



The Yukon Electrical Company Limited
An **ATCO** Company

May 27, 2013

Yukon Utilities Board
Box 31728
Whitehorse, YT Y1A 6L3

Attention: Mr. Bruce McLennan
Board Chairman

Dear Sir:

**RE: Yukon Electrical Company Limited
2013-2015 General Rate Application**

Yukon Electrical Company Limited ("Yukon Electrical") has attached its Phase I General Rate Application for the 2013-2015 test period.

This Application includes:

- Determination of the 2013-2015 revenue requirement in Sections 1 to 11;
- Interim Refundable Rate Rider in Section 12;
- Business Cases for Capital Additions; and
- Joint Yukon Electrical and Yukon Energy Corporation Five Year Demand Side Management Plan.

In accordance with the *Public Utilities Act* and *Order-In-Council 1995/90*, Yukon Electrical respectfully requests that the Board commence the public notification process in anticipation of a possible public hearing later this year.

The average increase in rates requested by Yukon Electrical in each test year is as follows:

	2013	2014 (\$000)	2015
Yukon Electrical Tariffs	53,679	57,458	59,912
Cumulative Increase over Existing Rates	3,649	5,951	7,434
Cumulative Rate Increase %	6.1%	9.5%	11.7%
Year Over Year Rate Increase %	6.1%	3.4%	2.2%

Interim Refundable Rate Rider

In Section 12 of this Application, Yukon Electrical has requested approval of a 6.5% interim refundable rate rider (Rider R) for electrical consumption on or after July 1 2013. By implementing the rate on July 1, 2013, Rider R will recover approximately 50% of Yukon Electrical's forecast shortfall in 2013. This proposal to collect 50% of Yukon Electrical's forecast shortfall is consistent with the approach filed for and approved by the Board for Yukon Energy's 2012 6.4% interim refundable rider in Board Order 2012-5. For this reason, Yukon Electrical respectfully requests an expedited process to approve Rider R by June 24, 2013 in order to implement the rider on July 1, 2013.

Proposed Schedule

To assist the Yukon Utilities Board in scheduling, Yukon Electrical proposes the following schedule for consideration. It should be noted that this proposed schedule culminates in a Hearing commencing November 4, 2013.

	<u>Proposed Date</u>
Filing Application	May 27, 2013
Interim Rate Decision	June 24, 2013
Information Requests to Yukon Electrical	July 19, 2013
Information Responses from Yukon Electrical	August 23, 2013
Intervener Evidence	September 13, 2013
Information Requests to Interveners	September 27, 2013
Information Responses from Interveners	October 11, 2013
Rebuttal Evidence	October 18, 2013
Hearing	November 4 - 6, 2013
Final Argument	November 20, 2013
Reply Argument	December 4, 2013

If you have any questions on the above request, please contact me at (780) 733-2489.

Yours truly,

Original Signed by:

James Grattan, CA
Director, Regulatory

2013-2015 General Rate Application

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Section 1 – Introduction

Summary

Included in this section is a discussion of:

- Approvals Requested;
- Background on The Yukon Electrical Company Limited (“Yukon Electrical”);
- Overview of Most Recent as well as Current Phase I and Pending Phase II Applications;
- Tariffs Applied For;
- Interim Refundable Rate Rider;
- Deferral Accounts;
- Key Assumptions;
- International Financial Reporting Standards (“IFRS”); and
- Witnesses.

Approvals Requested

Yukon Electrical seeks the following approvals from the Board:

- (1) Approval of Yukon Electrical’s revenue requirement for the three-year test period 2013-2015;
- (2) Approval of the continued use of the deferral accounts listed in detail later in this section during the test period;
- (3) Approval to discontinue purchasing third party distribution line (property) insurance at the expiry of the insurance policy July 1, 2014 and, on a go forward basis, Yukon Electrical would charge insurable losses during construction or operations, if and when they occur, to the Reserve for Injuries and Damages;

(4) Approval of updated Depreciation Parameters as supported by a depreciation study conducted by Gannett Fleming filed in Section 7 Attachment 1; and

(5) Approval of an Interim Refundable Rate Rider (Rider R) for implementation on July 1, 2013 included in Section 12.

Background on Yukon Electrical

Yukon Electrical has been providing electrical service to Yukoners for over one hundred and twelve years. Chartered in 1901, the pioneer company began generating electricity for the residents of Whitehorse using a wood-fired, horizontal piston steam engine. Since then, Yukon Electrical has grown to serve more than 16,700 customers in 19 communities from south of the Yukon border to north of the Arctic Circle. A private, investor-owned utility, Yukon Electrical is a member of the ATCO Group of Companies. Its head office and service centre are located in Whitehorse.

Today, Yukon Electrical purchases power from Yukon Energy for distribution to its customers in Whitehorse, Marsh Lake, Tagish, Teslin, Haines Junction, Carmacks, Stewart Crossing, Pelly Crossing, Carcross, Keno and Ross River. Other Yukon Electrical service areas include Canyon Creek, Deep Creek, Takhini River Crossing as well as a variety of rural areas surrounding of Whitehorse. The company maintains back-up generating plants in Carmacks, Teslin, Haines Junction, Ross River, Pelly Crossing and Stewart Crossing in the event of a power interruption.

The company generates and distributes its own power in Old Crow, Beaver Creek, Destruction Bay, Burwash Landing, Upper Liard, Lower Post, Watson Lake and Swift River. Yukon Electrical has customer service offices in Whitehorse and Watson Lake and plant operators in ten communities. Yukon Electrical also owns and operates the Fish Lake Hydro plant, on the outskirts of Whitehorse. Built in 1950, the Fish Lake plant continues to provide green hydroelectric power.

Yukon Electrical was last before the Yukon Utilities Board (“Board”) for the test years 2008-2009. Since then, Yukon Electrical has operated on 2009 primary rates with the exception of flowing through the impact of changes in fuel prices in accordance with Rider F and the Fuel Price Flow Through Deferral mechanism, as well as flowing through the impact of changes in the wholesale energy tariff from the Yukon Energy Corporation in accordance with the Purchased Power Flow Through Deferral mechanism. During this period, Yukon Electrical has continued to provide safe, reliable and cost effective service to our customers. As detailed in this Application, however, there are significant cost pressures and capital requirements in recent years that require Yukon Electrical to come forward to the Board to ensure that it is possible to continue to deliver the same high standard of service to customers at fair and reasonable rates.

Overview of Most Recent as well as Current Phase I and Pending Phase II Applications

This Phase I Application deals with Yukon Electrical’s requested approval of the revenue requirement detailed herein for the test period 2013-2015. A three-year test period is being requested for regulatory efficiency and to reduce the costs of regulation. Yukon Electrical notes that three-year test periods have been approved by the Northwest Territories Public Utilities Board for Yukon Electrical’s affiliate companies, Northland Utilities (Yellowknife) Limited and Northland Utilities (NWT) Limited, for 2008-2010 and 2011-2013.

As explained in the Rate Case Reserve detailed in Section 8, the forecasted cost of this Phase I proceeding is \$417,000 (see Schedule 8.9). This forecast is based on the Scale of Costs per Board Order 2012-09 and reflects the expectation that Yukon Electrical will seek the recovery of costs as well as the use of Gannett Fleming to support its applied for depreciation parameters in accordance with the Scale of Costs. Actual regulatory costs may be higher or lower depending on how the proceeding ultimately unfolds.

1 Yukon Electrical believes the above noted cost forecast will be similar irrespective of the
2 test period being two or three years. Choosing a three-year test period over two years
3 suggests there will be annual savings of approximately \$69,500¹.

4 With respect to the timing of a future Phase II Application, this appears to be largely
5 determined by Government policy. In October 2008, the Yukon Government enacted
6 OIC 2008/149 directing the Board to ensure that rate adjustments for all retail
7 customers apply equally, when measured as percentages, to all classes of retail
8 customers until December 31, 2012. In April 2012, immediately prior to Yukon Energy
9 filing its 2012-2013 GRA, this direction was replaced by OIC 2012/68 which extends the
10 earlier direction until December 31, 2013 and ensures that the same percentage rate
11 adjustments will also apply to the major industrial customer rate class.

12 Further to the above, the Board directed in Board Order 2010-13 that a joint Cost of
13 Service Study was to be filed within six months of the expiry of OIC 2008/149. Given
14 that OIC 2008/149 was superseded by OIC 2012/68 with the effect of no rate
15 rebalancing until after December 31, 2013, Yukon Electrical is now forecasting a joint
16 Phase II GRA with Yukon Energy will be filed in 2014 that will include a Cost of Service
17 Study, Rate Design, Rate Schedules and Terms and Conditions based on
18 Yukon Electrical's and Yukon Energy's most recently approved revenue requirements.

19 The 2010 Joint Phase II GRA was an involved and complicated process.
20 Yukon Electrical expects the next Joint Phase II GRA will be of a similar nature. Given
21 this situation and for administrative ease, the total forecasted cost of \$269,000 for the
22 2014 Phase II proceeding is based on the costs incurred as part the 2010 Joint Phase II
23 GRA (inflation adjusted) and updated to the Scale of Costs per Board Order 2012-09.
24 Please refer to Schedule 8.9 for a listing for the forecast costs included in the Rate

¹ Three year annual amortization cost of \$139,000 as compared to the two year annual amortization cost of \$208,500.

1 Case Reserve (\$193,000) and Schedule 5.3 for the forecast Regulatory Phase II costs
2 included in Affiliate charges (\$76,000).

3 **Tariffs Applied For**

4 The tariffs applied for are detailed in Schedule 2.1 and are as follows:

	2013	2014 (\$000)	2015
Yukon Electrical Tariffs	53,679	57,458	59,912
Cumulative Increase over Existing Rates	3,649	5,951	7,434
Cumulative Rate Increase %	6.1%	9.5%	11.7%
Year Over Year Rate Increase %	6.1%	3.4%	2.2%

5 **Interim Refundable Rate Rider**

6 As explained in Section 12, Yukon Electrical is requesting to implement a 6.5% interim
7 refundable rider for electrical consumption on or after July 1, 2013. This rider will be
8 applied to all Yukon Electrical and Yukon Energy retail customer bills, excluding
9 Secondary Energy Rate 32, to recover the difference between forecast revenues at
10 existing rates and riders, as of December 2012, and the forecast 2013 revenue
11 requirement included in this Application. This request is consistent with the approach
12 approved by the Board for Yukon Energy's 2012 6.4% interim refundable rider in
13 Board Order 2012-5. By implementing the rider on July 1, 2013, Yukon Electrical will
14 recover approximately 50% of the forecast shortfall in 2013.

15 **Deferral Accounts**

16 The deferral accounts for which Yukon Electrical is seeking approval meet the standard
17 criteria for the establishment of a deferral account:

- 18 (a) Costs are not under the control of the company and are not reasonably
19 forecastable; or

(b) An error in forecasting could produce a loss or gain of a substantial magnitude.

Yukon Electrical is seeking approval to use the following deferral accounts during the test period:

Whitehorse Copper Tailings	Section 2
Purchased Power Flow Through	Section 3
Diesel Contingency Fund	Section 3
Fuel Price Flow Through	Section 4
Depreciation Parameters	Section 7
Rate of Return on Common Equity	Section 8
Defined Benefit Pension Plan	Section 8

Yukon Electrical also seeks the ability to flow-through (dollar for dollar) to the tariff any costs related to Board Orders or legislative provisions resulting in changes to the rules or parameters that Yukon Electrical operates under, or that bear on the nature and extent of Yukon Electrical's obligations as a regulated utility and which impact its 2013-2015 revenues or revenue requirement.

Key Assumptions

	2013	2014	2015
Labour Inflation	3.5%	3.5%	3.5%
Other Inflation	1.9%	2.0%	2.1%
Vacancy Rate	3.4%	3.4%	3.4%
Long Term Debt Rate	4.35%	5.05%	5.80%

For the 2013 and 2014 test periods, in-scope (subject to a collective agreement) and out-of-scope (not subject to a collective agreement) labour has been escalated by 3.5% and 3.5%, respectively. This escalation is based on Yukon Electrical's existing

collective agreement that expires on December 31, 2014. For the 2015 test period, in-scope and out-of-scope labour is escalated by 3.5%. This escalation rate reflects Yukon Electrical's forecast of the increase required.

For non-labour costs, an inflation rate of 1.9% has been applied for 2013 based on 50% of forecast Alberta inflation and 50% of forecast Yukon inflation. For 2014 and 2015, no forecast of Yukon inflation was available so inflation rates of 2.0% and 2.1%, respectively, were applied based on 50% of forecast Alberta inflation and 50% of forecast British Columbia inflation. See Section 11 Attachment 2 for discussion of the non-labour inflation rates used by other utilities in their recent filings.

A vacancy rate of 3.4% (approximately 2 FTEs) has been applied to all labour expenses for the 2013-2015 test periods. This is based on a five year historical average which Yukon Electrical believes to be reasonable and is consistent with the methodology approved in Board Order 2009-2.

See Section 8 for discussion of the forecast long term debt rates for 2013-2015.

Staff Positions

The following table details the FTE growth from the labour complement approved in the 2008-2009 GRA to the actual FTEs at the end of 2012 and the forecast FTEs at the end of the 2015 test period. See Attachment 1 for Yukon Electrical's organization chart.

	FTEs
2009 Approved Complement ²	57.43
Meter Reader (2010)	1.00
Senior Corporate Communications Advisor (2011)	0.60
Financial Analyst (2011)	1.00
Administrative Assistant (2011)	1.00
Planning Supervisor (2012)	1.00
Meter Reader (2012)	1.00
Corporate Accountant (2012)	1.00
Manager, Financial Reporting and Accounting, North of 60 (2012)	0.50
Engineer in Training (2012)	(1.00)
Construction Lead (March 2012)	1.00
Engineering Tech 1 Civil (October 2012)	1.00
Engineering Assistant (October 2012)	1.00
2012 Actual Ending Complement	66.53
Power Line Technician (PLT) Apprentice (2013)	1.00
Customer Service Advisor (2013)	1.00
Demand Side Management (DSM) Administrator (2013)	1.00
Customer Service Representative (2014)	1.00
Engineer in Training (2014)	1.00
Environmental Technician (2014)	1.00
Construction Assistant (2015)	1.00
Power Line Technician (PLT) Apprentice (2015)	1.00
Meter Reader (July 2015)	(1.00)
Various Other	(0.14)
2015 Forecast Ending Complement	73.39

1 The following positions have been added since 2009 to the end of 2012:

- 2 • **Meter Reader (2010)** Yukon Electrical's 2008-2009 GRA included a reduction
3 in Meter Reader positions from two to one in 2009 due to the planned
4 implementation of Automated Meter Reading (AMR). In Board Order 2009-2,
5 the AMR project was disallowed and, as a result, the number of Meter Reader
6 positions was not actually reduced in 2009.

- 7 • **Senior Corporate Communications Advisor (2011)** The position was
8 added to take on the responsibility for timely communication to customers on
9 issues including company updates, customer service changes, rate issues,
10 outages, energy efficiency, and other rate payer relevant information. This

² Per Attachment 2 of Yukon Electrical's 2008-2009 Phase I General Rate Application Compliance Filing

position is also responsible to support efforts regarding website maintenance and development, advertising campaigns, educational initiatives, media relations and government and aboriginal relations.

- **Financial Analyst (2011)** This position was added to support operations and capital growth, including planning and analysis for operational programs and expenditures as well as the forecasting, monitoring, and reporting of capital projects.

- **Administrative Assistant (2011)** This position was added to provide administrative support to the Manager and the Health, Safety and Environment Coordinator to ensure that all necessary operational and environmental reporting is completed. This position is also the lead for Yukon Electrical's Safe Work Management System that tracks all incidents and inspections for follow up actions to closure.

- **Planning Supervisor (2012)** This position was added to lead the focus on system improvement projects for all areas including generation. With the increase in capital projects and system expansion, the Engineering department was reorganized and a small group was created to ensure distribution and generation projects are properly designed, budgeted and completed safely. The Planning Supervisor has the overall responsibility for his department and the proper execution of capital projects.

- **Meter Reader (2012)** This position was required as the continued increase in customers and meters has outstripped the ability of two Meter Readers to read all meters effectively and in a safe and timely manner.

- **Manager, Financial Reporting and Accounting, North of 60 (2012)** This 0.50 FTE position was added to oversee the regulatory and reporting

functions, which have become more complex and onerous due to the transition to IFRS as well as the growth in operations and projects of the company, and the increase in regulatory activity.

- **Corporate Accountant (2012)** Additional accounting support was required due to increased workload in the regulatory and reporting areas. The transition to IFRS in addition to growth in operations and projects of the company has driven the need for an additional resource to address the increased volume and complexity of transactions and reporting requirements.

- **Engineer in Training (EIT) (2012)** Yukon Electrical has had an EIT position for a number of years, but the position became vacant in 2012 and it was decided to not fill the position at that time. This position is being reinstated in 2014.

- **Construction Lead (2012)** This position was added to direct and monitor external civil contractors and line crews. This position monitors as many as sixteen work crews working concurrently. This position ensures quality checks, job site inspections and safety code audits are done for all line projects and any follow up issues are completed to ensure regulatory compliance.

- **Engineering Tech 1 Civil (2012)** The increase in capital projects and Fish Lake monitoring drove the need to bring this skill in-house permanently to reduce the use of contractors.

- **Engineering Assistant (2012)** The Engineering Assistant position was added due to the increased workload due to the growth in capital projects. Engineering Assistants are the project leads that work with customers on

project design, acquire proper permits, create material lists and ensure project is properly closed out.

The following positions are planned to be added in the test period:

- **Power Line Technician (PLT) Apprentice (2013)** Yukon Electrical, like other utilities, has had some difficulty locating and attracting qualified utility personnel. Adding this Apprentice position increases Yukon Electrical's ability to train and develop PLTs locally and addresses the need for continued investment in developing apprentices in the Yukon.
- **Customer Service Advisor (2013)** This position is required due to the increase in customers. This position works directly with customers on the front line for all account enquiries and customer account transactions. Yukon Electrical has utilized four Customer Service Advisors to provide customer service since the number of customers served was 11,000. As the number of customers has grown to almost 17,000, additional support is required in this area.
- **Demand Side Management (DSM) Administrator (2013)** This position will be dedicated to ensuring that the DSM initiative is properly directed to ensure Yukon Electrical meets the Board's direction to engage this initiative. As much work has been done by externals and consultants, this position will work directly with Yukon Electrical's customers to implement DSM programs. Please refer to Business Case #30 for further details on the need for this position.
- **Customer Service Representative (2014)** This position is a dedicated frontline employee who will be the main contact with new customers for capital. This position will ensure that proper project scopes are developed, in

1 service dates are set and met, company investment is in accordance with
2 Board-approved Terms and Conditions and to provide general guidance of
3 customers through Yukon Electrical's customer process.

4 • **Engineer in Training (2014)** This position existed prior to 2012, when it
5 became vacant and was not filled. With the forecast increase in capital
6 spending over the next few years, additional Yukon-based engineering
7 expertise is required. This position will provide direct support to Yukon
8 Electrical's Supervising Engineer.

9 • **Environmental Technician (2014)** This position will be required due to
10 increased regulatory standards and reporting for diesel emissions, increased
11 Fish Lake hydro system monitoring and mandated ongoing ecological and
12 biological studies, and environmental permits for projects.

13 • **Construction Assistant (2015)** This position will be required to provide
14 administrative support to the Construction Supervisor and the Construction
15 department. The Construction department currently shares administrative
16 support with Operations but due to the growth in the capital program it
17 requires its own support to effectively manage administration and reporting
18 support for safety and training records, fleet tracking, compliance filing and
19 personnel record keeping.

20 • **Power Line Technician (PLT) Apprentice (2015)** Yukon Electrical, like other
21 utilities, has had some difficulty locating and attracting qualified utility
22 personnel. Adding this Apprentice position increases Yukon Electrical's
23 ability to train and develop PLTs locally and addresses the need for continued
24 investment in developing apprentices in the Yukon.

1 • **Meter Reader (2015)** The number of Meter Reader positions is planned to be
2 reduced from three to two mid-way through 2015 due to the implementation of
3 Automated Meter Reading (AMR).

4 **International Financial Reporting Standards (IFRS)**

5 On February 13, 2008, the Canadian Accounting Standards Board confirmed that
6 IFRS will replace Canadian Generally Accepted Accounting Principles (GAAP) for
7 annual financial statements relating to fiscal years beginning on or after
8 January 1, 2011. IFRS uses a conceptual framework similar to GAAP, but there are
9 significant differences in recognition, measurement and disclosures. The most
10 significant difference from GAAP is the absence of the recognition of regulatory
11 assets/liabilities and related deferral accounts.

12 Beginning in 2011, Yukon Electrical, consistent with its parent company, no longer
13 recognizes regulatory assets and liabilities in its IFRS Financial Statements but
14 continues to do so for utility earnings purposes. This has added complexity and time to
15 all of Yukon Electrical's accounting functions. Please refer to Attachment 2 for a list of
16 significant items and the treatment under IFRS versus Regulatory.

17 **Witnesses**

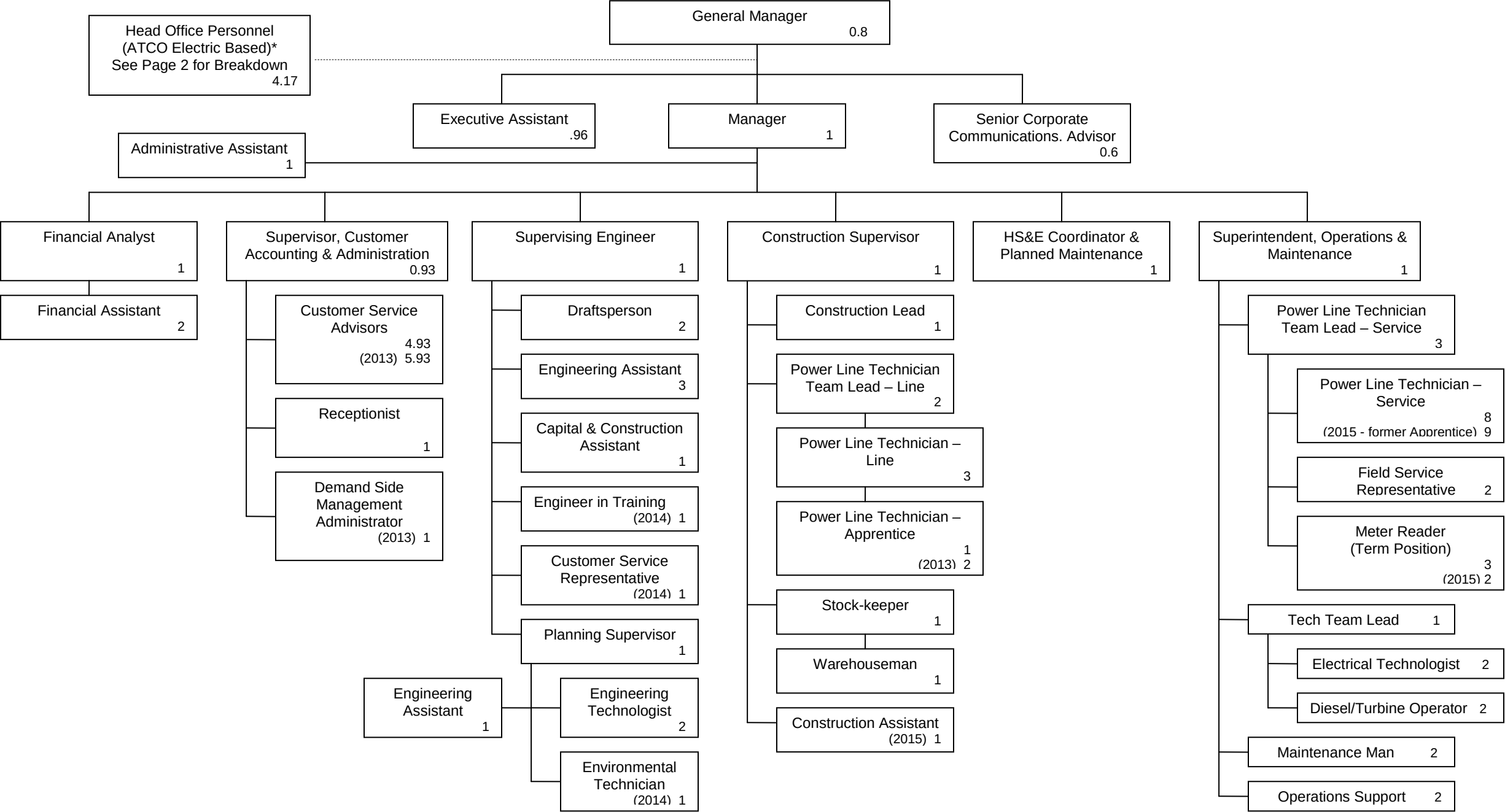
18 Yukon Electrical has not yet finalized the specific witnesses it will present to speak to
19 various aspects of this Application. This decision will be influenced to some degree by
20 the areas in which the Board and Interveners show the most interest. Yukon Electrical
21 will provide a list of its witnesses to the Board in advance of the hearing.

The Yukon Electrical Company Limited
2013 - 2015 General Rate Application
Utility Revenue Requirement
(\$000s)

Schedule 1.1

Line No.	Description	Cross Ref.	Actual 2008	Actual 2009	Actual 2010	Actual 2011	Actual 2012	Test Period			GRA Approved 2008	GRA Approved 2009
								2013	2014	2015		
1	Revenues											
2	Retail Revenues	S.2.1 L.51	44,824	42,725	44,555	45,884	49,923	53,679	57,458	59,912	44,021	44,437
3	Other Revenue	S.2.2 L.6	902	909	1,010	1,099	1,252	1,277	1,250	1,275	810	827
4	Total Revenues		<u>45,726</u>	<u>43,634</u>	<u>45,565</u>	<u>46,983</u>	<u>51,175</u>	<u>54,956</u>	<u>58,707</u>	<u>61,187</u>	<u>44,831</u>	<u>45,264</u>
5												
6	Costs											
7	Purchase Power	S.3.1 L.14	24,157	23,211	23,462	24,093	26,923	25,630	26,472	27,013	24,121	23,841
8	Fuel	S.4.1 L.6	6,603	3,758	5,146	5,539	5,637	6,611	6,701	6,704	5,829	5,397
9	Operations and Maintenance	S.5.1 L.49	8,593	9,474	9,625	9,799	11,059	11,735	12,319	12,507	8,644	8,826
11	Property Taxes	Page 6-1	231	239	230	235	250	257	265	273	244	254
12	Depreciation	S.7.1 L.4	3,181	3,446	3,683	4,129	4,192	6,570	7,509	8,569	3,354	3,661
13	Amortization of Contributions	S.8.12 L.8	(980)	(1,133)	(1,221)	(1,289)	(1,371)	(1,444)	(1,557)	(1,749)	(963)	(1,028)
14	Amortization of Deferred Charges & Credits	S.8.8 L.10	871	438	291	150	150	40	40	39	427	427
		S.8.1 L.5, 10, 15, 20, 25,										
15	Return on Rate Base	30, 35, 40, 45, 50	3,163	4,191	4,071	4,266	4,642	5,308	6,255	7,003	3,519	3,675
16	Income Taxes	S.10.1 L.31	(94)	10	278	61	(307)	248	704	828	(344)	211
17	Total Costs		<u>45,726</u>	<u>43,634</u>	<u>45,565</u>	<u>46,983</u>	<u>51,175</u>	<u>54,956</u>	<u>58,707</u>	<u>61,187</u>	<u>44,831</u>	<u>45,264</u>

Organizational Chart
Yukon Electrical Company Limited
2013 – 2015



Organizational Chart
Yukon Electrical Company Limited
2013 – 2015

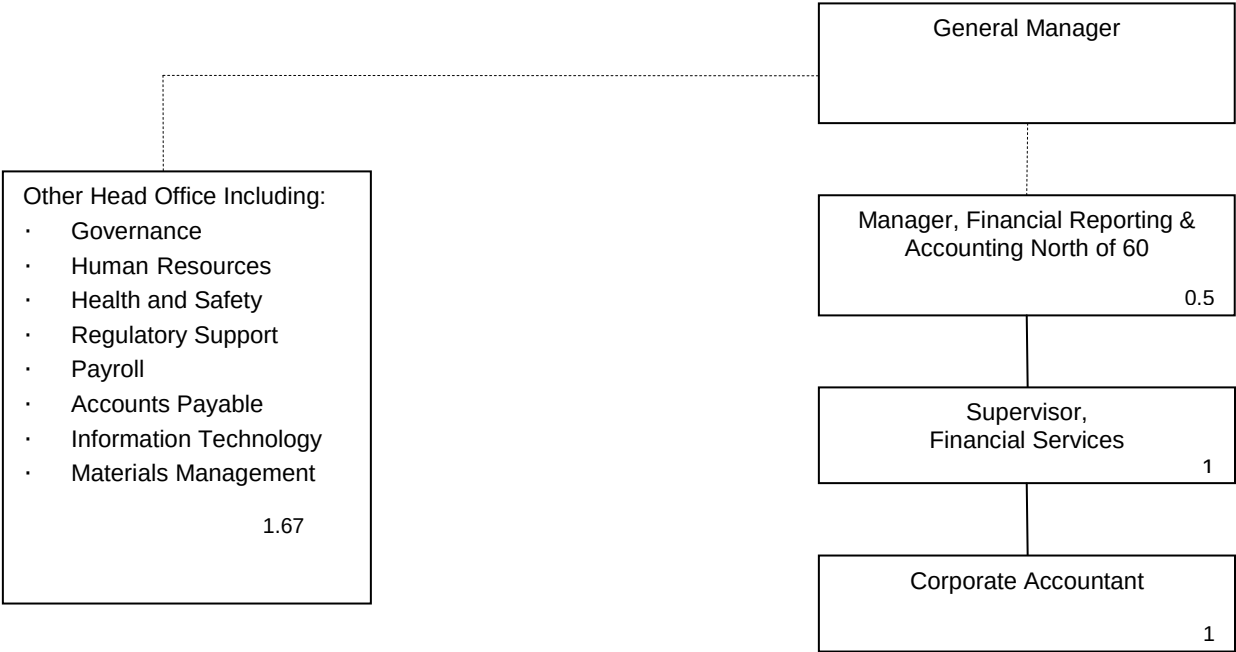


Table of significant items and comparison of treatment under IFRS (Financial Statement) versus Regulatory

Regulatory Accounting Item	Method and Basis of Accounting for Audited Financial Statements (2011 onward – IFRS)	Regulatory (Utility) Reporting	Yukon Electrical Approach for 2013 – 2015 GRA
Regulatory Assets and Liabilities: Deferral Accounts	There is currently no specific guidance under IFRS for rate regulated entities. Consequently, assets and liabilities resulting from rate regulated activities are not recognized under IFRS.	Yukon Electrical will maintain the existing practice of applying to the Board for approval of any deferral accounts that may be required for the purpose of establishing regulatory assets or liabilities and proposing the mechanism for their disposition.	See Section 1 for the deferral accounts applied for in the 2013-2015 GRA. Any deferral balance will be written off the books for IFRS. This results in a reconciling item between the Financial and Utility Returns. The difference between the actual costs and the approved reserve amount will be a difference in Utility compared to Financial Statement expenses.
Revaluation of Property, Plant & Equipment	Under IFRS, revaluation of property, plant and equipment is an option.	Yukon Electrical will maintain the existing practice of using original costs to record property, plant and equipment accounts for rate-making purposes.	Property, plant and equipment continue to be valued at original cost. Current treatment continues, therefore no impact on this Application.
Capitalization/Non-Capitalization of Costs: General and Administrative Overhead	IFRS does not permit the capitalization of costs that are not directly attributable to an asset.	Yukon Electrical will maintain the existing practice of capitalizing only directly attributable overhead costs.	Only directly attributable overhead costs continue to be capitalized to Property, plant and equipment. No change in treatment occurred due to change to IFRS, therefore no impact on this Application.
Capitalization/Non-Capitalization of Costs: Borrowing Costs/Equity Allowance for Funds Used During Construction (AFUDC)	Canadian GAAP permitted both the debt and equity components of AFUDC to be capitalized under regulatory accounting. Under IFRS, only borrowing costs associated with debt are capitalized and the calculations to determine the amount of borrowing costs to be capitalized are significantly different from AFUDC calculations.	Yukon Electrical will maintain the existing accounting practice of including a return on equity component as well as an interest component in the AFUDC when accounting for construction work in process and plant in service, and will continue to utilize the previously approved methodology to determine the amount of borrowing costs to be capitalized.	AFUDC in this Application includes an equity component and has been calculated using the same methodology previously approved. Current treatment continues, therefore no impact on this Application. Note: The difference between amounts recorded under IFRS and the regulatory treatment of AFUDC will be accounted for in regulatory assets and liabilities and results in a difference between regulatory reporting and financial statements.

Regulatory Accounting Item	Method and Basis of Accounting for Audited Financial Statements (2011 onward – IFRS)	Regulatory (Utility) Reporting	Yukon Electrical Approach for 2013 – 2015 GRA
Capitalization/Non-Capitalization of Costs: Depreciation of Assets Used in the Construction of Other Assets	IFRS requires the capitalization of the depreciation of assets used in the construction of other assets (ie. vehicles).	For rate-making purposes, Yukon Electrical will adhere to the IFRS requirement of capitalizing the depreciation of assets used in the construction of other assets.	Yukon Electrical's existing accounting policy continues to require the capitalization of depreciation of assets used in the construction of other assets. Current treatment continues, therefore no impact on this Application.
Capitalization/Non-Capitalization of Costs: Asset Relocation Costs	Under IFRS, the installation cost in the new location can be capitalized as long as the costs in the old location are retired. The cost of actually relocating existing assets has to be expensed as it is deemed to not provide future economic benefit.	Yukon Electrical does not frequently move its assets as they are primarily of a stationary nature. However, in cases where an asset relocation does occur, such as a distribution line move or a transformer move, any new costs to install the asset in the new location are capitalized and the initial costs of installation are retired, along with any materials that are not able to be reused.	Yukon Electrical's existing accounting policy regarding asset relocation costs is in compliance with IFRS. Current treatment continues, therefore no impact on this Application.
Capitalization/Non-Capitalization of Costs: Pre-Operating Costs	Certain pre-operating costs currently capitalized under generally accepted accounting principles would not be capitalized under IFRS.	Due to the nature of Yukon Electrical's property, plant and equipment, pre-operating costs are insignificant in nature and are not capitalized.	Property, plant and equipment balances do not include any pre-operating costs, therefore no accounting adjustments for IFRS have been included in the Application. Current treatment continues, therefore no impact on this Application.
Capitalization/Non-Capitalization of Costs: Training Costs	Certain training costs currently capitalized under generally accepted accounting principles would not be capitalized under IFRS.	For rate-making purposes, Yukon Electrical currently expenses all training costs that do not qualify to be capitalized under IFRS.	Current treatment continues, therefore no impact on this Application.
Capitalization/Non-Capitalization of Costs: Commissioning Costs	Certain asset commissioning costs currently capitalized under generally accepted accounting principles would not be capitalized under IFRS.	Due to the nature of Yukon Electrical's property, plant and equipment, asset commissioning costs are generally not incurred and are not capitalized.	Yukon Electrical will be maintaining its existing accounting practice of expensing all asset commissioning costs. Current treatment continues, therefore no impact on this Application.

Regulatory Accounting Item	Method and Basis of Accounting for Audited Financial Statements (2011 onward – IFRS)	Regulatory (Utility) Reporting	Yukon Electrical Approach for 2013 – 2015 GRA
Treatment of Gains and Losses Upon Retirement or Disposal of Assets	Gains and losses upon the retirement or disposal of property, plant and equipment are required to be recorded in the income statement under IFRS.	For rate-making purposes, Yukon Electrical will maintain the existing accounting practice of recording gains and losses upon retirement or disposal of Property, Plant and Equipment.	Current treatment continues, therefore no impact on this Application. Note: The difference between amounts recorded under IFRS and the regulatory treatment of gains and losses upon retirement or disposal will be accounted for in regulatory assets and liabilities and results in a difference between regulatory reporting and financial statements.
Componentization	IFRS requires the componentization of assets into significant parts that have different useful lives for the purposes of ensuring appropriate depreciation of those assets.	Yukon Electrical records and depreciates assets based on the Uniform System of Accounts which has been assessed to meet the IFRS requirements for componentization.	Current treatment continues, therefore no impact on this Application.
Componentization of Major Overhauls	IFRS requires that major overhaul costs be capitalized and amortized according to their estimated useful lives. Top end and other maintenance expenses can continue to be expensed in the year incurred.	Major overhauls will be amortized over their useful life. Top end overhauls and other maintenance expense will be expensed in the year incurred.	Major overhauls were previously classified as deferred charges and would have been captured on Schedule 8.8 of this Application. Upon transition to IFRS in 2011, major overhauls are now classified as property, plant and equipment and included in Schedule 9.1. This reclassification has no impact on the utility expense calculated in this
Intangible Assets	Under IFRS, intangible assets must be tracked and presented separately from property, plant and equipment.	Yukon Electrical will maintain its existing accounting practice of presenting intangible assets as part of property, plant and equipment for regulatory purposes.	This is a disclosure difference only. No change in classification for regulatory reporting, therefore no impact on this Application.

Regulatory Accounting Item	Method and Basis of Accounting for Audited Financial Statements (2011 onward – IFRS)	Regulatory (Utility) Reporting	Yukon Electrical Approach for 2013 – 2015 GRA
Deferred Charges	Items classified as deferred charges on the balance sheet under Canadian GAAP are required under IFRS to be appropriately classified as property, plant and equipment or intangible assets on the balance sheet or written off to expense, depending on the nature of the item.	All items previously recorded as deferred charges will continue to be deferred for regulatory purposes and not included in expense. Items classified as property, plant and equipment or intangible assets under IFRS will be similarly reclassified for regulatory purposes. Items written off to expense under IFRS will continue to appear on the schedule of deferred charges for regulatory purposes.	For items reclassified from deferred charges to property, plant and equipment or intangible assets, this is a change in classification only. The amount recorded and the amortization of these items remains the same, though they appear on different schedules in the Application than they would have previously. For items required to be written off immediately to expense under IFRS but deferred for regulatory purposes, the difference will be accounted for in regulatory assets and liabilities and results in a difference between regulatory reporting and financial statements.
Asset Retirement Obligations	Under IFRS, provisions associated with asset retirement obligations include both a legal or constructive obligation, whereas under Canadian GAAP, provisions are only recognized when a legal obligation is present. In addition, the measurement of an asset retirement obligation under IFRS is based on management's best estimate of the expenditure to be incurred, whereas under Canadian GAAP, the provision recognized is based on a reasonable estimate of the expenditure to be paid.	Yukon Electrical considers that the present value of any future obligation for regulated perpetual life assets (as they are in a continual state of renewal and replacement) would be immaterial given the extended period of time into the future for such obligations. The future of these services will likely continue to extend so far into the future that a present value amount would be immaterial. As a result, no asset retirement obligation is recorded for regulatory purposes.	Current treatment for regulatory reporting continues, therefore no impact on this Application. Note: Yukon Electrical's asset retirement obligations for IFRS have been calculated to be immaterial to date and, as such, have not been recorded in the financial statements. However, if in the future the company's obligation as defined under IFRS becomes material and is required to be recorded, the difference between amounts recorded under IFRS and the regulatory treatment will be accounted for in regulatory assets and liabilities and will result in a difference between regulatory reporting and financial statements.
Treatment of Insurance Proceeds	Under IFRS, insurance proceeds related to the loss of property, plant and equipment and other assets are immediately recognized in income.	For rate-making purposes, insurance proceeds for loss of an asset are considered proceeds of disposition, with the resulting gain or loss recorded against accumulated depreciation.	Current treatment continues, therefore no impact on this Application. Note: The difference between amounts recorded under IFRS and the regulatory treatment of insurance proceeds will be accounted for in regulatory assets and liabilities and results in a difference between regulatory reporting and financial statements.

Regulatory Accounting Item	Method and Basis of Accounting for Audited Financial Statements (2011 onward – IFRS)	Regulatory (Utility) Reporting	Yukon Electrical Approach for 2013 – 2015 GRA
Impairment of Assets	IFRS requires entities to test assets for impairment and in some circumstances requires write downs and allows for impairment reversals.	For rate making purposes, Yukon Electrical will continue with the existing accounting practice of having no impairment (or impairment reversal) charges included when providing or reporting financial information to the YUB.	Current treatment continues, therefore no impact on this Application. Note: The difference between impairment charges and impairment reversals recorded under IFRS and the regulatory treatment will be accounted for in regulatory assets and liabilities and results in a difference between regulatory reporting and financial statements.
Depreciation	IFRS requires companies to review their depreciation rates annually and implement new depreciation rates if necessary.	Yukon Electrical will record depreciation expense based on the rates set by the latest depreciation study unless the annual review indicates that a change in a rate is required.	As described in Section 7 of this Application, Yukon Electrical is requesting a deferral on depreciation rates which would allow for future applications to be filed, as necessary, to change its depreciation rates within the 2013-2015 test period and for the impact of any such change to be flowed through to customers.
Capital Inventories	Under IFRS, capital inventories are classified as property, plant and equipment and amortized when available for use.	For regulatory purposes, Yukon Electrical will continue to recognize capital inventory as inventory. For external financial reporting, this inventory will be grouped with property, plant and equipment similar to CWIP, with no depreciation recognized.	This is a disclosure difference only. No change in classification for regulatory reporting, therefore no impact on this Application.
Treatment of Customer Contributions	Under IFRS, the obligation associated with customer contributions in aid of construction is not permitted to be recorded as an offset to property, plant and equipment in the same way as it was under Canadian GAAP. Instead, contributions must be recorded as a deferred revenue liability and amortized into income.	For regulatory purposes, contributions will continue to be recognized as property, plant and equipment. The amortization will continue to be an offset to depreciation. For external financial reporting, contributions will be recognized as liabilities and the amortization will be recognized as revenue.	This is a disclosure difference only. No change in classification for regulatory reporting, therefore no impact on this Application.

Regulatory Accounting Item	Method and Basis of Accounting for Audited Financial Statements (2011 onward – IFRS)	Regulatory (Utility) Reporting	Yukon Electrical Approach for 2013 – 2015 GRA
Accounting for Income Taxes	Under IFRS, entities are required to recognize income tax expense related to both current and deferred tax assets and liabilities using the liability method.	Yukon Electrical will maintain the existing accounting practice of using the cash taxes payable (receivable) method of accounting for income taxes for regulatory purposes. Under this practice, a regulatory asset or liability is recognized offsetting the amount of the deferred income tax liability or asset recognized and there is no net effect on the revenue requirement.	Current treatment continues, therefore no impact on this Application. Note: The amount of deferred income tax expense recorded under IFRS will be accounted for in regulatory assets and liabilities and results in a difference between regulatory reporting and financial statements.
Pension Costs/ Other Employment Benefits	Pension costs and other post employment benefit costs are recorded on the accrual basis.	Yukon Electrical will continue to recognize pension and OPEB costs on the cash basis with any difference versus the accrual basis recorded as a regulatory asset.	Current treatment continues, therefore no impact on this Application. Note: Any regulatory asset recorded due to the difference between the accrual and cash basis will be written off for IFRS. This will result in a difference between regulatory reporting and financial statements.
Reserve for Injuries and Damages	All injuries and damages costs will be expensed in the year incurred.	Injuries and damages expense will only include the approved annual reserve amount.	Current treatment continues, therefore no impact on this Application. Note: This results in a difference between regulatory reporting and financial statements. The difference between the actual costs and the approved reserve amount will be a difference in Utility compared to Financial Statement expenses
Rate Case Reserve	All rate case costs will be expensed in the year incurred	Rate case costs will only include the approved annual reserve amount.	Current treatment continues, therefore no impact on this Application. Note: This results in a difference between regulatory reporting and financial statements. The difference between the actual costs and the approved reserve amount will be a difference in Utility compared to Financial Statement expenses.

Section 2 – Sales and Revenue

Overview

Yukon Electrical forecasts the total primary non-industrial sales in 2013 to increase 2.3% (on a weather-normalized basis) and 1.9% in each of 2014 and 2015. The 2.3% growth in sales in 2013 is consistent with the recently applied for and Board approved Yukon Energy 2013 forecast growth in wholesale sales to Yukon Electrical of 2.26%. Including the sales to the Yukon Electrical industrial customer, Whitehorse Copper Tailings, the growth in total sales in 2013 to 2015 would be 2.6%, 3.1% and 1.9%, respectively.

The forecast is based on Yukon Electrical's detailed analysis of historical data by community and customer class and takes into account information gathered through Yukon Electrical staff's work in the community as well as consultation with the City of Whitehorse, Yukon Government officials and local developers. As will be discussed in this section and in Section 11, Attachment 1, (regarding Yukon Electrical's response to the Board Order 2009-02, Direction No. 2), Yukon Electrical has established an accurate record of sales forecasts in the past, and has utilized a simple, but robust and effective sales forecast methodology, which is consistent with industry standards for a small customer-based utility company.

Table 1 summarizes Yukon Electrical's energy sales forecast for 2013 to 2015 by customer class, along with the corresponding actuals for 2011 to 2012 and 2012 normalized actuals. Schedule 2.1 provides a summary of actual and forecast customers, sales and revenue by customer class compared against the proposed revenue requirement. Attachments 1 to 21 provide detailed information used for determining the residential sales forecasts by community.

**Table 1: Yukon Electrical Sales by Customer Class
(MWh)**

	Actual		Normalized Actual 2012	Test Period		
	2011	2012		2013	2014	2015
Residential	141,696	150,350	147,845	151,793	154,381	157,023
Commercial	150,591	159,562	158,271	161,564	165,095	168,549
Street Lights	3,598	3,771	3,771	3,725	3,789	3,854
Private Lights	581	560	560	554	544	534
Sub-Total	296,466	314,244	310,448	317,636	323,809	329,959
Industrial	-	-	-	1,025	4,620	4,620
Total	296,466	314,244	310,448	318,661	328,429	334,579

1 Forecast Accuracy from the 2008-2009 GRA

2 Table 2 provides Yukon Electrical's 2008 and 2009 total primary energy sales forecasts
3 filed as part of the 2008-2009 GRA, along with the Board approved forecasts and
4 compares them to the total actual weather-normalized sales. As can be seen from the
5 table, Yukon Electrical's variance forecast is 0.0% in 2008 and 1.2% in 2009. The
6 Board-approved forecast variance, however, is -2% in 2008 and -1% in 2009, implying
7 an over-forecast of sales in both years.

**Table 2: Yukon Electrical Sales Variance
2008-2009 GRA Forecast**

2008				
	Forecast (MWh)	Actual (Normalized) (MWh)	Variance (MWh) (%)	
<u>Filed¹</u>				
Total Sales	269,913	269,799	(114)	(0.0)
<u>Approved²</u>				
Total Sales	275,224	269,799	(5,425)	(2.0)
2009				
	Forecast (MWh)	Actual (Normalized) (MWh)	Variance (MWh) (%)	
<u>Filed¹</u>				
Total Sales	272,054	275,425	3,371	1.2
<u>Approved²</u>				
Total Sales	278,133	275,425	(2,708)	(1.0)

¹ Schedule 1.2, 2008-2009 GRA

² Schedule 1.2, Compliance Filing, Board Order 2009-5

Background Information

In 2012, Yukon Electrical provided electricity services to approximately 16,700 non-lighting customers in its service area, and supplied a total of 314.2 GWh to residential, commercial and lighting customers. This represents an increase in total primary sales of 6.0%, following a 5.4% increase in 2011. Strong economic and population growth in 2010 and 2011 led to the highest housing starts in 2011 since 2006, which, in turn, contributed to a high growth in Yukon Electrical's customer gains in both residential and commercial sectors. This, coupled with colder than "Normal" weather and a move to use electricity for space heating in more recent housing developments, resulted in strong electricity sales in 2011 and 2012. Sales to the residential sector grew 6.1% in 2012, while commercial sales grew 6.0%.

The latest economic projection from the Yukon Government,¹ however, suggests a sharp slowdown in the pace of economic activity in 2012 and 2013. The Yukon Territory real Gross Domestic Product is estimated to have grown in the range of 2%-3% in 2012 and is expected to grow only 2% in 2013, down sharply from the 2011 growth rate of 6.5%. The Territory's unemployment rate rose to 6.9% in 2012, from 5.4% in 2011, and is projected to rise further, to 7.3%, in 2013. The Yukon Government also expects a slower population growth in 2013, dropping from 2.1% in 2012 to 1.3%. The value of building permits is estimated to have dropped 43% in 2012, compared to 2011. In its latest Northern Housing Report,² Canada Mortgage and Housing Corporation forecast a 25% decrease in Whitehorse housing starts in 2012 as compared to 2011.

The overall impact of the economic and population growth slowdown is expected to impact Yukon Electrical's customer growth and sales over the next few years.

¹ Yukon Economic Review 2012, Yukon Economic Development, February 5, 2013.

² Northern Housing Report, Canada Mortgage and Housing Corporation, 2012.



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1 Forecast Process

2 The forecast process involves the review of historic sales data at the community level
3 and takes into account the most recent data available at the time the forecast is
4 prepared. The information is obtained through Yukon Electrical's work in the
5 community, as well as consultation with the City of Whitehorse, Yukon Government, and
6 various local agencies and developers. The retail primary sales forecast is prepared by
7 customer class: residential, commercial, industrial, street and private lighting. Table 3
8 shows the 2012 annual average customer numbers and the associated energy sales by
9 community and for residential and commercial classes in order of community
10 customer's share.

Table 3: 2012 Yukon Electrical Residential and Commercial Customers and Sales by Community

Table 1: 2022 Fuel and Meter Readings and Commercial Customers and Sales by Community											
		Residential					Commercial				
	Community	Diesel/Hydro	Customers¹	Share(%)	Energy(MWh)	Share(%)	Community	Customers¹	Share(%)	Energy(MWh)	Share(%)
1	Whitehorse	Hydro	10,525	75.9	121,803	81.0	Whitehorse	1,988	70.0	136,160	85.3
2	Watson Lake	Diesel	592	4.3	5,604	3.7	Watson Lake	178	6.3	6,718	4.2
3	Marsh Lake	Hydro	432	3.1	4,109	2.7	Haines Junction	129	4.5	3,833	2.4
4	Haines Junction	Hydro	385	2.8	3,129	2.1	Carmacks	78	2.7	2,487	1.6
5	Tagish	Hydro	341	2.5	1,851	1.2	Ross River	49	1.7	1,401	0.9
6	Teslin	Hydro	274	2.0	2,038	1.4	Carcross	60	2.1	1,107	0.7
7	Carcross	Hydro	252	1.8	2,057	1.4	Beaver Creek	46	1.6	1,073	0.7
8	Carmacks	Hydro	211	1.5	2,596	1.7	Teslin	75	2.6	2,071	1.3
9	Ross River	Hydro	173	1.2	1,584	1.1	Pelly Crossing	28	1.0	1,042	0.7
10	Pelly Crossing	Hydro	148	1.1	1,541	1.0	Destruction Bay	49	1.7	935	0.6
11	Old Crow	Diesel	142	1.0	1,083	0.7	Old Crow	40	1.4	903	0.6
12	Destruction Bay	Diesel	96	0.7	681	0.5	Marsh Lake	24	0.8	350	0.2
13	Beaver Creek	Diesel	71	0.5	672	0.4	Stewart Crossing	13	0.5	269	0.2
14	Lower Post BC	Diesel	61	0.4	544	0.4	Upper Liard	18	0.6	298	0.2
15	Upper Liard	Diesel	59	0.4	488	0.3	Lower Post BC	14	0.5	273	0.2
16	Deep Creek	Hydro	41	0.3	245	0.2	Tagish	23	0.8	236	0.1
17	Keno City	Hydro	40	0.3	187	0.1	Keno City	13	0.5	128	0.1
18	Stewart Crossing	Hydro	14	0.1	120	0.1	Deep Creek	2	0.1	43	0.0
19	Swift River	Diesel	2	0.0	19	0.0	Swift River	14	0.5	187	0.1
20	Minto Landing	Hydro	-	0.0	-	0.0	Minto Landing	2	0.1	48	0.0
Total			13,857	100.0	150,350	100.0		2,841	100.0	159,562	100.0

¹ Customer numbers are on an annual average basis

11 Residential

12 The residential sales forecast has two key inputs: (i) the net customer additions; and
13 (ii) the average use per customer (UPC). The energy sales forecast is obtained by
14 multiplying the forecast number of customers (generated based on the net customer
15 adds forecast) by the average UPC forecast.

1 The customer additions forecast includes all known residential property developments
2 and is based on discussion with the aforementioned third parties.

3 The residential average UPC for the test period for all communities, with the exception
4 of Keno City, Stewart Crossing, Swift River and Whitehorse is forecast by using the
5 most recent three-year average (2010-2012) weather-normalized UPC. The UPC for
6 Keno City, Stewart Crossing and Swift River is forecast by the most recent three-year
7 average actual UPC because there are very few customers in these communities and a
8 poor correlation between their average UPC and temperature.

9 Over the past 2-3 years, housing developments in Whitehorse have been using
10 electricity for space heating, which has resulted in an increase in residential average
11 UPC. As a result, in forecasting Whitehorse UPC in 2013, Yukon Electrical used the
12 2012 weather-normalized UPC, which already reflects the consumption increases due
13 to space heating, as a base and raising it by the most recent three-year average growth
14 in weather-normalized UPC. The increase in UPC relating to electric space heating,
15 however, is not expected to be extended beyond 2013, as it is expected to be offset by
16 a reduction in consumption due to the demand side management program.
17 Attachments 1 to 21 show the historical data as well as the regression results.

18 Weather-normalized UPC is obtained based on a two-step approach where, in the first
19 step, the historical average monthly UPC is regressed on reported monthly Heating
20 Degree Days (HDD), and in the second step, the coefficient of HDD from the regression
21 in first step is multiplied by the difference between the actual HDD and the "Normal"
22 HDD. "Normal" HDD is defined as a twenty-year rolling average of HDD.

23 Commercial

24 The commercial UPC forecast for all communities, with the exception of Whitehorse and
25 Watson Lake, is determined by taking the most recent three-year average actual UPC
26 for each community. The community energy sales forecast is then calculated by

1 multiplying the forecast community customer counts by the respective community UPC
2 forecast.

3 Twelve new large commercial customers (demand > 100kW) are anticipated to be
4 added during the test period; eleven in Whitehorse and one in Watson Lake.
5 Yukon Electrical has considered each of these new large customers individually, and
6 forecast the load each will bring to the system each year based on the start-up time and
7 other pertinent information provided by the customer. To forecast Whitehorse and
8 Watson Lake commercial energy sales over the test period, Yukon Electrical has first
9 determined the base energy sales for each community, which is forecast by multiplying
10 the forecast customer counts (excluding the new large customer additions), by the
11 corresponding community base year UPC forecast. The base year UPC for
12 Watson Lake is obtained based on the most recent three-year actual UPC. For
13 Whitehorse, the 2012 normalized UPC is used as a base year UPC. This is because of
14 conversion of several secondary commercial customers to primary in recent years
15 makes it inappropriate to use a three-year average. The commercial energy sales for
16 Whitehorse and Watson Lake are then calculated by adding the base energy sales in
17 each year to the specific energy sales of the new large commercial additions.

18 Lighting

19 The energy forecast for street and private lighting is based on wattage and customer
20 additions.

21 **Current Forecast**

22 (i) Residential

23 Energy sales to residential customers are expected to increase 1% in 2013
24 (2.7% on a weather-normalized basis) and 1.7% in each of 2014 and 2015.

25 Residential customers are forecast to grow 2.2% in 2013 and 1.7% per year in

2014 and 2015. The 1.7% growth rate for 2014 and 2015 is consistent with the 2005 to 2010 annual average growth rate forecast from the ICF Marbek study³.

On May 8, 2013, members of the Yukon Legislative Assembly briefly discussed the possibility of the ending of the Yukon Interim Electrical Rebate (IER). The ending of the IER would have a significant impact on residential customers' cost of electricity. Given the timing of this discussion, Yukon Electrical has not considered the impact, if any, of the discontinuance of the IER on its residential sales forecast.

(ii) Commercial

Energy sales to commercial customers are forecast to increase 1.3% in 2013 (2.1% on a normalized basis) in 2013 as a result of the addition of new customers, primarily in Whitehorse. Customer counts are forecast to contribute 0.9% to growth in 2013. In 2014, sales are forecast to increase 2.2%, with customers accounting for 1.3%. A further 2.1% growth in energy sales is forecast in 2015, with customer growth of 1.5%.

(iii) Industrial and Industrial Sales Deferral

A new industrial customer, Whitehorse Copper Tailings (WHCT), is forecast to start operations in the fall of 2013. While the customer has acknowledged uncertainty in the exact timing of its start-up as well as its ultimate load, the latest available information results in a 2013 forecast of 1,025 MWh and 4,620 MWh for each of 2014 and 2015

It is Yukon Electrical's understanding that WHCT has received its water licence approval and, as of the date of this Application, Yukon Electrical is gathering the required information to establish an electrical connection. As WHCT is a single

³ Yukon Electricity Conservation and Demand Management Potential Review (CPR 2011), Residential Sector Final Report, 9 January 2012, Exhibits 3 and 17. A copy of this Report is being filed with this Application as Appendix G1 of the Yukon Five Year Demand Side Management Plan.



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1 industrial customer that could contribute materially higher or lower than 1.4% of
2 Yukon Electrical's total forecast sales and the exact timing of its start-up and
3 eventual load are not within the control of Yukon Electrical, Yukon Electrical is
4 requesting a deferral account relating to WHCT sales uncertainty. This deferral
5 account is proposed to capture the difference between WHCT net revenue on
6 existing Rate 39 less forecast purchase power price applied to forecast sales,
7 and WHCT net revenue on existing Rate 39 less forecast purchased power price
8 applied to actual sales. The net revenue will be defined using Rate 39 effective
9 January 1, 2013, that was used to generate the revenue on existing rates in
10 Schedule 2.1, less the forecast price of purchase power stated in Schedule 3.1
11 assumed in the revenue requirement. Differences between forecast and actual
12 will be refunded to or collected from customers.

13 (iv) Lighting

14 Lighting sales are forecast to remain constant in 2013 and increase by 1.3% in
15 each of 2014 and 2015. The increase in 2014 and 2015 is due to additional
16 lights.

17 (v) Wholesale Sales (Sales to Yukon Energy)

18 Wholesale sales are forecast to remain constant at 2012 levels for the test
19 period.

20 (vi) Secondary Sales

21 Due to load growth in the Yukon, secondary sales are not forecasted in the test
22 period. Yukon Electrical depends on Yukon Energy information for the
23 determination of the secondary sales forecast. As stated in Yukon Energy's
24 2012-2013 GRA, Page 2-10:



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1 *"...ongoing non-industrial load growth and connection of the new industrial loads to the*
2 *grid also reduced surplus hydro available for secondary sales over this period ... and are*
3 *not forecast to be available during the test years."*

4 **Revenue on Existing Rates**

5 The current tariff in effect as of January 1, 2013, is applied to the sales and customer
6 forecast, resulting in the forecast revenue on existing rates provided in Schedule 2.1.
7 The revenue excludes interim refundable riders related to Yukon Energy collections
8 (Riders J and R) and the Fuel Adjustment Rider, Rider F. The revenue forecast for the
9 new industrial customer, WHCT, is derived using the Demand Charge and Energy
10 Charge from Rate Schedule 39 – Industrial Primary.

11 **Other Revenues**

12 Yukon Electrical's other revenues have been included with retail sales revenues as part
13 of the revenue requirement. These amounts are detailed in Schedule 2.2.

14 Reconnect, Joint Use and Services to Outside Parties revenues are forecast to increase
15 in each year of the test period due to inflation. Other Revenues are forecast to decrease
16 starting in 2014 due to a reduction in office rental income.

The Yukon Electrical Company Limited
2013 - 2015 General Rate Application
Summary of Customers, Energy Sales and Revenue

Schedule 2.1

Line No.	Description	Cross Ref.	Actual 2008	Actual 2009	Actual 2010	Actual 2011	Actual 2012	Test Period						2008		2009	
								2013		2014		2015		2008		2009	
								Existing	Proposed	Existing	Proposed	Existing	Proposed	Existing	Approved	Existing	Approved
1	Residential																
2	Customers (average during year)		12,715	12,943	13,169	13,482	13,857	14,159		14,401		14,647		12,693		12,908	
3	Sales in MWh		128,302	130,569	131,273	141,696	150,350	151,793		154,381		157,023		126,441		128,615	
4	MWh sales per customer		10.09	10.09	9.97	10.51	10.85	10.72		10.72		10.72		9.96		9.96	
5	Revenue (\$000s)		16,671	16,307	16,892	18,928	21,127	21,294		21,657		22,028		14,528		14,775	
6	Cents per kWh		12.99	12.49	12.87	13.36	14.05	14.03		14.03		14.03		11.49		11.49	
7	Commercial																
8	Customers (average during year)		2,600	2,630	2,692	2,774	2,841	2,867		2,903		2,948		2,599		2,629	
9	Sales in MWh		141,704	142,076	145,776	150,591	159,562	161,564		165,095		168,549		144,701		145,365	
10	MWh sales per customer		54.50	54.02	54.15	54.29	56.16	56.35		56.87		57.17		55.67		55.29	
11	Revenue (\$000s)		20,818	20,368	21,621	23,374	26,057	26,398		27,015		27,602		18,918		19,004	
12	Cents per kWh		14.69	14.34	14.83	15.52	16.33	16.34		16.36		16.38		13.07		13.07	
13	Industrial																
14	Customers (average during year)		-	-	-	-	-	1		1		1		-		-	
15	Sales in MWh		-	-	-	-	-	1,025		4,620		4,620		-		-	
16	MWh sales per customer		-	-	-	-	-	1,024.80		4,620.00		4,620.00		-		-	
17	Revenue (\$000s)		-	-	-	-	-	143		612		612		-		-	
18	Cents per kWh							13.91		13.26		13.26					
19	Street Lights																
20	Sales in MWh		3,545	3,477	3,647	3,598	3,771	3,725		3,789		3,854		3,445		3,522	
21	Revenue (\$000s)		776	764	848	880	963	951		966		981		716		729	
22	Cents per kWh		21.89	21.97	23.25	24.46	25.53	25.54		25.49		25.45		20.78		20.70	
23	Private Lights																
24	Sales in MWh		631	592	594	581	560	554		544		534		638		631	
25	Revenue (\$000s)		139	131	138	144	147	145		143		141		134		132	
26	Cents per kWh		22.03	22.13	23.23	24.71	26.20	26.23		26.27		26.31		20.95		20.95	
27	Total Company - Retail - Primary																
28	Customers		15,315	15,573	15,861	16,256	16,698	17,026		17,304		17,595		15,293		15,537	
29	Sales in MWh		274,182	276,714	281,290	296,466	314,244	318,661		328,429		334,579		275,224		278,133	
30	Revenue (\$000s)		38,404	37,570	39,499	43,326	48,293	48,931		50,393		51,363		34,296		34,640	
31	Cents per kWh		14.01	13.58	14.04	14.61	15.37	15.36		15.34		15.35		12.46		12.45	
32	Secondary Sales																
33	Customers (average during year)		22	21	21	14	2	-		-		-		22		23	
34	Sales in MWh		18,053	16,843	10,153	552	1,993	-		-		-		16,853		6,954	
35	MWh sales per customer		820.59	802.05	483.48	39.43	996.50	-		-		-		754.60		302.35	
36	Revenue (\$000s)		1,389	1,092	665	41	164	-		-		-		1,213		501	
37	Cents per kWh		7.69	6.48	6.55	7.43	8.23	-		-		-		7.20		7.20	
38	Wholesale Sales																
39	Customers (average during year)		2	2	2	2	2	2		2		2		2		2	
40	Sales in MWh		412	360	365	427	338	338		338		338		489		489	
41	MWh sales per customer		206.00	180.00	182.50	213.50	169.12	169.12		169.12		169.12		244.41		244.41	
42	Revenue (\$000s)		41	37	38	38	28	28		28		28		52		52	
43	Cents per kWh		9.95	10.28	10.41	8.90	8.30	8.30		8.30		8.30		10.60		10.60	
44	Total Company																
45	Customers		15,339	15,596	15,884	16,272	16,702	17,028		17,306		17,597		15,317		15,562	
46	Sales in MWh	S.3.2 L.2	292,647	293,917	291,808	297,445	316,575	318,999		328,768		334,917		292,565		285,576	
47	Revenue (\$000s)		39,834	38,699	40,202	43,405	48,486	48,959		50,421		51,391		35,561		35,193	
48	Cents per kWh		13.61	13.17	13.78	14.59	15.32	15.35		15.34		15.34		12.15		12.32	
49	Retail Revenues		39,834	38,699	40,202	43,405	48,486	48,959		50,421		51,391		35,561		35,193	
50	YEC Revenue Shortfall (Rider J)		4,990	4,026	4,353	2,479	1,437	-		-		-		5,120		5,172	
51	TOTAL REVENUES	S.1.1 L.2	44,824	42,725	44,555	45,884	49,923	48,959	53,679	50,421	57,458	51,391	59,912	40,681	44,021	40,365	44,437
52	Rate Increase from Existing Rates							4,720		7,037		8,520		3,340		4,072	
53	Less: Impact of Higher Fuel Costs Recovered Through Rider F							(1,071)		(1,086)		(1,087)		(3,762)		(3,465)	
54	Net Rate Increase (\$000s)	L.52 - L.53						3,649		5,951		7,434		(422)		607	
55	% Rate Increase over Existing Rates																
56	YECL Primary Retail Revenue	L.30						48,931		50,393		51,363		34,296		34,640	
57	YEC Firm Revenue							10,429		12,169		12,304		3,795		3,750	
58	Total YEC/YECL Retail Revenue Primary Rates (\$000s)	L.56 + L.57						59,360		62,562		63,667		38,090		38,391	
59	% Rate Increase Over Existing Rates	L.54 / L.58							6.1%		9.5%		11.7%		-1.1%		1.6%

**The Yukon Electrical Company Limited
2013 - 2015 General Rate Application
Miscellaneous Revenue**

Schedule 2.2

Line No.	Description	Cross Ref.	Actual 2008	Actual 2009	Actual 2010	Actual 2011	Actual 2012	Test Period			GRA Approved 2008	GRA Approved 2009
								2013	2014	2015		
1	Reconnect Revenue		74	56	61	123	187	190	194	198	80	80
2	Joint Use		477	503	590	644	667	681	694	708	464	480
3	Services to Outside Parties		94	86	85	90	107	109	112	114	100	100
4	Other		257	264	274	242	291	297	250	255	166	167
5												
6	Total	S.1.1 L.3	902	909	1,010	1,099	1,252	1,277	1,250	1,275	810	827

The Yukon Electrical Company Limited
2013 - 2015 General Rate Application

Whitehorse			Annual
Residential	(Whitehorse)	Normalized	Normalized
Monthly	UPC (kWh)	UPC (kWh)	UPC (kWh)
Jan-98	1,334	1,166	1,295
Feb-98	1,072	719	1,134
Mar-98	1,028	757	1,043
Apr-98	903	459	921
May-98	788	271	815
Jun-98	697	120	719
Jul-98	628	112	628
Aug-98	604	189	592
Sep-98	706	328	699
Oct-98	781	558	772
Nov-98	923	792	936
Dec-98	971	1,052	927
Jan-99	1,383	1,183	1,334
Feb-99	1,164	976	1,088
Mar-99	1,041	734	1,069
Apr-99	944	509	936
May-99	812	392	774
Jun-99	755	154	758
Jul-99	646	109	649
Aug-99	611	146	621
Sep-99	697	311	700
Oct-99	764	500	786
Nov-99	882	793	895
Dec-99	994	844	1,062
Jan-00	1,265	1,083	1,270
Feb-00	1,036	735	1,090
Mar-00	919	659	986
Apr-00	854	516	842
May-00	847	382	815
Jun-00	732	173	725
Jul-00	656	142	641
Aug-00	620	220	591
Sep-00	734	354	713
Oct-00	787	539	788
Nov-00	884	691	952
Dec-00	940	978	936
Jan-01	1,185	723	1,384
Feb-01	938	864	922
Mar-01	988	765	998
Apr-01	868	507	860
May-01	816	390	780
Jun-01	763	167	760
Jul-01	657	140	643
Aug-01	599	140	613
Sep-01	661	309	664
Oct-01	755	573	737
Nov-01	905	818	904
Dec-01	1,056	1,095	989
Jan-02	1,223	936	1,307
Feb-02	1,013	825	1,019
Mar-02	998	921	925
Apr-02	990	653	904
May-02	799	362	777
Jun-02	707	176	699
Jul-02	643	131	633
Aug-02	648	183	639
Sep-02	680	314	681
Oct-02	759	444	811
Nov-02	873	583	999
Dec-02	898	845	966

The Yukon Electrical Company Limited
2013 - 2015 General Rate Application

Whitehorse		(Whitehorse)		Annual
Residential			Normalized	Normalized
Monthly	UPC (kWh)	MHDD	UPC (kWh)	UPC (kWh)
Jan-03	1,202	989	1,258	
Feb-03	995	757	1,037	
Mar-03	985	835	959	
Apr-03	893	514	881	
May-03	791	364	768	
Jun-03	749	193	732	
Jul-03	658	84	673	
Aug-03	617	181	609	
Sep-03	709	359	685	
Oct-03	727	467	767	
Nov-03	911	875	880	
Dec-03	1,073	912	1,104	
Jan-04	1,246	1,258	1,157	
Feb-04	1,092	697	1,166	
Mar-04	924	754	941	
Apr-04	949	467	963	
May-04	752	273	778	
Jun-04	711	84	753	
Jul-04	667	74	688	
Aug-04	607	102	642	
Sep-04	670	368	642	
Oct-04	762	541	762	
Nov-04	898	720	950	
Dec-04	1,015	900	1,053	
Jan-05	1,278	1,166	1,238	
Feb-05	1,108	795	1,129	
Mar-05	923	614	1,015	
Apr-05	906	453	928	
May-05	735	257	770	
Jun-05	705	154	709	
Jul-05	660	133	650	
Aug-05	621	151	629	
Sep-05	742	299	751	
Oct-05	734	535	737	
Nov-05	922	763	951	
Dec-05	967	794	1,062	
Jan-06	1,197	1,096	1,195	
Feb-06	1,044	821	1,051	
Mar-06	1,073	906	1,007	
Apr-06	934	519	920	
May-06	802	347	788	
Jun-06	726	173	720	
Jul-06	704	118	701	
Aug-06	635	202	616	
Sep-06	736	296	747	
Oct-06	795	521	806	
Nov-06	939	1,162	753	
Dec-06	1,131	824	1,209	
Jan-07	1,246	912	1,343	
Feb-07	1,051	999	962	
Mar-07	1,139	954	1,048	
Apr-07	985	512	975	
May-07	735	322	735	
Jun-07	720	141	731	
Jul-07	702	102	708	
Aug-07	597	154	604	
Sep-07	689	308	692	
Oct-07	755	544	753	
Nov-07	923	725	972	
Dec-07	995	1,070	942	

The Yukon Electrical Company Limited
2013 - 2015 General Rate Application

Whitehorse			Annual	
Residential	(Whitehorse)		Normalized	Normalized
Monthly	UPC (kWh)	MHDD	UPC (kWh)	UPC (kWh)
Jan-08	1,298	1,114	1,287	
Feb-08	1,186	955	1,121	
Mar-08	1,012	735	1,039	
Apr-08	942	517	929	
May-08	789	308	796	
Jun-08	696	226	662	
Jul-08	681	173	648	
Aug-08	701	188	689	
Sep-08	701	319	699	
Oct-08	733	563	721	
Nov-08	985	783	1,003	
Dec-08	1,011	1,186	895	
Jan-09	1,529	1,138	1,504	
Feb-09	1,122	955	1,057	
Mar-09	1,094	869	1,049	
Apr-09	946	515	934	
May-09	773	331	768	
Jun-09	704	144	713	
Jul-09	703	63	730	
Aug-09	627	158	632	
Sep-09	720	306	725	
Oct-09	772	542	771	
Nov-09	954	782	973	
Dec-09	1,013	943	1,027	10,883
Jan-10	1,346	991	1,401	
Feb-10	1,013	679	1,096	
Mar-10	940	656	1,010	
Apr-10	945	461	962	
May-10	795	292	811	
Jun-10	719	172	713	
Jul-10	686	117	683	
Aug-10	628	146	638	
Sep-10	721	332	711	
Oct-10	822	520	833	
Nov-10	904	718	958	
Dec-10	1,057	1,163	953	10,770
Jan-11	1,437	1,010	1,481	
Feb-11	1,129	906	1,091	
Mar-11	1,256	902	1,193	
Apr-11	955	511	945	
May-11	893	296	907	
Jun-11	744	161	744	
Jul-11	677	128	670	
Aug-11	648	218	620	
Sep-11	738	329	731	
Nov-11	832	513	847	
Nov-11	944	936	879	
Dec-11	1,137	775	1,242	11,349
Jan-12	1,357	1,118	1,343	
Feb-12	1,171	708	1,239	
Mar-12	1,098	756	1,114	
Apr-12	930	451	953	
May-12	835	351	820	
Jun-12	770	200	749	
Jul-12	709	140	694	
Aug-12	677	158	682	
Sep-12	695	287	710	
Oct-12	803	631	754	
Nov-12	1,012	970	929	
Dec-12	1,263	1,197	1,141	11,128
2013-F				11,211
2014-F				11,211
2015-F				11,211

0.7%

The Yukon Electrical Company Limited
2013 - 2015 General Rate Application

Carmacks			Annual	
Residential	(Whitehorse)	Normalized	Normalized	
Monthly	UPC (kWh)	MHDD	UPC (kWh)	UPC (kWh)
Jan-98	1,347	1,166	1,299	
Feb-98	915	719	991	
Mar-98	851	757	870	
Apr-98	789	459	812	
May-98	794	271	828	
Jun-98	547	120	574	
Jul-98	607	112	608	
Aug-98	705	189	690	
Sep-98	668	328	659	
Oct-98	892	558	881	
Nov-98	848	792	864	
Dec-98	981	1,052	927	
Jan-99	1,435	1,183	1,375	
Feb-99	997	976	903	
Mar-99	878	734	912	
Apr-99	933	509	923	
May-99	735	392	689	
Jun-99	593	154	597	
Jul-99	714	109	717	
Aug-99	571	146	584	
Sep-99	734	311	736	
Oct-99	849	500	876	
Nov-99	919	793	935	
Dec-99	944	844	1,027	
Jan-00	1,393	1,083	1,400	
Feb-00	908	735	973	
Mar-00	833	659	916	
Apr-00	818	516	803	
May-00	808	382	768	
Jun-00	726	173	718	
Jul-00	616	142	596	
Aug-00	625	220	589	
Sep-00	855	354	829	
Oct-00	809	539	810	
Nov-00	887	691	970	
Dec-00	1,095	978	1,090	
Jan-01	976	723	1,220	
Feb-01	930	864	911	
Mar-01	1,078	765	1,091	
Apr-01	775	507	766	
May-01	690	390	645	
Jun-01	698	167	693	
Jul-01	567	140	549	
Aug-01	566	140	584	
Sep-01	744	309	748	
Oct-01	726	573	705	
Nov-01	999	818	998	
Dec-01	885	1,095	803	
Jan-02	1,219	936	1,322	
Feb-02	1,166	825	1,173	
Mar-02	942	921	852	
Apr-02	853	653	747	
May-02	812	362	786	
Jun-02	552	176	542	
Jul-02	580	131	568	
Aug-02	712	183	701	
Sep-02	638	314	639	
Oct-02	896	444	960	
Nov-02	783	583	938	
Dec-02	999	845	1,082	

The Yukon Electrical Company Limited
2013 - 2015 General Rate Application

Carmacks			Annual	
Residential	(Whitehorse)	Normalized	Normalized	
Monthly	UPC (kWh)	MHDD	UPC (kWh)	UPC (kWh)
Jan-03	1,067	989	1,135	
Feb-03	944	757	996	
Mar-03	886	835	854	
Apr-03	897	514	883	
May-03	751	364	724	
Jun-03	556	193	535	
Jul-03	679	84	697	
Aug-03	595	181	586	
Sep-03	715	359	685	
Oct-03	850	467	899	
Nov-03	924	875	886	
Dec-03	1,240	912	1,278	
Jan-04	1,229	1,258	1,120	
Feb-04	943	697	1,033	
Mar-04	928	754	949	
Apr-04	949	467	967	
May-04	639	273	671	
Jun-04	552	84	603	
Jul-04	656	74	681	
Aug-04	501	102	544	
Sep-04	788	368	754	
Oct-04	803	541	804	
Nov-04	861	720	925	
Dec-04	950	900	997	
Jan-05	1,479	1,166	1,431	
Feb-05	1,034	795	1,060	
Mar-05	842	614	956	
Apr-05	955	453	982	
May-05	666	257	709	
Jun-05	684	154	689	
Jul-05	550	133	537	
Aug-05	593	151	603	
Sep-05	761	299	771	
Oct-05	775	535	779	
Nov-05	950	763	986	
Dec-05	919	794	1,035	
Jan-06	1,402	1,096	1,400	
Feb-06	980	821	989	
Mar-06	1,263	906	1,183	
Apr-06	805	519	788	
May-06	689	347	672	
Jun-06	698	173	690	
Jul-06	641	118	637	
Aug-06	515	202	491	
Sep-06	742	296	755	
Oct-06	750	521	763	
Nov-06	1,006	1,162	778	
Dec-06	1,108	824	1,204	
Jan-07	1,554	912	1,673	
Feb-07	1,055	999	946	
Mar-07	1,221	954	1,109	
Apr-07	858	512	846	
May-07	657	322	657	
Jun-07	728	141	742	
Jul-07	590	102	597	
Aug-07	648	154	655	
Sep-07	655	308	659	
Oct-07	763	544	761	
Nov-07	1,083	725	1,144	
Dec-07	919	1,070	853	

The Yukon Electrical Company Limited
2013 - 2015 General Rate Application

Carmacks			Annual	
Residential	(Whitehorse)	Normalized	Normalized	
Monthly	UPC (kWh)	MHDD	UPC (kWh)	UPC (kWh)
Jan-08	1,322	1,114	1,308	
Feb-08	1,749	955	1,669	
Mar-08	1,140	735	1,174	
Apr-08	873	517	857	
May-08	830	308	839	
Jun-08	710	226	667	
Jul-08	522	173	482	
Aug-08	687	188	673	
Sep-08	753	319	751	
Oct-08	825	563	810	
Nov-08	1,162	783	1,184	
Dec-08	1,092	1,186	949	
Jan-09	1,569	1,138	1,539	
Feb-09	1,236	955	1,156	
Mar-09	1,113	869	1,058	
Apr-09	996	515	982	
May-09	612	331	606	
Jun-09	572	144	583	
Jul-09	667	63	700	
Aug-09	598	158	603	
Sep-09	822	306	828	
Oct-09	813	542	813	
Nov-09	1,007	782	1,031	
Dec-09	1,085	943	1,103	
Jan-10	1,623	991	1,690	
Feb-10	1,029	679	1,132	
Mar-10	1,035	656	1,120	
Apr-10	1,023	461	1,044	
May-10	800	292	820	
Jun-10	566	172	558	
Jul-10	717	117	714	
Aug-10	673	146	686	
Sep-10	738	332	726	
Oct-10	867	520	881	
Nov-10	964	718	1,030	
Dec-10	1,075	1,163	947	11,350
Jan-11	1,619	1,010	1,673	
Feb-11	1,315	906	1,268	
Mar-11	1,227	902	1,150	
Apr-11	914	511	902	
May-11	880	296	897	
Jun-11	598	161	598	
Jul-11	678	128	668	
Aug-11	694	218	659	
Sep-11	843	329	834	
Nov-11	836	513	854	
Nov-11	1,103	936	1,024	
Dec-11	1,062	775	1,191	11,718
Jan-12	1,703	1,118	1,686	
Feb-12	1,191	708	1,275	
Mar-12	1,450	756	1,469	
Apr-12	690	451	718	
May-12	804	351	785	
Jun-12	756	200	730	
Jul-12	564	140	546	
Aug-12	759	158	764	
Sep-12	659	287	677	
Oct-12	801	631	742	
Nov-12	1,382	970	1,281	
Dec-12	1,290	1,197	1,140	11,815
2013-F				11,628
2014-F				11,628
2015-F				11,628

The Yukon Electrical Company Limited
2013 - 2015 General Rate Application

Carcross			Annual	
Residential	(Whitehorse)	Normalized	Normalized	
Monthly	UPC (kWh)	MHDD	UPC (kWh)	UPC (kWh)
Jan-98	795	1,166	772	
Feb-98	785	719	822	
Mar-98	698	757	708	
Apr-98	607	459	619	
May-98	583	271	600	
Jun-98	473	120	486	
Jul-98	428	112	429	
Aug-98	437	189	429	
Sep-98	460	328	456	
Oct-98	499	558	494	
Nov-98	571	792	579	
Dec-98	585	1,052	558	
Jan-99	838	1,183	809	
Feb-99	728	976	682	
Mar-99	693	734	709	
Apr-99	607	509	602	
May-99	609	392	587	
Jun-99	501	154	503	
Jul-99	489	109	490	
Aug-99	412	146	419	
Sep-99	435	311	436	
Oct-99	541	500	554	
Nov-99	527	793	535	
Dec-99	791	844	831	
Jan-00	558	1,083	561	
Feb-00	695	735	728	
Mar-00	577	659	618	
Apr-00	588	516	580	
May-00	526	382	506	
Jun-00	488	173	484	
Jul-00	448	142	439	
Aug-00	391	220	374	
Sep-00	500	354	488	
Oct-00	455	539	456	
Nov-00	503	691	544	
Dec-00	631	978	628	
Jan-01	636	723	756	
Feb-01	556	864	546	
Mar-01	674	765	681	
Apr-01	532	507	527	
May-01	511	390	489	
Jun-01	506	167	504	
Jul-01	412	140	404	
Aug-01	428	140	436	
Sep-01	410	309	412	
Oct-01	448	573	437	
Nov-01	540	818	539	
Dec-01	612	1,095	572	
Jan-02	818	936	868	
Feb-02	636	825	639	
Mar-02	642	921	598	
Apr-02	651	653	599	
May-02	568	362	555	
Jun-02	462	176	458	
Jul-02	434	131	428	
Aug-02	446	183	440	
Sep-02	446	314	446	
Oct-02	474	444	505	
Nov-02	567	583	642	
Dec-02	552	845	592	

The Yukon Electrical Company Limited
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Carcross			Annual	
Residential	(Whitehorse)	Normalized	Normalized	
Monthly	UPC (kWh)	MHDD	UPC (kWh)	UPC (kWh)
Jan-03	744	989	778	
Feb-03	625	757	650	
Mar-03	609	835	593	
Apr-03	612	514	605	
May-03	560	364	546	
Jun-03	482	193	472	
Jul-03	473	84	482	
Aug-03	422	181	417	
Sep-03	460	359	445	
Oct-03	437	467	462	
Nov-03	584	875	565	
Dec-03	662	912	681	
Jan-04	795	1,258	741	
Feb-04	716	697	761	
Mar-04	593	754	603	
Apr-04	590	467	598	
May-04	569	273	585	
Jun-04	439	84	464	
Jul-04	486	74	499	
Aug-04	395	102	416	
Sep-04	394	368	377	
Oct-04	488	541	488	
Nov-04	571	720	602	
Dec-04	638	900	661	
Jan-05	860	1,166	836	
Feb-05	760	795	773	
Mar-05	642	614	698	
Apr-05	604	453	617	
May-05	506	257	527	
Jun-05	433	154	435	
Jul-05	451	133	445	
Aug-05	398	151	403	
Sep-05	470	299	475	
Oct-05	524	535	526	
Nov-05	558	763	575	
Dec-05	655	794	712	
Jan-06	842	1,096	841	
Feb-06	737	821	741	
Mar-06	649	906	610	
Apr-06	691	519	683	
May-06	518	347	510	
Jun-06	591	173	587	
Jul-06	443	118	441	
Aug-06	462	202	451	
Sep-06	480	296	487	
Oct-06	497	521	503	
Nov-06	612	1,162	500	
Dec-06	811	824	858	
Jan-07	831	912	889	
Feb-07	810	999	757	
Mar-07	792	954	737	
Apr-07	732	512	726	
May-07	555	322	555	
Jun-07	529	141	535	
Jul-07	459	102	462	
Aug-07	465	154	469	
Sep-07	451	308	453	
Oct-07	499	544	499	
Nov-07	229	725	259	
Dec-07	680	1,070	647	

The Yukon Electrical Company Limited
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Carcross			Annual	
Residential	(Whitehorse)	Normalized	Normalized	
Monthly	UPC (kWh)	MHDD	UPC (kWh)	UPC (kWh)
Jan-08	824	1,114	817	
Feb-08	961	955	922	
Mar-08	727	735	743	
Apr-08	687	517	680	
May-08	615	308	619	
Jun-08	493	226	472	
Jul-08	457	173	437	
Aug-08	507	188	500	
Sep-08	453	319	452	
Oct-08	496	563	489	
Nov-08	623	783	634	
Dec-08	725	1,186	655	
Jan-09	909	1,138	895	
Feb-09	893	955	854	
Mar-09	825	869	798	
Apr-09	764	515	757	
May-09	696	331	693	
Jun-09	517	144	522	
Jul-09	497	63	514	
Aug-09	441	158	443	
Sep-09	474	306	477	
Oct-09	561	542	561	
Nov-09	617	782	629	
Dec-09	746	943	755	
Jan-10	951	991	984	
Feb-10	925	679	975	
Mar-10	741	656	782	
Apr-10	676	461	686	
May-10	650	292	659	
Jun-10	530	172	527	
Jul-10	481	117	480	
Aug-10	459	146	466	
Sep-10	454	332	449	
Oct-10	576	520	583	
Nov-10	633	718	665	
Dec-10	692	1,163	630	7,885
Jan-11	1,038	1,010	1,065	
Feb-11	874	906	851	
Mar-11	930	902	893	
Apr-11	796	511	790	
May-11	587	296	596	
Jun-11	560	161	560	
Jul-11	457	128	452	
Aug-11	439	218	422	
Sep-11	517	329	513	
Nov-11	532	513	541	
Nov-11	616	936	577	
Dec-11	839	775	902	8,161
Jan-12	852	1,118	844	
Feb-12	1,020	708	1,061	
Mar-12	712	756	721	
Apr-12	685	451	698	
May-12	622	351	613	
Jun-12	543	200	531	
Jul-12	485	140	476	
Aug-12	511	158	514	
Sep-12	520	287	529	
Oct-12	521	631	492	
Nov-12	704	970	655	
Dec-12	819	1,197	746	7,879
2013-F				7,975
2014-F				7,975
2015-F				7,975

The Yukon Electrical Company Limited
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Haines Junction			Annual	
Residential	(Whitehorse)		Normalized	Normalized
Monthly	UPC (kWh)	MHDD	UPC (kWh)	UPC (kWh)
Jan-98	984	1,166	961	
Feb-98	757	719	794	
Mar-98	737	757	746	
Apr-98	667	459	678	
May-98	641	271	657	
Jun-98	571	120	584	
Jul-98	589	112	590	
Aug-98	505	189	498	
Sep-98	599	328	595	
Oct-98	659	558	654	
Nov-98	689	792	696	
Dec-98	706	1,052	680	
Jan-99	1,022	1,183	994	
Feb-99	837	976	792	
Mar-99	759	734	775	
Apr-99	734	509	730	
May-99	605	392	583	
Jun-99	616	154	618	
Jul-99	589	109	591	
Aug-99	539	146	545	
Sep-99	589	311	590	
Oct-99	651	500	664	
Nov-99	712	793	720	
Dec-99	771	844	811	
Jan-00	919	1,083	922	
Feb-00	768	735	799	
Mar-00	696	659	736	
Apr-00	654	516	646	
May-00	647	382	628	
Jun-00	634	173	630	
Jul-00	589	142	580	
Aug-00	566	220	549	
Sep-00	625	354	613	
Oct-00	645	539	646	
Nov-00	695	691	734	
Dec-00	705	978	702	
Jan-01	948	723	1,064	
Feb-01	741	864	731	
Mar-01	687	765	694	
Apr-01	632	507	628	
May-01	668	390	646	
Jun-01	650	167	648	
Jul-01	568	140	559	
Aug-01	570	140	579	
Sep-01	569	309	571	
Oct-01	633	573	623	
Nov-01	719	818	719	
Dec-01	848	1,095	809	
Jan-02	966	936	1,015	
Feb-02	752	825	755	
Mar-02	737	921	695	
Apr-02	772	653	721	
May-02	629	362	617	
Jun-02	600	176	595	
Jul-02	567	131	562	
Aug-02	566	183	561	
Sep-02	600	314	600	
Oct-02	639	444	669	
Nov-02	776	583	850	
Dec-02	625	845	664	

The Yukon Electrical Company Limited
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Haines Junction			Annual	
Residential	(Whitehorse)		Normalized	Normalized
Monthly	UPC (kWh)	MHDD	UPC (kWh)	UPC (kWh)
Jan-03	925	989	957	
Feb-03	708	757	733	
Mar-03	661	835	646	
Apr-03	649	514	643	
May-03	596	364	582	
Jun-03	586	193	576	
Jul-03	545	84	554	
Aug-03	515	181	510	
Sep-03	565	359	551	
Oct-03	547	467	570	
Nov-03	668	875	650	
Dec-03	773	912	791	
Jan-04	873	1,258	821	
Feb-04	767	697	810	
Mar-04	635	754	645	
Apr-04	672	467	680	
May-04	551	273	566	
Jun-04	506	84	530	
Jul-04	582	74	594	
Aug-04	490	102	510	
Sep-04	574	368	557	
Oct-04	567	541	568	
Nov-04	650	720	680	
Dec-04	765	900	787	
Jan-05	866	1,166	843	
Feb-05	799	795	811	
Mar-05	620	614	673	
Apr-05	687	453	699	
May-05	568	257	589	
Jun-05	531	154	533	
Jul-05	562	133	556	
Aug-05	495	151	500	
Sep-05	646	299	651	
Oct-05	573	535	575	
Nov-05	687	763	704	
Dec-05	705	794	760	
Jan-06	877	1,096	875	
Feb-06	787	821	791	
Mar-06	738	906	700	
Apr-06	635	519	626	
May-06	620	347	612	
Jun-06	565	173	561	
Jul-06	599	118	597	
Aug-06	531	202	519	
Sep-06	581	296	587	
Oct-06	514	521	520	
Nov-06	757	1,162	649	
Dec-06	659	824	705	
Jan-07	1,088	912	1,145	
Feb-07	792	999	740	
Mar-07	795	954	742	
Apr-07	713	512	707	
May-07	541	322	541	
Jun-07	629	141	636	
Jul-07	479	102	482	
Aug-07	493	154	497	
Sep-07	611	308	613	
Oct-07	554	544	554	
Nov-07	690	725	719	
Dec-07	746	1,070	715	

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Haines Junction			Annual	
Residential	(Whitehorse)		Normalized	Normalized
Monthly	UPC (kWh)	MHDD	UPC (kWh)	UPC (kWh)
Jan-08	913	1,114	906	
Feb-08	847	955	809	
Mar-08	844	735	859	
Apr-08	671	517	663	
May-08	564	308	568	
Jun-08	522	226	501	
Jul-08	604	173	585	
Aug-08	527	188	520	
Sep-08	587	319	586	
Oct-08	520	563	513	
Nov-08	669	783	680	
Dec-08	757	1,186	689	
Jan-09	1,022	1,138	1,007	
Feb-09	731	955	693	
Mar-09	789	869	763	
Apr-09	640	515	633	
May-09	683	331	681	
Jun-09	548	144	553	
Jul-09	535	63	551	
Aug-09	508	158	510	
Sep-09	532	306	535	
Oct-09	578	542	578	
Nov-09	738	782	749	
Dec-09	701	943	709	
Jan-10	962	991	994	
Feb-10	715	679	763	
Mar-10	713	656	754	
Apr-10	610	461	620	
May-10	616	292	625	
Jun-10	578	172	575	
Jul-10	518	117	517	
Aug-10	489	146	495	
Sep-10	550	332	544	
Oct-10	572	520	579	
Nov-10	681	718	712	
Dec-10	710	1,163	650	7,827
Jan-11	1,000	1,010	1,025	
Feb-11	754	906	731	
Mar-11	773	902	736	
Apr-11	659	511	653	
May-11	666	296	674	
Jun-11	541	161	541	
Jul-11	536	128	531	
Aug-11	467	218	450	
Sep-11	516	329	512	
Nov-11	601	513	609	
Nov-11	682	936	644	
Dec-11	736	775	797	7,905
Jan-12	928	1,118	920	
Feb-12	822	708	861	
Mar-12	730	756	739	
Apr-12	656	451	669	
May-12	548	351	539	
Jun-12	599	200	587	
Jul-12	538	140	529	
Aug-12	430	158	432	
Sep-12	560	287	569	
Oct-12	571	631	543	
Nov-12	670	970	623	
Dec-12	905	1,197	834	7,846
2013-F				7,859
2014-F				7,859
2015-F				7,859

The Yukon Electrical Company Limited
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Teslin		(Whitehorse)		Annual	
Residential			Normalized	Normalized	
Monthly	UPC (kWh)	MHDD	UPC (kWh)	UPC (kWh)	
Jan-98	815	1,166	793		
Feb-98	583	719	618		
Mar-98	544	757	553		
Apr-98	579	459	589		
May-98	446	271	462		
Jun-98	411	120	423		
Jul-98	499	112	500		
Aug-98	443	189	437		
Sep-98	458	328	454		
Oct-98	540	558	535		
Nov-98	554	792	561		
Dec-98	624	1,052	600		
Jan-99	837	1,183	810		
Feb-99	604	976	562		
Mar-99	659	734	674		
Apr-99	587	509	582		
May-99	458	392	437		
Jun-99	510	154	512		
Jul-99	509	109	510		
Aug-99	411	146	417		
Sep-99	463	311	465		
Oct-99	524	500	536		
Nov-99	512	793	519		
Dec-99	548	844	585		
Jan-00	837	1,083	840		
Feb-00	564	735	594		
Mar-00	492	659	529		
Apr-00	545	516	539		
May-00	474	382	456		
Jun-00	514	173	510		
Jul-00	419	142	410		
Aug-00	423	220	407		
Sep-00	547	354	535		
Oct-00	487	539	488		
Nov-00	590	691	627		
Dec-00	566	978	563		
Jan-01	638	723	747		
Feb-01	570	864	562		
Mar-01	629	765	635		
Apr-01	537	507	533		
May-01	475	390	455		
Jun-01	515	167	514		
Jul-01	453	140	445		
Aug-01	424	140	431		
Sep-01	490	309	492		
Oct-01	473	573	464		
Nov-01	581	818	581		
Dec-01	640	1,095	603		
Jan-02	639	936	686		
Feb-02	720	825	723		
Mar-02	538	921	498		
Apr-02	539	653	491		
May-02	584	362	572		
Jun-02	420	176	416		
Jul-02	428	131	422		
Aug-02	486	183	481		
Sep-02	416	314	416		
Oct-02	533	444	562		
Nov-02	529	583	598		
Dec-02	570	845	607		

