%	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%
24																							
25																							
26	**Capital Cost**																						
27	Project Capital		-	16,163	24,513	24,296	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	Sustaining Capital:		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29	Meter Growth and Replacement		-	(41)	99	100	85	110	60	120	147	145	412	422	437	454	194	188	195	197	189	210	520
30	Handheld Replacement		-	-	(250)	-	-	-	-	(273)	-	-	-	-	(299)	-	-	-	-	(327)	-	-	-
31	Measurement Canada Compliance		-	(146)	(909)	(903)	(1,478)	(976)	(2,310)	(1,072)	(1,645)	(1,229)	(1,070)	(1,452)	(820)	(1,324)	(486)	(501)	(293)	(306)	(302)	(432)	(901)
32	IT Hardware, Licencing, and Support Costs		-	-	292	567	577	735	598	609	620	631	803	654	665	677	690	878	736	727	741	754	767
33	AFUDC		-	200	1,179	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
34	Total Construction Cost in Year		-	16,174	24,925	24,061	(816)	(131)	(1,652)	(616)	(879)	(453)	146	(377)	(16)	(192)	397	565	638	292	628	532	387
35	Cumulative Construction Cost		-	16,174	41,099	65,160	64,343	64,212	62,560	61,944	61,066	60,612	60,758	60,381	60,365	60,173	60,570	61,135	61,773	62,065	62,693	63,224	63,612
36																							
37	Net Cost of Removal		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
38	Total Capital Cost in Year		-	16,174	24,925	24,061	(816)	(131)	(1,652)	(616)	(879)	(453)	146	(377)	(16)	(192)	397	565	638	292	628	532	387
39	Cumulative Capital Cost		-	16,174	41,099	65,160	64,343	64,212	62,560	61,944	61,066	60,612	60,758	60,381	60,365	60,173	60,570	61,135	61,773	62,065	62,693	63,224	63,612
40																							
41	Additions to Plant in Service		-	(307)	41,406	24,061	(816)	(131)	(1,652)	(616)	(879)	(453)	146	(377)	(16)	(192)	397	565	638	292	628	532	387
42	Cummulative Additions to Plant		-	(307)	41,099	65,160	64,343	64,212	62,560	61,944	61,066	60,612	60,758	60,381	60,365	60,173	60,570	61,135	61,773	62,065	62,693	63,224	63,612
43	CWIP		-	16,481	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
44																							
45	**Operating Expenses**																						
46	New Operating Costs		-	-	768	1,362	1,387	1,419	1,445	1,433	1,455	1,478	1,501	1,525	1,549	1,573	1,598	1,624	1,649	1,676	1,702	1,730	1,757
47	Meter Reading		-	-	-	(998)	(2,544)	(2,713)	(2,757)	(2,803)	(2,983)	(3,032)	(3,082)	(3,274)	(3,329)	(3,384)	(3,589)	(3,649)	(3,710)	(3,929)	(3,991)	(4,058)	(4,292)
48	Remote Disconnect/Reconnect		-	-	(133)	(414)	(544)	(564)	(584)	(605)	(627)	(648)	(671)	(694)	(717)	(741)	(766)	(791)	(817)	(843)	(870)	(898)	(1,339)
49	Meter Exchanges		-	-	(349)	(331)	(408)	(310)	(531)	(302)	(187)	(212)	(256)	182	207	254	274	(80)	(63)	(65)	(102)	(23)	(3)
50	Contact Centre		-	-	20	7	(20)	(56)	(58)	(60)	(62)	(64)	(66)	(69)	(71)	(73)	(76)	(78)	(81)	(83)	(86)	(89)	(91)
51	**Theft Reduction**		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
52	Theft Reduction		0	(383)	(987)	(1,711)	(2,835)	(3,611)	(4,114)	(4,540)	(4,901)	(5,131)	(5,248)	(5,346)	(5,455)	(5,596)	(5,739)	(5,885)	(6,046)	(6,249)	(6,440)	(6,675)	(6,815)