The Yukon Electrical Company Limited
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Teslin			Annual	
Residential	(Whitehorse)		Normalized	Normalized
Monthly	UPC (kWh)	MHDD	UPC (kWh)	UPC (kWh)
Jan-03	721	989	752	
Feb-03	547	757	570	
Mar-03	531	835	516	
Apr-03	434	514	428	
May-03	565	364	553	
Jun-03	427	193	418	
Jul-03	480	84	488	
Aug-03	428	181	423	
Sep-03	464	359	451	
Oct-03	516	467	538	
Nov-03	536	875	518	
Dec-03	623	912	640	
Jan-04	832	1,258	783	
Feb-04	643	697	684	
Mar-04	440	754	449	
Apr-04	575	467	583	
May-04	432	273	447	
Jun-04	450	84	473	
Jul-04	511	74	522	
Aug-04	405	102	424	
Sep-04	531	368	516	
Oct-04	503	541	504	
Nov-04	529	720	558	
Dec-04	576	900	597	
Jan-05	925	1,166	904	
Feb-05	615	795	626	
Mar-05	535	614	585	
Apr-05	545	453	557	
May-05	480	257	499	
Jun-05	416	154	418	
Jul-05	466	133	461	
Aug-05	430	151	435	
Sep-05	522	299	527	
Oct-05	459	535	461	
Nov-05	553	763	569	
Dec-05	577	794	629	
Jan-06	816	1,096	815	
Feb-06	600	821	603	
Mar-06	739	906	703	
Apr-06	511	519	504	
May-06	502	347	495	
Jun-06	523	173	520	
Jul-06	442	118	440	
Aug-06	419	202	409	
Sep-06	540	296	546	
Oct-06	477	521	483	
Nov-06	546	1,162	444	
Dec-06	682	824	725	
Jan-07	822	912	875	
Feb-07	591	999	542	
Mar-07	737	954	687	
Apr-07	530	512	524	
May-07	617	322	617	
Jun-07	522	141	528	
Jul-07	444	102	447	
Aug-07	465	154	469	
Sep-07	500	308	502	
Oct-07	550	544	549	
Nov-07	645	725	673	
Dec-07	589	1,070	560	

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Teslin			Annual	
Residential	(Whitehorse)	Normalized	Normalized	
Monthly	UPC (kWh)	MHDD	UPC (kWh)	UPC (kWh)
Jan-08	883	1,114	877	
Feb-08	943	955	908	
Mar-08	541	735	556	
Apr-08	546	517	538	
May-08	563	308	567	
Jun-08	417	226	398	
Jul-08	425	173	407	
Aug-08	531	188	524	
Sep-08	477	319	476	
Oct-08	601	563	595	
Nov-08	566	783	576	
Dec-08	641	1,186	577	
Jan-09	1,033	1,138	1,019	
Feb-09	916	955	880	
Mar-09	505	869	480	
Apr-09	543	515	537	
May-09	603	331	600	
Jun-09	418	144	423	
Jul-09	513	63	528	
Aug-09	427	158	430	
Sep-09	440	306	443	
Oct-09	562	542	561	
Nov-09	570	782	580	
Dec-09	659	943	667	
Jan-10	891	991	921	
Feb-10	641	679	687	
Mar-10	608	656	646	
Apr-10	651	461	660	
May-10	491	292	500	
Jun-10	460	172	457	
Jul-10	532	117	530	
Aug-10	387	146	393	
Sep-10	526	332	521	
Oct-10	544	520	550	
Nov-10	618	718	647	
Dec-10	785	1,163	728	7,242
Jan-11	858	1,010	883	
Feb-11	654	906	633	
Mar-11	823	902	789	
Apr-11	555	511	549	
May-11	617	296	624	
Jun-11	456	161	456	
Jul-11	511	128	506	
Aug-11	434	218	419	
Sep-11	532	329	528	
Nov-11	532	513	541	
Nov-11	599	936	564	
Dec-11	711	775	769	7,261
Jan-12	956	1,118	949	
Feb-12	676	708	713	
Mar-12	733	756	742	
Apr-12	578	451	590	
May-12	511	351	502	
Jun-12	501	200	490	
Jul-12	424	140	416	
Aug-12	390	158	393	
Sep-12	504	287	512	
Oct-12	496	631	469	
Nov-12	744	970	699	
Dec-12	776	1,197	709	7,185
2013-F				7,229
2014-F				7,229
2015-F				7,229

The Yukon Electrical Company Limited
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Ross River			Annual	
Residential	(Whitehorse)	Normalized	Normalized	
Monthly	UPC (kWh)	MHDD	UPC (kWh)	UPC (kWh)
Jan-98	1,059	1,166	1,027	
Feb-98	803	719	852	
Mar-98	783	757	795	
Apr-98	636	459	650	
May-98	528	271	549	
Jun-98	502	120	520	
Jul-98	553	112	554	
Aug-98	451	189	441	
Sep-98	560	328	555	
Oct-98	567	558	560	
Nov-98	592	792	603	
Dec-98	841	1,052	807	
Jan-99	956	1,183	917	
Feb-99	799	976	738	
Mar-99	707	734	728	
Apr-99	703	509	696	
May-99	576	392	546	
Jun-99	505	154	508	
Jul-99	582	109	584	
Aug-99	472	146	480	
Sep-99	471	311	472	
Oct-99	640	500	658	
Nov-99	647	793	657	
Dec-99	724	844	777	
Jan-00	963	1,083	967	
Feb-00	778	735	820	
Mar-00	679	659	732	
Apr-00	788	516	778	
May-00	515	382	489	
Jun-00	650	173	645	
Jul-00	467	142	454	
Aug-00	475	220	452	
Sep-00	628	354	611	
Oct-00	600	539	601	
Nov-00	616	691	669	
Dec-00	854	978	851	
Jan-01	824	723	982	
Feb-01	680	864	667	
Mar-01	847	765	855	
Apr-01	594	507	589	
May-01	580	390	551	
Jun-01	560	167	557	
Jul-01	468	140	456	
Aug-01	431	140	442	
Sep-01	511	309	513	
Oct-01	561	573	547	
Nov-01	735	818	734	
Dec-01	730	1,095	677	
Jan-02	823	936	889	
Feb-02	854	825	858	
Mar-02	657	921	599	
Apr-02	665	653	597	
May-02	615	362	598	
Jun-02	448	176	441	
Jul-02	428	131	420	
Aug-02	512	183	505	
Sep-02	415	314	415	
Oct-02	494	444	535	
Nov-02	663	583	762	
Dec-02	622	845	675	

The Yukon Electrical Company Limited
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Ross River			Annual	
Residential	(Whitehorse)	Normalized	Normalized	
Monthly	UPC (kWh)	MHDD	UPC (kWh)	UPC (kWh)
Jan-03	845	989	889	
Feb-03	718	757	751	
Mar-03	630	835	609	
Apr-03	550	514	541	
May-03	561	364	543	
Jun-03	431	193	417	
Jul-03	457	84	469	
Aug-03	387	181	381	
Sep-03	403	359	384	
Oct-03	473	467	505	
Nov-03	675	875	651	
Dec-03	727	912	752	
Jan-04	884	1,258	813	
Feb-04	769	697	828	
Mar-04	640	754	654	
Apr-04	685	467	696	
May-04	499	273	520	
Jun-04	453	84	486	
Jul-04	487	74	503	
Aug-04	415	102	442	
Sep-04	539	368	516	
Oct-04	500	541	500	
Nov-04	568	720	609	
Dec-04	715	900	745	
Jan-05	999	1,166	968	
Feb-05	829	795	846	
Mar-05	633	614	706	
Apr-05	688	453	705	
May-05	513	257	541	
Jun-05	435	154	438	
Jul-05	489	133	481	
Aug-05	457	151	463	
Sep-05	584	299	591	
Oct-05	496	535	499	
Nov-05	593	763	616	
Dec-05	736	794	811	
Jan-06	961	1,096	959	
Feb-06	801	821	806	
Mar-06	697	906	646	
Apr-06	730	519	718	
May-06	557	347	546	
Jun-06	533	173	528	
Jul-06	426	118	424	
Aug-06	394	202	379	
Sep-06	522	296	531	
Oct-06	525	521	533	
Nov-06	689	1,162	541	
Dec-06	892	824	954	
Jan-07	779	912	855	
Feb-07	714	999	644	
Mar-07	963	954	891	
Apr-07	682	512	674	
May-07	505	322	505	
Jun-07	527	141	536	
Jul-07	422	102	426	
Aug-07	469	154	474	
Sep-07	445	308	448	
Oct-07	563	544	562	
Nov-07	733	725	772	
Dec-07	703	1,070	660	

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Ross River			Annual	
Residential	(Whitehorse)	Normalized	Normalized	
Monthly	UPC (kWh)	MHDD	UPC (kWh)	UPC (kWh)
Jan-08	844	1,114	835	
Feb-08	1,085	955	1,034	
Mar-08	692	735	714	
Apr-08	608	517	598	
May-08	652	308	658	
Jun-08	495	226	467	
Jul-08	506	173	481	
Aug-08	527	188	518	
Sep-08	571	319	570	
Oct-08	557	563	548	
Nov-08	809	783	824	
Dec-08	767	1,186	675	
Jan-09	1,266	1,138	1,246	
Feb-09	802	955	751	
Mar-09	806	869	770	
Apr-09	684	515	674	
May-09	678	331	674	
Jun-09	570	144	577	
Jul-09	596	63	617	
Aug-09	539	158	542	
Sep-09	432	306	436	
Oct-09	702	542	702	
Nov-09	620	782	635	
Dec-09	851	943	862	
Jan-10	1,055	991	1,099	
Feb-10	771	679	837	
Mar-10	661	656	716	
Apr-10	750	461	764	
May-10	552	292	565	
Jun-10	527	172	522	
Jul-10	564	117	562	
Aug-10	481	146	489	
Sep-10	604	332	597	
Oct-10	586	520	595	
Nov-10	657	718	700	
Dec-10	957	1,163	875	8,320
Jan-11	1,095	1,010	1,130	
Feb-11	955	906	925	
Mar-11	955	902	905	
Apr-11	886	511	878	
May-11	652	296	663	
Jun-11	541	161	541	
Jul-11	562	128	555	
Aug-11	499	218	477	
Sep-11	623	329	617	
Nov-11	597	513	609	
Nov-11	643	936	592	
Dec-11	965	775	1,048	8,941
Jan-12	1,092	1,118	1,081	
Feb-12	980	708	1,035	
Mar-12	973	756	986	
Apr-12	711	451	729	
May-12	586	351	574	
Jun-12	641	200	624	
Jul-12	503	140	492	
Aug-12	526	158	529	
Sep-12	507	287	519	
Oct-12	560	631	521	
Nov-12	905	970	840	
Dec-12	985	1,197	888	8,817
2013-F				8,693
2014-F				8,693
2015-F				8,693

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Pelly Crossing			Annual	
Residential	(Whitehorse)		Normalized	Normalized
Monthly	UPC (kWh)	MHDD	UPC (kWh)	UPC (kWh)
Jan-98	1,087	1,166	1,054	
Feb-98	895	719	946	
Mar-98	698	757	711	
Apr-98	735	459	750	
May-98	713	271	736	
Jun-98	522	120	540	
Jul-98	524	112	524	
Aug-98	585	189	575	
Sep-98	614	328	608	
Oct-98	783	558	776	
Nov-98	716	792	727	
Dec-98	892	1,052	855	
Jan-99	1,203	1,183	1,162	
Feb-99	868	976	804	
Mar-99	786	734	809	
Apr-99	874	509	867	
May-99	652	392	621	
Jun-99	572	154	575	
Jul-99	645	109	647	
Aug-99	564	146	573	
Sep-99	671	311	673	
Oct-99	855	500	873	
Nov-99	780	793	791	
Dec-99	833	844	890	
Jan-00	1,247	1,083	1,252	
Feb-00	839	735	883	
Mar-00	812	659	869	
Apr-00	900	516	890	
May-00	692	382	665	
Jun-00	715	173	709	
Jul-00	585	142	572	
Aug-00	613	220	589	
Sep-00	788	354	770	
Oct-00	749	539	749	
Nov-00	943	691	999	
Dec-00	704	978	700	
Jan-01	999	723	1,165	
Feb-01	826	864	813	
Mar-01	905	765	914	
Apr-01	691	507	685	
May-01	684	390	653	
Jun-01	647	167	644	
Jul-01	576	140	564	
Aug-01	502	140	514	
Sep-01	713	309	716	
Oct-01	673	573	659	
Nov-01	927	818	926	
Dec-01	860	1,095	804	
Jan-02	1,108	936	1,178	
Feb-02	1,065	825	1,070	
Mar-02	774	921	713	
Apr-02	749	653	677	
May-02	768	362	751	
Jun-02	532	176	526	
Jul-02	551	131	543	
Aug-02	689	183	681	
Sep-02	661	314	661	
Oct-02	692	444	736	
Nov-02	698	583	803	
Dec-02	868	845	924	

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Pelly Crossing			Annual	
Residential	(Whitehorse)		Normalized	Normalized
Monthly	UPC (kWh)	MHDD	UPC (kWh)	UPC (kWh)
Jan-03	871	989	918	
Feb-03	804	757	839	
Mar-03	769	835	747	
Apr-03	728	514	718	
May-03	770	364	752	
Jun-03	581	193	566	
Jul-03	644	84	657	
Aug-03	595	181	588	
Sep-03	655	359	635	
Oct-03	784	467	817	
Nov-03	782	875	757	
Dec-03	1,062	912	1,088	
Jan-04	1,004	1,258	929	
Feb-04	823	697	885	
Mar-04	781	754	795	
Apr-04	883	467	895	
May-04	643	273	665	
Jun-04	675	84	710	
Jul-04	593	74	610	
Aug-04	559	102	588	
Sep-04	654	368	631	
Oct-04	809	541	809	
Nov-04	861	720	905	
Dec-04	724	900	756	
Jan-05	1,184	1,166	1,151	
Feb-05	909	795	927	
Mar-05	731	614	808	
Apr-05	848	453	866	
May-05	639	257	668	
Jun-05	703	154	706	
Jul-05	533	133	525	
Aug-05	593	151	600	
Sep-05	749	299	756	
Oct-05	658	535	661	
Nov-05	769	763	794	
Dec-05	817	794	896	
Jan-06	1,147	1,096	1,145	
Feb-06	759	821	765	
Mar-06	966	906	912	
Apr-06	678	519	667	
May-06	665	347	654	
Jun-06	667	173	662	
Jul-06	559	118	556	
Aug-06	510	202	494	
Sep-06	731	296	739	
Oct-06	681	521	690	
Nov-06	848	1,162	693	
Dec-06	915	824	980	
Jan-07	1,169	912	1,250	
Feb-07	872	999	798	
Mar-07	1,033	954	957	
Apr-07	693	512	684	
May-07	722	322	722	
Jun-07	657	141	666	
Jul-07	451	102	455	
Aug-07	729	154	734	
Sep-07	579	308	583	
Oct-07	684	544	683	
Nov-07	929	725	971	
Dec-07	733	1,070	688	

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Pelly Crossing			Annual	
Residential	(Whitehorse)	Normalized	Normalized	
Monthly	UPC (kWh)	MHDD	UPC (kWh)	UPC (kWh)
Jan-08	1,142	1,114	1,133	
Feb-08	1,287	955	1,233	
Mar-08	958	735	981	
Apr-08	576	517	565	
May-08	810	308	817	
Jun-08	608	226	579	
Jul-08	440	173	413	
Aug-08	623	188	613	
Sep-08	568	319	566	
Oct-08	736	563	726	
Nov-08	807	783	823	
Dec-08	884	1,186	787	
Jan-09	1,350	1,138	1,329	
Feb-09	1,030	955	976	
Mar-09	1,006	869	968	
Apr-09	692	515	682	
May-09	716	331	712	
Jun-09	547	144	555	
Jul-09	606	63	629	
Aug-09	535	158	538	
Sep-09	619	306	623	
Oct-09	841	542	840	
Nov-09	864	782	880	
Dec-09	924	943	936	
Jan-10	973	991	1,018	
Feb-10	825	679	895	
Mar-10	777	656	835	
Apr-10	825	461	839	
May-10	681	292	694	
Jun-10	551	172	546	
Jul-10	752	117	750	
Aug-10	520	146	529	
Sep-10	692	332	685	
Oct-10	694	520	703	
Nov-10	774	718	818	
Dec-10	836	1,163	750	9,063
Jan-11	1,251	1,010	1,288	
Feb-11	924	906	892	
Mar-11	905	902	853	
Apr-11	760	511	752	
May-11	765	296	776	
Jun-11	545	161	545	
Jul-11	643	128	636	
Aug-11	594	218	570	
Sep-11	714	329	708	
Nov-11	678	513	690	
Nov-11	890	936	837	
Dec-11	942	775	1,030	9,577
Jan-12	1,316	1,118	1,305	
Feb-12	898	708	955	
Mar-12	1,081	756	1,094	
Apr-12	598	451	617	
May-12	702	351	689	
Jun-12	799	200	782	
Jul-12	444	140	432	
Aug-12	650	158	654	
Sep-12	633	287	646	
Oct-12	724	631	684	
Nov-12	1,162	970	1,093	
Dec-12	1,136	1,197	1,034	9,985
2013-F				9,542
2014-F				9,542
2015-F				9,542

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Old Crow			Annual	
Residential	(Whitehorse)		Normalized	Normalized
Monthly	UPC (kWh)	MHDD	UPC (kWh)	UPC (kWh)
Jan-98	875	1,166	855	
Feb-98	636	719	668	
Mar-98	681	757	689	
Apr-98	495	459	505	
May-98	543	271	557	
Jun-98	480	120	491	
Jul-98	211	112	211	
Aug-98	585	189	579	
Sep-98	490	328	486	
Oct-98	563	558	558	
Nov-98	515	792	522	
Dec-98	631	1,052	609	
Jan-99	759	1,183	734	
Feb-99	605	976	567	
Mar-99	597	734	611	
Apr-99	686	509	682	
May-99	459	392	440	
Jun-99	442	154	444	
Jul-99	535	109	536	
Aug-99	449	146	454	
Sep-99	440	311	441	
Oct-99	648	500	659	
Nov-99	582	793	588	
Dec-99	649	844	683	
Jan-00	903	1,083	906	
Feb-00	652	735	679	
Mar-00	772	659	807	
Apr-00	472	516	466	
May-00	573	382	557	
Jun-00	604	173	601	
Jul-00	427	142	419	
Aug-00	432	220	418	
Sep-00	467	354	456	
Oct-00	612	539	612	
Nov-00	505	691	539	
Dec-00	673	978	671	
Jan-01	720	723	821	
Feb-01	592	864	584	
Mar-01	658	765	663	
Apr-01	607	507	604	
May-01	574	390	555	
Jun-01	456	167	455	
Jul-01	434	140	427	
Aug-01	399	140	406	
Sep-01	495	309	496	
Oct-01	429	573	420	
Nov-01	551	818	551	
Dec-01	542	1,095	508	
Jan-02	654	936	697	
Feb-02	716	825	719	
Mar-02	541	921	504	
Apr-02	525	653	482	
May-02	537	362	526	
Jun-02	394	176	390	
Jul-02	435	131	430	
Aug-02	508	183	504	
Sep-02	417	314	417	
Oct-02	462	444	488	
Nov-02	635	583	699	
Dec-02	557	845	591	

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Old Crow		(Whitehorse)		Annual
Residential			Normalized	Normalized
Monthly	UPC (kWh)	MHDD	UPC (kWh)	UPC (kWh)
Jan-03	784	989	812	
Feb-03	655	757	677	
Mar-03	621	835	608	
Apr-03	591	514	585	
May-03	559	364	548	
Jun-03	457	193	448	
Jul-03	505	84	512	
Aug-03	409	181	405	
Sep-03	464	359	452	
Oct-03	432	467	453	
Nov-03	528	875	512	
Dec-03	639	912	655	
Jan-04	792	1,258	747	
Feb-04	655	697	693	
Mar-04	668	754	677	
Apr-04	591	467	598	
May-04	555	273	569	
Jun-04	478	84	499	
Jul-04	485	74	496	
Aug-04	445	102	462	
Sep-04	390	368	376	
Oct-04	546	541	547	
Nov-04	589	720	615	
Dec-04	624	900	643	
Jan-05	901	1,166	881	
Feb-05	687	795	697	
Mar-05	691	614	737	
Apr-05	738	453	749	
May-05	537	257	555	
Jun-05	455	154	456	
Jul-05	500	133	494	
Aug-05	481	151	486	
Sep-05	469	299	473	
Oct-05	581	535	583	
Nov-05	555	763	570	
Dec-05	647	794	695	
Jan-06	856	1,096	855	
Feb-06	731	821	734	
Mar-06	645	906	612	
Apr-06	720	519	713	
May-06	589	347	582	
Jun-06	512	173	509	
Jul-06	438	118	436	
Aug-06	422	202	413	
Sep-06	562	296	567	
Oct-06	463	521	469	
Nov-06	469	1,162	375	
Dec-06	743	824	783	
Jan-07	755	912	804	
Feb-07	664	999	619	
Mar-07	763	954	717	
Apr-07	652	512	647	
May-07	509	322	509	
Jun-07	547	141	552	
Jul-07	442	102	445	
Aug-07	393	154	396	
Sep-07	530	308	532	
Oct-07	464	544	463	
Nov-07	647	725	672	
Dec-07	627	1,070	600	

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Old Crow		(Whitehorse)		Annual
Residential			Normalized	Normalized
Monthly	UPC (kWh)	MHDD	UPC (kWh)	UPC (kWh)
Jan-08	695	1,114	689	
Feb-08	795	955	763	
Mar-08	587	735	601	
Apr-08	572	517	565	
May-08	550	308	553	
Jun-08	560	226	542	
Jul-08	400	173	383	
Aug-08	533	188	527	
Sep-08	448	319	447	
Oct-08	409	563	403	
Nov-08	634	783	643	
Dec-08	561	1,186	502	
Jan-09	861	1,138	848	
Feb-09	643	955	611	
Mar-09	645	869	623	
Apr-09	649	515	643	
May-09	594	331	592	
Jun-09	494	144	499	
Jul-09	520	63	534	
Aug-09	408	158	410	
Sep-09	426	306	428	
Oct-09	592	542	592	
Nov-09	637	782	647	
Dec-09	586	943	594	
Jan-10	816	991	843	
Feb-10	685	679	728	
Mar-10	634	656	669	
Apr-10	751	461	759	
May-10	485	292	494	
Jun-10	442	172	439	
Jul-10	506	117	505	
Aug-10	414	146	419	
Sep-10	472	332	468	
Oct-10	596	520	602	
Nov-10	568	718	595	
Dec-10	638	1,163	585	7,105
Jan-11	1,044	1,010	1,066	
Feb-11	765	906	745	
Mar-11	685	902	653	
Apr-11	877	511	872	
May-11	686	296	693	
Jun-11	459	161	459	
Jul-11	549	128	545	
Aug-11	454	218	440	
Sep-11	524	329	520	
Nov-11	508	513	515	
Nov-11	574	936	541	
Dec-11	812	775	865	7,915
Jan-12	787	1,118	780	
Feb-12	731	708	765	
Mar-12	835	756	843	
Apr-12	662	451	673	
May-12	567	351	559	
Jun-12	589	200	578	
Jul-12	435	140	428	
Aug-12	587	158	589	
Sep-12	344	287	351	
Oct-12	499	631	474	
Nov-12	646	970	604	
Dec-12	785	1,197	723	7,370
2013-F				7,463
2014-F				7,463
2015-F				7,463

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Destruction Bay			Annual	
Residential	(Whitehorse)	Normalized	Normalized	
Monthly	UPC (kWh)	MHDD	UPC (kWh)	UPC (kWh)
Jan-98	659	1,166	643	
Feb-98	486	719	511	
Mar-98	519	757	526	
Apr-98	426	459	434	
May-98	407	271	419	
Jun-98	391	120	400	
Jul-98	391	112	391	
Aug-98	376	189	371	
Sep-98	419	328	417	
Oct-98	435	558	431	
Nov-98	468	792	473	
Dec-98	381	1,052	363	
Jan-99	557	1,183	537	
Feb-99	538	976	507	
Mar-99	528	734	540	
Apr-99	454	509	451	
May-99	372	392	357	
Jun-99	393	154	394	
Jul-99	444	109	445	
Aug-99	361	146	366	
Sep-99	428	311	428	
Oct-99	443	500	452	
Nov-99	487	793	492	
Dec-99	458	844	485	
Jan-00	660	1,083	662	
Feb-00	430	735	452	
Mar-00	460	659	487	
Apr-00	425	516	421	
May-00	459	382	446	
Jun-00	440	173	437	
Jul-00	461	142	454	
Aug-00	422	220	410	
Sep-00	418	354	409	
Oct-00	464	539	464	
Nov-00	495	691	523	
Dec-00	597	978	596	
Jan-01	460	723	541	
Feb-01	425	864	418	
Mar-01	478	765	483	
Apr-01	417	507	414	
May-01	480	390	465	
Jun-01	500	167	499	
Jul-01	431	140	425	
Aug-01	408	140	414	
Sep-01	465	309	467	
Oct-01	468	573	461	
Nov-01	492	818	492	
Dec-01	585	1,095	558	
Jan-02	653	936	687	
Feb-02	544	825	546	
Mar-02	535	921	505	
Apr-02	603	653	567	
May-02	465	362	456	
Jun-02	415	176	412	
Jul-02	475	131	471	
Aug-02	428	183	424	
Sep-02	474	314	474	
Oct-02	500	444	521	
Nov-02	570	583	621	
Dec-02	502	845	529	

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Destruction Bay			Annual	
Residential	(Whitehorse)	Normalized	Normalized	
Monthly	UPC (kWh)	MHDD	UPC (kWh)	UPC (kWh)
Jan-03	650	989	673	
Feb-03	460	757	477	
Mar-03	510	835	499	
Apr-03	427	514	422	
May-03	418	364	409	
Jun-03	457	193	450	
Jul-03	420	84	426	
Aug-03	405	181	402	
Sep-03	498	359	488	
Oct-03	432	467	448	
Nov-03	551	875	538	
Dec-03	642	912	655	
Jan-04	554	1,258	517	
Feb-04	589	697	619	
Mar-04	545	754	552	
Apr-04	525	467	531	
May-04	424	273	435	
Jun-04	419	84	436	
Jul-04	388	74	397	
Aug-04	435	102	449	
Sep-04	402	368	391	
Oct-04	383	541	383	
Nov-04	489	720	511	
Dec-04	461	900	476	
Jan-05	674	1,166	658	
Feb-05	513	795	522	
Mar-05	456	614	494	
Apr-05	466	453	475	
May-05	439	257	453	
Jun-05	417	154	418	
Jul-05	341	133	337	
Aug-05	421	151	424	
Sep-05	415	299	419	
Oct-05	421	535	422	
Nov-05	488	763	500	
Dec-05	513	794	552	
Jan-06	691	1,096	690	
Feb-06	583	821	586	
Mar-06	587	906	560	
Apr-06	511	519	506	
May-06	521	347	516	
Jun-06	403	173	400	
Jul-06	409	118	408	
Aug-06	450	202	442	
Sep-06	445	296	449	
Oct-06	451	521	456	
Nov-06	591	1,162	515	
Dec-06	646	824	678	
Jan-07	836	912	876	
Feb-07	609	999	572	
Mar-07	655	954	617	
Apr-07	618	512	614	
May-07	585	322	585	
Jun-07	468	141	473	
Jul-07	512	102	514	
Aug-07	265	154	268	
Sep-07	428	308	429	
Oct-07	465	544	464	
Nov-07	559	725	580	
Dec-07	557	1,070	535	

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Destruction Bay			Annual	
Residential	(Whitehorse)	Normalized	Normalized	
Monthly	UPC (kWh)	MHDD	UPC (kWh)	UPC (kWh)
Jan-08	727	1,114	723	
Feb-08	562	955	535	
Mar-08	614	735	625	
Apr-08	583	517	577	
May-08	524	308	527	
Jun-08	516	226	502	
Jul-08	412	173	398	
Aug-08	437	188	432	
Sep-08	417	319	417	
Oct-08	387	563	383	
Nov-08	557	783	565	
Dec-08	552	1,186	504	
Jan-09	748	1,138	738	
Feb-09	631	955	604	
Mar-09	592	869	574	
Apr-09	616	515	611	
May-09	471	331	469	
Jun-09	430	144	434	
Jul-09	447	63	458	
Aug-09	374	158	376	
Sep-09	453	306	455	
Oct-09	444	542	444	
Nov-09	562	782	570	
Dec-09	566	943	572	
Jan-10	832	991	854	
Feb-10	601	679	635	
Mar-10	517	656	545	
Apr-10	616	461	623	
May-10	517	292	523	
Jun-10	422	172	420	
Jul-10	440	117	439	
Aug-10	303	146	307	
Sep-10	451	332	447	
Oct-10	494	520	499	
Nov-10	589	718	611	
Dec-10	591	1,163	549	6,452
Jan-11	748	1,010	767	
Feb-11	732	906	716	
Mar-11	656	902	630	
Apr-11	625	511	621	
May-11	486	296	492	
Jun-11	449	161	449	
Jul-11	404	128	401	
Aug-11	400	218	388	
Sep-11	475	329	472	
Nov-11	507	513	513	
Nov-11	523	936	497	
Dec-11	729	775	772	6,718
Jan-12	831	1,118	826	
Feb-12	685	708	713	
Mar-12	693	756	700	
Apr-12	506	451	515	
May-12	455	351	449	
Jun-12	551	200	542	
Jul-12	436	140	430	
Aug-12	459	158	461	
Sep-12	446	287	452	
Oct-12	486	631	466	
Nov-12	575	970	541	
Dec-12	799	1,197	749	6,843
2013-F				6,671
2014-F				6,671
2015-F				6,671

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Beaver Creek			Annual	
Residential	(Whitehorse)		Normalized	Normalized
Monthly	UPC (kWh)	MHDD	UPC (kWh)	UPC (kWh)
Jan-98	1,145	1,166	1,115	
Feb-98	879	719	926	
Mar-98	511	757	523	
Apr-98	673	459	687	
May-98	539	271	560	
Jun-98	498	120	515	
Jul-98	570	112	571	
Aug-98	553	189	543	
Sep-98	489	328	484	
Oct-98	681	558	674	
Nov-98	795	792	806	
Dec-98	790	1,052	756	
Jan-99	927	1,183	890	
Feb-99	743	976	685	
Mar-99	736	734	757	
Apr-99	668	509	661	
May-99	531	392	503	
Jun-99	552	154	555	
Jul-99	546	109	548	
Aug-99	438	146	447	
Sep-99	585	311	586	
Oct-99	604	500	621	
Nov-99	711	793	721	
Dec-99	920	844	971	
Jan-00	817	1,083	820	
Feb-00	789	735	829	
Mar-00	677	659	728	
Apr-00	597	516	588	
May-00	619	382	594	
Jun-00	523	173	519	
Jul-00	554	142	542	
Aug-00	504	220	482	
Sep-00	598	354	582	
Oct-00	639	539	640	
Nov-00	671	691	722	
Dec-00	734	978	731	
Jan-01	856	723	1,007	
Feb-01	692	864	680	
Mar-01	637	765	645	
Apr-01	617	507	612	
May-01	594	390	566	
Jun-01	552	167	549	
Jul-01	511	140	500	
Aug-01	598	140	609	
Sep-01	652	309	654	
Oct-01	683	573	670	
Nov-01	743	818	743	
Dec-01	763	1,095	712	
Jan-02	922	936	986	
Feb-02	793	825	797	
Mar-02	744	921	689	
Apr-02	840	653	774	
May-02	577	362	560	
Jun-02	515	176	509	
Jul-02	529	131	521	
Aug-02	521	183	514	
Sep-02	537	314	537	
Oct-02	655	444	695	
Nov-02	668	583	763	
Dec-02	653	845	704	

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Beaver Creek			Annual	
Residential	(Whitehorse)	Normalized	Normalized	
Monthly	UPC (kWh)	MHDD	UPC (kWh)	UPC (kWh)
Jan-03	1,052	989	1,094	
Feb-03	754	757	786	
Mar-03	669	835	648	
Apr-03	712	514	703	
May-03	594	364	577	
Jun-03	537	193	524	
Jul-03	553	84	564	
Aug-03	559	181	553	
Sep-03	590	359	573	
Oct-03	579	467	610	
Nov-03	852	875	829	
Dec-03	838	912	862	
Jan-04	1,057	1,258	990	
Feb-04	855	697	911	
Mar-04	803	754	816	
Apr-04	868	467	879	
May-04	573	273	593	
Jun-04	535	84	567	
Jul-04	601	74	617	
Aug-04	518	102	544	
Sep-04	622	368	601	
Oct-04	610	541	611	
Nov-04	715	720	755	
Dec-04	1,006	900	1,035	
Jan-05	1,000	1,166	971	
Feb-05	929	795	945	
Mar-05	742	614	812	
Apr-05	691	453	707	
May-05	572	257	599	
Jun-05	604	154	606	
Jul-05	528	133	520	
Aug-05	525	151	531	
Sep-05	591	299	598	
Oct-05	637	535	639	
Nov-05	714	763	736	
Dec-05	800	794	872	
Jan-06	1,005	1,096	1,003	
Feb-06	976	821	982	
Mar-06	988	906	939	
Apr-06	708	519	697	
May-06	586	347	576	
Jun-06	603	173	598	
Jul-06	488	118	486	
Aug-06	532	202	517	
Sep-06	631	296	639	
Oct-06	616	521	624	
Nov-06	692	1,162	552	
Dec-06	926	824	985	
Jan-07	1,061	912	1,134	
Feb-07	841	999	774	
Mar-07	1,042	954	973	
Apr-07	827	512	819	
May-07	615	322	615	
Jun-07	687	141	696	
Jul-07	563	102	568	
Aug-07	582	154	587	
Sep-07	541	308	543	
Oct-07	682	544	681	
Nov-07	755	725	792	
Dec-07	792	1,070	751	

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Beaver Creek			Annual	
Residential	(Whitehorse)		Normalized	Normalized
Monthly	UPC (kWh)	MHDD	UPC (kWh)	UPC (kWh)
Jan-08	947	1,114	938	
Feb-08	997	955	948	
Mar-08	718	735	738	
Apr-08	731	517	721	
May-08	636	308	641	
Jun-08	607	226	581	
Jul-08	564	173	539	
Aug-08	644	188	635	
Sep-08	532	319	531	
Oct-08	617	563	608	
Nov-08	772	783	786	
Dec-08	1,012	1,186	924	
Jan-09	946	1,138	927	
Feb-09	925	955	876	
Mar-09	834	869	800	
Apr-09	741	515	732	
May-09	584	331	580	
Jun-09	499	144	506	
Jul-09	610	63	630	
Aug-09	589	158	592	
Sep-09	591	306	594	
Oct-09	692	542	691	
Nov-09	787	782	802	
Dec-09	846	943	857	
Jan-10	1,096	991	1,138	
Feb-10	876	679	940	
Mar-10	816	656	868	
Apr-10	743	461	756	
May-10	694	292	706	
Jun-10	564	172	560	
Jul-10	612	117	610	
Aug-10	630	146	638	
Sep-10	568	332	561	
Oct-10	662	520	671	
Nov-10	678	718	718	
Dec-10	787	1,163	708	8,874
Jan-11	1,133	1,010	1,167	
Feb-11	867	906	838	
Mar-11	866	902	818	
Apr-11	724	511	717	
May-11	612	296	622	
Jun-11	533	161	533	
Jul-11	604	128	598	
Aug-11	606	218	585	
Sep-11	595	329	589	
Nov-11	674	513	685	
Nov-11	886	936	837	
Dec-11	1,049	775	1,129	9,119
Jan-12	1,100	1,118	1,089	
Feb-12	902	708	954	
Mar-12	862	756	874	
Apr-12	668	451	686	
May-12	645	351	633	
Jun-12	658	200	643	
Jul-12	560	140	549	
Aug-12	608	158	611	
Sep-12	596	287	607	
Oct-12	716	631	679	
Nov-12	873	970	811	
Dec-12	1,057	1,197	965	9,101
2013-F				9,031
2014-F				9,031
2015-F				9,031

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Tagish		(Whitehorse)		Annual
Residential			Normalized	Normalized
Monthly	UPC (kWh)	MHDD	UPC (kWh)	UPC (kWh)
Jan-98	569	1,166	551	
Feb-98	391	719	418	
Mar-98	360	757	366	
Apr-98	335	459	343	
May-98	295	271	307	
Jun-98	270	120	279	
Jul-98	307	112	307	
Aug-98	284	189	279	
Sep-98	300	328	297	
Oct-98	341	558	337	
Nov-98	349	792	354	
Dec-98	378	1,052	358	
Jan-99	537	1,183	516	
Feb-99	424	976	390	
Mar-99	375	734	387	
Apr-99	373	509	369	
May-99	292	392	276	
Jun-99	271	154	273	
Jul-99	306	109	307	
Aug-99	281	146	286	
Sep-99	295	311	296	
Oct-99	288	500	298	
Nov-99	313	793	318	
Dec-99	374	844	403	
Jan-00	454	1,083	456	
Feb-00	337	735	361	
Mar-00	325	659	355	
Apr-00	308	516	303	
May-00	299	382	284	
Jun-00	263	173	260	
Jul-00	276	142	269	
Aug-00	300	220	287	
Sep-00	275	354	265	
Oct-00	270	539	270	
Nov-00	291	691	321	
Dec-00	368	978	366	
Jan-01	344	723	431	
Feb-01	359	864	352	
Mar-01	303	765	308	
Apr-01	284	507	281	
May-01	273	390	257	
Jun-01	241	167	240	
Jul-01	257	140	250	
Aug-01	279	140	285	
Sep-01	262	309	263	
Oct-01	275	573	267	
Nov-01	324	818	324	
Dec-01	439	1,095	410	
Jan-02	420	936	457	
Feb-02	352	825	355	
Mar-02	321	921	289	
Apr-02	315	653	277	
May-02	283	362	274	
Jun-02	248	176	245	
Jul-02	272	131	268	
Aug-02	291	183	287	
Sep-02	253	314	253	
Oct-02	299	444	322	
Nov-02	317	583	373	
Dec-02	369	845	398	

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Tagish		(Whitehorse)		Annual
Residential			Normalized	Normalized
Monthly	UPC (kWh)	MHDD	UPC (kWh)	UPC (kWh)
Jan-03	438	989	463	
Feb-03	353	757	371	
Mar-03	336	835	325	
Apr-03	314	514	309	
May-03	282	364	272	
Jun-03	256	193	248	
Jul-03	288	84	295	
Aug-03	270	181	267	
Sep-03	277	359	267	
Oct-03	244	467	261	
Nov-03	263	875	250	
Dec-03	377	912	391	
Jan-04	426	1,258	387	
Feb-04	378	697	410	
Mar-04	340	754	348	
Apr-04	360	467	366	
May-04	281	273	293	
Jun-04	250	84	269	
Jul-04	291	74	300	
Aug-04	257	102	272	
Sep-04	317	368	305	
Oct-04	305	541	305	
Nov-04	336	720	359	
Dec-04	375	900	392	
Jan-05	532	1,166	515	
Feb-05	428	795	437	
Mar-05	325	614	365	
Apr-05	316	453	326	
May-05	272	257	287	
Jun-05	252	154	254	
Jul-05	286	133	282	
Aug-05	300	151	304	
Sep-05	276	299	280	
Oct-05	312	535	314	
Nov-05	346	763	359	
Dec-05	412	794	454	
Jan-06	550	1,096	549	
Feb-06	436	821	439	
Mar-06	454	906	425	
Apr-06	381	519	375	
May-06	327	347	321	
Jun-06	262	173	260	
Jul-06	320	118	319	
Aug-06	277	202	268	
Sep-06	308	296	313	
Oct-06	326	521	330	
Nov-06	425	1,162	343	
Dec-06	526	824	561	
Jan-07	596	912	639	
Feb-07	549	999	510	
Mar-07	455	954	415	
Apr-07	358	512	353	
May-07	332	322	332	
Jun-07	297	141	302	
Jul-07	286	102	288	
Aug-07	298	154	300	
Sep-07	297	308	299	
Oct-07	341	544	340	
Nov-07	471	725	493	
Dec-07	510	1,070	486	

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Tagish Residential	(Whitehorse)		Annual	
	Monthly	UPC (kWh)	Normalized UPC (kWh)	Normalized UPC (kWh)
Jan-08	529	1,114	524	
Feb-08	605	955	577	
Mar-08	413	735	425	
Apr-08	341	517	335	
May-08	290	308	293	
Jun-08	281	226	266	
Jul-08	269	173	255	
Aug-08	320	188	314	
Sep-08	293	319	292	
Oct-08	317	563	312	
Nov-08	490	783	498	
Dec-08	512	1,186	460	
Jan-09	689	1,138	678	
Feb-09	557	955	528	
Mar-09	491	869	471	
Apr-09	426	515	421	
May-09	292	331	289	
Jun-09	271	144	275	
Jul-09	323	63	335	
Aug-09	281	158	283	
Sep-09	304	306	306	
Oct-09	385	542	385	
Nov-09	451	782	460	
Dec-09	513	943	519	
Jan-10	631	991	655	
Feb-10	512	679	549	
Mar-10	425	656	456	
Apr-10	424	461	431	
May-10	351	292	358	
Jun-10	281	172	279	
Jul-10	317	117	316	
Aug-10	311	146	316	
Sep-10	336	332	332	
Oct-10	415	520	419	
Nov-10	417	718	441	
Dec-10	537	1,163	491	5,043
Jan-11	731	1,010	750	
Feb-11	521	906	504	
Mar-11	548	902	520	
Apr-11	393	511	388	
May-11	365	296	371	
Jun-11	286	161	286	
Jul-11	324	128	321	
Aug-11	318	218	305	
Sep-11	343	329	340	
Nov-11	362	513	368	
Nov-11	517	936	489	
Dec-11	494	775	540	5,185
Jan-12	701	1,118	695	
Feb-12	507	708	538	
Mar-12	505	756	512	
Apr-12	346	451	356	
May-12	352	351	345	
Jun-12	348	200	339	
Jul-12	315	140	309	
Aug-12	344	158	346	
Sep-12	334	287	340	
Oct-12	414	631	393	
Nov-12	513	970	477	
Dec-12	638	1,197	584	5,233
2013-F				5,154
2014-F				5,154
2015-F				5,154

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Marsh Lake Residential		(Whitehorse)	Normalized	Annual Normalized
Monthly	UPC (kWh)	MHDD	UPC (kWh)	UPC (kWh)
Jan-98	923	1,166	888	
Feb-98	720	719	774	
Mar-98	633	757	647	
Apr-98	589	459	606	
May-98	494	271	518	
Jun-98	439	120	459	
Jul-98	487	112	488	
Aug-98	467	189	456	
Sep-98	554	328	548	
Oct-98	561	558	553	
Nov-98	656	792	667	
Dec-98	887	1,052	848	
Jan-99	907	1,183	864	
Feb-99	812	976	745	
Mar-99	661	734	685	
Apr-99	615	509	608	
May-99	514	392	481	
Jun-99	473	154	476	
Jul-99	461	109	463	
Aug-99	429	146	438	
Sep-99	511	311	513	
Oct-99	517	500	537	
Nov-99	589	793	601	
Dec-99	824	844	884	
Jan-00	829	1,083	833	
Feb-00	666	735	713	
Mar-00	578	659	638	
Apr-00	569	516	559	
May-00	525	382	497	
Jun-00	430	173	424	
Jul-00	452	142	438	
Aug-00	494	220	468	
Sep-00	502	354	483	
Oct-00	581	539	582	
Nov-00	591	691	651	
Dec-00	788	978	784	
Jan-01	715	723	890	
Feb-01	674	864	660	
Mar-01	609	765	619	
Apr-01	561	507	554	
May-01	554	390	522	
Jun-01	445	167	442	
Jul-01	481	140	468	
Aug-01	438	140	451	
Sep-01	453	309	456	
Oct-01	572	573	557	
Nov-01	643	818	642	
Dec-01	911	1,095	851	
Jan-02	806	936	880	
Feb-02	645	825	650	
Mar-02	628	921	563	
Apr-02	659	653	583	
May-02	506	362	487	
Jun-02	445	176	438	
Jul-02	446	131	437	
Aug-02	465	183	457	
Sep-02	463	314	464	
Oct-02	560	444	606	
Nov-02	576	583	687	
Dec-02	745	845	804	

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Marsh Lake Residential		(Whitehorse)	Normalized	Annual Normalized
Monthly	UPC (kWh)	MHDD	UPC (kWh)	UPC (kWh)
Jan-03	773	989	822	
Feb-03	611	757	648	
Mar-03	601	835	577	
Apr-03	602	514	592	
May-03	460	364	440	
Jun-03	450	193	435	
Jul-03	466	84	480	
Aug-03	456	181	449	
Sep-03	522	359	501	
Oct-03	492	467	528	
Nov-03	697	875	670	
Dec-03	823	912	851	
Jan-04	807	1,258	729	
Feb-04	657	697	723	
Mar-04	618	754	633	
Apr-04	624	467	636	
May-04	482	273	506	
Jun-04	494	84	531	
Jul-04	457	74	475	
Aug-04	461	102	491	
Sep-04	524	368	499	
Oct-04	544	541	544	
Nov-04	635	720	681	
Dec-04	835	900	868	
Jan-05	869	1,166	834	
Feb-05	755	795	774	
Mar-05	605	614	686	
Apr-05	524	453	543	
May-05	521	257	552	
Jun-05	452	154	455	
Jul-05	473	133	464	
Aug-05	477	151	484	
Sep-05	513	299	521	
Oct-05	534	535	537	
Nov-05	699	763	725	
Dec-05	774	794	858	
Jan-06	849	1,096	847	
Feb-06	796	821	802	
Mar-06	758	906	700	
Apr-06	582	519	569	
May-06	549	347	537	
Jun-06	462	173	456	
Jul-06	466	118	463	
Aug-06	508	202	491	
Sep-06	527	296	536	
Oct-06	582	521	592	
Nov-06	880	1,162	716	
Dec-06	885	824	954	
Jan-07	895	912	981	
Feb-07	875	999	796	
Mar-07	718	954	638	
Apr-07	589	512	580	
May-07	496	322	496	
Jun-07	474	141	484	
Jul-07	480	102	485	
Aug-07	513	154	518	
Sep-07	497	308	501	
Oct-07	644	544	643	
Nov-07	796	725	839	
Dec-07	900	1,070	853	

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Marsh Lake Residential		(Whitehorse)	Normalized	Annual Normalized
Monthly	UPC (kWh)	MHDD	UPC (kWh)	UPC (kWh)
Jan-08	975	1,114	965	
Feb-08	956	955	899	
Mar-08	728	735	752	
Apr-08	658	517	647	
May-08	526	308	532	
Jun-08	487	226	457	
Jul-08	471	173	442	
Aug-08	556	188	546	
Sep-08	518	319	517	
Oct-08	594	563	583	
Nov-08	845	783	861	
Dec-08	1,074	1,186	971	
Jan-09	1,065	1,138	1,043	
Feb-09	919	955	861	
Mar-09	852	869	812	
Apr-09	766	515	755	
May-09	501	331	497	
Jun-09	494	144	502	
Jul-09	503	63	527	
Aug-09	472	158	475	
Sep-09	559	306	564	
Oct-09	612	542	612	
Nov-09	772	782	789	
Dec-09	1,004	943	1,017	
Jan-10	987	991	1,035	
Feb-10	811	679	885	
Mar-10	738	656	799	
Apr-10	708	461	723	
May-10	561	292	576	
Jun-10	473	172	468	
Jul-10	525	117	523	
Aug-10	498	146	508	
Sep-10	622	332	613	
Oct-10	671	520	681	
Nov-10	762	718	809	
Dec-10	991	1,163	900	8,520
Jan-11	1,273	1,010	1,312	
Feb-11	916	906	882	
Mar-11	937	902	882	
Apr-11	777	511	769	
May-11	606	296	619	
Jun-11	517	161	517	
Jul-11	490	128	483	
Aug-11	558	218	533	
Sep-11	584	329	577	
Nov-11	658	513	671	
Nov-11	874	936	817	
Dec-11	1,081	775	1,174	9,237
Jan-12	1,122	1,118	1,110	
Feb-12	981	708	1,042	
Mar-12	814	756	828	
Apr-12	632	451	652	
May-12	635	351	621	
Jun-12	527	200	508	
Jul-12	509	140	496	
Aug-12	583	158	587	
Sep-12	558	287	572	
Oct-12	702	631	659	
Nov-12	950	970	877	
Dec-12	1,294	1,197	1,186	9,140
2013-F				8,966
2014-F				8,966
2015-F				8,966

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Deep Creek			Annual
Residential	(Whitehorse)	Normalized	Normalized
Monthly	UPC (kWh)	MHDD	UPC (kWh)
Jan-98	906	1,166	880
Feb-98	639	719	681
Mar-98	764	757	774
Apr-98	560	459	572
May-98	412	271	431
Jun-98	348	120	363
Jul-98	401	112	402
Aug-98	457	189	449
Sep-98	402	328	397
Oct-98	605	558	599
Nov-98	677	792	686
Dec-98	732	1,052	702
Jan-99	943	1,183	910
Feb-99	798	976	746
Mar-99	523	734	542
Apr-99	443	509	437
May-99	380	392	354
Jun-99	309	154	311
Jul-99	321	109	323
Aug-99	273	146	281
Sep-99	371	311	372
Oct-99	353	500	368
Nov-99	450	793	459
Dec-99	478	844	523
Jan-00	806	1,083	809
Feb-00	504	735	540
Mar-00	420	659	465
Apr-00	464	516	456
May-00	329	382	307
Jun-00	275	173	270
Jul-00	325	142	314
Aug-00	294	220	274
Sep-00	354	354	340
Oct-00	381	539	382
Nov-00	429	691	475
Dec-00	702	978	699
Jan-01	394	723	528
Feb-01	532	864	521
Mar-01	446	765	454
Apr-01	444	507	439
May-01	310	390	285
Jun-01	298	167	295
Jul-01	251	140	241
Aug-01	206	140	216
Sep-01	326	309	328
Oct-01	288	573	276
Nov-01	428	818	428
Dec-01	610	1,095	565
Jan-02	649	936	706
Feb-02	479	825	482
Mar-02	421	921	371
Apr-02	337	653	278
May-02	293	362	279
Jun-02	218	176	212
Jul-02	243	131	237
Aug-02	281	183	275
Sep-02	238	314	239
Oct-02	308	444	343
Nov-02	410	583	495
Dec-02	475	845	521

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Deep Creek			Annual	
Residential	(Whitehorse)	Normalized	Normalized	
Monthly	UPC (kWh)	MHDD	UPC (kWh)	UPC (kWh)
Jan-03	480	989	518	
Feb-03	621	757	649	
Mar-03	448	835	430	
Apr-03	371	514	363	
May-03	343	364	328	
Jun-03	288	193	276	
Jul-03	351	84	362	
Aug-03	322	181	316	
Sep-03	502	359	486	
Oct-03	343	467	370	
Nov-03	534	875	513	
Dec-03	849	912	870	
Jan-04	987	1,258	927	
Feb-04	834	697	884	
Mar-04	625	754	637	
Apr-04	545	467	554	
May-04	388	273	406	
Jun-04	338	84	366	
Jul-04	342	74	357	
Aug-04	333	102	357	
Sep-04	391	368	372	
Oct-04	463	541	463	
Nov-04	607	720	642	
Dec-04	430	900	456	
Jan-05	799	1,166	773	
Feb-05	616	795	631	
Mar-05	488	614	551	
Apr-05	432	453	447	
May-05	303	257	326	
Jun-05	415	154	418	
Jul-05	333	133	326	
Aug-05	403	151	409	
Sep-05	351	299	356	
Oct-05	368	535	371	
Nov-05	377	763	397	
Dec-05	382	794	446	
Jan-06	486	1,096	485	
Feb-06	684	821	689	
Mar-06	472	906	428	
Apr-06	422	519	413	
May-06	423	347	414	
Jun-06	420	173	416	
Jul-06	362	118	360	
Aug-06	315	202	302	
Sep-06	380	296	387	
Oct-06	339	521	347	
Nov-06	461	1,162	335	
Dec-06	658	824	711	
Jan-07	813	912	878	
Feb-07	625	999	565	
Mar-07	601	954	539	
Apr-07	603	512	596	
May-07	321	322	321	
Jun-07	348	141	355	
Jul-07	351	102	355	
Aug-07	318	154	322	
Sep-07	373	308	375	
Oct-07	327	544	326	
Nov-07	511	725	545	
Dec-07	391	1,070	354	

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Deep Creek			Annual	
Residential	(Whitehorse)	Normalized	Normalized	
Monthly	UPC (kWh)	MHDD	UPC (kWh)	UPC (kWh)
Jan-08	670	1,114	662	
Feb-08	644	955	601	
Mar-08	464	735	483	
Apr-08	432	517	423	
May-08	395	308	401	
Jun-08	299	226	275	
Jul-08	311	173	289	
Aug-08	356	188	348	
Sep-08	303	319	301	
Oct-08	283	563	275	
Nov-08	521	783	534	
Dec-08	517	1,186	439	
Jan-09	804	1,138	787	
Feb-09	443	955	399	
Mar-09	477	869	447	
Apr-09	271	515	263	
May-09	225	331	222	
Jun-09	276	144	282	
Jul-09	293	63	311	
Aug-09	277	158	280	
Sep-09	344	306	347	
Oct-09	352	542	352	
Nov-09	338	782	350	
Dec-09	341	943	350	
Jan-10	598	991	635	
Feb-10	387	679	444	
Mar-10	373	656	420	
Apr-10	437	461	449	
May-10	324	292	335	
Jun-10	280	172	276	
Jul-10	315	117	313	
Aug-10	287	146	294	
Sep-10	362	332	356	
Oct-10	383	520	391	
Nov-10	408	718	444	
Dec-10	483	1,163	412	4,770
Jan-11	703	1,010	733	
Feb-11	581	906	555	
Mar-11	734	902	691	
Apr-11	518	511	511	
May-11	393	296	402	
Jun-11	326	161	326	
Jul-11	280	128	275	
Aug-11	285	218	266	
Sep-11	377	329	372	
Nov-11	445	513	455	
Nov-11	503	936	460	
Dec-11	658	775	729	5,776
Jan-12	745	1,118	735	
Feb-12	762	708	808	
Mar-12	643	756	653	
Apr-12	542	451	557	
May-12	353	351	342	
Jun-12	300	200	286	
Jul-12	306	140	296	
Aug-12	374	158	377	
Sep-12	333	287	343	
Oct-12	372	631	339	
Nov-12	512	970	456	
Dec-12	688	1,197	605	5,798
2013-F				5,448
2014-F				5,448
2015-F				5,448

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Lower Post BC			Annual	
Residential	(Watson Lake)		Normalized	Normalized
Monthly	UPC (kWh)	MHDD	UPC (kWh)	UPC (kWh)
Jan-98	1,059	1,410	1,002	
Feb-98	791	942	785	
Mar-98	740	843	735	
Apr-98	661	500	664	
May-98	554	211	584	
Jun-98	504	89	519	
Jul-98	460	66	468	
Aug-98	481	157	476	
Sep-98	570	321	559	
Oct-98	600	561	588	
Nov-98	790	958	761	
Dec-98	788	1,253	726	
Jan-99	934	1,350	898	
Feb-99	773	1,066	724	
Mar-99	711	871	696	
Apr-99	678	506	678	
May-99	598	372	572	
Jun-99	540	140	536	
Jul-99	479	99	475	
Aug-99	499	128	505	
Sep-99	580	293	579	
Oct-99	577	520	580	
Nov-99	710	940	687	
Dec-99	698	1,013	720	
Jan-00	921	1,345	887	
Feb-00	844	956	833	
Mar-00	688	750	715	
Apr-00	664	591	635	
May-00	638	374	611	
Jun-00	526	158	517	
Jul-00	543	84	544	
Aug-00	520	217	495	
Sep-00	545	315	537	
Oct-00	617	576	600	
Nov-00	681	858	687	
Dec-00	757	1,223	705	
Jan-01	975	1,043	1,046	
Feb-01	692	1,031	655	
Mar-01	683	845	677	
Apr-01	658	536	647	
May-01	578	367	554	
Jun-01	536	156	527	
Jul-01	506	120	494	
Aug-01	496	121	504	
Sep-01	537	300	534	
Oct-01	598	577	580	
Nov-01	671	975	636	
Dec-01	732	1,275	662	
Jan-02	904	1,246	905	
Feb-02	725	970	709	
Mar-02	724	992	667	
Apr-02	759	695	693	
May-02	593	366	569	
Jun-02	540	148	534	
Jul-02	468	122	456	
Aug-02	543	182	530	
Sep-02	532	331	517	
Oct-02	576	515	581	
Nov-02	670	822	689	
Dec-02	686	1,118	671	

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Lower Post BC			Annual	
Residential	(Watson Lake)		Normalized	Normalized
Monthly	UPC (kWh)	MHDD	UPC (kWh)	UPC (kWh)
Jan-03	884	1,178	908	
Feb-03	664	965	650	
Mar-03	665	900	640	
Apr-03	730	554	713	
May-03	648	342	632	
Jun-03	475	180	457	
Jul-03	489	57	499	
Aug-03	497	163	490	
Sep-03	534	330	520	
Oct-03	536	526	537	
Nov-03	684	964	652	
Dec-03	725	1,096	718	
Jan-04	847	1,366	805	
Feb-04	806	881	821	
Mar-04	709	810	716	
Apr-04	671	497	674	
May-04	507	292	509	
Jun-04	562	74	581	
Jul-04	514	36	532	
Aug-04	480	146	479	
Sep-04	510	371	482	
Oct-04	567	565	554	
Nov-04	783	876	782	
Dec-04	802	1,071	803	
Jan-05	1,013	1,330	984	
Feb-05	610	942	604	
Mar-05	633	727	668	
Apr-05	619	465	633	
May-05	581	257	596	
Jun-05	445	127	446	
Jul-05	494	137	476	
Aug-05	449	162	442	
Sep-05	509	297	507	
Oct-05	621	542	616	
Nov-05	648	758	689	
Dec-05	743	1,061	748	
Jan-06	943	1,185	965	
Feb-06	910	1,017	878	
Mar-06	827	961	780	
Apr-06	715	528	707	
May-06	584	371	558	
Jun-06	617	137	614	
Jul-06	548	79	551	
Aug-06	557	172	547	
Sep-06	563	292	562	
Oct-06	675	543	670	
Nov-06	837	1,196	725	
Dec-06	906	1,050	915	
Jan-07	1,105	1,102	1,156	
Feb-07	909	1,017	876	
Mar-07	920	1,002	859	
Apr-07	950	543	937	
May-07	681	332	669	
Jun-07	544	123	547	
Jul-07	589	89	588	
Aug-07	534	143	534	
Sep-07	571	315	563	
Oct-07	691	553	683	
Nov-07	797	957	769	
Dec-07	858	1,255	796	

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Lower Post BC			Annual	
Residential	(Watson Lake)		Normalized	Normalized
Monthly	UPC (kWh)	MHDD	UPC (kWh)	UPC (kWh)
Jan-08	1,144	1,300	1,125	
Feb-08	992	1,064	943	
Mar-08	792	833	790	
Apr-08	927	554	911	
May-08	649	296	650	
Jun-08	584	191	562	
Jul-08	565	132	549	
Aug-08	618	154	615	
Sep-08	579	304	574	
Oct-08	748	524	750	
Nov-08	827	879	825	
Dec-08	852	1,387	743	
Jan-09	1,345	1,329	1,316	
Feb-09	1,013	1,090	955	
Mar-09	960	1,054	881	
Apr-09	836	590	806	
May-09	642	356	622	
Jun-09	535	131	535	
Jul-09	631	89	630	
Aug-09	560	134	563	
Sep-09	676	279	680	
Oct-09	691	607	663	
Nov-09	788	997	745	
Dec-09	955	1,274	886	
Jan-10	1,239	1,141	1,276	
Feb-10	900	966	886	
Mar-10	770	764	793	
Apr-10	905	503	906	
May-10	721	278	728	
Jun-10	557	143	553	
Jul-10	515	71	521	
Aug-10	516	120	524	
Sep-10	587	320	577	
Oct-10	653	517	657	
Nov-10	767	904	757	
Dec-10	982	1,292	906	9,082
Jan-11	1,299	1,201	1,315	
Feb-11	859	1,005	831	
Mar-11	1,011	1,033	939	
Apr-11	723	588	695	
May-11	681	271	690	
Jun-11	613	143	608	
Jul-11	542	104	536	
Aug-11	590	195	573	
Sep-11	762	292	761	
Nov-11	652	512	658	
Nov-11	689	1,059	624	
Dec-11	901	1,006	925	9,155
Jan-12	1,187	1,273	1,178	
Feb-12	899	936	895	
Mar-12	888	909	859	
Apr-12	712	513	710	
May-12	693	340	678	
Jun-12	487	150	480	
Jul-12	589	78	592	
Aug-12	593	134	597	
Sep-12	363	259	373	
Oct-12	629	715	563	
Nov-12	780	1,113	696	
Dec-12	937	1,356	838	8,461
2013-F				8,899
2014-F				8,899
2015-F				8,899

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Upper Liard			Annual	
Residential	(Watson Lake)		Normalized	Normalized
Monthly	UPC (kWh)	MHDD	UPC (kWh)	UPC (kWh)
Jan-98	998	1,410	949	
Feb-98	653	942	648	
Mar-98	552	843	548	
Apr-98	564	500	566	
May-98	517	211	544	
Jun-98	449	89	461	
Jul-98	459	66	466	
Aug-98	494	157	490	
Sep-98	506	321	497	
Oct-98	555	561	544	
Nov-98	687	958	662	
Dec-98	695	1,253	641	
Jan-99	908	1,350	877	
Feb-99	683	1,066	640	
Mar-99	609	871	596	
Apr-99	622	506	622	
May-99	502	372	479	
Jun-99	477	140	474	
Jul-99	467	99	463	
Aug-99	480	128	485	
Sep-99	482	293	481	
Oct-99	494	520	496	
Nov-99	740	940	720	
Dec-99	473	1,013	492	
Jan-00	873	1,345	844	
Feb-00	701	956	692	
Mar-00	555	750	578	
Apr-00	606	591	580	
May-00	547	374	524	
Jun-00	475	158	467	
Jul-00	465	84	466	
Aug-00	485	217	463	
Sep-00	534	315	527	
Oct-00	538	576	524	
Nov-00	592	858	597	
Dec-00	674	1,223	630	
Jan-01	771	1,043	833	
Feb-01	587	1,031	555	
Mar-01	620	845	615	
Apr-01	487	536	478	
May-01	499	367	478	
Jun-01	482	156	474	
Jul-01	434	120	424	
Aug-01	453	121	460	
Sep-01	452	300	449	
Oct-01	507	577	492	
Nov-01	636	975	606	
Dec-01	694	1,275	634	
Jan-02	745	1,246	746	
Feb-02	715	970	701	
Mar-02	525	992	475	
Apr-02	580	695	523	
May-02	554	366	533	
Jun-02	418	148	412	
Jul-02	451	122	440	
Aug-02	463	182	451	
Sep-02	453	331	440	
Oct-02	556	515	560	
Nov-02	655	822	671	
Dec-02	587	1,118	574	

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Upper Liard			Annual	
Residential	(Watson Lake)		Normalized	Normalized
Monthly	UPC (kWh)	MHDD	UPC (kWh)	UPC (kWh)
Jan-03	814	1,178	835	
Feb-03	653	965	641	
Mar-03	619	900	597	
Apr-03	619	554	604	
May-03	552	342	539	
Jun-03	477	180	461	
Jul-03	477	57	487	
Aug-03	494	163	488	
Sep-03	512	330	500	
Oct-03	499	526	499	
Nov-03	741	964	714	
Dec-03	735	1,096	729	
Jan-04	1,029	1,366	993	
Feb-04	705	881	718	
Mar-04	635	810	641	
Apr-04	613	497	616	
May-04	505	292	507	
Jun-04	452	74	469	
Jul-04	487	36	503	
Aug-04	447	146	447	
Sep-04	523	371	498	
Oct-04	570	565	559	
Nov-04	618	876	618	
Dec-04	638	1,071	639	
Jan-05	943	1,330	918	
Feb-05	625	942	620	
Mar-05	567	727	598	
Apr-05	633	465	645	
May-05	481	257	494	
Jun-05	441	127	441	
Jul-05	466	137	451	
Aug-05	517	162	511	
Sep-05	585	297	583	
Oct-05	619	542	615	
Nov-05	693	758	728	
Dec-05	790	1,061	794	
Jan-06	954	1,185	973	
Feb-06	819	1,017	791	
Mar-06	786	961	746	
Apr-06	715	528	708	
May-06	545	371	523	
Jun-06	515	137	513	
Jul-06	500	79	502	
Aug-06	455	172	446	
Sep-06	480	292	479	
Oct-06	614	543	609	
Nov-06	691	1,196	594	
Dec-06	853	1,050	861	
Jan-07	954	1,102	998	
Feb-07	732	1,017	704	
Mar-07	818	1,002	766	
Apr-07	704	543	693	
May-07	524	332	513	
Jun-07	487	123	489	
Jul-07	495	89	494	
Aug-07	438	143	438	
Sep-07	507	315	499	
Oct-07	539	553	531	
Nov-07	667	957	642	
Dec-07	745	1,255	690	

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Upper Liard		(Watson Lake)		Annual
Residential			Normalized	Normalized
Monthly	UPC (kWh)	MHDD	UPC (kWh)	UPC (kWh)
Jan-08	1,026	1,300	1,010	
Feb-08	874	1,064	832	
Mar-08	661	833	660	
Apr-08	750	554	736	
May-08	447	296	448	
Jun-08	491	191	472	
Jul-08	540	132	527	
Aug-08	524	154	521	
Sep-08	565	304	560	
Oct-08	623	524	624	
Nov-08	626	879	625	
Dec-08	731	1,387	636	
Jan-09	1,149	1,329	1,124	
Feb-09	789	1,090	739	
Mar-09	857	1,054	789	
Apr-09	627	590	602	
May-09	697	356	680	
Jun-09	553	131	553	
Jul-09	481	89	480	
Aug-09	522	134	525	
Sep-09	530	279	533	
Oct-09	574	607	550	
Nov-09	701	997	664	
Dec-09	866	1,274	806	
Jan-10	1,037	1,141	1,069	
Feb-10	743	966	730	
Mar-10	772	764	792	
Apr-10	646	503	647	
May-10	534	278	540	
Jun-10	568	143	564	
Jul-10	496	71	501	
Aug-10	501	120	509	
Sep-10	532	320	523	
Oct-10	654	517	658	
Nov-10	640	904	632	
Dec-10	747	1,292	681	7,846
Jan-11	987	1,201	1,002	
Feb-11	727	1,005	702	
Mar-11	859	1,033	797	
Apr-11	604	588	580	
May-11	695	271	703	
Jun-11	499	143	495	
Jul-11	465	104	460	
Aug-11	527	195	511	
Sep-11	548	292	547	
Nov-11	602	512	607	
Nov-11	656	1,059	600	
Dec-11	726	1,006	747	7,752
Jan-12	997	1,273	989	
Feb-12	694	936	691	
Mar-12	721	909	696	
Apr-12	623	513	621	
May-12	582	340	569	
Jun-12	517	150	510	
Jul-12	464	78	467	
Aug-12	527	134	530	
Sep-12	531	259	540	
Oct-12	696	715	640	
Nov-12	748	1,113	676	
Dec-12	921	1,356	836	7,764
2013-F				7,787
2014-F				7,787
2015-F				7,787

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Watson Lake			Annual	
Residential	(Watson Lake)		Normalized	Normalized
Monthly	UPC (kWh)	MHDD	UPC (kWh)	UPC (kWh)
Jan-98	1,054	1,410	997	
Feb-98	768	942	762	
Mar-98	702	843	697	
Apr-98	707	500	709	
May-98	564	211	595	
Jun-98	527	89	541	
Jul-98	524	66	531	
Aug-98	538	157	534	
Sep-98	579	321	569	
Oct-98	664	561	652	
Nov-98	748	958	720	
Dec-98	871	1,253	810	
Jan-99	984	1,350	948	
Feb-99	788	1,066	739	
Mar-99	744	871	729	
Apr-99	715	506	715	
May-99	631	372	605	
Jun-99	547	140	543	
Jul-99	526	99	522	
Aug-99	547	128	553	
Sep-99	625	293	624	
Oct-99	628	520	631	
Nov-99	766	940	744	
Dec-99	797	1,013	819	
Jan-00	1,139	1,345	1,105	
Feb-00	894	956	883	
Mar-00	654	750	681	
Apr-00	703	591	674	
May-00	635	374	609	
Jun-00	558	158	548	
Jul-00	547	84	548	
Aug-00	589	217	563	
Sep-00	603	315	595	
Oct-00	664	576	647	
Nov-00	758	858	763	
Dec-00	971	1,223	920	
Jan-01	932	1,043	1,003	
Feb-01	813	1,031	776	
Mar-01	727	845	721	
Apr-01	677	536	667	
May-01	652	367	628	
Jun-01	564	156	554	
Jul-01	538	120	526	
Aug-01	555	121	563	
Sep-01	547	300	544	
Oct-01	652	577	635	
Nov-01	793	975	758	
Dec-01	901	1,275	832	
Jan-02	967	1,246	967	
Feb-02	817	970	801	
Mar-02	725	992	668	
Apr-02	741	695	676	
May-02	642	366	618	
Jun-02	544	148	538	
Jul-02	542	122	530	
Aug-02	610	182	597	
Sep-02	558	331	543	
Oct-02	682	515	686	
Nov-02	762	822	781	
Dec-02	828	1,118	813	

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Watson Lake			Annual	
Residential	(Watson Lake)		Normalized	Normalized
Monthly	UPC (kWh)	MHDD	UPC (kWh)	UPC (kWh)
Jan-03	948	1,178	972	
Feb-03	770	965	756	
Mar-03	704	900	679	
Apr-03	774	554	757	
May-03	603	342	588	
Jun-03	556	180	538	
Jul-03	563	57	574	
Aug-03	549	163	542	
Sep-03	609	330	595	
Oct-03	649	526	650	
Nov-03	795	964	765	
Dec-03	968	1,096	961	
Jan-04	972	1,366	931	
Feb-04	807	881	822	
Mar-04	750	810	756	
Apr-04	746	497	749	
May-04	588	292	590	
Jun-04	605	74	625	
Jul-04	574	36	592	
Aug-04	565	146	565	
Sep-04	646	371	618	
Oct-04	650	565	637	
Nov-04	779	876	779	
Dec-04	897	1,071	899	
Jan-05	1,053	1,330	1,024	
Feb-05	807	942	801	
Mar-05	746	727	782	
Apr-05	714	465	728	
May-05	627	257	642	
Jun-05	584	127	586	
Jul-05	551	137	534	
Aug-05	565	162	559	
Sep-05	690	297	687	
Oct-05	626	542	621	
Nov-05	735	758	776	
Dec-05	895	1,061	900	
Jan-06	918	1,185	940	
Feb-06	911	1,017	879	
Mar-06	916	961	870	
Apr-06	726	528	718	
May-06	646	371	621	
Jun-06	578	137	575	
Jul-06	587	79	590	
Aug-06	578	172	568	
Sep-06	639	292	638	
Oct-06	664	543	659	
Nov-06	843	1,196	731	
Dec-06	983	1,050	992	
Jan-07	972	1,102	1,022	
Feb-07	965	1,017	933	
Mar-07	879	1,002	818	
Apr-07	751	543	739	
May-07	690	332	678	
Jun-07	605	123	607	
Jul-07	563	89	563	
Aug-07	577	143	578	
Sep-07	586	315	578	
Oct-07	652	553	644	
Nov-07	843	957	815	
Dec-07	805	1,255	742	

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Watson Lake			Annual	
Residential	(Watson Lake)		Normalized	Normalized
Monthly	UPC (kWh)	MHDD	UPC (kWh)	UPC (kWh)
Jan-08	1,123	1,300	1,105	
Feb-08	1,032	1,064	984	
Mar-08	835	833	833	
Apr-08	764	554	747	
May-08	686	296	687	
Jun-08	567	191	546	
Jul-08	591	132	575	
Aug-08	597	154	594	
Sep-08	592	304	587	
Oct-08	660	524	662	
Nov-08	841	879	840	
Dec-08	931	1,387	823	
Jan-09	1,141	1,329	1,113	
Feb-09	942	1,090	885	
Mar-09	866	1,054	788	
Apr-09	811	590	782	
May-09	661	356	641	
Jun-09	571	131	571	
Jul-09	601	89	600	
Aug-09	541	134	545	
Sep-09	622	279	626	
Oct-09	665	607	638	
Nov-09	781	997	738	
Dec-09	965	1,274	896	
Jan-10	1,093	1,141	1,130	
Feb-10	861	966	847	
Mar-10	781	764	803	
Apr-10	759	503	760	
May-10	648	278	655	
Jun-10	582	143	578	
Jul-10	571	71	576	
Aug-10	529	120	537	
Sep-10	610	320	600	
Oct-10	736	517	740	
Nov-10	745	904	735	
Dec-10	912	1,292	837	8,798
Jan-11	1,148	1,201	1,164	
Feb-11	886	1,005	858	
Mar-11	972	1,033	901	
Apr-11	828	588	800	
May-11	682	271	691	
Jun-11	614	143	610	
Jul-11	547	104	541	
Aug-11	566	195	548	
Sep-11	642	292	641	
Nov-11	668	512	674	
Nov-11	795	1,059	730	
Dec-11	925	1,006	949	9,108
Jan-12	1,124	1,273	1,115	
Feb-12	935	936	931	
Mar-12	866	909	837	
Apr-12	779	513	776	
May-12	710	340	696	
Jun-12	645	150	638	
Jul-12	589	78	592	
Aug-12	572	134	576	
Sep-12	564	259	575	
Oct-12	690	715	625	
Nov-12	773	1,113	691	
Dec-12	1,002	1,356	905	8,957
2013-F				8,954
2014-F				8,954
2015-F				8,954

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Keno City		(Whitehorse)	
Residential			Annual
Monthly	UPC (kWh)	MHDD	UPC (kWh)
Jan-98	385	1,166	
Feb-98	459	719	
Mar-98	240	757	
Apr-98	289	459	
May-98	254	271	
Jun-98	244	120	
Jul-98	214	112	
Aug-98	299	189	
Sep-98	300	328	
Oct-98	364	558	
Nov-98	315	792	
Dec-98	245	1,052	
Jan-99	360	1,183	
Feb-99	301	976	
Mar-99	274	734	
Apr-99	329	509	
May-99	219	392	
Jun-99	208	154	
Jul-99	289	109	
Aug-99	310	146	
Sep-99	338	311	
Oct-99	370	500	
Nov-99	409	793	
Dec-99	271	844	
Jan-00	271	1,083	
Feb-00	237	735	
Mar-00	230	659	
Apr-00	200	516	
May-00	257	382	
Jun-00	257	173	
Jul-00	251	142	
Aug-00	295	220	
Sep-00	283	354	
Oct-00	367	539	
Nov-00	283	691	
Dec-00	244	978	
Jan-01	276	723	
Feb-01	237	864	
Mar-01	288	765	
Apr-01	258	507	
May-01	274	390	
Jun-01	188	167	
Jul-01	291	140	
Aug-01	205	140	
Sep-01	243	309	
Oct-01	253	573	
Nov-01	236	818	
Dec-01	263	1,095	
Jan-02	220	936	
Feb-02	191	825	
Mar-02	173	921	
Apr-02	200	653	
May-02	231	362	
Jun-02	210	176	
Jul-02	236	131	
Aug-02	265	183	
Sep-02	240	314	
Oct-02	250	444	
Nov-02	221	583	
Dec-02	220	845	

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Keno City		(Whitehorse)	
Residential			Annual
Monthly	UPC (kWh)	MHDD	UPC (kWh)
Jan-03	256	989	
Feb-03	204	757	
Mar-03	185	835	
Apr-03	177	514	
May-03	139	364	
Jun-03	157	193	
Jul-03	169	84	
Aug-03	168	181	
Sep-03	187	359	
Oct-03	167	467	
Nov-03	200	875	
Dec-03	240	912	
Jan-04	260	1,258	
Feb-04	214	697	
Mar-04	193	754	
Apr-04	188	467	
May-04	188	273	
Jun-04	168	84	
Jul-04	157	74	
Aug-04	174	102	
Sep-04	222	368	
Oct-04	158	541	
Nov-04	275	720	
Dec-04	191	900	
Jan-05	246	1,166	
Feb-05	251	795	
Mar-05	130	614	
Apr-05	115	453	
May-05	112	257	
Jun-05	120	154	
Jul-05	142	133	
Aug-05	203	151	
Sep-05	218	299	
Oct-05	156	535	
Nov-05	197	763	
Dec-05	195	794	
Jan-06	309	1,096	
Feb-06	214	821	
Mar-06	297	906	
Apr-06	208	519	
May-06	166	347	
Jun-06	118	173	
Jul-06	147	118	
Aug-06	188	202	
Sep-06	224	296	
Oct-06	283	521	
Nov-06	327	1,162	
Dec-06	337	824	
Jan-07	302	912	
Feb-07	248	999	
Mar-07	313	954	
Apr-07	233	512	
May-07	183	322	
Jun-07	160	141	
Jul-07	189	102	
Aug-07	218	154	
Sep-07	252	308	
Oct-07	327	544	
Nov-07	274	725	
Dec-07	223	1,070	

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Keno City		(Whitehorse)	Annual
Residential			
Monthly	UPC (kWh)	MHDD	UPC (kWh)
Jan-08	261	1,114	
Feb-08	308	955	
Mar-08	234	735	
Apr-08	304	517	
May-08	213	308	
Jun-08	145	226	
Jul-08	173	173	
Aug-08	276	188	
Sep-08	419	319	
Oct-08	398	563	
Nov-08	413	783	
Dec-08	577	1,186	
Jan-09	660	1,138	
Feb-09	295	955	
Mar-09	569	869	
Apr-09	323	515	
May-09	247	331	
Jun-09	178	144	
Jul-09	187	63	
Aug-09	180	158	
Sep-09	251	306	
Oct-09	295	542	
Nov-09	360	782	
Dec-09	384	943	
Jan-10	397	991	
Feb-10	332	679	
Mar-10	417	656	
Apr-10	344	461	
May-10	368	292	
Jun-10	128	172	
Jul-10	185	117	
Aug-10	201	146	
Sep-10	427	332	
Oct-10	446	520	
Nov-10	572	718	
Dec-10	575	1,163	4,390
Jan-11	588	1,010	
Feb-11	432	906	
Mar-11	609	902	
Apr-11	342	511	
May-11	342	296	
Jun-11	229	161	
Jul-11	336	128	
Aug-11	140	218	
Sep-11	343	329	
Nov-11	447	513	
Nov-11	472	936	
Dec-11	641	775	4,921
Jan-12	359	1,118	
Feb-12	406	708	
Mar-12	467	756	
Apr-12	397	451	
May-12	382	351	
Jun-12	293	200	
Jul-12	199	140	
Aug-12	221	158	
Sep-12	332	287	
Oct-12	458	631	
Nov-12	566	970	
Dec-12	481	1,197	4,561
2013-F			4,624
2014-F			4,624
2015-F			4,624

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Stewart Crossing			
Residential	(Watson Lake)		Annual
Monthly	UPC (kWh)	MHDD	UPC (kWh)
Jan-98	570	1,410	
Feb-98	418	942	
Mar-98	376	843	
Apr-98	297	500	
May-98	388	211	
Jun-98	275	89	
Jul-98	351	66	
Aug-98	348	157	
Sep-98	344	321	
Oct-98	403	561	
Nov-98	455	958	
Dec-98	587	1,253	
Jan-99	1,043	1,350	
Feb-99	719	1,066	
Mar-99	511	871	
Apr-99	510	506	
May-99	419	372	
Jun-99	373	140	
Jul-99	437	99	
Aug-99	351	128	
Sep-99	460	293	
Oct-99	365	520	
Nov-99	473	940	
Dec-99	493	1,013	
Jan-00	881	1,345	
Feb-00	432	956	
Mar-00	422	750	
Apr-00	474	591	
May-00	337	374	
Jun-00	348	158	
Jul-00	335	84	
Aug-00	337	217	
Sep-00	496	315	
Oct-00	462	576	
Nov-00	690	858	
Dec-00	505	1,223	
Jan-01	589	1,043	
Feb-01	469	1,031	
Mar-01	660	845	
Apr-01	394	536	
May-01	536	367	
Jun-01	284	156	
Jul-01	303	120	
Aug-01	310	121	
Sep-01	486	300	
Oct-01	449	577	
Nov-01	749	975	
Dec-01	606	1,275	
Jan-02	606	1,246	
Feb-02	674	970	
Mar-02	482	992	
Apr-02	532	695	
May-02	647	366	
Jun-02	483	148	
Jul-02	469	122	
Aug-02	569	182	
Sep-02	504	331	
Oct-02	668	515	
Nov-02	634	822	
Dec-02	842	1,118	

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Stewart Crossing			
Residential	(Watson Lake)		Annual
Monthly	UPC (kWh)	MHDD	UPC (kWh)
Jan-03	1,072	1,178	
Feb-03	853	965	
Mar-03	783	900	
Apr-03	761	554	
May-03	694	342	
Jun-03	535	180	
Jul-03	701	57	
Aug-03	534	163	
Sep-03	632	330	
Oct-03	726	526	
Nov-03	709	964	
Dec-03	951	1,096	
Jan-04	1,042	1,366	
Feb-04	683	881	
Mar-04	705	810	
Apr-04	835	497	
May-04	641	292	
Jun-04	652	74	
Jul-04	730	36	
Aug-04	598	146	
Sep-04	606	371	
Oct-04	837	565	
Nov-04	850	876	
Dec-04	663	1,071	
Jan-05	1,210	1,330	
Feb-05	891	942	
Mar-05	716	727	
Apr-05	900	465	
May-05	599	257	
Jun-05	711	127	
Jul-05	617	137	
Aug-05	664	162	
Sep-05	732	297	
Oct-05	682	542	
Nov-05	720	758	
Dec-05	830	1,061	
Jan-06	1,086	1,185	
Feb-06	948	1,017	
Mar-06	991	961	
Apr-06	633	528	
May-06	632	371	
Jun-06	831	137	
Jul-06	561	79	
Aug-06	817	172	
Sep-06	941	292	
Oct-06	822	543	
Nov-06	889	1,196	
Dec-06	1,078	1,050	
Jan-07	1,227	1,102	
Feb-07	1,030	1,017	
Mar-07	1,291	1,002	
Apr-07	693	543	
May-07	610	332	
Jun-07	625	123	
Jul-07	541	89	
Aug-07	636	143	
Sep-07	630	315	
Oct-07	626	553	
Nov-07	783	957	
Dec-07	578	1,255	

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Stewart Crossing			
Residential	(Watson Lake)		Annual
Monthly	UPC (kWh)	MHDD	UPC (kWh)
Jan-08	1,086	1,300	
Feb-08	873	1,064	
Mar-08	898	833	
Apr-08	422	554	
May-08	548	296	
Jun-08	533	191	
Jul-08	300	132	
Aug-08	641	154	
Sep-08	467	304	
Oct-08	707	524	
Nov-08	624	879	
Dec-08	724	1,387	
Jan-09	1,134	1,329	
Feb-09	978	1,090	
Mar-09	672	1,054	
Apr-09	842	590	
May-09	543	356	
Jun-09	491	131	
Jul-09	630	89	
Aug-09	618	134	
Sep-09	642	279	
Oct-09	621	607	
Nov-09	682	997	
Dec-09	712	1,274	
Jan-10	1,036	1,141	
Feb-10	667	966	
Mar-10	700	764	
Apr-10	663	503	
May-10	603	278	
Jun-10	413	143	
Jul-10	493	71	
Aug-10	446	120	
Sep-10	545	320	
Oct-10	312	517	
Nov-10	786	904	
Dec-10	817	1,292	7,481
Jan-11	1,153	1,201	
Feb-11	847	1,005	
Mar-11	846	1,033	
Apr-11	791	588	
May-11	880	271	
Jun-11	343	143	
Jul-11	718	104	
Aug-11	524	195	
Sep-11	603	292	
Nov-11	558	512	
Nov-11	671	1,059	
Dec-11	807	1,006	8,741
Jan-12	1,281	1,273	
Feb-12	776	936	
Mar-12	850	909	
Apr-12	432	513	
May-12	570	340	
Jun-12	626	150	
Jul-12	467	78	
Aug-12	604	134	
Sep-12	443	259	
Oct-12	516	715	
Nov-12	1,003	1,113	
Dec-12	1,002	1,356	8,568
2013-F		1,218	8,264
2014-F		1,218	8,264
2015-F		1,218	8,264

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Swift River			
Residential	(Whitehorse)		Annual
Monthly	UPC (kWh)	MHDD	UPC (kWh)
Jan-98	1,148	1,166	
Feb-98	1,391	719	
Mar-98	1,251	757	
Apr-98	1,104	459	
May-98	946	271	
Jun-98	861	120	
Jul-98	626	112	
Aug-98	1,008	189	
Sep-98	1,095	328	
Oct-98	935	558	
Nov-98	1,137	792	
Dec-98	932	1,052	
Jan-99	975	1,183	
Feb-99	2,270	976	
Mar-99	1,261	734	
Apr-99	970	509	
May-99	1,263	392	
Jun-99	830	154	
Jul-99	897	109	
Aug-99	817	146	
Sep-99	990	311	
Oct-99	1,008	500	
Nov-99	1,168	793	
Dec-99	1,040	844	
Jan-00	1,438	1,083	
Feb-00	1,334	735	
Mar-00	1,228	659	
Apr-00	1,005	516	
May-00	1,067	382	
Jun-00	910	173	
Jul-00	840	142	
Aug-00	980	220	
Sep-00	858	354	
Oct-00	1,045	539	
Nov-00	1,111	691	
Dec-00	1,285	978	
Jan-01	1,345	723	
Feb-01	1,052	864	
Mar-01	1,105	765	
Apr-01	1,138	507	
May-01	995	390	
Jun-01	853	167	
Jul-01	910	140	
Aug-01	1,009	140	
Sep-01	997	309	
Oct-01	1,231	573	
Nov-01	1,093	818	
Dec-01	1,126	1,095	
Jan-02	1,300	936	
Feb-02	1,052	825	
Mar-02	1,170	921	
Apr-02	1,142	653	
May-02	1,029	362	
Jun-02	811	176	
Jul-02	879	131	
Aug-02	1,054	183	
Sep-02	1,014	314	
Oct-02	1,040	444	
Nov-02	1,075	583	
Dec-02	1,034	845	

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Swift River			
Residential	(Whitehorse)		Annual
Monthly	UPC (kWh)	MHDD	UPC (kWh)
Jan-03	1,562	989	
Feb-03	1,150	757	
Mar-03	1,183	835	
Apr-03	1,727	514	
May-03	1,079	364	
Jun-03	940	193	
Jul-03	713	84	
Aug-03	995	181	
Sep-03	979	359	
Oct-03	1,004	467	
Nov-03	1,087	875	
Dec-03	1,380	912	
Jan-04	1,503	1,258	
Feb-04	1,325	697	
Mar-04	660	754	
Apr-04	1,103	467	
May-04	915	273	
Jun-04	965	84	
Jul-04	938	74	
Aug-04	936	102	
Sep-04	971	368	
Oct-04	1,083	541	
Nov-04	1,215	720	
Dec-04	1,083	900	
Jan-05	1,431	1,166	
Feb-05	1,177	795	
Mar-05	892	614	
Apr-05	992	453	
May-05	659	257	
Jun-05	1,585	154	
Jul-05	905	133	
Aug-05	933	151	
Sep-05	894	299	
Oct-05	1,051	535	
Nov-05	1,142	763	
Dec-05	1,240	794	
Jan-06	1,113	1,096	
Feb-06	1,596	821	
Mar-06	1,870	906	
Apr-06	1,352	519	
May-06	1,413	347	
Jun-06	979	173	
Jul-06	871	118	
Aug-06	912	202	
Sep-06	1,007	296	
Oct-06	1,077	521	
Nov-06	1,236	1,162	
Dec-06	1,498	824	
Jan-07	1,830	912	
Feb-07	1,564	999	
Mar-07	1,426	954	
Apr-07	1,210	512	
May-07	1,262	322	
Jun-07	1,116	141	
Jul-07	1,492	102	
Aug-07	640	154	
Sep-07	879	308	
Oct-07	979	544	
Nov-07	1,180	725	
Dec-07	1,136	1,070	

The Yukon Electrical Company Limited
2013 - 2015 General Rate Application

Swift River			
Residential	(Whitehorse)		Annual
Monthly	UPC (kWh)	MHDD	UPC (kWh)
Jan-08	1,439	1,114	
Feb-08	1,381	955	
Mar-08	1,053	735	
Apr-08	1,539	517	
May-08	667	308	
Jun-08	711	226	
Jul-08	798	173	
Aug-08	712	188	
Sep-08	792	319	
Oct-08	852	563	
Nov-08	1,002	783	
Dec-08	1,205	1,186	
Jan-09	1,812	1,138	
Feb-09	1,290	955	
Mar-09	1,636	869	
Apr-09	1,408	515	
May-09	1,376	331	
Jun-09	1,203	144	
Jul-09	1,128	63	
Aug-09	1,108	158	
Sep-09	1,143	306	
Oct-09	820	542	
Nov-09	820	782	
Dec-09	833	943	
Jan-10	1,015	991	
Feb-10	860	679	
Mar-10	810	656	
Apr-10	780	461	
May-10	464	292	
Jun-10	310	172	
Jul-10	123	117	
Aug-10	525	146	
Sep-10	567	332	
Oct-10	452	520	
Nov-10	1,050	718	
Dec-10	1,557	1,163	8,511
Jan-11	1,613	1,010	
Feb-11	1,036	906	
Mar-11	1,044	902	
Apr-11	1,854	511	
May-11	751	296	
Jun-11	565	161	
Jul-11	531	128	
Aug-11	655	218	
Sep-11	641	329	
Nov-11	833	513	
Nov-11	1,138	936	
Dec-11	1,126	775	11,784
Jan-12	1,426	1,118	
Feb-12	1,154	708	
Mar-12	1,031	756	
Apr-12	1,014	451	
May-12	(1,357)	351	
Jun-12	870	200	
Jul-12	744	140	
Aug-12	774	158	
Sep-12	804	287	
Oct-12	672	631	
Nov-12	1,031	970	
Dec-12	893	1,197	9,053
2013-F		1,045	9,782
2014-F		1,045	9,782
2015-F		1,045	9,782

Whitehorse																					20-year "Normal" HDD (1993-12)
Heating Degree Day (HDD)																					
Degree Days Below 18.0 °C																					
MONTH	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	
JAN	1,119.6	1,085.4	1,020.1	1,556.4	1,185.7	1,165.7	1,183.1	1,082.9	722.7	935.6	989.1	1,257.9	1,165.8	1,096.2	912.0	1,113.8	1,137.9	991.1	1,010.2	1,118.1	1,092.5
FEB	841.7	1,124.5	840.1	835.8	656.5	719.1	976.4	735.2	864.1	824.6	756.6	697.2	795.2	821.3	998.8	954.6	955.4	679.2	905.6	707.5	834.5
MAR	693.4	653.9	880.0	805.8	855.4	756.6	734.0	659.2	765.3	921.1	834.5	753.5	613.7	906.3	954.2	734.7	868.5	656.0	901.7	756.2	785.2
APR	417.3	430.8	439.9	526.0	484.0	458.6	508.8	515.6	506.8	653.3	514.3	466.6	453.3	519.1	511.9	517.3	515.2	461.2	511.2	450.6	493.1
MAY	244.1	320.9	250.7	357.3	331.1	270.6	391.9	382.0	390.4	361.6	363.7	272.5	256.6	346.9	322.1	307.9	331.2	292.0	296.2	350.8	322.0
JUN	132.5	166.2	139.0	193.6	148.9	119.5	153.9	172.5	167.3	175.6	192.8	83.7	154.4	173.1	140.5	225.6	144.1	171.9	161.0	200.0	160.8
JUL	96.8	83.7	96.6	124.9	92.8	111.6	108.6	142.1	139.6	130.9	84.4	74.2	132.6	118.4	102.3	173.4	62.5	117.3	127.8	140.1	113.0
AUG	158.0	69.6	198.3	227.3	130.0	189.2	145.7	219.9	139.6	182.8	180.6	101.7	150.8	201.6	154.2	187.7	158.3	146.2	217.9	157.9	165.9
SEP	279.2	334.9	226.5	362.6	282.1	327.8	311.2	354.2	309.0	314.4	359.2	367.5	299.3	295.7	308.4	318.7	306.1	332.4	328.5	287.2	315.2
OCT	478.7	507.0	524.9	679.9	641.0	557.7	499.8	539.2	573.4	444.3	466.7	540.5	534.6	520.5	543.7	563.0	541.8	520.4	513.3	631.4	541.1
NOV	732.2	935.9	894.4	975.0	694.0	792.3	792.5	691.2	818.0	582.6	874.6	719.8	762.6	1,162.2	724.6	782.5	781.5	717.6	936.3	969.6	817.0
DEC	825.6	1,028.9	1,048.6	1,155.8	762.0	1,051.8	844.0	977.8	1,094.6	845.2	911.6	899.5	794.4	824.3	1,069.5	1,186.2	943.4	1,162.5	775.1	1,196.8	969.9
TOTAL	6,019.1	6,741.7	6,559.1	7,800.4	6,263.5	6,520.5	6,649.9	6,471.8	6,490.8	6,372.0	6,528.1	6,234.6	6,113.3	6,985.6	6,742.2	7,065.4	6,745.9	6,247.8	6,684.8	6,966.2	6,610.1