53	**Total Costs / (Savings)**		0	(383)	(682)	(2,086)	(4,966)	(5,835)	(6,599)	(6,877)	(7,305)	(7,609)	(7,821)	(7,675)	(7,816)	(7,967)	(8,298)	(8,860)	(9,067)	(9,494)	(9,786)	(10,013)	(10,783)
54																							
55																							
56																							

Revenue Requirements Analysis
Advanced Metering Infrastructure Project

PLC

Line No.		NPV @ 8.00%	0 Dec-12	1 Dec-13	2 Dec-14	3 Dec-15	4 Dec-16	5 Dec-17	6 Dec-18	7 Dec-19	8 Dec-20	9 Dec-21	10 Dec-22	11 Dec-23	12 Dec-24	13 Dec-25	14 Dec-26	15 Dec-27	16 Dec-28	17 Dec-29	18 Dec-30	19 Dec-31	20 Dec-32
57																							
58	**Depreciation Expense**																						
59	Opening Cash Outlay		-	-	(16,353)	25,053	49,114	48,297	48,166	46,514	45,898	45,020	44,566	44,712	44,335	44,319	44,127	44,524	45,089	45,727	46,019	46,647	47,178
60	Additions in Year		-	(16,353)	41,406	24,061	(816)	(131)	(1,652)	(616)	(879)	(453)	146	(377)	(16)	(192)	397	565	638	292	628	532	387
61	Cumulative Total		-	(16,353)	25,053	49,114	48,297	48,166	46,514	45,898	45,020	44,566	44,712	44,335	44,319	44,127	44,524	45,089	45,727	46,019	46,647	47,178	47,566
62																							
63	Depreciation Expense on Incremental Capital		-	-	(1,096)	1,121	2,405	2,339	2,317	2,195	2,142	2,071	2,028	2,020	1,978	1,961	1,931	1,944	1,966	1,994	3,637	4,065	4,014
64	Write Off Existing Meters (Term)		-	-	4,564	4,026	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
65	Less: Status Quo Depreciation on Existing Meters		-	-	538	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
66	**Total Depreciation Expense**		-	-	4,006	5,148	2,405	2,339	2,317	2,195	2,142	2,071	2,028	2,020	1,978	1,961	1,931	1,944	1,966	1,994	3,637	4,065	4,014
67																							
68	**Net Book Value**																						
69	Gross Book Value New Capital		-	(16,353)	25,053	49,114	48,297	48,166	46,514	45,898	45,020	44,566	44,712	44,335	44,319	44,127	44,524	45,089	45,727	46,019	46,647	47,178	47,566
70	Accumulated Depreciation New Capital		-	6,918	8,014	6,892	4,487	2,147	(170)	(2,365)	(4,507)	(6,578)	(8,606)	(10,626)	(12,604)	(14,565)	(16,496)	(18,440)	(20,406)	(22,400)	(26,037)	(30,102)	(34,117)
71	Gross Book Value Existing Meters		-	6,611	(1,666)	(9,591)	(10,015)	(9,801)	(10,899)	(10,808)	(10,885)	(10,434)	(9,742)	(9,346)	(8,508)	(7,778)	(6,110)	(4,422)	(2,480)	(850)	(481)	(593)	(1,060)
72	Accumulated Depreciation Existing Meters		-	(6,918)	(3,459)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
73	Incremental Net Book Value		-	9,128	47,320	65,597	62,799	60,114	57,244	54,342	51,398	48,423	45,848	43,055	40,222	37,340	34,138	31,072	27,802	24,469	21,091	17,669	14,508
74																							
75	**Carrying Costs on Average NBV**																						
76	Return on Equity		-	342	1,118	2,236	2,542	2,434	2,324	2,209	2,094	1,976	1,867	1,760	1,649	1,536	1,415	1,291	1,166	1,035	902	767	637
77	Interest Expense		-	(342)	291	1,284	1,482	1,380	1,252	1,115	1,015	927	874	822	771	731	715	731	757	775	734	627	492
78																							
79	**Total Carrying Costs**		-	643	2,130	4,245	4,749	4,547	4,341	4,128	3,911	3,692	3,487	3,289	3,080	2,869	2,644	2,412	2,178	1,934	1,685	1,434	1,190
80																							
81																							