Watson Lake																					20-year "Normal" HDD (1993-12)
Heating Degree Day (HDD)																					
Degree Days Below 18.0 °C																					
MONTH	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	
JAN	930.6	1,266.0	938.7	1,605.2	1,406.6	1,409.7	1,350.2	1,344.8	1,043.4	1,246.3	1,177.5	1,365.6	1,330.3	1,185.2	1,102.4	1,300.1	1,329.3	1,141.4	1,201.0	1,273.0	1,247.4
FEB	752.4	119.4	941.9	947.3	884.8	942.0	1,066.4	956.0	1,031.0	970.3	964.7	881.2	941.8	1,016.7	1,017.3	1,064.2	1,089.5	965.8	1,004.6	935.5	924.6
MAR	573.0	24.3	855.6	874.3	943.9	843.4	871.4	750.1	844.9	991.6	899.5	809.9	726.9	960.5	1,001.9	833.3	1,054.2	763.5	1,032.9	909.0	828.2
APR	347.3	50.1	492.7	547.7	527.9	500.1	506.4	590.9	535.8	694.8	554.4	497.4	464.8	528.2	543.0	554.0	590.0	502.7	587.5	512.6	506.4
MAY	190.5	21.8	242.5	366.4	311.8	211.0	372.2	373.8	366.6	365.9	341.6	292.3	256.9	371.1	332.2	295.6	356.0	277.7	271.1	340.2	297.9
JUN	99.2	0.8	97.0	163.9	142.6	89.0	140.2	158.0	155.5	147.8	179.9	74.1	126.6	136.5	122.6	191.0	130.6	142.7	143.1	149.7	129.5
JUL	83.2	1.2	113.0	103.3	84.1	65.7	99.4	84.3	120.3	121.6	56.6	35.6	136.9	79.2	88.6	131.5	89.0	70.8	104.4	77.8	87.3
AUG	66.0	2.3	189.9	185.1	109.6	156.8	127.8	216.9	120.6	181.5	163.0	145.7	162.2	171.7	143.1	154.0	134.4	119.6	195.1	134.0	144.0
SEP	298.4	38.8	224.9	354.7	271.1	320.7	292.5	314.8	299.6	331.0	330.2	370.7	297.3	292.4	314.7	304.2	279.4	319.7	292.4	259.4	290.3
OCT	248.2	89.8	552.7	662.2	659.7	561.2	519.8	575.8	577.0	514.8	526.1	565.0	541.7	543.3	553.1	523.5	606.9	516.8	511.9	714.5	528.2
NOV	127.3	59.4	1,000.2	1,121.2	935.8	958.1	939.9	858.4	975.0	821.9	963.9	875.5	758.4	1,196.2	956.6	879.0	996.5	904.2	1,059.1	1,112.8	875.0
DEC	22.1	122.5	1,295.4	1,361.1	983.7	1,252.7	1,013.0	1,222.8	1,275.4	1,117.9	1,095.5	1,070.7	1,061.0	1,050.0	1,255.1	1,386.5	1,273.7	1,292.1	1,006.3	1,356.2	1,075.7
TOTAL	3,738.2	1,796.4	6,944.5	8,292.4	7,261.6	7,310.4	7,299.2	7,446.6	7,345.1	7,505.4	7,252.9	6,983.7	6,804.8	7,531.0	7,430.6	7,616.9	7,929.5	7,017.0	7,409.4	7,774.7	6,934.5

Residential Regression Results (Yukon Electrical 2013-15 GRA)

Residential (Whitehorse+Takini)

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.886842745
R Square	0.786490054
Adjusted R Square	0.78529056
Standard Error	93.0809603
Observations	180

ANOVA

	df	SS	MS	F	Significance F
Regression	1	5680895.965	5680895.965	655.6848146	1.39905E-61
Residual	178	1542203.6	8664.06517		
Total	179	7223099.565			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	587.5320683	13.46646697	43.62926591	5.58402E-97	560.9576003	614.1065363	560.9576003	614.1065363
WH-HDD	0.538334518	0.021023483	25.60634325	1.39905E-61	0.496847179	0.579821856	0.496847179	0.579821856

Residential (Carmacks)

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.848334198
R Square	0.719670911
Adjusted R Square	0.718096029
Standard Error	137.0322957
Observations	180

ANOVA

	df	SS	MS	F	Significance F
Regression	1	8580876.545	8580876.545	456.9679975	4.88748E-51
Residual	178	3342457.313	18777.85007		
Total	179	11923333.86			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	523.0507986	19.82511653	26.38323956	2.06292E-63	483.9282934	562.1733039	483.9282934	562.1733039
WH-HDD	0.66162154	0.030950434	21.37680981	4.88748E-51	0.600544547	0.722698534	0.600544547	0.722698534

Residential (Carcross)

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.73085291
R Square	0.534145976
Adjusted R Square	0.531528819
Standard Error	100.3552824
Observations	180

ANOVA

	df	SS	MS	F	Significance F
Regression	1	2055467.372	2055467.372	204.0939414	2.42352E-31
Residual	178	1792670.521	10071.1827		
Total	179	3848137.893			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	419.1099542	14.51887788	28.86655275	4.6941E-69	390.4586787	447.7612298	390.4586787	447.7612298
WH-HDD	0.323816596	0.022666478	14.28614509	2.42352E-31	0.279087002	0.36854619	0.279087002	0.36854619

Residential (Haines Junction)

SUMMARY OUTPUT

<i>Regression Statistics</i>	
Multiple R	0.826511766
R Square	0.683121699
Adjusted R Square	0.681341483
Standard Error	70.97827216
Observations	180

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	1933198.401	1933198.401	383.7298477	2.73648E-46
Residual	178	896748.8911	5037.915119		
Total	179	2829947.292			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Intercept	493.5031661	10.26876554	48.0586653	7.1519E-104	473.2389809	513.7673514	473.2389809	513.7673514
WH-HDD	0.31403787	0.016031318	19.58902365	2.73648E-46	0.282401974	0.345673766	0.282401974	0.345673766

Residential (Teslin)

SUMMARY OUTPUT

<i>Regression Statistics</i>	
Multiple R	0.774809495
R Square	0.600329753
Adjusted R Square	0.598084415
Standard Error	80.08503489
Observations	180

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	1714789.401	1714789.401	267.3671534	2.73398E-37
Residual	178	1141623.081	6413.612813		
Total	179	2856412.482			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Intercept	401.3105811	11.58628439	34.63669349	5.10981E-81	378.4464294	424.1747328	378.4464294	424.1747328
WH-HDD	0.295766652	0.018088193	16.35136549	2.73398E-37	0.260071758	0.331461545	0.260071758	0.331461545

Residential (Ross River)

SUMMARY OUTPUT

<i>Regression Statistics</i>	
Multiple R	0.816954541
R Square	0.667414722
Adjusted R Square	0.665546265
Standard Error	99.84467893
Observations	180

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	3560923.245	3560923.245	357.2010799	2.05162E-44
Residual	178	1774474.864	9968.959911		
Total	179	5335398.109			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Intercept	420.6644462	14.44500644	29.12179014	1.28614E-69	392.1589471	449.1699452	392.1589471	449.1699452
WH-HDD	0.426211453	0.022551152	18.89976402	2.05162E-44	0.381709441	0.470713465	0.381709441	0.470713465

Residential (Pelly Crossing)

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.814590942
R Square	0.663558403
Adjusted R Square	0.661668282
Standard Error	106.1935622
Observations	180

ANOVA

	df	SS	MS	F	Significance F
Regression	1	3959003.162	3959003.162	351.0665651	5.74021E-44
Residual	178	2007318.933	11277.07266		
Total	179	5966322.096			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	526.6014045	15.3635297	34.27606902	2.58572E-80	496.2833092	556.9194997	496.2833092	556.9194997
WH-HDD	0.449403793	0.023985126	18.7367704	5.74021E-44	0.402072005	0.496735581	0.402072005	0.496735581

Residential (Old Crow)

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.700799321
R Square	0.491119688
Adjusted R Square	0.48826081
Standard Error	91.97982219
Observations	180

ANOVA

	df	SS	MS	F	Significance F
Regression	1	1453372.136	1453372.136	171.7875549	6.55924E-28
Residual	178	1505931.209	8460.28769		
Total	179	2959303.345			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	431.2915805	13.30716006	32.41049018	1.39504E-76	405.0314857	457.5516753	405.0314857	457.5516753
WH-HDD	0.272290334	0.020774777	13.10677515	6.55924E-28	0.231293786	0.313286881	0.231293786	0.313286881

Residential (Destruction Bay)

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.709031239
R Square	0.502725298
Adjusted R Square	0.49993162
Standard Error	72.69183708
Observations	180

ANOVA

	df	SS	MS	F	Significance F
Regression	1	950879.8973	950879.8973	179.9510466	8.32101E-29
Residual	178	940570.3656	5284.103178		
Total	179	1891450.263			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	383.8946	10.51667516	36.50341902	1.40822E-84	363.1411947	404.6480054	363.1411947	404.6480054
WH-HDD	0.220245296	0.016418348	13.41458336	8.32101E-29	0.187845643	0.25264495	0.187845643	0.25264495

Residential (Beaver Creek)

SUMMARY OUTPUT

<i>Regression Statistics</i>	
Multiple R	0.840637508
R Square	0.706671419
Adjusted R Square	0.705023506
Standard Error	87.03187359
Observations	180

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	3248177.952	3248177.952	428.8280135	2.78648E-49
Residual	178	1348269.37	7574.547021		
Total	179	4596447.322			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Intercept	483.8810515	12.59131671	38.4297419	4.15449E-88	459.0335882	508.7285147	459.0335882	508.7285147
WH-HDD	0.407064957	0.019657222	20.70816297	2.78648E-49	0.368273771	0.445856142	0.368273771	0.445856142

Residential (Tagish)

SUMMARY OUTPUT

<i>Regression Statistics</i>	
Multiple R	0.77755681
R Square	0.604594592
Adjusted R Square	0.602373213
Standard Error	63.68762658
Observations	180

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	1103956.052	1103956.052	272.1708788	1.04861E-37
Residual	178	721988.2526	4056.113779		
Total	179	1825944.304			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Intercept	234.2954311	9.213993033	25.42821883	3.71752E-61	216.1127137	252.4781485	216.1127137	252.4781485
WH-HDD	0.237312001	0.014384636	16.49760221	1.04861E-37	0.208925636	0.265698366	0.208925636	0.265698366

Residential (Marsh Lake)

SUMMARY OUTPUT

<i>Regression Statistics</i>	
Multiple R	0.873151604
R Square	0.762393723
Adjusted R Square	0.761058856
Standard Error	88.06938915
Observations	180

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	4429873.997	4429873.997	571.1384587	1.93035E-57
Residual	178	1380606.68	7756.217305		
Total	179	5810480.677			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Intercept	386.6155856	12.74141904	30.3432125	2.9027E-72	361.4719133	411.7592579	361.4719133	411.7592579
WH-HDD	0.475378456	0.019891558	23.89850327	1.93035E-57	0.436124837	0.514632075	0.436124837	0.514632075

Residential (Deep Creek)

SUMMARY OUTPUT

<i>Regression Statistics</i>	
Multiple R	0.752248092
R Square	0.565877192
Adjusted R Square	0.5634383
Standard Error	105.7520673
Observations	180

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	2594820.496	2594820.496	232.0222255	4.42027E-34
Residual	178	1990662.952	11183.49973		
Total	179	4585483.448			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Intercept	248.7081064	15.29965652	16.25579673	5.11914E-37	218.5160572	278.9001555	218.5160572	278.9001555
WH-HDD	0.363829131	0.023885409	15.23227578	4.42027E-34	0.316694123	0.410964139	0.316694123	0.410964139

Residential (Lower Post BC)

SUMMARY OUTPUT

<i>Regression Statistics</i>	
Multiple R	0.81614908
R Square	0.666099321
Adjusted R Square	0.664223475
Standard Error	102.4652481
Observations	180

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	3728162.932	3728162.932	355.0926572	2.91803E-44
Residual	178	1868844.62	10499.12708		
Total	179	5597007.552			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Intercept	482.5359337	13.76104774	35.06534841	7.55861E-82	455.3801456	509.6917217	455.3801456	509.6917217
WL-HDD	0.350883145	0.018620514	18.84390239	2.91803E-44	0.31413778	0.387628511	0.31413778	0.387628511

Residential (Upper Liard)

SUMMARY OUTPUT

<i>Regression Statistics</i>	
Multiple R	0.837904563
R Square	0.702084057
Adjusted R Square	0.700410372
Standard Error	81.41823385
Observations	180

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	2780729.358	2780729.358	419.483968	1.11237E-48
Residual	178	1179949.327	6628.928803		
Total	179	3960678.685			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Intercept	434.4074757	10.93444093	39.72836641	2.07109E-90	412.8296594	455.9852921	412.8296594	455.9852921
WL-HDD	0.303036141	0.014795742	20.48130777	1.11237E-48	0.273838507	0.332233774	0.273838507	0.332233774

Residential (Watson Lake)

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.91758524
R Square	0.841962672
Adjusted R Square	0.841074822
Standard Error	62.27248406
Observations	180

ANOVA

	df	SS	MS	F	Significance F
Regression	1	3677439.547	3677439.547	948.3161829	3.18151E-73
Residual	178	690259.4843	3877.862272		
Total	179	4367699.032			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	515.255402	8.36317329	61.61003535	5.5467E-122	498.7516761	531.759128	498.7516761	531.759128
WL-HDD	0.348488007	0.011316477	30.79474278	3.18151E-73	0.326156287	0.370819726	0.326156287	0.370819726

Residential (Keno City)

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.45197141
R Square	0.204278155
Adjusted R Square	0.199807808
Standard Error	98.54936507
Observations	180

ANOVA

	df	SS	MS	F	Significance F
Regression	1	443801.0337	443801.0337	45.69625911	1.90467E-10
Residual	178	1728731.969	9711.977356		
Total	179	2172533.003			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	195.761055	14.2576072	13.73028813	1.00194E-29	167.625366	223.8967439	167.625366	223.8967439
WH-HDD	0.150465857	0.022258589	6.759900821	1.90467E-10	0.106541183	0.194390532	0.106541183	0.194390532

Residential (Stewart Crossing)

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.578269149
R Square	0.334395209
Adjusted R Square	0.330655856
Standard Error	179.1744974
Observations	180

ANOVA

	df	SS	MS	F	Significance F
Regression	1	2870886.34	2870886.34	89.4259596	1.88615E-17
Residual	178	5714423.091	32103.50051		
Total	179	8585309.43			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	462.7767125	24.06307365	19.23182047	2.54602E-45	415.2911039	510.2623212	415.2911039	510.2623212
WL-HDD	0.307909483	0.032560515	9.456529998	1.88615E-17	0.243655187	0.372163779	0.243655187	0.372163779

Residential (Swift River)

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.478815384
R Square	0.229264172
Adjusted R Square	0.224934195
Standard Error	309.1635718
Observations	180

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	5060894.424	5060894.424	52.9481323	1.05385E-11
Residual	178	17013616.31	95582.11413		
Total	179	22074510.74			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Intercept	774.2960938	44.72817013	17.3111507	5.25351E-40	686.0303795	862.5618081	686.0303795	862.5618081
WH-HDD	0.508109656	0.069828406	7.276546729	1.05385E-11	0.370311618	0.645907694	0.370311618	0.645907694

Section 3 – Purchase Power

Overview

The volumes of actual and forecast purchase power over the period of 2008-2015 are outlined in Schedule 3.1 and as follows:

	2008 Actual	2009 Actual	2010 Actual	2011 Actual	2012 Actual	Test Period		
						2013	2014	2015
	(\$000)							
Primary Purchase Power	18,046	18,278	18,902	21,941	25,746	25,999	26,472	27,013
Secondary Purchase Power	1,190	907	553	40	142	-	-	-
Shortfall Rider J	4,990	4,026	4,353	2,479	1,437	-	-	-
Less: Capitalized ¹	(69)	-	(346)	(367)	(402)	(369)	-	-
Total Purchase Power	24,157	23,211	23,462	24,093	26,923	25,630	26,472	27,013

The purchase power costs are forecast to increase over the test period due to increased purchases resulting from sales load growth as discussed in Section 2, net of increased hydro generation at Fish Lake as a result of Unit #1 coming back into service in December 2013.

Background

Since the catastrophic failure of Fish Lake Unit #1 in March 2010, Yukon Electrical has purchased approximately 92-93% of the required power supply from Yukon Energy. The remainder of Yukon Electrical's required power supply has been provided by diesel generation and by hydro generation from Fish Lake Unit #2. The percentage of power that Yukon Electrical purchases from Yukon Energy is forecast to decrease slightly for 2013 and to decrease to approximately 91% in the 2014 and 2015 test years due to forecast increased hydro generation as Unit #1 is brought back on-line near the end of 2013.

¹ Yukon Electrical was directed in Board Order 2009-2 to capitalize the incremental purchased power costs incurred due to Fish Lake rebuilds in 2008/2009. Consistent with this Order, Yukon Electrical has capitalized the incremental purchase power costs incurred for the period in which Fish Lake Unit #1 was out of service after the catastrophic failure in March 2010.

1 The forecast Fish Lake hydro generation in the test period outlined in Schedule 3.2 is
2 based on the base hydro generation for Fish Lake approved in Board Order 2009-2,
3 adjusted for the 2013 test year to account for downtime for Unit #1.

4 **Deferral Account**

5 (a) Purchase Power Flow Through

6 The cost of purchase power in this Application is based on Yukon Energy's rates
7 that are currently in place for primary energy and secondary sales and are
8 outlined on Schedule 3.1, lines 6 and 7. These rates do not include any
9 adjustment to the rates associated with Yukon Energy's applied for but not yet
10 approved Energy Reconciliation Adjustment (ERA). Any increases or decreases
11 to these rates for 2013 and thereafter will be flowed through to Yukon Electrical's
12 customers.

13 (b) Diesel Contingency Fund (DCF)

14 Given that diesel may be on the margin during certain months in the test period,
15 Yukon Electrical requests the continuation of the diesel contingency fund
16 mechanism including Fish Lake hydro generation as approved during the
17 1996/1997 and 2008/2009 GRAs. For purposes of this filing, Yukon Electrical
18 has forecast its annual hydro generation at 8.73 GWh. This is consistent with the
19 amount approved by the Board in Board Order 2009-2.

20 Yukon Electrical notes that the Board confirmed in Board Order 2013-01
21 regarding Yukon Energy's 2012-2013 General Rate Application that Fish Lake
22 hydro generation is to be included in the DCF.

23 **Forecast Process**

24 The energy component of the purchase power cost is determined by applying
25 Yukon Energy's wholesale rate to the total forecast energy (kWh) purchases. Total



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- 1 forecast purchases are determined by applying a forecast line loss percentage to
- 2 Yukon Electrical's sales load forecast that was discussed in Section 2. Overall, line
- 3 losses are determined by using a five-year historical average of 6.2%. This is
- 4 consistent with the approach approved in Board Order 2009-2.

**The Yukon Electrical Company Limited
2013 - 2015 General Rate Application
Schedule of Purchase Power**

Schedule 3.1

Line No.	Description	Cross Ref.	Actual 2008	Actual 2009	Actual 2010	Actual 2011	Actual 2012	Test Period			GRA Approved 2008	GRA Approved 2009
								2013	2014	2015		
1	Purchases (MWh)											
2	Primary Energy		263,820	267,230	276,345	290,541	310,264	313,322	319,016	325,537	263,765	267,747
3	Secondary Sales		18,053	16,843	10,153	552	1,993	-	-	-	16,853	6,954
4		S.3.2 L.10	281,873	284,073	286,498	291,093	312,257	313,322	319,016	325,537	280,618	274,701
5	Purchase Power Rates											
6	Primary Energy Charge (\$ per kWh)	Note 1	0.0684	0.0684	0.0684	0.0755	0.0830	0.0830	0.0830	0.0830	0.0684	0.0684
7	Secondary Sales (\$ per kWh)		0.066	0.054	0.054	0.072	0.0712	-	-	-	0.061	0.061
8	Shortfall Rider J										14.93%	14.93%
9	Purchase Power Expense (\$000s)											
10	Primary Energy Expense	L.2 x L.6	18,046	18,278	18,902	21,941	25,746	25,999	26,472	27,013	18,042	18,314
11	Secondary Energy Expense	L.3 x L.7	1,190	907	553	40	142	-	-	-	1,028	424
12	Shortfall Rider J	S.2.1 L.50	4,990	4,026	4,353	2,479	1,437	-	-	-	5,120	5,172
13	Less: Capitalized		(69)	-	(346)	(367)	(402)	(369)	-	-	(69)	(69)
14	Total Purchase Power Expense	S.1.1 L.7	24,157	23,211	23,462	24,093	26,923	25,630	26,472	27,013	24,121	23,841

Note 1:

Rate changed in July 2011 from 0.0684 to 0.0830

Schedule 3.2

[illegible]

Section 4 – Fuel Costs

Overview

The fuel costs included in this Application are outlined in Schedule 4.1 and are:

	2008 Actual	2009 Actual	2010 Actual	2011 Actual	2012 Actual	Test Period		
						2013	2014	2015
	(\$000)							
Fuel Costs	<u>6,603</u>	<u>3,758</u>	<u>5,146</u>	<u>5,539</u>	<u>5,637</u>	<u>6,611</u>	<u>6,701</u>	<u>6,704</u>

The forecast fuel cost increase of \$974,000 in 2013 is mainly due to the inclusion of the Rider F fuel rider in base rates for the test period. Prior to 2013, Yukon Electrical recovered the difference between the forecast 2009 fuel rates and the current fuel rate using Rider F.

Please refer to Schedule 4.1 for the details associated with the calculation of fuel costs for 2008 to 2015.

Background

Fuel is purchased on an ongoing basis for each of the five isolated diesel plants operated by Yukon Electrical. Yukon Electrical conducts a diesel fuel tendering process in which a vendor is selected to be the provider of diesel fuel to Yukon Electrical. The current diesel fuel arrangements are due to be retendered early in 2014.

Yukon Electrical also has modest generation and fuel requirements associated with standby units at Carmacks, Teslin, Haines Junction, Ross River, Pelly Crossing and Stewart Crossing. These units generate power in the event of an interruption of power from the Yukon Interconnected System.

Beginning in 2013, a supply of Liquid Natural Gas (LNG) for the Watson Lake power plant will be sourced from Fortis B.C. Please refer to Business Case #6, Watson Lake

Bi-Fuel Project, for further information regarding the Watson Lake power plant generating electricity with LNG as well as diesel fuel beginning in 2013.

Forecasting Fuel Costs

Fuel costs are recorded as the fuel is consumed by the plant.

Fuel costs are a function of forecast sales, line losses, plant efficiencies, and delivered fuel prices.

Line Losses

As outlined in Section 3 and consistent with the approach approved in Board Order 2009-2, line losses are calculated based on a five-year average.

Plant Efficiencies

Plant efficiencies are based on the average efficiencies of the previous five years adjusted for any changes due to the replacement of units. This is consistent with the approach approved in Board Order 2009-2.

Forecasted Fuel Prices

Price forecasts for each community are based on the current prices in place for diesel fuel at February 2013. The respective fuel prices for each location are shown in Schedule 4.2.

Fuel Price Flow Through

The variance between actual and forecast fuel prices, as outlined in Schedule 4.2, are refunded to, or recovered from, customers through a fuel price flow through and the associated Rider F.

The previously approved methodology for the fuel deferral uses GRA-approved community-based plant efficiencies (or 'heat rate', kWh / Litre) and the plant's monthly

1 gross generation to determine the quantum of litres for the monthly fuel deferral
2 calculation. The difference between the actual and GRA-approved price per litre is then
3 applied to this number of litres to arrive at the fuel deferral amount for the month.

4 Yukon Electrical is proposing to continue the deferral for fuel prices for the 2013-2015
5 test period but is requesting a change in the methodology for calculating the deferral for
6 fuel used in Watson Lake. As a result of the conversion of the diesel units in Watson
7 Lake to bi-fuel (diesel and LNG) beginning in the fall of 2013, generation will be based
8 on a variable mix of diesel and LNG. This means that the forecast plant efficiency
9 cannot be determined at this time. In order to address this issue, Yukon Electrical is
10 requesting to use the actual equivalent diesel litres used as opposed to derived litres
11 that are based on a forecast plant efficiency to arrive at the fuel deferral amount for
12 Watson Lake. For all other locations, the calculation of the fuel price deferral would
13 remain unchanged from that previously approved.

14 For the usage of LNG in Watson Lake, fuel costs will be converted to equivalent Diesel
15 litres using the following industry standard conversion factors for LNG for the calculation
16 of the fuel price flow through deferral balance:



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Line No.	Description	Ref:	Measure	Units	Source
1	Energy Content of Diesel (HHV)		45.575	MJ/kg	Note 1
2	Density of Diesel		0.85	kg/L	Note 2
3	Energy Content of Diesel (HHV)	Line 1x2	38.7	MJ/L	
4	Energy Content of LNG (HHV)		55.058	MJ/kg	Note 3
5	Density of LNG		0.41	kg/L	Note 4
6	Energy Content of LNG (HHV)	Line 4x5	22.6	MJ/L	
7	LNG Energy Content of Diesel	(Line 6/3)	58%		

Note 1: U.S. Department of Energy, Center for Transportation Analysis. Biomass Energy Data Book: Edition 4. Appendix A, Conversions: Lower and Higher Heating Values of Gas, Liquid and Solid Fuels. Retrieved May 15, 2013, from http://cta.ornl.gov/bedb/appendix_a/Lower_and_Higher_Heating_Values_of_Gas_Liquid_and_Solid_Fuels.pdf. Please refer to Attachment 1 for a copy of the source document.

Note 2: Diesel Fuel. Energy Exchange Group. Retrieved May 15, 2013, from <http://enxsa.com/diesel.html>. Please refer to Attachment 2 for a copy of the source document.

Note 3: FortisBC Energy Inc. Rate Schedule 16: Interruptible Liquefied Natural Gas Sales and Dispensing Service. Retrieved May 15, 2013, from http://www.fortisbc.com/About/RegulatoryAffairs/GasUtility/NatGasTariffs/Documents/RateSchedule_16.pdf, Page R-16.8. Please refer to Attachment 3 for a copy of the source document.

Note 4: Comparison of Transport Fuels Final Report to the Australian Greenhouse Office – 2002; Part 2, Details of Fuels; Section 9, Liquefied Natural Gas; Page 276. Retrieved May 15, 2013, from http://www.fischer-tropsch.org/DOE/DOE_reports/ev45a_2_f3c/ev45a_2_f3c_sec10.pdf. Please refer to Attachment 4 for a copy of the source document.

**The Yukon Electrical Company Limited
2013 - 2015 General Rate Application
Diesel Generation and Fuel Summary
(\$000s)**

Schedule 4.1

Line No.	Description	Cross Ref.	Actual 2008	Actual 2009	Actual 2010	Actual 2011	Actual 2012	Test Period			GRA Approved 2008	GRA Approved 2009
								2013	2014	2015		
1	Total Diesel Generation (in MWh)	S.3.2 L.8 & 9	22,223	19,966	19,839	20,933	21,310	21,127	21,405	21,415	22,364	20,858
2	Fuel Heat Rate (kWh per litre)		3.65	3.69	3.74	3.68	3.70	3.71	3.71	3.71	3.71	3.71
3	Litres of Fuel (000s)	S. 4.2 L.32	6,086	5,409	5,311	5,681	5,757	5,692	5,767	5,770	6,032	5,618
4	Fuel Costs (\$000s)		6,603	4,342	4,658	6,149	6,490	6,611	6,701	6,704	5,829	5,397
5	Fuel Variance	Note 1	-	(584)	489	(610)	(853)	-	-	-	-	-
6	Fuel Expense	S.1.1 L.8	6,603	3,758	5,146	5,539	5,637	6,611	6,701	6,704	5,829	5,397
7	Average Cost (cents per litre)	L.4 / L.3	108.50	80.27	87.70	108.24	112.73	116.15	116.18	116.18	96.63	96.07

Note 1

The Fuel Variance for 2008 was not recalculated for the 2008 approved prices as the rate increase Rider calculation based on the Feb 19, 2009 Decision 2009-02 was implemented in 2009 and trued up the cumulative 2008 impacts.

The Yukon Electrical Company Limited
2013 - 2015 General Rate Application
Fuel Information

Schedule 4.2

Line No.	Description	Cross Ref.	Actual 2008	Actual 2009	Actual 2010	Actual 2011	Actual 2012	Test Period			GRA Approved 2008	GRA Approved 2009
								2013	2014	2015		
<u>Average Cost (in cents per litre)</u>												
1	Watson Lake		98.91	67.52	75.93	95.88	97.11	101.76	101.76	101.76	87.48	87.48
2	Beaver Creek		101.03	82.28	87.68	109.34	112.59	116.53	116.53	116.53	81.52	81.52
3	Destruction Bay		101.69	80.97	88.14	108.85	112.38	115.41	115.41	115.41	83.13	83.13
4	Old Crow		200.30	164.20	171.70	189.16	214.70	218.44	218.44	218.44	193.41	193.41
5	Pelly Crossing (Standby as of 2009)		106.10	-	-	-	-	-	-	-	89.33	89.33
6	Swift River		105.26	73.83	80.66	97.08	104.01	105.63	105.63	105.63	92.44	92.44
7	Standby Units		62.63	91.21	95.93	105.22	95.29	89.56	89.56	89.56	70.00	70.00
<u>Generation (MWh)</u>												
8	Watson Lake		14,146	13,940	13,992	14,357	15,024	15,085	15,261	15,267	14,431	14,593
9	Beaver Creek		1,856	1,874	1,917	1,981	1,897	1,800	1,832	1,834	2,021	2,115
10	Destruction Bay		1,768	1,771	1,766	1,862	1,996	1,826	1,860	1,862	1,722	1,741
11	Old Crow		1,820	1,904	1,903	2,067	2,136	2,083	2,114	2,114	2,005	2,029
12	Pelly Crossing		2,203	-	-	-	-	-	-	-	1,863	11
13	Swift River		272	265	189	220	233	263	267	268	278	326
14	Standby Units		158	213	72	446	25	70	70	70	44	44
15		S.4.1 L.1	22,223	19,967	19,839	20,933	21,310	21,127	21,405	21,415	22,364	20,858
<u>Net Heat Rate (kWh/litre)</u>												
16	Watson Lake		3.82	3.81	3.85	3.74	3.80	3.78	3.78	3.78	3.82	3.82
17	Beaver Creek		3.57	3.62	3.63	3.48	3.52	3.59	3.59	3.59	3.56	3.56
18	Destruction Bay		3.29	3.58	3.44	3.56	3.68	3.58	3.58	3.58	3.41	3.41
19	Old Crow		3.43	3.40	3.62	3.58	3.45	3.60	3.60	3.60	3.56	3.56
20	Pelly Crossing		3.05	-	-	-	-	-	-	-	3.62	3.62
21	Swift River		2.96	2.99	2.51	2.73	2.77	2.79	2.79	2.79	2.99	2.99
22	Standby Units		3.00	3.00	3.00	3.35	1.50	3.02	3.02	3.02	3.50	3.50
<u>Litres Consumed ('000s)</u>												
24	Watson Lake		3,726	3,695	3,673	3,791	3,957	3,988	4,034	4,036	3,778	3,820
25	Beaver Creek		513	515	526	569	539	502	511	512	567	594
26	Destruction Bay		521	483	498	523	542	510	520	520	505	510
27	Old Crow		523	541	514	584	618	578	587	587	562	569
28	Pelly Crossing		644	-	-	-	-	-	-	-	514	3
29	Swift River		92	88	74	81	84	94	96	96	93	109
30	Standby Units		67	87	25	133	17	20	20	20	13	13
31		S.4.1 L.3	6,086	5,409	5,311	5,681	5,757	5,692	5,767	5,770	6,032	5,618

Section: Appendix A
Lower and Higher Heating Values of Gas, Liquid and Solid Fuels

Fuels	Lower Heating Value (LHV) [1]			Higher Heating Value (HHV) [1]			Density
Gaseous Fuels @ 32 F and 1 atm	Btu/ft3 [2]	Btu/lb [3]	MJ/kg [4]	Btu/ft3 [2]	Btu/lb [3]	MJ/kg [4]	grams/ft3
Natural gas	983	20,267	47.141	1089	22,453	52.225	22.0
Hydrogen	290	51,682	120.21	343	61,127	142.18	2.55
Still gas (in refineries)	1458	20,163	46.898	1,584	21,905	50.951	32.8
Liquid Fuels	Btu/gal [2]	Btu/lb [3]	MJ/kg [4]	Btu/gal [2]	Btu/lb [3]	MJ/kg [4]	grams/gal
Crude oil	129,670	18,352	42.686	138,350	19,580	45.543	3,205
Conventional gasoline	116,090	18,679	43.448	124,340	20,007	46.536	2,819
Reformulated or low-sulfur gasoline	113,602	18,211	42.358	121,848	19,533	45.433	2,830
CA reformulated gasoline	113,927	18,272	42.500	122,174	19,595	45.577	2,828
U.S. conventional diesel	128,450	18,397	42.791	137,380	19,676	45.766	3,167
Low-sulfur diesel	129,488	18,320	42.612	138,490	19,594	45.575	3,206
Petroleum naphtha	116,920	19,320	44.938	125,080	20,669	48.075	2,745
NG-based FT naphtha	111,520	19,081	44.383	119,740	20,488	47.654	2,651
Residual oil	140,353	16,968	39.466	150,110	18,147	42.210	3,752
Methanol	57,250	8,639	20.094	65,200	9,838	22.884	3,006
Ethanol	76,330	11,587	26.952	84,530	12,832	29.847	2,988
Butanol	99,837	14,775	34.366	108,458	16,051	37.334	3,065
Acetone	83,127	12,721	29.589	89,511	13,698	31.862	2,964
E-Diesel Additives	116,090	18,679	43.448	124,340	20,007	46.536	2,819
Liquefied petroleum gas (LPG)	84,950	20,038	46.607	91,410	21,561	50.152	1,923
Liquefied natural gas (LNG)	74,720	20,908	48.632	84,820	23,734	55.206	1,621
Dimethyl ether (DME)	68,930	12,417	28.882	75,610	13,620	31.681	2,518
Dimethoxy methane (DMM)	72,200	10,061	23.402	79,197	11,036	25.670	3,255
Methyl ester (biodiesel, BD)	119,550	16,134	37.528	127,960	17,269	40.168	3,361
Fischer-Tropsch diesel (FTD)	123,670	18,593	43.247	130,030	19,549	45.471	3,017
Renewable Diesel I (SuperCetane)	117,059	18,729	43.563	125,294	20,047	46.628	2,835
Renewable Diesel II (UOP-HDO)	122,887	18,908	43.979	130,817	20,128	46.817	2,948
Renewable Gasoline	115,983	18,590	43.239	124,230	19,911	46.314	2,830
Liquid Hydrogen	30,500	51,621	120.07	36,020	60,964	141.80	268
Methyl tertiary butyl ether (MTBE)	93,540	15,094	35.108	101,130	16,319	37.957	2,811
Ethyl tertiary butyl ether (ETBE)	96,720	15,613	36.315	104,530	16,873	39.247	2,810
Tertiary amyl methyl ether (TAME)	100,480	15,646	36.392	108,570	16,906	39.322	2,913
Butane	94,970	19,466	45.277	103,220	21,157	49.210	2,213
Isobutane	90,060	19,287	44.862	98,560	21,108	49.096	2,118
Isobutylene	95,720	19,271	44.824	103,010	20,739	48.238	2,253
Propane	84,250	19,904	46.296	91,420	21,597	50.235	1,920
Solid Fuels	Btu/ton [2]	Btu/lb [5]	MJ/kg [4]	Btu/ton [2]	Btu/lb [5]	MJ/kg [4]	
Coal (wet basis) [6]	19,546,300	9,773	22.732	20,608,570	10,304	23.968	
Bituminous coal (wet basis) [7]	22,460,600	11,230	26.122	23,445,900	11,723	27.267	
Coking coal (wet basis)	24,600,497	12,300	28.610	25,679,670	12,840	29.865	
Farmed trees (dry basis)	16,811,000	8,406	19.551	17,703,170	8,852	20.589	
Herbaceous biomass (dry basis)	14,797,555	7,399	17.209	15,582,870	7,791	18.123	
Corn stover (dry basis)	14,075,990	7,038	16.370	14,974,460	7,487	17.415	
Forest residue (dry basis)	13,243,490	6,622	15.402	14,164,160	7,082	16.473	
Sugar cane bagasse	12,947,318	6,474	15.058	14,062,678	7,031	16.355	
Petroleum coke	25,370,000	12,685	29.505	26,920,000	13,460	31.308	

Source:

REET, The Greenhouse Gases, Regulated Emissions, and Energy Use In Transportation Model, REET 1.8d.1, developed by Argonne National Laboratory, Argonne, IL, released August 26, 2010.
<http://reet.es.anl.gov/>

Notes:

[1] The **lower heating value** (also known as net calorific value) of a fuel is defined as the amount of heat released by combusting a specified quantity (initially at 25°C) and returning the temperature of the combustion products to 150°C, which assumes the latent heat of vaporization of water in the reaction products is not recovered. The LHV are the useful calorific values in boiler combustion plants and are frequently used in Europe.

The **higher heating value** (also known as gross calorific value or gross energy) of a fuel is defined as the amount of heat released by a specified quantity (initially at 25°C) once it is combusted and the products have returned to a temperature of 25°C, which takes into account the latent heat of vaporization of water in the combustion products. The HHV are derived only under laboratory conditions, and are frequently used in the US for solid fuels.

[2] Btu = British thermal unit.

[3] The heating values for gaseous fuels in units of Btu/lb are calculated based on the heating values in units of Btu/ft3 and the corresponding

[4] The heating values in units of MJ/kg, are converted from the heating values in units of Btu/lb.

[5] For solid fuels, the heating values in units of Btu/lb are converted from the heating values in units of Btu/ton.

[6] Coal characteristics assumed by REET for electric power production.

[7] Coal characteristics assumed by REET for hydrogen and Fischer-Tropsch diesel production.



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Diesel Fuel

ENXSA specialises in marketing, brokering, and trading diesel that is compliant to new standardisations of Europe and North America.

Diesel fuel in general is any fuel used in diesel engines. The most common is a specific fractional distillate of petroleum fuel oil. Ultra-low sulfur diesel (ULSD) is a term used to describe a standard for defining diesel fuel with substantially lowered sulfur contents. As of 2007, almost every diesel fuel available in America and Europe is the ULSD type.

Petroleum diesel, also called petrodiesel or fossil diesel is produced from petroleum and is a hydrocarbon mixture, obtained in the fractional distillation of crude oil between 200 °C and 350 °C at atmospheric pressure. The density of petroleum diesel is about **0.85 kg/l** (7.09 lbs/gallon) whereas petrol (gasoline) has a density of about 0.72 kg/l (6.01 lbs/gallon), about 15% less. When burnt, diesel typically releases about 38.6 MJ/l (138,700 BTU per US gallon), whereas gasoline releases 34.9 MJ/l (125,000 BTU per US gallon), 10% less by energy density, but 45.41 MJ/kg and 48.47 MJ/kg, 6.7% more by specific energy. Diesel is generally simpler to refine from petroleum than gasoline. The price of diesel traditionally rises during colder months as demand for heating oil rises, which is refined in much the same way. In many parts of the U.S. and throughout the UK and Australia diesel may be higher priced than petrol. Reasons, diversion of mass refining capacity to gasoline production, and a recent transfer to ultra-low sulfur diesel (ULSD), which causes infrastructural complications.

Unlike Petroleum ether and Liquefied petroleum gas engines, diesel engines do not use high voltage spark ignition (sparkplugs). An engine running on diesel compresses the air inside the cylinder to high pressures and temperatures (compression ratios from 15:1 to 25:1 are common); the diesel is generally injected directly into the cylinder near the end of the compression stroke. The high temperatures inside the cylinder causes the diesel fuel to react with the oxygen in the mix (burn or oxidize), heating and expanding the burning mixture in order to convert the thermal/pressure difference into mechanical work; i.e., to move the piston. (Glow plugs are used to assist starting the engine to forewarm cylinders to reach a minimum operating temperature.) The high compression ratios and throttleless operation of the diesels generally result in diesel engines being more efficient than many spark-ignited engines. This and being less flammable/explosive than gasoline are the main reasons for military use of diesel in armoured fighting vehicles like tanks and trucks. Engines running on diesel also provide more torque and are less likely to stall; as they run at a lower RPM, they will rather stutter a lot before stalling. An important disadvantage of diesel as a vehicle fuel, compared to gasoline or other petroleum derived fuels, is that its viscosity increases quickly as the fuel's temperature decreases, turning into a non-flowing gel at temperatures as high as -19 °C (-2.2 °F) or -15 °C (+5 °F), which can't be pumped by regular fuel pumps. Special low temperature diesel contains additives that keep it in a more liquid state at lower temperatures, yet starting a diesel engine in very cold weather still poses considerable difficulties.

In the past, diesel fuel contained higher quantities of sulphur. European emission standards and preferential taxation have forced oil refineries to dramatically reduce the level of sulfur in diesel fuels. In the United States, more stringent emission standards have been adopted with the transition to ULSD starting in 2006 and becoming mandatory on June 1, 2010. U.S. diesel fuel typically also has a lower cetane number (a measure of ignition quality) than European diesel, resulting in worse cold weather performance and some increase in emissions.

Diesel grades available:

- ▢ Low Sulphur Diesel (LSD)
- ▢ Ultra Low Sulphur Diesel (ULSD)

Compositions

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9 Measurement

- 9.1 **Unit of Measurement** - The unit of measurement of LNG for all purposes hereunder will be kilograms.
- 9.2 **Determination of Volume** - The quantity of LNG dispensed pursuant to this Rate Schedule shall be measured at the scale at the Tilbury plant that is approved and certified by Measurement Canada. The Customer vehicle will be weighed at said scale before and after LNG Dispensing. The measurement of the amount of LNG delivered shall be based on the difference, expressed in kilograms, of these two weights.
- 9.3 **Conversion to Energy Units** - In accordance with the Electricity and Gas Inspection Act of Canada, volumes of LNG dispensed each Day will be converted to energy units by multiplying the standard volume by the Heat Content of each unit of LNG. Volumes will be specified in kilograms rounded to the nearest unit and energy will be specified in Gigajoules rounded to one decimal place. FortisBC Energy will use the following formula to convert kilograms of LNG to GJ LNG:

Converting Kilograms of LNG to Gigajoules

	Tractor/Trailer Gross Weight after LNG Dispensing (kilograms)
minus	Tractor/Trailer Gross Weight prior to Dispensing (kilograms)
equals	Net Weight of the Delivered LNG (kilograms)
	Net Weight of the Delivered LNG (kilograms)
multiplied by	0.055058 gigajoule/kilogram
equals	Delivered LNG (Gigajoule)

Part 2 Details of Fuels

LNG in heavy-duty trucks and buses. Because Japan imports large quantities of LNG by sea, the cheapest fuel for a vehicle would be the imported LNG without any treatment. Japan therefore hopes to convert its diesel trucks and buses to LNG. The Australian situation is substantially different. Most NG is piped in gaseous form, not shipped. Centralised LNG facilities exist near Perth, Melbourne and Alice Springs. They are all relatively small scale. According to the Australasian Natural Gas Vehicle Council, recent developments also mean that smaller scale on-site liquefaction plants are likely to become more viable in Australia in the near future.

9.1.3 Fuel characteristics

NG has very different fuel characteristics from the fuels normally used in internal combustion engines. Louis (2001) cites a lower heating value of 52.9 MJ/kg. According to Perry's Chemical Engineering Handbook (5th edition, 1973: p. 9–13) the higher heating value of LNG, at -164°C is 23.9 MJ/L (when converted from imperial units). This corresponds to a lower heating value of 21.7 MJ/L, which is below that of automotive diesel (38.6 MJ/L). These two results indicate that LNG has a density of 0.41 kg/L. For comparison, as a gas its density, at 0.70 g/L, is lower than that of air.

9.1.4 Implications for engine conversions

According to a submission from Wesfarmers LNG:

“LNG as a heavy duty vehicle fuel is a recent development; improvements in vehicle tanks, storage vessels and dispensers have all contributed to its adoption by heavy vehicle fleets, and bus and locomotive operators. OEM manufacturers such as Cummins, Caterpillar and Detroit have greatly assisted by providing the heavy duty vehicle engines for NG. LNG gives these operators' vehicle range and refuelling times comparable to diesel without any power to weight disadvantages. Vacuum-insulated vehicle tanks are designed to replace the diesel units without any vehicle modifications. So, off-road down-time for truck/bus conversion is minimal.

It is estimated that there are 2,300 plus LNG vehicle globally, all currently in the northern hemisphere. An indication of the growth of this fuel is that a third vehicle tank manufacture is setting up to produce 1000 tanks per annum.

LNG will shortly be available from Wesfarmers Plant, North West Shelf Gas are to construct a domestic terminal supplying gas retailers from their existing facility and the possibility exists of LNG being available from the Victorian plant.

The first dedicated LNG truck is in Australia and will be shown to the industry at the Asia Pacific Natural Gas Vehicle Summit in Brisbane in April 2001.”

9.2 Full Fuel-Cycle

9.2.1 Tailpipe

Collison et al. (1997) review the Maryland Mass Transit (MTA) pilot study of LNG buses using Cummins L10-240G NG engines. In this case the use of LNG, rather than CNG, arose because the heavy tanks needed to withstand CNG pressures meant that the extra weight (1,300 kg) put the buses close to their gross vehicle rating with just a modest passenger load. Using LNG resulted in a practical operating range. The MTA diesel buses averaged about 1.02 km/L and the



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Section 5 – Operations and Maintenance Expenses

Overview

Total operations and maintenance expenses included in this Application, as outlined and explained in detail in Schedules 5.1, 5.2 and 5.3, are as follows:

	2010 Actual	2011 Actual	2012 Actual	Test Period		
				2013	2014	2015
	(\$000)					
Production	1,593	1,849	1,978	2,169	2,477	2,550
Distribution	2,662	2,659	3,281	3,141	3,215	3,376
General	150	141	178	159	162	165
Public Information	104	111	137	151	155	159
Customer Accounting	2,006	1,922	2,016	2,248	2,318	2,316
Administration and General	3,110	3,117	3,468	3,866	3,992	3,940
Total Operations and Maintenance	9,625	9,799	11,059	11,735	12,319	12,507

Forecast Process

Yukon Electrical's forecast process involves a review of business requirements for the provision of safe and reliable electricity service for the test period and the consideration of the best information available at the time the forecast is developed. A separate forecast is developed for labour and non-labour costs.

The table below shows Yukon Electrical's actual operations and maintenance expenses for 2008 and 2009 as compared to the amounts filed for in the 2008-2009 GRA and those approved by the Board in Board Order 2009-2.



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	2008			2009		
	Actual	Filed	Approved (\$000)	Actual	Filed	Approved
Production	1,596	1,594	1,596	1,647	1,600	1,583
Distribution	2,336	2,453	2,394	2,584	2,606	2,440
General	148	164	163	142	173	171
Public Information	105	128	128	122	135	133
Customer Accounting	1,857	1,791	1,756	2,054	2,067	1,966
Administration and General	2,551	2,628	2,607	2,925	2,736	2,534
Total Operations and Maintenance	8,593	8,758	8,644	9,474	9,317	8,826

Yukon Electrical's variances between actual operations and maintenance expenses and the amounts as filed were -1.9% for 2008 and 1.7% for 2009, with a total variance over the two-year test period of 0.0%. The variances between actual operations and maintenance expenses and the Board-approved amounts were -0.6% for 2008 and 7.3% for 2009, with a total variance over the two-year test period of 3.4%.

Labour Costs

The total labour costs are calculated by multiplying the number of staff per job class by the rate of pay for each job class. These labour costs are then distributed to operations and maintenance accounts or capital accounts depending on the nature of work being performed by the staff in that job class.

Please refer to Section 1 for descriptions of staff positions changed since 2009 as well as Yukon Electrical's organizational chart.



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Defined Benefit and Defined Contribution Pension Plans Cash Contributions and Defined Benefit Deferral Account

As a result of the required defined benefit pension plan actuarial valuations of assets and liabilities, pension funding requirements have changed as follows:

Pension Funding Requirements
(funding period ending December 31)
(\$000)

Year	Defined Benefit (annual lump sum)	DB Special Payments (annual lump sum)	Defined Benefit Total
2010	\$517	\$297	\$814
2011	\$517	\$297	\$814
2012	\$630	\$638	\$1,268

Consistent with Yukon Electrical's 2008-2009 GRA, forecast pension expense is based on the cash basis for the test period.

For purposes of this Application, the 2013 test period assumes the same defined benefit contribution rates as 2012. Since the next defined benefit pension actuarial evaluation will be completed as of December 31, 2012 to determine 2013 required funding, any required change to the 2013 defined benefit pension funding requirements will impact the defined benefit pension expense related to Yukon Electrical's eligible northern-based staff. Beginning in 2013, Yukon Electrical is requesting a deferral account to flow through increases or decreases to required cash contributions to the company's defined benefit pension plan as a result of the required annual actuarial evaluations.

Yukon Electrical also has a defined contribution pension plan that applies to employees that were hired after January 1, 1997. The company's contribution to the defined contribution plan is 6%.



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1 Non-Labour Costs

2 Non-labour costs are forecast in two parts: (i) ongoing operational and administrative
3 activities, and (ii) new programs or projects.

4 Ongoing operational and administrative activities are based on historic spending
5 requirements which are then adjusted for known changes in work to be completed in the
6 forecast period. These costs are shown and explained in detail in Schedule 5.2.

7 Affiliate Costs

8 As noted above as well as in Yukon Electrical's organizational chart, Yukon Electrical
9 outsources certain major administrative functions to affiliate companies, such as
10 ATCO Electric, to take advantage of the economies associated with the scope and
11 scale of services available from a larger utility. The cost of these services is detailed in
12 Schedule 5.3 and is based on a fully allocated cost methodology that does not contain
13 any element of profit or return.

14 Labour support is purchased from ATCO Electric for various services including financial
15 reporting and ongoing regulatory support, governance, human resources, health and
16 safety, payroll, and IT services such as use of systems. Since Yukon Electrical's 2008-
17 2009 GRA, the labour support purchased from ATCO Electric has increased from
18 1.67 FTEs to 4.17 FTEs. Two new positions, the Manager, Financial Reporting and
19 Accounting, North of 60 (0.5 FTE) and a Corporate Accountant (1.0 FTE), were added
20 in 2012. Please refer to Section 1 of this Application for the explanation of the need for
21 these new positions. Also, the Supervisor of Financial Services position (1.0 FTE),
22 which was historically based in Whitehorse, became vacant in late 2011. As a
23 sufficiently experienced and qualified candidate could not be recruited to be based in
24 Whitehorse, the position is currently being filled by an ATCO Electric employee. This
25 position is not an addition to Yukon Electrical's total employee complement but a



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1 reallocation between the Yukon-based FTEs and the ATCO Electric- based head office
2 personnel.

3 In addition, Yukon Electrical purchases information technology and billing system
4 services from ATCO I-Tek and ATCO I-Tek Business Services respectively. Beginning
5 in the fall of 2013, Yukon Electrical will be leasing liquid natural gas (LNG) storage and
6 vapourization equipment from an affiliate company, ATCO Gas, related to the Watson
7 Lake Bi-Fuel Project. Please refer to Business Case #6 for further details on this
8 project.

9 As discussed in Section 1, a joint Phase II Application with Yukon Energy is expected to
10 be filed in 2014. Yukon Electrical has included the forecast costs for the work that will
11 be required from the ATCO Electric regulatory department to complete the Phase II
12 Application in Schedule 5.3. As explained on Page 1-4 of this Application, the forecast
13 is based on the costs incurred as part of the 2010 Joint Phase II GRA.

14 **Discontinuance of Third Party Distribution Line (Property Insurance)**

15 Yukon Electrical has historically purchased property insurance for Distribution Lines with
16 a \$1.5 million limit and a \$1 million deductible. The cost of this insurance is
17 approximately \$127,000 per year, based on the premium paid for the 2012/2013 period.
18 Going back to the year 2008, Yukon Electrical has researched its claims history and has
19 confirmed there have been no claims on this insurance or any charges to the Reserve
20 for Injuries and Damages for amounts below the deductible.

21 Based on the above noted loss experience and the annual cost of the insurance, Yukon
22 Electrical is proposing to discontinue purchased third party distribution line (property)
23 insurance at the end of the 2013/2014 insurance period, July 1, 2014. On a go forward
24 basis, insurable losses during construction or operations, if and when they occur, would
25 be charged to the Reserve for Injuries and Damages.

The Yukon Electrical Company Limited
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Operations and Maintenance Expenses
(\$000s)

Schedule 5.1

Line No.	Description	Cross Ref.	Actual 2010	Actual 2011	Actual 2012	Test Period		
						2013	2014	2015
1	Production							
2	62600 - Hydro Generation	S.5.2 L.3	111	108	154	320	419	454
3	64000 - Supervision and Engineering Diesel		62	63	69	65	67	69
4	64600 - Diesel Generation	S.5.2 L.21	487	601	457	519	704	715
5	82600 - Hydro Maintenance	S.5.2 L.35	19	63	105	48	49	51
6	84600 - Diesel Maintenance	S.5.2 L.46	913	1,013	1,193	1,216	1,238	1,261
7			1,593	1,849	1,978	2,169	2,477	2,550
8	Distribution							
9	87000 - Supervision	S.5.2 L.55	234	242	263	297	305	314
10	87100 - Brushing	S.5.2 L.66	355	283	543	403	411	420
11	87200 - Vehicle Depreciation		(152)	(162)	(170)	(184)	(187)	(191)
12	87300 - Maintenance	S.5.2 L.75	1,769	1,808	1,938	1,989	2,034	2,132
13	87310 - Service to Outside Parties		64	90	101	103	105	107
14	87400 - Underground Line Maintenance	S.5.2 L.88	95	91	205	173	177	203
15	87500 - Meter and Meter Testing		94	101	108	89	91	94
16	87700 - Transformer Repair and Replacement	S.5.2 L.100	36	47	112	78	81	87
17	87800 - Street Light Maintenance	S.5.2 L.106	167	160	181	193	197	210
18			2,662	2,659	3,281	3,141	3,215	3,376
19	General							
20	88400 - Communication		10	10	15	13	13	13
21	88800 - Maintenance Company-Owned Houses		18	16	16	17	17	18
22	88900 - Maintenance Warehouse and Office		122	115	147	129	132	135
23			150	141	178	159	162	165
24	Public Information							
25	70100 - Public Information Administration		45	35	28	27	28	28
26	70200 - General Public Information	S.5.2 L.120	58	76	109	124	127	130
27			104	111	137	151	155	159
28	Customer Accounting							
29	71000 - Supervision		41	34	52	54	55	56
30	71100 - Customer Applications and Service Orders	S.5.2 L.126	410	410	444	478	510	543
31	71200 - Meter Reading	S.5.2 L.141	532	462	484	563	576	504
32	71300 - Customer Billing and Accounting	S.5.2 L.158	696	703	695	749	765	789
33	71400 - Revenue Collections	S.5.2 L.164	165	168	182	228	233	239
34	71500 - Collection of Delinquent Accounts	S.5.2 L.173	119	110	123	140	143	147
35	71800 - Provision for Uncollectible Accounts		43	36	36	36	36	36
36			2,006	1,922	2,016	2,248	2,318	2,316
37	Administration and General							
38	72100 - Administrative	S.5.2 L.182	1,645	1,792	2,028	2,306	2,448	2,445
39	72200 - Administrative Corporate	S.5.2 L.198	184	71	196	135	137	140
40	72300 - Insurance	S.5.2 L.210	215	244	245	262	202	138
41	72400 - Injuries & Damages	S.8.4 L. 27	86	86	86	124	124	125
42	72500 - Employee Expenses	S.5.2 L.222	253	254	248	278	283	290
43	72600 - Training and Safety	S.5.2 L.228	404	387	456	469	479	494
44	72700 - Relocation	S.5.2 L.233	213	207	66	160	163	170
45	72800 - Miscellaneous General		-	-	0	0	0	0
46	72900 - Audit/Legal Fees & Special Studies	S.5.2 L.241	110	76	143	133	156	138
47			3,110	3,117	3,468	3,866	3,992	3,940
48								
49	Total Operations and Maintenance Expenses	S.1.1 L.9	9,625	9,799	11,059	11,735	12,319	12,507

**The Yukon Electrical Company Limited
2013 - 2015 General Rate Application
Operations and Maintenance Expenses
(\$000s)**

**Schedule 5.2
Page 1 of 5**

Line No.	Description	Actual 2010	Actual 2011	Actual 2012	Test Period 2013	Test Period 2014	Test Period 2015
1	Production						
2							
3	<u>62600 - Hydro Generation</u>	111	108	154	320	419	454
4							
5	Costs increase in 2012 due to environmental costs related to the						
6	Fish Lake water licence process.						
7							
8	Costs increase in 2013 due to labour and fringe for increases for inspection						
9	and maintenance (\$60), as well as various Fish Lake other costs						
10	as a result of the water licence (\$106).						
11							
12	Costs increase in 2014 mainly due to the addition of an environmental						
13	technician position (\$92) and related fringe costs (\$27) offset by lower						
14	other costs for Fish Lake monitoring (\$20).						
15							
16	Costs increase in 2015 due to increased labour and fringe from an additional						
17	Power Line Technician Apprentice added to the compliment (\$14), higher						
18	costs for Fish Lake licence requirements (\$13) and Inflation (\$8).						
19							
20							
21	<u>64600 - Diesel Generation</u>	487	601	457	519	704	715
22							
23	Costs increase in 2011 mainly due to costs related to maintain						
24	connectivity to the Hydro Grid while Yukon Energy performed capital						
25	maintenance on the system i.e. 'Aishihik Bypass' project (\$114).						
26							
27	Costs increase in 2013 mainly due to lease costs for Liquid Natural						
28	Gas facilities at Watson Lake (\$88) and inflation (\$12) offset by						
29	reduced labour and other costs.						
30							
31	Costs increase in 2014 mainly due to additional lease costs for a full						
32	year lease of Liquid Natural Gas facilities at Watson Lake (\$176).						
33							
34							
35	<u>82600 - Hydro Maintenance</u>	19	63	105	48	49	51
36							
37	Costs increase in 2011 mainly due to increased maintenance						
38	for unit 2 governor and bearings (\$24) as well as increased						
39	labour and fringe (\$18).						
40							
41	Costs increase in 2012 mainly due to increased maintenance						
42	for unit 2 related to the generator and flywheel (\$57) offset by						
43	lower labour and fringe (\$15).						
44							
45							
46	<u>84600 - Diesel Maintenance</u>	913	1,013	1,193	1,216	1,238	1,261
47							
48	Costs increase in 2011 mainly due to overall higher contractor costs						
49	for maintenance for various overhauls and repairs.						
50							
51	Costs increase in 2012 mainly due to overall higher contractor costs						
52	for maintenance for various overhauls and repairs.						

The Yukon Electrical Company Limited
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Operations and Maintenance Expenses
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Line No.	Description	Actual 2010	Actual 2011	Actual 2012	Test Period 2013	Test Period 2014	Test Period 2015
53	Distribution						
54							
55	<u>87000 - Supervision</u>	234	242	263	297	305	314
56							
57	Costs increase in 2012 due to higher costs for fringe benefits						
58	due to pension funding (\$15) and higher after-hours call						
59	management services (\$7).						
60							
61	Costs increase in 2013 due to higher costs for after-hours						
62	call management services due to higher usage (\$29)						
63	and inflation (\$5).						
64							
65							
66	<u>87100 - Brushing</u>	355	283	543	403	411	420
67							
68	Costs decrease in 2011 due to brushing activities deferred to 2012 as a						
69	result of weather and contractor availability.						
70							
71	Costs increase in 2012 due to lag from 2011 as a result of weather and						
72	contractor availability.						
73							
74							
75	<u>87300 - Maintenance</u>	1,769	1,808	1,938	1,989	2,034	2,132
76							
77	Costs increase in 2012 due to higher costs for various services,						
78	material and equipment (\$70), and higher fringe costs						
79	due to pension funding (\$60).						
80							
81	Costs increase in 2013 and 2014 mainly due to inflation.						
82							
83	Costs increase in 2015 mainly due to inflation (\$51) and						
84	higher labour cost due to the addition of a Power Line						
85	Technician Apprentice to the compliment (\$47).						
86							
87							
88	<u>87400 - Underground Line Maintenance</u>	95	91	205	173	177	203
89							
90	Costs increase in 2012 due to increased overall activity (\$89)						
91	and costs for Arctic Winter Games (AWG) support (\$25).						
92							
93	Costs decrease in 2013 due to reduction in costs for AWG (\$25) and						
94	lower other costs (\$7).						
95							
96	Costs increase in 2015 mainly due to the addition of a Power Line						
97	Technician Apprentice to the compliment (\$20) and inflation.						
98							
99							
100	<u>87700 - Transformer Repair and Replacement</u>	36	47	112	78	81	87
101							
102	Costs increase in 2012 mainly due to a major repair						
103	required for the shipyards park transformer (\$67).						

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Line No.	Description	Actual 2010	Actual 2011	Actual 2012	Test Period 2013	Test Period 2014	Test Period 2015
104	Distribution (continued)						
105							
106	<u>87800 - Street Light Maintenance</u>	167	160	181	193	197	210
107							
108	Costs increase in 2012 due to increased overall activity						
109	for streetlight repairs.						
110							
111	Costs increase in 2013 due to inflation and increased						
112	streetlight repair activity.						
113							
114	Costs increase in 2015 due to inflation and FTEs for						
115	higher streetlight repair activity.						
116							
117							
118	Public Information						
119							
120	<u>70200 - General Public Information</u>	58	76	109	124	127	130
121							
122	Costs increase from 2011 to 2013 due to a 0.6 FTE addition in mid-2011						
123	for the addition of a Senior Corporate Communications Advisor.						
124							
125							
126	<u>71100 - Customer Applications and Service Orders</u>	410	410	444	478	510	543
127							
128	Costs increase in 2012 mainly due to higher fringe costs						
129	due to pension funding.						
130							
131	Costs increase in 2013 due to additional labour from a Power Line						
132	Technician Apprentice and a Customer Service Advisor, as well as inflation.						
133							
134	Costs increase in 2014 due to addition of a Customer						
135	Service Representative.						
136							
137	Costs increase in 2015 due to addition of a Power Line						
138	Technician Apprentice.						

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(\$000s)

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Line No.	Description	Actual 2010	Actual 2011	Actual 2012	Test Period 2013	Test Period 2014	Test Period 2015
139	Customer Accounting						
140							
141	<u>71200 - Meter Reading</u>	532	462	484	563	576	504
142							
143	Costs decrease in 2011 mainly due to lower vehicle usage						
144	allocation (\$40) and lower labour allocation (\$30) due to the						
145	use of temporary meter readers and more estimates.						
146							
147	Costs increase 2012 mainly due to additional, temporary meter reader position						
148	added to assist with meter reading.						
149							
150	Costs increase in 2013 mainly due to higher labour for meter reading as a result of						
151	the reclassification of a temporary meter reader position to full-time. This resulted in						
152	higher benefits and lower vacancy.						
153							
154	Costs decrease in 2015 mainly due to a reduction for meter reading labour costs						
155	due to conversion to Automated Meter Reading.						
156							
157							
158	<u>71300 - Customer Billing & Accounting</u>	696	703	695	749	765	789
159							
160	Costs increase in 2013 mainly due to an additional Customer Service Advisor (\$21),						
161	inflation (\$17), and increased costs for billing system service requests (\$15).						
162							
163							
164	<u>71400 - Revenue Collections</u>	165	168	182	228	233	239
165							
166	Costs increase in 2012 mainly due to higher fringe costs						
167	for pension funding.						
168							
169	Costs increase in 2013 due to an additional Customer						
170	Service Advisor.						
171							
172							
173	<u>71500 - Collection of Delinquent Accounts</u>	119	110	123	140	143	147
174							
175	Costs increase in 2012 mainly due to higher fringe costs						
176	for pension funding.						
177							
178	Costs increase in 2013 due to an additional Customer						
179	Service Advisor.						
180							
181							
182	<u>72100 - Administrative</u>	1,645	1,792	2,028	2,306	2,448	2,445
183							
184	Costs increase from 2010 to 2011 mainly due to the addition of a Financial						
185	Analyst (\$78), higher ITEK-IT Costs (\$38), and higher Head Office costs (\$31)						
186							
187	Costs increase in 2012 mainly due to addition of a Corporate Accountant and						
188	Manager position to support the accounting, finance and regulatory functions.						
189							
190	Costs increase in 2013 mainly due to the full year impact of additional positions						
191	added in 2012 (\$135), inflation (\$71), increased costs for HR (\$35), as well as						
192	rates and terms & conditions support (\$25).						
193							
194	Costs increase in 2014 mainly due to the one-time costs for Phase II process (\$76)						
195	and inflation. Costs decrease in 2015 due to no Phase II costs offset by inflation.						

**The Yukon Electrical Company Limited
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Operations and Maintenance Expenses
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Line No.	Description	Actual 2010	Actual 2011	Actual 2012	Test Period 2013	Test Period 2014	Test Period 2015
196	Administration and General						
197							
198	<u>72200 - Administration Corporate</u>	184	71	196	135	137	140
199							
200	Costs decrease in 2011 mainly due to a reduction in Regulatory costs						
201	from the Prior year Phase II proceeding (\$113K).						
202							
203	Costs increase in 2012 mainly due to Regulatory intervention costs						
204	for YEC Phase I (\$103) and higher bank fees from higher						
205	volume of customer credit card payments (\$22).						
206							
207	Costs decrease in 2013 due to lower regulatory costs.						
208							
209							
210	<u>72300 - Insurance</u>	215	244	245	262	202	138
211							
212	Insurance costs increase in 2011 due to absence of						
213	experience credits and increase costs for the policy.						
214							
215	Costs decrease in 2014 mainly due to the removal of Transmission						
216	and Distribution line insurance coverage starting July 1, 2014.						
217							
218	Costs decrease in 2015 mainly due to the full year effect of the						
219	reduction in line insurance removed July 1, 2014.						
220							
221							
222	<u>72500 - Employee Expenses</u>	253	254	248	278	283	290
223							
224	Costs increase in 2013 due to a change in policy for						
225	employee benefits for payment of the Northern Travel Allowance.						
226							
227							
228	<u>72600 - Training and Safety</u>	404	387	456	469	479	494
229							
230	Costs increase in 2012 due to required safety programs for staff.						
231							
232							
233	<u>72700 - Relocation</u>	213	207	66	160	163	170
234							
235	Costs decrease in 2012 due to lower relocations.						
236							
237	Costs increase in 2013 to reflect an average expected						
238	relocation expense for the year.						
239							
240							
241	<u>72900 - Audit/Legal Fees & Special Studies</u>	110	76	143	133	156	138
242							
243	Costs decrease in 2011 due to lower audit fees (\$22).						
244	and lower employee association costs for collective bargaining (\$8).						
245							
246	Costs increase in 2012 due to higher audit fees (\$48) and higher						
247	employee association and other costs for bargaining (\$19).						
248							
249	Costs decrease in 2013 due to lower employee association costs.						
250							
251	Costs increase in 2014 mainly due to higher costs for Collective Bargaining.						

The Yukon Electrical Company Limited
2013 - 2015 General Rate Application
Affiliate Charges included in Operations and Maintenance Expenses
(\$000s)

Schedule 5.3

Line No.	O&M Category	Affiliate Company	Services Provided	Cross Ref.	Actual 2008	Actual 2009	Actual 2010	Actual 2011	Actual 2012	Test Period			GRA Approved 2008	GRA Approved 2009
										2013	2014	2015		
1	Details of Affiliate Costs in Operations and Maintenance													
2	87500 - Meters and Meter Testing	ATCO Electric	Metering Services		31	31	39	46	48	49	50	52	33	34
3	87000 - Supervision	ATCO Electric	After Hours - Call Answering		27	27	31	29	34	62	64	66	26	26
4	71200 - Meter Reading	ATCO Gas	Meter Services		46	36	10	13	33	25	26	27	38	39
5	72100 - Administrative Expenses	ATCO Gas	Office Services		12	9	9	7	6	8	8	8	15	16
6	64600 - Diesel Generation	ATCO Gas	LNG Storage and Vapourization Skid		-	-	-	-	-	88	264	264	-	-
7	72100 - Administrative Expenses	ATCO I-Tek	Information Technology		358	392	391	429	458	462	478	494	325	320
8	71300 - Customer Billing and Accounting	ATCO I-Tek (ITBS)	Billing System Services		400	519	508	519	519	546	557	575	411	442
9														
10	Details of Head Office Costs													
11	72100 - Administrative Expenses	ATCO Electric	Governance, HR, and Health & Safety		131	153	147	159	91	137	141	146	110	114
12	72100 - Administrative Expenses	ATCO Electric	Regulatory Phase II		-	-	66	-	-	-	76	-	12	3
13	72100 - Administrative Expenses	ATCO Electric	Rates and Terms & Conditions		-	39	-	15	15	40	41	42	-	-
14	72100 - Administrative Expenses	ATCO Electric	Financial Reporting and Regulatory Support		31	38	46	115	448	614	636	658	87	73
15	72100 - Administrative Expenses	ATCO Electric	Payroll, Use of Systems and IT		14	17	18	19	44	46	47	48	16	19
16	Total Head Office Fees				175	247	277	309	598	837	942	894	225	209
17														
18	72100 - Administrative Expenses	ATCO Electric	Material Management		8	8	10	10	3	3	3	3	-	-
19														
20	Total Affiliate Costs included in Operations and Maintenance				1,057	1,268	1,276	1,361	1,699	2,079	2,391	2,383	1,073	1,086



The Yukon Electrical Company Limited
An **ATCO** Company

Section 6 – Taxes Other Than Income

Overview

The property taxes included in this Application are:

	2008 Actual	2009 Actual	2010 Actual	2011 Actual	2012 Actual	Test Period		
						2013	2014	2015
	(\$000)							
Property Taxes	<u>231</u>	<u>239</u>	<u>230</u>	<u>235</u>	<u>250</u>	<u>257</u>	<u>265</u>	<u>273</u>

Property Tax

Property taxes are paid to the communities annually for Yukon Electrical's office building, generation facilities, substation properties and power lines. The increases forecast during the test period are primarily due to planned capital work on the downtown office building in Whitehorse and the Fish Lake Unit #1 building, as well as inflation.

Section 7 – Depreciation

Summary

The depreciation expense included in this Application is outlined in Schedules 7.1, 7.2, 7.3, 7.4 and 7.5 and is:

	2008 Actual	2009 Actual	2010 Actual	2011 Actual	2012 Actual	Test Period		
						2013	2014	2015
	(\$000)							
Depreciation Expense	<u>3,181</u>	<u>3,446</u>	<u>3,683</u>	<u>4,129</u>	<u>4,192</u>	<u>6,570</u>	<u>7,509</u>	<u>8,569</u>

The depreciation rates used to calculate actual 2008 through 2012 depreciation expense were developed using the Board-approved depreciation parameters from Yukon Electrical's last General Rate Application. The depreciation rates used to calculate depreciation expense for the 2013 through 2015 forecasts are based upon the depreciation parameters recommended in a depreciation study conducted by Gannett Fleming, Inc. included as Section 7 Attachment 1 in this Application. For this depreciation study, Yukon Electrical has incorporated the usage of a life span analysis (similar to hydro generation) for each of its diesel generation locations. This will allow for more accurate depreciation rates for diesel generation facilities. The depreciation methods and results are presented in the study.

The impact of the depreciation study is a significant increase in forecast depreciation expense primarily due to the request for reinstatement of a provision for future removal and site restoration in depreciation rates. Additional evidence prepared by Larry Kennedy of Gannett Fleming, Inc. regarding the use of net salvage estimates in the calculation of depreciation is included in Section 7 Attachment 2 in this Application.

Forecast depreciation expense for 2013 through 2015 was developed including the impact of forecast capital additions on the composite account depreciation rates for the forecast test years 2013-2015. Yukon Electrical proposes to fix the annual amount of

amortization of accumulated depreciation differences at the level calculated in Gannett Fleming's Depreciation Study.

Deferral on Depreciation Parameters

Yukon Electrical is requesting approval for a deferral account to allow it the ability to file future applications, as necessary, to change its depreciation parameters within the 2013-2015 test period, and flow through the impact of any such change to customers within the test period. As noted and described above, Yukon Electrical has filed a full depreciation study in this Application; however, under IFRS, Yukon Electrical has a requirement to review its depreciation parameters annually and implement new depreciation rates if necessary. The effect of the change in depreciation parameters would be determined based upon the rate base forecast approved by the Board for the test period. Yukon Electrical has outlined below the process it would use to test depreciation parameters annually. As indicated, the need for the deferral account treatment is to account for new information or events, such as a technological change, that occurs in a year where Yukon Electrical has not undertaken a full depreciation study. The intention of Yukon Electrical's proposal in this regard is, to the extent possible, permit Yukon Electrical to harmonize IFRS and regulatory accounting and avoid the administrative burden of keeping two sets of financial records.

Yukon Electrical would use the following process to determine whether a change in certain depreciation parameters may be required:

1. Perform an analysis, by fixed asset account, of actual retirements versus predicted retirements to determine if a change in life (i.e. curve and average service life) parameters are warranted.
 - a. If a significant change has occurred, not only in the current year but over a few years (i.e. 2 to 3) that cannot be discounted as being a non-typical transaction and appears to be a valid retirement pressure that is

supported by the appropriate engineers and management, then a new depreciation parameter may be warranted.

b. A review of the above changes with the accounting and field staff to ensure that a change in accounting policy and/or field reporting policy has or has not occurred and the reasons are valid and appropriate for any change.

2. Perform an analysis of actual gross salvage and cost of retirement (i.e. net salvage) versus predicted gross salvage and costs of retirement to determine if a change in net salvage parameters are warranted.

a. If a significant change has occurred, not only in the current year but over a few years (i.e. 2 to 3) that cannot be discounted as being a non-typical transaction and appears to be a valid net salvage result that is supported by the appropriate engineers and management, then a new net salvage parameter may be warranted.

b. A review of the above changes with the accounting and field staff to identify whether a change in accounting and/or field reporting policy has or has not occurred and the reasons are valid and appropriate for any change.

3. A discussion with the appropriate engineers and management to determine if there are events occurring or expected to occur with a high probability that will cause Yukon Electrical to view that the Board's previously approved depreciation parameters are inadequate to properly recover the original cost and expected net salvage of its property, plant and equipment. These discussions would cover the use of new technology and changes in field practices and procedures which could impact the expected life of the assets or the cost of retirements.



The Yukon Electrical Company Limited
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- 1 Yukon Electrical is of the opinion that each change in depreciation parameters must be
- 2 assessed on an individual basis with regard to materiality and whether a change in the
- 3 depreciation rate might be required in order to ensure recovery of each fixed asset
- 4 account's original cost and future net salvage over the life of the assets recorded to the
- 5 fixed asset account.

**The Yukon Electrical Company Limited
2013 - 2015 General Rate Application
Schedule of Depreciation Expense**

Schedule 7.1

Line No.	Description	Cross Ref.	Actual 2008	Actual 2009	Actual 2010	Actual 2011	Actual 2012	Test Period			GRA Approved 2008	GRA Approved 2009
								2013	2014	2015		
1	General Provision	S. 7.2, 7.3, 7.4 L.51	3,585	3,892	4,108	4,559	4,641	6,574	7,520	8,585	3,760	4,067
2	Amortization of Differences	S.7.5 L. 51	(382)	(382)	(382)	(382)	(382)	71	71	71	(382)	(382)
3	Vehicle Depreciation Capitalized	S.8.6 L. 21	<u>(22)</u>	<u>(64)</u>	<u>(43)</u>	<u>(48)</u>	<u>(67)</u>	<u>(75)</u>	<u>(82)</u>	<u>(87)</u>	<u>(24)</u>	<u>(24)</u>
4	Total Depreciation Expense	S.1.1 L.12	<u>3,181</u>	<u>3,446</u>	<u>3,683</u>	<u>4,129</u>	<u>4,192</u>	<u>6,570</u>	<u>7,509</u>	<u>8,569</u>	<u>3,354</u>	<u>3,661</u>

The Yukon Electrical Company Limited
2013 - 2015 General Rate Application
Calculation of Depreciation Expense 2013
(\$000s)

Schedule 7.2

Line No.	Acct.	Description	Cross Ref.	2013 Opening PPE	Depreciation Rate	Depreciation on Opening Balance	Net Capital Additions	Depreciation on Capital Additions	2013 Total Depreciation
1		Production - Hydro							
2									
3	422 00	Hydro Structures		263	2.40%	6	180	2	8
4	423 00	Hydro Resv, Dams & Waterways		2,375	2.40%	57	1,627	20	77
5	425 00	Hydro Generators		2,676	2.68%	72	1,833	25	97
6	426 00	Hydro Accessory Electrical Equip		158	2.58%	4	108	1	5
7	427 00	Hydro Misc Equip		69	4.07%	3	47	1	4
8		Total Production - Hydro		5,539		142	3,794	49	191
9									
10		Production - Diesel							
11	442 00	Structures and Improvements - Other		2,238	3.07%	69	491	8	77
12	444 00	Fuel Holders, Producers, & Acc. Equipment - Other		3,138	3.69%	116	688	13	129
13	445 00	Generating Equipment & Prime Mover - Other		7,270	4.24%	308	1,594	34	342
14	446 00	Accessory Electric Equipment - Other		2,077	3.32%	69	455	8	77
15	447 00	Misc. Power Plant Equipment - Other		794	2.92%	23	174	3	26
16		Total Production - Diesel		15,517		585	3,402	66	651
17									
18		Transmission							
19	457 00	Substation Equipment		1,384	2.25%	31	-	-	31
20		Total Transmission		1,384		31	-	-	31
21									
22		Distribution Plant							
23	471 00	Land Rights		1,331	1.51%	20	102	1	21
24	473 00	Poles, Towers & Fixtures		34,533	4.20%	1,450	2,559	54	1,504
25	474 00	Overhead Conductor		22,282	4.16%	927	1,703	35	962
26	474 10	Services - Overhead		2,979	2.57%	77	228	3	80
27	475 00	Underground Conductor		22,880	3.61%	826	1,732	31	857
28	475 10	Services - Underground		3,097	2.87%	89	237	3	92
29	476 10	Meters		1,984	7.65%	152	542	-	152
30	476 30	AMR - Meters		68	7.31%	5	-	-	5
31	477 10	Substation Equipment		3,131	2.75%	86	239	3	89
32	478 10	Street Lighting		9,600	3.77%	362	396	7	369
33	478 20	Sentinel Lights		285	2.99%	9	-	-	9
34	479 10	Line Transformers		28,058	2.66%	746	2,032	27	773
35		Total Distribution Plant		130,227		4,749	9,770	164	4,913
36									
37		General Plant							
38	482 00	Structures & Improvements		3,634	2.63%	96	1,124	15	111
39	483 00	Office Furniture & Equipment		194	5.70%	11	11	-	11
40	483 20	Computer Equipment		47	18.73%	9	-	-	9
41	484 00	Transportation & Mobile Equipment		2,954	6.44%	190	432	14	204
42	485 00	Tool & Work Equipment		843	6.33%	53	86	3	56
43	486 00	Communication Structures & Equipment		938	5.50%	52	65	2	54
44	488 20	Company Housing		475	2.93%	14	-	-	14
45	491 00	Franchise & Consent		1	0.00%	-	-	-	-
46	492 00	Licence - Fish Lake		1,251	4.00%	-	650	26	26
47	493 00	Demand Side Management		-	10.00%	-	481	48	48
48	496 00	Software		2,204	10.00%	220	705	35	255
49		Total General Plant		12,541		645	3,555	143	788
50									
51		Plant Studied		165,208		6,152	20,522	422	6,574
52		Plant Not Studied - Land		380					
53		Total Plant	S.8.6 L.10	165,588					

Yukon Electrical Company Limited
2013 - 2015 General Rate Application
Calculation of Depreciation Expense 2014
(\$000s)

Schedule 7.3

Line No.	Acct.	Description	Cross Ref.	2014 Opening PPE	Depreciation Rate	Depreciation on Opening Balance	Net Capital Additions	Depreciation on Capital Additions	2014 Total Depreciation
1		Production - Hydro							
2									
3	422 00	Hydro Structures		442	2.79%	12	157	2	14
4	423 00	Hydro Resv, Dams & Waterways		4,001	2.60%	104	1,421	18	122
5	425 00	Hydro Generators		4,508	2.77%	125	1,601	22	147
6	426 00	Hydro Accessory Electrical Equip		266	2.87%	8	94	1	9
7	427 00	Hydro Misc Equip		116	4.46%	5	41	1	6
8		Total Production - Hydro		9,334		254	3,315	44	298
9									
10		Production - Diesel							
11	442 00	Structures and Improvements - Other		2,729	3.13%	85	649	10	95
12	444 00	Fuel Holders, Producers, & Acc. Equipment - Other		3,826	3.80%	145	910	17	162
13	445 00	Generating Equipment & Prime Mover - Other		8,865	4.34%	384	2,109	46	430
14	446 00	Accessory Electric Equipment - Other		2,532	3.52%	89	602	11	100
15	447 00	Misc. Power Plant Equipment - Other		968	2.96%	29	230	3	32
16		Total Production - Diesel		18,919		732	4,501	87	819
17									
18		Transmission							
19	457 00	Substation Equipment		1,384	2.25%	31	-	-	31
20		Total Transmission		1,384		31	-	-	31
21									
22		Distribution Plant							
23	471 00	Land Rights		1,432	1.50%	21	113	1	22
24	473 00	Poles, Towers & Fixtures		37,092	4.20%	1,558	2,844	60	1,618
25	474 00	Overhead Conductor		23,985	4.16%	998	1,887	39	1,037
26	474 10	Services - Overhead		3,206	2.58%	83	252	3	86
27	475 00	Underground Conductor		24,612	3.61%	889	1,921	35	924
28	475 10	Services - Underground		3,334	2.86%	95	262	4	99
29	476 10	Meters		2,525	8.09%	204	(377)	-	204
30	476 30	AMR - Meters		68	7.13%	5	1,580	56	61
31	477 10	Substation Equipment		3,370	2.75%	93	265	4	97
32	478 10	Street Lighting		9,996	3.75%	375	945	18	393
33	478 20	Sentinel Lights		285	2.93%	8	-	-	8
34	479 10	Line Transformers		30,090	2.65%	797	2,364	31	828
35		Total Distribution Plant		139,997		5,126	12,057	251	5,377
36									
37		General Plant							
38	482 00	Structures & Improvements		4,758	2.67%	127	315	4	131
39	483 00	Office Furniture & Equipment		205	6.67%	14	9	-	14
40	483.20	Computer Equipment		47	20.00%	9	-	-	9
41	484 00	Transportation & Mobile Equipment		3,386	6.59%	223	868	29	252
42	485 00	Tool & Work Equipment		930	6.67%	62	137	5	67
43	486 00	Communication Structures & Equipment		1,003	6.67%	67	11	-	67
44	488 20	Company Housing		475	2.91%	14	-	-	14
45	491 00	Franchise & Consent		1	0.00%	-	-	-	-
46	492 00	Licence - Fish Lake		1,901	4.00%	76	-	-	76
47	493 00	Demand Side Management		481	10.00%	48	522	26	74
48	496 00	Software		2,909	10.00%	291	7	-	291
49		Total General Plant		16,096		931	1,869	64	995
50									
51		Plant Studied		185,730		7,074	21,742	446	7,520
52		Plant Not Studied -Land		380					
53		Total Plant	S.8.6 L.10	186,110					

The Yukon Electrical Company Limited
2013 - 2015 General Rate Application
Calculation of Depreciation Expense 2015
(\$000s)

Schedule 7.4

Line No.	Acct.	Description	Cross Ref.	2015 Opening PPE	Depreciation Rate	Depreciation on Opening Balance	Net Capital Additions	Depreciation on Capital Additions	2015 Total Depreciation
1		Production - Hydro							
2									
3	422 00	Hydro Structures		600	2.91%	17	-	-	17
4	423 00	Hydro Resv, Dams & Waterways		5,422	2.68%	145	-	-	145
5	425 00	Hydro Generators		6,110	2.82%	172	-	-	172
6	426 00	Hydro Accessory Electrical Equip		360	2.97%	11	-	-	11
7	427 00	Hydro Misc Equip		157	4.51%	7	-	-	7
8		Total Production - Hydro		12,649		352	-	-	352
9									
10		Production - Diesel							
11	442 00	Structures and Improvements - Other		3,378	3.57%	120	798	14	134
12	444 00	Fuel Holders, Producers, & Acc. Equipment - Other		4,736	4.59%	217	1,118	26	243
13	445 00	Generating Equipment & Prime Mover - Other		10,973	5.11%	561	2,592	66	627
14	446 00	Accessory Electric Equipment - Other		3,134	3.86%	121	740	14	135
15	447 00	Misc. Power Plant Equipment - Other		1,198	3.06%	37	283	4	41
16		Total Production - Diesel		23,420		1,056	5,531	124	1,180
17									
18		Transmission							
19	457 00	Substation Equipment		1,384	2.24%	31	-	-	31
20		Total Transmission		1,384		31	-	-	31
21									
22		Distribution Plant							
23	471 00	Land Rights		1,545	1.50%	23	109	1	24
24	473 00	Poles, Towers & Fixtures		39,937	4.20%	1,677	2,736	57	1,734
25	474 00	Overhead Conductor		25,872	4.16%	1,076	1,825	38	1,114
26	474 10	Services - Overhead		3,459	2.58%	89	244	3	92
27	475 00	Underground Conductor		26,534	3.61%	958	1,855	33	991
28	475 10	Services - Underground		3,596	2.86%	103	254	4	107
29	476 10	Meters		2,148	7.40%	159	(377)	-	159
30	476 30	AMR - Meters		1,648	8.08%	133	2,283	92	225
31	477 10	Substation Equipment		3,636	2.75%	100	256	4	104
32	478 10	Street Lighting		10,941	3.76%	411	813	15	426
33	478 20	Sentinel Lights		285	2.87%	8	-	-	8
34	479 10	Line Transformers		32,454	2.65%	860	2,277	30	890
35		Total Distribution Plant		152,054		5,597	12,274	277	5,874
36									
37		General Plant							
38	482 00	Structures & Improvements		5,073	2.66%	135	305	4	139
39	483 00	Office Furniture & Equipment		214	6.67%	14	2	-	14
40	483.20	Computer Equipment		47	20.00%	9	-	-	9
41	484 00	Transportation & Mobile Equipment		4,254	6.98%	297	730	25	322
42	485 00	Tool & Work Equipment		1,066	6.67%	71	84	3	74
43	486 00	Communication Structures & Equipment		1,014	6.67%	68	12	-	68
44	488 20	Company Housing		475	2.89%	14	-	-	14
45	491 00	Franchise & Consent		1	0.00%	-	-	-	-
46	492 00	Licence - Fish Lake		1,901	4.00%	76	-	-	76
47	493 00	Demand Side Management		1,003	10.00%	100	730	37	137
48	496 00	Software		2,916	10.00%	292	57	3	295
49		Total General Plant		17,965		1,076	1,920	72	1,148
50									
51		Plant Studied		207,472		8,112	19,725	473	8,585
52		Plant Not Studied -Land		380					
53		Total Plant	S.8.6 L.10	207,852					

The Yukon Electrical Company Limited
2013 - 2015 General Rate Application
Schedule of Amortization of Differences
(\$000s)

Schedule 7.5

Line No.	Acct.	Description	Cross Ref.	YFR/ Curve	Life	Net Salvage	Depn. Rates	Actual 2011	Actual 2012	2013	Test Period 2014	2015	GRA Approved 2008	GRA Approved 2009
1		Production - Hydro												
2														
3	422 00	Hydro Structures		R2	72	-10%	3.36%	(14)	(14)	(2)	(2)	(2)	(14)	(14)
4	423 00	Hydro Resv, Dams & Waterways		R3	103	-10%	3.36%	-	-	(8)	(8)	(8)	-	-
5	425 00	Hydro Generators		R3	85	-10%	3.36%	-	-	(4)	(4)	(4)	-	-
6	426 00	Hydro Accessory Electrical Equip		R3	45	-10%	3.36%	-	-	(1)	(1)	(1)	-	-
7	427 00	Hydro Misc Equip		R2	30	-10%	3.36%	-	-	(1)	(1)	(1)	-	-
8		Total Production - Hydro						(14)	(14)	(15)	(15)	(15)	(14)	(14)
9														
10		Production - Diesel												
11	442 00	Structures and Improvements - Other		R2.5	40	-10%	2.74%	(6)	(6)	2	2	2	(6)	(6)
12	444 00	Fuel Holders, Producers, & Acc. Equipment - Other		R4	35	-20%	3.00%	(8)	(8)	(3)	(3)	(3)	(8)	(8)
13	445 00	Generating Equipment & Prime Mover - Other		R2.5	26	-10%	3.69%	(40)	(40)	35	35	35	(40)	(40)
14	446 00	Accessory Electric Equipment - Other		R3	35	0%	3.00%	(15)	(15)	(12)	(12)	(12)	(15)	(15)
15	447 00	Misc. Power Plant Equipment - Other		R3	40	0%	3.15%	(2)	(2)	(3)	(3)	(3)	(2)	(2)
16		Total Production - Diesel						(71)	(71)	19	19	19	(71)	(71)
17														
18		Transmission												
19	457 00	Substation Equipment		R4	50	-10%	2.55%	(3)	(3)	(5)	(5)	(5)	(3)	(3)
20		Total Transmission						(3)	(3)	(5)	(5)	(5)	(3)	(3)
21														
22		Distribution Plant												
23	471 00	Land Rights		R3	75	0%	1.52%	-	-	-	-	-	-	-
24	473 00	Poles, Towers & Fixtures		R3	45	-75%	2.67%	(75)	(75)	16	16	16	(75)	(75)
25	474 00	Overhead Conductor		R4	45	-80%	2.69%	(24)	(24)	36	36	36	(24)	(24)
26	474 10	Services - Overhead		R3	45	-10%	2.62%	(7)	(7)	(6)	(6)	(6)	(7)	(7)
27	475 00	Underground Conductor		R3	45	-50%	2.11%	(5)	(5)	110	110	110	(5)	(5)
28	475 10	Services - Underground		R4	40	-10%	2.63%	(6)	(6)	(1)	(1)	(1)	(6)	(6)
29	476 10	Meters		L0	15	0%	4.06%	-	-	58	58	58	-	-
30	476 30	AMR - Meters		R2.5	15	0%	4.54%	-	-	1	1	1	-	-
31	477 10	Substation Equipment		R4	40	-10%	2.92%	(6)	(6)	(3)	(3)	(3)	(6)	(6)
32	478 10	Street Lighting		R3	30	-10%	4.13%	(61)	(61)	(34)	(34)	(34)	(61)	(61)
33	478 20	Sentinel Lights		R2	23	0%	3.37%	-	-	8	8	8	-	-
34	479 10	Line Transformers		R3	45	-10%	3.04%	(69)	(69)	(74)	(74)	(74)	(69)	(69)
35		Total Distribution Plant						(253)	(253)	111	111	111	(253)	(253)
36														
37		General Plant												
38	482 00	Structures & Improvements		L3	40	0%	3.19%	-	-	(10)	(10)	(10)	-	-
39	483 00	Office Furniture & Equipment		SQ	15	0%	4.49%	2	2	9	9	9	2	2
40	483.20	Computer Hardware/Software		SQ	5	0%	20.00%	-	-	6	6	6	-	-
41	484 00	Transportation & Mobile Equipment		L0	12	25%	10.82%	(51)	(51)	(32)	(32)	(32)	(51)	(51)
42	485 00	Tool & Work Equipment		SQ	15	0%	6.54%	(3)	(3)	4	4	4	(3)	(3)
43	486 00	Communication Structures & Equipment		SQ	15	0%	5.79%	11	11	5	5	5	11	11
44	488 20	Company Housing		R3	40	10%	2.47%	-	-	(22)	(22)	(22)	-	-
45	491 00	Franchise & Consent					0.00%	-	-	-	-	-	-	-
46	492 00	Licence - Fish Lake					10.00%	-	-	-	-	-	-	-
47	493 00	Demand Side Management						-	-	-	-	-	-	-
48	496 00	Software		S3	10	0%	10.00%	-	-	-	-	-	-	-
49		Total General Plant						(41)	(41)	(39)	(39)	(39)	(41)	(41)
50														
51		Total Amortization of Differences	S. 7.1 L. 2					(382)	(382)	71	71	71	(382)	(382)

YUKON ELECTRICAL COMPANY LIMITED

Whitehorse, Yukon

DEPRECIATION STUDY

CALCULATED ANNUAL DEPRECIATION ACCRUAL RATES APPLICABLE TO PLANT IN SERVICE AS OF DECEMBER 31, 2011



*Excellence Delivered **As Promised***



*Excellence Delivered **As Promised***

April 8, 2013

Yukon Electrical Company Limited
100 – 1100 1st Avenue
Whitehorse, Yukon Y1A 3T4

Attention: Mr. Jerry Janow
Manager Regulatory – Special Projects

Dear Mr. Janow:

Pursuant to your request, we have conducted a depreciation study related to the electric hydro and diesel production, distribution, and general plant systems of Yukon Electrical Company Limited ("YECL" or "the Company") as of December 31, 2011. Our report presents a description of the methods used in the estimation of depreciation, the statistical analyses of service life and net salvage estimates 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, 2011. The depreciation rates are based on the straight-line whole life method using the equal life group procedure. An annual review of the depreciation rates using the same estimates and methods is recommended.

Respectfully submitted,

GANNETT FLEMING CANADA ULC

A handwritten signature in black ink, appearing to read 'LEK', with a stylized flourish at the end.

LARRY E. KENNEDY
Vice President

LEK/hac:056572

Gannett Fleming Canada ULC

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PART I. INTRODUCTION

YUKON ELECTRICAL COMPANY LIMITED
DEPRECIATION STUDY
CALCULATED ANNUAL DEPRECIATION ACCRUAL RATES
APPLICABLE TO PLANT IN SERVICE
AS OF DECEMBER 31, 2011

PART I. INTRODUCTION

SCOPE

This report sets forth the results of the depreciation study conducted for the electric hydro and diesel production, distribution, and general plant assets of Yukon Electrical Company Limited ("YECL" or "the Company") to determine the annual depreciation accrual rates and amounts for ratemaking purposes applicable to the original cost of plant as of December 31, 2011.

The depreciation accrual rates presented herein are based on generally-accepted methods and procedures for calculating depreciation. The estimated survivor curves used in this report are based on studies incorporating data through 2011.

Part I, Introduction, contains statements with respect to the scope of the report and the basis of the study. Part II, Methods Used in the Calculation of Depreciation, presents the methods used in the estimation of average service lives, net salvage percentages, survivor curves and in the calculation of depreciation. Part III, Results of Study, presents a summary of annual depreciation. Part IV, Service Life Statistics, presents the statistical analyses of service lives. Part V, presents the statistical analysis of net salvage percentages, and Part VI, Detailed Depreciation Calculations, presents the detailed tabulations of annual and accrued depreciation.

BASIS OF THE STUDY

Depreciation. The depreciation accrual rates and accrued depreciation were calculated using the straight line method, the whole life basis and the equal life group (ELG) procedure. Any variances in the booked accumulated depreciation balances, and the calculated accumulated depreciation requirements are trued-up over the composite remaining life of each account. The calculation was based on the attained ages and estimated service life and net salvage characteristics for each depreciable group of assets.

Service Life and Net Salvage Estimates. The method of estimating service life consisted of compiling the service life history of the plant accounts and subaccounts, reducing this history to trends through the use of analytical techniques that have been generally accepted in various regulatory jurisdictions, and forecasting the trend of survivors for each depreciable group on the basis of interpretations of past trends and consideration of Company plans for the future. The combination of the historical trend and the estimated future trend yielded a complete pattern of life characteristics from which the average service life was derived. The service life estimates used in the depreciation calculation incorporated historical data compiled through December 31, 2011. Such data included plant additions, retirements, transfers and other plant activity.

A general understanding of the function of the plant and information with respect to the reasons for past retirements and the expected future causes of retirement was obtained through contact with Company personnel, and through physical site tours.

The net salvage estimates were based on judgment that incorporated analyses of historical data, a review of policies and outlook with Company management, a

general knowledge of the electric utility industry, and comparisons of the net salvage estimates from studies of other electric utilities. The analyses of historic retirement activity, costs of retirement, and gross salvage proceeds, consisted of expressing the cost of removal and gross salvage as percents of the original cost retired on annual and moving average bases.

RECOMMENDATIONS

The calculated annual depreciation accrual rates set forth herein apply specifically to plant in service as of December 31, 2011. Continued surveillance and periodic revisions are normally required to maintain continued use of appropriate depreciation rates.

The depreciation rates should be reviewed annually to reflect the changes that result from plant account activity. A depreciation reserve deficiency or surplus will develop if future capital expenditures vary significantly from those anticipated in this study.

The survivor curves and net salvage percents used in this study should be the basis for annual recalculations. Complete depreciation studies, which re-evaluate these parameters, should be performed every three to five years.

PART II. METHODS USED IN THE ESTIMATION OF DEPRECIATION

PART II. METHODS USED IN THE ESTIMATION OF DEPRECIATION

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 the art, 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 distribution 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 the selection of group depreciation procedures. These subjects are discussed in the sections that follow.

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 Iowa 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 and is derived by obtaining the differences between the amount of property surviving at the beginning and at the end of each interval.

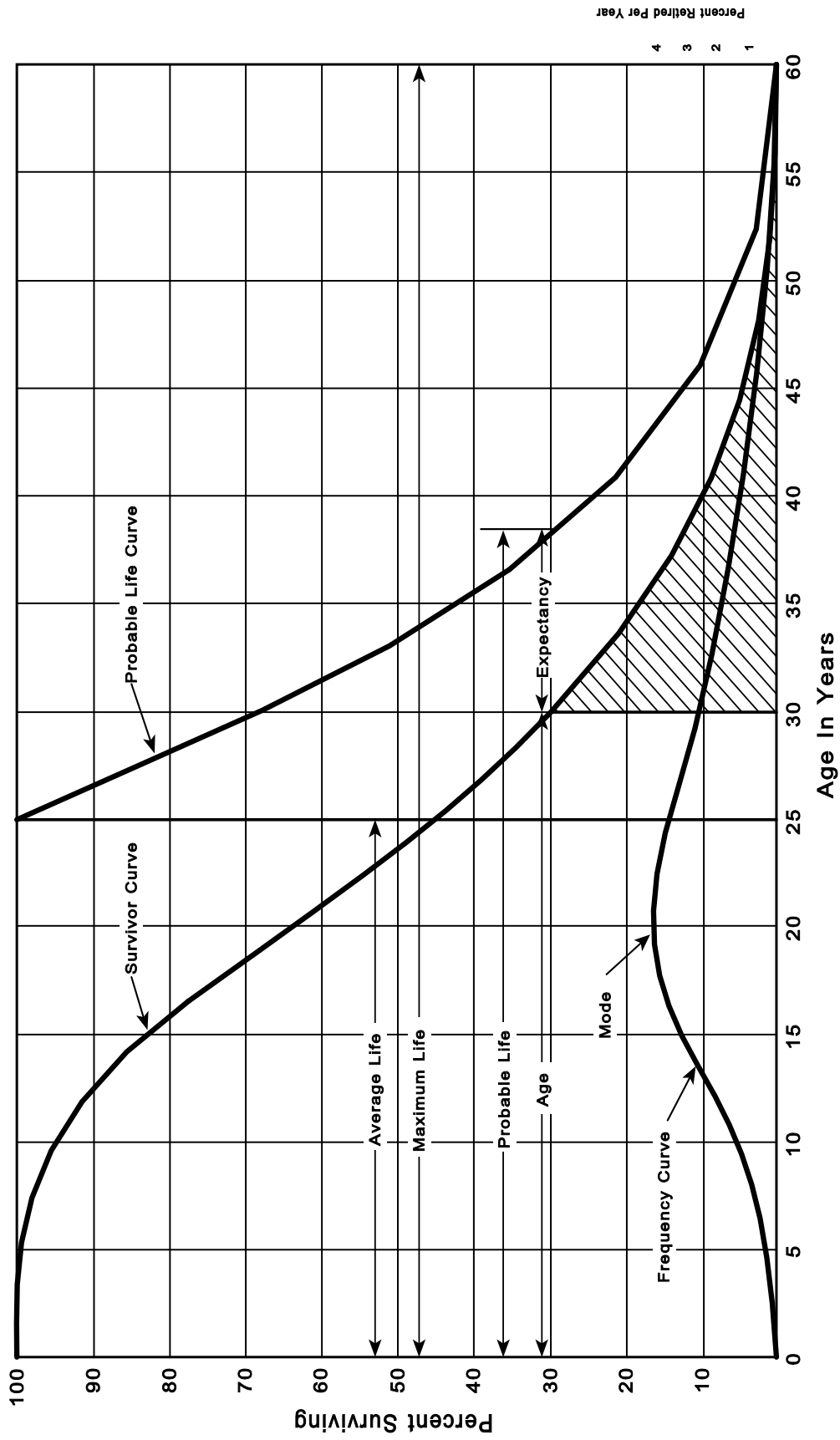


Figure 1. A Typical Survivor Curve and Derived Curves

Iowa 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 Iowa type curves. There are four families in the Iowa 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 Iowa curves were developed at the Iowa 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 125.¹ These type curves have also been presented in subsequent Experiment Station bulletins and in the text, "Engineering Valuation and

¹ Winfrey, Robley. Statistical Analyses of Industrial Property Retirements. Iowa State College, Engineering Experiment Station, Bulletin 125. 1935.

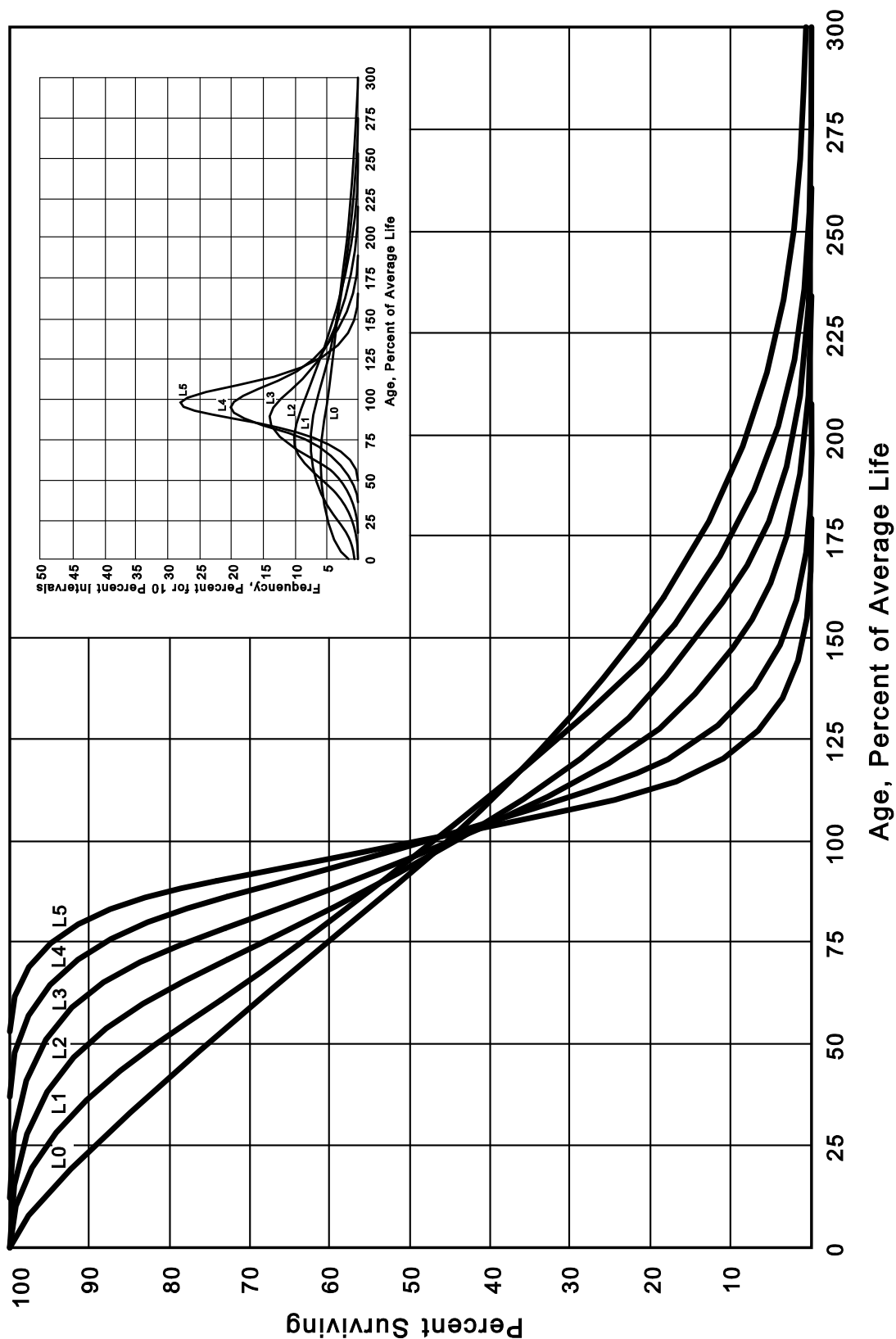


Figure 2. Left Modal or "L" Iowa Type Survivor Curves

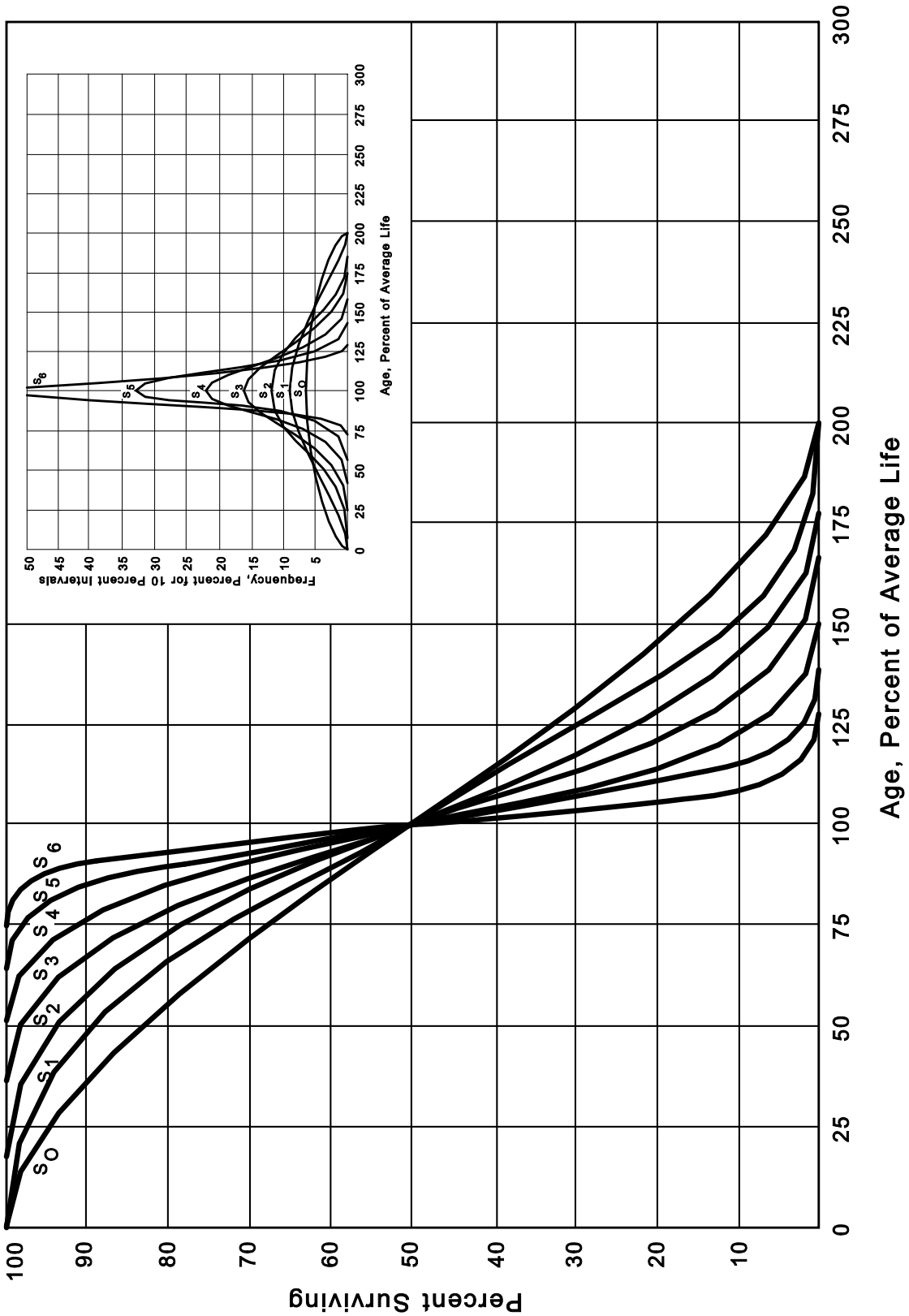


Figure 3. Symmetrical or "S" Iowa Type Survivor Curves

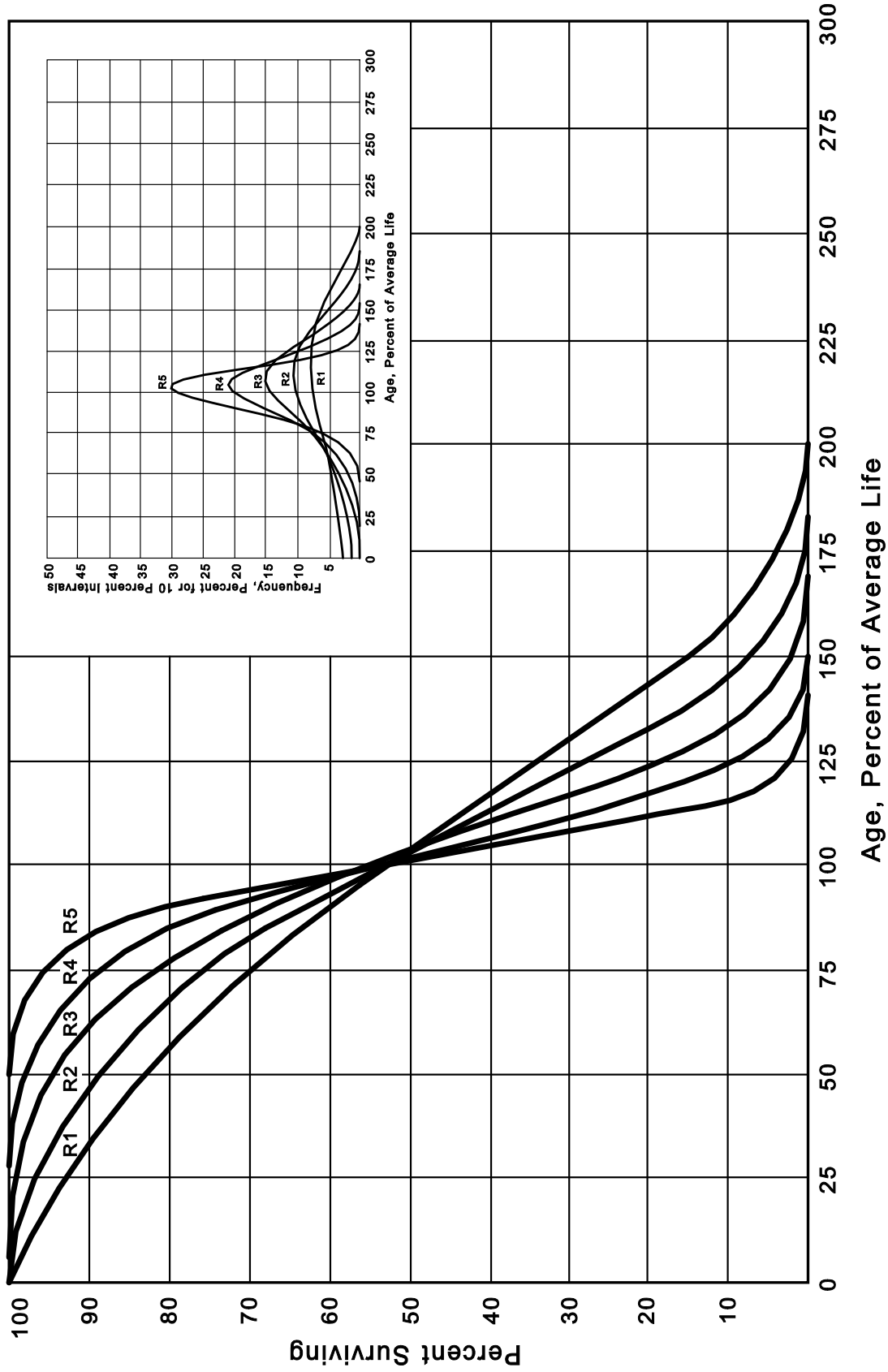


Figure 4. Right Modal or "R" Iowa Type Survivor Curves

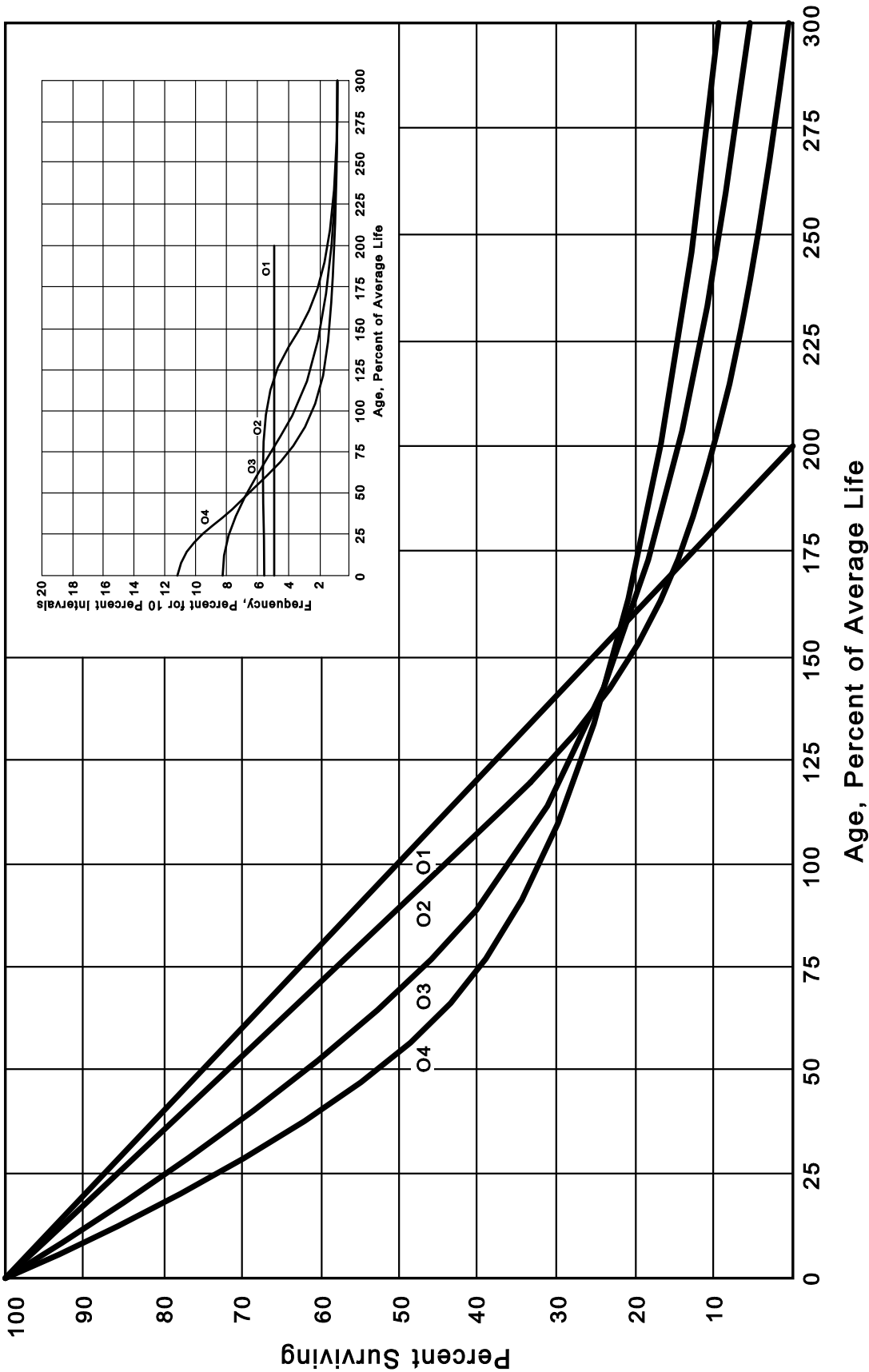


Figure 5. Origin Modal or "O" Iowa Type Survivor Curves

Depreciation."² In 1957, Frank V. B. Couch, Jr., an Iowa State College graduate student, submitted a thesis³ presenting his development of the fourth family consisting of the four O type survivor curves.

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 or for which aged accounting experience is developed by statistically aging unaged amounts 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,"⁴ "Engineering Valuation and Depreciation,"⁵ and "Depreciation Systems."⁶

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 experience band, 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 placement band. An example of the calculations used in the development of a life table follows. The

²Marston, Anson, Robley Winfrey and Jean C. Hempstead. Engineering Valuation and Depreciation, 2nd Edition. New York, McGraw-Hill Book Company. 1953.

³Couch, 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.

⁴Winfrey, Robley, Supra Note 1.

⁵Marston, Anson, Robley Winfrey, and Jean C. Hempstead, Supra Note 2.

⁶Wolf, Frank K. and W. Chester Fitch. Depreciation Systems. Iowa State University Press. 1994

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 2002-2011 during which there were placements during the years 1997-2011. In order to illustrate the summation of the aged data by age interval, the data were compiled in the manner presented in Tables 1 and 2 on the following pages. In Table 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 1997 was retired in 2002. The \$10,000 retirement occurred during the age interval between $4\frac{1}{2}$ and $5\frac{1}{2}$ 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 Table 1 immediately above the staircase line drawn on the table beginning with the 2002 retirements of 1997 installations and ending with the 2011 retirements of the 2006 installations. Thus, the total amount of 143 for age interval $4\frac{1}{2}$ - $5\frac{1}{2}$ equals the sum of:

$$10 + 12 + 13 + 11 + 13 + 13 + 15 + 17 + 19 + 20.$$

TABLE 1. RETIREMENTS FOR EACH YEAR 2002-2011
SUMMARIZED BY AGE INTERVAL

Experience Band 2002-2011		Retirements, Thousands of Dollars										Placement Band 1997-2011	
Year Placed (1)		During Year										Total During Age Interval (12)	Age Interval (13)
		2002 (2)	2003 (3)	2004 (4)	2005 (5)	2006 (6)	2007 (7)	2008 (8)	2009 (9)	2010 (10)	2011 (11)		
1997		10	11	12	13	14	16	23	24	25	26	26	13½-14½
1998		11	12	13	15	16	18	20	21	22	19	44	12½-13½
1999		11	12	13	14	16	17	19	21	22	18	64	11½-12½
2000		8	9	10	11	11	13	14	15	16	17	83	10½-11½
2001		9	10	11	12	13	14	16	17	19	20	93	9½-10½
2002		4	9	10	11	12	13	14	15	16	20	105	8½-9½
2003			5	11	12	13	14	15	16	18	20	113	7½-8½
2004				6	12	13	15	16	17	19	19	124	6½-7½
2005					6	13	15	16	17	19	19	131	5½-6½
2006						7	14	16	17	19	20	143	4½-5½
2007							8	18	20	22	23	146	3½-4½
2008								9	20	22	25	150	2½-3½
2009									11	23	25	151	1½-2½
2010										11	24	153	½-1½
2011											13	80	0-½
Total		53	68	86	106	128	157	196	231	273	308	1,606	

TABLE 2. OTHER TRANSACTIONS FOR EACH YEAR 2002-2011
SUMMARIZED BY AGE INTERVAL

Experience Band 2002-2011											Placement Band 1997-2011	
Year Placed (1)	Acquisitions, Transfers and Sales, Thousands of Dollars										Total During Age Interval (12)	Age Interval (13)
	2002 (2)	2003 (3)	2004 (4)	2005 (5)	2006 (6)	2007 (7)	2008 (8)	2009 (9)	2010 (10)	2011 (11)		
1997	-	-	-	-	-	-	60 ^a	-	-	-	-	13½-14½
1998	-	-	-	-	-	-	-	-	-	-	-	12½-13½
1999	-	-	-	-	-	-	-	-	-	-	-	11½-12½
2000	-	-	-	-	-	-	-	(5) ^b	-	-	60	10½-11½
2001	-	-	-	-	-	-	-	6 ^a	-	-	-	9½-10½
2002	-	-	-	-	-	-	-	-	-	-	(5)	8½-9½
2003	-	-	-	-	-	-	-	-	-	-	6	7½-8½
2004	-	-	-	-	-	-	-	-	-	-	-	6½-7½
2005	-	-	-	-	-	-	-	(12) ^b	-	-	-	5½-6½
2006	-	-	-	-	-	-	-	-	22 ^a	-	-	4½-5½
2007	-	-	-	-	-	-	-	(19) ^b	-	-	10	3½-4½
2008	-	-	-	-	-	-	-	-	-	-	-	2½-3½
2009	-	-	-	-	-	-	-	-	-	(102) ^c	(121)	1½-2½
2010	-	-	-	-	-	-	-	-	-	-	-	½-1½
2011	-	-	-	-	-	-	-	-	-	-	-	0-½
Total	-	-	-	-	-	-	60	(30)	22	(102)	(50)	

^a Transfer Affecting Exposures at Beginning of Year

^b Transfer Affecting Exposures at End of Year

^c Sale with Continued Use

Parentheses denote Credit amount.

In Table 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 Table 3 on page II-15. The surviving plant at the beginning of each year from 2002 through 2011 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 Table 3 for each successive year following the beginning balance or addition is obtained by adding or subtracting the net entries shown on Tables 1 and 2. For the purpose of determining the plant exposed to retirement, transfers-in are considered as being exposed to retirement in this group at 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 beginning of 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 2007 are calculated in the following manner:

Exposures at age 0	= amount of addition	= \$750,000
Exposures at age ½	= \$750,000 - \$ 8,000	= \$742,000
Exposures at age 1½	= \$742,000 - \$18,000	= \$724,000
Exposures at age 2½	= \$724,000 - \$20,000 - \$19,000	= \$685,000
Exposures at age 3½	= \$685,000 - \$22,000	= \$663,000

TABLE 3. PLANT EXPOSED TO RETIREMENT JANUARY 1
OF EACH YEAR 2002-2011
SUMMARIZED BY AGE INTERVAL

Experience Band 2002-2011										Placement Band 1997-2011			
Exposures, Thousands of Dollars													
Annual Survivors at the Beginning of the Year													
Total at Beginning of Age													
Year Placed (1)	2002 (2)	2003 (3)	2004 (4)	2005 (5)	2006 (6)	2007 (7)	2008 (8)	2009 (9)	2010 (10)	2011 (11)	Interval (12)	Age Interval (13)	
1997	255	245	234	222	209	195	239	216	192	167	167	13½-14½	
1998	279	268	256	243	228	212	194	174	153	131	323	12½-13½	
1999	307	296	284	271	257	241	224	205	184	162	531	11½-12½	
2000	338	330	321	311	300	289	276	262	242	226	823	10½-11½	
2001	376	367	357	346	334	321	307	297	280	261	1,097	9½-10½	
2002	420 ^a	416	407	397	386	374	361	347	332	316	1,503	8½-9½	
2003		460 ^a	455	444	432	419	405	390	374	356	1,952	7½-8½	
2004			510 ^a	504	492	479	464	448	431	412	2,463	6½-7½	
2005				580 ^a	574	561	546	530	501	482	3,057	5½-6½	
2006					660 ^a	653	639	623	628	609	3,789	4½-5½	
2007						750 ^a	742	724	685	663	4,332	3½-4½	
2008							850 ^a	841	821	799	4,955	2½-3½	
2009								960 ^a	949	926	5,719	1½-2½	
2010									1,080 ^a	1,069	6,579	½-1½	
2011											7,490	0-½	
Total	1,975	2,382	2,824	3,318	3,872	4,494	5,247	6,017	6,852	7,799	44,780		

^a Additions during the year.

For the entire experience band 2002-2011, 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 (Table 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 Table 4 on page II-17, is developed from the totals shown on the schedules of retirements and exposures, Tables 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 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 $5\frac{1}{2}$ are as follows:

Percent surviving at age $4\frac{1}{2}$	=	88.15	
Exposures at age $4\frac{1}{2}$	=	3,789,000	
Retirements from age $4\frac{1}{2}$ to $5\frac{1}{2}$	=	143,000	
Retirement Ratio	=	$143,000 \div 3,789,000$	= 0.0377
Survivor Ratio	=	$1.000 - 0.0377$	= 0.9623
Percent surviving at age $5\frac{1}{2}$	=	$(88.15) \times (0.9623)$	= 84.83

TABLE 4. ORIGINAL LIFE TABLE

CALCULATED BY THE RETIREMENT RATE METHOD

Experience Band 2002-2011

Placement Band 1997-2011

(Exposure and Retirement Amounts are in Thousands of Dollars)

Age at Beginning of Interval (1)	Exposures at Beginning of Age Interval (2)	Retirements During Age Interval (3)	Retirement Ratio (4)	Survivor Ratio (5)	Percent Surviving at Beginning of Age Interval (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 Table 3, Column 12, Plant Exposed to Retirement.

Column 3 from Table 1, Column 12, Retirements for Each Year.

Column 4 = Column 3 divided by Column 2.

Column 5 = 1.0000 minus Column 4.

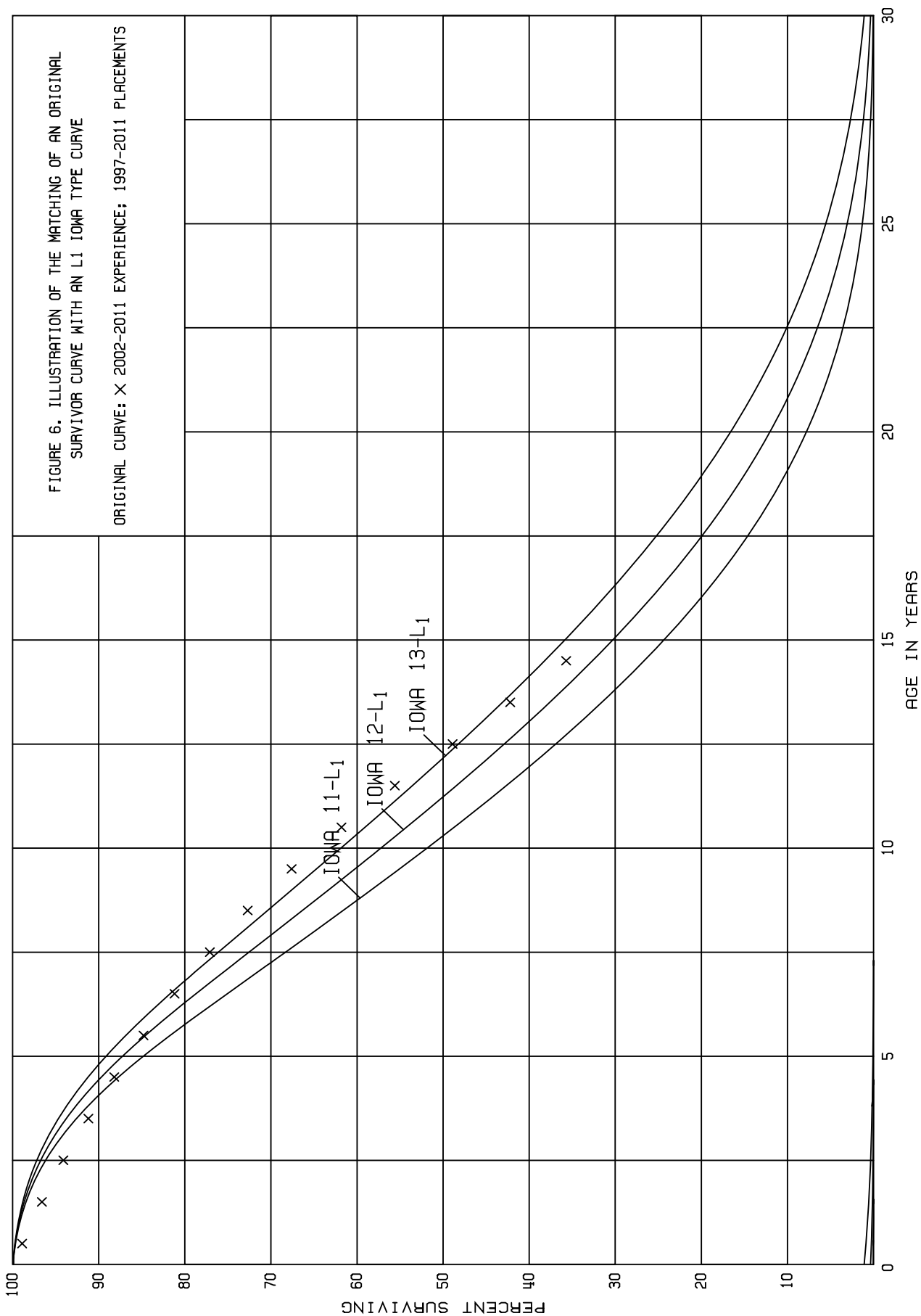
Column 6 = Column 5 multiplied by Column 6 as of the Preceding Age Interval.

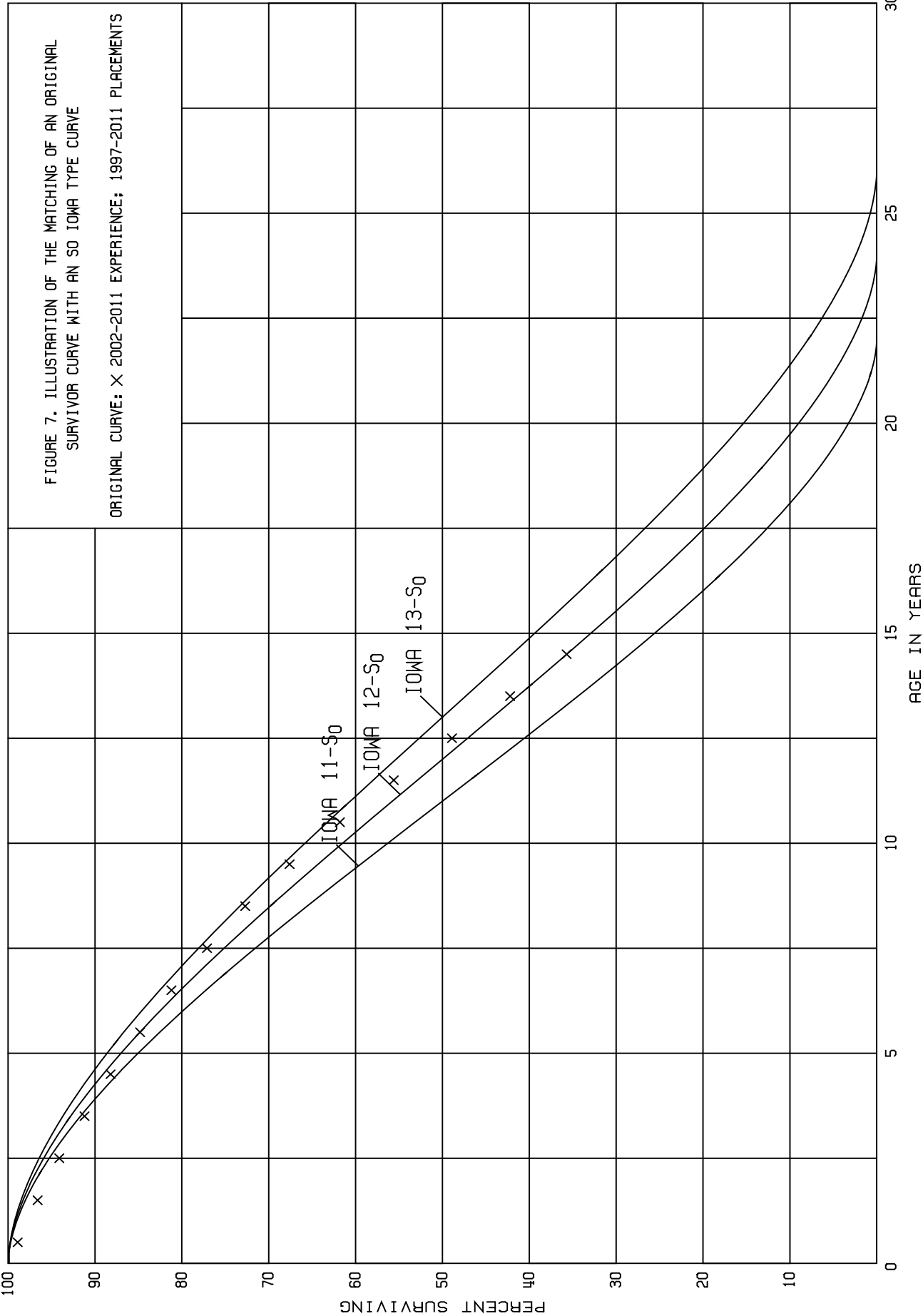
The totals of the exposures and retirements (columns 2 and 3) are shown for the purpose of checking with the respective totals in Tables 1 and 3. The ratio of the total retirements to the total exposures, other than for each age interval, is meaningless.

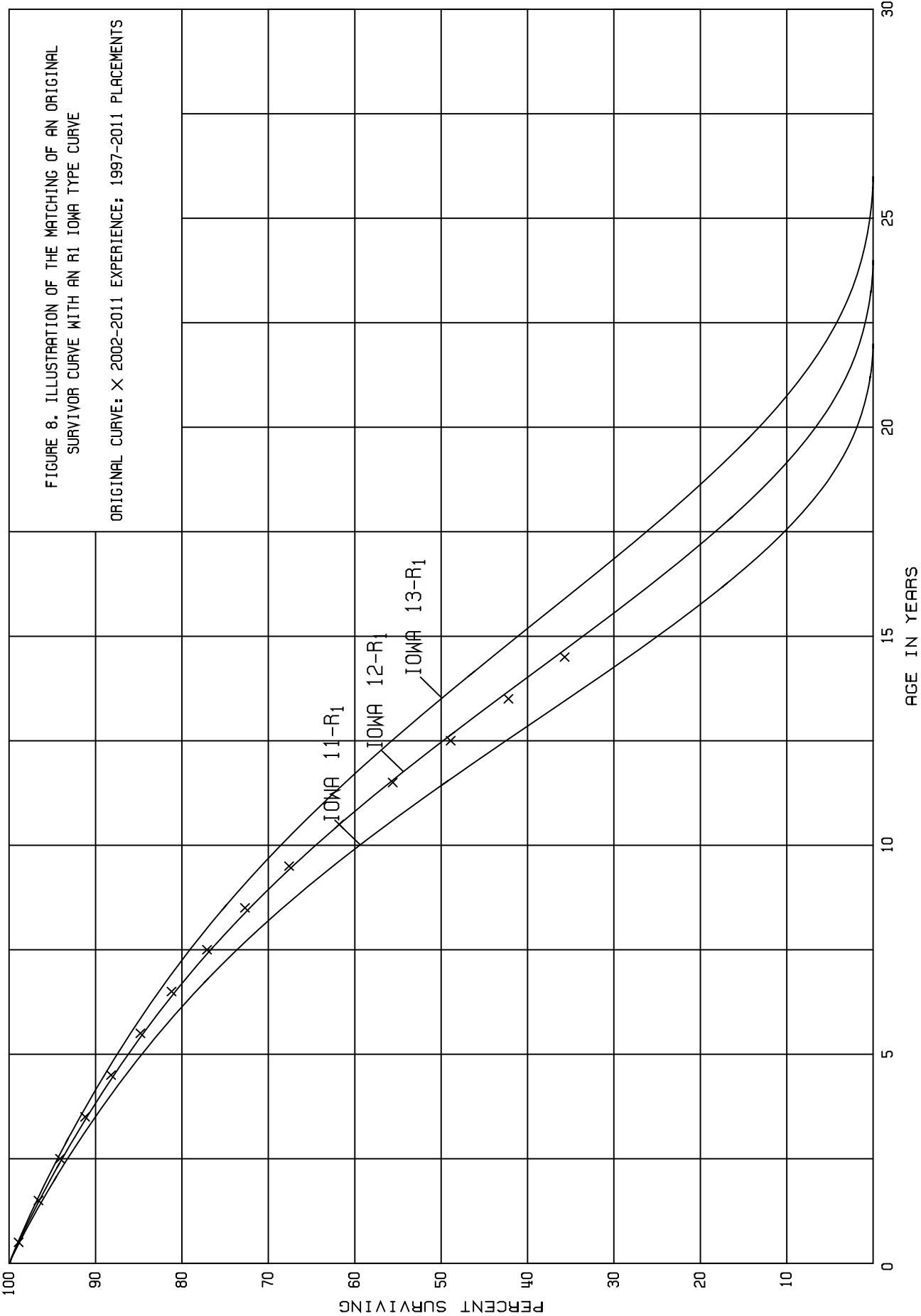
The original survivor curve is plotted from the original life table (column 6, Table 4). When the curve terminates at a percent surviving greater than zero, it is called a stub survivor curve. Survivor curves developed from retirement rate studies generally are stub curves.

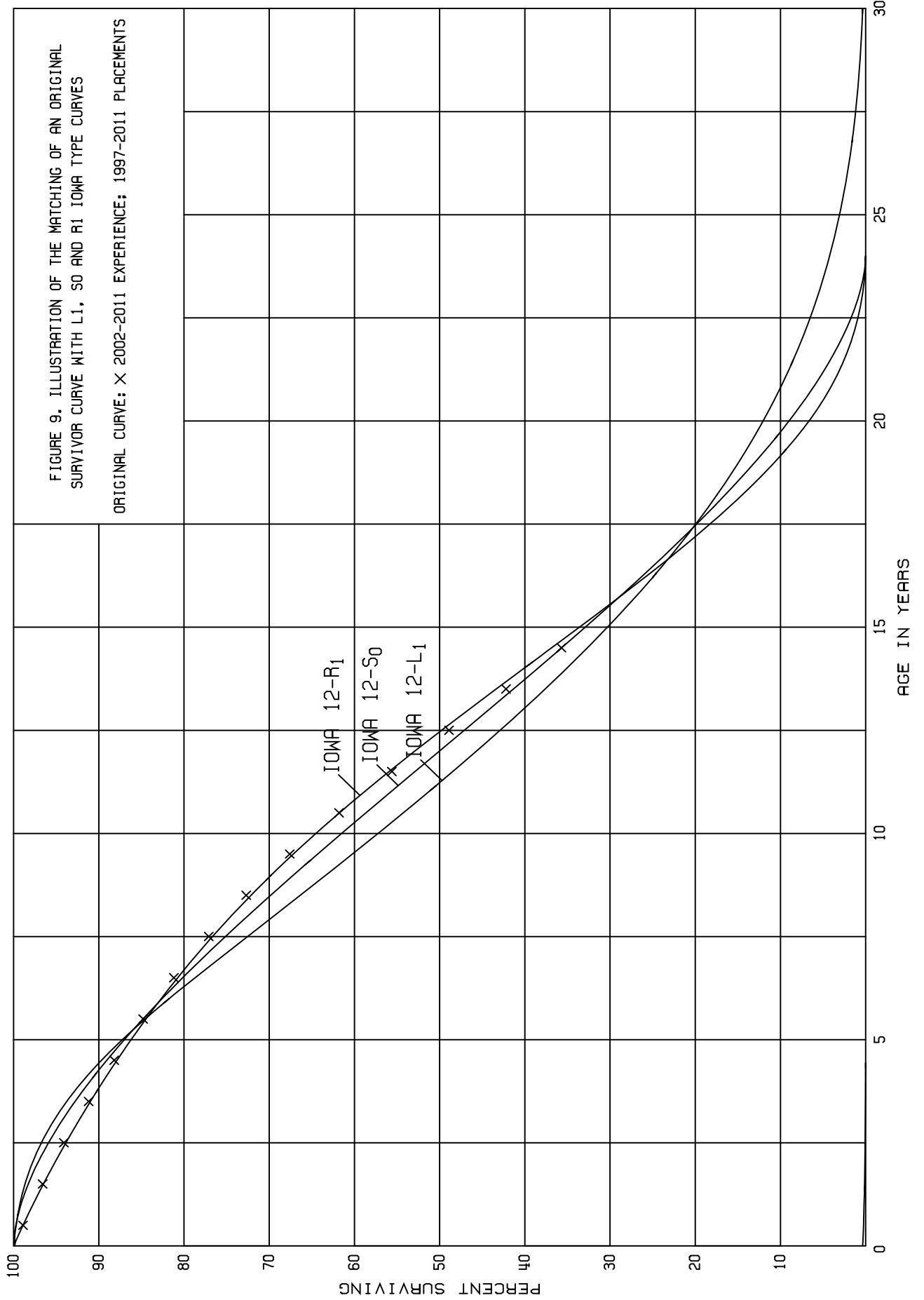
Smoothing the Original Survivor Curve. The smoothing of the original survivor curve eliminates any irregularities and serves as the basis for the preliminary extrapolation to zero percent surviving of the original stub curve. Even if the original survivor curve is complete from 100% to zero percent, 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 Iowa 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 Iowa 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 Table 4 is compared with the L, S, and R Iowa 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 Iowa curve would be selected as the most representative of the plotted survivor characteristics of the group, assuming no contrary relevant factors external to the analysis of historical data.

Survivor Curve 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 engineering staff; and survivor curve estimates from previous studies of this Company and other electric distribution companies.

Account 473.00 – Distribution Poles, Towers, and Fixtures, represents 21% of the depreciable plant studied. Following discussions with YECL management it was recommended that all Distribution Poles, Towers and Fixtures be analyzed together as one group. The retirements, additions and other plant transactions for the period 1960 through 2011 were analyzed by the retirement rate method. The original survivor curve, as plotted on page IV-18, indicates consistent retirement ratios through to age 43, then accelerating retirement ratios through to age 52. The previously approved estimate for this account was the Iowa 40-R3. The Iowa 45-R3, selected in this study, increases the average service life for the account by five years. Typical average service lives for this type of equipment normally range from 35 to 45 years. The 45-R3 provides a

reasonable interpretation of the historical data, and is forecast to be representative of the anticipated future retirement activity. Future studies will need to consider lengthening the average service life again if the indications of longer life continue to be apparent at that time.

Account 479.10 – Distribution Line Transformers, represents 17% of the depreciable plant studied. Historical retirements, additions and other plant transactions for the period 1946 through 2011 were analyzed by the retirement rate method. The original survivor curve, as plotted on page IV-44, indicates a modest level of retirement activity in the early years of the accounts life with an increase in retirements shown at ages 33 through 65. Typical Iowa curve estimates for this type of electric distribution plant usually range from 35 to 45 years. The previously approved estimate for this account was the Iowa 35-R3. The Iowa 45-R3 curve selected for this study provides a better recognition of the historic retirement experience, conforms to the expectations of the engineering staff, is within the range typically used by industry, and provides for a reasonable expectation of the future retirement trends.

Account 475.00 – Distribution Underground Conduit, represents 14% of the depreciable plant studied. Historical retirements, additions and other plant transactions for the period 1985 through 2011 were analyzed by the retirement rate method. Typical Iowa curve estimates for this type of electric distribution plant usually range from 35 to 60 years. The previously approved estimate for this account was the Iowa 50-R4, has been adjusted to the Iowa 45-R3 to better fit industry retirement trends. The selected Iowa 45-R3 conforms to the expectations of the company's engineering staff, and is in

the range typically used by industry. Gannett Fleming views that the selected 45-R3 provides for a reasonable expectation of the future retirement trends.

Account 474.00 – Distribution Overhead Conductor, represents 14% of the depreciable plant studied. The original survivor curve, as plotted on page IV-21, shows a generally uniform pattern of retirements from early in the accounts life through to age 33. The currently approved Iowa 40-R3 has been modified to the Iowa 45-R4 to better fit the historic retirement indications. Typical average service life indications for this type of electric utility plant range from 35 to 45 years. The selected 45-R4 is in the range typically used by industry and conforms to the expectations of the company's engineering staff.

Account 478.10 – Distribution Street Lights and Signal Systems, represents 6% of the depreciable plant studied. Plant accounting transactions from 1958 through 2011 were analyzed by the retirement rate method. The original survivor curve, as plotted on page IV-39, shows a consistent decline rate of plant retirement through age 17, and continuing out to age 32. Typical average service life indications for this type of plant range from 20 years to 43 years. The previously approved estimate for this account was the Iowa 25-R3, has been adjusted to the Iowa 30-R3 to better fit industry retirement trends. The selected Iowa 30-R3 conforms to the expectations of the company's engineering staff, and is in the range typically used by industry. Gannett Fleming views that the selected 30-R3 provides for a reasonable expectation of the future retirement trends.

Account 482.00 – Structures and Improvements, represents 6% of the depreciable plant studied. The original survivor curve, as plotted on page IV-47, shows

a generally cluster pattern of retirements from early in the accounts life through to age 25 and then again at age 34. The currently approved Iowa 32-R4 has been modified to the Iowa 40-L3 to better fit the historic retirement indications. Typical average service life indications for this type of electric utility plant range from 15 to 55 years. The selected 40-L3 is in the range typically used by industry and conforms to the expectations of the company's engineering staff.

Account 477.10 – Distribution Substation Equipment, represents 2% of the depreciable plant studied. The retirements, additions and other plant transactions for the period 1985 through 2011 were analyzed by the retirement rate method. The original survivor curve, as plotted on page IV-36, indicates consistent retirement ratios through to age 50. The previously approved estimate for this account was the Iowa 35-R3. The Iowa 40-R4, selected in this study, increases the average service life for the account by five years. Typical average service lives for this type of equipment normally range from 27 to 55 years. The 40-R4 provides a reasonable interpretation of the historical data, and is forecast to be representative of the anticipated future retirement activity. Future studies will need to consider lengthening the average service life again if the indications of longer life continue to be apparent at that time.

Account 475.10 – Distribution Underground Services, represents 2% of the depreciable plant studied. The original survivor curve, as plotted on page IV-30, shows a generally uniform pattern of retirements from early in the accounts life through to age 31, and then continues uniformly to age 38. The currently approved Iowa 40-R4 remains unchanged in fitting the historic retirement indications. Typical average service life indications for this type of electric utility plant range from 35 to 50 years. The selected

40-R4 is in the range typically used by industry and conforms to the expectations of the company's engineering staff.

Accounts 422.00 thru 427.00 – Hydraulic Assets, represents 2.6% in aggregate of the depreciable plant studied. Retirement history of the assets in each of the specific accounts was not available for review. As such, Gannett Fleming recommends the incorporation of the survivor curve estimates for the respective Hydraulic accounts be based upon Yukon Electric Corporation's (YEC) survivor curve estimates as submitted to the Yukon Utilities Board at this time. Gannett Fleming has reviewed the life estimates filed in the YEC proceeding and finds them to be reasonable to use as a proxy for Yukon Electrical Corporation Limited (YECL) Hydraulic accounts until sufficient data by account is collected:

- Account 422.00 - Structures
- Account 423.00 - Reservoirs, Dams and Waterways
- Account 425.00 - Generators
- Account 426.00 - Accessory and Electrical Equipment
- Account 427.00 - Miscellaneous Equipment

The survivor curve estimates for the remaining accounts were based on similar considerations of historical analyses, management outlook and estimates for this Company and other electric utilities.

ESTIMATION OF NET SALVAGE

The concept of the inclusion of net salvage percentage in this study is discussed in the "Additional Evidence of Larry Kennedy".

The estimates of net salvage were based primarily on the professional judgment of Gannett Fleming, in part on historical data for the years 1983 through 2011, and in part through a comparison to peer electric distribution companies. 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 three-year moving average bases.

The net salvage percentages estimated in this study have been determined using the “Traditional Approach” for net salvage estimation. The estimates of net salvage were based in part on the database of historic transactions encompassing the period 1983 through 2011, as presented beginning on page V-2 of this report.

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 retirement, a net positive 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, included the following steps:

1. The annual retirement, gross salvage and cost of removal transactions for the period January 1, 1983 through December 31, 2011 were extracted from the plant accounting systems.

2. A net salvage amount (gross salvage proceeds less cost of retirement) was calculated for each historic year. Additionally, a net salvage amount was also calculated for each historic three-year rolling band and the most recent five-year rolling band.
3. The net salvage amount determined above was compared to the original booked costs retired for each period in the manner described, which resulted 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 were analyzed to determine a reasonable estimated net salvage percentage. At this point the net salvage percentage was based purely upon statistical analysis.
5. Each account was then compared to the net salvage percentage currently approved, compared to peer electric distribution 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 was determined for each account.
6. The net salvage percentage was then used in the depreciation rate calculations in the technical update.

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, average service life and equal life group.

In the average service life procedure, the rate of annual depreciation is based on the average life or 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 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 this procedure, the accrued depreciation is based on the average service life of the group and the average remaining life of each vintage within the group derived from the area under the survivor curve between the attained age of the vintage and the maximum age.

In the equal life group 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 group. The table on the following page presents an illustration of the calculation of equal life group depreciation using the Iowa 15-R2.5 survivor curve, 0 percent net salvage and a December 31, 2011 calculation date. In the table, each equal life group is defined by the age interval shown in columns 1 and 2. These are the ages at which the first and last retirement of each group occurs, and the group's equal life, shown in column 3, is the midpoint of the interval. For purposes of the calculation, each vintage is divided into equal life groups arranged so that the midpoint of each one-year age interval coincides with the calculation date, e.g., December 31 in this case. This enables the calculation of annual accruals for a twelve-month period centered on the date of calculation.

The retirement during the age interval, shown in column 4, is the size of each equal life group and is derived from the Iowa 15-R2.5 survivor curve and 0 percent net

salvage. It is the difference between the percents surviving at the beginning and end of the age interval. Each equal life group's annual accrual, shown in column 5, equals the group's size (column 4) divided by its life (column 3).

DETAILED COMPUTATION OF ANNUAL AND ACCRUED FACTORS USING THE EQUAL LIFE GROUP PROCEDURE

INPUT PARAMETERS:
CALCULATION DATE... 12-31-2011
SURVIVOR CURVE.... 15-R2.5

AGE BEG	INTERVAL END	RETIREMENTS LIFE	DURING INTERVAL	GROUP ANNUAL ACCRUAL	YEAR INST	SUMMATION OF ANNUAL ACCRUALS	AVERAGE PERCENT SURVIVING	ANNUAL FACTOR	ACCRUED FACTOR
(1)	(2)	(3)	(4)	(5)=(4)/(3)	(6)	(7)	(8)	(9)	(10)
0.000	1.000	0.500	0.41456	0.4145600000	2011	8.48317016669	99.801689	0.0850	0.0425
1.000	2.000	1.500	0.54270	0.3618000000	2010	7.88771016669	99.314092	0.0794	0.1191
2.000	3.000	2.500	0.70644	0.2825760000	2009	7.56552216669	98.689522	0.0767	0.1918
3.000	4.000	3.500	0.91471	0.26134571429	2008	7.29356130954	97.878946	0.0745	0.2608
4.000	5.000	4.500	1.17180	0.26040000000	2007	7.03268845240	96.835691	0.0726	0.3267
5.000	6.000	5.500	1.48669	0.27030727273	2006	6.76733481603	95.506445	0.0709	0.3900
6.000	7.000	6.500	1.86917	0.28756461538	2005	6.48839887198	93.828517	0.0692	0.4498
7.000	8.000	7.500	2.32013	0.30935066667	2004	6.18994123095	91.733866	0.0675	0.5063
8.000	9.000	8.500	2.85052	0.33535529412	2003	5.86758825056	89.148540	0.0658	0.5593
9.000	10.000	9.500	3.47395	0.36567894737	2002	5.51707112981	85.986307	0.0642	0.6099
10.000	11.000	10.500	4.19137	0.39917809524	2001	5.13464260851	82.153647	0.0625	0.6563
11.000	12.000	11.500	5.01523	0.43610695652	2000	4.71700008263	77.550345	0.0608	0.6992
12.000	13.000	12.500	5.94099	0.47527920000	1999	4.26130700437	72.072235	0.0591	0.7388
13.000	14.000	13.500	6.90555	0.51152222222	1998	3.76790629326	65.648964	0.0574	0.7749
14.000	15.000	14.500	7.81260	0.53880000000	1997	3.24274518215	58.289889	0.0556	0.8062
15.000	16.000	15.500	8.49729	0.54821225806	1996	2.69923905312	50.134944	0.0538	0.8339
16.000	17.000	16.500	8.76020	0.53092121212	1995	2.15967231803	41.506200	0.0520	0.8580
17.000	18.000	17.500	8.48031	0.48458914286	1994	1.65191714054	32.885946	0.0502	0.8785
18.000	19.000	18.500	7.64316	0.41314378378	1993	1.20305067722	24.824209	0.0485	0.8973
19.000	20.000	19.500	6.41852	0.32915487179	1992	0.83190134943	17.793368	0.0468	0.9126
20.000	21.000	20.500	5.04643	0.24616731707	1991	0.54424025500	12.060894	0.0451	0.9246
21.000	22.000	21.500	3.72024	0.17303441860	1990	0.33463938717	7.677558	0.0436	0.9374
22.000	23.000	22.500	2.56793	0.11413022222	1989	0.19105706676	4.533472	0.0421	0.9473
23.000	24.000	23.500	1.62424	0.06911659574	1988	0.09943365778	2.437389	0.0408	0.9588
24.000	25.000	24.500	0.92634	0.03780979592	1987	0.04597046195	1.162100	0.0396	0.9702
25.000	26.000	25.500	0.48697	0.01909686275	1986	0.01751713261	0.455446	0.0385	0.9818
26.000	27.000	26.500	0.18915	0.00713773585	1985	0.00439983331	0.117386	0.0375	0.9938
27.000	27.900	27.450	0.02281	0.00083096539	1984	0.00037393443	0.010265	0.0364	1.0000
TOTAL			100.00000						

Columns 6 through 10 show the derivation of the annual and accrued factors for each vintage based on the information developed in the first five columns. The year installed is shown in column 6. For all vintages other than 2011, the summation of annual accruals for each year installed, shown in column 7, is calculated by adding one-half of the group annual accrual (column 5) for that vintage's current age interval plus the group annual accruals for all succeeding age intervals. For example, the figure

7.88771016669 for 2010 equals one-half of 0.36180000000 plus all of the succeeding figures in column 5. Only one-half of the annual accrual for the vintage's current age interval group is included in the summation because the equal life group for that interval has reached the year during which it is expected to be retired.

The summation of annual accruals (column 7) for installations during 2011 is calculated on the basis of an in-service date at the midpoint of the year, i.e., June 30. In as much as the overall calculation is centered of December 31, 2011, the first figure in column 7, for vintage 2011, equals all of the group annual accrual for the first equal life group plus the accruals for all of the subsequent equal life groups.

The average percent surviving derived from the Iowa 15-R2.5 survivor curve and 0 percent net salvage is shown in column 8 for each age interval. The annual factor, shown in column 9, is the result of dividing the summation of annual accruals (column 7) by the average percent surviving (column 8). The accrued factor, shown in column 10, equals the annual factor multiplied by the age of the group at December 31, 2011.

MONITORING OF BOOK ACCUMULATED DEPRECIATION

The calculated accrued depreciation or amortization represents that portion of the depreciable cost which will not be allocated to expense through future depreciation accruals, if current forecasts of service life characteristics materialize and are used as a basis for depreciation accounting. Thus, the calculated accrued depreciation provides a measure of the book accumulated depreciation. The use of this measure is recommended in the amortization of book accumulated depreciation variances to insure complete recovery of capital over the life of the property.

The recommended amortization of the variance between the book accumulated depreciation and the calculated accrued depreciation is based on an amortization period equal to the composite remaining life for each property group where the variance exceeds five percent of the calculated accrued depreciation.

The composite remaining life for use in the reducing accumulated depreciation variances for all accounts that incorporated the use of the ELG procedure applied on a whole life basis is derived by compositing the individual equal life group remaining lives in accordance with the following equation:

$$\text{Composite Remaining Life} = \frac{\sum \left(\frac{\text{Book Cost}}{\text{Life}} \times \text{Remaining Life} \right)}{\sum \frac{\text{Book Cost}}{\text{Life}}}.$$

The book costs and lives of the several equal life groups, which are summed in the foregoing equation, are defined by the estimated future survivor curve.

In as much as book cost divided by life equals the whole life annual accrual, the foregoing equation reduces to the following form:

$$\text{Composite Remaining Life} = \frac{\sum \text{Whole Life Future Accruals}}{\sum \text{Whole Life Annual Accruals}}$$

Or

$$\text{Composite Remaining Life} = \frac{\sum (\text{Book Cost} - \text{Calc. Reserve})}{\sum \text{Whole Life Annual Accrual}}.$$

PART III. RESULTS OF STUDY

PART III. RESULTS OF STUDY

QUALIFICATION OF RESULTS

The calculated annual and accrued depreciation and the calculation of the composite average remaining life 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 equal life group procedure based on estimates which reflect considerations of current historical evidence and expected future conditions.

DESCRIPTION OF DETAILED TABULATIONS

The service life and net salvage 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 supporting materials document beginning on page IV-2. The results of the net salvage analysis are presented beginning on page V-2.

For each depreciable group analyzed by the retirement rate method, a chart depicting the original and estimated survivor curves is 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 were 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 that appear in the experience.

The tables of the calculated annual depreciation applicable to plant as of December 31, 2011 are presented in account sequence starting on page V-2. 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, the allocated book reserve, future book accruals, remaining life and the calculated annual accrual.

YUKON ELECTRICAL COMPANY LIMITED

SCHEDULE 1A. ESTIMATED SURVIVOR CURVES, ORIGINAL COST AND ANNUAL ACCRUALS
FOR THE TWELVE MONTHS ENDED DECEMBER 31, 2011

RELATED TO RECOVERY OF THE ORIGINAL COST

GENERATION	DESCRIPTION (1)	ESTIMATED SURVIVOR CURVE (2)	SURVIVING ORIGINAL COST AS OF DECEMBER 31, 2011 (3)	CALCULATED ACCURED DEPRECIATION (4)	ANNUAL ACCRUAL AMOUNT (5)	RATE (6)=(5)/(3)
HYDRO GENERATION (LIFE SPAN OF 2052)						
422.00	HYDRO STRUCTURES	72-R2	215,286	59,965	4,724	2.19
423.00	HYDRO RESERVOIRS, DAMS AND WATERWAYS	103-R3	1,875,073	316,708	39,536	2.11
425.00	HYDRO GENERATORS	85-R3	1,458,435	153,398	33,511	2.30
426.00	HYDRO ACCESSORIES AND EQUIPMENT	45-R3	105,192	48,486	2,443	2.32
427.00	HYDRO MISCELLANEOUS EQUIPMENT	30-R2	68,657	19,466	2,643	3.85
	TOTAL HYDRO PLANT		3,722,643	598,025	82,856	
DIESEL GENERATION						
BEAVER CREEK (LIFE SPAN OF 2053)						
442.00	STRUCTURES AND IMPROVEMENTS	40-R2.5	37,488	22,252	902	2.41
444.00	FUEL HOLDERS, PRODUCTS AND ACCESSORIES	35-R4	92,859	40,692	2,719	2.93
445.00	GENERAL EQUIPMENT AND PRIME MOVERS	26-S2.5	535,779	367,441	19,646	3.67
446.00	ACCESSORY ELECTRIC EQUIPMENT	35-R3	173,365	57,897	5,302	3.06
447.00	MISCELLANEOUS POWER PLANT EQUIPMENT	40-R3	48,603	8,191	1,388	2.86
	TOTAL BEAVER CREEK		888,094	496,472	29,957	
CARMACKS (LIFE SPAN OF 2053)						
442.00	STRUCTURES AND IMPROVEMENTS	40-R2.5	167,739	44,228	4,784	2.85
444.00	FUEL HOLDERS, PRODUCTS AND ACCESSORIES	35-R4	40,394	25,071	1,163	2.88
445.00	GENERAL EQUIPMENT AND PRIME MOVERS	26-S2.5	419,543	309,237	14,948	3.56
446.00	ACCESSORY ELECTRIC EQUIPMENT	35-R3	101,158	34,682	3,102	3.07
447.00	MISCELLANEOUS POWER PLANT EQUIPMENT	40-R3	7,366	535	221	3.00
	TOTAL CARMACKS		736,201	413,753	24,217	
DESTRUCTION BAY (LIFE SPAN OF 2023)						
442.00	STRUCTURES AND IMPROVEMENTS	40-R2.5	42,282	31,221	1,178	2.79
444.00	FUEL HOLDERS, PRODUCTS AND ACCESSORIES	35-R4	105,478	54,551	4,473	4.24
445.00	GENERAL EQUIPMENT AND PRIME MOVERS	26-S2.5	488,076	140,036	31,506	6.46
446.00	ACCESSORY ELECTRIC EQUIPMENT	35-R3	284,627	142,466	12,854	4.52
447.00	MISCELLANEOUS POWER PLANT EQUIPMENT	40-R3	28,048	13,174	1,306	4.66
	TOTAL DESTRUCTION BAY		948,512	381,448	51,317	
HAINES JUNCTION (LIFE SPAN OF 2053)						
442.00	STRUCTURES AND IMPROVEMENTS	40-R2.5	608,472	115,568	18,129	2.98
444.00	FUEL HOLDERS, PRODUCTS AND ACCESSORIES	35-R4	619,132	248,915	18,389	2.97
445.00	GENERAL EQUIPMENT AND PRIME MOVERS	26-S2.5	60,097	37,282	2,307	3.84
446.00	ACCESSORY ELECTRIC EQUIPMENT	35-R3	94,952	47,493	2,677	2.82
447.00	MISCELLANEOUS POWER PLANT EQUIPMENT	40-R3	2,454	1,482	58	2.36
	TOTAL HAINES JUNCTION		1,385,107	450,740	41,561	
OLD CROW (LIFE SPAN OF 2053)						
442.00	STRUCTURES AND IMPROVEMENTS	40-R2.5	187,900	101,997	4,652	2.48
444.00	FUEL HOLDERS, PRODUCTS AND ACCESSORIES	35-R4	215,087	82,975	6,303	2.93
445.00	GENERAL EQUIPMENT AND PRIME MOVERS	26-S2.5	1,223,713	529,491	49,686	4.06
446.00	ACCESSORY ELECTRIC EQUIPMENT	35-R3	119,365	68,323	3,379	2.83
447.00	MISCELLANEOUS POWER PLANT EQUIPMENT	40-R3	171,496	66,532	4,561	2.66
	TOTAL OLD CROW		1,917,561	849,318	68,581	

YUKON ELECTRICAL COMPANY LIMITED

SCHEDULE 1A. ESTIMATED SURVIVOR CURVES, ORIGINAL COST AND ANNUAL ACCRUALS
FOR THE TWELVE MONTHS ENDED DECEMBER 31, 2011

RELATED TO RECOVERY OF THE ORIGINAL COST

DESCRIPTION (1)	ESTIMATED SURVIVOR CURVE (2)	SURVIVING ORIGINAL COST AS OF DECEMBER 31, 2011 (3)	CALCULATED ACCURED DEPRECIATION (4)	ANNUAL ACCRUAL AMOUNT (5)	RATE (6)=(5)/(3)
PELLY CROSSING (LIFE SPAN OF 2033)					
442.00 STRUCTURES AND IMPROVEMENTS	40-R2.5	48,892	33,820	1,158	2.37
444.00 FUEL HOLDERS, PRODUCTS AND ACCESSORIES	35-R4	129,302	92,887	3,533	2.73
445.00 GENERAL EQUIPMENT AND PRIME MOVERS	26-S2.5	474,056	300,758	17,945	3.79
446.00 ACCESSORY ELECTRIC EQUIPMENT	35-R3	431,735	164,126	15,056	3.49
447.00 MISCELLANEOUS POWER PLANT EQUIPMENT	40-R3	61,485	20,121	2,170	3.53
TOTAL PELLY CROSSING		1,145,469	611,712	39,862	
ROSS RIVER (LIFE SPAN OF 2053)					
442.00 STRUCTURES AND IMPROVEMENTS	40-R2.5	171,221	57,383	4,713	2.75
444.00 FUEL HOLDERS, PRODUCTS AND ACCESSORIES	35-R4	85,126	32,959	2,547	2.99
445.00 GENERAL EQUIPMENT AND PRIME MOVERS	26-S2.5	189,753	147,095	6,507	3.43
446.00 ACCESSORY ELECTRIC EQUIPMENT	35-R3	124,872	48,576	3,768	3.02
447.00 MISCELLANEOUS POWER PLANT EQUIPMENT	40-R3	9,639	1,775	273	2.83
TOTAL ROSS RIVER		580,611	287,788	17,808	
STEWART CROSSING (LIFE SPAN OF 2053)					
442.00 STRUCTURES AND IMPROVEMENTS	40-R2.5	247,966	64,265	7,068	2.85
444.00 FUEL HOLDERS, PRODUCTS AND ACCESSORIES	35-R4	65,107	14,928	1,947	2.99
445.00 GENERAL EQUIPMENT AND PRIME MOVERS	26-S2.5	45,677	24,846	1,675	3.67
446.00 ACCESSORY ELECTRIC EQUIPMENT	35-R3	26,610	26,610	2,126	3.02
447.00 MISCELLANEOUS POWER PLANT EQUIPMENT	40-R3	84,682	6,985	2,533	2.99
TOTAL STEWART CROSSING		513,857	137,634	15,348	
SWIFT RIVER (LIFE SPAN OF 2053)					
442.00 STRUCTURES AND IMPROVEMENTS	40-R2.5	22,503	9,907	583	2.59
444.00 FUEL HOLDERS, PRODUCTS AND ACCESSORIES	35-R4	63,430	37,645	1,828	2.88
445.00 GENERAL EQUIPMENT AND PRIME MOVERS	26-S2.5	241,047	98,815	9,675	4.01
446.00 ACCESSORY ELECTRIC EQUIPMENT	35-R3	93,560	31,055	2,880	3.08
447.00 MISCELLANEOUS POWER PLANT EQUIPMENT	40-R3	11,924	3,190	328	2.75
TOTAL SWIFT RIVER		432,465	180,612	15,295	
TESLIN (LIFE SPAN OF 2053)					
442.00 STRUCTURES AND IMPROVEMENTS	40-R2.5	37,986	10,437	1,133	2.98
444.00 FUEL HOLDERS, PRODUCTS AND ACCESSORIES	35-R4	99,863	22,619	3,016	3.02
445.00 GENERAL EQUIPMENT AND PRIME MOVERS	26-S2.5	762,034	524,432	28,347	3.72
446.00 ACCESSORY ELECTRIC EQUIPMENT	35-R3	54,417	25,006	1,611	2.96
447.00 MISCELLANEOUS POWER PLANT EQUIPMENT	40-R3	69,778	9,302	2,014	2.89
TOTAL TESLIN		1,024,077	591,796	36,121	
WATSON LAKE (LIFE SPAN OF 2113)					
442.00 STRUCTURES AND IMPROVEMENTS	40-R2.5	359,393	203,938	8,843	2.46
444.00 FUEL HOLDERS, PRODUCTS AND ACCESSORIES	35-R4	747,818	108,117	22,509	3.01
445.00 GENERAL EQUIPMENT AND PRIME MOVERS	26-S2.5	2,169,195	1,318,706	79,932	3.68
446.00 ACCESSORY ELECTRIC EQUIPMENT	35-R3	578,189	305,256	16,449	2.84
447.00 MISCELLANEOUS POWER PLANT EQUIPMENT	40-R3	258,430	61,919	7,095	2.75
TOTAL WATSON LAKE		4,113,025	1,997,936	134,828	
TOTAL DIESEL PLANT		13,684,978	6,399,211	474,894	

YUKON ELECTRICAL COMPANY LIMITED

SCHEDULE 1A. ESTIMATED SURVIVOR CURVES, ORIGINAL COST AND ANNUAL ACCRUALS
FOR THE TWELVE MONTHS ENDED DECEMBER 31, 2011

RELATED TO RECOVERY OF THE ORIGINAL COST

DESCRIPTION (1)	ESTIMATED SURVIVOR CURVE (2)	SURVIVING ORIGINAL COST AS OF DECEMBER 31, 2011 (3)	CALCULATED ACCURED DEPRECIATION (4)	ANNUAL ACCRUAL AMOUNT (5)	RATE (6)=(5)/(3)
MOBILE					
442.00 STRUCTURES AND IMPROVEMENTS	40-R2.5	10,662	8,809	217	2.04
444.00 FUEL HOLDERS, PRODUCTS AND ACCESSORIES	35-R4	25,562	16,999	723	2.83
445.00 GENERAL EQUIPMENT AND PRIME MOVERS	26-S2.5	568,500	303,283	21,486	3.78
446.00 ACCESSORY ELECTRIC EQUIPMENT	35-R3	87,652	40,799	2,555	2.91
447.00 MISCELLANEOUS POWER PLANT EQUIPMENT	40-R3	92,170	12,008	2,603	2.82
TOTAL MOBILE		784,546	381,898	27,585	
TOTAL GENERATION					
		18,192,167	7,379,133	585,335	
SUBSTATION PLANT					
457.00 SUBSTATION EQUIPMENT - TRANSMISSION	50-R4	1,384,421	626,639	28,478	2.06
TOTAL SUBSTATION PLANT		1,384,421	626,639	28,478	
DISTRIBUTION PLANT					
471.00 LAND RIGHTS	75-R3	1,267,608	151,638	19,155	1.51
473.00 POLES, TOWERS AND FIXTURES	45-R3	30,231,546	8,972,741	726,834	2.40
474.00 OVERHEAD CONDUCTOR	45-R4	20,514,612	5,832,601	475,347	2.32
474.10 OVERHEAD SERVICES	45-R3	2,849,453	1,023,337	67,049	2.35
475.00 UNDERGROUND CONDUIT	45-R3	20,982,589	6,074,457	506,341	2.41
475.10 UNDERGROUND SERVICES	40-R4	2,953,077	924,039	77,204	2.61
476.10 METERS	15-L0	1,683,985	682,328	134,650	8.00
476.30 AMR - METERS	15-R2.5	67,646	14,259	5,175	7.65
477.10 SUBSTATION EQUIPMENT - DISTRIBUTION	40-R4	3,131,073	1,605,098	79,061	2.53
478.10 STREET LIGHTS AND SIGNAL SYSTEMS	30-R3	9,147,522	3,814,663	316,295	3.46
478.20 SENTINEL LIGHTS	23-R2	284,738	246,947	8,784	3.08
479.10 LINE TRANSFORMERS	45-R3	24,427,769	6,695,953	590,016	2.42
TOTAL DISTRIBUTION PLANT		117,541,619	36,038,060	3,005,911	
GENERAL PLANT					
482.00 STRUCTURES AND IMPROVEMENTS	40-L3	3,459,315	1,660,879	91,701	2.65
483.00 OFFICE FURNITURE AND EQUIPMENT	15-SQ	172,793	62,511	10,448	6.05
483.20 COMPUTER EQUIPMENT AND ACCESSORIES	5-SQ	47,367	10,448	8,929	18.85
484.00 TRANSPORTATION AND MOBILE EQUIPMENT	12-L0	2,561,147	964,510	157,467	6.15
485.00 TOOLS AND INSTRUMENTS	15-SQ	719,184	273,558	46,712	6.50
486.00 COMMUNICATION EQUIPMENT	15-SQ	872,842	422,551	49,726	5.70
488.20 HOUSES	40-R3	473,256	152,396	12,719	2.69
TOTAL GENERAL PLANT		8,305,904	3,546,853	377,702	
TOTAL UTILITY PLANT IN SERVICE					
		145,424,111	47,590,686	3,997,427	

YUKON ELECTRICAL COMPANY LIMITED

SCHEDULE 1B. ESTIMATED SURVIVOR CURVES, NET SALVAGE PERCENTS, ORIGINAL COST AND ANNUAL ACCRUALS
FOR THE TWELVE MONTHS ENDED DECEMBER 31, 2011

RELATED TO RECOVERY OF THE REQUIRED NET SALVAGE ESTIMATES

DESCRIPTION (1)		ESTIMATED SURVIVOR CURVE (%) (2)	ESTIMATED NET SALVAGE (3)	SURVIVING ORIGINAL COST AS OF DECEMBER 31, 2011 (4)	CALCULATED ACCRUED DEPRECIATION (5)	ANNUAL ACCRUAL AMOUNT (6)	RATE (7)=(6)/(4)
GENERATION							
HYDRO PLANT (LIFE SPAN OF 2052)							
422.00	HYDRO STRUCTURES	72-R2	(10)	215,286	5,997	472	0.22
423.00	HYDRO RESERVOIRS, DAMS AND WATERWAYS	103-R3	(10)	1,875,073	31,671	3,954	0.21
425.00	HYDRO GENERATORS	85-R3	(10)	1,458,435	15,340	3,351	0.23
426.00	HYDRO ACCESSORIES AND EQUIPMENT	45-R3	(10)	105,192	4,849	244	0.23
427.00	HYDRO MISCELLANEOUS EQUIPMENT	30-R2	(10)	68,657	1,947	264	0.38
TOTAL HYDRO PLANT				3,722,643	59,802	8,286	
PRODUCTION DIESEL PLANT							
BEAVER CREEK (LIFE SPAN OF 2053)							
442.00	STRUCTURES AND IMPROVEMENTS	40-R2.5	(10)	37,488	2,225	90	0.24
444.00	FUEL HOLDERS, PRODUCTS AND ACCESSORIES	35-R4	(20)	92,859	8,138	544	0.59
445.00	GENERAL EQUIPMENT AND PRIME MOVERS	26-S2.5	(10)	535,779	36,744	1,965	0.37
446.00	ACCESSORY ELECTRIC EQUIPMENT	35-R3	0	173,365	-	-	-
447.00	MISCELLANEOUS POWER PLANT EQUIPMENT	40-R3	0	48,603	-	-	-
TOTAL BEAVER CREEK				888,094	47,108	2,599	
CARMACKS (LIFE SPAN OF 2053)							
442.00	STRUCTURES AND IMPROVEMENTS	40-R2.5	(10)	167,739	4,423	478	0.29
444.00	FUEL HOLDERS, PRODUCTS AND ACCESSORIES	35-R4	(20)	40,394	5,014	233	0.58
445.00	GENERAL EQUIPMENT AND PRIME MOVERS	26-S2.5	(10)	419,543	30,924	1,495	0.36
446.00	ACCESSORY ELECTRIC EQUIPMENT	35-R3	0	101,158	-	-	-
447.00	MISCELLANEOUS POWER PLANT EQUIPMENT	40-R3	0	7,366	-	-	-
TOTAL CARMACKS				736,201	40,361	2,206	
DESTRUCTION BAY (LIFE SPAN OF 2023)							
442.00	STRUCTURES AND IMPROVEMENTS	40-R2.5	(10)	42,282	3,122	118	0.28
444.00	FUEL HOLDERS, PRODUCTS AND ACCESSORIES	35-R4	(20)	105,478	10,910	895	0.85
445.00	GENERAL EQUIPMENT AND PRIME MOVERS	26-S2.5	(10)	488,076	14,004	3,151	0.65
446.00	ACCESSORY ELECTRIC EQUIPMENT	35-R3	0	284,627	-	-	-
447.00	MISCELLANEOUS POWER PLANT EQUIPMENT	40-R3	0	28,048	-	-	-
TOTAL DESTRUCTION BAY				948,512	28,036	4,163	
HAINES JUNCTION (LIFE SPAN OF 2053)							
442.00	STRUCTURES AND IMPROVEMENTS	40-R2.5	(10)	608,472	11,557	1,813	0.30
444.00	FUEL HOLDERS, PRODUCTS AND ACCESSORIES	35-R4	(20)	619,132	49,783	3,678	0.59
445.00	GENERAL EQUIPMENT AND PRIME MOVERS	26-S2.5	(10)	60,097	3,728	231	0.38
446.00	ACCESSORY ELECTRIC EQUIPMENT	35-R3	0	94,952	-	-	-
447.00	MISCELLANEOUS POWER PLANT EQUIPMENT	40-R3	0	2,454	-	-	-
TOTAL HAINES JUNCTION				1,385,107	65,068	5,721	
OLD CROW (LIFE SPAN OF 2053)							
442.00	STRUCTURES AND IMPROVEMENTS	40-R2.5	(10)	187,900	10,200	465	0.25
444.00	FUEL HOLDERS, PRODUCTS AND ACCESSORIES	35-R4	(20)	215,087	16,595	1,261	0.59
445.00	GENERAL EQUIPMENT AND PRIME MOVERS	26-S2.5	(10)	1,223,713	52,949	4,969	0.41
446.00	ACCESSORY ELECTRIC EQUIPMENT	35-R3	0	119,365	-	-	-
447.00	MISCELLANEOUS POWER PLANT EQUIPMENT	40-R3	0	171,496	-	-	-
TOTAL OLD CROW				1,917,561	79,744	6,694	

YUKON ELECTRICAL COMPANY LIMITED

SCHEDULE 1B. ESTIMATED SURVIVOR CURVES, NET SALVAGE PERCENTS, ORIGINAL COST AND ANNUAL ACCRUALS
FOR THE TWELVE MONTHS ENDED DECEMBER 31, 2011

RELATED TO RECOVERY OF THE REQUIRED NET SALVAGE ESTIMATES

DESCRIPTION (1)	ESTIMATED SURVIVOR CURVE (%) (2)	ESTIMATED NET SALVAGE (3)	SURVIVING ORIGINAL COST AS OF DECEMBER 31, 2011 (4)	CALCULATED ACCURED DEPRECIATION (5)	ANNUAL ACCRUAL AMOUNT (6)	ANNUAL ACCRUAL RATE (7)=(6)/(4)
PELLY CROSSING (LIFE SPAN OF 2033)						
STRUCTURES AND IMPROVEMENTS	40-R2.5	(10)	48,892	3,382	116	0.24
FUEL HOLDERS, PRODUCTS AND ACCESSORIES	35-R4	(20)	129,302	18,577	707	0.55
GENERAL EQUIPMENT AND PRIME MOVERS	26-S2.5	(10)	474,056	30,076	1,794	0.38
ACCESSORY ELECTRIC EQUIPMENT	35-R3	0	431,735	-	-	-
MISCELLANEOUS POWER PLANT EQUIPMENT	40-R3	0	61,485	-	-	-
TOTAL PELLY CROSSING			1,145,469	52,035	2,617	
ROSS RIVER (LIFE SPAN OF 2053)						
STRUCTURES AND IMPROVEMENTS	40-R2.5	(10)	171,221	5,738	471	0.28
FUEL HOLDERS, PRODUCTS AND ACCESSORIES	35-R4	(20)	85,126	6,592	509	0.60
GENERAL EQUIPMENT AND PRIME MOVERS	26-S2.5	(10)	189,753	14,710	651	0.34
ACCESSORY ELECTRIC EQUIPMENT	35-R3	0	124,872	-	-	-
MISCELLANEOUS POWER PLANT EQUIPMENT	40-R3	0	9,639	-	-	-
TOTAL ROSS RIVER			580,611	27,040	1,631	
STEWART CROSSING (LIFE SPAN OF 2053)						
STRUCTURES AND IMPROVEMENTS	40-R2.5	(10)	247,966	6,427	707	0.29
FUEL HOLDERS, PRODUCTS AND ACCESSORIES	35-R4	(20)	65,107	2,986	389	0.60
GENERAL EQUIPMENT AND PRIME MOVERS	26-S2.5	(10)	45,677	2,485	167	0.37
ACCESSORY ELECTRIC EQUIPMENT	35-R3	0	70,425	-	-	-
MISCELLANEOUS POWER PLANT EQUIPMENT	40-R3	0	84,682	-	-	-
TOTAL STEWART CROSSING			513,857	11,897	1,264	
SWIFT RIVER (LIFE SPAN OF 2053)						
STRUCTURES AND IMPROVEMENTS	40-R2.5	(10)	22,503	991	58	0.26
FUEL HOLDERS, PRODUCTS AND ACCESSORIES	35-R4	(20)	63,430	7,529	366	0.58
GENERAL EQUIPMENT AND PRIME MOVERS	26-S2.5	(10)	241,047	9,881	968	0.40
ACCESSORY ELECTRIC EQUIPMENT	35-R3	0	93,560	-	-	-
MISCELLANEOUS POWER PLANT EQUIPMENT	40-R3	0	11,924	-	-	-
TOTAL SWIFT RIVER			432,465	18,401	1,391	
TESLIN (LIFE SPAN OF 2053)						
STRUCTURES AND IMPROVEMENTS	40-R2.5	(10)	37,986	1,044	113	0.30
FUEL HOLDERS, PRODUCTS AND ACCESSORIES	35-R4	(20)	99,863	4,524	603	0.60
GENERAL EQUIPMENT AND PRIME MOVERS	26-S2.5	(10)	762,034	52,443	2,835	0.37
ACCESSORY ELECTRIC EQUIPMENT	35-R3	0	54,417	-	-	-
MISCELLANEOUS POWER PLANT EQUIPMENT	40-R3	0	69,778	-	-	-
TOTAL TESLIN			1,024,077	58,011	3,551	
WATSON LAKE (LIFE SPAN OF 2113)						
STRUCTURES AND IMPROVEMENTS	40-R2.5	(10)	359,393	20,394	884	0.25
FUEL HOLDERS, PRODUCTS AND ACCESSORIES	35-R4	(20)	747,818	21,623	4,502	0.60
GENERAL EQUIPMENT AND PRIME MOVERS	26-S2.5	(10)	2,169,195	131,871	7,993	0.37
ACCESSORY ELECTRIC EQUIPMENT	35-R3	0	578,189	-	-	-
MISCELLANEOUS POWER PLANT EQUIPMENT	40-R3	0	258,430	-	-	-
TOTAL WATSON LAKE			4,113,025	173,888	13,379	
TOTAL DIESEL PLANT			13,684,978	601,587	45,217	

YUKON ELECTRICAL COMPANY LIMITED

SCHEDULE 1B. ESTIMATED SURVIVOR CURVES, NET SALVAGE PERCENTS, ORIGINAL COST AND ANNUAL ACCRUALS
FOR THE TWELVE MONTHS ENDED DECEMBER 31, 2011

RELATED TO RECOVERY OF THE REQUIRED NET SALVAGE ESTIMATES

DESCRIPTION (1)	ESTIMATED SURVIVOR CURVE (%) (2)	ESTIMATED NET SALVAGE (3)	SURVIVING ORIGINAL COST AS OF DECEMBER 31, 2011 (4)	CALCULATED ACCRUED DEPRECIATION (5)	ANNUAL ACCRUAL	
					AMOUNT (6)	RATE (7)=(6)/(4)
MOBILE						
STRUCTURES AND IMPROVEMENTS	40-R2.5	(10)	10,662	881	22	0.20
FUEL HOLDERS, PRODUCTS AND ACCESSORIES	35-R4	(20)	25,562	3,400	145	0.57
GENERAL EQUIPMENT AND PRIME MOVERS	26-S2.5	(10)	568,500	30,328	2,149	0.38
ACCESSORY ELECTRIC EQUIPMENT	35-R3	0	87,652	-	-	-
MISCELLANEOUS POWER PLANT EQUIPMENT	40-R3	0	92,170	-	-	-
TOTAL MOBILE			784,546	34,609	2,315	
TOTAL GENERATION						
			18,192,167	695,999	55,818	
SUBSTATION PLANT						
50-R4	50-R4	(10)	1,384,421	62,664	2,848	0.21
TOTAL SUBSTATION PLANT			1,384,421	62,664	2,848	
DISTRIBUTION PLANT						
LAND RIGHTS	75-R3	0	1,267,608	-	-	-
POLES, TOWERS AND FIXTURES	45-R3	(75)	30,231,546	6,729,555	545,126	1.80
OVERHEAD CONDUCTOR	45-R4	(80)	20,514,612	4,666,080	380,278	1.85
OVERHEAD SERVICES	45-R3	(10)	2,849,453	102,334	6,705	0.24
UNDERGROUND CONDUIT	45-R3	(50)	20,982,589	3,037,229	253,171	1.21
UNDERGROUND SERVICES	40-R4	(10)	2,953,077	92,404	7,720	0.26
METERS	15-L0	0	1,683,985	-	-	-
AMR - METERS	15-R2.5	0	67,646	-	-	-
SUBSTATION EQUIPMENT - DISTRIBUTION	40-R4	(10)	3,131,073	160,510	7,906	0.25
STREET LIGHTS AND SIGNAL SYSTEMS	30-R3	(10)	9,147,522	381,466	31,629	0.35
SENTINEL LIGHTS	23-R2	0	284,738	-	-	-
LINE TRANSFORMERS	45-R3	(10)	24,427,769	669,595	59,002	0.24
TOTAL DISTRIBUTION PLANT			117,541,619	15,839,174	1,291,536	
GENERAL PLANT						
STRUCTURES AND IMPROVEMENTS	40-L3	0	3,459,315	-	-	-
OFFICE FURNITURE AND EQUIPMENT	15-SQ	0	172,793	-	-	-
COMPUTER EQUIPMENT AND ACCESSORIES	5-SQ	0	47,367	-	-	-
TRANSPORTATION AND MOBILE EQUIPMENT	12-L0	25	2,561,147	-	-	-
TOOLS AND INSTRUMENTS	15-SQ	0	719,184	-	-	-
COMMUNICATION EQUIPMENT	15-SQ	0	872,842	-	-	-
HOUSES	40-R3	(10)	473,256	15,240	1,272	0.27
TOTAL GENERAL PLANT			8,305,904	15,240	1,272	
TOTAL UTILITY PLANT IN SERVICE			145,424,111	16,613,076	1,351,474	