82	**Income Tax Expense**																						
83	Combined Income Tax Rate		25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%
84																							
85	**Income Tax on Equity Return**																						
86	Return on Equity		-	228	991	2,109	2,413	2,303	2,187	2,066	1,950	1,836	1,733	1,634	1,531	1,428	1,324	1,222	1,120	1,013	893	760	626
87	Gross up for revenue (Return / (1- tax rate)		-	456	1,490	2,981	3,390	3,245	3,098	2,946	2,792	2,635	2,489	2,347	2,199	2,048	1,887	1,722	1,554	1,380	1,203	1,023	849
88	Income tax on Equity Return		-	114	373	745	847	811	775	736	698	659	622	587	550	512	472	430	389	345	301	256	212
89																							
90	**Income Tax on Timing Differences**																						
91	Depreciation Expense		-	-	5,156	6,481	3,911	4,051	4,228	4,402	4,538	4,661	4,757	4,884	5,000	5,108	5,189	5,222	5,260	5,299	5,340	5,374	5,435
92	Less: Capitalized Overhead			-	(986)	(1,382)	(1,264)	340	461	587	674	747	793	844	893	933	943	921	892	871	853	828	828
93	Less: Capital Cost Allowance		-	16	(3,190)	(7,746)	(8,189)	(6,712)	(5,543)	(4,522)	(3,694)	(3,001)	(2,480)	(2,051)	(1,675)	(1,365)	(1,117)	(947)	(821)	(700)	(601)	(534)	(477)
94	Total Timing Differences		-	(16)	818	(3,088)	(6,282)	(3,341)	(2,238)	(1,294)	(503)	166	692	1,144	1,539	1,878	2,185	2,434	2,655	2,856	3,032	3,185	3,303
95	Gross up for tax (Total Timing Differences/(1-tax rate))		-	(22)	1,067	(4,183)	(8,485)	(4,606)	(3,188)	(1,986)	(970)	(111)	570	1,150	1,655	2,089	2,494	2,837	3,144	3,421	3,664	3,879	4,036
96	Income tax on Timing Differences		-	(119)	158	(1,124)	(2,169)	(1,169)	(780)	(444)	(161)	81	274	443	594	726	846	947	1,038	1,124	1,192	1,238	1,274
97																							
98	**Total Income Tax**		-	109	639	(301)	(1,274)	(340)	(23)	240	455	631	765	874	963	1,034	1,095	1,140	1,175	1,200	1,217	1,225	1,221
99																							
100																							
101	**Capital Cost Allowance**																						
102	Opening Balance - UCC		-	-	(183)	35,796	50,533	39,934	32,978	25,629	20,296	15,499	11,795	9,197	6,487	4,499	2,631	1,597	908	428	(271)	(529)	(807)
103																							
104	Additions		-	-	41,406	24,061	(816)	(131)	(1,652)	(616)	(879)	(453)	146	(377)	(16)	(192)	397	565	638	292	628	532	387
105	Less: Capitalized Overhead		-	-	(1,040)	(1,529)	(1,510)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
106	Less: AFUDC		-	(200)	(1,179)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
107	Net Additions		-	(200)	39,187	22,531	(2,327)	(131)	(1,652)	(616)	(879)	(453)	146	(377)	(16)	(192)	397	565	638	292	628	532	387
108																							
109	CCA on Opening Balance		-	-	(30)	5,920	8,391	6,788	5,726	4,704	3,916	3,229	2,681	2,296	1,921	1,630	1,372	1,180	1,048	934	815	742	678
110	CCA on Capital Expenditures (1/2 yr rule)		-	(16)	3,238	1,874	(120)	37	(29)	13	3	21	63	36	52	46	59	73	71	57	71	68	75
111	Total CCA		-	(16)	3,208	7,795	8,271	6,825	5,697	4,717	3,919	3,250	2,744	2,333	1,972	1,676	1,431	1,253	1,118	991	886	810	753
112	Ending Balance UCC		-	(183)	35,796	50,533	39,934	32,978	25,629	20,296	15,499	11,795	9,197	6,487	4,499	2,631	1,597	908	428	(271)	(529)	(807)	(1,173)