(*) Interim Survivor Curve

YUKON ELECTRICAL COMPANY LIMITED

SCHEDULE 2A. ESTIMATED SURVIVOR CURVES, ORIGINAL COST AND ANNUAL ACCRUALS
FOR THE TWELVE MONTHS ENDED DECEMBER 31, 2011

RELATED TO THE RECOVERY OF THE ORIGINAL COST

GENERATION	DESCRIPTION	(1)	ESTIMATED SURVIVOR CURVE	(2)	SURVIVING ORIGINAL COST AS OF DECEMBER 31, 2011	(4)	CALCULATED ACCRUED DEPRECIATION	(5)	BOOK ACCUMULATED DEPRECIATION	(6)	ACCUMULATED DEPRECIATION VARIANCE	(7)=(5)-(6)	PROBABLE REMAINING LIFE	(8)	ANNUAL PROVISION FOR TRUE-UP	(9)=(7)-(8)
HYDRO PLANT (LIFE SPAN OF 2052)																
422.00	HYDRO STRUCTURES		ND		215,286		59,965		123,192		(63,227)		37.8		(1,673)	
423.00	HYDRO RESERVOIRS, DAMS AND WATERWAYS		72-R2		1,875,073		316,708		662,044		(345,336)		40.4		(8,548)	
425.00	HYDRO GENERATORS		103-R3		1,458,435		153,398		315,435		(161,737)		40.2		(4,023)	
426.00	HYDRO ACCESSORIES AND EQUIPMENT		85-R3		105,192		48,486		99,610		(51,124)		32.2		(1,588)	
427.00	HYDRO MISCELLANEOUS EQUIPMENT		45-R3		68,657		19,466		39,992		(20,526)		27.4		(749)	
	TOTAL HYDRO PLANT				3,722,643		598,025		1,239,974		(641,949)				(16,581)	
PRODUCTION DIESEL PLANT																
BEAVER CREEK (LIFE SPAN OF 2053)																
442.00	STRUCTURES AND IMPROVEMENTS		40-R2.5		37,488		22,252		26,440		(4,188)		18.9		(222)	
444.00	FUEL HOLDERS, PRODUCTS AND ACCESSORIES		35-R4		92,859		40,692		50,013		(9,322)		22.0		(424)	
445.00	GENERAL EQUIPMENT AND PRIME MOVERS		26-S2.5		535,779		367,441		350,423		17,018		9.6		1,773	
446.00	ACCESSORY ELECTRIC EQUIPMENT		35-R3		173,365		57,897		68,793		(10,896)		25.9		(421)	
447.00	MISCELLANEOUS POWER PLANT EQUIPMENT		40-R3		88,603		8,191		10,719		(2,528)		33.4		(76)	
	TOTAL BEAVER CREEK				888,094		496,472		506,387		(9,915)				631	
CARMACKS (LIFE SPAN OF 2053)																
442.00	STRUCTURES AND IMPROVEMENTS		40-R2.5		167,739		44,228		52,552		(8,324)		30.2		(276)	
444.00	FUEL HOLDERS, PRODUCTS AND ACCESSORIES		35-R4		40,394		25,071		30,815		(5,744)		14.4		(399)	
445.00	GENERAL EQUIPMENT AND PRIME MOVERS		26-S2.5		419,543		309,237		294,915		14,323		8.3		1,726	
446.00	ACCESSORY ELECTRIC EQUIPMENT		35-R3		101,158		34,682		40,647		(5,965)		24.6		(242)	
447.00	MISCELLANEOUS POWER PLANT EQUIPMENT		40-R3		7,366		535		212		323		36.0		9	
	TOTAL CARMACKS				736,201		413,753		419,141		(5,368)				818	
DESTRUCTION BAY (LIFE SPAN OF 2023)																
442.00	STRUCTURES AND IMPROVEMENTS		40-R2.5		42,282		31,221		37,097		(5,876)		9.5		(619)	
444.00	FUEL HOLDERS, PRODUCTS AND ACCESSORIES		35-R4		105,478		54,551		67,047		(12,497)		11.6		(1,077)	
445.00	GENERAL EQUIPMENT AND PRIME MOVERS		26-S2.5		488,076		140,036		133,550		6,486		11.0		590	
446.00	ACCESSORY ELECTRIC EQUIPMENT		35-R3		284,627		142,466		174,086		(31,620)		11.5		(2,750)	
447.00	MISCELLANEOUS POWER PLANT EQUIPMENT		40-R3		28,048		13,174		18,011		(4,837)		11.8		(410)	
	TOTAL DESTRUCTION BAY				948,512		381,448		429,792		(48,344)				(4,266)	
HAINES JUNCTION (LIFE SPAN OF 2053)																
442.00	STRUCTURES AND IMPROVEMENTS		40-R2.5		608,472		115,568		137,319		(21,751)		32.1		(678)	
444.00	FUEL HOLDERS, PRODUCTS AND ACCESSORIES		35-R4		619,132		248,915		305,938		(57,023)		21.9		(2,604)	
445.00	GENERAL EQUIPMENT AND PRIME MOVERS		26-S2.5		60,097		37,282		35,555		1,727		11.2		154	
446.00	ACCESSORY ELECTRIC EQUIPMENT		35-R3		94,952		47,493		58,093		(10,600)		25.4		(417)	
447.00	MISCELLANEOUS POWER PLANT EQUIPMENT		40-R3		2,454		1,482		1,989		(507)		33.4		(15)	
	TOTAL HAINES JUNCTION				1,385,107		450,740		538,894		(88,154)				(3,560)	
OLD CROW (LIFE SPAN OF 2053)																
442.00	STRUCTURES AND IMPROVEMENTS		40-R2.5		187,900		101,997		121,194		(19,196)		20.9		(918)	
444.00	FUEL HOLDERS, PRODUCTS AND ACCESSORIES		35-R4		215,087		82,975		101,983		(19,008)		24.1		(789)	
445.00	GENERAL EQUIPMENT AND PRIME MOVERS		26-S2.5		1,223,713		529,491		505,966		23,525		15.7		1,498	
446.00	ACCESSORY ELECTRIC EQUIPMENT		35-R3		119,365		66,323		80,570		(12,247)		18.9		(648)	
447.00	MISCELLANEOUS POWER PLANT EQUIPMENT		40-R3		171,496		66,532		91,261		(24,729)		26.9		(919)	
	TOTAL OLD CROW				1,917,561		849,318		900,974		(51,656)				(1,776)	

YUKON ELECTRICAL COMPANY LIMITED

SCHEDULE 2A. ESTIMATED SURVIVOR CURVES, ORIGINAL COST AND ANNUAL ACCRUALS
FOR THE TWELVE MONTHS ENDED DECEMBER 31, 2011

RELATED TO THE RECOVERY OF THE ORIGINAL COST

DESCRIPTION (1)	ESTIMATED SURVIVOR CURVE (2)	SURVIVING ORIGINAL COST AS OF DECEMBER 31, 2011 (4)	CALCULATED ACCURED DEPRECIATION (5)	BOOK ACCUMULATED DEPRECIATION (6)	ACCUMULATED DEPRECIATION VARIANCE (7)=(5)-(6)	PROBABLE REMAINING LIFE (8)	ANNUAL PROVISION FOR TRUE-UP (9)=(7)/(8)
PELLY CROSSING (LIFE SPAN OF 2033)							
442.00 STRUCTURES AND IMPROVEMENTS	40-R2.5	48,892	33,820	40,186	(6,366)	14.0	(455)
444.00 FUEL HOLDERS, PRODUCTS AND ACCESSORIES	35-R4	129,302	92,887	114,166	(21,279)	16.3	(1,305)
445.00 GENERAL EQUIPMENT AND PRIME MOVERS	26-S2.5	474,056	300,758	286,219	14,539	10.6	1,372
446.00 ACCESSORY ELECTRIC EQUIPMENT	35-R3	431,735	164,126	199,681	(35,555)	19.2	(1,852)
447.00 MISCELLANEOUS POWER PLANT EQUIPMENT	40-R3	61,485	20,121	27,361	(7,240)	20.5	(353)
TOTAL Pelly Crossing		1,145,469	611,712	667,613	(55,901)		(2,594)
ROSS RIVER (LIFE SPAN OF 2053)							
442.00 STRUCTURES AND IMPROVEMENTS	40-R2.5	171,221	57,383	68,182	(10,800)	28.0	(386)
444.00 FUEL HOLDERS, PRODUCTS AND ACCESSORIES	35-R4	85,126	32,959	40,510	(7,551)	22.2	(340)
445.00 GENERAL EQUIPMENT AND PRIME MOVERS	26-S2.5	189,753	147,095	140,282	6,813	7.3	933
446.00 ACCESSORY ELECTRIC EQUIPMENT	35-R3	124,872	48,576	58,732	(10,156)	23.5	(432)
447.00 MISCELLANEOUS POWER PLANT EQUIPMENT	40-R3	9,639	1,775	2,208	(433)	33.9	(13)
TOTAL Ross River		580,611	287,788	309,914	(22,126)		(237)
STEWART CROSSING (LIFE SPAN OF 2053)							
442.00 STRUCTURES AND IMPROVEMENTS	40-R2.5	247,966	64,265	76,361	(12,096)	30.3	(399)
444.00 FUEL HOLDERS, PRODUCTS AND ACCESSORIES	35-R4	65,107	14,928	18,103	(3,176)	28.5	(111)
445.00 GENERAL EQUIPMENT AND PRIME MOVERS	26-S2.5	45,677	24,846	21,626	3,220	10.9	295
446.00 ACCESSORY ELECTRIC EQUIPMENT	35-R3	70,425	26,610	32,538	(5,928)	24.9	(238)
447.00 MISCELLANEOUS POWER PLANT EQUIPMENT	40-R3	84,682	6,985	9,638	(2,653)	35.4	(75)
TOTAL Stewart Crossing		513,857	137,634	158,267	(20,633)		(528)
SWIFT RIVER (LIFE SPAN OF 2053)							
442.00 STRUCTURES AND IMPROVEMENTS	40-R2.5	22,503	9,907	11,772	(1,865)	24.9	(75)
444.00 FUEL HOLDERS, PRODUCTS AND ACCESSORIES	35-R4	63,430	37,645	46,269	(8,624)	15.7	(549)
445.00 GENERAL EQUIPMENT AND PRIME MOVERS	26-S2.5	241,047	98,815	94,569	4,245	16.3	260
446.00 ACCESSORY ELECTRIC EQUIPMENT	35-R3	93,560	31,055	37,510	(6,461)	25.0	(258)
447.00 MISCELLANEOUS POWER PLANT EQUIPMENT	40-R3	11,924	3,190	4,249	(1,059)	30.6	(35)
TOTAL Swift River		432,465	180,612	194,375	(13,764)		(657)
TESLIN (LIFE SPAN OF 2053)							
442.00 STRUCTURES AND IMPROVEMENTS	40-R2.5	37,986	10,437	12,402	(1,964)	28.9	(68)
444.00 FUEL HOLDERS, PRODUCTS AND ACCESSORIES	35-R4	99,863	22,619	27,801	(5,181)	27.5	(188)
445.00 GENERAL EQUIPMENT AND PRIME MOVERS	26-S2.5	762,034	524,432	500,142	24,290	9.6	2,530
446.00 ACCESSORY ELECTRIC EQUIPMENT	35-R3	54,417	25,006	27,410	(2,404)	21.5	(112)
447.00 MISCELLANEOUS POWER PLANT EQUIPMENT	40-R3	69,778	9,302	11,989	(2,687)	33.9	(79)
TOTAL Teslin		1,024,077	591,796	579,744	12,052		2,083
WATSON LAKE (LIFE SPAN OF 2113)							
442.00 STRUCTURES AND IMPROVEMENTS	40-R2.5	359,393	203,938	242,320	(38,382)	20.1	(1,910)
444.00 FUEL HOLDERS, PRODUCTS AND ACCESSORIES	35-R4	747,618	108,117	132,885	(24,768)	30.6	(809)
445.00 GENERAL EQUIPMENT AND PRIME MOVERS	26-S2.5	2,169,195	1,318,706	1,286,361	62,346	11.3	5,517
446.00 ACCESSORY ELECTRIC EQUIPMENT	35-R3	578,189	305,256	366,604	(61,348)	22.3	(2,751)
447.00 MISCELLANEOUS POWER PLANT EQUIPMENT	40-R3	258,430	61,919	83,525	(21,606)	33.8	(639)
TOTAL Watson Lake		4,113,025	1,997,936	2,081,695	(83,759)		(592)
TOTAL PRODUCTION DIESEL PLANT		13,684,978	6,399,211	6,786,796	(387,586)	-	(10,678)

YUKON ELECTRICAL COMPANY LIMITED

SCHEDULE 2A. ESTIMATED SURVIVOR CURVES, ORIGINAL COST AND ANNUAL ACCRUALS
FOR THE TWELVE MONTHS ENDED DECEMBER 31, 2011

RELATED TO THE RECOVERY OF THE ORIGINAL COST

DESCRIPTION (1)	ESTIMATED SURVIVOR CURVE (2)	SURVIVING ORIGINAL COST AS OF DECEMBER 31, 2011 (4)	CALCULATED ACCRUED DEPRECIATION (5)	BOOK ACCUMULATED DEPRECIATION (6)	ACCUMULATED DEPRECIATION VARIANCE (7)=(5)-(6)	PROBABLE REMAINING LIFE (8)	ANNUAL PROVISION FOR TRUE-UP (9)=(7)/(8)
MOBILE							
442.00 STRUCTURES AND IMPROVEMENTS	40-R2.5	10,662	8,809	10,466	(1,657)	9.3	(178)
444.00 FUEL HOLDERS, PRODUCTS AND ACCESSORIES	35-R4	25,562	16,999	20,993	(3,894)	12.8	(304)
445.00 GENERAL EQUIPMENT AND PRIME MOVERS	26-S2.5	568,500	303,263	287,763	15,520	13.1	1,185
446.00 ACCESSORY ELECTRIC EQUIPMENT	35-R3	87,652	40,799	48,221	(7,422)	23.1	(321)
447.00 MISCELLANEOUS POWER PLANT EQUIPMENT	40-R3	92,170	12,008	16,120	(4,112)	35.5	(116)
TOTAL MOBILE		784,546	381,898	383,463	(1,565)		265
TOTAL GENERATION		18,192,167	7,379,133	8,410,233	(1,031,099)		(26,994)
SUBSTATION PLANT							
457.00 SUBSTATION EQUIPMENT - TRANSMISSION	50-R4	1,384,421	626,639	829,972	(203,333)	31.0	(6,559)
TOTAL SUBSTATION PLANT		1,384,421	626,639	829,972	(203,333)		(6,559)
DISTRIBUTION PLANT							
471.00 LAND RIGHTS	75-R3	1,267,608	151,638	151,507	131	67.3	2
473.00 POLES, TOWERS AND FIXTURES	45-R3	30,231,546	8,972,741	11,487,576	(2,514,836)	33.4	(75,294)
474.00 OVERHEAD CONDUCTOR	45-R4	20,514,612	5,832,601	7,036,909	(1,204,309)	32.3	(37,285)
474.10 OVERHEAD SERVICES	45-R3	2,849,453	1,023,337	1,271,831	(248,494)	33.4	(7,440)
475.00 UNDERGROUND CONDUIT	45-R3	20,982,589	6,074,457	5,608,170	466,287	32.6	14,303
475.10 UNDERGROUND SERVICES	40-R4	2,953,077	924,039	1,049,337	(125,298)	28.5	(4,396)
476.10 METERS	15-L0	1,683,985	682,328	41,448	640,880	10.6	60,460
476.30 AMR - METERS	15-R2.5	67,646	14,259	-	14,259	12.3	1,159
477.10 SUBSTATION EQUIPMENT - DISTRIBUTION	40-R4	3,131,073	1,605,098	1,950,231	(345,133)	21.5	(16,053)
478.10 STREET LIGHTS AND SIGNAL SYSTEMS	30-R3	9,147,522	3,814,663	5,173,329	(1,358,667)	21.1	(64,392)
478.20 SENTINEL LIGHTS	23-R2	284,738	246,947	319,069	(72,122)	4.0	(18,030)
479.10 LINE TRANSFORMERS	45-R3	24,427,769	6,695,953	9,796,355	(3,100,402)	37.0	(83,795)
TOTAL DISTRIBUTION PLANT		117,541,619	36,038,060	43,885,763	(7,847,703)		(230,761)
GENERAL PLANT							
482.00 STRUCTURES AND IMPROVEMENTS	40-L3	3,459,315	1,660,879	2,027,012	(366,133)	23.9	(15,319)
483.00 OFFICE FURNITURE AND EQUIPMENT	15-SQ	172,793	62,511	17,775	44,736	5.5	8,134
483.20 COMPUTER EQUIPMENT AND ACCESSORIES	5-SQ	47,367	10,448	(11,313)	21,761	3.4	6,400
484.00 TRANSPORTATION AND MOBILE EQUIPMENT	12-L0	2,561,147	964,510	1,693,246	(728,736)	10.0	(72,874)
485.00 TOOLS AND INSTRUMENTS	15-SQ	719,184	273,558	239,068	34,490	8.7	3,964
486.00 COMMUNICATION EQUIPMENT	15-SQ	872,842	422,551	391,629	30,922	7.8	3,964
488.20 HOUSES	40-R3	473,256	152,396	1,717,512	(1,565,115)	21.8	(71,794)
TOTAL GENERAL PLANT		8,305,904	3,546,853	6,074,929	(2,528,076)		(137,525)
TOTAL UTILITY PLANT IN SERVICE		145,424,111	47,590,686	59,200,897	(11,610,211)		(401,838)

YUKON ELECTRICAL COMPANY LIMITED

SCHEDULE 2B. ESTIMATED SURVIVOR CURVES, NET SALVAGE PERCENTS, ORIGINAL COST AND ANNUAL ACCRUALS
FOR THE TWELVE MONTHS ENDED DECEMBER 31, 2011

RELATED TO THE RECOVERY OF THE NET SALVAGE ESTIMATES

GENERATION	DESCRIPTION (1)	ESTIMATED SURVIVOR CURVE (2)	NET SALVAGE % (3)	SURVIVING ORIGINAL COST AS OF DECEMBER 31, 2011 (4)	CALCULATED ACCRUED DEPRECIATION (5)	BOOK ACCUMULATED DEPRECIATION (6)	ACCUMULATED DEPRECIATION VARIANCE (7)=(5)-(6)	PROBABLE REMAINING LIFE (8)	ANNUAL PROVISION FOR TRUE-UP (9)=(7)/(8)
HYDRO PLANT (LIFE SPAN OF 2052)									
422.00	HYDRO STRUCTURES	ND	(10)	215,286	5,997	813	5,184	37.8	137
423.00	HYDRO RESERVOIRS, DAMS AND WATERWAYS	72-R2	(10)	1,875,073	31,671	4,367	27,304	40.4	676
425.00	HYDRO GENERATORS	103-R3	(10)	1,458,435	15,340	2,079	13,261	40.2	330
426.00	HYDRO ACCESSORIES AND EQUIPMENT	85-R3	(10)	105,192	4,849	657	4,192	32.2	130
427.00	HYDRO MISCELLANEOUS EQUIPMENT	45-R3	(10)	68,657	1,947	264	1,683	27.4	61
	TOTAL HYDRO PLANT			3,722,643	59,802	8,180	51,623		1,334
PRODUCTION DIESEL PLANT									
BEAVER CREEK (LIFE SPAN OF 2053)									
442.00	STRUCTURES AND IMPROVEMENTS	40-R2.5	(10)	37,488	2,225	(3,232)	5,457	18.9	289
444.00	FUEL HOLDERS, PRODUCTS AND ACCESSORIES	35-R4	(20)	92,859	8,138	1,494	6,645	22.0	302
445.00	GENERAL EQUIPMENT AND PRIME MOVERS	26-S2.5	(10)	535,779	36,744	20,345	16,399	9.6	1,708
446.00	ACCESSORY ELECTRIC EQUIPMENT	35-R3	0	173,365	-	2,313	(2,313)	25.9	(89)
447.00	MISCELLANEOUS POWER PLANT EQUIPMENT	40-R3	0	48,603	-	628	(628)	33.4	(19)
	TOTAL BEAVER CREEK			888,094	47,108	21,549	25,559		2,191
CARMACKS (LIFE SPAN OF 2053)									
442.00	STRUCTURES AND IMPROVEMENTS	40-R2.5	(10)	167,739	4,423	(6,423)	10,846	30.2	359
444.00	FUEL HOLDERS, PRODUCTS AND ACCESSORIES	35-R4	(20)	40,394	5,014	920	4,094	14.4	284
445.00	GENERAL EQUIPMENT AND PRIME MOVERS	26-S2.5	(10)	419,543	30,924	17,122	13,801	8.3	1,663
446.00	ACCESSORY ELECTRIC EQUIPMENT	35-R3	0	101,158	-	1,947	(1,947)	24.6	(79)
447.00	MISCELLANEOUS POWER PLANT EQUIPMENT	40-R3	0	7,366	-	529	(529)	36.0	(15)
	TOTAL CARMACKS			736,201	40,361	14,095	26,266		2,212
DESTRUCTION BAY (LIFE SPAN OF 2023)									
442.00	STRUCTURES AND IMPROVEMENTS	40-R2.5	(10)	42,282	3,122	(4,534)	7,656	9.5	806
444.00	FUEL HOLDERS, PRODUCTS AND ACCESSORIES	35-R4	(20)	105,478	10,910	2,003	8,908	11.6	768
445.00	GENERAL EQUIPMENT AND PRIME MOVERS	26-S2.5	(10)	488,076	14,004	7,754	6,250	11.0	568
446.00	ACCESSORY ELECTRIC EQUIPMENT	35-R3	0	284,627	-	882	(882)	11.5	(77)
447.00	MISCELLANEOUS POWER PLANT EQUIPMENT	40-R3	0	28,048	-	239	(239)	11.8	(20)
	TOTAL DESTRUCTION BAY			948,512	28,036	6,343	21,693		2,045
HAINES JUNCTION (LIFE SPAN OF 2053)									
442.00	STRUCTURES AND IMPROVEMENTS	40-R2.5	(10)	608,472	11,557	(16,783)	28,340	32.1	883
444.00	FUEL HOLDERS, PRODUCTS AND ACCESSORIES	35-R4	(20)	619,132	49,783	9,138	40,645	21.9	1,856
445.00	GENERAL EQUIPMENT AND PRIME MOVERS	26-S2.5	(10)	60,097	3,728	2,064	1,664	11.2	149
446.00	ACCESSORY ELECTRIC EQUIPMENT	35-R3	0	94,952	-	235	(235)	25.4	(9)
447.00	MISCELLANEOUS POWER PLANT EQUIPMENT	40-R3	0	2,454	-	64	(64)	33.4	(2)
	TOTAL HAINES JUNCTION			1,385,107	65,068	(5,283)	70,351		2,876
OLD CROW (LIFE SPAN OF 2053)									
442.00	STRUCTURES AND IMPROVEMENTS	40-R2.5	(10)	187,900	10,200	(14,813)	25,012	20.9	1,197
444.00	FUEL HOLDERS, PRODUCTS AND ACCESSORIES	35-R4	(20)	215,087	16,595	3,046	13,549	24.1	562
445.00	GENERAL EQUIPMENT AND PRIME MOVERS	26-S2.5	(10)	1,223,713	52,949	29,376	23,573	15.7	1,501
446.00	ACCESSORY ELECTRIC EQUIPMENT	35-R3	0	119,365	-	3,340	(3,340)	18.9	(177)
447.00	MISCELLANEOUS POWER PLANT EQUIPMENT	40-R3	0	171,496	-	907	(907)	26.9	(34)
	TOTAL OLD CROW			1,917,561	79,744	21,856	57,888		3,050

YUKON ELECTRICAL COMPANY LIMITED
SCHEDULE 2B. ESTIMATED SURVIVOR CURVES, NET SALVAGE PERCENTS, ORIGINAL COST AND ANNUAL ACCRUALS
FOR THE TWELVE MONTHS ENDED DECEMBER 31, 2011

RELATED TO THE RECOVERY OF THE NET SALVAGE ESTIMATES

DESCRIPTION (1)	ESTIMATED SURVIVOR CURVE (2)	NET SALVAGE % (3)	SURVIVING ORIGINAL COST AS OF DECEMBER 31, 2011 (4)	CALCULATED ACCRUED DEPRECIATION (5)	BOOK ACCUMULATED DEPRECIATION (6)	ACCUMULATED DEPRECIATION VARIANCE (7)=(5)-(6)	PROBABLE REMAINING LIFE (8)	ANNUAL PROVISION FOR TRUE-UP (9)=(7)/(8)
PELLY CROSSING (LIFE SPAN OF 2053)								
442.00 STRUCTURES AND IMPROVEMENTS	40-R2.5	(10)	48,892	3,382	(4,912)	8,294	14.0	592
444.00 FUEL HOLDERS, PRODUCTS AND ACCESSORIES	35-R4	(20)	129,302	18,577	(3,410)	15,167	16.3	931
445.00 GENERAL EQUIPMENT AND PRIME MOVERS	26-S2.5	(10)	474,056	30,076	(16,618)	13,458	10.6	1,270
446.00 ACCESSORY ELECTRIC EQUIPMENT	35-R3	0	431,735	-	1,889	(1,889)	19.2	(98)
447.00 MISCELLANEOUS POWER PLANT EQUIPMENT	40-R3	0	61,485	-	513	(513)	20.5	(25)
TOTAL PELLY CROSSING			1,145,469	52,035	17,518	34,517		2,669
ROSS RIVER (LIFE SPAN OF 2053)								
442.00 STRUCTURES AND IMPROVEMENTS	40-R2.5	(10)	171,221	5,738	(8,333)	14,072	28.0	503
444.00 FUEL HOLDERS, PRODUCTS AND ACCESSORIES	35-R4	(20)	85,126	6,592	(1,210)	5,382	22.2	242
445.00 GENERAL EQUIPMENT AND PRIME MOVERS	26-S2.5	(10)	189,753	14,710	(8,145)	6,565	7.3	899
446.00 ACCESSORY ELECTRIC EQUIPMENT	35-R3	0	124,872	-	926	(926)	23.5	(39)
447.00 MISCELLANEOUS POWER PLANT EQUIPMENT	40-R3	0	9,639	-	251	(251)	33.9	(7)
TOTAL ROSS RIVER			580,611	27,040	2,199	24,841		1,597
STEWART CROSSING (LIFE SPAN OF 2053)								
442.00 STRUCTURES AND IMPROVEMENTS	40-R2.5	(10)	247,966	6,427	(9,333)	15,760	30.3	520
444.00 FUEL HOLDERS, PRODUCTS AND ACCESSORIES	35-R4	(20)	65,107	2,986	(548)	2,438	28.5	86
445.00 GENERAL EQUIPMENT AND PRIME MOVERS	26-S2.5	(10)	45,677	2,485	(1,256)	1,229	10.9	113
446.00 ACCESSORY ELECTRIC EQUIPMENT	35-R3	0	70,425	-	143	(143)	24.9	(6)
447.00 MISCELLANEOUS POWER PLANT EQUIPMENT	40-R3	0	84,682	-	39	(39)	35.4	(1)
TOTAL STEWART CROSSING			513,857	11,897	(7,348)	19,245		712
SWIFT RIVER (LIFE SPAN OF 2053)								
442.00 STRUCTURES AND IMPROVEMENTS	40-R2.5	(10)	22,503	991	(1,439)	2,430	24.9	98
444.00 FUEL HOLDERS, PRODUCTS AND ACCESSORIES	35-R4	(20)	63,430	7,529	(1,382)	6,147	15.7	392
445.00 GENERAL EQUIPMENT AND PRIME MOVERS	26-S2.5	(10)	241,047	9,881	(5,491)	4,391	16.3	269
446.00 ACCESSORY ELECTRIC EQUIPMENT	35-R3	0	93,560	-	624	(624)	25.0	(25)
447.00 MISCELLANEOUS POWER PLANT EQUIPMENT	40-R3	0	11,924	-	170	(170)	30.6	(6)
TOTAL SWIFT RIVER			432,465	18,401	6,228	12,174		728
TESLIN (LIFE SPAN OF 2053)								
442.00 STRUCTURES AND IMPROVEMENTS	40-R2.5	(10)	37,986	1,044	(1,516)	2,559	28.9	89
444.00 FUEL HOLDERS, PRODUCTS AND ACCESSORIES	35-R4	(20)	99,863	4,524	(830)	3,693	27.5	134
445.00 GENERAL EQUIPMENT AND PRIME MOVERS	26-S2.5	(10)	762,034	52,443	(29,038)	23,405	9.6	2,438
446.00 ACCESSORY ELECTRIC EQUIPMENT	35-R3	0	54,417	-	3,301	(3,301)	21.5	(154)
447.00 MISCELLANEOUS POWER PLANT EQUIPMENT	40-R3	0	69,778	-	897	(897)	33.9	(26)
TOTAL TESLIN			1,024,077	58,011	32,550	25,461		2,481
WATSON LAKE (LIFE SPAN OF 2113)								
442.00 STRUCTURES AND IMPROVEMENTS	40-R2.5	(10)	359,393	20,394	(29,617)	50,011	20.1	2,488
444.00 FUEL HOLDERS, PRODUCTS AND ACCESSORIES	35-R4	(20)	747,818	21,623	(3,969)	17,654	30.6	577
445.00 GENERAL EQUIPMENT AND PRIME MOVERS	26-S2.5	(10)	2,169,195	131,871	(72,943)	58,928	11.3	5,215
446.00 ACCESSORY ELECTRIC EQUIPMENT	35-R3	0	578,189	-	8,293	(8,293)	22.3	(372)
447.00 MISCELLANEOUS POWER PLANT EQUIPMENT	40-R3	0	258,430	-	2,252	(2,252)	33.8	(67)
TOTAL WATSON LAKE			4,113,025	173,888	57,840	116,048		7,841
TOTAL PRODUCTION DIESEL PLANT			13,684,978	601,587	167,547	434,040		28,403

YUKON ELECTRICAL COMPANY LIMITED

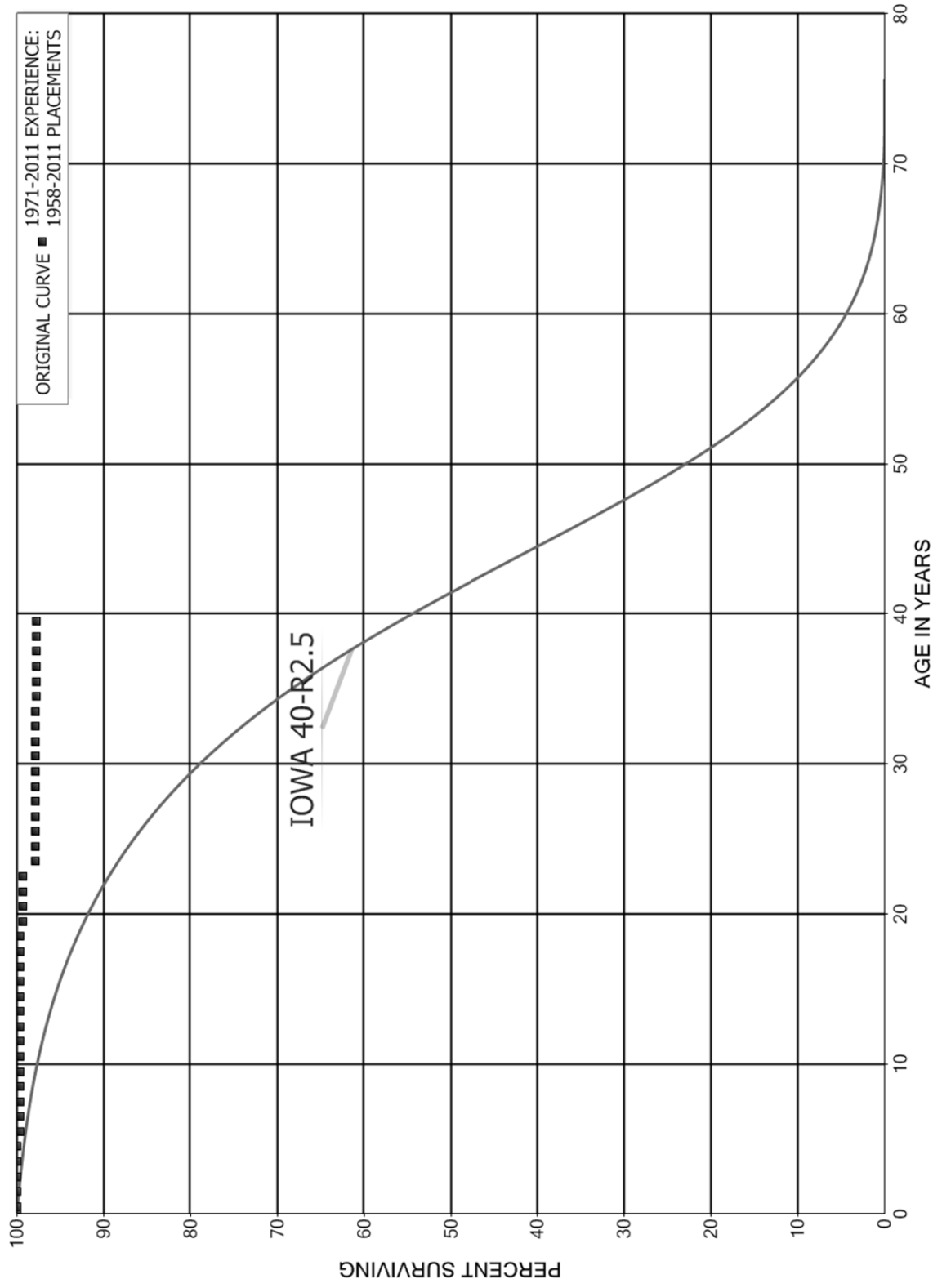
SCHEDULE 2B. ESTIMATED SURVIVOR CURVES, NET SALVAGE PERCENTS, ORIGINAL COST AND ANNUAL ACCRUALS
FOR THE TWELVE MONTHS ENDED DECEMBER 31, 2011

RELATED TO THE RECOVERY OF THE NET SALVAGE ESTIMATES

DESCRIPTION (1)	ESTIMATED SURVIVOR CURVE (2)	NET SALVAGE % (3)	SURVIVING ORIGINAL COST AS OF DECEMBER 31, 2011 (4)	CALCULATED ACCRUED DEPRECIATION (5)	BOOK ACCUMULATED DEPRECIATION (6)	ACCUMULATED DEPRECIATION VARIANCE (7)=(5)-(6)	PROBABLE REMAINING LIFE (8)	ANNUAL PROVISION FOR TRUE-UP (9)=(7)/(8)
MOBILE								
442.00 STRUCTURES AND IMPROVEMENTS	40-R2.5	(10)	10,662	881	(1,279)	2,160	9.3	232
444.00 FUEL HOLDERS, PRODUCTS AND ACCESSORIES	35-R4	(20)	25,562	3,400	624	2,776	12.8	217
445.00 GENERAL EQUIPMENT AND PRIME MOVERS	26-S2.5	(10)	568,500	30,328	16,707	13,621	13.1	1,040
446.00 ACCESSORY ELECTRIC EQUIPMENT	35-R3	0	87,652	-	1,899	(1,899)	23.1	(82)
447.00 MISCELLANEOUS POWER PLANT EQUIPMENT	40-R3	0	92,170	-	516	(516)	35.5	(15)
TOTAL MOBILE			784,546	34,609	18,467	16,142		1,392
TOTAL GENERATION			18,192,167	695,999	194,194	501,805		31,130
SUBSTATION PLANT								
457.00 SUBSTATION EQUIPMENT - TRANSMISSION		(10)	1,384,421	62,664	21,171	41,493	31.0	1,338
TOTAL SUBSTATION PLANT			1,384,421	62,664	21,171	41,493		1,338
DISTRIBUTION PLANT								
471.00 LAND RIGHTS	75-R3	0	1,267,608	-	(166)	166	67.3	2
473.00 POLES, TOWERS AND FIXTURES	45-R3	(75)	30,231,546	6,729,555	3,685,089	3,044,466	33.4	91,152
474.00 OVERHEAD CONDUCTOR	45-R4	(80)	20,514,612	4,666,080	2,290,803	2,375,277	32.3	73,538
474.10 OVERHEAD SERVICES	45-R3	(10)	2,849,453	102,334	68,292	34,041	33.4	1,019
475.00 UNDERGROUND CONDUIT	45-R3	(50)	20,982,589	3,037,229	(74,602)	3,111,831	32.6	95,455
475.10 UNDERGROUND SERVICES	40-R4	(10)	2,953,077	92,404	3,618	88,786	28.5	3,115
476.10 METERS	15-L0	0	1,683,985	-	27,423	(27,423)	10.6	(2,587)
476.30 AMR - METERS	15-R2.5	0	67,646	-	-	-	12.3	-
477.10 SUBSTATION EQUIPMENT - DISTRIBUTION	40-R4	(10)	3,131,073	160,510	(128,522)	289,032	21.5	13,443
478.10 STREET LIGHTS AND SIGNAL SYSTEMS	30-R3	(10)	9,147,522	381,466	(265,776)	647,242	21.1	30,675
478.20 SENTINEL LIGHTS	23-R2	0	284,738	-	(105,624)	105,624	4.0	26,406
479.10 LINE TRANSFORMERS		(10)	24,427,769	669,595	311,505	358,090	37.0	9,678
TOTAL DISTRIBUTION PLANT			117,541,619	15,839,174	5,812,042	10,027,132		341,897
GENERAL PLANT								
482.00 STRUCTURES AND IMPROVEMENTS	40-L3	0	3,459,315	-	(135,119)	135,119	23.9	5,654
483.00 OFFICE FURNITURE AND EQUIPMENT	15-SQ	0	172,793	-	(4,613)	4,613	5.5	839
483.20 COMPUTER EQUIPMENT AND ACCESSORIES	5-SQ	0	47,367	-	-	-	3.4	-
484.00 TRANSPORTATION AND MOBILE EQUIPMENT	12-L0	25	2,561,147	-	(408,732)	408,732	10.0	40,873
485.00 TOOLS AND INSTRUMENTS	15-SQ	0	719,184	-	141	(141)	8.7	(16)
486.00 COMMUNICATION EQUIPMENT	15-SQ	0	872,842	-	(6,237)	6,237	7.8	800
488.20 HOUSES		(10)	473,256	15,240	(1,077,696)	1,092,936	21.8	50,135
TOTAL GENERAL PLANT			8,305,904	15,240	(1,632,256)	1,647,495		98,283
TOTAL UTILITY PLANT IN SERVICE			145,424,111	16,613,076	4,395,151	12,217,925		472,649

PART IV. SERVICE LIFE STATISTICS

YUKON ELECTRICAL COMPANY LIMITED
ACCOUNT 442.00 - STRUCTURES AND IMPROVEMENTS - DIESEL
ORIGINAL AND SMOOTH SURVIVOR CURVES



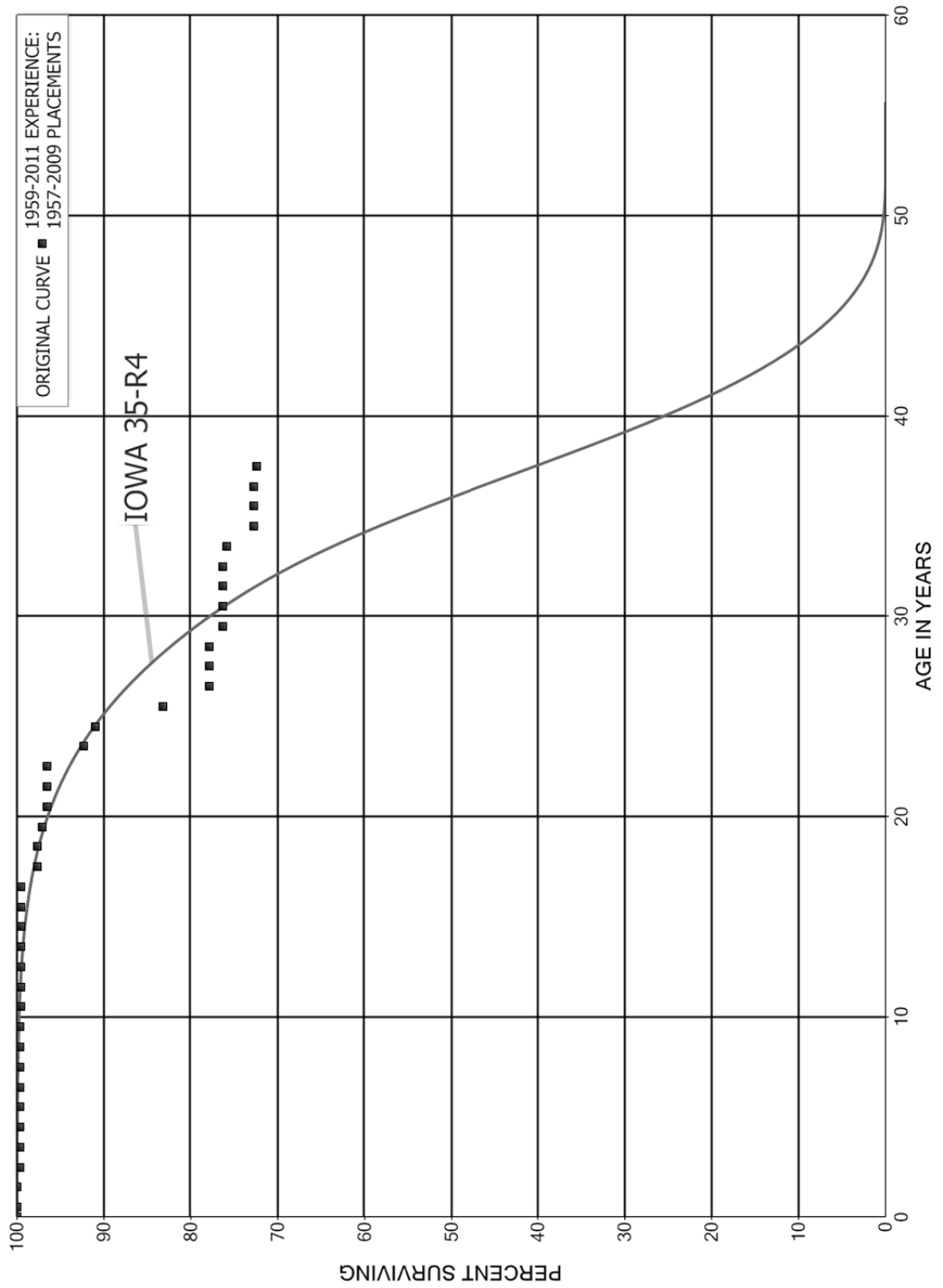
YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 442.00 - STRUCTURES AND IMPROVEMENTS - DIESEL

ORIGINAL LIFE TABLE

PLACEMENT BAND 1958-2011			EXPERIENCE BAND 1971-2011		
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	1,654,355		0.0000	1.0000	100.00
0.5	1,864,466		0.0000	1.0000	100.00
1.5	1,926,396		0.0000	1.0000	100.00
2.5	1,901,065		0.0000	1.0000	100.00
3.5	1,578,385		0.0000	1.0000	100.00
4.5	1,402,603	5,674	0.0040	0.9960	100.00
5.5	1,175,602		0.0000	1.0000	99.60
6.5	932,589		0.0000	1.0000	99.60
7.5	931,587		0.0000	1.0000	99.60
8.5	931,587		0.0000	1.0000	99.60
9.5	931,587		0.0000	1.0000	99.60
10.5	931,401		0.0000	1.0000	99.60
11.5	931,407		0.0000	1.0000	99.60
12.5	901,724		0.0000	1.0000	99.60
13.5	847,579		0.0000	1.0000	99.60
14.5	794,374		0.0000	1.0000	99.60
15.5	785,466		0.0000	1.0000	99.60
16.5	785,466		0.0000	1.0000	99.60
17.5	785,466		0.0000	1.0000	99.60
18.5	726,307	2,028	0.0028	0.9972	99.60
19.5	714,137	100	0.0001	0.9999	99.32
20.5	712,627		0.0000	1.0000	99.30
21.5	712,627		0.0000	1.0000	99.30
22.5	682,808	10,000	0.0146	0.9854	99.30
23.5	633,423		0.0000	1.0000	97.85
24.5	322,062		0.0000	1.0000	97.85
25.5	299,940		0.0000	1.0000	97.85
26.5	285,988	6	0.0000	1.0000	97.85
27.5	285,982		0.0000	1.0000	97.85
28.5	243,920		0.0000	1.0000	97.85
29.5	188,582		0.0000	1.0000	97.85
30.5	188,582		0.0000	1.0000	97.85
31.5	188,582		0.0000	1.0000	97.85
32.5	188,582		0.0000	1.0000	97.85
33.5	188,412	170	0.0009	0.9991	97.85
34.5	188,241		0.0000	1.0000	97.76
35.5	172,665		0.0000	1.0000	97.76
36.5	172,665		0.0000	1.0000	97.76
37.5	163,958		0.0000	1.0000	97.76
38.5	163,958		0.0000	1.0000	97.76
39.5	163,958		0.0000	1.0000	97.76
40.5					97.76

YUKON ELECTRICAL COMPANY LIMITED
ACCOUNT 444.00 - FUEL HOLDERS, PRODUCTS AND ACCESSORIES - DIESEL
ORIGINAL AND SMOOTH SURVIVOR CURVES



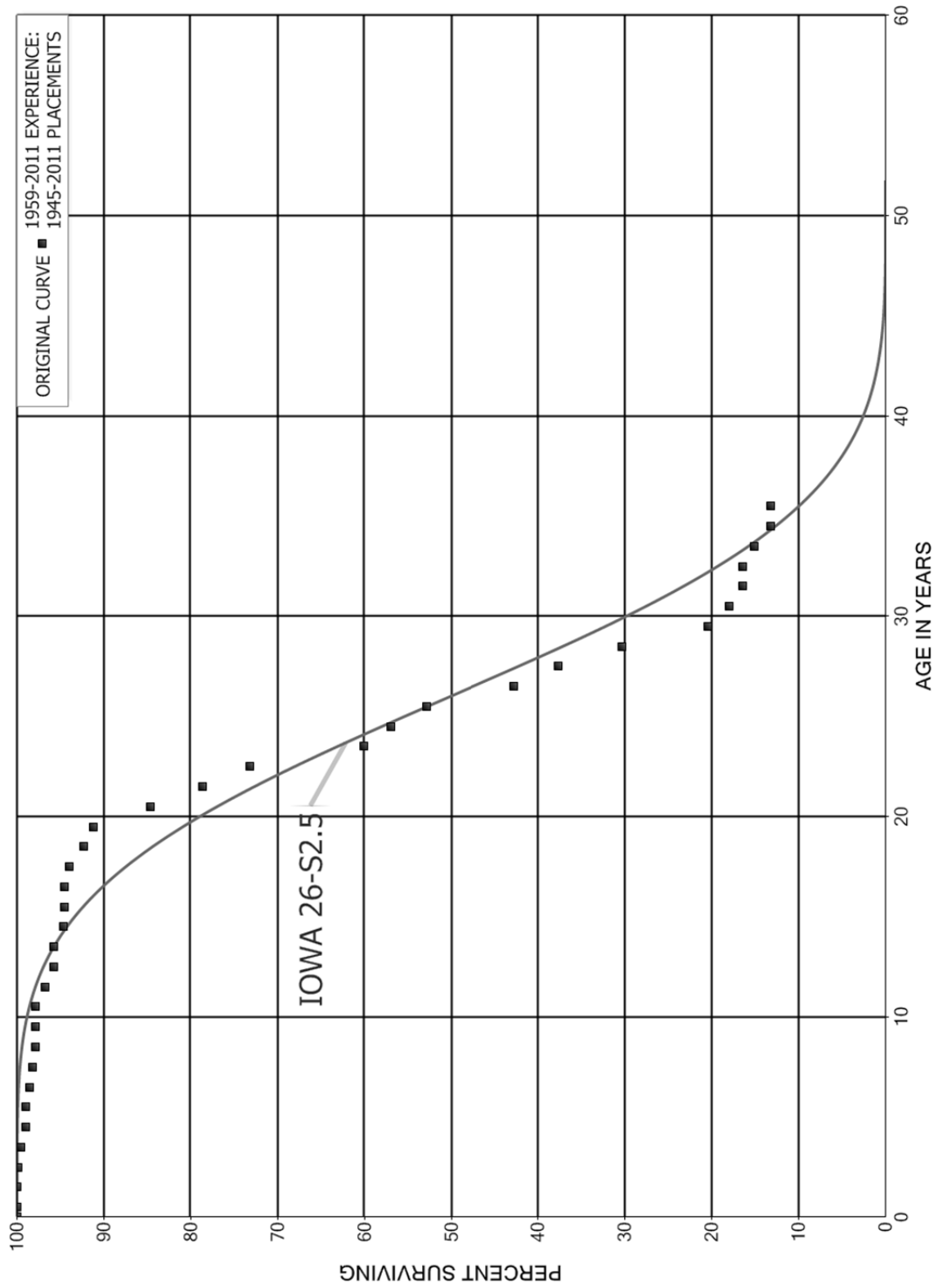
YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 444.00 - FUEL HOLDERS, PRODUCTS AND ACCESSORIES - DIESEL

ORIGINAL LIFE TABLE

PLACEMENT BAND 1957-2009			EXPERIENCE BAND 1959-2011		
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	2,350,676		0.0000	1.0000	100.00
0.5	2,351,040		0.0000	1.0000	100.00
1.5	2,360,650	7,910	0.0034	0.9966	100.00
2.5	2,203,751		0.0000	1.0000	99.66
3.5	2,176,571	1,700	0.0008	0.9992	99.66
4.5	2,149,309	8	0.0000	1.0000	99.59
5.5	2,049,062	349	0.0002	0.9998	99.59
6.5	1,363,674		0.0000	1.0000	99.57
7.5	1,323,497		0.0000	1.0000	99.57
8.5	1,249,302		0.0000	1.0000	99.57
9.5	1,249,302	302	0.0002	0.9998	99.57
10.5	1,249,000		0.0000	1.0000	99.55
11.5	1,249,000		0.0000	1.0000	99.55
12.5	1,102,899		0.0000	1.0000	99.55
13.5	890,869	2	0.0000	1.0000	99.55
14.5	493,722		0.0000	1.0000	99.55
15.5	488,252		0.0000	1.0000	99.55
16.5	488,252	9,322	0.0191	0.9809	99.55
17.5	386,740		0.0000	1.0000	97.64
18.5	260,407	1,640	0.0063	0.9937	97.64
19.5	258,767	1,491	0.0058	0.9942	97.03
20.5	257,276		0.0000	1.0000	96.47
21.5	243,142		0.0000	1.0000	96.47
22.5	233,206	10,000	0.0429	0.9571	96.47
23.5	136,226	1,986	0.0146	0.9854	92.33
24.5	113,405	9,712	0.0856	0.9144	90.99
25.5	96,604	6,230	0.0645	0.9355	83.20
26.5	90,373		0.0000	1.0000	77.83
27.5	90,373		0.0000	1.0000	77.83
28.5	90,373	1,774	0.0196	0.9804	77.83
29.5	36,524		0.0000	1.0000	76.30
30.5	36,524		0.0000	1.0000	76.30
31.5	36,524		0.0000	1.0000	76.30
32.5	36,524	228	0.0062	0.9938	76.30
33.5	35,307	1,426	0.0404	0.9596	75.83
34.5	33,881		0.0000	1.0000	72.76
35.5	25,481		0.0000	1.0000	72.76
36.5	25,481	120	0.0047	0.9953	72.76
37.5	25,361	7,892	0.3112	0.6888	72.42
38.5	12,407		0.0000	1.0000	49.89
39.5	12,407	9,402	0.7578	0.2422	49.89
40.5					12.08

YUKON ELECTRICAL COMPANY LIMITED
ACCOUNT 445.00 - GENERAL EQUIPMENT AND PRIME MOVERS - DIESEL
ORIGINAL AND SMOOTH SURVIVOR CURVES



YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 445.00 - GENERAL EQUIPMENT AND PRIME MOVERS - DIESEL

ORIGINAL LIFE TABLE

PLACEMENT BAND 1945-2011			EXPERIENCE BAND 1959-2011		
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	11,469,065		0.0000	1.0000	100.00
0.5	10,028,165	6,784	0.0007	0.9993	100.00
1.5	9,872,312	10,726	0.0011	0.9989	99.93
2.5	9,816,261	34,933	0.0036	0.9964	99.82
3.5	9,792,298	45,431	0.0046	0.9954	99.47
4.5	9,750,407	8,231	0.0008	0.9992	99.01
5.5	9,742,176	41,215	0.0042	0.9958	98.92
6.5	9,700,961	32,634	0.0034	0.9966	98.50
7.5	8,863,532	28,717	0.0032	0.9968	98.17
8.5	8,687,204		0.0000	1.0000	97.86
9.5	8,680,481		0.0000	1.0000	97.86
10.5	8,680,481	99,081	0.0114	0.9886	97.86
11.5	8,548,182	88,184	0.0103	0.9897	96.74
12.5	7,828,406	3,256	0.0004	0.9996	95.74
13.5	7,420,399	84,893	0.0114	0.9886	95.70
14.5	7,220,912	4,879	0.0007	0.9993	94.61
15.5	6,908,491	20	0.0000	1.0000	94.54
16.5	6,908,471	42,331	0.0061	0.9939	94.54
17.5	6,673,533	120,226	0.0180	0.9820	93.96
18.5	5,450,561	62,147	0.0114	0.9886	92.27
19.5	5,272,487	384,392	0.0729	0.9271	91.22
20.5	3,651,535	255,728	0.0700	0.9300	84.57
21.5	3,240,457	224,816	0.0694	0.9306	78.64
22.5	2,769,342	496,700	0.1794	0.8206	73.19
23.5	2,203,869	115,677	0.0525	0.9475	60.06
24.5	2,018,037	144,761	0.0717	0.9283	56.91
25.5	1,818,722	346,467	0.1905	0.8095	52.83
26.5	844,799	101,376	0.1200	0.8800	42.76
27.5	736,475	143,124	0.1943	0.8057	37.63
28.5	555,062	181,518	0.3270	0.6730	30.32
29.5	373,543	44,154	0.1182	0.8818	20.40
30.5	319,620	27,884	0.0872	0.9128	17.99
31.5	291,736		0.0000	1.0000	16.42
32.5	291,736	23,957	0.0821	0.9179	16.42
33.5	264,964	32,625	0.1231	0.8769	15.07
34.5	218,890		0.0000	1.0000	13.22
35.5	218,890	14,731	0.0673	0.9327	13.22
36.5	204,159	4,886	0.0239	0.9761	12.33
37.5	189,046	19,856	0.1050	0.8950	12.03
38.5	157,819	15,939	0.1010	0.8990	10.77

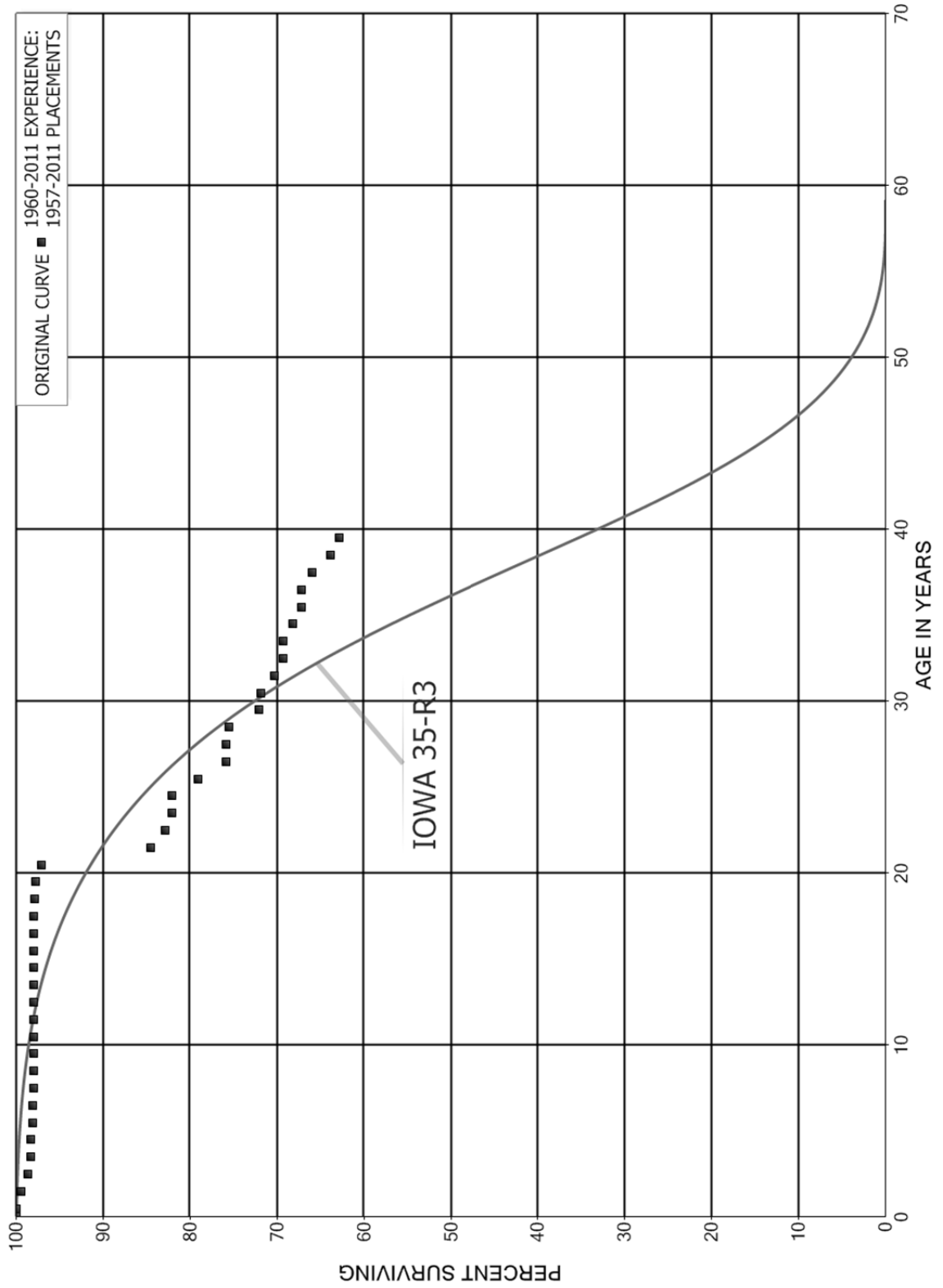
YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 445.00 - GENERAL EQUIPMENT AND PRIME MOVERS - DIESEL

ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1945-2011			EXPERIENCE BAND 1959-2011		
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	139,654	128,185	0.9179	0.0821	9.68
40.5	11,469	11,319	0.9869	0.0131	0.80
41.5	150		0.0000	1.0000	0.01
42.5	150		0.0000	1.0000	0.01
43.5	150		0.0000	1.0000	0.01
44.5	150		0.0000	1.0000	0.01
45.5	150		0.0000	1.0000	0.01
46.5	150		0.0000	1.0000	0.01
47.5	150		0.0000	1.0000	0.01
48.5	150		0.0000	1.0000	0.01
49.5	150		0.0000	1.0000	0.01
50.5	150		0.0000	1.0000	0.01
51.5	150	150	1.0000		0.01
52.5					

YUKON ELECTRICAL COMPANY LIMITED
ACCOUNT 446.00 - ACCESSORY ELECTRIC EQUIPMENT - DIESEL
ORIGINAL AND SMOOTH SURVIVOR CURVES



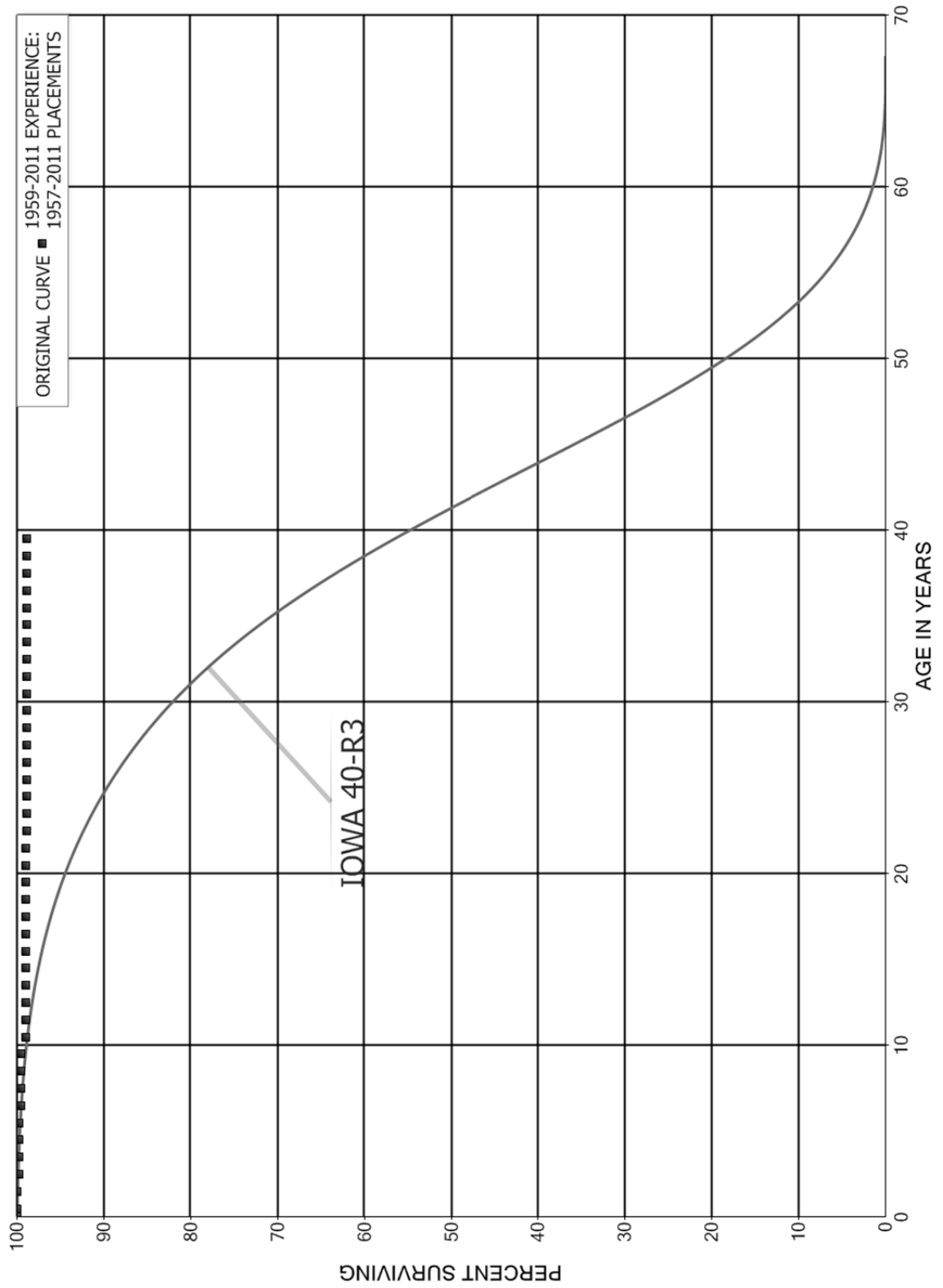
YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 446.00 - ACCESSORY ELECTRIC EQUIPMENT - DIESEL

ORIGINAL LIFE TABLE

PLACEMENT BAND 1957-2011			EXPERIENCE BAND 1960-2011		
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	2,419,371		0.0000	1.0000	100.00
0.5	2,397,443	15,260	0.0064	0.9936	100.00
1.5	2,385,458	17,240	0.0072	0.9928	99.36
2.5	2,366,911	7,468	0.0032	0.9968	98.65
3.5	2,163,664		0.0000	1.0000	98.33
4.5	2,093,865	4,681	0.0022	0.9978	98.33
5.5	2,060,311	2,159	0.0010	0.9990	98.11
6.5	2,053,192	240	0.0001	0.9999	98.01
7.5	2,014,624		0.0000	1.0000	98.00
8.5	1,884,783		0.0000	1.0000	98.00
9.5	1,854,047		0.0000	1.0000	98.00
10.5	1,666,069		0.0000	1.0000	98.00
11.5	1,487,309		0.0000	1.0000	98.00
12.5	1,323,617		0.0000	1.0000	98.00
13.5	1,202,777		0.0000	1.0000	98.00
14.5	982,900		0.0000	1.0000	98.00
15.5	982,900		0.0000	1.0000	98.00
16.5	982,900		0.0000	1.0000	98.00
17.5	973,543	1,500	0.0015	0.9985	98.00
18.5	883,105	809	0.0009	0.9991	97.85
19.5	855,100	6,347	0.0074	0.9926	97.76
20.5	833,797	107,410	0.1288	0.8712	97.03
21.5	604,548	12,194	0.0202	0.9798	84.53
22.5	492,295	4,746	0.0096	0.9904	82.83
23.5	487,549		0.0000	1.0000	82.03
24.5	267,341	9,712	0.0363	0.9637	82.03
25.5	228,899	9,232	0.0403	0.9597	79.05
26.5	218,258		0.0000	1.0000	75.86
27.5	209,162	1,069	0.0051	0.9949	75.86
28.5	204,571	9,326	0.0456	0.9544	75.47
29.5	168,525	417	0.0025	0.9975	72.03
30.5	163,725	3,584	0.0219	0.9781	71.86
31.5	156,292	2,134	0.0137	0.9863	70.28
32.5	154,157		0.0000	1.0000	69.32
33.5	154,157	2,454	0.0159	0.9841	69.32
34.5	151,542	2,274	0.0150	0.9850	68.22
35.5	145,808	104	0.0007	0.9993	67.20
36.5	145,704	2,615	0.0179	0.9821	67.15
37.5	137,309	4,462	0.0325	0.9675	65.94
38.5	117,869	1,850	0.0157	0.9843	63.80
39.5	98,916	21,142	0.2137	0.7863	62.80
40.5					49.38

YUKON ELECTRICAL COMPANY LIMITED
ACCOUNT 447.00 - MISCELLANEOUS POWER PLANT EQUIPMENT - DIESEL
ORIGINAL AND SMOOTH SURVIVOR CURVES



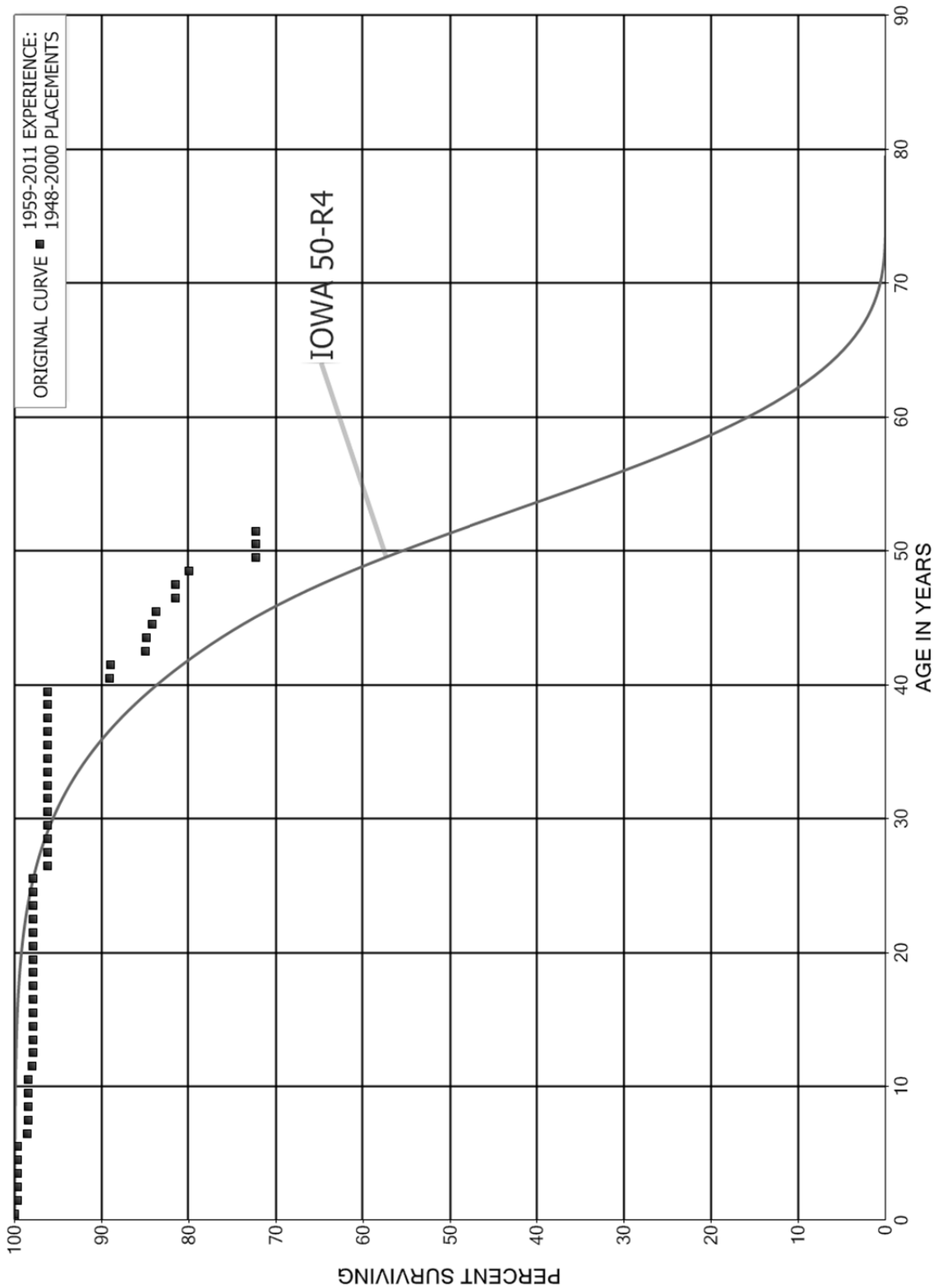
YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 447.00 - MISCELLANEOUS POWER PLANT EQUIPMENT - DIESEL

ORIGINAL LIFE TABLE

PLACEMENT BAND 1957-2011			EXPERIENCE BAND 1959-2011		
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	865,043		0.0000	1.0000	100.00
0.5	773,326		0.0000	1.0000	100.00
1.5	764,224	2,205	0.0029	0.9971	100.00
2.5	708,538		0.0000	1.0000	99.71
3.5	681,596		0.0000	1.0000	99.71
4.5	423,105		0.0000	1.0000	99.71
5.5	396,037	1,000	0.0025	0.9975	99.71
6.5	376,681		0.0000	1.0000	99.46
7.5	315,109		0.0000	1.0000	99.46
8.5	278,011		0.0000	1.0000	99.46
9.5	278,011	1,327	0.0048	0.9952	99.46
10.5	276,684		0.0000	1.0000	98.98
11.5	275,234		0.0000	1.0000	98.98
12.5	267,187		0.0000	1.0000	98.98
13.5	239,739		0.0000	1.0000	98.98
14.5	185,125		0.0000	1.0000	98.98
15.5	185,049		0.0000	1.0000	98.98
16.5	185,049		0.0000	1.0000	98.98
17.5	185,049		0.0000	1.0000	98.98
18.5	184,851		0.0000	1.0000	98.98
19.5	92,609		0.0000	1.0000	98.98
20.5	58,574		0.0000	1.0000	98.98
21.5	58,574	64	0.0011	0.9989	98.98
22.5	58,510		0.0000	1.0000	98.88
23.5	58,510		0.0000	1.0000	98.88
24.5	44,076		0.0000	1.0000	98.88
25.5	44,076		0.0000	1.0000	98.88
26.5	44,076		0.0000	1.0000	98.88
27.5	44,076		0.0000	1.0000	98.88
28.5	44,076		0.0000	1.0000	98.88
29.5	21,773		0.0000	1.0000	98.88
30.5	21,773		0.0000	1.0000	98.88
31.5	21,773		0.0000	1.0000	98.88
32.5	17,594		0.0000	1.0000	98.88
33.5	17,594		0.0000	1.0000	98.88
34.5	17,594		0.0000	1.0000	98.88
35.5	17,594		0.0000	1.0000	98.88
36.5	17,594		0.0000	1.0000	98.88
37.5	17,594		0.0000	1.0000	98.88
38.5	17,594		0.0000	1.0000	98.88
39.5	17,594	14,213	0.8078	0.1922	98.88
40.5					19.00

YUKON ELECTRICAL COMPANY LIMITED
ACCOUNT 457.00 - SUBSTATION EQUIPMENT
ORIGINAL AND SMOOTH SURVIVOR CURVES



YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 457.00 - SUBSTATION EQUIPMENT

ORIGINAL LIFE TABLE

PLACEMENT BAND 1948-2000			EXPERIENCE BAND 1959-2011		
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	2,052,255		0.0000	1.0000	100.00
0.5	1,415,445	4,796	0.0034	0.9966	100.00
1.5	1,423,083		0.0000	1.0000	99.66
2.5	1,423,083		0.0000	1.0000	99.66
3.5	1,423,083		0.0000	1.0000	99.66
4.5	1,423,083	253	0.0002	0.9998	99.66
5.5	1,422,830	16,423	0.0115	0.9885	99.64
6.5	1,406,407	1,349	0.0010	0.9990	98.49
7.5	1,405,058		0.0000	1.0000	98.40
8.5	1,405,058		0.0000	1.0000	98.40
9.5	1,405,058		0.0000	1.0000	98.40
10.5	1,415,843	5,610	0.0040	0.9960	98.40
11.5	1,406,152	2,888	0.0021	0.9979	98.01
12.5	1,341,224	118	0.0001	0.9999	97.81
13.5	1,341,106		0.0000	1.0000	97.80
14.5	1,246,953		0.0000	1.0000	97.80
15.5	1,098,975	79	0.0001	0.9999	97.80
16.5	1,098,896		0.0000	1.0000	97.79
17.5	1,098,896		0.0000	1.0000	97.79
18.5	638,467		0.0000	1.0000	97.79
19.5	407,160		0.0000	1.0000	97.79
20.5	407,160	33	0.0001	0.9999	97.79
21.5	407,127		0.0000	1.0000	97.78
22.5	388,651		0.0000	1.0000	97.78
23.5	367,054		0.0000	1.0000	97.78
24.5	367,054		0.0000	1.0000	97.78
25.5	324,038	5,175	0.0160	0.9840	97.78
26.5	304,260		0.0000	1.0000	96.22
27.5	294,670		0.0000	1.0000	96.22
28.5	294,670		0.0000	1.0000	96.22
29.5	291,460		0.0000	1.0000	96.22
30.5	283,310		0.0000	1.0000	96.22
31.5	283,310		0.0000	1.0000	96.22
32.5	283,310		0.0000	1.0000	96.22
33.5	283,310		0.0000	1.0000	96.22
34.5	283,310		0.0000	1.0000	96.22
35.5	283,310		0.0000	1.0000	96.22
36.5	139,701		0.0000	1.0000	96.22
37.5	98,451		0.0000	1.0000	96.22
38.5	98,451		0.0000	1.0000	96.22

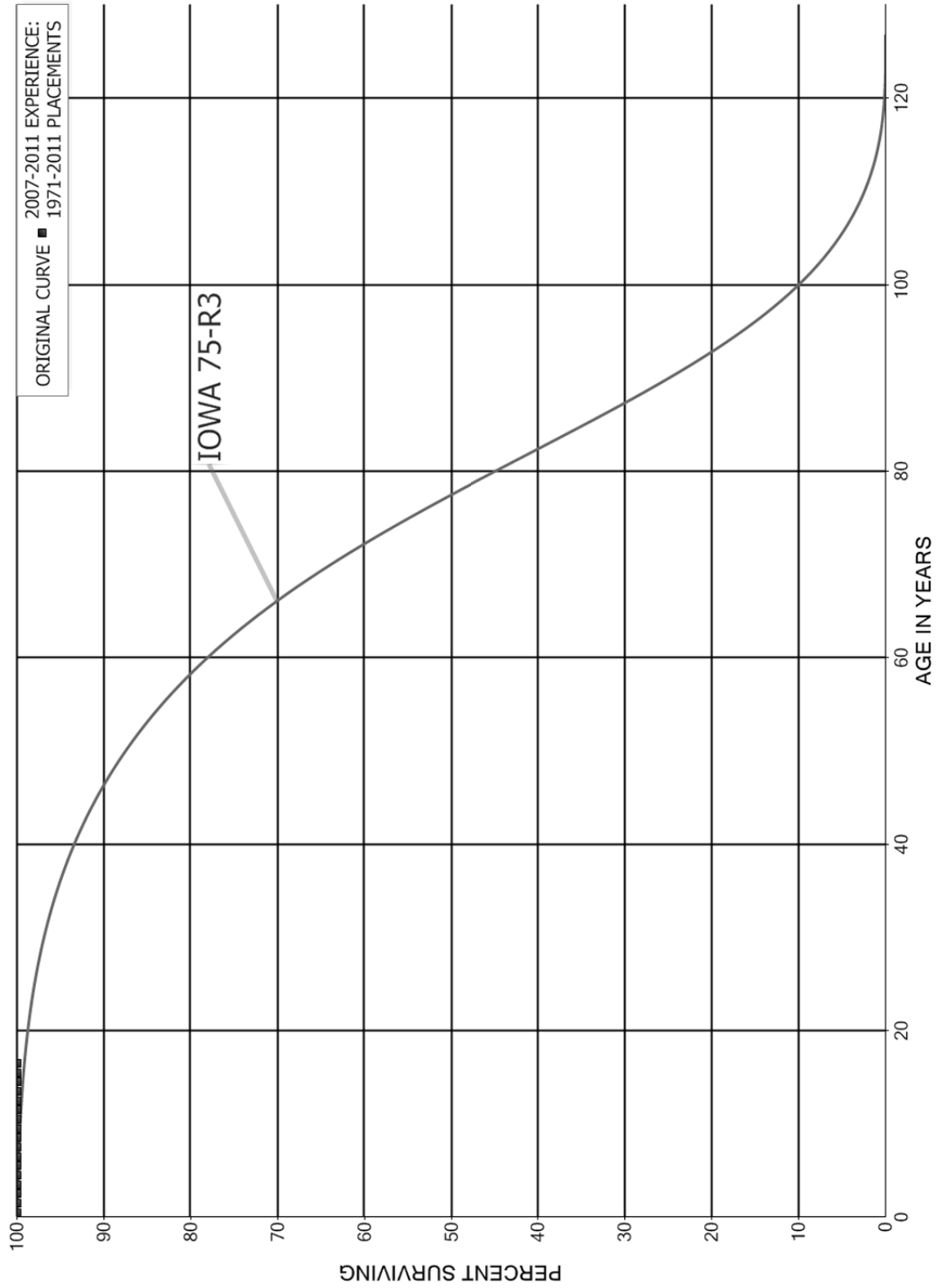
YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 457.00 - SUBSTATION EQUIPMENT

ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1948-2000			EXPERIENCE BAND 1959-2011			
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	98,451	7,356	0.0747	0.9253	96.22	
40.5	87,165	36	0.0004	0.9996	89.03	
41.5	69,358	3,165	0.0456	0.9544	89.00	
42.5	40,931	34	0.0008	0.9992	84.94	
43.5	26,880	221	0.0082	0.9918	84.87	
44.5	20,780	115	0.0055	0.9945	84.17	
45.5	20,603	547	0.0266	0.9734	83.70	
46.5	19,645		0.0000	1.0000	81.48	
47.5	19,431	354	0.0182	0.9818	81.48	
48.5	18,061	1,739	0.0963	0.9037	79.99	
49.5	16,322		0.0000	1.0000	72.29	
50.5	15,664		0.0000	1.0000	72.29	
51.5	12,434	3,953	0.3179	0.6821	72.29	
52.5	8,482		0.0000	1.0000	49.31	
53.5	8,482		0.0000	1.0000	49.31	
54.5					49.31	

YUKON ELECTRICAL COMPANY LIMITED
ACCOUNT 471.00 - LAND RIGHTS - DISTRIBUTION
ORIGINAL AND SMOOTH SURVIVOR CURVES



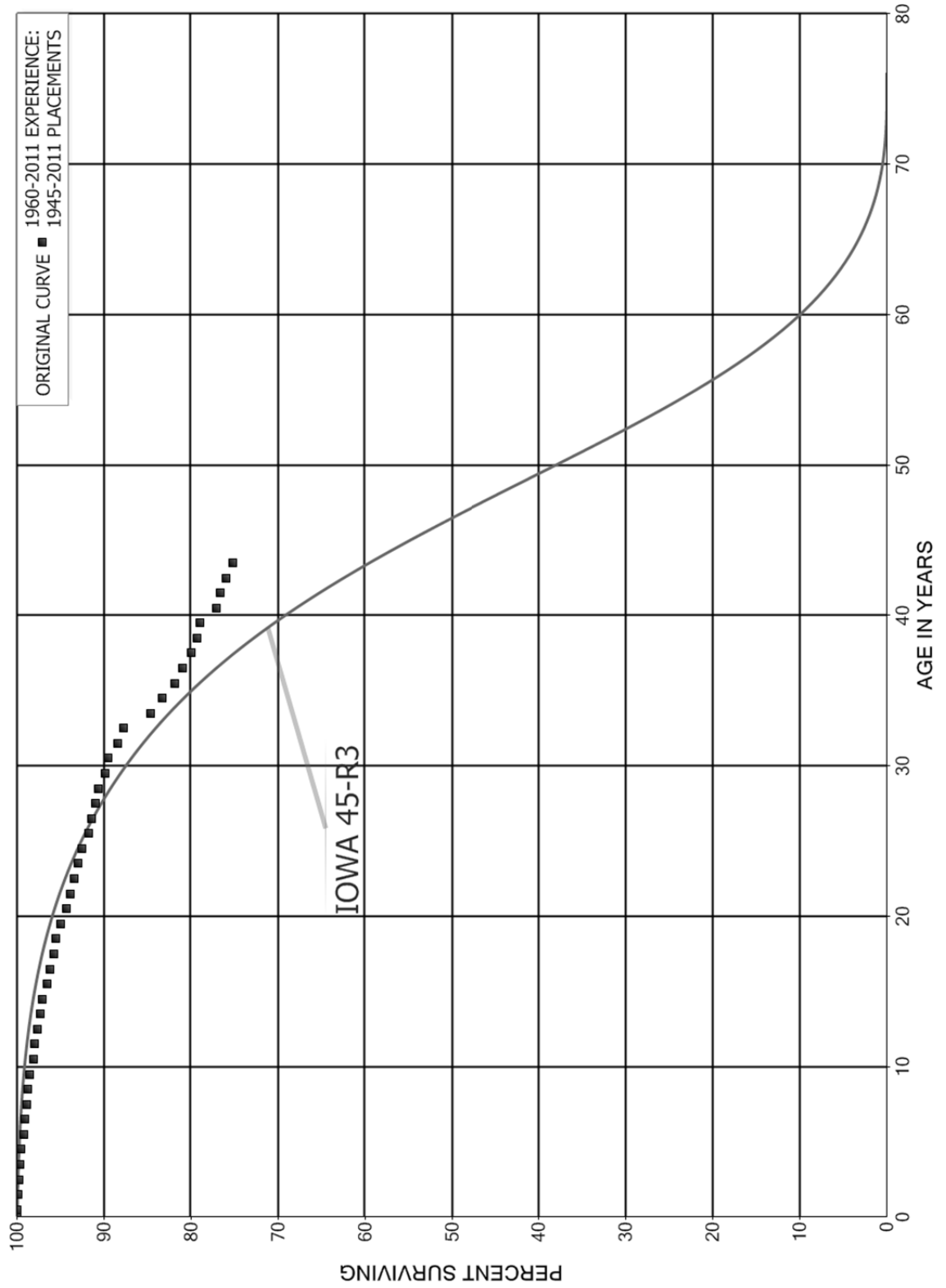
YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 471.00 - LAND RIGHTS - DISTRIBUTION

ORIGINAL LIFE TABLE

PLACEMENT BAND 1971-2011			EXPERIENCE BAND 2007-2011		
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	407,391		0.0000	1.0000	100.00
0.5	379,408		0.0000	1.0000	100.00
1.5	496,651		0.0000	1.0000	100.00
2.5	484,652		0.0000	1.0000	100.00
3.5	382,967		0.0000	1.0000	100.00
4.5	347,887		0.0000	1.0000	100.00
5.5	356,980		0.0000	1.0000	100.00
6.5	202,566		0.0000	1.0000	100.00
7.5	191,644		0.0000	1.0000	100.00
8.5	240,193		0.0000	1.0000	100.00
9.5	345,659		0.0000	1.0000	100.00
10.5	336,396		0.0000	1.0000	100.00
11.5	331,701		0.0000	1.0000	100.00
12.5	294,397		0.0000	1.0000	100.00
13.5	243,875		0.0000	1.0000	100.00
14.5	103,762		0.0000	1.0000	100.00
15.5	57,676		0.0000	1.0000	100.00
16.5	12,701		0.0000	1.0000	100.00
17.5					100.00
18.5					
19.5					
20.5					
21.5					
22.5					
23.5					
24.5					
25.5					
26.5					
27.5	198		0.0000		
28.5	198		0.0000		
29.5	198		0.0000		
30.5	198		0.0000		
31.5	198		0.0000		
32.5					
33.5					
34.5					
35.5	1,500		0.0000		
36.5	1,500		0.0000		
37.5	1,500		0.0000		
38.5	1,500		0.0000		
39.5	1,500		0.0000		
40.5					

YUKON ELECTRICAL COMPANY LIMITED
ACCOUNT 473.00 - POLES, TOWERS AND FIXTURES - DISTRIBUTION
ORIGINAL AND SMOOTH SURVIVOR CURVES



YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 473.00 - POLES, TOWERS AND FIXTURES - DISTRIBUTION

ORIGINAL LIFE TABLE

PLACEMENT BAND 1945-2011			EXPERIENCE BAND 1960-2011		
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	29,568,573	1,856	0.0001	0.9999	100.00
0.5	26,595,181	34,714	0.0013	0.9987	99.99
1.5	25,717,605	40,985	0.0016	0.9984	99.86
2.5	25,355,606	25,846	0.0010	0.9990	99.70
3.5	23,716,776	35,921	0.0015	0.9985	99.60
4.5	22,593,758	55,885	0.0025	0.9975	99.45
5.5	21,141,482	29,923	0.0014	0.9986	99.21
6.5	20,126,699	49,725	0.0025	0.9975	99.07
7.5	18,798,226	20,613	0.0011	0.9989	98.82
8.5	18,003,552	42,290	0.0023	0.9977	98.71
9.5	16,976,858	62,727	0.0037	0.9963	98.48
10.5	16,278,855	33,677	0.0021	0.9979	98.12
11.5	15,633,531	43,188	0.0028	0.9972	97.91
12.5	14,824,647	50,164	0.0034	0.9966	97.64
13.5	14,095,722	28,346	0.0020	0.9980	97.31
14.5	13,302,404	81,074	0.0061	0.9939	97.12
15.5	12,321,817	44,321	0.0036	0.9964	96.52
16.5	11,376,746	51,876	0.0046	0.9954	96.18
17.5	10,319,365	24,536	0.0024	0.9976	95.74
18.5	8,720,559	54,151	0.0062	0.9938	95.51
19.5	7,502,142	49,943	0.0067	0.9933	94.92
20.5	6,669,977	32,362	0.0049	0.9951	94.29
21.5	5,527,269	27,327	0.0049	0.9951	93.83
22.5	4,924,930	20,519	0.0042	0.9958	93.37
23.5	4,570,788	21,089	0.0046	0.9954	92.98
24.5	4,131,753	36,613	0.0089	0.9911	92.55
25.5	3,815,579	14,083	0.0037	0.9963	91.73
26.5	3,047,058	14,524	0.0048	0.9952	91.39
27.5	2,758,915	11,638	0.0042	0.9958	90.95
28.5	2,612,237	20,365	0.0078	0.9922	90.57
29.5	2,237,773	8,032	0.0036	0.9964	89.86
30.5	2,100,577	26,478	0.0126	0.9874	89.54
31.5	1,965,330	16,386	0.0083	0.9917	88.41
32.5	1,748,647	59,997	0.0343	0.9657	87.67
33.5	1,476,624	23,507	0.0159	0.9841	84.67
34.5	1,212,410	22,323	0.0184	0.9816	83.32
35.5	1,093,857	11,867	0.0108	0.9892	81.78
36.5	935,545	11,464	0.0123	0.9877	80.90
37.5	834,537	6,264	0.0075	0.9925	79.91
38.5	729,566	2,883	0.0040	0.9960	79.31

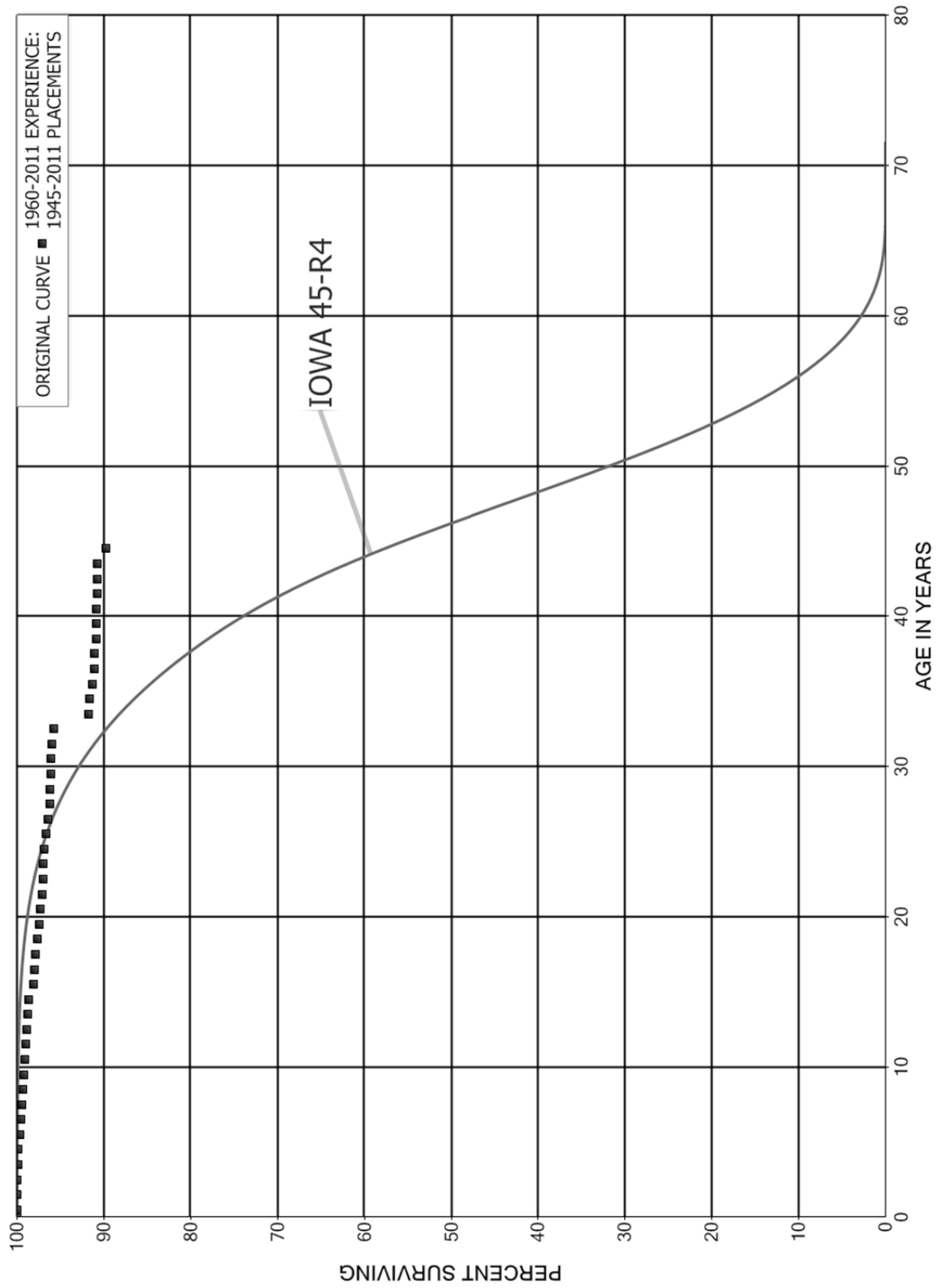
YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 473.00 - POLES, TOWERS AND FIXTURES - DISTRIBUTION

ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1945-2011			EXPERIENCE BAND 1960-2011		
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	596,858	14,549	0.0244	0.9756	78.99
40.5	563,600	3,438	0.0061	0.9939	77.07
41.5	544,139	4,501	0.0083	0.9917	76.60
42.5	432,890	4,521	0.0104	0.9896	75.96
43.5	331,701	4,723	0.0142	0.9858	75.17
44.5	290,732	5,677	0.0195	0.9805	74.10
45.5	214,835	2,863	0.0133	0.9867	72.65
46.5	187,747	4,923	0.0262	0.9738	71.69
47.5	157,296	7,348	0.0467	0.9533	69.81
48.5	127,211	2,764	0.0217	0.9783	66.54
49.5	106,543	7,445	0.0699	0.9301	65.10
50.5	76,836	6,332	0.0824	0.9176	60.55
51.5	6,437		0.0000	1.0000	55.56
52.5	3,015		0.0000	1.0000	55.56
53.5					55.56

YUKON ELECTRICAL COMPANY LIMITED
ACCOUNT 474.00 - OVERHEAD CONDUCTOR - DISTRIBUTION
ORIGINAL AND SMOOTH SURVIVOR CURVES



YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 474.00 - OVERHEAD CONDUCTOR - DISTRIBUTION

ORIGINAL LIFE TABLE

PLACEMENT BAND 1945-2011			EXPERIENCE BAND 1960-2011			
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	20,788,532	1,575	0.0001	0.9999	100.00	
0.5	19,255,095	5,362	0.0003	0.9997	99.99	
1.5	17,908,306	8,690	0.0005	0.9995	99.96	
2.5	16,961,532	7,649	0.0005	0.9995	99.92	
3.5	15,438,459	8,346	0.0005	0.9995	99.87	
4.5	13,852,737	25,606	0.0018	0.9982	99.82	
5.5	12,671,058	10,200	0.0008	0.9992	99.63	
6.5	11,870,886	23,813	0.0020	0.9980	99.55	
7.5	11,071,005	7,107	0.0006	0.9994	99.35	
8.5	10,641,572	15,028	0.0014	0.9986	99.29	
9.5	10,116,550	9,654	0.0010	0.9990	99.15	
10.5	9,635,130	9,489	0.0010	0.9990	99.05	
11.5	9,147,121	10,685	0.0012	0.9988	98.96	
12.5	8,726,184	10,116	0.0012	0.9988	98.84	
13.5	8,306,314	6,262	0.0008	0.9992	98.73	
14.5	7,782,555	42,168	0.0054	0.9946	98.65	
15.5	7,179,911	11,043	0.0015	0.9985	98.12	
16.5	6,811,022	12,246	0.0018	0.9982	97.97	
17.5	6,335,122	10,108	0.0016	0.9984	97.79	
18.5	5,532,054	14,645	0.0026	0.9974	97.63	
19.5	5,030,743	7,208	0.0014	0.9986	97.38	
20.5	4,503,763	7,892	0.0018	0.9982	97.24	
21.5	3,815,233	2,759	0.0007	0.9993	97.07	
22.5	3,479,773	3,297	0.0009	0.9991	97.00	
23.5	3,237,292	3,038	0.0009	0.9991	96.90	
24.5	2,905,628	4,716	0.0016	0.9984	96.81	
25.5	2,764,229	6,524	0.0024	0.9976	96.66	
26.5	2,079,805	4,703	0.0023	0.9977	96.43	
27.5	1,953,210	1,071	0.0005	0.9995	96.21	
28.5	1,820,093	1,118	0.0006	0.9994	96.16	
29.5	1,609,089	605	0.0004	0.9996	96.10	
30.5	1,520,643	1,871	0.0012	0.9988	96.06	
31.5	1,396,581	3,232	0.0023	0.9977	95.94	
32.5	1,316,188	54,761	0.0416	0.9584	95.72	
33.5	1,167,506	2,086	0.0018	0.9982	91.74	
34.5	1,020,380	3,611	0.0035	0.9965	91.57	
35.5	909,914	1,473	0.0016	0.9984	91.25	
36.5	763,802	389	0.0005	0.9995	91.10	
37.5	706,362	1,353	0.0019	0.9981	91.06	
38.5	596,458	7	0.0000	1.0000	90.88	

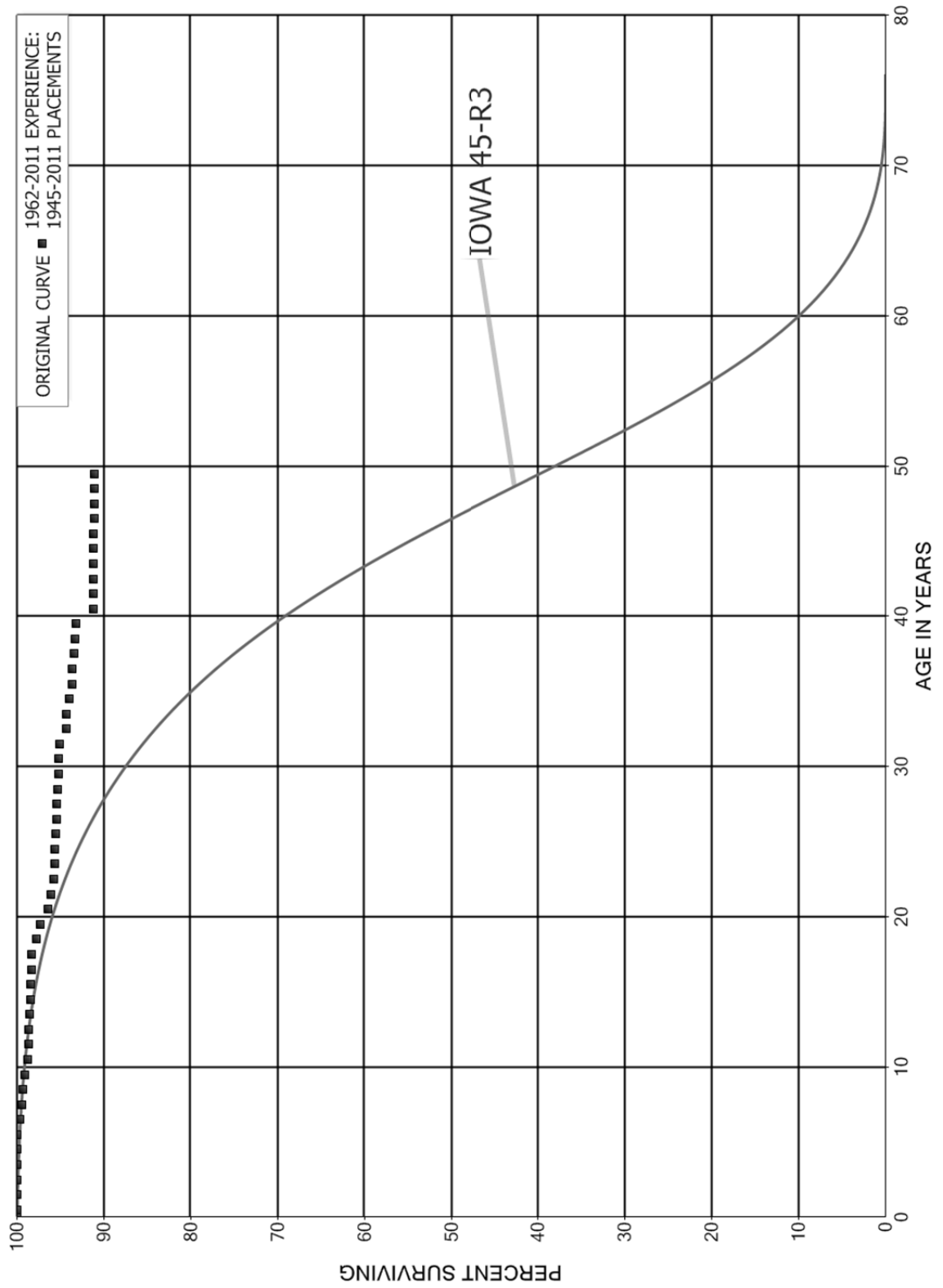
YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 474.00 - OVERHEAD CONDUCTOR - DISTRIBUTION

ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1945-2011			EXPERIENCE BAND 1960-2011		
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	486,662	304	0.0006	0.9994	90.88
40.5	467,393	361	0.0008	0.9992	90.82
41.5	440,024	76	0.0002	0.9998	90.75
42.5	314,775	176	0.0006	0.9994	90.74
43.5	246,352	2,735	0.0111	0.9889	90.69
44.5	207,723	2,767	0.0133	0.9867	89.68
45.5	161,189	462	0.0029	0.9971	88.49
46.5	146,161		0.0000	1.0000	88.23
47.5	135,620		0.0000	1.0000	88.23
48.5	121,377	644	0.0053	0.9947	88.23
49.5	108,633	136	0.0013	0.9987	87.76
50.5	99,204	15	0.0002	0.9998	87.66
51.5	26,805	470	0.0175	0.9825	87.64
52.5	18,295		0.0000	1.0000	86.10
53.5	12,736		0.0000	1.0000	86.10
54.5	11,814	976	0.0826	0.9174	86.10
55.5	8,095	253	0.0313	0.9687	78.99
56.5	7,423		0.0000	1.0000	76.52
57.5	4,785		0.0000	1.0000	76.52
58.5	2,756		0.0000	1.0000	76.52
59.5	1,629		0.0000	1.0000	76.52
60.5	890		0.0000	1.0000	76.52
61.5	766	100	0.1307	0.8693	76.52
62.5	156	7	0.0450	0.9550	66.52
63.5					63.53

YUKON ELECTRICAL COMPANY LIMITED
ACCOUNT 474.10 - OVERHEAD SERVICES - DISTRIBUTION
ORIGINAL AND SMOOTH SURVIVOR CURVES



YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 474.10 - OVERHEAD SERVICES - DISTRIBUTION

ORIGINAL LIFE TABLE

PLACEMENT BAND 1945-2011			EXPERIENCE BAND 1962-2011		
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	2,897,960		0.0000	1.0000	100.00
0.5	2,679,527	209	0.0001	0.9999	100.00
1.5	2,650,305	137	0.0001	0.9999	99.99
2.5	2,523,445	1,031	0.0004	0.9996	99.99
3.5	2,289,535	361	0.0002	0.9998	99.95
4.5	2,101,382	368	0.0002	0.9998	99.93
5.5	1,968,323	4,885	0.0025	0.9975	99.91
6.5	1,902,819	4,437	0.0023	0.9977	99.66
7.5	1,833,401	3,026	0.0017	0.9983	99.43
8.5	1,777,197	3,219	0.0018	0.9982	99.27
9.5	1,716,047	6,929	0.0040	0.9960	99.09
10.5	1,684,449	572	0.0003	0.9997	98.69
11.5	1,651,024	894	0.0005	0.9995	98.66
12.5	1,610,121	1,026	0.0006	0.9994	98.60
13.5	1,562,798	2,139	0.0014	0.9986	98.54
14.5	1,515,231	769	0.0005	0.9995	98.40
15.5	1,514,883	1,339	0.0009	0.9991	98.35
16.5	1,461,458	317	0.0002	0.9998	98.27
17.5	1,396,360	6,657	0.0048	0.9952	98.25
18.5	1,277,630	6,847	0.0054	0.9946	97.78
19.5	1,107,081	9,680	0.0087	0.9913	97.25
20.5	989,250	3,274	0.0033	0.9967	96.40
21.5	896,304	3,357	0.0037	0.9963	96.08
22.5	811,679	1,006	0.0012	0.9988	95.72
23.5	744,060	235	0.0003	0.9997	95.61
24.5	675,944	256	0.0004	0.9996	95.58
25.5	624,079	1,040	0.0017	0.9983	95.54
26.5	590,354	180	0.0003	0.9997	95.38
27.5	549,937	107	0.0002	0.9998	95.35
28.5	509,327	645	0.0013	0.9987	95.33
29.5	477,702	237	0.0005	0.9995	95.21
30.5	424,234	213	0.0005	0.9995	95.16
31.5	380,748	3,198	0.0084	0.9916	95.12
32.5	325,500	195	0.0006	0.9994	94.32
33.5	263,123	711	0.0027	0.9973	94.26
34.5	219,990	896	0.0041	0.9959	94.01
35.5	181,415		0.0000	1.0000	93.62
36.5	146,796	281	0.0019	0.9981	93.62
37.5	126,348	144	0.0011	0.9989	93.44
38.5	111,511	161	0.0014	0.9986	93.34

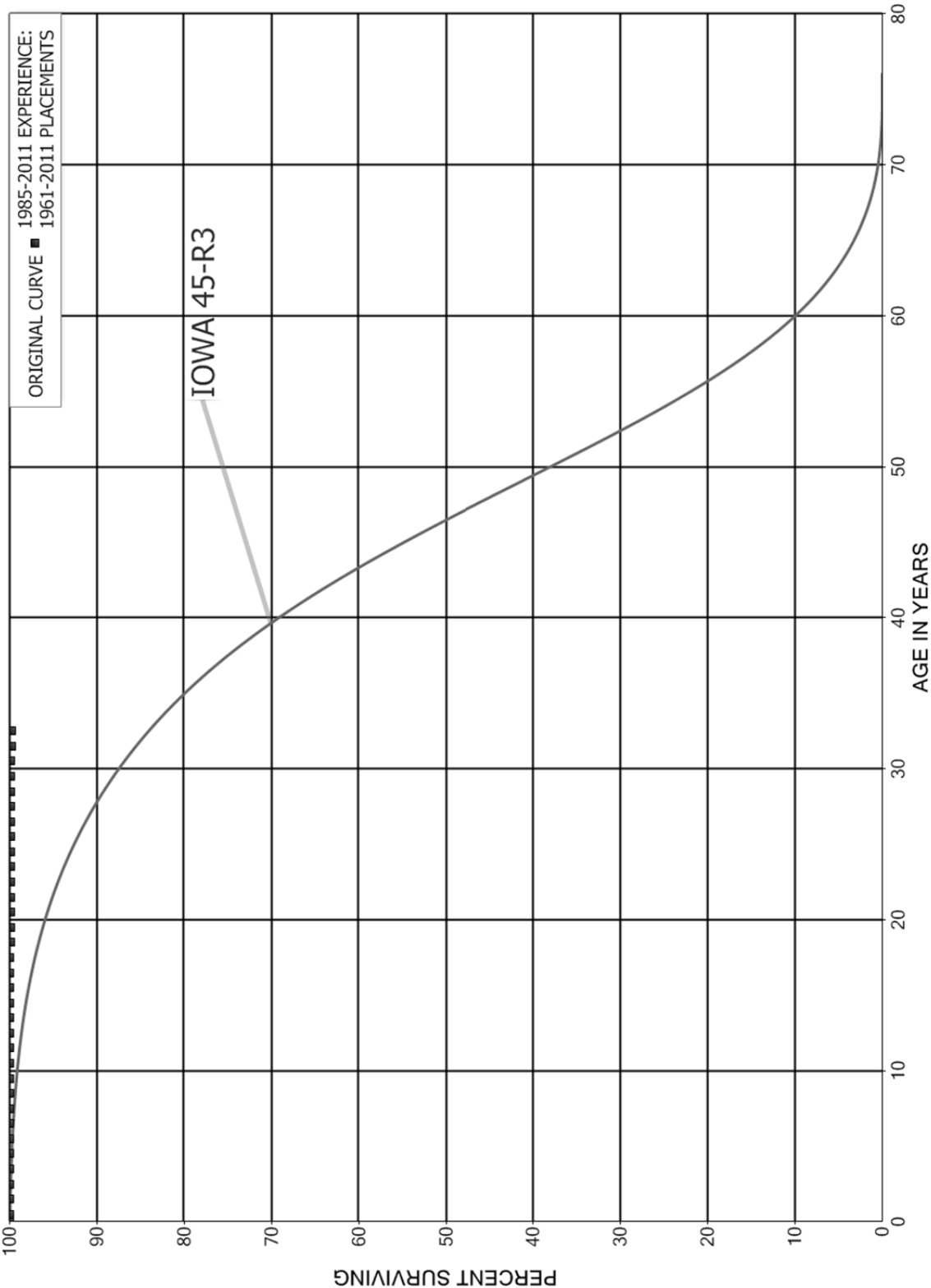
YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 474.10 - OVERHEAD SERVICES - DISTRIBUTION

ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1945-2011			EXPERIENCE BAND 1962-2011		
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	98,393	2,138	0.0217	0.9783	93.20
40.5	84,181	26	0.0003	0.9997	91.18
41.5	72,402		0.0000	1.0000	91.15
42.5	64,880		0.0000	1.0000	91.15
43.5	56,880		0.0000	1.0000	91.15
44.5	49,399		0.0000	1.0000	91.15
45.5	44,802	32	0.0007	0.9993	91.15
46.5	41,541		0.0000	1.0000	91.08
47.5	36,981		0.0000	1.0000	91.08
48.5	34,457		0.0000	1.0000	91.08
49.5	29,129	296	0.0102	0.9898	91.08
50.5	27,041		0.0000	1.0000	90.16
51.5	25,481		0.0000	1.0000	90.16
52.5	23,948		0.0000	1.0000	90.16
53.5	22,778		0.0000	1.0000	90.16
54.5	19,186		0.0000	1.0000	90.16
55.5	15,861		0.0000	1.0000	90.16
56.5	13,090		0.0000	1.0000	90.16
57.5	9,893		0.0000	1.0000	90.16
58.5	7,434		0.0000	1.0000	90.16
59.5	6,068		0.0000	1.0000	90.16
60.5	5,167		0.0000	1.0000	90.16
61.5	4,359		0.0000	1.0000	90.16
62.5	3,686		0.0000	1.0000	90.16
63.5	3,116		0.0000	1.0000	90.16
64.5	2,640		0.0000	1.0000	90.16
65.5	2,225	22	0.0099	0.9901	90.16
66.5					89.27

YUKON ELECTRICAL COMPANY LIMITED
ACCOUNT 475.00 - UNDERGROUND CONDUIT - DISTRIBUTION
ORIGINAL AND SMOOTH SURVIVOR CURVES



YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 475.00 - UNDERGROUND CONDUIT - DISTRIBUTION

ORIGINAL LIFE TABLE

PLACEMENT BAND 1961-2011			EXPERIENCE BAND 1985-2011		
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	19,704,379	306	0.0000	1.0000	100.00
0.5	18,868,373	200	0.0000	1.0000	100.00
1.5	18,307,894	2,007	0.0001	0.9999	100.00
2.5	17,131,040	7	0.0000	1.0000	99.99
3.5	16,330,481	679	0.0000	1.0000	99.99
4.5	16,220,522	97	0.0000	1.0000	99.98
5.5	15,496,884	314	0.0000	1.0000	99.98
6.5	15,029,442	339	0.0000	1.0000	99.98
7.5	14,036,041		0.0000	1.0000	99.98
8.5	12,949,411	378	0.0000	1.0000	99.98
9.5	11,944,443	81	0.0000	1.0000	99.97
10.5	10,228,413	1,186	0.0001	0.9999	99.97
11.5	9,704,739	2,885	0.0003	0.9997	99.96
12.5	8,841,122	20	0.0000	1.0000	99.93
13.5	8,183,034		0.0000	1.0000	99.93
14.5	7,062,651	2,151	0.0003	0.9997	99.93
15.5	6,528,623	525	0.0001	0.9999	99.90
16.5	5,403,385	41	0.0000	1.0000	99.89
17.5	5,135,520	490	0.0001	0.9999	99.89
18.5	4,138,490	455	0.0001	0.9999	99.88
19.5	3,401,557	12	0.0000	1.0000	99.87
20.5	3,229,608	81	0.0000	1.0000	99.87
21.5	2,990,286	72	0.0000	1.0000	99.87
22.5	1,607,602	11	0.0000	1.0000	99.87
23.5	1,537,464	38	0.0000	1.0000	99.87
24.5	1,356,302	660	0.0005	0.9995	99.86
25.5	1,333,676	3	0.0000	1.0000	99.82
26.5	1,272,443		0.0000	1.0000	99.82
27.5	1,239,767		0.0000	1.0000	99.82
28.5	1,171,472	19	0.0000	1.0000	99.82
29.5	1,122,142	15	0.0000	1.0000	99.81
30.5	1,098,861	591	0.0005	0.9995	99.81
31.5	382,215	7	0.0000	1.0000	99.76
32.5	365,200	5	0.0000	1.0000	99.76
33.5	107,939		0.0000	1.0000	99.76
34.5	103,390		0.0000	1.0000	99.76
35.5	36,720		0.0000	1.0000	99.76
36.5	28,132		0.0000	1.0000	99.76
37.5	20,759		0.0000	1.0000	99.76
38.5	15,703		0.0000	1.0000	99.76

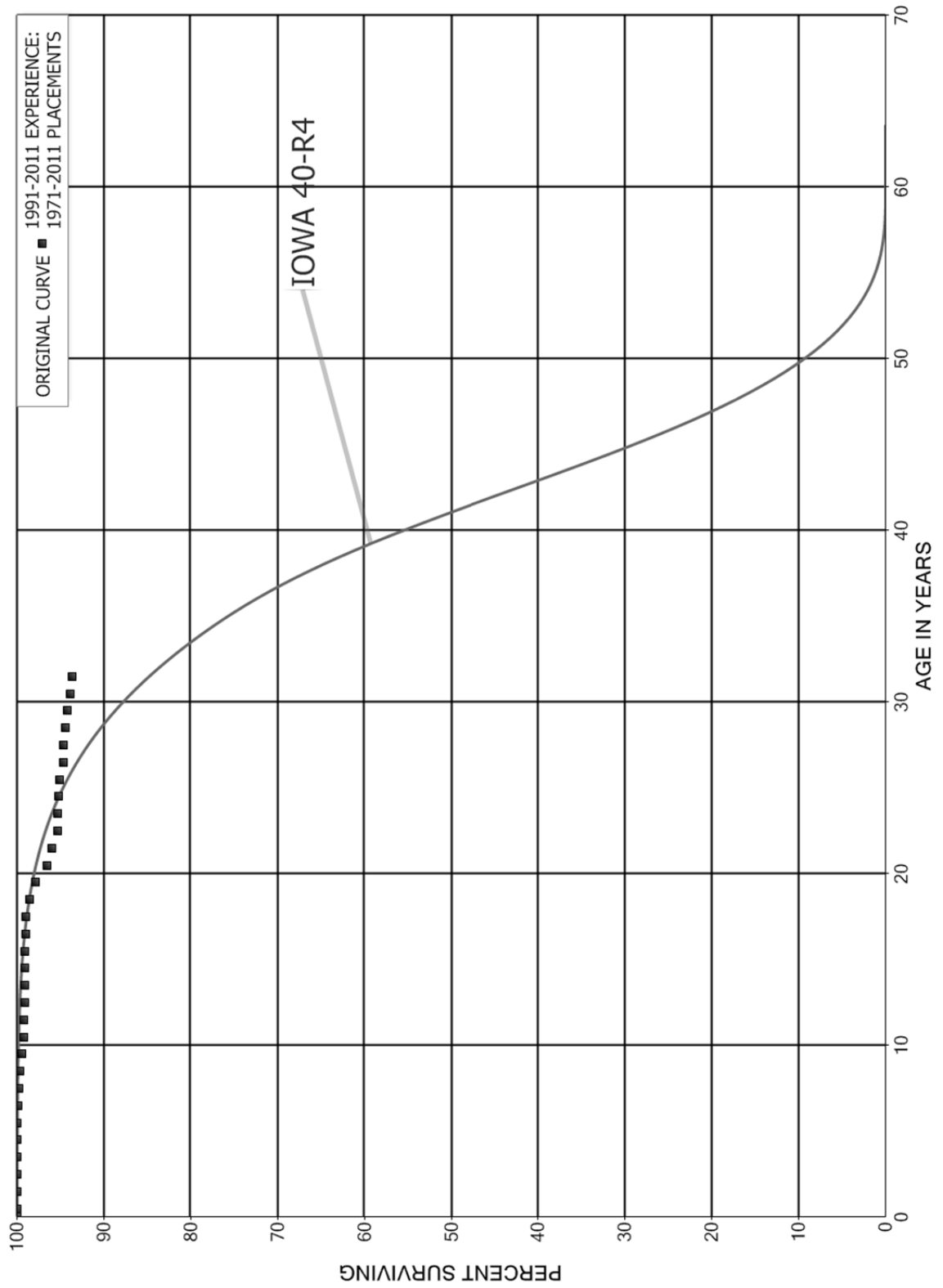
YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 475.00 - UNDERGROUND CONDUIT - DISTRIBUTION

ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1961-2011			EXPERIENCE BAND 1985-2011		
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	1,549		0.0000	1.0000	99.76
40.5	1,484		0.0000	1.0000	99.76
41.5	1,484		0.0000	1.0000	99.76
42.5	127		0.0000	1.0000	99.76
43.5	127		0.0000	1.0000	99.76
44.5	127		0.0000	1.0000	99.76
45.5	127		0.0000	1.0000	99.76
46.5	127		0.0000	1.0000	99.76
47.5	127		0.0000	1.0000	99.76
48.5	127		0.0000	1.0000	99.76
49.5	127	115	0.9055	0.0945	99.76
50.5					9.43

YUKON ELECTRICAL COMPANY LIMITED
ACCOUNT 475.10 - UNDERGROUND SERVICES - DISTRIBUTION
ORIGINAL AND SMOOTH SURVIVOR CURVES



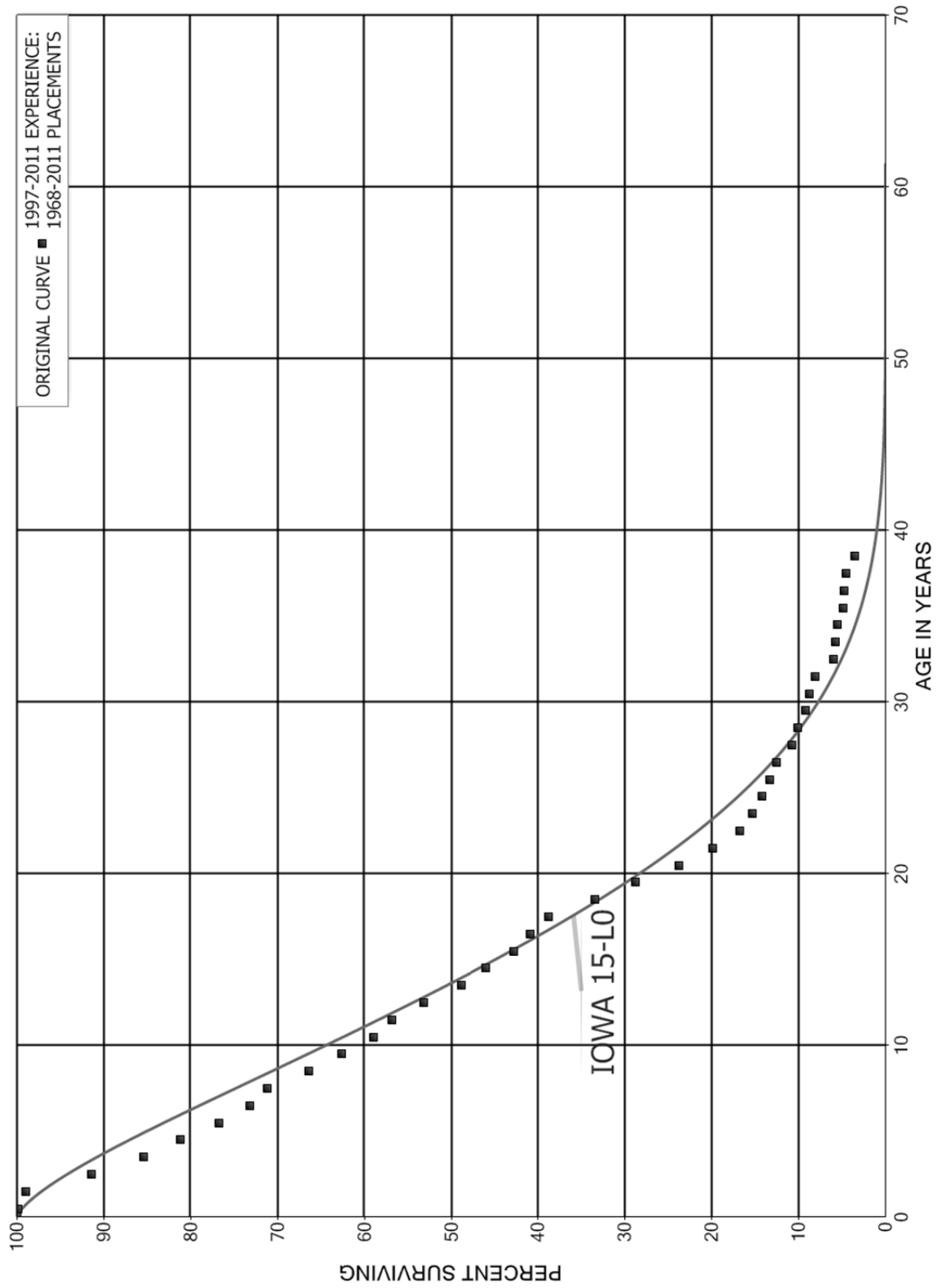
YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 475.10 - UNDERGROUND SERVICES - DISTRIBUTION

ORIGINAL LIFE TABLE

PLACEMENT BAND 1971-2011			EXPERIENCE BAND 1991-2011		
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	2,620,757		0.0000	1.0000	100.00
0.5	2,471,964	136	0.0001	0.9999	100.00
1.5	2,443,291	95	0.0000	1.0000	99.99
2.5	2,461,478	684	0.0003	0.9997	99.99
3.5	2,430,245	234	0.0001	0.9999	99.96
4.5	2,314,544	254	0.0001	0.9999	99.95
5.5	2,083,803	1,771	0.0008	0.9992	99.94
6.5	1,939,759	2,687	0.0014	0.9986	99.86
7.5	1,734,398	2,602	0.0015	0.9985	99.72
8.5	1,663,049	2,148	0.0013	0.9987	99.57
9.5	1,603,712	4,583	0.0029	0.9971	99.44
10.5	1,539,527	175	0.0001	0.9999	99.16
11.5	1,540,195	556	0.0004	0.9996	99.15
12.5	1,479,001	204	0.0001	0.9999	99.11
13.5	1,380,492	238	0.0002	0.9998	99.10
14.5	1,254,583	389	0.0003	0.9997	99.08
15.5	1,027,868	548	0.0005	0.9995	99.05
16.5	903,446	89	0.0001	0.9999	99.00
17.5	818,448	4,222	0.0052	0.9948	98.99
18.5	616,038	3,902	0.0063	0.9937	98.47
19.5	460,903	6,273	0.0136	0.9864	97.85
20.5	368,937	2,050	0.0056	0.9944	96.52
21.5	302,970	2,299	0.0076	0.9924	95.98
22.5	236,419	46	0.0002	0.9998	95.25
23.5	181,025	163	0.0009	0.9991	95.24
24.5	116,477	149	0.0013	0.9987	95.15
25.5	68,732	281	0.0041	0.9959	95.03
26.5	65,984	52	0.0008	0.9992	94.64
27.5	59,882	74	0.0012	0.9988	94.57
28.5	55,696	151	0.0027	0.9973	94.45
29.5	49,409	164	0.0033	0.9967	94.19
30.5	34,917	82	0.0024	0.9976	93.88
31.5	29,718	2,962	0.0997	0.9003	93.66
32.5	10,601	1,728	0.1630	0.8370	84.33
33.5	67		0.0000	1.0000	70.58
34.5	67		0.0000	1.0000	70.58
35.5	67		0.0000	1.0000	70.58
36.5	67		0.0000	1.0000	70.58
37.5	67		0.0000	1.0000	70.58
38.5	67	67	1.0000		70.58
39.5					

YUKON ELECTRICAL COMPANY LIMITED
ACCOUNT 476.10 - METERS - DISTRIBUTION
ORIGINAL AND SMOOTH SURVIVOR CURVES



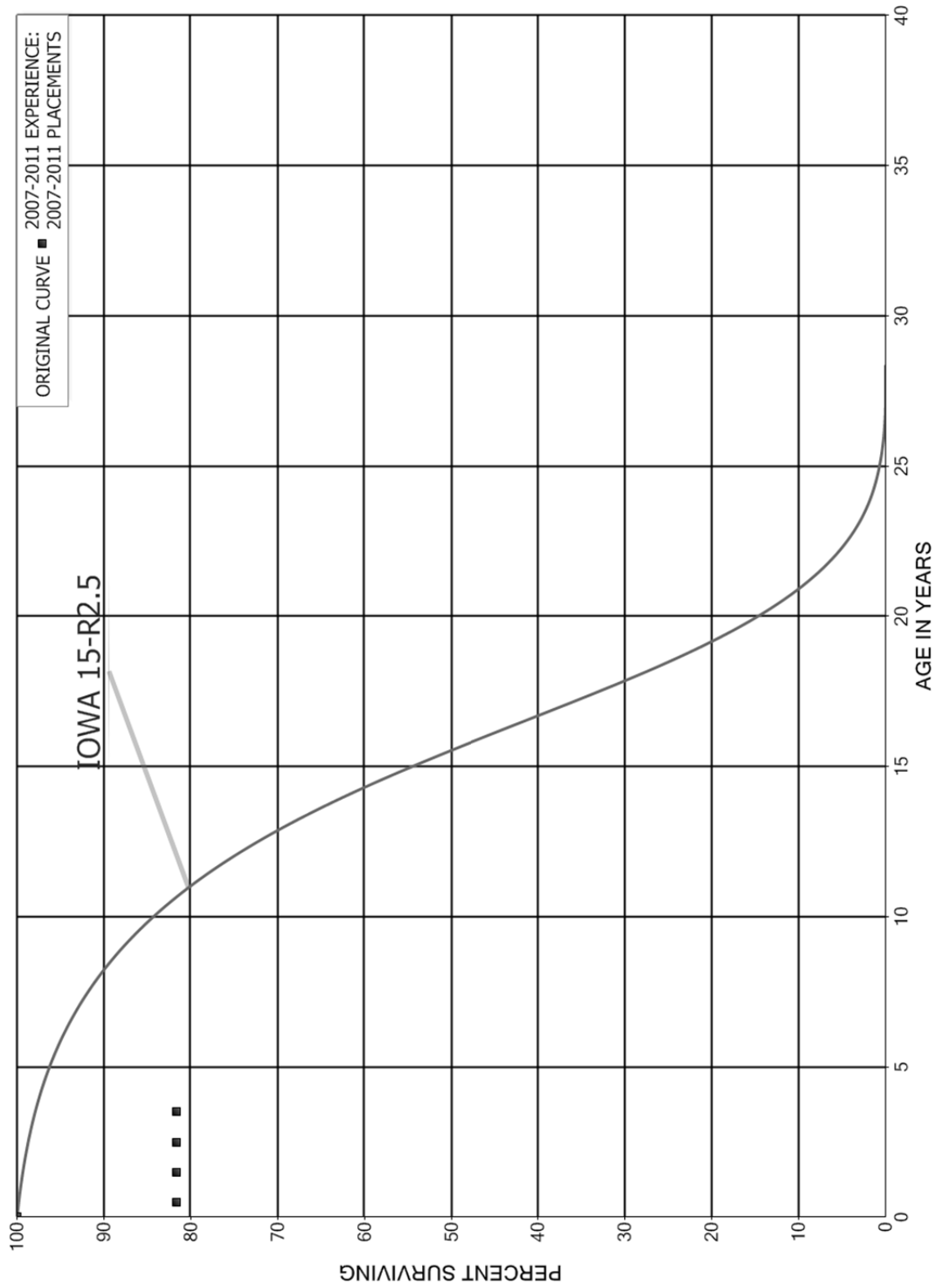
YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 476.10 - METERS - DISTRIBUTION

ORIGINAL LIFE TABLE

PLACEMENT BAND 1968-2011			EXPERIENCE BAND 1997-2011		
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	1,721,599	3,504	0.0020	0.9980	100.00
0.5	1,531,375	13,272	0.0087	0.9913	99.80
1.5	1,070,993	81,132	0.0758	0.9242	98.93
2.5	1,023,478	67,944	0.0664	0.9336	91.44
3.5	1,047,822	51,658	0.0493	0.9507	85.37
4.5	1,077,564	59,331	0.0551	0.9449	81.16
5.5	1,082,760	50,139	0.0463	0.9537	76.69
6.5	1,095,126	29,652	0.0271	0.9729	73.14
7.5	1,029,623	68,528	0.0666	0.9334	71.16
8.5	906,930	52,676	0.0581	0.9419	66.42
9.5	862,730	49,639	0.0575	0.9425	62.56
10.5	801,121	29,265	0.0365	0.9635	58.96
11.5	694,679	44,249	0.0637	0.9363	56.81
12.5	596,929	48,819	0.0818	0.9182	53.19
13.5	463,951	27,305	0.0589	0.9411	48.84
14.5	438,374	30,603	0.0698	0.9302	45.97
15.5	441,140	19,936	0.0452	0.9548	42.76
16.5	435,881	22,313	0.0512	0.9488	40.83
17.5	427,358	59,526	0.1393	0.8607	38.74
18.5	347,310	48,033	0.1383	0.8617	33.34
19.5	278,046	48,276	0.1736	0.8264	28.73
20.5	245,715	40,171	0.1635	0.8365	23.74
21.5	212,614	33,624	0.1581	0.8419	19.86
22.5	153,200	13,190	0.0861	0.9139	16.72
23.5	151,212	10,471	0.0692	0.9308	15.28
24.5	142,946	9,196	0.0643	0.9357	14.22
25.5	146,977	9,371	0.0638	0.9362	13.31
26.5	145,781	20,904	0.1434	0.8566	12.46
27.5	126,914	6,652	0.0524	0.9476	10.67
28.5	138,334	13,514	0.0977	0.9023	10.11
29.5	119,588	5,484	0.0459	0.9541	9.12
30.5	110,516	8,782	0.0795	0.9205	8.71
31.5	97,389	24,789	0.2545	0.7455	8.01
32.5	72,132	3,348	0.0464	0.9536	5.97
33.5	64,822	2,413	0.0372	0.9628	5.70
34.5	60,249	7,443	0.1235	0.8765	5.49
35.5	49,274	1,406	0.0285	0.9715	4.81
36.5	37,476	1,057	0.0282	0.9718	4.67
37.5	35,353	7,984	0.2258	0.7742	4.54
38.5	22,447	1,847	0.0823	0.9177	3.51
39.5	16,441	11,964	0.7277	0.2723	3.22
40.5	184	166	0.9015	0.0985	0.88
41.5					0.09

YUKON ELECTRICAL COMPANY LIMITED
ACCOUNT 476.30 - AMR METERS - DISTRIBUTION
ORIGINAL AND SMOOTH SURVIVOR CURVES



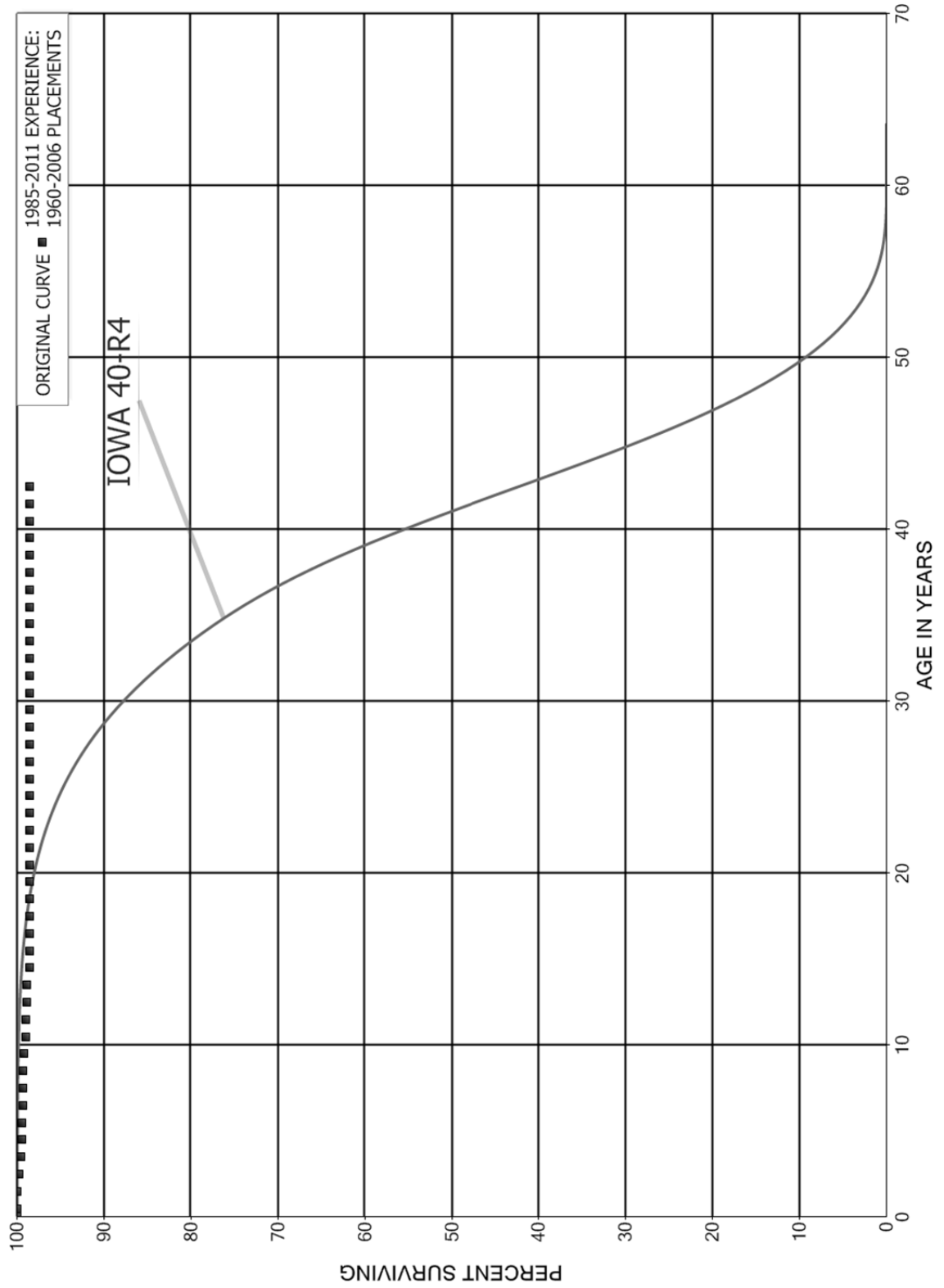
YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 476.30 - AMR METERS - DISTRIBUTION

ORIGINAL LIFE TABLE

PLACEMENT BAND 2007-2011			EXPERIENCE BAND 2007-2011		
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	78,825	14,525	0.1843	0.8157	100.00
0.5	62,588		0.0000	1.0000	81.57
1.5	49,447		0.0000	1.0000	81.57
2.5	37,215		0.0000	1.0000	81.57
3.5	7,790		0.0000	1.0000	81.57
4.5					81.57

YUKON ELECTRICAL COMPANY LIMITED
ACCOUNT 477.10 - SUBSTATION EQUIPMENT - DISTRIBUTION
ORIGINAL AND SMOOTH SURVIVOR CURVES



YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 477.10 - SUBSTATION EQUIPMENT - DISTRIBUTION

ORIGINAL LIFE TABLE

PLACEMENT BAND 1960-2006			EXPERIENCE BAND 1985-2011		
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	2,726,576		0.0000	1.0000	100.00
0.5	2,401,558	211	0.0001	0.9999	100.00
1.5	2,401,347	5,152	0.0021	0.9979	99.99
2.5	2,396,194	7,649	0.0032	0.9968	99.78
3.5	2,515,590	786	0.0003	0.9997	99.46
4.5	2,603,775	2,182	0.0008	0.9992	99.43
5.5	2,594,208	723	0.0003	0.9997	99.34
6.5	2,101,778		0.0000	1.0000	99.32
7.5	2,174,234		0.0000	1.0000	99.32
8.5	2,507,476	4,215	0.0017	0.9983	99.32
9.5	2,504,858	6,207	0.0025	0.9975	99.15
10.5	2,252,210		0.0000	1.0000	98.90
11.5	2,229,667	1,638	0.0007	0.9993	98.90
12.5	2,184,787		0.0000	1.0000	98.83
13.5	2,224,755	6,267	0.0028	0.9972	98.83
14.5	2,217,118	90	0.0000	1.0000	98.55
15.5	2,021,818	1,182	0.0006	0.9994	98.55
16.5	2,037,242		0.0000	1.0000	98.49
17.5	1,995,561	176	0.0001	0.9999	98.49
18.5	1,828,451		0.0000	1.0000	98.48
19.5	1,729,873		0.0000	1.0000	98.48
20.5	1,469,952		0.0000	1.0000	98.48
21.5	1,337,752		0.0000	1.0000	98.48
22.5	1,301,170		0.0000	1.0000	98.48
23.5	1,240,263		0.0000	1.0000	98.48
24.5	908,097		0.0000	1.0000	98.48
25.5	789,781		0.0000	1.0000	98.48
26.5	746,259		0.0000	1.0000	98.48
27.5	746,259		0.0000	1.0000	98.48
28.5	746,259		0.0000	1.0000	98.48
29.5	746,259		0.0000	1.0000	98.48
30.5	619,929		0.0000	1.0000	98.48
31.5	539,094		0.0000	1.0000	98.48
32.5	524,140		0.0000	1.0000	98.48
33.5	524,140		0.0000	1.0000	98.48
34.5	453,256		0.0000	1.0000	98.48
35.5	120,164		0.0000	1.0000	98.48
36.5	120,164		0.0000	1.0000	98.48
37.5	119,718		0.0000	1.0000	98.48
38.5	63,168		0.0000	1.0000	98.48

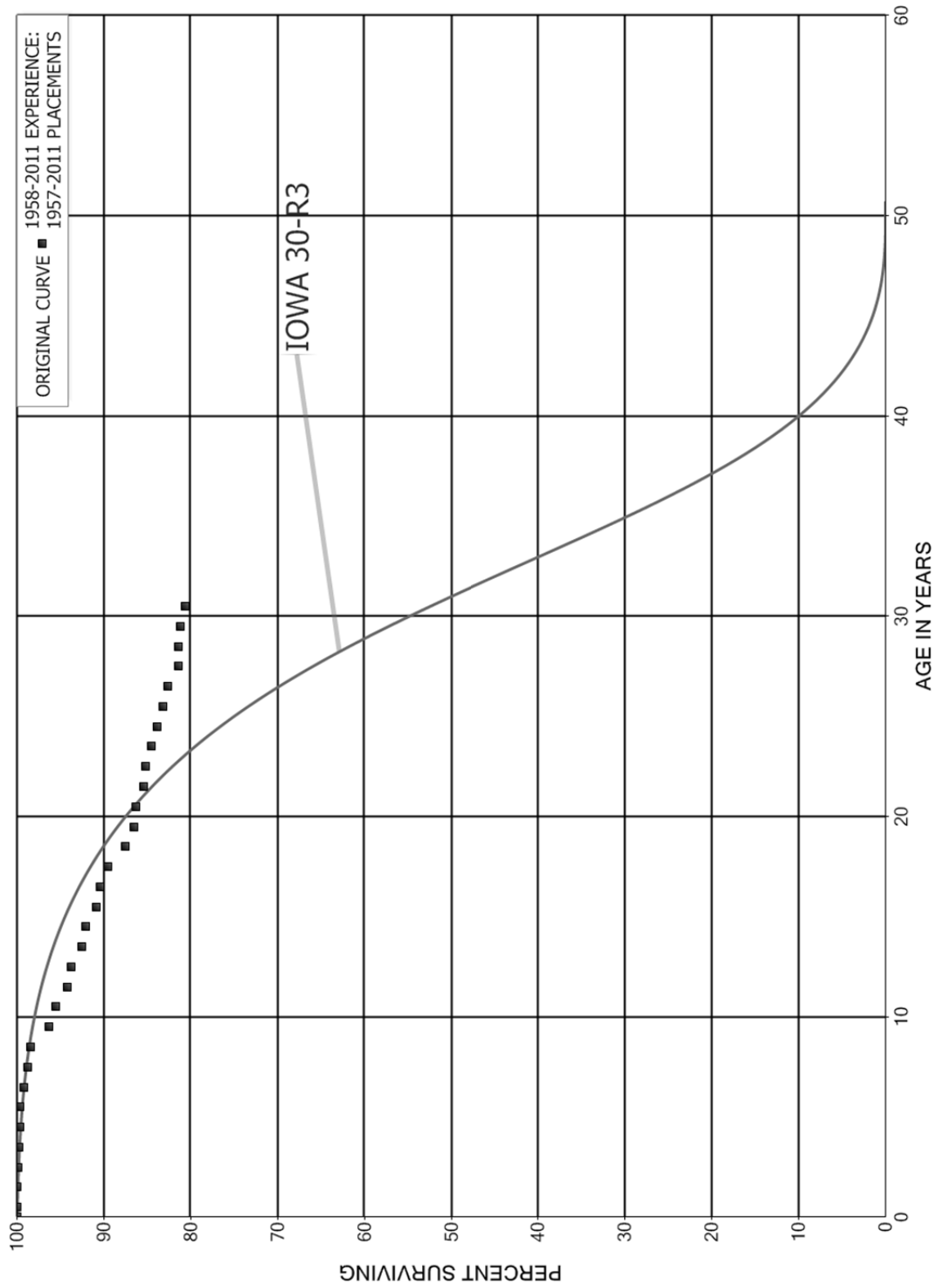
YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 477.10 - SUBSTATION EQUIPMENT - DISTRIBUTION

ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1960-2006			EXPERIENCE BAND 1985-2011		
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	61,079		0.0000	1.0000	98.48
40.5	21,120		0.0000	1.0000	98.48
41.5	21,120		0.0000	1.0000	98.48
42.5	20,238		0.0000	1.0000	98.48
43.5	3,632		0.0000	1.0000	98.48
44.5	3,632		0.0000	1.0000	98.48
45.5	3,632		0.0000	1.0000	98.48
46.5	3,632		0.0000	1.0000	98.48
47.5	3,632		0.0000	1.0000	98.48
48.5	3,632		0.0000	1.0000	98.48
49.5	3,632		0.0000	1.0000	98.48
50.5	3,632		0.0000	1.0000	98.48
51.5					98.48

YUKON ELECTRICAL COMPANY LIMITED
ACCOUNT 478.10 - STREET LIGHTS AND SIGNAL SYSTEMS - DISTRIBUTION
ORIGINAL AND SMOOTH SURVIVOR CURVES



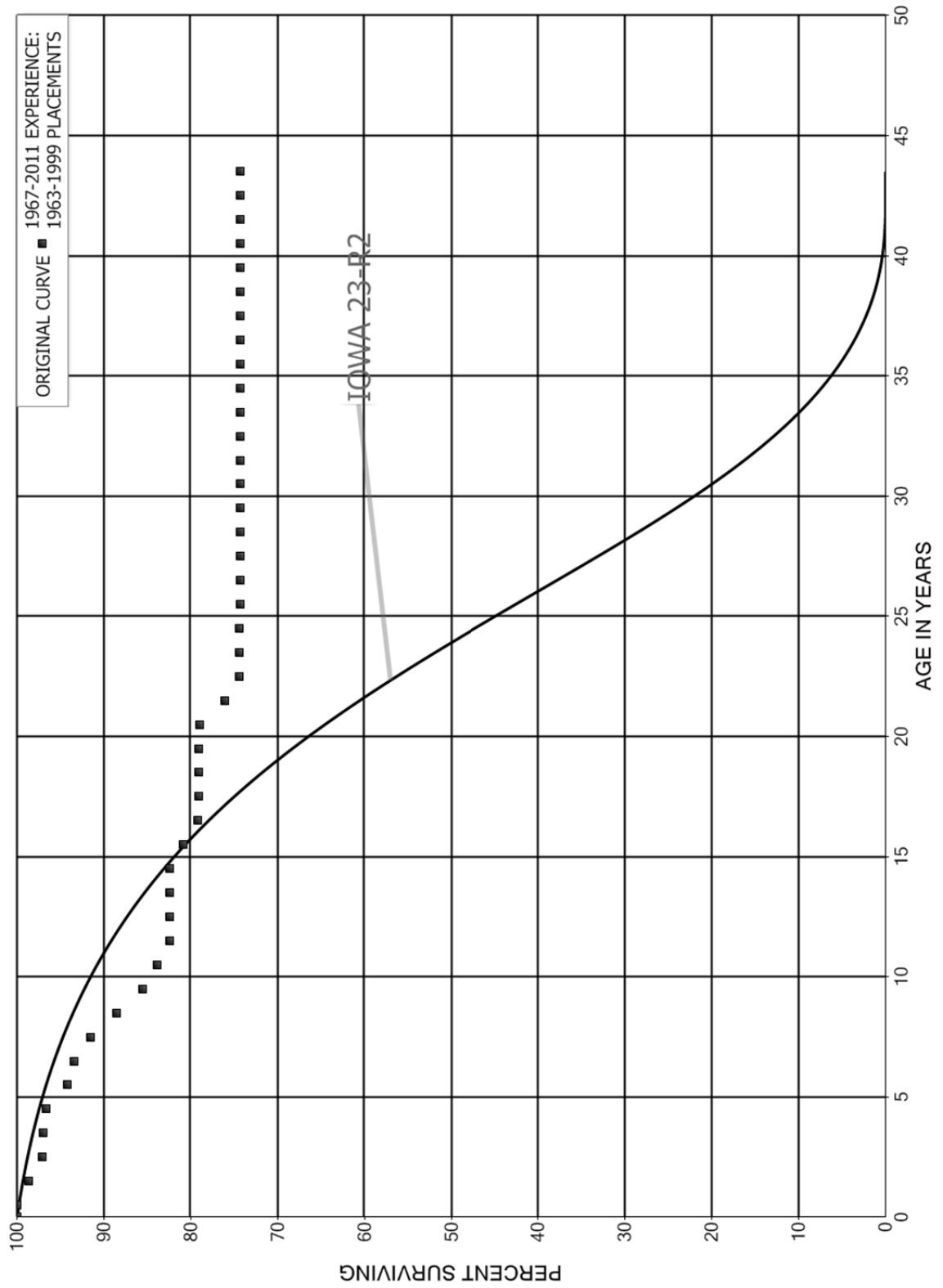
YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 478.10 - STREET LIGHTS AND SIGNAL SYSTEMS - DISTRIBUTION

ORIGINAL LIFE TABLE

PLACEMENT BAND 1957-2011			EXPERIENCE BAND 1958-2011		
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	9,842,476	1,271	0.0001	0.9999	100.00
0.5	9,383,230	6,132	0.0007	0.9993	99.99
1.5	9,182,075	11,841	0.0013	0.9987	99.92
2.5	8,585,083	2,754	0.0003	0.9997	99.79
3.5	8,364,298	8,118	0.0010	0.9990	99.76
4.5	7,831,564	6,625	0.0008	0.9992	99.66
5.5	7,024,946	26,358	0.0038	0.9962	99.58
6.5	6,889,532	29,966	0.0043	0.9957	99.21
7.5	6,354,839	24,352	0.0038	0.9962	98.77
8.5	5,742,293	121,079	0.0211	0.9789	98.40
9.5	5,425,679	48,608	0.0090	0.9910	96.32
10.5	5,020,513	67,908	0.0135	0.9865	95.46
11.5	4,742,405	21,903	0.0046	0.9954	94.17
12.5	4,469,160	57,860	0.0129	0.9871	93.73
13.5	4,193,540	20,962	0.0050	0.9950	92.52
14.5	3,758,700	49,070	0.0131	0.9869	92.06
15.5	3,602,407	16,853	0.0047	0.9953	90.85
16.5	3,275,025	33,875	0.0103	0.9897	90.43
17.5	2,993,862	64,747	0.0216	0.9784	89.49
18.5	2,575,313	32,421	0.0126	0.9874	87.56
19.5	2,453,096	4,945	0.0020	0.9980	86.46
20.5	2,225,813	22,546	0.0101	0.9899	86.28
21.5	1,931,883	4,769	0.0025	0.9975	85.41
22.5	1,354,352	11,558	0.0085	0.9915	85.20
23.5	1,132,832	8,300	0.0073	0.9927	84.47
24.5	987,380	8,065	0.0082	0.9918	83.85
25.5	630,699	4,529	0.0072	0.9928	83.17
26.5	596,975	8,560	0.0143	0.9857	82.57
27.5	489,934	127	0.0003	0.9997	81.39
28.5	375,818	1,046	0.0028	0.9972	81.36
29.5	305,222	2,119	0.0069	0.9931	81.14
30.5	274,615	5,083	0.0185	0.9815	80.57
31.5	84,881	372	0.0044	0.9956	79.08
32.5	69,037	99	0.0014	0.9986	78.74
33.5	46,678		0.0000	1.0000	78.62
34.5	4,288		0.0000	1.0000	78.62
35.5	4,288		0.0000	1.0000	78.62
36.5	4,058		0.0000	1.0000	78.62
37.5					78.62

YUKON ELECTRICAL COMPANY LIMITED
ACCOUNT 478.20 - SENTINEL LIGHTS - DISTRIBUTION
ORIGINAL AND SMOOTH SURVIVOR CURVES



YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 478.20 - SENTINEL LIGHTS - DISTRIBUTION

ORIGINAL LIFE TABLE

PLACEMENT BAND 1963-1999			EXPERIENCE BAND 1967-2011		
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	362,351		0.0000	1.0000	100.00
0.5	365,415	5,205	0.0142	0.9858	100.00
1.5	364,074	5,705	0.0157	0.9843	98.58
2.5	368,538	90	0.0002	0.9998	97.03
3.5	368,660	1,359	0.0037	0.9963	97.01
4.5	367,301	9,199	0.0250	0.9750	96.65
5.5	358,102	3,074	0.0086	0.9914	94.23
6.5	355,028	7,104	0.0200	0.9800	93.42
7.5	347,924	11,746	0.0338	0.9662	91.55
8.5	336,178	11,318	0.0337	0.9663	88.46
9.5	324,860	6,348	0.0195	0.9805	85.48
10.5	318,512	5,466	0.0172	0.9828	83.81
11.5	313,046		0.0000	1.0000	82.37
12.5	312,597		0.0000	1.0000	82.37
13.5	312,597		0.0000	1.0000	82.37
14.5	296,725	5,706	0.0192	0.9808	82.37
15.5	291,019	5,978	0.0205	0.9795	80.79
16.5	285,041	55	0.0002	0.9998	79.13
17.5	284,986		0.0000	1.0000	79.11
18.5	284,834		0.0000	1.0000	79.11
19.5	274,249	374	0.0014	0.9986	79.11
20.5	271,312	10,247	0.0378	0.9622	79.01
21.5	257,736	5,540	0.0215	0.9785	76.02
22.5	244,805		0.0000	1.0000	74.39
23.5	231,309		0.0000	1.0000	74.39
24.5	217,097	407	0.0019	0.9981	74.39
25.5	184,777		0.0000	1.0000	74.25
26.5	174,248		0.0000	1.0000	74.25
27.5	155,180		0.0000	1.0000	74.25
28.5	144,345		0.0000	1.0000	74.25
29.5	135,210		0.0000	1.0000	74.25
30.5	118,173		0.0000	1.0000	74.25
31.5	99,203		0.0000	1.0000	74.25
32.5	69,882		0.0000	1.0000	74.25
33.5	53,809		0.0000	1.0000	74.25
34.5	43,269		0.0000	1.0000	74.25
35.5	28,416		0.0000	1.0000	74.25
36.5	23,662		0.0000	1.0000	74.25
37.5	3,987		0.0000	1.0000	74.25
38.5	2,516		0.0000	1.0000	74.25

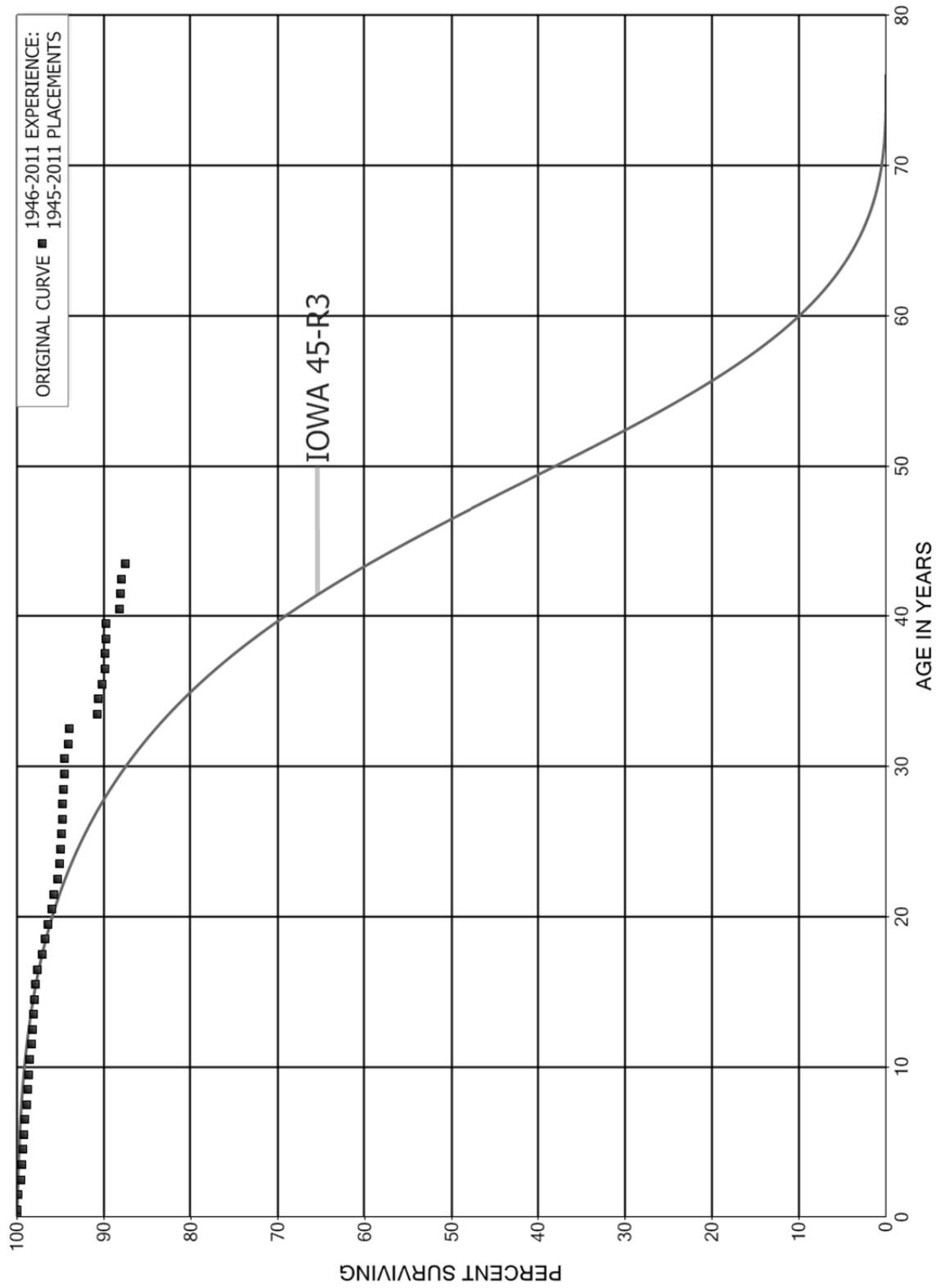
YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 478.20 - SENTINEL LIGHTS - DISTRIBUTION

ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1963-1999			EXPERIENCE BAND 1967-2011		
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	2,516		0.0000	1.0000	74.25
40.5	2,516		0.0000	1.0000	74.25
41.5	2,516		0.0000	1.0000	74.25
42.5	2,516		0.0000	1.0000	74.25
43.5	2,516		0.0000	1.0000	74.25
44.5					74.25

YUKON ELECTRICAL COMPANY LIMITED
ACCOUNT 479.10 - LINE TRANSFORMERS - DISTRIBUTION
ORIGINAL AND SMOOTH SURVIVOR CURVES



YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 479.10 - LINE TRANSFORMERS - DISTRIBUTION

ORIGINAL LIFE TABLE

PLACEMENT BAND 1945-2011			EXPERIENCE BAND 1946-2011		
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	25,052,873	16,453	0.0007	0.9993	100.00
0.5	23,310,374	34,729	0.0015	0.9985	99.93
1.5	21,775,170	67,595	0.0031	0.9969	99.79
2.5	20,041,568	15,739	0.0008	0.9992	99.48
3.5	18,076,610	19,387	0.0011	0.9989	99.40
4.5	16,475,987	14,546	0.0009	0.9991	99.29
5.5	14,937,417	26,617	0.0018	0.9982	99.20
6.5	13,545,746	23,773	0.0018	0.9982	99.03
7.5	12,786,466	11,421	0.0009	0.9991	98.85
8.5	12,036,297	23,092	0.0019	0.9981	98.76
9.5	11,477,631	14,118	0.0012	0.9988	98.57
10.5	10,892,446	21,867	0.0020	0.9980	98.45
11.5	10,282,359	8,650	0.0008	0.9992	98.26
12.5	9,904,990	9,475	0.0010	0.9990	98.17
13.5	9,400,530	13,990	0.0015	0.9985	98.08
14.5	8,902,665	9,311	0.0010	0.9990	97.93
15.5	8,237,401	15,739	0.0019	0.9981	97.83
16.5	7,751,251	48,338	0.0062	0.9938	97.64
17.5	7,198,786	21,003	0.0029	0.9971	97.04
18.5	6,236,497	25,561	0.0041	0.9959	96.75
19.5	5,439,976	25,680	0.0047	0.9953	96.36
20.5	4,647,183	9,685	0.0021	0.9979	95.90
21.5	3,911,785	17,405	0.0044	0.9956	95.70
22.5	3,409,109	8,040	0.0024	0.9976	95.28
23.5	3,094,937	1,707	0.0006	0.9994	95.05
24.5	2,587,632	3,208	0.0012	0.9988	95.00
25.5	2,379,299	3,409	0.0014	0.9986	94.88
26.5	2,173,363	1,677	0.0008	0.9992	94.74
27.5	2,114,074	1,207	0.0006	0.9994	94.67
28.5	2,046,944	1,286	0.0006	0.9994	94.62
29.5	1,920,486	411	0.0002	0.9998	94.56
30.5	1,734,730	8,812	0.0051	0.9949	94.54
31.5	1,534,477	1,629	0.0011	0.9989	94.06
32.5	1,341,755	46,399	0.0346	0.9654	93.96
33.5	1,153,538	1,809	0.0016	0.9984	90.71
34.5	1,058,214	4,176	0.0039	0.9961	90.57
35.5	983,371	4,029	0.0041	0.9959	90.21
36.5	874,089	561	0.0006	0.9994	89.84
37.5	804,289	844	0.0010	0.9990	89.78
38.5	736,151	35	0.0000	1.0000	89.69

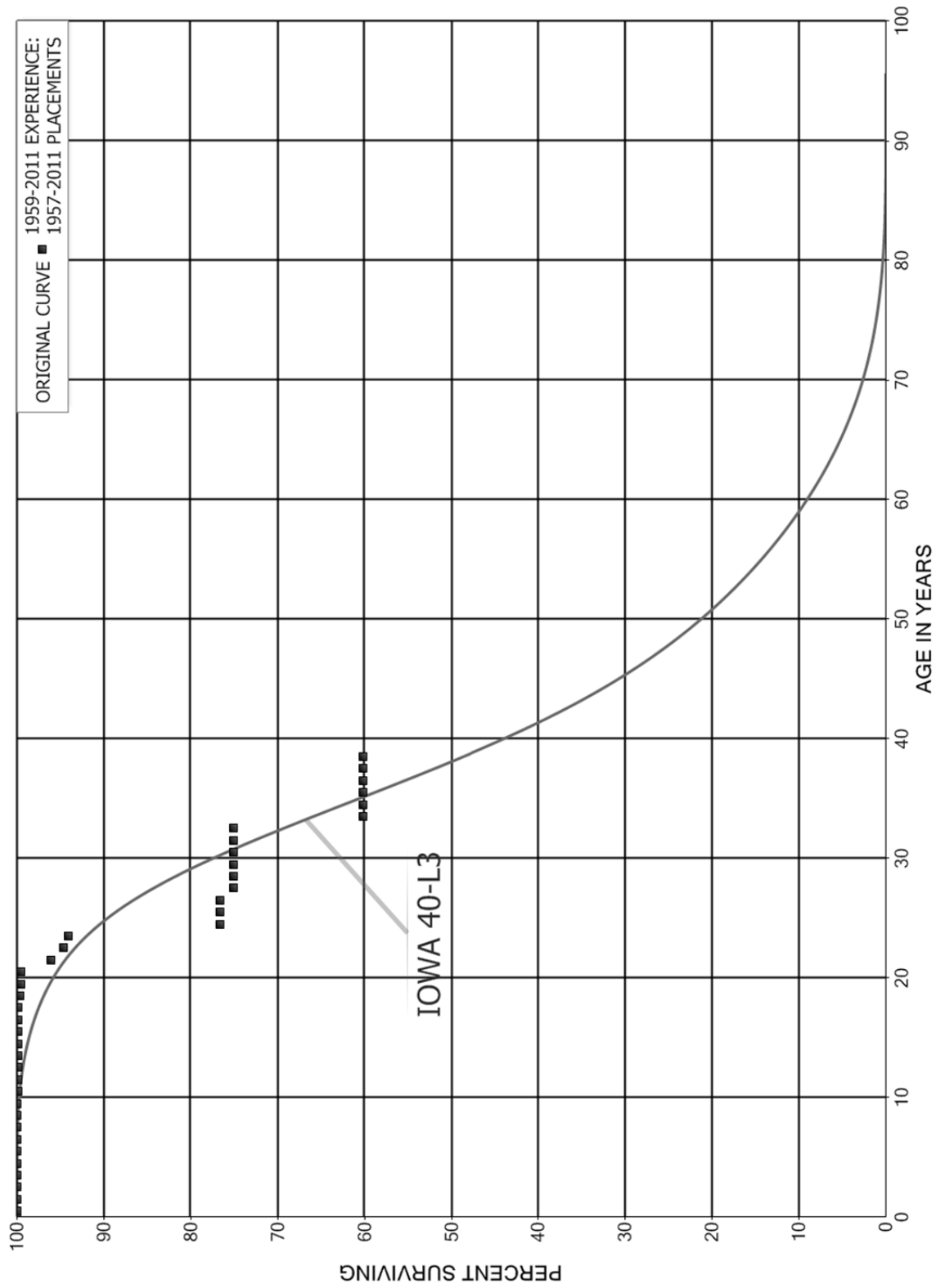
YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 479.10 - LINE TRANSFORMERS - DISTRIBUTION

ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1945-2011			EXPERIENCE BAND 1946-2011		
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	658,012	11,272	0.0171	0.9829	89.68
40.5	578,763	853	0.0015	0.9985	88.15
41.5	530,268	529	0.0010	0.9990	88.02
42.5	491,894	2,113	0.0043	0.9957	87.93
43.5	311,251	240	0.0008	0.9992	87.55
44.5	248,541	2,381	0.0096	0.9904	87.48
45.5	209,571		0.0000	1.0000	86.65
46.5	195,844		0.0000	1.0000	86.65
47.5	188,849		0.0000	1.0000	86.65
48.5	164,319	192	0.0012	0.9988	86.65
49.5	154,691	1,150	0.0074	0.9926	86.54
50.5	142,719		0.0000	1.0000	85.90
51.5	105,661		0.0000	1.0000	85.90
52.5	86,935		0.0000	1.0000	85.90
53.5	84,680	9,005	0.1063	0.8937	85.90
54.5	75,675	1,552	0.0205	0.9795	76.77
55.5	70,394		0.0000	1.0000	75.19
56.5	49,068	1,343	0.0274	0.9726	75.19
57.5	42,271		0.0000	1.0000	73.13
58.5	39,513		0.0000	1.0000	73.13
59.5	18,613		0.0000	1.0000	73.13
60.5	3,115		0.0000	1.0000	73.13
61.5	3,086		0.0000	1.0000	73.13
62.5	3,086		0.0000	1.0000	73.13
63.5	1,469		0.0000	1.0000	73.13
64.5	226		0.0000	1.0000	73.13
65.5					73.13

YUKON ELECTRICAL COMPANY LIMITED
ACCOUNT 482.00 - STRUCTURES AND IMPROVEMENTS - GENERAL PLANT
ORIGINAL AND SMOOTH SURVIVOR CURVES



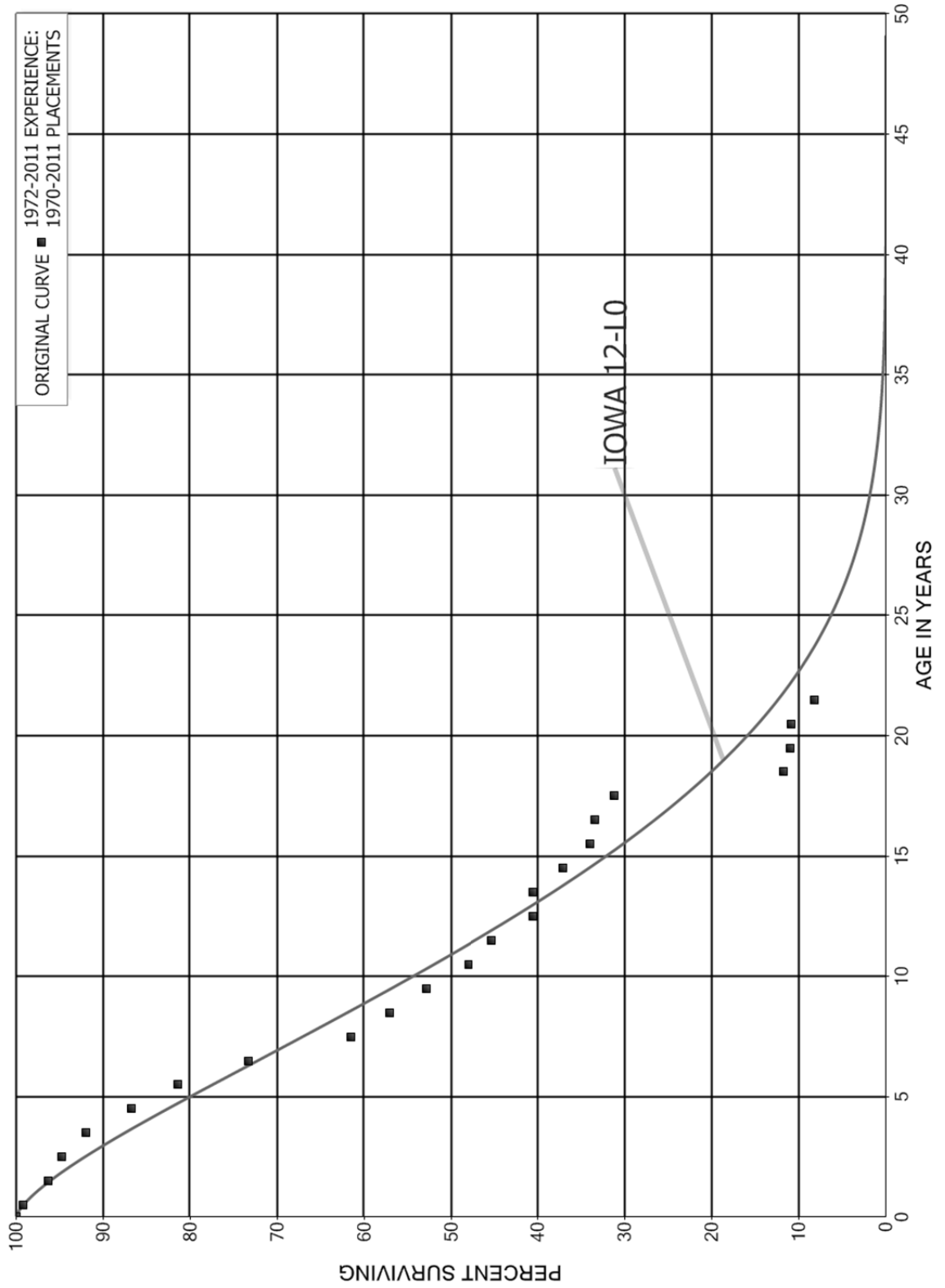
YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 482.00 - STRUCTURES AND IMPROVEMENTS - GENERAL PLANT

ORIGINAL LIFE TABLE

PLACEMENT BAND 1957-2011			EXPERIENCE BAND 1959-2011		
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	3,973,674		0.0000	1.0000	100.00
0.5	3,611,105		0.0000	1.0000	100.00
1.5	3,537,756		0.0000	1.0000	100.00
2.5	3,463,198		0.0000	1.0000	100.00
3.5	3,387,166		0.0000	1.0000	100.00
4.5	3,374,629		0.0000	1.0000	100.00
5.5	3,290,987		0.0000	1.0000	100.00
6.5	3,287,697		0.0000	1.0000	100.00
7.5	3,239,027		0.0000	1.0000	100.00
8.5	3,192,142	3,305	0.0010	0.9990	100.00
9.5	3,163,395	258	0.0001	0.9999	99.90
10.5	3,115,633		0.0000	1.0000	99.89
11.5	3,064,702		0.0000	1.0000	99.89
12.5	3,055,682		0.0000	1.0000	99.89
13.5	2,972,107	1,089	0.0004	0.9996	99.89
14.5	2,915,288		0.0000	1.0000	99.85
15.5	2,889,512		0.0000	1.0000	99.85
16.5	2,855,910	1,586	0.0006	0.9994	99.85
17.5	2,795,475	4,237	0.0015	0.9985	99.80
18.5	2,673,649	2,788	0.0010	0.9990	99.65
19.5	2,369,876	2,019	0.0009	0.9991	99.54
20.5	943,424	31,722	0.0336	0.9664	99.46
21.5	866,449	13,273	0.0153	0.9847	96.11
22.5	849,676	5,188	0.0061	0.9939	94.64
23.5	756,631	140,247	0.1854	0.8146	94.06
24.5	237,188		0.0000	1.0000	76.63
25.5	234,410		0.0000	1.0000	76.63
26.5	234,410	4,613	0.0197	0.9803	76.63
27.5	205,512		0.0000	1.0000	75.12
28.5	205,512		0.0000	1.0000	75.12
29.5	183,806	230	0.0013	0.9987	75.12
30.5	171,114		0.0000	1.0000	75.02
31.5	171,114		0.0000	1.0000	75.02
32.5	156,307	30,940	0.1979	0.8021	75.02
33.5	125,367		0.0000	1.0000	60.17
34.5	124,352		0.0000	1.0000	60.17
35.5	122,852		0.0000	1.0000	60.17
36.5	122,852		0.0000	1.0000	60.17
37.5	76,117		0.0000	1.0000	60.17
38.5	59,482		0.0000	1.0000	60.17
39.5					60.17

YUKON ELECTRICAL COMPANY LIMITED
ACCOUNT 484.00 - TRANSPORTATION AND MOBILE EQUIPMENT - GENERAL PLANT
ORIGINAL AND SMOOTH SURVIVOR CURVES



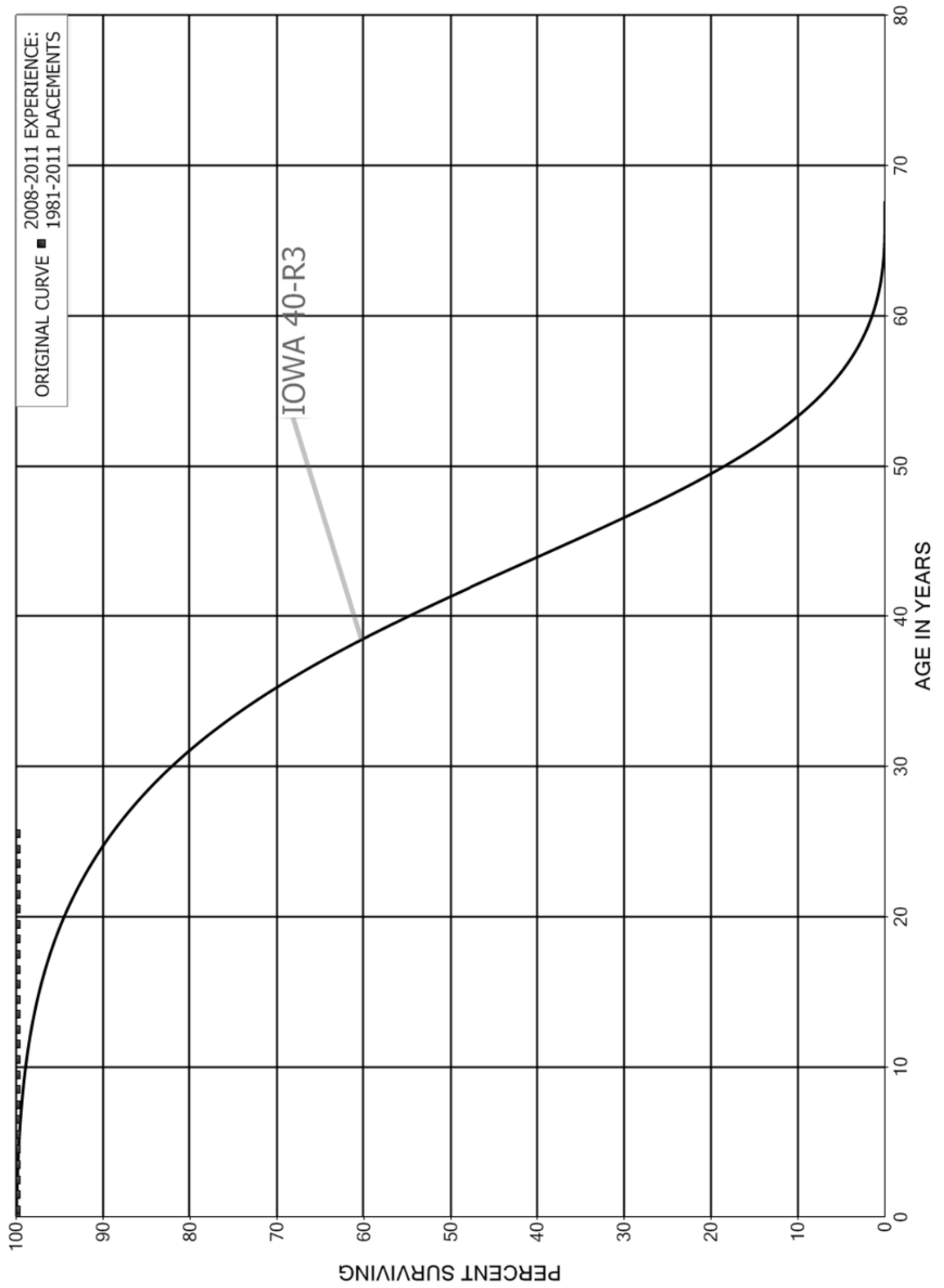
YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 484.00 - TRANSPORTATION AND MOBILE EQUIPMENT - GENERAL PLANT

ORIGINAL LIFE TABLE

PLACEMENT BAND 1970-2011			EXPERIENCE BAND 1972-2011		
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	5,388,479	42,131	0.0078	0.9922	100.00
0.5	5,311,284	155,541	0.0293	0.9707	99.22
1.5	4,827,974	80,084	0.0166	0.9834	96.31
2.5	4,581,928	134,616	0.0294	0.9706	94.71
3.5	4,310,171	242,029	0.0562	0.9438	91.93
4.5	3,597,806	224,862	0.0625	0.9375	86.77
5.5	3,221,928	317,954	0.0987	0.9013	81.35
6.5	2,737,215	441,181	0.1612	0.8388	73.32
7.5	2,281,417	164,088	0.0719	0.9281	61.50
8.5	2,108,406	157,808	0.0748	0.9252	57.08
9.5	1,755,255	159,474	0.0909	0.9091	52.81
10.5	1,351,759	76,694	0.0567	0.9433	48.01
11.5	1,266,386	132,857	0.1049	0.8951	45.28
12.5	1,010,909		0.0000	1.0000	40.53
13.5	997,802	85,417	0.0856	0.9144	40.53
14.5	845,952	71,993	0.0851	0.9149	37.06
15.5	600,438	8,414	0.0140	0.9860	33.91
16.5	576,563	38,586	0.0669	0.9331	33.43
17.5	381,159	238,328	0.6253	0.3747	31.20
18.5	110,042	6,533	0.0594	0.9406	11.69
19.5	103,509	1,304	0.0126	0.9874	11.00
20.5	89,984	22,475	0.2498	0.7502	10.86
21.5	67,451	17,728	0.2628	0.7372	8.15
22.5	15,332	1,000	0.0652	0.9348	6.00
23.5	9,464		0.0000	1.0000	5.61
24.5	9,464		0.0000	1.0000	5.61
25.5	6,079		0.0000	1.0000	5.61
26.5	6,079		0.0000	1.0000	5.61
27.5	5,605		0.0000	1.0000	5.61
28.5	5,605		0.0000	1.0000	5.61
29.5	5,605		0.0000	1.0000	5.61
30.5	5,605		0.0000	1.0000	5.61
31.5	5,605		0.0000	1.0000	5.61
32.5	5,605	5,605	1.0000		5.61
33.5					

YUKON ELECTRICAL COMPANY LIMITED
ACCOUNT 488.20 - HOUSES - GENERAL PLANT
ORIGINAL AND SMOOTH SURVIVOR CURVES



YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 488.20 - HOUSES - GENERAL PLANT

ORIGINAL LIFE TABLE

PLACEMENT BAND 1981-2011			EXPERIENCE BAND 2008-2011		
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	66,147		0.0000	1.0000	100.00
0.5	116,981		0.0000	1.0000	100.00
1.5	160,220		0.0000	1.0000	100.00
2.5	179,807		0.0000	1.0000	100.00
3.5	122,918		0.0000	1.0000	100.00
4.5	75,685		0.0000	1.0000	100.00
5.5	25,100		0.0000	1.0000	100.00
6.5	3,969		0.0000	1.0000	100.00
7.5	12,663		0.0000	1.0000	100.00
8.5	55,508		0.0000	1.0000	100.00
9.5	55,508		0.0000	1.0000	100.00
10.5	72,899		0.0000	1.0000	100.00
11.5	76,945		0.0000	1.0000	100.00
12.5	32,002		0.0000	1.0000	100.00
13.5	163,356		0.0000	1.0000	100.00
14.5	155,596		0.0000	1.0000	100.00
15.5	142,856		0.0000	1.0000	100.00
16.5	140,986		0.0000	1.0000	100.00
17.5	9,631		0.0000	1.0000	100.00
18.5	2,150		0.0000	1.0000	100.00
19.5	30,029		0.0000	1.0000	100.00
20.5	30,029		0.0000	1.0000	100.00
21.5	42,951		0.0000	1.0000	100.00
22.5	40,801		0.0000	1.0000	100.00
23.5	12,922		0.0000	1.0000	100.00
24.5	16,250		0.0000	1.0000	100.00
25.5	3,328		0.0000	1.0000	100.00
26.5	8,776		0.0000	1.0000	100.00
27.5	8,776		0.0000	1.0000	100.00
28.5	5,448		0.0000	1.0000	100.00
29.5	5,448		0.0000	1.0000	100.00
30.5					100.00

PART V. NET SALVAGE STATISTICS

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 442.00 - STRUCTURES AND IMPROVEMENTS - DIESEL

SUMMARY OF BOOK SALVAGE

YEAR	REGULAR RETIREMENTS	COST OF REMOVAL AMOUNT	PCT	GROSS SALVAGE AMOUNT	PCT	NET SALVAGE AMOUNT	PCT
1986	6		0		0		0
1987							
1988							
1989							
1990							
1991							
1992							
1993							
1994							
1995							
1996							
1997							
1998							
1999							
2000							
2001							
2002							
2003	10,000		0		0		0
2004	2,028		0		0		0
2005							
2006							
2007							
2008							
2009							
2010		5,300				5,300-	
2011	170		0		0		0
TOTAL	12,204	5,300	43		0	5,300-	43-

THREE-YEAR MOVING AVERAGES

86-88	2		0		0		0
87-89							
88-90							
89-91							
90-92							
91-93							
92-94							
93-95							
94-96							
95-97							

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 442.00 - STRUCTURES AND IMPROVEMENTS - DIESEL

SUMMARY OF BOOK SALVAGE

YEAR	REGULAR RETIREMENTS	COST OF REMOVAL AMOUNT	PCT	GROSS SALVAGE AMOUNT	PCT	NET SALVAGE AMOUNT	PCT
THREE-YEAR MOVING AVERAGES							
96-98							
97-99							
98-00							
99-01							
00-02							
01-03	3,333		0		0		0
02-04	4,009		0		0		0
03-05	4,009		0		0		0
04-06	676		0		0		0
05-07							
06-08							
07-09							
08-10		1,767				1,767-	
09-11	57	1,767			0	1,767-	
FIVE-YEAR AVERAGE							
07-11	34	1,060			0	1,060-	

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 444.00 - FUEL HOLDERS, PRODUCTS AND ACCESSORIES - DIESEL

SUMMARY OF BOOK SALVAGE

YEAR	REGULAR RETIREMENTS	COST OF REMOVAL AMOUNT	PCT	GROSS SALVAGE AMOUNT	PCT	NET SALVAGE AMOUNT	PCT
1983	2		0		0		0
1984							
1985							
1986							
1987	3,626		0		0		0
1988	1,203		0		0		0
1989							
1990							
1991							
1992	302		0		0		0
1993							
1994							
1995							
1996							
1997	120		0		0		0
1998	10,000	18,319	183		0	18,319-	183-
1999							
2000							
2001							
2002							
2003	10,000		0		0		0
2004	9,322		0		0		0
2005							
2006							
2007	3,200		0		0		0
2008							
2009							
2010							
2011	23,752		0		0		0
TOTAL	61,527	18,319	30		0	18,319-	30-

THREE-YEAR MOVING AVERAGES

83-85	1		0		0		0
84-86							
85-87	1,209		0		0		0
86-88	1,610		0		0		0
87-89	1,610		0		0		0
88-90	401		0		0		0
89-91							
90-92	101		0		0		0

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 444.00 - FUEL HOLDERS, PRODUCTS AND ACCESSORIES - DIESEL

SUMMARY OF BOOK SALVAGE

YEAR	REGULAR RETIREMENTS	COST OF REMOVAL AMOUNT	PCT	GROSS SALVAGE AMOUNT	PCT	NET SALVAGE AMOUNT	PCT
THREE-YEAR MOVING AVERAGES							
91-93	101		0		0		0
92-94	101		0		0		0
93-95							
94-96							
95-97	40		0		0		0
96-98	3,373	6,106	181		0	6,106-	181-
97-99	3,373	6,106	181		0	6,106-	181-
98-00	3,333	6,106	183		0	6,106-	183-
99-01							
00-02							
01-03	3,333		0		0		0
02-04	6,441		0		0		0
03-05	6,441		0		0		0
04-06	3,107		0		0		0
05-07	1,067		0		0		0
06-08	1,067		0		0		0
07-09	1,067		0		0		0
08-10							
09-11	7,917		0		0		0
FIVE-YEAR AVERAGE							
07-11	5,390		0		0		0

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 445.00 - GENERAL EQUIPMENT AND PRIME MOVERS - DIESEL

SUMMARY OF BOOK SALVAGE

YEAR	REGULAR RETIREMENTS	COST OF REMOVAL AMOUNT	PCT	GROSS SALVAGE AMOUNT	PCT	NET SALVAGE AMOUNT	PCT
1983	10,551		0	129	1	129	1
1984	25,040		0		0		0
1985	116,422		0	73,537	63	73,537	63
1986	38,264		0		0		0
1987	8,299		0	2,000	24	2,000	24
1988	16,483		0	1,500	9	1,500	9
1989	111,612		0		0		0
1990	22,062		0		0		0
1991	171,400		0	18,663	11	18,663	11
1992	2,560		0	1,010	39	1,010	39
1993	2,200		0	2,200	100	2,200	100
1994							
1995							
1996							
1997	93,041	28,503	31	10,449	11	18,054-	19-
1998	52,500	33,360	64	1,000	2	32,360-	62-
1999	325,787	15,390	5		0	15,390-	5-
2000							
2001							
2002							
2003							
2004	47,038		0		0		0
2005							
2006							
2007							
2008							
2009							
2010							
2011	2,043,336	1,800	0		0	1,800-	0
TOTAL	3,086,595	79,053	3	110,488	4	31,435	1

THREE-YEAR MOVING AVERAGES

83-85	50,671	0	24,555	48	24,555	48
84-86	59,909	0	24,512	41	24,512	41
85-87	54,328	0	25,179	46	25,179	46
86-88	21,015	0	1,167	6	1,167	6
87-89	45,465	0	1,167	3	1,167	3
88-90	50,052	0	500	1	500	1
89-91	101,691	0	6,221	6	6,221	6
90-92	65,341	0	6,558	10	6,558	10

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 445.00 - GENERAL EQUIPMENT AND PRIME MOVERS - DIESEL

SUMMARY OF BOOK SALVAGE

YEAR	REGULAR RETIREMENTS	COST OF REMOVAL AMOUNT	PCT	GROSS SALVAGE AMOUNT	PCT	NET SALVAGE AMOUNT	PCT
THREE-YEAR MOVING AVERAGES							
91-93	58,720		0	7,291	12	7,291	12
92-94	1,587		0	1,070	67	1,070	67
93-95	733		0	733	100	733	100
94-96							
95-97	31,014	9,501	31	3,483	11	6,018-	19-
96-98	48,514	20,621	43	3,816	8	16,805-	35-
97-99	157,109	25,751	16	3,816	2	21,935-	14-
98-00	126,096	16,250	13	333	0	15,917-	13-
99-01	108,596	5,130	5		0	5,130-	5-
00-02							
01-03							
02-04	15,679		0		0		0
03-05	15,679		0		0		0
04-06	15,679		0		0		0
05-07							
06-08							
07-09							
08-10							
09-11	681,112	600	0		0	600-	0
FIVE-YEAR AVERAGE							
07-11	408,667	360	0		0	360-	0

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 446.00 - ACCESSORY ELECTRIC EQUIPMENT - DIESEL

SUMMARY OF BOOK SALVAGE

YEAR	REGULAR RETIREMENTS	COST OF REMOVAL AMOUNT	PCT	GROSS SALVAGE AMOUNT	PCT	NET SALVAGE AMOUNT	PCT
1985	72		0		0		0
1986							
1987							
1988							
1989	12,995		0		0		0
1990	2,846		0		0		0
1991							
1992							
1993							
1994							
1995							
1996							
1997							
1998							
1999							
2000							
2001	15,000		0		0		0
2002							
2003							
2004							
2005							
2006							
2007							
2008							
2009							
2010							
2011	188,181		0		0		0
TOTAL	219,094		0		0		0

THREE-YEAR MOVING AVERAGES

85-87	24		0		0		0
86-88							
87-89	4,332		0		0		0
88-90	5,280		0		0		0
89-91	5,280		0		0		0
90-92	949		0		0		0
91-93							
92-94							
93-95							
94-96							

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 446.00 - ACCESSORY ELECTRIC EQUIPMENT - DIESEL

SUMMARY OF BOOK SALVAGE

YEAR	REGULAR RETIREMENTS	COST OF REMOVAL AMOUNT	PCT	GROSS SALVAGE AMOUNT	PCT	NET SALVAGE AMOUNT	PCT
THREE-YEAR MOVING AVERAGES							
95-97							
96-98							
97-99							
98-00							
99-01	5,000		0		0		0
00-02	5,000		0		0		0
01-03	5,000		0		0		0
02-04							
03-05							
04-06							
05-07							
06-08							
07-09							
08-10							
09-11	62,727		0		0		0
FIVE-YEAR AVERAGE							
07-11	37,636		0		0		0

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 447.00 - MISCELLANEOUS POWER PLANT EQUIPMENT - DIESEL

SUMMARY OF BOOK SALVAGE

YEAR	REGULAR RETIREMENTS	COST OF REMOVAL AMOUNT	PCT	GROSS SALVAGE AMOUNT	PCT	NET SALVAGE AMOUNT	PCT
1985	64		0		0		0
1986							
1987							
1988							
1989							
1990							
1991							
1992	1,327		0		0		0
1993							
1994							
1995							
1996							
1997							
1998							
1999							
2000							
2001							
2002							
2003							
2004							
2005							
2006							
2007							
2008							
2009							
2010							
2011	14,213		0		0		0
TOTAL	15,604		0		0		0
THREE-YEAR MOVING AVERAGES							
85-87	21		0		0		0
86-88							
87-89							
88-90							
89-91							
90-92	442		0		0		0
91-93	442		0		0		0
92-94	442		0		0		0
93-95							
94-96							

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 447.00 - MISCELLANEOUS POWER PLANT EQUIPMENT - DIESEL

SUMMARY OF BOOK SALVAGE

YEAR	REGULAR RETIREMENTS	COST OF REMOVAL AMOUNT	PCT	GROSS SALVAGE AMOUNT	PCT	NET SALVAGE AMOUNT	PCT
THREE-YEAR MOVING AVERAGES							
95-97							
96-98							
97-99							
98-00							
99-01							
00-02							
01-03							
02-04							
03-05							
04-06							
05-07							
06-08							
07-09							
08-10							
09-11	4,738		0		0		0
FIVE-YEAR AVERAGE							
07-11	2,843		0		0		0

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 457.00 - SUBSTATION EQUIPMENT

SUMMARY OF BOOK SALVAGE

YEAR	REGULAR RETIREMENTS	COST OF REMOVAL AMOUNT	PCT	GROSS SALVAGE AMOUNT	PCT	NET SALVAGE AMOUNT	PCT
1983	2,888		0		0		0
1984	197		0		0		0
1985							
1986							
1987							
1988	33		0		0		0
1989							
1990							
1991							
1992							
1993							
1994	4,796		0		0		0
1995							
1996							
1997							
1998							
1999							
2000							
2001							
2002							
2003							
2004							
2005							
2006							
2007							
2008	7,356		0		0		0
2009	10,164		0		0		0
2010							
2011							
TOTAL	25,434		0		0		0

THREE-YEAR MOVING AVERAGES

83-85	1,028		0		0		0
84-86	66		0		0		0
85-87							
86-88	11		0		0		0
87-89	11		0		0		0
88-90	11		0		0		0
89-91							
90-92							

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 457.00 - SUBSTATION EQUIPMENT

SUMMARY OF BOOK SALVAGE

YEAR	REGULAR RETIREMENTS	COST OF REMOVAL AMOUNT	PCT	GROSS SALVAGE AMOUNT	PCT	NET SALVAGE AMOUNT	PCT
THREE-YEAR MOVING AVERAGES							
91-93							
92-94	1,599		0		0		0
93-95	1,599		0		0		0
94-96	1,599		0		0		0
95-97							
96-98							
97-99							
98-00							
99-01							
00-02							
01-03							
02-04							
03-05							
04-06							
05-07							
06-08	2,452		0		0		0
07-09	5,840		0		0		0
08-10	5,840		0		0		0
09-11	3,388		0		0		0
FIVE-YEAR AVERAGE							
07-11	3,504		0		0		0

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 473.00 - POLES, TOWERS AND FIXTURES - DISTRIBUTION

SUMMARY OF BOOK SALVAGE

YEAR	REGULAR RETIREMENTS	COST OF REMOVAL AMOUNT	PCT	GROSS SALVAGE AMOUNT	PCT	NET SALVAGE AMOUNT	PCT
1983	20,711	5,124	25	0		5,124-	25-
1984	7,236	420	6	0		420-	6-
1985	1,877	1,316	70	0		1,316-	70-
1986	22,910	3,807	17	0		3,807-	17-
1987	23,502	7,352	31	0		7,352-	31-
1988	40,922	9,880	24	0		9,880-	24-
1989	45,150	15,886	35	0		15,886-	35-
1990	18,256	15,088	83	0		15,088-	83-
1991	9,785	46,744	478	0		46,744-	478-
1992	25,423	29,690	117	0		29,690-	117-
1993	8,882	5,186	58	0		5,186-	58-
1994	6,278	2,381	38	0		2,381-	38-
1995	26,696	33,075	124	0		33,075-	124-
1996	47,596	21,610	45	0		21,610-	45-
1997	77,714	74,426	96	0		74,426-	96-
1998	41,059	52,607	128	0		52,607-	128-
1999	60,317	43,513	72	0		43,513-	72-
2000	85,489	113,379	133	0		113,379-	133-
2001	53,805	143,160	266	0		143,160-	266-
2002	38,328	26,830	70	0		26,830-	70-
2003	102,578	86,536	84	0		86,536-	84-
2004	15,636	11,410	73	0		11,410-	73-
2005	72,802	32,567	45	0		32,567-	45-
2006	65,718	113,990	173	0		113,990-	173-
2007	11,321	27,121	240	0		27,121-	240-
2008	89,967	12,500	14	0		12,500-	14-
2009	57,349	21,618	38	0		21,618-	38-
2010	124,362	109,892	88	0		109,892-	88-
2011	11,824	56,938	482	0		56,938-	482-
TOTAL	1,213,493	1,124,046	93	0		1,124,046-	93-

THREE-YEAR MOVING AVERAGES

83-85	9,941	2,287	23	0		2,287-	23-
84-86	10,674	1,848	17	0		1,848-	17-
85-87	16,096	4,158	26	0		4,158-	26-
86-88	29,111	7,013	24	0		7,013-	24-
87-89	36,525	11,039	30	0		11,039-	30-
88-90	34,776	13,618	39	0		13,618-	39-
89-91	24,397	25,906	106	0		25,906-	106-
90-92	17,821	30,507	171	0		30,507-	171-

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 473.00 - POLES, TOWERS AND FIXTURES - DISTRIBUTION

SUMMARY OF BOOK SALVAGE

YEAR	REGULAR RETIREMENTS	COST OF REMOVAL AMOUNT	PCT	GROSS SALVAGE AMOUNT	PCT	NET SALVAGE AMOUNT	PCT
THREE-YEAR MOVING AVERAGES							
91-93	14,697	27,207	185	0		27,207-	185-
92-94	13,528	12,419	92	0		12,419-	92-
93-95	13,952	13,547	97	0		13,547-	97-
94-96	26,857	19,022	71	0		19,022-	71-
95-97	50,669	43,037	85	0		43,037-	85-
96-98	55,456	49,548	89	0		49,548-	89-
97-99	59,697	56,849	95	0		56,849-	95-
98-00	62,288	69,833	112	0		69,833-	112-
99-01	66,537	100,017	150	0		100,017-	150-
00-02	59,207	94,456	160	0		94,456-	160-
01-03	64,904	85,509	132	0		85,509-	132-
02-04	52,181	41,592	80	0		41,592-	80-
03-05	63,672	43,504	68	0		43,504-	68-
04-06	51,385	52,656	102	0		52,656-	102-
05-07	49,947	57,893	116	0		57,893-	116-
06-08	55,669	51,204	92	0		51,204-	92-
07-09	52,879	20,413	39	0		20,413-	39-
08-10	90,559	48,003	53	0		48,003-	53-
09-11	64,512	62,816	97	0		62,816-	97-
FIVE-YEAR AVERAGE							
07-11	58,965	45,614	77	0		45,614-	77-

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 474.00 - OVERHEAD CONDUCTOR - DISTRIBUTION

SUMMARY OF BOOK SALVAGE

YEAR	REGULAR RETIREMENTS	COST OF REMOVAL AMOUNT	PCT	GROSS SALVAGE AMOUNT	PCT	NET SALVAGE AMOUNT	PCT
1983	4,695	5,047	107	0		5,047-	107-
1984	3,222	181	6	0		181-	6-
1985	1,735	1,242	72	0		1,242-	72-
1986	5,966	4,180	70	0		4,180-	70-
1987	6,180	17,556	284	0		17,556-	284-
1988	8,891	5,511	62	0		5,511-	62-
1989	18,522	12,800	69	0		12,800-	69-
1990	15,824	8,228	52	0		8,228-	52-
1991	3,620	21,364	590	0		21,364-	590-
1992	6,046	11,136	184	0		11,136-	184-
1993	5,173	5,309	103	0		5,309-	103-
1994	1,515	1,316	87	0		1,316-	87-
1995	5,600	4,644	83	0		4,644-	83-
1996	8,691	4,811	55	0		4,811-	55-
1997	19,144	24,656	129	0		24,656-	129-
1998	8,386	16,419	196	0		16,419-	196-
1999	12,271	6,801	55	0		6,801-	55-
2000	14,527	12,330	85	0		12,330-	85-
2001	9,337	14,459	155	0		14,459-	155-
2002	8,187	4,938	60	0		4,938-	60-
2003	59,749	55,901	94	0		55,901-	94-
2004	4,049	2,435	60	0		2,435-	60-
2005	2,976	12,992	437	0		12,992-	437-
2006	974	40,889		0		40,889-	
2007	132	10,846		0		10,846-	
2008	37,893	18,603	49	0		18,603-	49-
2009	388	8,000		0		8,000-	
2010	18,541	8,400	45	0		8,400-	45-
2011	2,687	11,351	422	0		11,351-	422-
TOTAL	294,921	352,345	119	0		352,345-	119-

THREE-YEAR MOVING AVERAGES

83-85	3,217	2,157	67	0		2,157-	67-
84-86	3,641	1,868	51	0		1,868-	51-
85-87	4,627	7,659	166	0		7,659-	166-
86-88	7,012	9,082	130	0		9,082-	130-
87-89	11,198	11,956	107	0		11,956-	107-
88-90	14,412	8,846	61	0		8,846-	61-
89-91	12,655	14,131	112	0		14,131-	112-
90-92	8,497	13,576	160	0		13,576-	160-

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 474.00 - OVERHEAD CONDUCTOR - DISTRIBUTION

SUMMARY OF BOOK SALVAGE

YEAR	REGULAR RETIREMENTS	COST OF REMOVAL AMOUNT	PCT	GROSS SALVAGE AMOUNT	PCT	NET SALVAGE AMOUNT	PCT
THREE-YEAR MOVING AVERAGES							
91-93	4,946	12,603	255	0		12,603-	255-
92-94	4,245	5,920	139	0		5,920-	139-
93-95	4,096	3,756	92	0		3,756-	92-
94-96	5,269	3,590	68	0		3,590-	68-
95-97	11,145	11,370	102	0		11,370-	102-
96-98	12,074	15,295	127	0		15,295-	127-
97-99	13,267	15,959	120	0		15,959-	120-
98-00	11,728	11,850	101	0		11,850-	101-
99-01	12,045	11,197	93	0		11,197-	93-
00-02	10,684	10,576	99	0		10,576-	99-
01-03	25,758	25,099	97	0		25,099-	97-
02-04	23,995	21,091	88	0		21,091-	88-
03-05	22,258	23,776	107	0		23,776-	107-
04-06	2,666	18,772	704	0		18,772-	704-
05-07	1,361	21,576		0		21,576-	
06-08	13,000	23,446	180	0		23,446-	180-
07-09	12,804	12,483	97	0		12,483-	97-
08-10	18,941	11,668	62	0		11,668-	62-
09-11	7,205	9,250	128	0		9,250-	128-
FIVE-YEAR AVERAGE							
07-11	11,928	11,440	96	0		11,440-	96-

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 474.10 - OVERHEAD SERVICES - DISTRIBUTION

SUMMARY OF BOOK SALVAGE

YEAR	REGULAR RETIREMENTS	COST OF REMOVAL AMOUNT	PCT	GROSS SALVAGE AMOUNT	PCT	NET SALVAGE AMOUNT	PCT
1983	339		0		0		0
1984	130		0		0		0
1985	130		0		0		0
1986	286		0		0		0
1987							
1988							
1989							
1990							
1991	32		0		0		0
1992							
1993							
1994							
1995							
1996		1,062				1,062-	
1997							
1998							
1999							
2000							
2001							
2002							
2003							
2004							
2005							
2006							
2007							
2008	16		0	27	169	27	169
2009				81		81	
2010	44,294		0	26	0	26	0
2011	20,219		0		0		0
TOTAL	65,446	1,062	2	134	0	928-	1-

THREE-YEAR MOVING AVERAGES

83-85	200	0	0	0
84-86	182	0	0	0
85-87	139	0	0	0
86-88	95	0	0	0
87-89				
88-90				
89-91	11	0	0	0
90-92	11	0	0	0

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 474.10 - OVERHEAD SERVICES - DISTRIBUTION

SUMMARY OF BOOK SALVAGE

YEAR	REGULAR RETIREMENTS	COST OF REMOVAL AMOUNT	PCT	GROSS SALVAGE AMOUNT	PCT	NET SALVAGE AMOUNT	PCT
THREE-YEAR MOVING AVERAGES							
91-93	11		0		0		0
92-94							
93-95							
94-96		354				354-	
95-97		354				354-	
96-98		354				354-	
97-99							
98-00							
99-01							
00-02							
01-03							
02-04							
03-05							
04-06							
05-07							
06-08	5		0	9	169	9	169
07-09	5		0	36	675	36	675
08-10	14,770		0	45	0	45	0
09-11	21,504		0	36	0	36	0
FIVE-YEAR AVERAGE							
07-11	12,906		0	27	0	27	0

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 475.00 - UNDERGROUND CONDUIT - DISTRIBUTION

SUMMARY OF BOOK SALVAGE

YEAR	REGULAR RETIREMENTS	COST OF REMOVAL AMOUNT	PCT	GROSS SALVAGE AMOUNT	PCT	NET SALVAGE AMOUNT	PCT
1985	193	20	10		0	20-	10-
1986							
1987							
1988	5		0		0		0
1989	9	2	22		0	2-	22-
1990	11		0		0		0
1991	13		0		0		0
1992	483		0		0		0
1993	64		0		0		0
1994	81		0		0		0
1995	908	1,125	124		0	1,125-	124-
1996	252	114	45		0	114-	45-
1997	621	464	75		0	464-	75-
1998	52	33,870			0	33,870-	
1999	2,708	2,159	80		0	2,159-	80-
2000	1,455	1,680	115		0	1,680-	115-
2001	428	317	74		0	317-	74-
2002	328	2,981	909		0	2,981-	909-
2003	525	62,881			0	62,881-	
2004	2,120	23	1		0	23-	1-
2005							
2006	967		0		0		0
2007							
2008		5,211				5,211-	
2009		6,174				6,174-	
2010	1,862	7,500	403		0	7,500-	403-
2011	703	687	98		0	687-	98-
TOTAL	13,788	125,208	908		0	125,208-	908-

THREE-YEAR MOVING AVERAGES

85-87	64	7	10		0	7-	10-
86-88	2		0		0		0
87-89	5	1	14		0	1-	14-
88-90	8	1	8		0	1-	8-
89-91	11	1	6		0	1-	6-
90-92	169		0		0		0
91-93	187		0		0		0
92-94	209		0		0		0
93-95	351	375	107		0	375-	107-
94-96	414	413	100		0	413-	100-

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 475.00 - UNDERGROUND CONDUIT - DISTRIBUTION

SUMMARY OF BOOK SALVAGE

YEAR	REGULAR RETIREMENTS	COST OF REMOVAL AMOUNT	PCT	GROSS SALVAGE AMOUNT	PCT	NET SALVAGE AMOUNT	PCT
THREE-YEAR MOVING AVERAGES							
95-97	594	568	96		0	568-	96-
96-98	308	11,483			0	11,483-	
97-99	1,127	12,164			0	12,164-	
98-00	1,405	12,570	895		0	12,570-	895-
99-01	1,530	1,385	91		0	1,385-	91-
00-02	737	1,659	225		0	1,659-	225-
01-03	427	22,060			0	22,060-	
02-04	991	21,962			0	21,962-	
03-05	882	20,968			0	20,968-	
04-06	1,029	8	1		0	8-	1-
05-07	322		0		0		0
06-08	322	1,737	539		0	1,737-	539-
07-09		3,795				3,795-	
08-10	621	6,295			0	6,295-	
09-11	855	4,787	560		0	4,787-	560-
FIVE-YEAR AVERAGE							
07-11	513	3,914	763		0	3,914-	763-

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 475.10 - UNDERGROUND SERVICES - DISTRIBUTION

SUMMARY OF BOOK SALVAGE

YEAR	REGULAR RETIREMENTS	COST OF REMOVAL AMOUNT	PCT	GROSS SALVAGE AMOUNT	PCT	NET SALVAGE AMOUNT	PCT
1991	1		0		0		0
1992							
1993							
1994							
1995							
1996							
1997							
1998							
1999							
2000							
2001							
2002							
2003							
2004							
2005							
2006							
2007							
2008							
2009							
2010	30,641		0		0		0
2011	11,415		0		0		0
TOTAL	42,057		0		0		0

THREE-YEAR MOVING AVERAGES

91-93		0		0		0
92-94						
93-95						
94-96						
95-97						
96-98						
97-99						
98-00						
99-01						
00-02						
01-03						
02-04						
03-05						
04-06						
05-07						
06-08						

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 475.10 - UNDERGROUND SERVICES - DISTRIBUTION

SUMMARY OF BOOK SALVAGE

YEAR	REGULAR RETIREMENTS	COST OF REMOVAL AMOUNT	PCT	GROSS SALVAGE AMOUNT	PCT	NET SALVAGE AMOUNT	PCT
THREE-YEAR MOVING AVERAGES							
07-09							
08-10	10,214		0		0		0
09-11	14,019		0		0		0
FIVE-YEAR AVERAGE							
07-11	8,411		0		0		0

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 476.10 - METERS - DISTRIBUTION

SUMMARY OF BOOK SALVAGE

YEAR	REGULAR RETIREMENTS	COST OF REMOVAL AMOUNT	PCT	GROSS SALVAGE AMOUNT	PCT	NET SALVAGE AMOUNT	PCT
1983	732		0	507	69	507	69
1984	2,229		0	124	6	124	6
1985			0		0		0
1986	4,325		0		0		0
1987	4,267		0	194	5	194	5
1988	2,624	474	18	565	22	91	3
1989	4,532	671	15	657	14	14-	0
1990	3,817	525	14	326	9	199-	5-
1991	8,977		0	191	2	191	2
1992	7,848	510	6	274	3	236-	3-
1993	11,666		0	193	2	193	2
1994	10,987		0	66	1	66	1
1995	24,254		0		0		0
1996	29,951	300	1	180	1	120-	0
1997	38,738		0	456	1	456	1
1998	22,348	1,273	6		0	1,273-	6-
1999	115,043		0	189	0	189	0
2000	200,267		0	61	0	61	0
2001	94,899		0		0		0
2002	185,973		0	56	0	56	0
2003	140,306	11,049	8	155	0	10,894-	8-
2004	106,016		0		0		0
2005	100,471		0		0		0
2006	48,626		0	50	0	50	0
2007	14,525	3,375	23	3,595	25	220	2
2008	96,496		0		0		0
2009				37		37	
2010	166,427	5,376	3	35,926	22	30,550	18
2011		789		147		642-	
TOTAL	1,446,344	24,343	2	43,949	3	19,606	1

THREE-YEAR MOVING AVERAGES

83-85	987		0	210	21	210	21
84-86	2,185		0	41	2	41	2
85-87	2,864		0	65	2	65	2
86-88	3,739	158	4	253	7	95	3
87-89	3,808	382	10	472	12	90	2
88-90	3,658	557	15	516	14	41-	1-
89-91	5,775	399	7	391	7	7-	0
90-92	6,881	345	5	264	4	81-	1-

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 476.10 - METERS - DISTRIBUTION

SUMMARY OF BOOK SALVAGE

YEAR	REGULAR RETIREMENTS	COST OF REMOVAL AMOUNT	PCT	GROSS SALVAGE AMOUNT	PCT	NET SALVAGE AMOUNT	PCT
THREE-YEAR MOVING AVERAGES							
91-93	9,497	170	2	219	2	49	1
92-94	10,167	170	2	178	2	8	0
93-95	15,636		0	86	1	86	1
94-96	21,731	100	0	82	0	18-	0
95-97	30,981	100	0	212	1	112	0
96-98	30,346	524	2	212	1	312-	1-
97-99	58,710	424	1	215	0	209-	0
98-00	112,553	424	0	83	0	341-	0
99-01	136,736		0	83	0	83	0
00-02	160,380		0	39	0	39	0
01-03	140,393	3,683	3	70	0	3,613-	3-
02-04	144,098	3,683	3	70	0	3,613-	3-
03-05	115,598	3,683	3	52	0	3,631-	3-
04-06	85,038		0	17	0	17	0
05-07	54,541	1,125	2	1,215	2	90	0
06-08	53,216	1,125	2	1,215	2	90	0
07-09	37,007	1,125	3	1,211	3	86	0
08-10	87,641	1,792	2	11,988	14	10,195	12
09-11	55,476	2,055	4	12,037	22	9,981	18
FIVE-YEAR AVERAGE							
07-11	55,490	1,908	3	7,941	14	6,033	11

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 476.30 - AMR METERS - DISTRIBUTION

SUMMARY OF BOOK SALVAGE

YEAR	REGULAR RETIREMENTS	COST OF REMOVAL AMOUNT	PCT	GROSS SALVAGE AMOUNT	PCT	NET SALVAGE AMOUNT	PCT
2007	14,525		0		0		0
2008							
2009							
2010							
2011							
TOTAL	14,525		0		0		0
THREE-YEAR MOVING AVERAGES							
07-09	4,842		0		0		0
08-10							
09-11							
FIVE-YEAR AVERAGE							
07-11	2,905		0		0		0

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 477.10 - SUBSTATION EQUIPMENT - DISTRIBUTION

SUMMARY OF BOOK SALVAGE

YEAR	REGULAR RETIREMENTS	COST OF REMOVAL AMOUNT	PCT	GROSS SALVAGE AMOUNT	PCT	NET SALVAGE AMOUNT	PCT
1985	82		0	82	100	82	100
1986	1,791		0	560	31	560	31
1987	1,598		0	1,598	100	1,598	100
1988	7,226		0	312	4	312	4
1989	1,929	600	31		0	600-	31-
1990	21,481	5,700	27	8,124	38	2,424	11
1991	2,331	1,905	82	3	0	1,902-	82-
1992							
1993							
1994							
1995				828		828	
1996							
1997	40	50	125		0	50-	125-
1998							
1999							
2000		9,528		58		9,470-	
2001							
2002							
2003							
2004		152				152-	
2005		100,489				100,489-	
2006		6,240				6,240-	
2007		7,762				7,762-	
2008		9,519				9,519-	
2009		8,547				8,547-	
2010		4,022				4,022-	
2011							
TOTAL	36,478	154,514	424	11,565	32	142,949-	392-

THREE-YEAR MOVING AVERAGES

85-87	1,157		0	747	65	747	65
86-88	3,538		0	823	23	823	23
87-89	3,584	200	6	637	18	437	12
88-90	10,212	2,100	21	2,812	28	712	7
89-91	8,580	2,735	32	2,709	32	26-	0
90-92	7,937	2,535	32	2,709	34	174	2
91-93	777	635	82	1	0	634-	82-
92-94							
93-95				276		276	
94-96				276		276	

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 477.10 - SUBSTATION EQUIPMENT - DISTRIBUTION

SUMMARY OF BOOK SALVAGE

YEAR	REGULAR RETIREMENTS	COST OF REMOVAL AMOUNT	PCT	GROSS SALVAGE AMOUNT	PCT	NET SALVAGE AMOUNT	PCT
THREE-YEAR MOVING AVERAGES							
95-97	13	17	125	276		259	
96-98	13	17	125		0	17-	125-
97-99	13	17	125		0	17-	125-
98-00		3,176		19		3,157-	
99-01		3,176		19		3,157-	
00-02		3,176		19		3,157-	
01-03							
02-04		51				51-	
03-05		33,547				33,547-	
04-06		35,627				35,627-	
05-07		38,164				38,164-	
06-08		7,840				7,840-	
07-09		8,609				8,609-	
08-10		7,363				7,363-	
09-11		4,190				4,190-	
FIVE-YEAR AVERAGE							
07-11		5,970				5,970-	

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 478.10 - STREET LIGHTS AND SIGNAL SYSTEMS - DISTRIBUTION

SUMMARY OF BOOK SALVAGE

YEAR	REGULAR RETIREMENTS	COST OF REMOVAL AMOUNT	PCT	GROSS SALVAGE AMOUNT	PCT	NET SALVAGE AMOUNT	PCT
1983	6,280		0		0		0
1984	3,205		0		0		0
1985	9,881		0		0		0
1986	13,540		0		0		0
1987	433,260		0		0		0
1988	39,203		0		0		0
1989	33,400		0		0		0
1990	4,542		0		0		0
1991	705		0		0		0
1992	3,214		0		0		0
1993	1,304		0		0		0
1994	2,495		0		0		0
1995	1,239		0	25	2	25	2
1996	3,797	866	23	804	21	62-	2-
1997	16,117	14,758	92	1,250	8	13,508-	84-
1998	5,155	8,178	159	1,341	26	6,837-	133-
1999	4,049	1,147	28	8	0	1,139-	28-
2000	7,272	3,651	50	100	1	3,551-	49-
2001	11,919	15,075	126	1,018	9	14,057-	118-
2002	127	162	128	229	180	67	53
2003	25,297	2,439	10	551	2	1,888-	7-
2004	11,383	750	7		0	750-	7-
2005	5,110	1,054	21	117	2	937-	18-
2006	5,302	7,164	135	1,156	22	6,008-	113-
2007	4,493	594	13	1,028	23	434	10
2008	963		0	960	100	960	100
2009	2,195	1,934	88	556	25	1,378-	63-
2010	7,288	13,390	184	49	1	13,341-	183-
2011	6,524	17,293	265	995	15	16,298-	250-
TOTAL	669,259	88,455	13	10,187	2	78,268-	12-

THREE-YEAR MOVING AVERAGES

83-85	6,455	0	0	0
84-86	8,875	0	0	0
85-87	152,227	0	0	0
86-88	162,001	0	0	0
87-89	168,621	0	0	0
88-90	25,715	0	0	0
89-91	12,882	0	0	0
90-92	2,820	0	0	0

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 478.10 - STREET LIGHTS AND SIGNAL SYSTEMS - DISTRIBUTION

SUMMARY OF BOOK SALVAGE

YEAR	REGULAR RETIREMENTS	COST OF REMOVAL AMOUNT	PCT	GROSS SALVAGE AMOUNT	PCT	NET SALVAGE AMOUNT	PCT
THREE-YEAR MOVING AVERAGES							
91-93	1,741		0		0		0
92-94	2,338		0		0		0
93-95	1,679		0	8	0	8	0
94-96	2,510	289	11	276	11	12-	0
95-97	7,051	5,208	74	693	10	4,515-	64-
96-98	8,356	7,934	95	1,132	14	6,802-	81-
97-99	8,440	8,028	95	866	10	7,161-	85-
98-00	5,492	4,325	79	483	9	3,842-	70-
99-01	7,747	6,624	86	375	5	6,249-	81-
00-02	6,439	6,296	98	449	7	5,847-	91-
01-03	12,448	5,892	47	599	5	5,293-	43-
02-04	12,269	1,117	9	260	2	857-	7-
03-05	13,930	1,414	10	223	2	1,192-	9-
04-06	7,265	2,989	41	424	6	2,565-	35-
05-07	4,968	2,937	59	767	15	2,170-	44-
06-08	3,586	2,586	72	1,048	29	1,538-	43-
07-09	2,550	843	33	848	33	5	0
08-10	3,482	5,108	147	522	15	4,586-	132-
09-11	5,336	10,872	204	533	10	10,339-	194-
FIVE-YEAR AVERAGE							
07-11	4,293	6,642	155	718	17	5,925-	138-

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 478.20 - SENTINEL LIGHTS - DISTRIBUTION

SUMMARY OF BOOK SALVAGE

YEAR	REGULAR RETIREMENTS	COST OF REMOVAL AMOUNT	PCT	GROSS SALVAGE AMOUNT	PCT	NET SALVAGE AMOUNT	PCT
1983	9,341	1,820	19	8,405	90	6,585	70
1984	4,476	674	15	5,464	122	4,790	107
1985	2,601	101	4	2,792	107	2,691	103
1986	7,458	1,219	16	13,112	176	11,893	159
1987	3,051		0	1,950	64	1,950	64
1988	2,486	128	5	1,261	51	1,133	46
1989	565	139	25	423	75	284	50
1990							
1991							
1992	560		0	346	62	346	62
1993							
1994	936	4,130	441	468	50	3,662-	391-
1995	83		0		0		0
1996							
1997							
1998							
1999							
2000		131				131-	
2001		1,483				1,483-	
2002							
2003							
2004							
2005							
2006							
2007							
2008							
2009							
2010							
2011							
TOTAL	31,557	9,825	31	34,221	108	24,396	77

THREE-YEAR MOVING AVERAGES

83-85	5,473	865	16	5,554	101	4,689	86
84-86	4,845	665	14	7,123	147	6,458	133
85-87	4,370	440	10	5,951	136	5,511	126
86-88	4,332	449	10	5,441	126	4,992	115
87-89	2,034	89	4	1,211	60	1,122	55
88-90	1,017	89	9	561	55	472	46
89-91	188	46	25	141	75	95	50
90-92	187		0	115	62	115	62

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 478.20 - SENTINEL LIGHTS - DISTRIBUTION

SUMMARY OF BOOK SALVAGE

YEAR	REGULAR RETIREMENTS	COST OF REMOVAL AMOUNT	PCT	GROSS SALVAGE AMOUNT	PCT	NET SALVAGE AMOUNT	PCT
THREE-YEAR MOVING AVERAGES							
91-93	187		0	115	62	115	62
92-94	499	1,377	276	271	54	1,105-	222-
93-95	340	1,377	405	156	46	1,221-	359-
94-96	340	1,377	405	156	46	1,221-	359-
95-97	28		0		0		0
96-98							
97-99							
98-00		44				44-	
99-01		538				538-	
00-02		538				538-	
01-03		494				494-	
02-04							
03-05							
04-06							
05-07							
06-08							
07-09							
08-10							
09-11							

FIVE-YEAR AVERAGE

07-11

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 479.10 - LINE TRANSFORMERS - DISTRIBUTION

SUMMARY OF BOOK SALVAGE

YEAR	REGULAR RETIREMENTS	COST OF REMOVAL AMOUNT	PCT	GROSS SALVAGE AMOUNT	PCT	NET SALVAGE AMOUNT	PCT
1995	9,037	1,864	21	216	2	1,648-	18-
1996	4,704	1,665	35	12,154	258	10,489	223
1997	13,006	14,315	110	6,217	48	8,098-	62-
1998	16,313	102,096	626	43,956	269	58,140-	356-
1999	22,755	18,376	81	4,927	22	13,449-	59-
2000	5,299	36,373	686	1,632	31	34,741-	656-
2001	6,332	85,733		499	8	85,234-	
2002	4,381	64,644		4,313	98	60,331-	
2003	50,239	96,478	192	1,666	3	94,812-	189-
2004	2,646	21,106	798	2,520	95	18,586-	702-
2005	15,096	1,157	8	10,201	68	9,044	60
2006	18,276	6,720	37	7,943	43	1,223	7
2007	2,609	4,872	187	14,690	563	9,818	376
2008	3,275	2,914	89	27,924	853	25,010	764
2009	2,605	3,777	145	10,319	396	6,542	251
2010	29,655	31,563	106	17,262	58	14,301-	48-
2011	20,596	8,792	43	3,893	19	4,899-	24-
TOTAL	226,824	502,445	222	170,332	75	332,113-	146-

THREE-YEAR MOVING AVERAGES

95-97	8,916	5,948	67	6,196	69	248	3
96-98	11,341	39,359	347	20,776	183	18,583-	164-
97-99	17,358	44,929	259	18,367	106	26,562-	153-
98-00	14,789	52,282	354	16,838	114	35,443-	240-
99-01	11,462	46,827	409	2,353	21	44,475-	388-
00-02	5,337	62,250		2,148	40	60,102-	
01-03	20,317	82,285	405	2,159	11	80,126-	394-
02-04	19,089	60,743	318	2,833	15	57,910-	303-
03-05	22,660	39,580	175	4,796	21	34,785-	154-
04-06	12,006	9,661	80	6,888	57	2,773-	23-
05-07	11,994	4,250	35	10,945	91	6,695	56
06-08	8,053	4,835	60	16,852	209	12,017	149
07-09	2,830	3,854	136	17,644	624	13,790	487
08-10	11,845	12,751	108	18,502	156	5,750	49
09-11	17,619	14,711	83	10,491	60	4,219-	24-

FIVE-YEAR AVERAGE

07-11	11,748	10,384	88	14,818	126	4,434	38

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 482.00 - STRUCTURES AND IMPROVEMENTS - GENERAL PLANT

SUMMARY OF BOOK SALVAGE

YEAR	REGULAR RETIREMENTS	COST OF REMOVAL AMOUNT	PCT	GROSS SALVAGE AMOUNT	PCT	NET SALVAGE AMOUNT	PCT
1988	1,522		0		0		0
1989							
1990							
1991							
1992	201,929		0		0		0
1993							
1994							
1995	553		0		0		0
1996							
1997							
1998							
1999							
2000		3,073				3,073-	
2001							
2002							
2003							
2004							
2005							
2006							
2007							
2008							
2009							
2010							
2011							
TOTAL	204,004	3,073	2		0	3,073-	2-

THREE-YEAR MOVING AVERAGES

88-90	507		0		0		0
89-91							
90-92	67,310		0		0		0
91-93	67,310		0		0		0
92-94	67,310		0		0		0
93-95	184		0		0		0
94-96	184		0		0		0
95-97	184		0		0		0
96-98							
97-99							
98-00		1,024				1,024-	
99-01		1,024				1,024-	
00-02		1,024				1,024-	

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 482.00 - STRUCTURES AND IMPROVEMENTS - GENERAL PLANT

SUMMARY OF BOOK SALVAGE

YEAR	REGULAR RETIREMENTS	COST OF REMOVAL AMOUNT	PCT	GROSS SALVAGE AMOUNT	PCT	NET SALVAGE AMOUNT	PCT
THREE-YEAR MOVING AVERAGES							
01-03							
02-04							
03-05							
04-06							
05-07							
06-08							
07-09							
08-10							
09-11							
FIVE-YEAR AVERAGE							
07-11							

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 483.00 - OFFICE FURNITURE AND EQUIPMENT - GENERAL PLANT

SUMMARY OF BOOK SALVAGE

YEAR	REGULAR RETIREMENTS	COST OF REMOVAL AMOUNT	PCT	GROSS SALVAGE AMOUNT	PCT	NET SALVAGE AMOUNT	PCT
1983	4,052		0		0		0
1984	3,091		0		0		0
1985	3,263		0		0		0
1986	3,267		0		0		0
1987	2,204		0		0		0
1988	2,776		0		0		0
1989	2,174		0		0		0
1990	2,382		0		0		0
1991	2,549		0		0		0
1992	5,458		0		0		0
1993	2,133		0		0		0
1994	2,834		0		0		0
1995	6,427		0		0		0
1996	5,853		0		0		0
1997	8,315		0		0		0
1998	19,018		0		0		0
1999	15,451		0		0		0
2000	12,718		0		0		0
2001	24,992		0		0		0
2002	29,239		0		0		0
2003							
2004							
2005	44,720		0		0		0
2006	42,433		0		0		0
2007	38,554		0		0		0
2008	37,619		0		0		0
2009	33,982		0		0		0
2010	28,435		0		0		0
2011	15,493	480	3		0	480-	3-
TOTAL	399,432	480	0		0	480-	0

THREE-YEAR MOVING AVERAGES

83-85	3,469		0		0		0
84-86	3,207		0		0		0
85-87	2,911		0		0		0
86-88	2,749		0		0		0
87-89	2,385		0		0		0
88-90	2,444		0		0		0
89-91	2,368		0		0		0
90-92	3,463		0		0		0

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 483.00 - OFFICE FURNITURE AND EQUIPMENT - GENERAL PLANT

SUMMARY OF BOOK SALVAGE

YEAR	REGULAR RETIREMENTS	COST OF REMOVAL AMOUNT	PCT	GROSS SALVAGE AMOUNT	PCT	NET SALVAGE AMOUNT	PCT
THREE-YEAR MOVING AVERAGES							
91-93	3,380		0		0		0
92-94	3,475		0		0		0
93-95	3,798		0		0		0
94-96	5,038		0		0		0
95-97	6,865		0		0		0
96-98	11,062		0		0		0
97-99	14,261		0		0		0
98-00	15,729		0		0		0
99-01	17,720		0		0		0
00-02	22,316		0		0		0
01-03	18,077		0		0		0
02-04	9,746		0		0		0
03-05	14,907		0		0		0
04-06	29,051		0		0		0
05-07	41,902		0		0		0
06-08	39,535		0		0		0
07-09	36,718		0		0		0
08-10	33,345		0		0		0
09-11	25,970	160	1		0	160-	1-
FIVE-YEAR AVERAGE							
07-11	30,817	96	0		0	96-	0

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 483.20 - COMPUTER EQUIPMENT AND ACCESSORIES - GENERAL PLANT

SUMMARY OF BOOK SALVAGE

YEAR	REGULAR RETIREMENTS	COST OF REMOVAL AMOUNT	PCT	GROSS SALVAGE AMOUNT	PCT	NET SALVAGE AMOUNT	PCT
1992	17,410		0	17,410	100	17,410	100
1993							
1994	4,325		0		0		0
1995							
1996	67,348		0		0		0
1997	46,612		0		0		0
1998	26,506		0		0		0
1999	343,720		0	21,910	6	21,910	6
2000	20,522		0		0		0
2001	727		0		0		0
2002	3,013		0		0		0
2003							
2004							
2005	180		0		0		0
2006	557		0		0		0
2007	2,327		0		0		0
2008	6,406		0		0		0
2009	23,287		0		0		0
2010	4,631		0		0		0
2011	75		0		0		0
TOTAL	567,646		0	39,320	7	39,320	7

THREE-YEAR MOVING AVERAGES

92-94	7,245	0	5,803	80	5,803	80
93-95	1,442	0		0		0
94-96	23,891	0		0		0
95-97	37,987	0		0		0
96-98	46,822	0		0		0
97-99	138,946	0	7,303	5	7,303	5
98-00	130,249	0	7,303	6	7,303	6
99-01	121,656	0	7,303	6	7,303	6
00-02	8,087	0		0		0
01-03	1,247	0		0		0
02-04	1,004	0		0		0
03-05	60	0		0		0
04-06	246	0		0		0
05-07	1,021	0		0		0
06-08	3,097	0		0		0
07-09	10,673	0		0		0

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 483.20 - COMPUTER EQUIPMENT AND ACCESSORIES - GENERAL PLANT

SUMMARY OF BOOK SALVAGE

YEAR	REGULAR RETIREMENTS	COST OF REMOVAL AMOUNT	PCT	GROSS SALVAGE AMOUNT	PCT	NET SALVAGE AMOUNT	PCT
THREE-YEAR MOVING AVERAGES							
08-10	11,441		0		0		0
09-11	9,331		0		0		0
FIVE-YEAR AVERAGE							
07-11	7,345		0		0		0

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 484.00 - TRANSPORTATION AND MOBILE EQUIPMENT - GENERAL PLANT

SUMMARY OF BOOK SALVAGE

YEAR	REGULAR RETIREMENTS	COST OF REMOVAL AMOUNT	PCT	GROSS SALVAGE AMOUNT	PCT	NET SALVAGE AMOUNT	PCT
1985	24,215		0		0		0
1986	26,522		0		0		0
1987							
1988	65,055		0		0		0
1989	84,427		0		0		0
1990	76,111		0		0		0
1991	81,810		0		0		0
1992	192,122		0		0		0
1993	203,197		0		0		0
1994	174,850		0		0		0
1995							
1996	150,825		0		0		0
1997	31,796		0		0		0
1998	676,007		0	301,323	45	301,323	45
1999	74,875		0	14,110	19	14,110	19
2000	86,082		0	10,751	12	10,751	12
2001	97,684		0	11,801	12	11,801	12
2002	168,240		0	26,306	16	26,306	16
2003							
2004							
2005							
2006							
2007	288,535		0	73,754	26	73,754	26
2008	44,179		0	41,097	93	41,097	93
2009	108,229		0	73,754	68	73,754	68
2010	154,051		0	6,845	4	6,845	4
2011	4,517	1	0	18,389	407	18,388	407
TOTAL	2,813,329	1	0	578,130	21	578,129	21

THREE-YEAR MOVING AVERAGES

85-87	16,912		0		0		0
86-88	30,526		0		0		0
87-89	49,827		0		0		0
88-90	75,198		0		0		0
89-91	80,783		0		0		0
90-92	116,681		0		0		0
91-93	159,043		0		0		0
92-94	190,056		0		0		0
93-95	126,016		0		0		0
94-96	108,558		0		0		0

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 484.00 - TRANSPORTATION AND MOBILE EQUIPMENT - GENERAL PLANT

SUMMARY OF BOOK SALVAGE

YEAR	REGULAR RETIREMENTS	COST OF REMOVAL AMOUNT	PCT	GROSS SALVAGE AMOUNT	PCT	NET SALVAGE AMOUNT	PCT
THREE-YEAR MOVING AVERAGES							
95-97	60,874		0		0		0
96-98	286,209		0	100,441	35	100,441	35
97-99	260,893		0	105,144	40	105,144	40
98-00	278,988		0	108,728	39	108,728	39
99-01	86,214		0	12,221	14	12,221	14
00-02	117,335		0	16,286	14	16,286	14
01-03	88,641		0	12,702	14	12,702	14
02-04	56,080		0	8,769	16	8,769	16
03-05							
04-06							
05-07	96,178		0	24,585	26	24,585	26
06-08	110,905		0	38,284	35	38,284	35
07-09	146,981		0	62,868	43	62,868	43
08-10	102,153		0	40,565	40	40,565	40
09-11	88,932		0	32,996	37	32,996	37
FIVE-YEAR AVERAGE							
07-11	119,902		0	42,768	36	42,768	36

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 485.00 - TOOLS AND INSTRUMENTS - GENERAL PLANT

SUMMARY OF BOOK SALVAGE

YEAR	REGULAR RETIREMENTS	COST OF REMOVAL AMOUNT	PCT	GROSS SALVAGE AMOUNT	PCT	NET SALVAGE AMOUNT	PCT
1983	8,303		0		0		0
1984	6,420		0		0		0
1985	5,784		0		0		0
1986	5,843		0		0		0
1987	6,007		0		0		0
1988	12,250		0		0		0
1989	7,861		0		0		0
1990	8,354		0		0		0
1991	8,840		0		0		0
1992	10,597		0		0		0
1993	13,925		0	1,719	12	1,719	12
1994	15,518		0		0		0
1995	20,961		0		0		0
1996	31,992		0		0		0
1997	40,489		0		0		0
1998	32,789		0		0		0
1999	60,294		0		0		0
2000	64,833		0		0		0
2001	65,652		0		0		0
2002	63,347		0		0		0
2003							
2004							
2005	60,771		0		0		0
2006	59,357		0		0		0
2007	60,900		0		0		0
2008	59,576		0		0		0
2009	18,467		0		0		0
2010	16,729		0		0		0
2011	12,754		0		0		0
TOTAL	778,613		0	1,719	0	1,719	0

THREE-YEAR MOVING AVERAGES

83-85	6,836		0		0		0
84-86	6,016		0		0		0
85-87	5,878		0		0		0
86-88	8,033		0		0		0
87-89	8,706		0		0		0
88-90	9,488		0		0		0
89-91	8,352		0		0		0
90-92	9,264		0		0		0

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 485.00 - TOOLS AND INSTRUMENTS - GENERAL PLANT

SUMMARY OF BOOK SALVAGE

YEAR	REGULAR RETIREMENTS	COST OF REMOVAL AMOUNT	PCT	GROSS SALVAGE AMOUNT	PCT	NET SALVAGE AMOUNT	PCT
THREE-YEAR MOVING AVERAGES							
91-93	11,121		0	573	5	573	5
92-94	13,347		0	573	4	573	4
93-95	16,801		0	573	3	573	3
94-96	22,824		0		0		0
95-97	31,147		0		0		0
96-98	35,090		0		0		0
97-99	44,524		0		0		0
98-00	52,639		0		0		0
99-01	63,593		0		0		0
00-02	64,611		0		0		0
01-03	43,000		0		0		0
02-04	21,116		0		0		0
03-05	20,257		0		0		0
04-06	40,043		0		0		0
05-07	60,343		0		0		0
06-08	59,944		0		0		0
07-09	46,314		0		0		0
08-10	31,591		0		0		0
09-11	15,983		0		0		0
FIVE-YEAR AVERAGE							
07-11	33,685		0		0		0

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 486.00 - COMMUNICATION EQUIPMENT - GENERAL PLANT

SUMMARY OF BOOK SALVAGE

YEAR	REGULAR RETIREMENTS	COST OF REMOVAL AMOUNT	PCT	GROSS SALVAGE AMOUNT	PCT	NET SALVAGE AMOUNT	PCT
1992	20,000		0	1,749	9	1,749	9
1993							
1994							
1995							
1996							
1997							
1998							
1999							
2000	28,110		0		0		0
2001							
2002							
2003							
2004							
2005							
2006							
2007							
2008							
2009							
2010							
2011							
TOTAL	48,110		0	1,749	4	1,749	4

THREE-YEAR MOVING AVERAGES

92-94	6,667		0	583	9	583	9
93-95							
94-96							
95-97							
96-98							
97-99							
98-00	9,370		0		0		0
99-01	9,370		0		0		0
00-02	9,370		0		0		0
01-03							
02-04							
03-05							
04-06							
05-07							
06-08							
07-09							

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 486.00 - COMMUNICATION EQUIPMENT - GENERAL PLANT

SUMMARY OF BOOK SALVAGE

YEAR	REGULAR RETIREMENTS	COST OF REMOVAL AMOUNT	PCT	GROSS SALVAGE AMOUNT	PCT	NET SALVAGE AMOUNT	PCT
THREE-YEAR MOVING AVERAGES							
08-10							
09-11							
FIVE-YEAR AVERAGE							
07-11							

PART VI. DETAILED DEPRECIATION CALCULATIONS

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 422.00 - HYDRO STRUCTURES

CALCULATED ANNUAL AND ACCRUED DEPRECIATION
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2011

YEAR (1)	ORIGINAL COST (2)	--ANNUAL ACCRUAL-- RATE (3)	AMOUNT (4)	--ACCRUED DEPREC.-- FACTOR (5)	AMOUNT (6)
INTERIM SURVIVOR CURVE.. IOWA 72-R2					
PROBABLE RETIREMENT YEAR.. 12-2052					
NET SALVAGE PERCENT.. -10					
1987	67,520.32	1.74	1,292.34	0.4263	31,662
1989	57,730.91	1.79	1,136.72	0.4028	25,579
1991	308.57	1.85	6.28	0.3792	129
1992	11,156.06	1.88	230.71	0.3666	4,499
2000	10,832.25	2.16	257.37	0.2484	2,960
2011	67,738.02	3.05	2,272.61	0.0152	1,133
	215,286.13		5,196.03		65,962
COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 2.41					

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 423.00 - HYDRO RESEVOIRS, DAMS AND WATERWAYS

CALCULATED ANNUAL AND ACCRUED DEPRECIATION
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2011

YEAR (1)	ORIGINAL COST (2)	--ANNUAL ACCRUAL-- RATE (3)	AMOUNT (4)	--ACCRUED DEPREC.-- FACTOR (5)	AMOUNT (6)
INTERIM SURVIVOR CURVE.. IOWA 103-R3					
PROBABLE RETIREMENT YEAR.. 12-2052					
NET SALVAGE PERCENT.. -10					
1987	454,475.11	1.58	7,898.78	0.3871	193,520
1989	48,551.65	1.63	870.53	0.3668	19,590
1992	2,414.61	1.71	45.42	0.3334	886
1993	134,389.31	1.74	2,572.21	0.3219	47,586
1996	24,178.48	1.82	484.05	0.2821	7,503
1997	36,567.29	1.86	748.17	0.2697	10,848
2002	11,519.73	2.04	258.50	0.1938	2,456
2003	2,788.31	2.08	63.80	0.1768	542
2004	42,198.95	2.12	984.08	0.1590	7,381
2005	111,863.49	2.16	2,657.88	0.1404	17,276
2007	98,112.46	2.26	2,439.08	0.1017	10,976
2008	39,046.90	2.31	992.18	0.0808	3,470
2010	547,634.36	2.43	14,638.27	0.0364	21,927
2011	321,332.38	2.50	8,836.64	0.0125	4,418
	1,875,073.03		43,489.59		348,379
COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 2.32					

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 425.00 - HYDRO GENERATORS

CALCULATED ANNUAL AND ACCRUED DEPRECIATION
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2011

YEAR (1)	ORIGINAL COST (2)	--ANNUAL ACCRUAL-- RATE (3)	AMOUNT (4)	--ACCRUED DEPREC.-- FACTOR (5)	AMOUNT (6)
INTERIM SURVIVOR CURVE.. IOWA 85-R3					
PROBABLE RETIREMENT YEAR.. 12-2052					
NET SALVAGE PERCENT.. -10					
1987	179,228.52	1.63	3,213.57	0.3994	78,742
2000	89,900.44	1.99	1,967.92	0.2288	22,626
2001	3,500.40	2.03	78.16	0.2132	821
2008	318,629.07	2.34	8,201.51	0.0819	28,705
2009	124,172.24	2.40	3,278.15	0.0600	8,195
2010	723,837.35	2.46	19,587.04	0.0369	29,381
2011	19,166.87	2.54	535.52	0.0127	268
	1,458,434.89		36,861.87		168,738
COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 2.53					

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 426.00 - HYDRO ACCESSORY AND ELECTRICAL EQUIPMENT

CALCULATED ANNUAL AND ACCRUED DEPRECIATION
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2011

YEAR (1)	ORIGINAL COST (2)	--ANNUAL ACCRUAL-- RATE (3)	AMOUNT (4)	--ACCRUED DEPREC.-- FACTOR (5)	AMOUNT (6)
INTERIM SURVIVOR CURVE.. IOWA 45-R3					
PROBABLE RETIREMENT YEAR.. 12-2052					
NET SALVAGE PERCENT.. -10					
1987	62,699.91	2.24	1,544.93	0.5488	37,851
1991	12,366.51	2.31	314.23	0.4736	6,442
2000	12,896.50	2.48	351.82	0.2852	4,046
2001	17,229.29	2.51	475.70	0.2636	4,996
	105,192.21		2,686.68		53,335
COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 2.55					

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 427.00 - HYDRO MISCELLANEOUS EQUIPMENT

CALCULATED ANNUAL AND ACCRUED DEPRECIATION
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2011

YEAR (1)	ORIGINAL COST (2)	--ANNUAL ACCRUAL-- RATE (3)	AMOUNT (4)	--ACCRUED DEPREC.-- FACTOR (5)	AMOUNT (6)
INTERIM SURVIVOR CURVE.. IOWA 30-R2					
PROBABLE RETIREMENT YEAR.. 12-2052					
NET SALVAGE PERCENT.. -10					
1987	3,300.00	2.90	105.27	0.7105	2,579
1990	1,347.72	3.03	44.92	0.6514	966
1992	1,522.97	3.12	52.27	0.6084	1,019
1993	17,813.77	3.17	621.17	0.5864	11,491
2008	3,364.92	4.11	152.13	0.1438	532
2009	41,307.32	4.25	1,931.12	0.1062	4,826
	68,656.70		2,906.88		21,413
COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 4.23					

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 442.00 - STRUCTURES AND IMPROVEMENTS - DIESEL

CALCULATED ANNUAL AND ACCRUED DEPRECIATION
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2011

YEAR (1)	ORIGINAL COST (2)	--ANNUAL ACCRUAL-- RATE (3)	AMOUNT (4)	--ACCRUED DEPREC.-- FACTOR (5)	AMOUNT (6)
BEAVER CREEK					
INTERIM SURVIVOR CURVE.. IOWA 40-R2.5					
PROBABLE RETIREMENT YEAR.. 12-2053					
NET SALVAGE PERCENT.. -10					
1971	9,162.03	2.04	205.60	0.8262	8,327
1986	22,121.90	2.40	584.02	0.6120	14,892
1991	352.47	2.52	9.77	0.5166	200
2006	5,851.48	2.99	192.46	0.1644	1,058
	37,487.88		991.85		24,477
CARMACKS					
INTERIM SURVIVOR CURVE.. IOWA 40-R2.5					
PROBABLE RETIREMENT YEAR.. 12-2053					
NET SALVAGE PERCENT.. -10					
1971	5,170.46	2.04	116.03	0.8262	4,699
1993	32,889.08	2.57	929.77	0.4754	17,199
1997	12,049.89	2.67	353.91	0.3872	5,132
2005	11,904.48	2.94	384.99	0.1911	2,502
2006	105,725.03	2.99	3,477.30	0.1644	19,119
	167,738.94		5,262.00		48,651
DESTRUCTION BAY					
INTERIM SURVIVOR CURVE.. IOWA 40-R2.5					
PROBABLE RETIREMENT YEAR.. 12-2023					
NET SALVAGE PERCENT.. -10					
1971	22,662.51	2.09	521.01	0.8464	21,100
1985	13,952.01	2.73	418.98	0.7234	11,102
1991	352.46	3.20	12.41	0.6560	254
2006	5,314.95	5.87	343.19	0.3228	1,887
	42,281.93		1,295.59		34,343
HAINES JUNCTION					
INTERIM SURVIVOR CURVE.. IOWA 40-R2.5					
PROBABLE RETIREMENT YEAR.. 12-2053					
NET SALVAGE PERCENT.. -10					
1971	59,126.21	2.04	1,326.79	0.8262	53,735
1976	1,003.99	2.16	23.85	0.7668	847
1992	258.00	2.54	7.21	0.4953	141
1997	9,866.63	2.67	289.78	0.3872	4,202
2007	181,455.77	3.04	6,067.88	0.1368	27,305

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 442.00 - STRUCTURES AND IMPROVEMENTS - DIESEL

CALCULATED ANNUAL AND ACCRUED DEPRECIATION
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2011

YEAR (1)	ORIGINAL COST (2)	--ANNUAL ACCRUAL-- RATE (3)	AMOUNT (4)	--ACCRUED DEPREC.-- FACTOR (5)	AMOUNT (6)
HAINES JUNCTION					
INTERIM SURVIVOR CURVE.. IOWA 40-R2.5					
PROBABLE RETIREMENT YEAR.. 12-2053					
NET SALVAGE PERCENT.. -10					
2008	322,680.35	3.10	11,003.40	0.1085	38,512
2009	25,330.54	3.18	886.06	0.0795	2,215
2011	8,750.60	3.50	336.90	0.0175	168
	608,472.09		19,941.87		127,125
OLD CROW					
INTERIM SURVIVOR CURVE.. IOWA 40-R2.5					
PROBABLE RETIREMENT YEAR.. 12-2053					
NET SALVAGE PERCENT.. -10					
1971	16,476.40	2.04	369.73	0.8262	14,974
1982	31,174.06	2.31	792.13	0.6814	23,366
1983	42,062.15	2.33	1,078.05	0.6640	30,722
1989	21,819.59	2.47	592.84	0.5558	13,340
1991	352.47	2.52	9.77	0.5166	200
1992	9,774.53	2.54	273.10	0.4953	5,325
1996	8,908.07	2.65	259.67	0.4108	4,025
1997	4,623.41	2.67	135.79	0.3872	1,969
1998	38,405.22	2.70	1,140.64	0.3645	15,399
2005	9,871.42	2.94	319.24	0.1911	2,075
2006	4,432.86	2.99	145.80	0.1644	802
	187,900.18		5,116.76		112,197
PELLY CROSSING					
INTERIM SURVIVOR CURVE.. IOWA 40-R2.5					
PROBABLE RETIREMENT YEAR.. 12-2033					
NET SALVAGE PERCENT.. -10					
1971	8,362.86	2.04	187.66	0.8262	7,600
1976	9,888.00	2.18	237.11	0.7739	8,418
1982	12,270.68	2.35	317.20	0.6932	9,357
1988	17,015.74	2.57	481.03	0.6040	11,305
1991	352.47	2.70	10.47	0.5535	215
2004	1,001.91	3.72	41.00	0.2790	307
	48,891.66		1,274.47		37,202

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 442.00 - STRUCTURES AND IMPROVEMENTS - DIESEL

CALCULATED ANNUAL AND ACCRUED DEPRECIATION
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2011

YEAR (1)	ORIGINAL COST (2)	--ANNUAL ACCRUAL-- RATE (3)	AMOUNT (4)	--ACCRUED DEPREC.-- FACTOR (5)	AMOUNT (6)
ROSS RIVER					
INTERIM SURVIVOR CURVE.. IOWA 40-R2.5					
PROBABLE RETIREMENT YEAR.. 12-2053					
NET SALVAGE PERCENT.. -10					
1971	10,571.03	2.04	237.21	0.8262	9,607
1974	8,707.10	2.11	202.09	0.7912	7,578
1976	4,684.35	2.16	111.30	0.7668	3,951
1978	170.40	2.21	4.14	0.7404	139
1989	8,000.00	2.47	217.36	0.5558	4,891
1992	109.38	2.54	3.06	0.4953	60
1993	22,783.19	2.57	644.08	0.4754	11,914
1997	16,193.47	2.67	475.60	0.3872	6,897
2006	100,002.48	2.99	3,289.08	0.1644	18,084
	171,221.40		5,183.92		63,121
STEWART CROSSING					
INTERIM SURVIVOR CURVE.. IOWA 40-R2.5					
PROBABLE RETIREMENT YEAR.. 12-2053					
NET SALVAGE PERCENT.. -10					
1971	6,882.44	2.04	154.44	0.8262	6,255
1982	11,893.33	2.31	302.21	0.6814	8,915
1988	14,778.07	2.45	398.27	0.5758	9,360
1993	3,486.70	2.57	98.57	0.4754	1,823
2005	210,924.97	2.94	6,821.31	0.1911	44,339
	247,965.51		7,774.80		70,692
SWIFT RIVER					
INTERIM SURVIVOR CURVE.. IOWA 40-R2.5					
PROBABLE RETIREMENT YEAR.. 12-2053					
NET SALVAGE PERCENT.. -10					
1971	4,531.30	2.04	101.68	0.8262	4,118
1998	15,739.26	2.70	467.46	0.3645	6,311
2005	2,232.71	2.94	72.21	0.1911	469
	22,503.27		641.35		10,898

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 442.00 - STRUCTURES AND IMPROVEMENTS - DIESEL

CALCULATED ANNUAL AND ACCRUED DEPRECIATION
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2011

YEAR (1)	ORIGINAL COST (2)	--ANNUAL ACCRUAL-- RATE (3)	AMOUNT (4)	--ACCRUED DEPREC.-- FACTOR (5)	AMOUNT (6)
TESLIN					
INTERIM SURVIVOR CURVE.. IOWA 40-R2.5					
PROBABLE RETIREMENT YEAR.. 12-2053					
NET SALVAGE PERCENT.. -10					
1971	10,350.29	2.04	232.26	0.8262	9,407
2005	8,079.46	2.94	261.29	0.1911	1,698
2011	19,556.13	3.50	752.91	0.0175	376
	37,985.88		1,246.46		11,481
WATSON LAKE					
INTERIM SURVIVOR CURVE.. IOWA 40-R2.5					
PROBABLE RETIREMENT YEAR.. 12-2113					
NET SALVAGE PERCENT.. -10					
1987	311,360.32	2.43	8,322.66	0.5954	203,922
1988	7,591.41	2.45	204.59	0.5758	4,808
1997	10,471.46	2.66	306.39	0.3857	4,443
1999	29,783.20	2.71	887.84	0.3388	11,100
2001	186.47	2.76	5.66	0.2898	59
	359,392.86		9,727.14		224,332
MOBILES					
SURVIVOR CURVE.. IOWA 40-R2.5					
NET SALVAGE PERCENT.. -10					
1971	10,662.39	2.04	239.26	0.8262	9,690
	10,662.39		239.26		9,690
	1,942,503.99		58,695.47		774,209
COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 3.02					

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 444.00 - FUEL HOLDERS, PRODUCTS AND ACCESSORIES - DIESEL

CALCULATED ANNUAL AND ACCRUED DEPRECIATION
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2011

YEAR (1)	ORIGINAL COST (2)	--ANNUAL ACCRUAL-- RATE (3)	AMOUNT (4)	--ACCRUED DEPREC.-- FACTOR (5)	AMOUNT (6)
BEAVER CREEK					
INTERIM SURVIVOR CURVE.. IOWA 35-R4					
PROBABLE RETIREMENT YEAR.. 12-2053					
NET SALVAGE PERCENT.. -20					
1971	6,791.94	2.30	187.46	0.9315	7,592
1986	7,089.08	2.79	237.34	0.7114	6,052
1994	1,140.87	2.94	40.25	0.5145	704
1996	5,470.27	2.97	194.96	0.4604	3,022
1998	55,480.02	2.99	1,990.62	0.4036	26,870
2004	16,886.36	3.02	611.96	0.2265	4,590
	92,858.54		3,262.59		48,830
CARMACKS					
INTERIM SURVIVOR CURVE.. IOWA 35-R4					
PROBABLE RETIREMENT YEAR.. 12-2053					
NET SALVAGE PERCENT.. -20					
1973	196.46	2.38	5.61	0.9163	216
1990	40,197.77	2.88	1,389.23	0.6192	29,869
	40,394.23		1,394.84		30,085
DESTRUCTION BAY					
INTERIM SURVIVOR CURVE.. IOWA 35-R4					
PROBABLE RETIREMENT YEAR.. 12-2023					
NET SALVAGE PERCENT.. -20					
1973	3,283.83	2.38	93.79	0.9163	3,611
1997	63,293.96	3.87	2,939.37	0.5612	42,625
1999	16,409.95	4.16	819.18	0.5200	10,240
2003	1,332.07	4.93	78.81	0.4190	670
2004	3,051.15	5.17	189.29	0.3878	1,420
2005	14,133.96	5.44	922.66	0.3536	5,997
2008	1,140.87	6.48	88.71	0.2268	310
2009	2,832.53	6.92	235.21	0.1730	588
	105,478.32		5,367.02		65,461
HAINES JUNCTION					
INTERIM SURVIVOR CURVE.. IOWA 35-R4					
PROBABLE RETIREMENT YEAR.. 12-2053					
NET SALVAGE PERCENT.. -20					
1982	100.00	2.68	3.22	0.7906	95
1994	397,144.70	2.94	14,011.27	0.5145	245,197

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 444.00 - FUEL HOLDERS, PRODUCTS AND ACCESSORIES - DIESEL

CALCULATED ANNUAL AND ACCRUED DEPRECIATION
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2011

YEAR (1)	ORIGINAL COST (2)	--ANNUAL ACCRUAL-- RATE (3)	AMOUNT (4)	--ACCRUED DEPREC.-- FACTOR (5)	AMOUNT (6)
HAINES JUNCTION					
INTERIM SURVIVOR CURVE.. IOWA 35-R4					
PROBABLE RETIREMENT YEAR.. 12-2053					
NET SALVAGE PERCENT.. -20					
1998	68,555.35	2.99	2,459.77	0.4036	33,203
2004	4,343.08	3.02	157.39	0.2265	1,180
2008	148,989.27	3.04	5,435.13	0.1064	19,023
	619,132.40		22,066.78		298,698
OLD CROW					
INTERIM SURVIVOR CURVE.. IOWA 35-R4					
PROBABLE RETIREMENT YEAR.. 12-2053					
NET SALVAGE PERCENT.. -20					
1971	1,829.28	2.30	50.49	0.9315	2,045
1973	18,132.52	2.38	517.86	0.9163	19,938
1985	8,400.29	2.76	278.22	0.7314	7,373
1994	52,075.44	2.94	1,837.22	0.5145	32,151
2003	86,979.73	3.02	3,152.15	0.2567	26,793
2004	1,140.87	3.02	41.35	0.2265	310
2005	46,528.71	3.02	1,686.20	0.1963	10,960
	215,086.84		7,563.49		99,570
PELLY CROSSING					
INTERIM SURVIVOR CURVE.. IOWA 35-R4					
PROBABLE RETIREMENT YEAR.. 12-2033					
NET SALVAGE PERCENT.. -20					
1971	87,626.71	2.30	2,418.50	0.9315	97,949
1994	7,779.75	3.00	280.07	0.5250	4,901
2003	7,023.17	3.49	294.13	0.2966	2,500
2005	13,194.21	3.68	582.66	0.2392	3,787
2008	13,678.17	4.05	664.76	0.1418	2,327
	129,302.01		4,240.12		111,464
ROSS RIVER					
INTERIM SURVIVOR CURVE.. IOWA 35-R4					
PROBABLE RETIREMENT YEAR.. 12-2053					
NET SALVAGE PERCENT.. -20					
1986	293.14	2.79	9.81	0.7114	250
1994	1,005.32	2.94	35.47	0.5145	621

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 444.00 - FUEL HOLDERS, PRODUCTS AND ACCESSORIES - DIESEL

CALCULATED ANNUAL AND ACCRUED DEPRECIATION
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2011

YEAR (1)	ORIGINAL COST (2)	--ANNUAL ACCRUAL-- RATE (3)	AMOUNT (4)	--ACCRUED DEPREC.-- FACTOR (5)	AMOUNT (6)
ROSS RIVER					
INTERIM SURVIVOR CURVE.. IOWA 35-R4					
PROBABLE RETIREMENT YEAR.. 12-2053					
NET SALVAGE PERCENT.. -20					
1996	9,000.00	2.97	320.76	0.4604	4,972
1998	60,463.08	2.99	2,169.42	0.4036	29,283
2003	14,364.08	3.02	520.55	0.2567	4,425
	85,125.62		3,056.01		39,551
STEWART CROSSING					
INTERIM SURVIVOR CURVE.. IOWA 35-R4					
PROBABLE RETIREMENT YEAR.. 12-2053					
NET SALVAGE PERCENT.. -20					
1971	2,790.21	2.30	77.01	0.9315	3,119
1993	8,091.37	2.93	284.49	0.5420	5,263
2004	27,639.59	3.02	1,001.66	0.2265	7,512
2008	14,000.48	3.04	510.74	0.1064	1,788
2011	12,585.49	3.06	462.14	0.0153	231
	65,107.14		2,336.04		17,913
SWIFT RIVER					
INTERIM SURVIVOR CURVE.. IOWA 35-R4					
PROBABLE RETIREMENT YEAR.. 12-2053					
NET SALVAGE PERCENT.. -20					
1971	1,005.32	2.30	27.75	0.9315	1,124
1973	936.21	2.38	26.74	0.9163	1,029
1990	41,465.54	2.88	1,433.05	0.6192	30,811
1994	19,118.51	2.94	674.50	0.5145	11,804
1999	904.44	2.99	32.45	0.3738	406
	63,430.02		2,194.49		45,174
TESLIN					
INTERIM SURVIVOR CURVE.. IOWA 35-R4					
PROBABLE RETIREMENT YEAR.. 12-2053					
NET SALVAGE PERCENT.. -20					
2004	99,862.71	3.02	3,619.02	0.2265	27,143
	99,862.71		3,619.02		27,143

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 444.00 - FUEL HOLDERS, PRODUCTS AND ACCESSORIES - DIESEL

CALCULATED ANNUAL AND ACCRUED DEPRECIATION
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2011

YEAR (1)	ORIGINAL COST (2)	--ANNUAL ACCRUAL-- RATE (3)	AMOUNT (4)	--ACCRUED DEPREC.-- FACTOR (5)	AMOUNT (6)
WATSON LAKE					
INTERIM SURVIVOR CURVE.. IOWA 35-R4					
PROBABLE RETIREMENT YEAR.. 12-2113					
NET SALVAGE PERCENT.. -20					
1971	506.33	2.30	13.97	0.9315	566
1976	4,412.77	2.49	131.85	0.8840	4,681
1982	22,767.10	2.68	732.19	0.7906	21,600
1997	21,824.31	2.98	780.44	0.4321	11,316
1999	78,464.70	2.99	2,815.31	0.3738	35,196
2009	619,842.35	3.03	22,537.47	0.0758	56,381
	747,817.56		27,011.23		129,740
MOBILES					
SURVIVOR CURVE.. IOWA 35-R4					
NET SALVAGE PERCENT.. -20					
1988	25,562.13	2.83	868.09	0.6650	20,399
	25,562.13		868.09		20,399
	2,289,157.52		82,979.72		934,028
COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 3.62					

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 445.00 - GENERAL EQUIPMENT AND PRIME MOVERS - DIESEL

CALCULATED ANNUAL AND ACCRUED DEPRECIATION
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2011

YEAR (1)	ORIGINAL COST (2)	--ANNUAL ACCRUAL-- RATE (3)	AMOUNT (4)	--ACCRUED DEPREC.-- FACTOR (5)	AMOUNT (6)
BEAVER CREEK					
INTERIM SURVIVOR CURVE.. IOWA 26-S2.5					
PROBABLE RETIREMENT YEAR.. 12-2053					
NET SALVAGE PERCENT.. -10					
1983	6,729.90	3.02	223.57	0.8607	6,372
1988	35,130.86	3.37	1,302.30	0.7920	30,606
1989	38,776.08	3.44	1,467.29	0.7740	33,014
1991	197,994.87	3.58	7,797.04	0.7339	159,839
1992	2,889.71	3.65	116.02	0.7118	2,263
1993	147,926.58	3.72	6,053.16	0.6882	111,983
1994	51,495.19	3.78	2,141.17	0.6615	37,470
2000	13,621.40	4.09	612.83	0.4704	7,048
2003	29,551.12	4.18	1,358.76	0.3553	11,549
2004	11,663.55	4.20	538.86	0.3150	4,041
	535,779.26		21,611.00		404,185

CARMACKS
INTERIM SURVIVOR CURVE.. IOWA 26-S2.5
PROBABLE RETIREMENT YEAR.. 12-2053
NET SALVAGE PERCENT.. -10

1974	6,707.49	2.50	184.46	0.9375	6,917
1991	411,404.53	3.58	16,201.11	0.7339	332,123
1992	1,431.15	3.65	57.46	0.7118	1,121
	419,543.17		16,443.03		340,161

DESTRUCTION BAY
INTERIM SURVIVOR CURVE.. IOWA 26-S2.5
PROBABLE RETIREMENT YEAR.. 12-2023
NET SALVAGE PERCENT.. -10

1971	13,213.83	2.35	341.58	0.9518	13,835
1972	1,165.50	2.40	30.77	0.9480	1,215
1982	5,500.00	2.96	179.08	0.8732	5,283
1993	108,995.02	3.84	4,603.95	0.7104	85,173
2004	81,212.35	5.40	4,824.01	0.4050	36,180
2011	277,989.71	8.07	24,677.15	0.0404	12,354
	488,076.41		34,656.54		154,040

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 445.00 - GENERAL EQUIPMENT AND PRIME MOVERS - DIESEL

CALCULATED ANNUAL AND ACCRUED DEPRECIATION
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2011

YEAR (1)	ORIGINAL COST (2)	--ANNUAL ACCRUAL-- RATE (3)	AMOUNT (4)	--ACCRUED DEPREC.-- FACTOR (5)	AMOUNT (6)
HAINES JUNCTION					
INTERIM SURVIVOR CURVE.. IOWA 26-S2.5					
PROBABLE RETIREMENT YEAR.. 12-2053					
NET SALVAGE PERCENT.. -10					
1974	1,126.47	2.50	30.98	0.9375	1,162
1981	2,086.28	2.89	66.32	0.8814	2,023
1996	56,883.75	3.90	2,440.31	0.6045	37,825
	60,096.50		2,537.61		41,010
OLD CROW					
INTERIM SURVIVOR CURVE.. IOWA 26-S2.5					
PROBABLE RETIREMENT YEAR.. 12-2053					
NET SALVAGE PERCENT.. -10					
1992	115,345.02	3.65	4,631.10	0.7118	90,313
1993	31,348.63	3.72	1,282.79	0.6882	23,732
1994	115,469.41	3.78	4,801.22	0.6615	84,021
1998	239,200.48	4.01	10,551.13	0.5414	142,453
2004	692,044.84	4.20	31,972.47	0.3150	239,794
2010	30,304.59	4.25	1,416.74	0.0638	2,127
	1,223,712.97		54,655.45		582,440
PELLEY CROSSING					
INTERIM SURVIVOR CURVE.. IOWA 26-S2.5					
PROBABLE RETIREMENT YEAR.. 12-2033					
NET SALVAGE PERCENT.. -10					
1983	31,559.61	3.02	1,048.41	0.8607	29,880
1991	198,327.99	3.58	7,810.16	0.7339	160,108
1992	1,215.45	3.65	48.80	0.7118	952
1997	114,594.28	3.97	5,004.33	0.5756	72,557
1999	102,441.44	4.08	4,597.57	0.5100	57,470
2000	12.01	4.14	0.55	0.4761	6
2003	13,614.56	4.29	642.47	0.3646	5,460
2004	12,290.60	4.34	586.75	0.3255	4,401
	474,055.94		19,739.04		330,834

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 445.00 - GENERAL EQUIPMENT AND PRIME MOVERS - DIESEL

CALCULATED ANNUAL AND ACCRUED DEPRECIATION
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2011

YEAR (1)	ORIGINAL COST (2)	--ANNUAL ACCRUAL-- RATE (3)	AMOUNT (4)	--ACCRUED DEPREC.-- FACTOR (5)	AMOUNT (6)
ROSS RIVER					
INTERIM SURVIVOR CURVE.. IOWA 26-S2.5					
PROBABLE RETIREMENT YEAR.. 12-2053					
NET SALVAGE PERCENT.. -10					
1971	65.02	2.35	1.68	0.9518	68
1977	4,145.37	2.66	121.29	0.9177	4,185
1989	180,866.60	3.44	6,843.99	0.7740	153,990
1990	294.78	3.51	11.38	0.7546	245
1993	4,381.38	3.72	179.29	0.6882	3,317
	189,753.15		7,157.63		161,805

STEWART CROSSING
INTERIM SURVIVOR CURVE.. IOWA 26-S2.5
PROBABLE RETIREMENT YEAR.. 12-2053
NET SALVAGE PERCENT.. -10

1971	3,852.20	2.35	99.58	0.9518	4,033
1972	1,061.34	2.40	28.02	0.9480	1,107
1974	5,934.12	2.50	163.19	0.9375	6,120
1985	1,157.99	3.16	40.25	0.8374	1,067
1986	16.33	3.23	0.58	0.8236	15
1988	4,271.69	3.37	158.35	0.7920	3,721
2003	24,500.84	4.18	1,126.55	0.3553	9,576
2004	4,882.86	4.20	225.59	0.3150	1,692
	45,677.37		1,842.11		27,331

SWIFT RIVER
INTERIM SURVIVOR CURVE.. IOWA 26-S2.5
PROBABLE RETIREMENT YEAR.. 12-2053
NET SALVAGE PERCENT.. -10

1970	9,236.40	2.31	234.70	0.9586	9,739
1991	5,179.53	3.58	203.97	0.7339	4,181
1992	25,847.73	3.65	1,037.79	0.7118	20,238
1998	59,650.02	4.01	2,631.16	0.5414	35,524
2003	79,944.14	4.18	3,675.83	0.3553	31,245
2004	2,700.87	4.20	124.78	0.3150	936
2009	58,488.49	4.25	2,734.34	0.1062	6,833
	241,047.18		10,642.57		108,696

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 445.00 - GENERAL EQUIPMENT AND PRIME MOVERS - DIESEL

CALCULATED ANNUAL AND ACCRUED DEPRECIATION
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2011

YEAR (1)	ORIGINAL COST (2)	--ANNUAL ACCRUAL-- RATE (3)	AMOUNT (4)	--ACCRUED DEPREC.-- FACTOR (5)	AMOUNT (6)
TESLIN					
INTERIM SURVIVOR CURVE.. IOWA 26-S2.5					
PROBABLE RETIREMENT YEAR.. 12-2053					
NET SALVAGE PERCENT.. -10					
1993	762,033.60	3.72	31,182.41	0.6882	576,875
	762,033.60		31,182.41		576,875

WATSON LAKE
INTERIM SURVIVOR CURVE.. IOWA 26-S2.5
PROBABLE RETIREMENT YEAR.. 12-2113
NET SALVAGE PERCENT.. -10

1973	11,370.97	2.45	306.45	0.9432	11,798
1978	2,815.04	2.71	83.92	0.9078	2,811
1981	7,682.30	2.89	244.22	0.8814	7,448
1985	589,119.42	3.16	20,477.79	0.8374	542,661
1986	1,654.02	3.23	58.77	0.8236	1,498
1987	70,000.00	3.30	2,541.00	0.8085	62,254
1989	8,785.44	3.44	332.44	0.7740	7,480
1991	377,412.18	3.58	14,862.49	0.7339	304,681
1993	48,060.52	3.72	1,966.64	0.6882	36,383
1996	250,658.18	3.90	10,753.24	0.6045	166,675
1999	516,871.37	4.05	23,026.62	0.5062	287,804
2000	19,585.15	4.09	881.14	0.4704	10,134
2002	6,723.20	4.16	307.65	0.3952	2,923
2011	258,457.58	4.25	12,082.89	0.0212	6,027
	2,169,195.37		87,925.26		1,450,577

MOBILES
SURVIVOR CURVE.. IOWA 26-S2.5
NET SALVAGE PERCENT.. -10

1982	2,314.53	2.96	75.36	0.8732	2,223
1984	6,948.44	3.09	236.18	0.8498	6,495
1986	52,884.26	3.23	1,878.98	0.8236	47,911
1987	155.25	3.30	5.64	0.8085	138
1988	11,501.98	3.37	426.38	0.7920	10,021
1989	17,870.50	3.44	676.22	0.7740	15,215
1990	155,054.72	3.51	5,986.66	0.7546	128,705
1991	52,410.38	3.58	2,063.92	0.7339	42,310

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 445.00 - GENERAL EQUIPMENT AND PRIME MOVERS - DIESEL

CALCULATED ANNUAL AND ACCRUED DEPRECIATION
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2011

YEAR (1)	ORIGINAL COST (2)	--ANNUAL ACCRUAL-- RATE (3)	AMOUNT (4)	--ACCRUED DEPREC.-- FACTOR (5)	AMOUNT (6)
MOBILES					
SURVIVOR CURVE.. IOWA 26-S2.5					
NET SALVAGE PERCENT.. -10					
1998	106,050.80	4.01	4,677.90	0.5414	63,157
1999	12,279.04	4.05	547.03	0.5062	6,837
2010	151,030.51	4.25	7,060.68	0.0638	10,599
	568,500.41		23,634.95		333,611
	7,177,471.33		312,027.60		4,511,565
COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 4.35					

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 446.00 - ACCESSORY ELECTRIC EQUIPMENT - DIESEL

CALCULATED ANNUAL AND ACCRUED DEPRECIATION
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2011

YEAR (1)	ORIGINAL COST (2)	--ANNUAL ACCRUAL-- RATE (3)	AMOUNT (4)	--ACCRUED DEPREC.-- FACTOR (5)	AMOUNT (6)
BEAVER CREEK					
INTERIM SURVIVOR CURVE.. IOWA 35-R3					
PROBABLE RETIREMENT YEAR.. 12-2053					
NET SALVAGE PERCENT.. 0					
1971	3,820.66	2.22	84.82	0.8991	3,435
1972	342.83	2.25	7.71	0.8888	305
1974	126.08	2.32	2.93	0.8700	110
1977	161.28	2.42	3.90	0.8349	135
1980	1,172.29	2.52	29.54	0.7938	931
1983	3,521.61	2.62	92.27	0.7467	2,630
1992	27,277.24	2.87	782.86	0.5596	15,264
1994	144.34	2.92	4.21	0.5110	74
1998	11,389.22	3.02	343.95	0.4077	4,643
1999	27,540.86	3.04	837.24	0.3800	10,466
2000	7,962.35	3.06	243.65	0.3519	2,802
2003	29,551.12	3.13	924.95	0.2660	7,861
2004	11,663.54	3.15	367.40	0.2362	2,755
2006	9,236.84	3.20	295.58	0.1760	1,626
2007	15,499.19	3.23	500.62	0.1454	2,254
2008	20,159.43	3.25	655.18	0.1138	2,294
2009	3,796.60	3.29	124.91	0.0822	312
	173,365.48		5,301.72		57,897

CARMACKS
INTERIM SURVIVOR CURVE.. IOWA 35-R3
PROBABLE RETIREMENT YEAR.. 12-2053
NET SALVAGE PERCENT.. 0

1971	1,753.43	2.22	38.93	0.8991	1,577
1999	4,228.29	3.04	128.54	0.3800	1,607
2000	22,636.55	3.06	692.68	0.3519	7,966
2001	72,540.11	3.09	2,241.49	0.3244	23,532
	101,158.38		3,101.64		34,682

DESTRUCTION BAY
INTERIM SURVIVOR CURVE.. IOWA 35-R3
PROBABLE RETIREMENT YEAR.. 12-2023
NET SALVAGE PERCENT.. 0

1971	3,489.80	2.22	77.47	0.8991	3,138
1972	392.81	2.26	8.88	0.8927	351
1976	2,134.00	2.41	51.43	0.8556	1,826
1980	2,677.41	2.57	68.81	0.8096	2,168
1985	1,408.73	2.83	39.87	0.7500	1,057

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 446.00 - ACCESSORY ELECTRIC EQUIPMENT - DIESEL

CALCULATED ANNUAL AND ACCRUED DEPRECIATION
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2011

YEAR (1)	ORIGINAL COST (2)	--ANNUAL ACCRUAL-- RATE (3)	AMOUNT (4)	--ACCRUED DEPREC.-- FACTOR (5)	AMOUNT (6)
DESTRUCTION BAY					
INTERIM SURVIVOR CURVE.. IOWA 35-R3					
PROBABLE RETIREMENT YEAR.. 12-2023					
NET SALVAGE PERCENT.. 0					
1990	70,054.07	3.17	2,220.71	0.6816	47,749
1991	4,985.00	3.26	162.51	0.6683	3,331
1993	33,561.73	3.45	1,157.88	0.6382	21,419
1994	1,818.80	3.55	64.57	0.6212	1,130
1998	7,421.15	4.07	302.04	0.5494	4,077
1999	14,916.17	4.22	629.46	0.5275	7,868
2000	15,290.59	4.39	671.26	0.5048	7,719
2001	16,054.87	4.58	735.31	0.4809	7,721
2003	28,717.40	5.01	1,438.74	0.4258	12,228
2004	4,956.93	5.26	260.73	0.3945	1,956
2006	9,043.55	5.84	528.14	0.3212	2,905
2007	4,788.51	6.19	296.41	0.2786	1,334
2008	62,915.66	6.58	4,139.85	0.2303	14,489
	284,627.18		12,854.07		142,466

HAINES JUNCTION
INTERIM SURVIVOR CURVE.. IOWA 35-R3
PROBABLE RETIREMENT YEAR.. 12-2053
NET SALVAGE PERCENT.. 0

1971	14,437.93	2.22	320.52	0.8991	12,981
1972	16,367.43	2.25	368.27	0.8888	14,547
2001	43,957.09	3.09	1,358.27	0.3244	14,260
2002	18,022.71	3.11	560.51	0.2954	5,324
2006	2,166.70	3.20	69.33	0.1760	381
	94,951.86		2,676.90		47,493

OLD CROW
INTERIM SURVIVOR CURVE.. IOWA 35-R3
PROBABLE RETIREMENT YEAR.. 12-2053
NET SALVAGE PERCENT.. 0

1981	3,895.02	2.55	99.32	0.7778	3,030
1982	17,114.85	2.59	443.27	0.7640	13,076
1986	23,198.32	2.70	626.35	0.6885	15,972
1989	22,032.00	2.79	614.69	0.6278	13,832
1990	6,856.39	2.82	193.35	0.6063	4,157

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 446.00 - ACCESSORY ELECTRIC EQUIPMENT - DIESEL

CALCULATED ANNUAL AND ACCRUED DEPRECIATION
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2011

YEAR (1)	ORIGINAL COST (2)	--ANNUAL ACCRUAL-- RATE (3)	AMOUNT (4)	--ACCRUED DEPREC.-- FACTOR (5)	AMOUNT (6)
OLD CROW					
INTERIM SURVIVOR CURVE.. IOWA 35-R3					
PROBABLE RETIREMENT YEAR.. 12-2053					
NET SALVAGE PERCENT.. 0					
1998	34,163.99	3.02	1,031.75	0.4077	13,929
1999	2,398.51	3.04	72.91	0.3800	911
2000	9,706.06	3.06	297.01	0.3519	3,416
	119,365.14		3,378.65		68,323

PELLE CROSSING					
INTERIM SURVIVOR CURVE.. IOWA 35-R3					
PROBABLE RETIREMENT YEAR.. 12-2033					
NET SALVAGE PERCENT.. 0					
1989	35,003.00	2.82	987.08	0.6345	22,209
1990	6,856.39	2.86	196.09	0.6149	4,216
1991	4,985.00	2.89	144.07	0.5924	2,953
1993	11,042.37	2.98	329.06	0.5513	6,088
1994	1,392.96	3.03	42.21	0.5302	739
1997	206,593.21	3.19	6,590.32	0.4626	95,570
1998	3,965.69	3.25	128.88	0.4388	1,740
1999	5,250.25	3.32	174.31	0.4150	2,179
2000	110.64	3.39	3.75	0.3898	43
2003	13,614.56	3.65	496.93	0.3102	4,223
2004	12,290.60	3.75	460.90	0.2812	3,456
2006	8,425.63	3.98	335.34	0.2189	1,844
2007	18,831.92	4.11	773.99	0.1850	3,484
2008	103,372.31	4.25	4,393.32	0.1488	15,382
	431,734.53		15,056.25		164,126

ROSS RIVER					
INTERIM SURVIVOR CURVE.. IOWA 35-R3					
PROBABLE RETIREMENT YEAR.. 12-2053					
NET SALVAGE PERCENT.. 0					
1971	1,502.01	2.22	33.34	0.8991	1,350
1973	2,302.74	2.29	52.73	0.8816	2,030
1989	375.00	2.79	10.46	0.6278	235
1990	6,856.39	2.82	193.35	0.6063	4,157
1998	4,769.62	3.02	144.04	0.4077	1,945

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 446.00 - ACCESSORY ELECTRIC EQUIPMENT - DIESEL

CALCULATED ANNUAL AND ACCRUED DEPRECIATION
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2011

YEAR (1)	ORIGINAL COST (2)	--ANNUAL ACCRUAL-- RATE (3)	AMOUNT (4)	--ACCRUED DEPREC.-- FACTOR (5)	AMOUNT (6)
ROSS RIVER					
INTERIM SURVIVOR CURVE.. IOWA 35-R3					
PROBABLE RETIREMENT YEAR.. 12-2053					
NET SALVAGE PERCENT.. 0					
1999	20,795.02	3.04	632.17	0.3800	7,902
2000	87,363.46	3.06	2,673.32	0.3519	30,743
2004	907.50	3.15	28.59	0.2362	214
	124,871.74		3,768.00		48,576
STEWART CROSSING					
INTERIM SURVIVOR CURVE.. IOWA 35-R3					
PROBABLE RETIREMENT YEAR.. 12-2053					
NET SALVAGE PERCENT.. 0					
1971	1,063.94	2.22	23.62	0.8991	957
1982	7,537.07	2.59	195.21	0.7640	5,758
1998	11,389.20	3.02	343.95	0.4077	4,643
1999	6,183.82	3.04	187.99	0.3800	2,350
2000	14,867.21	3.06	454.94	0.3519	5,232
2003	24,500.84	3.13	766.88	0.2660	6,517
2004	4,882.85	3.15	153.81	0.2362	1,153
	70,424.93		2,126.40		26,610
SWIFT RIVER					
INTERIM SURVIVOR CURVE.. IOWA 35-R3					
PROBABLE RETIREMENT YEAR.. 12-2053					
NET SALVAGE PERCENT.. 0					
1986	100.02	2.70	2.70	0.6885	69
1991	4,985.00	2.84	141.57	0.5822	2,902
1998	43,772.61	3.02	1,321.93	0.4077	17,846
1999	869.59	3.04	26.44	0.3800	330
2000	110.61	3.06	3.38	0.3519	39
2003	33,457.39	3.13	1,047.22	0.2660	8,900
2004	1,582.78	3.15	49.86	0.2362	374
2009	4,969.67	3.29	163.50	0.0822	409
2010	3,712.47	3.33	123.63	0.0500	186
	93,560.14		2,880.23		31,055

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 446.00 - ACCESSORY ELECTRIC EQUIPMENT - DIESEL

CALCULATED ANNUAL AND ACCRUED DEPRECIATION
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2011

YEAR (1)	ORIGINAL COST (2)	--ANNUAL ACCRUAL-- RATE (3)	AMOUNT (4)	--ACCRUED DEPREC.-- FACTOR (5)	AMOUNT (6)
TESLIN					
INTERIM SURVIVOR CURVE.. IOWA 35-R3					
PROBABLE RETIREMENT YEAR.. 12-2053					
NET SALVAGE PERCENT.. 0					
1976	544.02	2.39	13.00	0.8484	462
1981	487.94	2.55	12.44	0.7778	380
1982	2,068.56	2.59	53.58	0.7640	1,580
1993	26,881.19	2.90	779.55	0.5365	14,422
1999	4,228.29	3.04	128.54	0.3800	1,607
2001	20,206.63	3.09	624.38	0.3244	6,555
	54,416.63		1,611.49		25,006

WATSON LAKE

INTERIM SURVIVOR CURVE.. IOWA 35-R3
PROBABLE RETIREMENT YEAR.. 12-2113
NET SALVAGE PERCENT.. 0

1971	40,922.41	2.22	908.48	0.8991	36,793
1973	12,675.52	2.29	290.27	0.8816	11,175
1974	5,654.23	2.32	131.18	0.8700	4,919
1976	782.05	2.39	18.69	0.8484	663
1984	9,095.34	2.65	241.03	0.7288	6,629
1987	220,208.40	2.73	6,011.69	0.6688	147,275
1989	42,648.64	2.79	1,189.90	0.6278	26,775
1990	31,215.94	2.82	880.29	0.6063	18,926
1994	6,000.88	2.92	175.23	0.5110	3,066
1997	13,284.17	2.99	397.20	0.4336	5,760
1998	3,968.07	3.02	119.84	0.4077	1,618
1999	77,281.64	3.04	2,349.36	0.3800	29,367
2000	1,866.83	3.06	57.12	0.3519	657
2002	12,712.92	3.11	395.37	0.2954	3,755
2004	2,043.14	3.15	64.36	0.2362	483
2005	4,960.69	3.17	157.25	0.2060	1,022
2007	30,679.14	3.21	984.80	0.1444	4,430
2008	9,332.25	3.23	301.43	0.1130	1,055
2011	52,856.96	3.36	1,775.99	0.0168	888
	578,189.22		16,449.48		305,256

MOBILES

SURVIVOR CURVE.. IOWA 35-R3
NET SALVAGE PERCENT.. 0

1971	10,783.16	2.22	239.39	0.8991	9,695
1986	5,350.99	2.70	144.48	0.6885	3,684

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 446.00 - ACCESSORY ELECTRIC EQUIPMENT - DIESEL

CALCULATED ANNUAL AND ACCRUED DEPRECIATION
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2011

YEAR (1)	ORIGINAL COST (2)	--ANNUAL ACCRUAL-- RATE (3)	AMOUNT (4)	--ACCRUED DEPREC.-- FACTOR (5)	AMOUNT (6)
MOBILES					
SURVIVOR CURVE.. IOWA 35-R3					
NET SALVAGE PERCENT.. 0					
1993	17,452.58	2.90	506.12	0.5365	9,363
2000	18,845.94	3.06	576.69	0.3519	6,632
2001	35,219.37	3.09	1,088.28	0.3244	11,425
	87,652.04		2,554.96		40,799
	2,214,317.27		71,759.79		992,289
COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 3.24					

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 447.00 - MISCELLANEOUS POWER PLANT EQUIPMENT - DIESEL

CALCULATED ANNUAL AND ACCRUED DEPRECIATION
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2011

YEAR (1)	ORIGINAL COST (2)	--ANNUAL ACCRUAL-- RATE (3)	AMOUNT (4)	--ACCRUED DEPREC.-- FACTOR (5)	AMOUNT (6)
BEAVER CREEK					
INTERIM SURVIVOR CURVE.. IOWA 40-R3					
PROBABLE RETIREMENT YEAR.. 12-2053					
NET SALVAGE PERCENT.. 0					
1971	184.59	2.09	3.86	0.8464	156
1982	694.02	2.36	16.38	0.6962	483
1991	2,135.57	2.55	54.46	0.5228	1,116
2003	8,443.18	2.78	234.72	0.2363	1,995
2004	3,332.42	2.80	93.31	0.2100	700
2007	22,115.51	2.89	639.14	0.1300	2,875
2009	11,697.35	2.96	346.24	0.0740	866
	48,602.64		1,388.11		8,191
CARMACKS					
INTERIM SURVIVOR CURVE.. IOWA 40-R3					
PROBABLE RETIREMENT YEAR.. 12-2053					
NET SALVAGE PERCENT.. 0					
1971	26.10	2.09	0.55	0.8464	22
1982	430.77	2.36	10.17	0.6962	300
2010	3,578.86	3.01	107.72	0.0452	162
2011	3,330.38	3.09	102.91	0.0154	51
	7,366.11		221.35		535
DESTRUCTION BAY					
INTERIM SURVIVOR CURVE.. IOWA 40-R3					
PROBABLE RETIREMENT YEAR.. 12-2023					
NET SALVAGE PERCENT.. 0					
1979	1,551.73	2.42	37.55	0.7865	1,220
1982	1,587.73	2.56	40.65	0.7552	1,199
1991	7,781.34	3.19	248.22	0.6540	5,089
1993	198.09	3.38	6.70	0.6253	124
2003	8,204.98	4.97	407.79	0.4224	3,466
2004	1,416.28	5.22	73.93	0.3915	554
2007	2,392.19	6.15	147.12	0.2768	662
2009	4,915.64	7.00	344.09	0.1750	860
	28,047.98		1,306.05		13,174

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 447.00 - MISCELLANEOUS POWER PLANT EQUIPMENT - DIESEL

CALCULATED ANNUAL AND ACCRUED DEPRECIATION
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2011

YEAR (1)	ORIGINAL COST (2)	--ANNUAL ACCRUAL-- RATE (3)	AMOUNT (4)	--ACCRUED DEPREC.-- FACTOR (5)	AMOUNT (6)
HAINES JUNCTION					
INTERIM SURVIVOR CURVE.. IOWA 40-R3					
PROBABLE RETIREMENT YEAR.. 12-2053					
NET SALVAGE PERCENT.. 0					
1971	1,283.32	2.09	26.82	0.8464	1,086
1982	430.77	2.36	10.17	0.6962	300
2007	740.06	2.89	21.39	0.1300	96
	2,454.15		58.38		1,482
OLD CROW					
INTERIM SURVIVOR CURVE.. IOWA 40-R3					
PROBABLE RETIREMENT YEAR.. 12-2053					
NET SALVAGE PERCENT.. 0					
1971	334.88	2.09	7.00	0.8464	283
1982	430.77	2.36	10.17	0.6962	300
1991	845.54	2.55	21.56	0.5228	442
1992	89,611.14	2.57	2,303.01	0.5012	44,913
1996	76.70	2.64	2.02	0.4092	31
1998	25,966.14	2.68	695.89	0.3618	9,395
2004	51,464.79	2.80	1,441.01	0.2100	10,808
2007	2,765.55	2.89	79.92	0.1300	360
	171,495.51		4,560.58		66,532
PELLELY CROSSING					
INTERIM SURVIVOR CURVE.. IOWA 40-R3					
PROBABLE RETIREMENT YEAR.. 12-2033					
NET SALVAGE PERCENT.. 0					
1971	63.84	2.09	1.33	0.8464	54
1982	2,232.98	2.38	53.14	0.7021	1,568
1991	23,272.01	2.70	628.34	0.5535	12,881
1992	1,386.99	2.74	38.00	0.5343	741
2003	3,889.87	3.53	137.31	0.3000	1,167
2004	3,511.59	3.63	127.47	0.2722	956
2007	7,139.56	4.01	286.30	0.1804	1,288
2009	11,771.71	4.32	508.54	0.1080	1,271
2011	8,216.80	4.74	389.48	0.0237	195
	61,485.35		2,169.91		20,121

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 447.00 - MISCELLANEOUS POWER PLANT EQUIPMENT - DIESEL

CALCULATED ANNUAL AND ACCRUED DEPRECIATION
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2011

YEAR (1)	ORIGINAL COST (2)	--ANNUAL ACCRUAL-- RATE (3)	AMOUNT (4)	--ACCRUED DEPREC.-- FACTOR (5)	AMOUNT (6)
ROSS RIVER					
INTERIM SURVIVOR CURVE.. IOWA 40-R3					
PROBABLE RETIREMENT YEAR.. 12-2053					
NET SALVAGE PERCENT.. 0					
1971	388.01	2.09	8.11	0.8464	328
1982	430.77	2.36	10.17	0.6962	300
2007	8,820.43	2.89	254.91	0.1300	1,147
	9,639.21		273.19		1,775
STEWART CROSSING					
INTERIM SURVIVOR CURVE.. IOWA 40-R3					
PROBABLE RETIREMENT YEAR.. 12-2053					
NET SALVAGE PERCENT.. 0					
1971	136.08	2.09	2.84	0.8464	115
1982	2,482.06	2.36	58.58	0.6962	1,728
1992	1,243.54	2.57	31.96	0.5012	623
2003	7,000.23	2.78	194.61	0.2363	1,654
2004	1,395.10	2.80	39.06	0.2100	293
2009	24,862.34	2.96	735.93	0.0740	1,840
2011	47,562.55	3.09	1,469.68	0.0154	732
	84,681.90		2,532.66		6,985
SWIFT RIVER					
INTERIM SURVIVOR CURVE.. IOWA 40-R3					
PROBABLE RETIREMENT YEAR.. 12-2053					
NET SALVAGE PERCENT.. 0					
1982	430.31	2.36	10.16	0.6962	300
1998	1,482.16	2.68	39.72	0.3618	536
2003	9,559.27	2.78	265.75	0.2363	2,259
2004	452.22	2.80	12.66	0.2100	95
	11,923.96		328.29		3,190

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 447.00 - MISCELLANEOUS POWER PLANT EQUIPMENT - DIESEL

CALCULATED ANNUAL AND ACCRUED DEPRECIATION
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2011

YEAR (1)	ORIGINAL COST (2)	--ANNUAL ACCRUAL-- RATE (3)	AMOUNT (4)	--ACCRUED DEPREC.-- FACTOR (5)	AMOUNT (6)
TESLIN					
INTERIM SURVIVOR CURVE.. IOWA 40-R3					
PROBABLE RETIREMENT YEAR.. 12-2053					
NET SALVAGE PERCENT.. 0					
1982	430.77	2.36	10.17	0.6962	300
2007	69,113.54	2.89	1,997.38	0.1300	8,985
2009	233.79	2.96	6.92	0.0740	17
	69,778.10		2,014.47		9,302

WATSON LAKE					
INTERIM SURVIVOR CURVE.. IOWA 40-R3					
PROBABLE RETIREMENT YEAR.. 12-2113					
NET SALVAGE PERCENT.. 0					
1971	963.89	2.09	20.15	0.8464	816
1979	2,627.48	2.29	60.17	0.7442	1,955
1982	12,722.46	2.36	300.25	0.6962	8,857
1987	14,434.04	2.47	356.52	0.6052	8,735
1997	54,613.60	2.66	1,452.72	0.3857	21,064
1999	8,046.80	2.69	216.46	0.3362	2,705
2000	1,450.00	2.71	39.30	0.3116	452
2007	112,714.67	2.82	3,178.55	0.1269	14,303
2008	26,941.49	2.84	765.14	0.0994	2,678
2011	23,915.13	2.95	705.50	0.0148	354
	258,429.56		7,094.76		61,919

MOBILES					
SURVIVOR CURVE.. IOWA 40-R3					
NET SALVAGE PERCENT.. 0					
2005	18,356.25	2.79	512.14	0.1814	3,330
2006	27,067.90	2.80	757.90	0.1540	4,168
2007	32,689.60	2.82	921.85	0.1269	4,148
2010	5,364.03	2.89	155.02	0.0434	233
2011	8,691.73	2.95	256.41	0.0148	129
	92,169.51		2,603.32		12,008
	846,073.98		24,551.07		205,214

COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 2.90

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 457.00 - SUBSTATION EQUIPMENT

CALCULATED ANNUAL AND ACCRUED DEPRECIATION
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2011

YEAR (1)	ORIGINAL COST (2)	--ANNUAL ACCRUAL-- RATE (3)	AMOUNT (4)	--ACCRUED DEPREC.-- FACTOR (5)	AMOUNT (6)
SURVIVOR CURVE.. IOWA 50-R4					
NET SALVAGE PERCENT.. -10					
1957	8,481.84	1.67	155.81	0.9102	8,492
1960	3,229.85	1.73	61.46	0.8910	3,166
1961	657.80	1.75	12.66	0.8838	640
1963	1,015.95	1.78	19.89	0.8633	965
1964	213.85	1.80	4.23	0.8550	201
1965	410.15	1.82	8.21	0.8463	382
1966	62.60	1.83	1.26	0.8326	57
1967	5,878.36	1.85	119.62	0.8232	5,323
1968	14,018.01	1.86	286.81	0.8091	12,476
1969	25,261.00	1.87	519.62	0.7948	22,085
1970	17,772.00	1.89	369.48	0.7844	15,334
1971	3,930.00	1.90	82.14	0.7695	3,327
1974	41,250.75	1.94	880.29	0.7275	33,011
1975	143,608.80	1.95	3,080.41	0.7118	112,443
1981	8,150.00	2.01	180.20	0.6130	5,496
1982	3,210.00	2.02	71.33	0.5959	2,104
1984	9,590.00	2.04	215.20	0.5610	5,918
1985	14,603.26	2.05	329.30	0.5432	8,726
1986	43,015.79	2.06	974.74	0.5253	24,856
1988	21,596.39	2.07	491.75	0.4864	11,555
1989	18,476.14	2.07	420.70	0.4658	9,467
1992	231,307.73	2.09	5,317.76	0.4076	103,709
1993	460,428.37	2.09	10,585.25	0.3866	195,802
1996	147,978.24	2.10	3,418.30	0.3255	52,984
1997	94,152.91	2.11	2,185.29	0.3060	31,692
1999	62,040.09	2.11	1,439.95	0.2638	18,003
2000	4,081.39	2.11	94.73	0.2426	1,089
	1,384,421.27		31,326.39		689,303

COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 2.26

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 471.00 - LAND RIGHTS - DISTRIBUTION

CALCULATED ANNUAL AND ACCRUED DEPRECIATION
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2011

YEAR (1)	ORIGINAL COST (2)	--ANNUAL ACCRUAL-- RATE (3)	AMOUNT (4)	--ACCRUED DEPREC.-- FACTOR (5)	AMOUNT (6)
SURVIVOR CURVE.. IOWA 75-R3					
NET SALVAGE PERCENT.. 0					
1971	1,500.00	1.35	20.25	0.5468	820
1979	198.05	1.39	2.75	0.4518	89
1994	12,700.80	1.46	185.43	0.2555	3,245
1995	44,975.18	1.47	661.14	0.2426	10,911
1996	46,085.52	1.47	677.46	0.2278	10,498
1997	140,113.75	1.48	2,073.68	0.2146	30,068
1998	50,522.14	1.48	747.73	0.1998	10,094
1999	50,004.19	1.49	745.06	0.1862	9,311
2000	49,670.66	1.49	740.09	0.1714	8,514
2001	55,348.17	1.49	824.69	0.1564	8,656
2002	34,647.85	1.50	519.72	0.1425	4,937
2003	61,972.64	1.50	929.59	0.1275	7,902
2004	60,926.26	1.51	919.99	0.1132	6,897
2005	204,085.51	1.51	3,081.69	0.0982	20,041
2006	46,254.29	1.52	703.07	0.0836	3,867
2007	69,728.37	1.53	1,066.84	0.0688	4,797
2008	103,657.56	1.53	1,585.96	0.0536	5,556
2009	72,924.99	1.54	1,123.04	0.0385	2,808
2010	86,743.57	1.56	1,353.20	0.0234	2,030
2011	75,548.93	1.58	1,193.67	0.0079	597
	1,267,608.43		19,155.05		151,638

COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 1.51

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 473.00 - POLES, TOWERS AND FIXTURES - DISTRIBUTION

CALCULATED ANNUAL AND ACCRUED DEPRECIATION
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2011

YEAR (1)	ORIGINAL COST (2)	--ANNUAL ACCRUAL-- RATE (3)	AMOUNT (4)	--ACCRUED DEPREC.-- FACTOR (5)	AMOUNT (6)
SURVIVOR CURVE.. IOWA 45-R3					
NET SALVAGE PERCENT.. -75					
1958	3,014.82	1.70	89.69	0.9095	4,798
1959	3,422.64	1.72	103.02	0.9030	5,409
1960	64,066.35	1.74	1,950.82	0.8961	100,467
1961	22,262.77	1.76	685.69	0.8888	34,628
1962	17,904.69	1.78	557.73	0.8811	27,608
1963	22,736.58	1.80	716.20	0.8730	34,736
1964	25,528.25	1.82	813.07	0.8645	38,621
1965	24,225.28	1.84	780.05	0.8556	36,273
1966	70,219.67	1.86	2,285.65	0.8463	103,997
1967	36,246.48	1.88	1,192.51	0.8366	53,067
1968	96,667.60	1.90	3,214.20	0.8265	139,818
1969	106,747.78	1.92	3,586.73	0.8160	152,436
1970	16,023.49	1.94	544.00	0.8051	22,576
1971	18,709.16	1.96	641.72	0.7938	25,990
1972	129,825.22	1.98	4,498.44	0.7821	177,689
1973	98,707.41	2.00	3,454.76	0.7700	133,008
1974	89,544.20	2.02	3,165.39	0.7575	118,702
1975	146,445.21	2.04	5,228.09	0.7446	190,825
1976	96,229.81	2.06	3,469.08	0.7313	123,153
1977	240,706.63	2.07	8,719.60	0.7142	300,847
1978	212,027.14	2.09	7,754.89	0.7002	259,807
1979	200,296.24	2.11	7,395.94	0.6858	240,386
1980	108,769.20	2.13	4,054.37	0.6710	127,722
1981	129,163.87	2.14	4,837.19	0.6527	147,534
1982	354,099.48	2.16	13,384.96	0.6372	394,856
1983	135,039.76	2.18	5,151.77	0.6213	146,825
1984	273,619.23	2.19	10,486.46	0.6022	288,354
1985	754,437.87	2.21	29,177.88	0.5856	773,148
1986	279,561.30	2.22	10,860.96	0.5661	276,954
1987	417,946.08	2.24	16,383.49	0.5488	401,395
1988	333,623.95	2.26	13,194.83	0.5311	310,078
1989	575,010.94	2.27	22,842.31	0.5108	514,002
1990	1,110,346.89	2.29	44,497.15	0.4924	956,786
1991	782,222.41	2.30	31,484.45	0.4715	645,431
1992	1,164,266.14	2.32	47,269.21	0.4524	921,750
1993	1,574,269.86	2.33	64,190.85	0.4310	1,187,393
1994	1,005,504.27	2.35	41,351.36	0.4112	723,561
1995	900,750.05	2.36	37,200.98	0.3894	613,816
1996	899,513.01	2.37	37,307.30	0.3674	578,342
1997	770,189.70	2.39	32,213.18	0.3466	467,159
1998	679,543.24	2.40	28,540.82	0.3240	385,301
1999	766,596.42	2.41	32,331.20	0.3012	404,073
2000	612,683.04	2.43	26,054.35	0.2794	299,571
2001	636,466.49	2.44	27,177.12	0.2562	285,360
2002	985,772.90	2.45	42,265.01	0.2328	401,604

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 473.00 - POLES, TOWERS AND FIXTURES - DISTRIBUTION

CALCULATED ANNUAL AND ACCRUED DEPRECIATION
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2011

YEAR (1)	ORIGINAL COST (2)	--ANNUAL ACCRUAL-- RATE (3)	AMOUNT (4)	--ACCRUED DEPREC.-- FACTOR (5)	AMOUNT (6)
SURVIVOR CURVE.. IOWA 45-R3					
NET SALVAGE PERCENT.. -75					
2003	775,635.83	2.46	33,391.12	0.2091	283,825
2004	1,281,162.37	2.48	55,602.45	0.1860	417,018
2005	989,206.22	2.49	43,104.66	0.1618	280,094
2006	1,401,831.25	2.50	61,330.12	0.1375	337,316
2007	1,091,993.21	2.52	48,156.90	0.1134	216,706
2008	1,616,156.35	2.53	71,555.32	0.0886	250,585
2009	1,327,095.60	2.55	59,221.64	0.0638	148,170
2010	1,874,751.64	2.57	84,316.96	0.0386	126,639
2011	2,882,760.32	2.62	132,174.56	0.0131	66,087
	30,231,546.31		1,271,958.20		15,702,296
COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 4.21					

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 474.00 - OVERHEAD CONDUCTOR - DISTRIBUTION

CALCULATED ANNUAL AND ACCRUED DEPRECIATION
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2011

YEAR (1)	ORIGINAL COST (2)	--ANNUAL ACCRUAL-- RATE (3)	AMOUNT (4)	--ACCRUED DEPREC.-- FACTOR (5)	AMOUNT (6)
SURVIVOR CURVE.. IOWA 45-R4					
NET SALVAGE PERCENT.. -80					
1948	148.71	1.55	4.15	0.9842	263
1949	510.02	1.57	14.41	0.9812	901
1950	123.73	1.59	3.54	0.9778	218
1951	739.89	1.61	21.44	0.9740	1,297
1952	1,127.00	1.63	33.07	0.9698	1,967
1953	2,029.00	1.65	60.26	0.9652	3,525
1954	2,638.00	1.67	79.30	0.9602	4,559
1955	418.31	1.69	12.72	0.9548	719
1956	2,743.00	1.71	84.43	0.9490	4,686
1957	922.06	1.73	28.71	0.9428	1,565
1958	5,559.00	1.76	176.11	0.9416	9,422
1959	8,040.00	1.78	257.60	0.9345	13,524
1960	72,384.01	1.80	2,345.24	0.9270	120,780
1961	9,293.00	1.83	306.11	0.9242	15,459
1962	12,100.41	1.85	402.94	0.9158	19,947
1963	14,243.14	1.87	479.42	0.9070	23,253
1964	10,540.74	1.90	360.49	0.9025	17,123
1965	14,565.83	1.92	503.40	0.8928	23,408
1966	43,767.33	1.94	1,528.36	0.8827	69,540
1967	35,893.76	1.96	1,266.33	0.8722	56,352
1968	68,248.09	1.98	2,432.36	0.8613	105,808
1969	125,172.05	2.00	4,506.19	0.8500	191,513
1970	27,008.59	2.02	982.03	0.8383	40,754
1971	18,964.86	2.04	696.39	0.8262	28,204
1972	109,788.05	2.06	4,070.94	0.8137	160,802
1973	108,551.49	2.08	4,064.17	0.8008	156,470
1974	57,051.46	2.09	2,146.28	0.7838	80,490
1975	144,638.16	2.11	5,493.36	0.7702	200,521
1976	106,854.96	2.13	4,096.82	0.7562	145,447
1977	145,040.78	2.14	5,586.97	0.7383	192,750
1978	93,920.92	2.16	3,651.65	0.7236	122,330
1979	77,160.47	2.17	3,013.89	0.7052	97,944
1980	122,191.66	2.19	4,816.80	0.6898	151,718
1981	87,840.47	2.20	3,478.48	0.6710	106,094
1982	209,885.33	2.21	8,349.24	0.6520	246,321
1983	132,046.38	2.23	5,300.34	0.6356	151,072
1984	121,892.29	2.24	4,914.70	0.6160	135,154
1985	677,899.61	2.25	27,454.93	0.5962	727,495
1986	136,683.35	2.26	5,560.28	0.5763	141,787
1987	328,625.90	2.27	13,427.65	0.5562	329,007
1988	239,184.34	2.28	9,816.13	0.5358	230,679
1989	332,701.42	2.29	13,713.95	0.5152	308,534
1990	680,637.85	2.30	28,178.41	0.4945	605,836
1991	519,771.93	2.30	21,518.56	0.4715	441,130
1992	486,666.63	2.31	20,235.60	0.4504	394,550

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 474.00 - OVERHEAD CONDUCTOR - DISTRIBUTION

CALCULATED ANNUAL AND ACCRUED DEPRECIATION
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2011

YEAR (1)	ORIGINAL COST (2)	--ANNUAL ACCRUAL-- RATE (3)	AMOUNT (4)	--ACCRUED DEPREC.-- FACTOR (5)	AMOUNT (6)
SURVIVOR CURVE.. IOWA 45-R4					
NET SALVAGE PERCENT.. -80					
1993	792,959.72	2.32	33,114.00	0.4292	612,609
1994	463,654.51	2.32	19,362.21	0.4060	338,839
1995	357,845.36	2.33	15,008.03	0.3844	247,600
1996	560,475.87	2.33	23,506.36	0.3612	364,399
1997	521,699.29	2.34	21,973.97	0.3393	318,623
1998	410,383.42	2.34	17,285.35	0.3159	233,352
1999	410,977.25	2.34	17,310.36	0.2925	216,380
2000	479,332.56	2.35	20,275.77	0.2702	233,128
2001	472,747.67	2.35	19,997.23	0.2468	210,013
2002	511,085.75	2.35	21,618.93	0.2232	205,334
2003	423,598.69	2.35	17,918.22	0.1998	152,343
2004	778,010.48	2.35	32,909.84	0.1762	246,754
2005	793,470.21	2.36	33,706.61	0.1534	219,093
2006	1,160,619.99	2.36	49,303.14	0.1298	271,167
2007	1,581,317.34	2.36	67,174.36	0.1062	302,285
2008	1,517,742.62	2.36	64,473.71	0.0826	225,658
2009	942,790.65	2.36	40,049.75	0.0590	100,124
2010	1,356,461.25	2.36	57,622.47	0.0354	86,434
2011	1,583,225.80	2.37	67,540.41	0.0118	33,628
	20,514,612.41		855,624.87		10,498,681

COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 4.17

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 474.10 - OVERHEAD SERVICES - DISTRIBUTION

CALCULATED ANNUAL AND ACCRUED DEPRECIATION
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2011

YEAR (1)	ORIGINAL COST (2)	--ANNUAL ACCRUAL-- RATE (3)	AMOUNT (4)	--ACCRUED DEPREC.-- FACTOR (5)	AMOUNT (6)
SURVIVOR CURVE.. IOWA 45-R3					
NET SALVAGE PERCENT.. -10					
1945	2,203.16	1.45	35.14	0.9642	2,337
1946	414.58	1.47	6.70	0.9628	439
1947	476.35	1.49	7.81	0.9610	504
1948	569.49	1.50	9.40	0.9525	597
1949	673.48	1.52	11.26	0.9500	704
1950	808.02	1.54	13.69	0.9471	842
1951	900.65	1.56	15.46	0.9438	935
1952	1,366.00	1.58	23.74	0.9401	1,413
1953	2,459.00	1.60	43.28	0.9360	2,532
1954	3,197.00	1.61	56.62	0.9258	3,256
1955	2,771.00	1.63	49.68	0.9210	2,807
1956	3,325.00	1.65	60.35	0.9158	3,350
1957	3,592.00	1.67	65.99	0.9102	3,596
1958	1,170.00	1.70	21.88	0.9095	1,171
1959	1,533.00	1.72	29.00	0.9030	1,523
1960	1,560.00	1.74	29.86	0.8961	1,538
1961	1,791.78	1.76	34.69	0.8888	1,752
1962	5,328.00	1.78	104.32	0.8811	5,164
1963	2,524.00	1.80	49.98	0.8730	2,424
1964	4,560.00	1.82	91.29	0.8645	4,336
1965	3,229.00	1.84	65.35	0.8556	3,039
1966	4,597.36	1.86	94.06	0.8463	4,280
1967	7,481.00	1.88	154.71	0.8366	6,884
1968	8,000.00	1.90	167.20	0.8265	7,273
1969	7,521.50	1.92	158.85	0.8160	6,751
1970	11,754.13	1.94	250.83	0.8051	10,410
1971	12,073.93	1.96	260.31	0.7938	10,543
1972	12,957.01	1.98	282.20	0.7821	11,147
1973	14,692.86	2.00	323.24	0.7700	12,445
1974	20,167.00	2.02	448.11	0.7575	16,804
1975	34,619.23	2.04	776.86	0.7446	28,355
1976	37,678.27	2.06	853.79	0.7313	30,310
1977	42,422.26	2.07	965.95	0.7142	33,328
1978	62,182.03	2.09	1,429.56	0.7002	47,894
1979	52,049.79	2.11	1,208.08	0.6858	39,265
1980	43,273.51	2.13	1,013.90	0.6710	31,940
1981	53,231.36	2.14	1,253.07	0.6527	38,219
1982	30,980.05	2.16	736.09	0.6372	21,715
1983	40,503.38	2.18	971.27	0.6213	27,681
1984	40,236.69	2.19	969.30	0.6022	26,654
1985	32,685.06	2.21	794.57	0.5856	21,054
1986	51,608.88	2.22	1,260.29	0.5661	32,137
1987	67,879.82	2.24	1,672.56	0.5488	40,978
1988	66,613.00	2.26	1,656.00	0.5311	38,916
1989	81,267.48	2.27	2,029.25	0.5108	45,663

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 474.10 - OVERHEAD SERVICES - DISTRIBUTION

CALCULATED ANNUAL AND ACCRUED DEPRECIATION
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2011

YEAR (1)	ORIGINAL COST (2)	--ANNUAL ACCRUAL-- RATE (3)	AMOUNT (4)	--ACCRUED DEPREC.-- FACTOR (5)	AMOUNT (6)
SURVIVOR CURVE.. IOWA 45-R3					
NET SALVAGE PERCENT.. -10					
1990	89,672.48	2.29	2,258.85	0.4924	48,570
1991	108,151.36	2.30	2,736.23	0.4715	56,093
1992	163,702.21	2.32	4,177.68	0.4524	81,465
1993	112,072.14	2.33	2,872.41	0.4310	53,133
1994	64,781.32	2.35	1,674.60	0.4112	29,302
1995	55,117.61	2.36	1,430.85	0.3894	23,609
1997	45,912.56	2.39	1,207.04	0.3466	17,505
1998	46,874.69	2.40	1,237.49	0.3240	16,706
1999	40,693.10	2.41	1,078.77	0.3012	13,482
2000	33,672.14	2.43	900.06	0.2794	10,349
2001	25,583.05	2.44	686.65	0.2562	7,210
2002	59,316.63	2.45	1,598.58	0.2328	15,190
2003	55,673.16	2.46	1,506.52	0.2091	12,805
2004	68,225.83	2.48	1,861.20	0.1860	13,959
2005	63,429.49	2.49	1,737.33	0.1618	11,289
2006	136,065.53	2.50	3,741.80	0.1375	20,580
2007	191,840.99	2.52	5,317.83	0.1134	23,930
2008	225,262.76	2.53	6,269.06	0.0886	21,954
2009	129,908.59	2.55	3,643.94	0.0638	9,117
2010	31,334.64	2.57	885.83	0.0386	1,330
2011	221,235.12	2.62	6,376.00	0.0131	3,188
	2,849,452.51		73,754.26		1,125,671
COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 2.59					

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 475.00 - UNDERGROUND CONDUIT - DISTRIBUTION

CALCULATED ANNUAL AND ACCRUED DEPRECIATION
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2011

YEAR (1)	ORIGINAL COST (2)	--ANNUAL ACCRUAL-- RATE (3)	AMOUNT (4)	--ACCRUED DEPREC.-- FACTOR (5)	AMOUNT (6)
SURVIVOR CURVE.. IOWA 45-R3					
NET SALVAGE PERCENT.. -50					
1961	12.02	1.76	0.32	0.8888	16
1969	1,356.35	1.92	39.06	0.8160	1,660
1971	65.00	1.96	1.91	0.7938	77
1972	14,154.38	1.98	420.39	0.7821	16,605
1973	5,056.00	2.00	151.68	0.7700	5,840
1974	7,373.22	2.02	223.41	0.7575	8,378
1975	8,587.37	2.04	262.77	0.7446	9,591
1976	66,670.57	2.06	2,060.12	0.7313	73,134
1977	4,549.00	2.07	141.25	0.7142	4,873
1978	257,255.88	2.09	8,064.97	0.7002	270,196
1979	17,007.99	2.11	538.30	0.6858	17,496
1980	716,055.98	2.13	22,877.99	0.6710	720,710
1981	23,266.00	2.14	746.84	0.6527	22,779
1982	49,311.39	2.16	1,597.69	0.6372	47,132
1983	68,295.31	2.18	2,233.26	0.6213	63,648
1984	32,676.52	2.19	1,073.42	0.6022	29,517
1985	61,229.70	2.21	2,029.76	0.5856	53,784
1986	21,965.42	2.22	731.45	0.5661	18,652
1987	181,124.12	2.24	6,085.77	0.5488	149,101
1988	70,261.38	2.26	2,381.86	0.5311	55,974
1989	1,382,612.06	2.27	47,077.94	0.5108	1,059,357
1990	239,241.64	2.29	8,217.95	0.4924	176,704
1991	171,937.17	2.30	5,931.83	0.4715	121,603
1992	736,477.56	2.32	25,629.42	0.4524	499,774
1993	996,540.23	2.33	34,829.08	0.4310	644,263
1994	267,822.74	2.35	9,440.75	0.4112	165,193
1995	1,124,713.96	2.36	39,814.87	0.3894	656,945
1996	533,259.01	2.37	18,957.36	0.3674	293,879
1997	1,120,397.24	2.39	40,166.24	0.3466	582,495
1998	658,133.08	2.40	23,692.79	0.3240	319,853
1999	875,078.79	2.41	31,634.10	0.3012	395,361
2000	527,543.67	2.43	19,228.97	0.2794	221,094
2001	1,723,813.98	2.44	63,091.59	0.2562	662,462
2002	1,013,816.38	2.45	37,257.75	0.2328	354,025
2003	1,153,334.82	2.46	42,558.05	0.2091	361,743
2004	997,611.57	2.48	37,111.15	0.1860	278,334
2005	724,497.68	2.49	27,059.99	0.1618	175,836
2006	740,562.48	2.50	27,771.09	0.1375	152,741
2007	826,505.65	2.52	31,241.91	0.1134	140,589
2008	823,804.14	2.53	31,263.37	0.0886	109,484

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 475.00 - UNDERGROUND CONDUIT - DISTRIBUTION

CALCULATED ANNUAL AND ACCRUED DEPRECIATION
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2011

YEAR (1)	ORIGINAL COST (2)	--ANNUAL ACCRUAL-- RATE (3)	AMOUNT (4)	--ACCRUED DEPREC.-- FACTOR (5)	AMOUNT (6)
SURVIVOR CURVE.. IOWA 45-R3					
NET SALVAGE PERCENT.. -50					
2009	1,222,366.98	2.55	46,755.54	0.0638	116,981
2010	627,766.58	2.57	24,200.40	0.0386	36,348
2011	888,477.52	2.62	34,917.17	0.0131	17,459
	20,982,588.53		759,511.53		9,111,686
COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 3.62					

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 475.10 - UNDERGROUND SERVICES - DISTRIBUTION

CALCULATED ANNUAL AND ACCRUED DEPRECIATION
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2011

YEAR (1)	ORIGINAL COST (2)	--ANNUAL ACCRUAL-- RATE (3)	AMOUNT (4)	--ACCRUED DEPREC.-- FACTOR (5)	AMOUNT (6)
SURVIVOR CURVE.. IOWA 40-R4 NET SALVAGE PERCENT.. -10					
1978	8,805.65	2.35	227.63	0.7872	7,625
1979	16,155.81	2.37	421.18	0.7702	13,688
1980	5,116.57	2.39	134.51	0.7528	4,237
1981	14,328.30	2.41	379.84	0.7350	11,584
1982	6,135.87	2.43	164.01	0.7168	4,838
1983	4,112.25	2.45	110.83	0.6982	3,158
1984	6,049.74	2.47	164.37	0.6792	4,520
1985	2,467.31	2.49	67.58	0.6598	1,791
1986	47,595.84	2.50	1,308.89	0.6375	33,377
1987	64,385.16	2.52	1,784.76	0.6174	43,727
1988	55,348.04	2.53	1,540.34	0.5946	36,201
1989	64,252.19	2.54	1,795.21	0.5715	40,392
1990	63,917.48	2.56	1,799.92	0.5504	38,698
1991	85,692.58	2.57	2,422.53	0.5268	49,657
1992	151,300.89	2.58	4,293.92	0.5031	83,731
1993	198,187.47	2.59	5,646.36	0.4792	104,469
1994	84,909.93	2.60	2,428.42	0.4550	42,497
1995	123,873.01	2.61	3,556.39	0.4306	58,674
1996	226,325.88	2.61	6,497.82	0.4046	100,729
1997	125,671.06	2.62	3,621.84	0.3799	52,517
1998	99,659.29	2.62	2,872.18	0.3537	38,774
1999	72,633.75	2.63	2,101.29	0.3288	26,270
2000	15,457.57	2.63	447.19	0.3024	5,142
2001	64,800.69	2.64	1,881.81	0.2772	19,759
2002	71,681.66	2.64	2,081.64	0.2508	19,776
2003	75,033.52	2.64	2,178.97	0.2244	18,521
2004	206,861.36	2.65	6,030.01	0.1988	45,236
2005	148,375.29	2.65	4,325.14	0.1722	28,105
2006	233,234.91	2.65	6,798.80	0.1458	37,406
2007	163,236.52	2.65	4,758.34	0.1192	21,404
2008	95,096.67	2.65	2,772.07	0.0928	9,707
2009	39,357.36	2.66	1,151.60	0.0665	2,879
2010	94,836.76	2.66	2,774.92	0.0399	4,162
2011	218,180.81	2.66	6,383.97	0.0133	3,192
	2,953,077.19		84,924.28		1,016,443

COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 2.88

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 476.10 - METERS - DISTRIBUTION

CALCULATED ANNUAL AND ACCRUED DEPRECIATION
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2011

YEAR (1)	ORIGINAL COST (2)	--ANNUAL ACCRUAL-- RATE (3)	AMOUNT (4)	--ACCRUED DEPREC.-- FACTOR (5)	AMOUNT (6)
SURVIVOR CURVE.. IOWA 15-L0					
NET SALVAGE PERCENT.. 0					
1970	18.15	2.25	0.41	0.9338	17
1971	4,291.77	2.30	98.71	0.9315	3,998
1972	4,159.27	2.34	97.33	0.9243	3,844
1973	4,922.20	2.39	117.64	0.9202	4,529
1974	1,065.68	2.44	26.00	0.9150	975
1975	10,392.34	2.49	258.77	0.9088	9,445
1976	3,532.46	2.55	90.08	0.9052	3,198
1977	2,160.36	2.61	56.39	0.9004	1,945
1978	3,961.72	2.66	105.38	0.8911	3,530
1979	468.92	2.73	12.80	0.8872	416
1980	4,344.54	2.79	121.21	0.8788	3,818
1981	3,588.21	2.86	102.62	0.8723	3,130
1982	5,232.71	2.93	153.32	0.8644	4,523
1983	562.52	3.00	16.88	0.8550	481
1984	2,268.84	3.08	69.88	0.8470	1,922
1985	4,581.74	3.16	144.78	0.8374	3,837
1986	4,570.19	3.25	148.53	0.8288	3,788
1987	8,609.54	3.34	287.56	0.8183	7,045
1988	11,962.73	3.44	411.52	0.8084	9,671
1989	35,899.48	3.54	1,270.84	0.7965	28,594
1990	12,441.33	3.65	454.11	0.7848	9,764
1991	11,062.14	3.76	415.94	0.7708	8,527
1992	35,072.97	3.88	1,360.83	0.7566	26,536
1993	62,568.13	4.01	2,508.98	0.7418	46,413
1994	6,205.20	4.15	257.52	0.7262	4,506
1995	9,796.96	4.30	421.27	0.7095	6,951
1996	8,617.32	4.46	384.33	0.6913	5,957
1997	20,081.35	4.64	931.77	0.6728	13,511
1998	95,664.33	4.82	4,611.02	0.6507	62,249
1999	71,622.77	5.03	3,602.63	0.6288	45,036
2000	110,805.59	5.26	5,828.37	0.6049	67,026
2001	38,275.23	5.51	2,108.97	0.5786	22,146
2002	38,701.01	5.79	2,240.79	0.5500	21,286
2003	109,974.70	6.10	6,708.46	0.5185	57,022
2004	120,520.80	6.46	7,785.64	0.4845	58,392
2005	15,995.63	6.87	1,098.90	0.4466	7,144
2006	8,685.31	7.36	639.24	0.4048	3,516
2007	39,317.09	7.94	3,121.78	0.3573	14,048
2008	18,765.20	8.66	1,625.07	0.3031	5,688

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 476.10 - METERS - DISTRIBUTION

CALCULATED ANNUAL AND ACCRUED DEPRECIATION
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2011

YEAR (1)	ORIGINAL COST (2)	--ANNUAL ACCRUAL-- RATE (3)	AMOUNT (4)	--ACCRUED DEPREC.-- FACTOR (5)	AMOUNT (6)
SURVIVOR CURVE.. IOWA 15-L0					
NET SALVAGE PERCENT.. 0					
2009	15,676.06	9.58	1,501.77	0.2395	3,754
2010	482,401.74	10.87	52,437.07	0.1630	78,631
2011	235,141.02	13.19	31,015.10	0.0660	15,519
	1,683,985.25		134,650.21		682,328
COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 8.00					

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 476.30 - AMR METERS - DISTRIBUTION

CALCULATED ANNUAL AND ACCRUED DEPRECIATION
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2011

YEAR (1)	ORIGINAL COST (2)	--ANNUAL ACCRUAL-- RATE (3)	AMOUNT (4)	--ACCRUED DEPREC.-- FACTOR (5)	AMOUNT (6)
SURVIVOR CURVE.. IOWA 15-R2.5					
NET SALVAGE PERCENT.. 0					
2007	7,789.88	7.26	565.55	0.3267	2,545
2008	29,425.21	7.45	2,192.18	0.2608	7,674
2009	11,869.27	7.67	910.37	0.1918	2,277
2010	12,710.93	7.94	1,009.25	0.1191	1,514
2011	5,851.04	8.50	497.34	0.0425	249
	67,646.33		5,174.69		14,259

COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 7.65

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 477.10 - SUBSTATION EQUIPMENT - DISTRIBUTION

CALCULATED ANNUAL AND ACCRUED DEPRECIATION
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2011

YEAR (1)	ORIGINAL COST (2)	--ANNUAL ACCRUAL-- RATE (3)	AMOUNT (4)	--ACCRUED DEPREC.-- FACTOR (5)	AMOUNT (6)
SURVIVOR CURVE.. IOWA 40-R4					
NET SALVAGE PERCENT.. -10					
1960	3,631.70	1.87	74.70	0.9630	3,847
1968	16,606.00	2.10	383.60	0.9135	16,687
1969	882.00	2.13	20.67	0.9052	878
1971	39,959.05	2.18	958.22	0.8829	38,808
1972	2,089.52	2.21	50.80	0.8730	2,007
1973	56,550.00	2.24	1,393.39	0.8624	53,646
1974	446.22	2.26	11.09	0.8475	416
1976	333,091.33	2.31	8,463.85	0.8200	300,448
1977	70,884.17	2.33	1,816.76	0.8038	62,674
1979	14,954.00	2.37	389.85	0.7702	12,669
1980	80,834.73	2.39	2,125.15	0.7528	66,938
1981	126,329.84	2.41	3,349.00	0.7350	102,138
1985	43,522.68	2.49	1,192.09	0.6598	31,588
1986	118,315.85	2.50	3,253.69	0.6375	82,969
1987	335,797.16	2.52	9,308.30	0.6174	228,053
1988	60,907.24	2.53	1,695.05	0.5946	39,837
1989	36,582.03	2.54	1,022.10	0.5715	22,997
1990	132,200.60	2.56	3,722.77	0.5504	80,040
1991	259,920.34	2.57	7,347.95	0.5268	150,619
1992	98,578.56	2.58	2,797.66	0.5031	54,554
1993	166,934.17	2.59	4,755.95	0.4792	87,994
1994	41,680.13	2.60	1,192.05	0.4550	20,861
1996	196,092.49	2.61	5,629.82	0.4046	87,273
1997	1,451.70	2.62	41.84	0.3799	607
1999	46,617.77	2.63	1,348.65	0.3288	16,861
2000	79,093.83	2.63	2,288.18	0.3024	26,310
2001	253,074.36	2.64	7,349.28	0.2772	77,167
2005	491,706.97	2.65	14,333.26	0.1722	93,139
2006	22,338.61	2.65	651.17	0.1458	3,583
	3,131,073.05		86,966.89		1,765,608

COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 2.78

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 478.10 - STREET LIGHTS AND SIGNAL SYSTEMS - DISTRIBUTION

CALCULATED ANNUAL AND ACCRUED DEPRECIATION
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2011

YEAR (1)	ORIGINAL COST (2)	--ANNUAL ACCRUAL-- RATE (3)	AMOUNT (4)	--ACCRUED DEPREC.-- FACTOR (5)	AMOUNT (6)
SURVIVOR CURVE.. IOWA 30-R3					
NET SALVAGE PERCENT.. -10					
1974	4,057.78	2.46	109.80	0.9225	4,118
1975	230.46	2.51	6.36	0.9162	232
1977	42,389.29	2.60	1,212.33	0.8970	41,826
1978	22,260.89	2.64	646.46	0.8844	21,656
1979	15,471.24	2.69	457.79	0.8742	14,877
1980	184,650.87	2.74	5,565.38	0.8631	175,309
1981	28,488.46	2.79	874.31	0.8510	26,668
1982	69,549.87	2.83	2,165.09	0.8348	63,866
1983	113,988.36	2.88	3,611.15	0.8208	102,918
1984	98,481.92	2.92	3,163.24	0.8030	86,989
1985	29,194.06	2.96	950.56	0.7844	25,190
1986	348,615.98	3.01	11,542.68	0.7676	294,357
1987	137,151.99	3.05	4,601.45	0.7472	112,728
1988	209,962.68	3.09	7,136.63	0.7262	167,722
1989	572,762.96	3.13	19,720.23	0.7042	443,674
1990	271,383.70	3.17	9,463.15	0.6816	203,473
1991	222,337.62	3.21	7,850.74	0.6580	160,928
1992	89,796.68	3.25	3,210.23	0.6338	62,604
1993	353,801.93	3.28	12,765.17	0.6068	236,156
1994	247,288.34	3.32	9,030.97	0.5810	158,042
1995	310,528.34	3.36	11,477.13	0.5544	189,373
1996	107,223.57	3.39	3,998.37	0.5254	61,969
1997	413,878.23	3.42	15,570.10	0.4959	225,766
1998	217,759.97	3.46	8,287.94	0.4671	111,887
1999	251,341.73	3.49	9,649.01	0.4362	120,599
2000	210,200.54	3.52	8,138.96	0.4048	93,598
2001	356,557.44	3.55	13,923.57	0.3728	146,217
2002	195,535.23	3.58	7,700.18	0.3401	73,152
2003	588,194.07	3.61	23,357.19	0.3068	198,504
2004	504,727.00	3.64	20,209.27	0.2730	151,570
2005	109,056.61	3.67	4,402.62	0.2386	28,623
2006	799,992.38	3.70	32,559.69	0.2035	179,078
2007	524,616.74	3.73	21,525.02	0.1678	96,834
2008	217,945.03	3.76	9,014.21	0.1316	31,550
2009	584,538.96	3.79	24,369.43	0.0948	60,956
2010	196,401.93	3.83	8,274.41	0.0574	12,401
2011	497,158.76	3.91	21,382.80	0.0196	10,719
	9,147,521.61		347,923.62		4,196,129

COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 3.80

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 478.20 - SENTINEL LIGHTS - DISTRIBUTION

CALCULATED ANNUAL AND ACCRUED DEPRECIATION
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2011

YEAR (1)	ORIGINAL COST (2)	--ANNUAL ACCRUAL-- RATE (3)	AMOUNT (4)	--ACCRUED DEPREC.-- FACTOR (5)	AMOUNT (6)
SURVIVOR CURVE.. IOWA 23-R2					
NET SALVAGE PERCENT.. 0					
1967	2,516.28			1.0000	2,516
1973	1,471.00	2.53	37.22	0.9740	1,433
1974	19,675.00	2.58	507.62	0.9675	19,036
1975	4,754.00	2.62	124.55	0.9563	4,546
1976	14,852.76	2.68	398.05	0.9514	14,131
1977	10,540.00	2.73	287.74	0.9418	9,927
1978	16,073.00	2.78	446.83	0.9313	14,969
1979	29,321.00	2.84	832.72	0.9230	27,063
1980	18,970.00	2.90	550.13	0.9135	17,329
1981	17,037.00	2.96	504.30	0.9028	15,381
1982	9,135.00	3.03	276.79	0.8938	8,165
1983	10,835.00	3.09	334.80	0.8806	9,541
1984	19,067.94	3.16	602.55	0.8690	16,570
1985	10,529.38	3.23	340.10	0.8560	9,013
1986	31,912.79	3.30	1,053.12	0.8415	26,855
1987	14,211.05	3.37	478.91	0.8256	11,733
1988	13,496.10	3.44	464.27	0.8084	10,910
1989	7,391.51	3.51	259.44	0.7898	5,838
1990	3,329.07	3.58	119.18	0.7697	2,562
1991	2,562.75	3.66	93.80	0.7503	1,923
1992	10,584.67	3.73	394.81	0.7274	7,699
1993	152.13	3.80	5.78	0.7030	107
1997	15,872.16	4.11	652.35	0.5960	9,460
1999	448.69	4.27	19.16	0.5338	240
	284,738.28		8,784.22		246,947

COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 3.09

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 479.10 - LINE TRANSFORMERS - DISTRIBUTION

CALCULATED ANNUAL AND ACCRUED DEPRECIATION
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2011

YEAR (1)	ORIGINAL COST (2)	--ANNUAL ACCRUAL-- RATE (3)	AMOUNT (4)	--ACCRUED DEPREC.-- FACTOR (5)	AMOUNT (6)
SURVIVOR CURVE.. IOWA 45-R3					
NET SALVAGE PERCENT.. -10					
1946	226.33	1.47	3.66	0.9628	240
1947	1,242.88	1.49	20.37	0.9610	1,314
1948	1,616.79	1.50	26.68	0.9525	1,694
1950	28.96	1.54	0.49	0.9471	30
1951	15,498.02	1.56	265.95	0.9438	16,090
1952	20,900.00	1.58	363.24	0.9401	21,613
1953	2,758.00	1.60	48.54	0.9360	2,840
1954	5,453.44	1.61	96.58	0.9258	5,554
1955	21,326.43	1.63	382.38	0.9210	21,606
1956	3,729.00	1.65	67.68	0.9158	3,757
1958	2,255.00	1.70	42.17	0.9095	2,256
1959	18,726.00	1.72	354.30	0.9030	18,601
1960	37,058.01	1.74	709.29	0.8961	36,528
1961	10,822.00	1.76	209.51	0.8888	10,580
1962	9,436.00	1.78	184.76	0.8811	9,145
1963	24,530.00	1.80	485.69	0.8730	23,556
1964	6,995.00	1.82	140.04	0.8645	6,652
1965	13,727.00	1.84	277.83	0.8556	12,919
1966	36,590.20	1.86	748.64	0.8463	34,063
1967	62,470.06	1.88	1,291.88	0.8366	57,489
1968	178,530.55	1.90	3,731.29	0.8265	162,311
1969	37,843.96	1.92	799.26	0.8160	33,969
1970	47,642.66	1.94	1,016.69	0.8051	42,193
1971	67,977.76	1.96	1,465.60	0.7938	59,357
1972	78,104.06	1.98	1,701.11	0.7821	67,194
1973	67,293.83	2.00	1,480.46	0.7700	56,998
1974	69,239.74	2.02	1,538.51	0.7575	57,694
1975	105,252.50	2.04	2,361.87	0.7446	86,208
1976	70,666.88	2.06	1,601.31	0.7313	56,847
1977	93,514.46	2.07	2,129.32	0.7142	73,467
1978	141,818.02	2.09	3,260.40	0.7002	109,231
1979	191,093.76	2.11	4,435.29	0.6858	144,157
1980	191,440.72	2.13	4,485.46	0.6710	141,302
1981	185,345.66	2.14	4,363.04	0.6527	133,073
1982	125,172.27	2.16	2,974.09	0.6372	87,736
1983	65,923.13	2.18	1,580.84	0.6213	45,054
1984	57,612.00	2.19	1,387.87	0.6022	38,163
1985	202,526.99	2.21	4,923.43	0.5856	130,460
1986	205,124.37	2.22	5,009.14	0.5661	127,733
1987	505,597.46	2.24	12,457.92	0.5488	305,219
1988	306,132.88	2.26	7,610.46	0.5311	178,846
1989	485,270.58	2.27	12,117.21	0.5108	272,664
1990	725,712.71	2.29	18,280.70	0.4924	393,075
1991	767,112.63	2.30	19,407.95	0.4715	397,863
1992	770,960.71	2.32	19,674.92	0.4524	383,661

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 479.10 - LINE TRANSFORMERS - DISTRIBUTION

CALCULATED ANNUAL AND ACCRUED DEPRECIATION
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2011

YEAR (1)	ORIGINAL COST (2)	--ANNUAL ACCRUAL-- RATE (3)	AMOUNT (4)	--ACCRUED DEPREC.-- FACTOR (5)	AMOUNT (6)
SURVIVOR CURVE.. IOWA 45-R3					
NET SALVAGE PERCENT.. -10					
1993	941,284.95	2.33	24,125.13	0.4310	446,263
1994	504,127.56	2.35	13,031.70	0.4112	228,027
1995	470,411.85	2.36	12,211.89	0.3894	201,496
1996	655,953.00	2.37	17,100.69	0.3674	265,097
1997	483,875.09	2.39	12,721.08	0.3466	184,482
1998	494,985.10	2.40	13,067.61	0.3240	176,413
1999	375,346.25	2.41	9,950.43	0.3012	124,360
2000	591,914.63	2.43	15,821.88	0.2794	181,919
2001	574,603.49	2.44	15,422.36	0.2562	161,935
2002	539,849.29	2.45	14,548.94	0.2328	138,245
2003	740,255.14	2.46	20,031.30	0.2091	170,266
2004	737,246.07	2.48	20,112.07	0.1860	150,841
2005	1,390,573.02	2.49	38,087.80	0.1618	247,494
2006	1,480,794.08	2.50	40,721.84	0.1375	223,970
2007	1,586,755.13	2.52	43,984.85	0.1134	197,932
2008	1,953,714.12	2.53	54,371.86	0.0886	190,409
2009	1,715,673.49	2.55	48,124.64	0.0638	120,406
2010	1,410,673.11	2.57	39,879.73	0.0386	59,897
2011	1,741,434.38	2.62	50,188.14	0.0131	25,094
24,427,769.16		649,017.76		7,365,548	

COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 2.66

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 482.00 - STRUCTURES AND IMPROVEMENTS - GENERAL PLANT

CALCULATED ANNUAL AND ACCRUED DEPRECIATION
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2011

YEAR (1)	ORIGINAL COST (2)	--ANNUAL ACCRUAL-- RATE (3)	AMOUNT (4)	--ACCRUED DEPREC.-- FACTOR (5)	AMOUNT (6)
SURVIVOR CURVE.. IOWA 40-L3					
NET SALVAGE PERCENT.. 0					
1972	59,482.48	2.00	1,189.65	0.7900	46,991
1973	16,635.00	2.04	339.35	0.7854	13,065
1974	46,735.00	2.08	972.09	0.7800	36,453
1976	1,500.00	2.16	32.40	0.7668	1,150
1977	1,015.00	2.19	22.23	0.7556	767
1979	14,807.00	2.27	336.12	0.7378	10,925
1981	12,462.00	2.35	292.86	0.7168	8,933
1982	21,706.00	2.39	518.77	0.7050	15,303
1984	24,285.00	2.46	597.41	0.6765	16,429
1986	2,778.08	2.53	70.29	0.6452	1,792
1987	379,195.74	2.55	9,669.49	0.6248	236,921
1988	87,857.59	2.58	2,266.73	0.6063	53,268
1989	3,500.00	2.61	91.35	0.5872	2,055
1990	45,253.00	2.63	1,190.15	0.5654	25,586
1991	1,424,433.43	2.65	37,747.49	0.5432	773,752
1992	300,985.15	2.67	8,036.30	0.5206	156,693
1993	117,588.04	2.69	3,163.12	0.4976	58,512
1994	58,849.20	2.71	1,594.81	0.4742	27,906
1995	33,602.05	2.72	913.98	0.4488	15,081
1996	25,776.27	2.74	706.27	0.4247	10,947
1997	55,730.18	2.75	1,532.58	0.3988	22,225
1998	83,574.87	2.77	2,315.02	0.3740	31,257
1999	9,019.44	2.78	250.74	0.3475	3,134
2000	50,931.86	2.79	1,421.00	0.3208	16,339
2001	47,503.75	2.80	1,330.10	0.2940	13,966
2002	25,441.90	2.81	714.92	0.2670	6,793
2003	46,885.37	2.82	1,322.17	0.2397	11,238
2004	48,669.62	2.82	1,372.48	0.2115	10,294
2005	3,289.66	2.82	92.77	0.1833	603
2006	83,642.46	2.83	2,367.08	0.1556	13,015
2007	12,536.74	2.83	354.79	0.1274	1,597
2008	76,031.98	2.83	2,151.71	0.0990	7,527
2009	74,558.63	2.83	2,110.01	0.0708	5,279
2010	98,128.40	2.83	2,777.03	0.0424	4,161
2011	64,924.42	2.83	1,837.36	0.0142	922
	3,459,315.31		91,700.62		1,660,879

COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 2.65

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 483.00 - OFFICE FURNITURE AND EQUIPMENT - GENERAL PLANT

CALCULATED ANNUAL AND ACCRUED DEPRECIATION
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2011

YEAR (1)	ORIGINAL COST (2)	--ANNUAL ACCRUAL-- RATE (3)	AMOUNT (4)	--ACCRUED DEPREC.-- FACTOR (5)	AMOUNT (6)
SURVIVOR CURVE.. 15-SQUARE					
NET SALVAGE PERCENT.. 0					
1988	834.92			1.0000	835
1989	2,150.48			1.0000	2,150
1990	1,503.14			1.0000	1,503
1991	2,966.04			1.0000	2,966
1992	909.82			1.0000	910
1993	378.67			1.0000	379
1996	7,412.16			1.0000	7,412
1997	2,902.53	6.67	193.60	0.9667	2,806
1998	13,797.39	6.67	920.29	0.9000	12,418
1999	9,644.27	6.67	643.27	0.8333	8,037
2000	2,749.22	6.67	183.37	0.7667	2,108
2001	5,644.80	6.67	376.51	0.7000	3,951
2004	2,243.36	6.67	149.63	0.5000	1,122
2005	10,922.40	6.67	728.52	0.4333	4,733
2006	5,995.34	6.67	399.89	0.3667	2,198
2007	10,018.97	6.67	668.27	0.3000	3,006
2008	10,493.44	6.67	699.91	0.2333	2,448
2009	858.00	6.67	57.23	0.1667	143
2010	10,095.47	6.67	673.37	0.1000	1,010
2011	71,272.97	6.67	4,753.91	0.0333	2,376
	172,793.39		10,447.77		62,511

COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 6.05

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 483.20 - COMPUTER EQUIPMENT AND ACCESSORIES - GENERAL PLANT

CALCULATED ANNUAL AND ACCRUED DEPRECIATION
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2011

YEAR (1)	ORIGINAL COST (2)	--ANNUAL ACCRUAL-- RATE (3)	AMOUNT (4)	--ACCRUED DEPREC.-- FACTOR (5)	AMOUNT (6)
SURVIVOR CURVE.. 5-SQUARE					
NET SALVAGE PERCENT.. 0					
2004	74.62			1.0000	75
2006	2,646.27			1.0000	2,646
2007	299.99	20.00	60.00	0.9000	270
2008	2,677.00	20.00	535.40	0.7000	1,874
2009	1,308.00	20.00	261.60	0.5000	654
2010	4,466.89	20.00	893.38	0.3000	1,340
2011	35,893.75	20.00	7,178.75	0.1000	3,589
	47,366.52		8,929.13		10,448
COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 18.85					

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 484.00 - TRANSPORTATION AND MOBILE EQUIPMENT - GENERAL PLANT

CALCULATED ANNUAL AND ACCRUED DEPRECIATION
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2011

YEAR (1)	ORIGINAL COST (2)	--ANNUAL ACCRUAL-- RATE (3)	AMOUNT (4)	--ACCRUED DEPREC.-- FACTOR (5)	AMOUNT (6)
SURVIVOR CURVE.. IOWA 12-L0					
NET SALVAGE PERCENT.. +25					
1984	474.75	3.27	11.64	0.8992	320
1986	3,385.00	3.46	87.84	0.8823	2,240
1988	4,868.01	3.67	133.99	0.8624	3,149
1989	34,390.39	3.79	977.55	0.8528	21,996
1990	58.50	3.92	1.72	0.8428	37
1991	12,221.00	4.05	371.21	0.8302	7,609
1993	32,789.25	4.34	1,067.29	0.8029	19,745
1994	156,818.41	4.51	5,304.38	0.7892	92,821
1995	15,460.68	4.68	542.67	0.7722	8,954
1996	173,521.43	4.88	6,350.88	0.7564	98,439
1997	66,433.55	5.08	2,531.12	0.7366	36,701
1998	13,106.81	5.31	521.98	0.7168	7,046
1999	122,619.76	5.55	5,104.05	0.6938	63,805
2000	8,679.83	5.83	379.53	0.6704	4,364
2001	244,021.20	6.13	11,218.87	0.6436	117,789
2002	195,342.59	6.46	9,464.35	0.6137	89,911
2003	8,923.42	6.85	458.44	0.5822	3,896
2004	14,617.59	7.28	798.12	0.5460	5,986
2005	166,758.22	7.79	9,742.85	0.5064	63,335
2006	151,016.59	8.39	9,502.72	0.4614	52,259
2007	470,336.39	9.13	32,206.28	0.4108	144,911
2008	137,140.79	10.04	10,326.70	0.3514	36,143
2009	165,961.58	11.23	13,978.11	0.2808	34,952
2010	308,325.84	12.93	29,899.90	0.1940	44,861
2011	53,875.44	16.05	6,485.26	0.0802	3,241
	2,561,147.02		157,467.45		964,510

COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 6.15

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 485.00 - TOOLS AND INSTRUMENTS - GENERAL PLANT

CALCULATED ANNUAL AND ACCRUED DEPRECIATION
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2011

YEAR (1)	ORIGINAL COST (2)	--ANNUAL ACCRUAL-- RATE (3)	AMOUNT (4)	--ACCRUED DEPREC.-- FACTOR (5)	AMOUNT (6)
SURVIVOR CURVE.. 15-SQUARE					
NET SALVAGE PERCENT.. 0					
1991	3,238.21			1.0000	3,238
1992	156.97			1.0000	157
1993	1,288.17			1.0000	1,288
1994	3,064.70			1.0000	3,065
1995	1,070.05			1.0000	1,070
1996	10,038.84			1.0000	10,039
1997	8,816.70	6.67	588.07	0.9667	8,523
1998	18,273.33	6.67	1,218.83	0.9000	16,446
1999	63,438.59	6.67	4,231.35	0.8333	52,865
2000	6,165.19	6.67	411.22	0.7667	4,727
2001	8,154.41	6.67	543.90	0.7000	5,708
2002	87,515.51	6.67	5,837.28	0.6333	55,426
2003	23,582.40	6.67	1,572.95	0.5667	13,363
2004	36,733.49	6.67	2,450.12	0.5000	18,367
2005	17,543.91	6.67	1,170.18	0.4333	7,602
2006	55,899.76	6.67	3,728.51	0.3667	20,497
2007	48,284.13	6.67	3,220.55	0.3000	14,485
2008	45,514.89	6.67	3,035.84	0.2333	10,620
2009	37,388.92	6.67	2,493.84	0.1667	6,232
2010	176,091.78	6.67	11,745.32	0.1000	17,609
2011	66,923.57	6.67	4,463.80	0.0333	2,231
	719,183.52		46,711.76		273,558

COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 6.50

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 486.00 - COMMUNICATION EQUIPMENT - GENERAL PLANT

CALCULATED ANNUAL AND ACCRUED DEPRECIATION
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2011

YEAR (1)	ORIGINAL COST (2)	--ANNUAL ACCRUAL-- RATE (3)	AMOUNT (4)	--ACCRUED DEPREC.-- FACTOR (5)	AMOUNT (6)
SURVIVOR CURVE.. 15-SQUARE					
NET SALVAGE PERCENT.. 0					
1981	12,328.84			1.0000	12,329
1982	997.00			1.0000	997
1983	2,693.00			1.0000	2,693
1985	7,145.00			1.0000	7,145
1986	5,470.00			1.0000	5,470
1987	654.46			1.0000	654
1988	3,067.50			1.0000	3,068
1989	6,505.50			1.0000	6,506
1990	12,083.42			1.0000	12,083
1991	5,466.50			1.0000	5,466
1992	8,287.00			1.0000	8,287
1993	4,525.80			1.0000	4,526
1994	37,148.37			1.0000	37,148
1995	8,886.16			1.0000	8,886
1996	12,061.22			1.0000	12,061
1997	32,424.05	6.67	2,162.68	0.9667	31,343
1998	4,662.16	6.67	310.97	0.9000	4,196
1999	179,948.08	6.67	12,002.54	0.8333	149,956
2000	19,678.50	6.67	1,312.56	0.7667	15,087
2001	11,510.86	6.67	767.77	0.7000	8,058
2002	5,582.26	6.67	372.34	0.6333	3,535
2003	649.95	6.67	43.35	0.5667	368
2004	1,628.00	6.67	108.59	0.5000	814
2005	9,903.90	6.67	660.59	0.4333	4,292
2006	41,356.93	6.67	2,758.51	0.3667	15,164
2007	54,141.89	6.67	3,611.26	0.3000	16,243
2008	59,380.00	6.67	3,960.65	0.2333	13,855
2009	47,209.25	6.67	3,148.86	0.1667	7,868
2010	228,077.07	6.67	15,212.74	0.1000	22,808
2011	49,368.98	6.67	3,292.91	0.0333	1,645
	872,841.65		49,726.32		422,551

COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 5.70

YUKON ELECTRICAL COMPANY LIMITED

ACCOUNT 488.20 - HOUSES - GENERAL PLANT

CALCULATED ANNUAL AND ACCRUED DEPRECIATION
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2011

YEAR (1)	ORIGINAL COST (2)	--ANNUAL ACCRUAL-- RATE (3)	AMOUNT (4)	--ACCRUED DEPREC.-- FACTOR (5)	AMOUNT (6)
SURVIVOR CURVE.. IOWA 40-R3					
NET SALVAGE PERCENT.. -10					
1981	5,448.00	2.34	140.23	0.7137	4,277
1983	3,328.00	2.38	87.13	0.6783	2,483
1986	12,922.45	2.44	346.84	0.6222	8,844
1988	27,878.53	2.49	763.59	0.5852	17,946
1989	2,150.47	2.51	59.37	0.5648	1,336
1993	9,630.81	2.58	273.32	0.4773	5,056
1994	131,354.79	2.60	3,756.75	0.4550	65,743
1995	1,870.05	2.62	53.89	0.4323	889
1996	12,740.02	2.64	369.97	0.4092	5,735
1997	17,391.56	2.66	508.88	0.3857	7,379
1999	46,813.85	2.69	1,385.22	0.3362	17,313
2000	8,693.67	2.71	259.16	0.3116	2,980
2003	3,969.00	2.76	120.50	0.2346	1,024
2005	21,131.34	2.79	648.52	0.1814	4,217
2006	50,584.94	2.80	1,558.02	0.1540	8,569
2007	51,201.54	2.82	1,588.27	0.1269	7,147
2008	56,889.23	2.84	1,777.22	0.0994	6,220
2009	1,543.92	2.86	48.57	0.0715	121
2010	7,346.76	2.89	233.55	0.0434	351
2011	367.33	2.95	11.92	0.0148	6
	473,256.26		13,990.92		167,636

COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 2.96

YUKON UTILITIES BOARD

Yukon Electrical Company Limited (YECL)

Electric Utility Assets

GENERAL RATE APPLICATION

**ADDITIONAL EVIDENCE OF
LARRY EDWIN KENNEDY
ON BEHALF OF
YECL**

REGARDING

**USE OF NET SALVAGE ESTIMATES IN THE
CALCULATION OF DEPRECIATION RATES**

May 2013

Q. Please state your name and address.

A. Larry Edwin Kennedy. My business address is Suite 277, 200 Rivercrest Drive S.E., Calgary, Alberta.

Q. Please state your occupation.

A. I am Vice President of Gannett Fleming Canada ULC, a wholly-owned subsidiary company of Gannett Fleming Inc.

Q. Have you previously testified before this or any other regulatory boards?

A. Yes, I have testified on numerous occasions before regulatory boards throughout Canada as summarized in my Curriculum Vitae attached as Appendix A to this evidence. Also, as summarized in Appendix A, I have prepared a number of additional depreciation reviews that have resulted in negotiated settlements or where appearances were not required.

Of specific note, I testified as an expert witness on depreciation related matters on behalf of YECL before the Yukon Utilities Board (the “Board”) in a 2008 proceeding related to an Application by YECL for approval of its forecast revenue requirements for the 2008 and 2009 test years.

Q. Please describe the purpose of this evidence.

A. YECL retained Gannett Fleming Canada ULC (Gannett Fleming) to prepare a detailed depreciation study for filing with the 2013-2015 General Tariff Application. As part of the depreciation study filed in this GRA, Gannett Fleming has included a provision for net salvage percentages in the depreciation rate calculations. This evidence provides the

background and support for Gannett Fleming's recommendation to YECL that inclusion of net salvage percentages in the depreciation rate calculations is appropriate.

Q. Please provide some background on the inclusion of net salvage in depreciation rate calculations.

- A. The inclusion of net salvage percentages is widely accepted in regulatory jurisdictions throughout North America. Depreciation is not simply the allocation of original cost to expense. In the most widely used definition of depreciation for regulated utilities, the Federal Energy Regulatory Commission (FERC) Uniform System of Accounts defines depreciation as “the loss in service value not restored by current maintenance incurred in connection with the consumption or prospective retirement of property 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.” The operative words in this definition are “*service value*”. The FERC Uniform System of Accounts goes on to define service value as “the difference between the original cost and the net salvage value of the utility plant”. The service value rendered by an asset, i.e. depreciation, must reflect both its original cost and its net salvage. The FERC further defines “net salvage value” to mean the salvage value of property retired less the cost of removal, with “cost of removal” being defined as the cost of demolishing, dismantling, tearing down or otherwise removing electric plant, including the cost of transportation and handling incidental thereto.¹

¹ All referenced definitions are as per Chapter 1 – Federal Energy Regulatory Commission, Department of Energy, and Part 101 – Uniform System of Accounts Prescribed for Public Utilities and Licensees subject to the provisions of the Federal Power Act, Definitions Section.

Q. Is it reasonable to defer the collection of net salvage costs until such time as the cost is actually incurred?

A. Allocating net salvage costs during the life of the related plant is more appropriate and equitable and is in accordance with authoritative texts² and most Uniform Systems of Accounting including those published in Alberta, Ontario, the National Energy Board of Canada and the Federal Energy Regulatory Commission. Delaying collection until such costs are incurred results in a charge to customers for plant from which they did not receive service and, as a result of the delay in recovery, also results in higher revenue requirements related to net salvage.

Additionally, the FERC Uniform System of Accounts requires that depreciation be recognized through accrual accounting. That is, the service value of an asset must be accrued during the life of the asset. Since net salvage is a part of the service value, it must be accrued during the life of the related asset in order to comply with the FERC Uniform System of Accounts. As such, regulatory decisions that require the expensing of costs of removal or that mandate the inclusion of costs of removal of retired plant as part of future capital costs of replacement plant need to understand that the decisions are in contrast to the FERC published and long-followed net salvage concepts from regulatory jurisdictions throughout North America.

² Such as Depreciation Systems, Frank K. Wolf and W. Chester Fitch, Published, Iowa State University Press, 1994; and Introduction to Public Utility Accounting, American Gas Association/Edison Electric Institute, 1997.

The revenue requirements that result from any type of “*expensing as incurred*” option are greater than the revenue requirements that result from accruing for net salvage during the life of the related asset for a regulated utility that includes a rate of return in its revenue requirement. Although a comparison of the current revenue requirements related to a net salvage accrual and the current revenue requirements related to expensing of net salvage may indicate that the accrual is higher at a single point in time, over time the revenue requirements and the present value of those revenue requirements will be less if the net salvage cost is accrued over the life of the asset.

The reason for the lower revenue requirements with the accrual of net salvage is the impact of the accruals on rate base. That is, as net salvage accruals are recorded to the depreciation reserve, the accumulated depreciation balance in the reserve increases and reduces subsequent determinations of rate base in future periods.

Q. Is recovery of net salvage within depreciation rates common within regulatory jurisdictions throughout Canada?

A. Yes. Many jurisdictions across Canada recognize the regulatory benefit and fairness to the inclusion of the recovery of the net salvage requirements over the period of time that assets are providing regulatory service. Regulatory decisions allowing the inclusion of net salvage percentages have been rendered by the following Canadian regulatory bodies for rates that are currently in place:

- The British Columbia Utilities Commission
- The Alberta Utilities Commission

- The Manitoba Public Utilities Board
- The Ontario Public Utilities Board
- The Regie de l'Energie du Quebec
- The Nova Scotia Utility and Review Board
- The Newfoundland and Labrador Board of Commissioners of Public Utilities
- Northwest Territories Public Utilities Board
- The National Energy Board of Canada

However, it is noted that not all utilities request recovery of net salvage within depreciation rates. The policy decision to recover net salvage within depreciation is made by the specific utility after consideration is given to all relevant factors, including:

- The accounting jurisdiction and principles being followed for financial disclosure purposes (US GAAP versus IFRS or modified IFRS);
- The potential for re-use of assets or facilities;
- The requirement for the utility to report an Asset Retirement Obligation;
- Review of the current funds for site removal and restoration;
- Materiality of the net salvage estimates; and
- Nature of retirement activity (interim or final retirement).

As such, it is not possible to conclude that all utilities within any jurisdiction either include or exclude net salvage recovery.

Q. Please provide a history of the policies with regard to the recovery of net salvage related to utilities regulated by British Columbia Utilities Commission (“BCUC”) and the Yukon Public Utilities Board.

- A. For many years prior to 2005, the largest regulated utility in the province of British Columbia – BC Hydro, had an approved fund for “Future Removal and Site Restoration” (“FRSR”) requirements. However, in preparation for a 2004 application for 2005-2006 tolls (the “BC Hydro Application”), BC Hydro suggested a change in its approach to recovery of net salvage requirements, in reaction to changes to the Canadian accounting standards. In the 2004 application, BC Hydro proposed to move the balance of the FRSR fund as at December 31, 2004 to retained earnings and fund only the future costs of retirement that would be applicable to Asset Retirement Obligation (“ARO”) accounting within the revenue requirement. Future costs of removal of a type that would not be applicable to ARO accounting would be funded through a “pay as you go” method through the inclusion of these expenditures as operating costs in the year of occurrence.

The BCUC in its review sought the opinion of the Auditor General on the applicability of the FRSR fund for a Crown Corporation. The Auditor General provided an opinion that the FRSR fund should be held as is and any future funding to the FRSR fund be discontinued. The BCUC followed the opinion of the Auditor General and disallowed any future funding to the FRSR, ruling that the FRSR as it stood at that time, be drawn down by the on-going cost of retirement expenditures.

In December 2004, shortly after the BCUC's decision in respect of the BC Hydro Application, Yukon Energy Corporation ("YEC") filed an application with the Yukon Utilities Board for required 2005 revenues and related matters (the "2005 YEC Application"). The 2005 YEC Application continued a historic practice to include a FRSR provision that YEC charged annually into revenue requirements as a component of depreciation expense with the corresponding credit being recorded in the FRSR liability account. During the proceeding, YUB counsel provided the then current and prescribed GAAP treatment regarding FRSR accounting treatment. At that time, Section 3110 of the CICA Handbook indicated that FRSR appropriations were no longer required under GAAP, and that long lived assets with retirement obligations should be recognized or disclosed in the notes to the Financial Statements if the fair value could not be reasonably estimated. It was argued that under sections 1506 and 3110 of the CICA Handbook, where AROs are required, the reserve for the ARO was to be established and the reserve for FRSR should be removed from the Balance Sheet and recorded in retained earnings.

YUB counsel also questioned the YEC panel on the CICA Handbook sections 3110 and 1506, in respect of the prescribed accounting treatment of transitioning from FRSR to ARO. Specifically, YEC was questioned on its treatment of FRSR in relation to changes to the CICA Handbook that require companies to remove their reserves for FRSR once they adopt ARO accounting, which YEC had done effective January 1, 2004. Board counsel argued that YEC should change its financial reporting to take into account the transition from FRSR accounting treatment to ARO accounting treatment.

The BC Hydro Application and evidence was also reviewed during the proceeding considering the 2005 YEC Application. As described previously, BC Hydro had determined that it no longer would be making appropriations to its FRSR accounts, and would be recording ARO consistent with section 3110 of the CICA Handbook, and Generally Accepted Accounting Principles (“GAAP”). In the BC Hydro Application, it removed the liability for FRSR from the balance sheet, and proposed to transfer the balance to retained earnings. When questioned by Board counsel on whether YEC agreed with the BC Hydro treatment, YEC would not commit to the same treatment, and considered the FRSR liability as a ratepayer account that should not be taken into retained earnings.

Ultimately, the YUB ruled that there was no longer a need for YEC to collect amounts for annual appropriation to the FRSR reserve, and furthermore to be consistent with section 3110 of the CICA Handbook, YEC should comply with GAAP and remove these charges from annual revenue requirements. However, the YUB did agree with YEC’s concern about the GAAP requirement to transfer the balance in the FRSR liability account to retained earnings and considered that a variance from section 3110 of the CICA Handbook was required.

In 2008, YECL filed a depreciation study with the YUB which included a provision for net negative salvage. Given the YUB Decision in respect of the 2005 YEC Application, YEC argued that any collection of net salvage costs by YECL would be unfair given the YUB’s ruling in the most recent 2005 YEC Application, and that it was the Board that raised the

FRSR issue in the 2005 YEC Application and ordered the approach to be used by YEC.

The YUB in its Decision³ was persuaded by the argument of YEC that consistency in this area is important. The YUB stated:

Given that the negative net salvage balance continues to grow, the Board does not believe that there is a need to continue to collect such amounts. YECL is to remove these amounts [related to net salvage] from its depreciation expense for each of the test years and is not to include any amounts for negative net salvage until Board approval is provided. Further, the Board orders that the December 31, 2007, accumulated amount for net salvage be shown as a liability and be reduced as salvage costs are incurred for the years commencing with 2008. Similar to YEC, YECL is to inform the Board and interested parties when the balance for this liability account reaches \$2million.

Q. Do you agree with the position that the financial reporting standards should be a factor considered when establishing regulatory policy and recovery of net salvage?

A. While, I do agree that financial reporting issues should be considered, especially when it is the goal of the utility to maintain one set of depreciation rates to be used for both regulatory and financial disclosure purposes, there exist a number of circumstances where the imposition of a standard for financial accounting on the ratemaking process is inappropriate. In fact, the YUB noted such a case when it found that a variance from section 3110 of the CICA handbook was required in the circumstances of the 2005 YEC Application. Such exceptions were also noted in the circumstances of the BCUC decision regarding the 2004 BC Hydro Application.

Financial reporting standards cannot and do not incorporate all the factors that should be considered in ratemaking, particularly the equitable treatment of different generations of customers. In my view, both the 2005 BCUC and the 2005 YUB Decisions (the

³ Board Order 2009-2, Reasons for Decision, page 22 of 49.

“Decisions”) regarding the applications of BC Hydro and YEC respectively, were focused on the reduction of rates for today’s customers at the expense of future customers. I note that in the circumstances of Decisions, the BCUC and the YUB concept of public utility depreciation is not the same as the concept set forth in the Uniform System of Accounts⁴ and authoritative texts on the subject. As set out above, the Uniform System of Accounts defines depreciation as “the loss in service value not restored by current maintenance incurred in connection with the consumption or prospective retirement of property 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.” The operative words in this definition are *service value*. The Uniform System of Accounts goes on to define service value as “the difference between the original cost and the net salvage value of the utility plant”, not as just the original cost (as was ruled in the BCUC Decision relating to the BC Hydro Application and the YUB decision relating to the 2008 YECL Application). The service value rendered by an asset, i.e. depreciation, must reflect both its original cost and its net salvage. As indicated, the regulatory principles incorporated into Uniform System of Accounts were developed for public utilities and adopted by most regulatory commissions throughout North America to provide useful information for regulatory reporting and ratemaking purposes. This cannot be said of GAAP. In particular, the definition of depreciation used in the Uniform System of Accounts considers issues such as customer equity and matching which are important principles for ratemaking and are no longer reflected in GAAP.

⁴ As defined in the commonly used Uniform System of Accounts published by the Federal Energy Regulatory Commission (FERC), by the National Association of Regulatory Utility Commissions (NARUC), by the National Energy Board of Canada (NEB), by the Ontario Energy Board (OEB) and the Alberta Utilities Commission (AUC).

Q. Based on your experience, has there been any Canadian Regulatory jurisdiction that has reversed its decision to disallow funding for costs of removal?

A. Yes. The BCUC has recently allowed the inclusion of costs of removal (net negative salvage) in the depreciation rates of FortisBC Energy, Inc. (formally Terasen Gas). In a 2011 Application before the BCUC in respect of 2012/2013 Revenue Requirements and Rates, FortisBC Energy Inc. Utilities (“FEU”) requested a change to its practice of collecting salvage costs from ratepayers. FEU identified four possible methods to recover negative salvage values from ratepayers: (i) the traditional approach (ie. as presented in this Application); (ii) a “pay-as-you-go” approach; (iii) Asset Retirement Obligation (ARO) style accounting; and (iv) a Hybrid approach (ie. a combination of the traditional approach and ARO style accounting). FEU sought approval to adopt the traditional approach during the test period for all retirement obligations that are not AROs as defined by GAAP.

Under its 2011 Application to the BCUC, FEU sought approval for inclusion into its depreciation rate calculations, a provision for net salvage calculated in accordance with the “traditional” approach (which is the same approach as used in the current Gannett Fleming study for YECL). The net salvage percentages were estimated in a Gannett Fleming Depreciation Study filed with the application. This application was a change from the approach used in a prior 2008 negotiated settlement which incorporated a pay-as-you-go approach which was considered to be more consistent with the BCUC 2005 BC Hydro Decision. However, in its 2011 Application FEU submitted the following arguments in

support of its proposal to return to the tradition method of recovering net salvage through inclusion in the depreciation rate calculations:

- that the 3 years of history in using a pay-as-you-go method showed a large level of volatility;
- using a pay-as-you-go approach in the circumstance of actual retirement costs being forecast to increase as the assets near the end of their average useful lives, results in tomorrow's ratepayers paying to retire assets used today;
- The traditional negative salvage approach is a common, widely used practice amongst comparable utilities across the country and is also the method of accounting for salvage costs generally accepted for use in the United States within the Federal Energy Regulatory Commission's (FERC) Uniform System of Accounts.

After consideration of the above arguments, the BCUC ruled as follows:

The Commission Panel accepts the FEU's proposed application of the traditional method of providing negative salvage in rates during the test period. Using a "pay as you go system" to recover salvage costs could see ratepayers of tomorrow paying higher prices to retire assets which were used to the benefit of today's ratepayers. Further the Commission Panel also does not believe a phased in approach is appropriate. In our view, such treatment will only further defer costs of today for payment by future ratepayers and, given current fuel prices, such treatment does not appear warranted.

While net negative salvage rates are an estimate, the Commission Panel accepts that the rates are based on the recommendations of an independent expert. The Panel also accepts that net negative salvage is a widely used utility practice in Canada and is within the recommended accounting practices of FERC.⁵

⁵ BCUC Order G-44-12 resulting from an Application by The FortisBC Energy Utilities in respect of 2012/2013 Revenue Requirements and Rates, pages 83-84.

The above BCUC decision regarding the FEU Application clearly indicates that the BCUC understood the issues with a pay-as-you-go approach, and was willing to approve the inclusion of the net salvage estimates within the depreciation rate calculations, notwithstanding its prior BC Hydro decision.

Q. Given the desire of many regulated utilities to use only one set of depreciation rates for both regulatory and financial disclosure purposes, how can net salvage be included in the depreciation rates that are used for financial reporting purposes if financial disclosure standards do not allow for the recovery of net salvage?

A. It has been my experience that most Canadian regulated utilities do not want to maintain two sets of sub-ledgers reflecting differing depreciation amounts for financial reporting and regulatory reporting. In order to accomplish this goal to maintain one set of accounting ledgers, Gannett Flaming has developed a separate schedule of rates for the recovery of the estimated costs of removal and for the recovery of the original cost of investment (including any estimated positive salvage amounts). In this manner, the depreciation rates established for the recovery of the original cost amount result in a depreciation expense that can consistently be applied to both the financial reporting and the regulatory reporting ledgers. However, the separately developed provision related to the recovery of the costs of removal can be applied as a regulatory adjustment to the regulated sub-ledgers and form a reconciling item to the financial reporting schedules. In this manner, the revenue requirement used for regulatory matters can be consistent with long established regulatory principles and guidelines, focusing on a generational fair and equitable recovery of the service value of the assets, and the financial reporting ledgers remain consistent with financial reporting standards.

Q. Has the procedure as described above, been accepted for use in Canadian regulatory jurisdictions?

A. Yes, since the changes in the Financial Reporting Standards in the early 2000s, many depreciation studies completed by Gannett Fleming have developed separate provisions relating to the recovery of original cost of investment and for the recovery of costs of removal. In particular, this approach has been followed in applications completed for the following regulated utilities:

- FortisBC Energy Inc. related to a 2010 depreciation study approved by the BCUC in 2012, following a 2011 hearing;
- All regulated electric utilities in the province of Alberta (as specifically prescribed by the minimum filing requirements for Alberta electric utilities⁶);
- All regulated gas utilities in the Province of Alberta;
- Enbridge Consumers Gas in a 2012 Application to the Ontario Energy Board; and
- Gaz Metro in a 2010 Application to the Regie de l'Energie du Quebec.

This same approach was also used in the Gannett Fleming depreciation study that has been filed as part of the current YECL Application.

Q. Has the recovery of costs of removal been considered in decisions addressing Depreciation in other Canadian jurisdictions?

A. Yes. The issue of recovery of net salvage requirements has received attention in virtually all recent depreciation applications in most jurisdictions across Canada. In particular, the issue was recently reviewed in the following jurisdictions:

⁶ As prescribed by the Alberta Energy and Utilities Board (EUB) Bulletin 2006-25 issued May 8, 2006 for implementation on January 1, 2009.

- As indicated previously in this evidence, in applications in British Columbia by FortisBC Energy Inc. and separately for FortisBC Inc. The BCUC recently approved the reinstatement of net negative salvage costs using the same calculation methods as used in this current YECL application for FortisBC Energy Inc. and suggested that FortisBC Inc. should consider the inclusion of net salvage in future applications.
- In Alberta, the Office of the Utility Consumers Advocate (the “UCA”) has been extremely active in attempting to limit the amount of net salvage costs that are recovered through depreciation. While the UCA has, on a number of occasions, questioned the level of net salvage percentages, the UCA does not dispute the concept of recovery of net negative salvage. As such, the issue of net salvage in Alberta generally is an issue of the amount of recovery, rather than a dispute regarding the recoverability of the estimated costs of removal.
- In Ontario, Enbridge Gas Distribution and Union Gas have both recently filed applications that include very large provisions for the recovery of net salvage. Both applications included a depreciation study that calculated and applied the net salvage estimates in the same manner as used by Gannett Fleming in the current YECL application. The 2011 application by Union Gas did not result in any intervenor evidence regarding the inclusion of costs of removal in the revenue requirement and the Ontario Energy Board (OEB) approved a revenue requirement incorporating a cost of removal provision. Enbridge Gas Distribution filed a 2012 depreciation study that also included the recovery of costs of removal in the depreciation rate calculations. The Enbridge study was settled via a negotiated settlement however, the settlement filed with and ultimately approved by the OEB included large provisions

for net negative salvage. It is also noted that approval of the recovery of net salvage within depreciation rates has a long standing history before the OEB.

- In Quebec, Gaz Metro filed a depreciation study in 2011 that included a provision for net salvage. The application was approved after some debate with regard to the ability of the company to reconcile regulatory and GAAP compliant financial statements. The procedure for development of a separate set of depreciation accrual rates (as described in previous sections of this evidence) was used by Gaz Metro to provide assurance to the regulator that the financial disclosure books and the regulatory sub-ledgers could be reconciled.
- Utilities in Nova Scotia, New Brunswick, and Newfoundland (Newfoundland Power) have all filed depreciation studies including provisions for net salvage. Generally, in these applications, the concept of the inclusion of the net salvage in the depreciation rates has not been the subject of opposing evidence and has been consistently approved by the regulators in those jurisdictions.
- The National Energy Board of Canada of Canada has commissioned a wide sweeping regulatory process - the Land Matter Consultative Initiative (LMCI) to consider the issues of site restoration and net salvage. This LMCI process has been on-going for a couple of years, with an oral hearing completed in 2012. The NEB has just released Decision MH-001-2012, which mandates NEB pipelines to include a recovery of pipeline abandonment costs in the revenue requirements of the company.

Q. In your experience, are the issues related to net salvage similar in the circumstances of crown-owned and private investor-owned utilities?

A. In my experience, Crown-owned utilities such as BC Hydro, Manitoba Hydro, SaskPower, Newfoundland and Labrador Hydro, and YEC are less likely to pursue the issue of recovery of future costs of removal to the same extent as are investor owned utilities. While ownership should not make a difference, it has been my experience that there is less urgency on the part of Crown Corporations to include the costs of recovery on a generationally equitable basis than seems to be the case with investor-owned utilities. In contrast, investor-owned utilities generally all seek to incorporate the recovery of costs of removal in their revenue requirements through depreciation expense.

It is also my experience that crown-owned electric generation utilities are less likely to be willing to have differences in the accounting ledgers related to its financial statement disclosure and the regulated accounting ledgers. While, investor-owned utilities will often attempt to avoid differences in the regulated ledgers versus the financial disclosure ledgers, I have noted that there is a greater tolerance to reconcile these differences.

Q. Please outline the relevance to this YECL proceeding of the differences in depreciation principles for crown-owned utilities as compared to investor-owned utilities.

A. This issue is of particular relevance in this YECL proceeding given the history of recovery of costs of removal in the Yukon. Of note is the fact that, in large part, the YUB disallowed the funding of the YECL FRSR account in Board Order 2009-2, in order to be

consistent with a prior Board Order issued in a previous YEC application. Specifically, the YUB indicated:

With respect to FRSR, the Board is persuaded by the arguments of YEC and CW that consistency in this area is important. YECL responded that two critical facts were specific to YEC and those facts were not consistent with the circumstances of YECL: (1) YEC has recorded an Asset Retirement Obligation related to the legal requirement for the removal of facilities in compliance with Section 3110 of the CICA handbook; and (2) The company has recorded FRSR requirements into a separate balance sheet account. The Board is of the view that the substance of the circumstance of YECL is similar to that of YEC. That is, YECL has a salvage obligation and YECL has the ability and can account for amount equivalent to FRSR. Whereas both YECL and YEC utilized acceptable depreciation methods, the treatment of FRSR or negative net salvage is not consistent between the two utilities. Given that the negative net salvage balance continues to grow, the Board does not believe that there is a need to continue to collect such amounts. YECL is to remove these amounts [related to net salvage] from its depreciation expense for each of the test years and is not to include any amounts for negative net salvage until Board approval is provided.⁷

Of specific note in the above excerpt from YUB Order 2009-2 is the absence of any reference to type of ownership of YEC as compared to YECL. As noted previously in this evidence, it is my experience that ownership does make a difference in the regulatory and depreciation principles as applied by regulatory authorities throughout Canada.

It should also be noted, that the YUB did not rule against the concept of collection of costs of removal through depreciation, rather the Board ordered that “*YECL is to remove these amounts [related to net salvage] from its depreciation expense for each of the test years and is not to include any amounts for negative net salvage until Board approval is provided.*” In my view, the option for YECL to request Board approval was accorded in the YUB Order

⁷ Board Order 2009-2, Reasons for Decision, page 22 of 49.

2009-2, and given the Canadian regulatory experience of crown-owned hydro utilities moving in a different policy direction from investor-owned electric utilities, provides the basis for the YUB to again approve the funding for costs of removal in a manner that is equitable to past, current and future customers of the YECL system. Furthermore, I believe that Canadian regulatory practice over the period since the issuance of YUB Order 2009-2 demonstrates an increased tolerance of allowing crown-owned utilities to follow differing practices with regard to net salvage than investor-owned utilities within the same jurisdiction.

Q. Can you provide any examples where a Canadian Regulator has allowed a differing practices regarding collection of net salvage estimates by a crown-owned utility as compared to an investor owned utility?

A. Yes, the following are specific recent examples of Crown-owned utilities following a different practice for the funding cost of removal as compared to investor-owned utilities in the same jurisdiction:

- As indicated previously in this evidence, the BCUC has recently allowed FortisBC Energy to collect costs of removal within depreciation expense as compared to its 2005 order with regard to a BC Hydro application in which the funding of an FRSR account was eliminated.
- In the province of Newfoundland, in two 2012 applications, Crown-owned Newfoundland and Labrador Hydro followed a completely different policy for recovery of costs of removal (costs to be expensed as incurred) as compared to investor-owned Newfoundland Power, which sought approval of its long standing

policy to recover net salvage through its depreciation expense. Both applications were approved by the Newfoundland and Labrador Board of Commissioners of Public Utilities.

- In the province of Ontario the Ontario Energy Board (OEB) has approved applications by the Crown-owned Ontario Power Generation (“OPG”) which did not include net salvage recovery in its revenue requirement. However applications by investor-owned Enbridge Consumers Gas and Union Gas, which included large provisions related to recovery of net salvage in 2012 have also been approved by the OEB.
- In the province of Quebec, Crown-owned Hydro Quebec does not include any provision for net salvage; however, Gazifere (in a 2010 application) and Gaz Metro (in a 2011 application) both included provisions for the recovery of costs of removal. In all circumstances the applications were approved by The Regie de Energie du Quebec.

Q. In the YUB Order 2009-2 quoted previously in this testimony, the YUB noted that “given that the negative net salvage balance continues to grow, the Board does not believe that there is a need to continue to collect such amounts”. In your view does the fact that the negative salvage balance continues to grow indicate that the collection of the negative salvage should cease?

- A. No. In fact, at this time, there is a requirement that the negative salvage fund should continue to grow, as currently YECL is only retiring a very small fraction of its investment in any given year. However, the negative salvage fund represents a reserve for the future costs of removing all of the assets. A review of the retirement data in section IV of the Gannett Fleming depreciation study report indicates that over the history of the company

only 9% of the plant installed has retired, and less than 1% in any given transaction year. As such the annual costs of retirement of plant in any transaction year are applicable to only a fraction of less than 1% of the plant in service. However, the costs of removal for future retirement collected through the depreciation expense are providing a reserve for the retirement of all plant in service in future years. Over time, the amounts of investment retired will grow as the system ages and requires replacement. In these future years the dollars required for the retirement of the plant will greatly increase and will require significant draw down of the net salvage reserve. It is this point that was specifically raised by FEU in its 2011 Application to the BCUC where it noted that using a pay-as-you-go approach in the circumstance of actual retirement costs being forecast to increase as the assets near the end of their average useful lives, results in tomorrow's ratepayers paying to retire assets used today. The BCUC, in the 2011 Decision relating to the FEU Application for the reinstatement of net salvage in the depreciation rate calculations, agreed with the FEU argument related to this concept.

Gannett Fleming suggests that the better indication of the appropriateness of the growth of the net salvage reserve is to perform a test of the variance between the actual reserve for recovery of net salvage and the calculated requirement of the level of the reserve, which gives consideration to the current age of the plant, the estimated remaining life of the plant, and the estimated net salvage percentage. As indicated at page III-15 of the Gannett Fleming report, the current reserve relating to net salvage is \$4.4 million, but is underfunded by \$12.2 million from the required amount of \$16.6 million as of December 31, 2011. In contrast, in the Gannett Fleming study presented with the 2008 YECL

application, the same calculation indicated a deficiency of \$4.3 Million as of December 31, 2007⁸. In other words, over the four-year period that funding of the reserve has ceased, the required deficiency has grown by \$7.9 million. Even this short period of non-collection has transferred \$7.9 million of burden, from the 2008-2011 customers to the future customers. This rapid growth of the net salvage reserve deficiency clearly illustrates the importance of re-instatement of the funding of future costs of removal as soon as possible. As detailed below, it is also important to note that the \$16.6 million required amount does not include any provision for future costs associated with terminal requirement. As such, the under-funding is greater than the \$12.2 million included as part of this evidence.

Q. In the Gannett Fleming depreciation study filed with this application, what type of costs was included in the requested net salvage amounts?

A. The costs associated with the net salvage percentages can be categorized into three components, namely:

1. Anticipated salvage proceeds realized from the sale of material upon retirement (for example, the sale proceeds of the sale of a retired vehicle), or from the re-use of material that may be able to be re-deployed (for example, the re-use of a wood pole that was removed from a temporary service installation).
2. Costs associated with the removal of assets that are being replaced. This type of retirement activity is commonly referred to as interim retirement activity. It is this type of interim retirement activity that has historically been the most common type of retirement within the YECL system to date.

⁸ Page III-7 of the 2008 Gannett Fleming depreciation study as filed in the 2008 YECL General Rate Application.

3. Cost associated with the terminal retirement of a facility or site. For example, these costs would include the site reclamation costs of a remote diesel generation site that is being decommissioned and the land must be restored to original state.

The Gannett Fleming depreciation study report provides a detailed description of the processes followed in the determination of the requested net salvage percentages. However, these processes generally relate to a review of the historic retirement transactions. Given that the historic retirement activity has generally been related to the first two categories as described above, the percentages presented in the Gannett Fleming report relate to the salvage proceeds and costs of retirement related to interim retirement (or asset replacement) activity. As such, the requested amounts do not include the costs associated with terminal retirement.

In order to properly estimate the third category of retirement costs (caused by terminal retirement of facilities), YECL will need to undertake an engineering-based assessment of the costs of retirement and site reclamation. Examples of the type of engineering-based review that would be required can be found in the material filed in the recent NEB LMCI Proceeding, where pipeline companies were asked to identify the manner in which facilities would be retired (physically removed or abandonment in place), the assumptions around soil reclamation, potential sale of assets, and to form a base set of terminal retirement assumptions. The companies were then asked to provide a detailed engineering-based cost estimate of the retirement activities based on those assumptions.

In addition to the material found in the LMCI proceeding, I note that engineering-based studies have been filed in other regulatory jurisdictions in order to provide estimates of site reclamation costs. For example, the Northwest Territories Power Corporation (“NWTPC”) had an engineering-based study completed in the late 1990s that reviewed each of the generation sites, and prepared a detailed assessment and cost estimate associated with the anticipated site reclamation costs, which formed the basis of its FRSR funding estimates. This report was updated approximately six years later in anticipation of additional regulatory proceedings.

It is my view that an engineering-based study should be completed for the YECL diesel generation sites with the results of the study incorporated into future net salvage studies. However, I note that inclusion of these costs will likely increase the requested amount of costs of removal beyond that which is included in the Gannett Fleming study, as currently these types of costs have not been included.

Q. Does this conclude your additional evidence?

A. Yes.

APPENDIX A



LARRY E. KENNEDY

TECHNICAL SPECIALTIES

Public Utility Plant Depreciation
Public Utility Plant Accounting

PERSONAL INFORMATION

Diploma, Applied Arts - Business Administration, Northern Alberta Institute of
Technology, 1978
Member, Society of Depreciation Professionals
Certified Depreciation Professional

EXPERIENCE

Mr. Kennedy joined Gannett Fleming, Inc. in January 1999 and is a Vice President of Gannett Fleming Canada ULC. His responsibilities include the assembly of data, the preparation and review of depreciation studies, advice to clients regarding asset retirement obligation accounting, plant accounting issues, and provision of general regulatory litigation support.

Representative assignments include:

- International Financial Reporting Standards (IFRS). Mr. Kennedy has been retained by numerous clients encompassing most Canadian Provinces and Territories. The assignments included the review of company's assets and depreciation practices to provide opinion on the compliance to the IFRS. The assignments have also included the issuance of opinion to the External Auditors of Utilities to comment on the manner in which the Utilities can minimize differences in the regulatory ledgers and the accounting records used for financial disclosure purposes. Mr. Kennedy has also presented to the Canadian Electric Association, the Society of Depreciation Professionals and to the British Columbia Utilities Commission on this topic.
- Fortis Inc. Studies have included the development of annual and accrued depreciation rates for the electric distribution assets in Alberta and for the generation, transmission, and distribution assets in British Columbia. The FortisBC Inc. studies were completed and filed with the BCUC in 2005, 2010 and 2011 encompassing both the FortisBC electric and natural gas companies. FortisAlberta studies were completed in 2004 (updated in 2005), 2009 and 2010. Elements of the studies included the development of average service lives using the retirement rate method of analysis, development of net salvage estimates, compliance with IFRS, and the determination of appropriate annual accrual and accrued depreciation rates.
- BC Hydro. This assignment included the development of an average service life study for all of the BC Hydro's electric generation, transmission, distribution and general plant assets. The study, which was prepared for submission to the British Columbia Utilities Commission ("BCUC"), included development of depreciation policy for the company, development of procedures to extract data from the company databases, tours of the company facilities, interviews with operational and management representatives, and the compilation of a detailed report. The assignment has included the support of the study through the regulatory process. Mr. Kennedy has also completed a review of the cost allocation procedures and practices which was filed with the BCUC in 2010.

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- AltaLink LP. A study was developed for submission to the Alberta Utilities Commission (“AUC”) in 2002. The study included the estimation of service life characteristics, and the estimation of net salvage requirements for all electric transmission assets. A net salvage study and technical update was also filed with the Board in 2004. Since 2004 additional depreciation studies were filed in 2005, 2010 and 2012.
- Newfoundland and Labrador Hydro. Mr. Kennedy developed a comprehensive depreciation study that included the development of depreciation policy and rates for Newfoundland and Labrador Hydro. The study provided a significant review of the previous depreciation policy, which included use of a sinking fund depreciation method and provided justification for the conversion to the straight-line depreciation method. The study, which was prepared for submission to the Newfoundland and Labrador Utilities Commission, included a significant amount of discussion regarding the development of depreciation policy for the company. The study also included development of procedures to extract data from the company databases, tours of the company facilities, interviews with operational and management representatives, development of appropriate net salvage rates, development of average service life estimates, and the compilation of the report for submission in a General Tariff Application. Additional studies were also completed in 2008 and 2010. The 2010 study was the subject of Regulatory Review in 2012.
- ATCO Electric. Studies have included the development of annual and accrued depreciation rates for the electric transmission and distribution systems for the Alberta Assets of ATCO Electric, in addition to the generation, transmission, and distribution assets of Northland Utilities (NWT) Inc. and the distribution assets of Northland Utilities (Yellowknife) Inc. The ATCO Electric studies were submitted to the AUC for review, while the Northland Utilities Inc. studies were submitted to the Northwest Territories Utilities Board and Yukon Electric Company Limited (YECL) was submitted to Yukon Public Utilities Board. Elements of the studies included the service life analysis for all accounts using the retirement rate analysis, discussion with management regarding outlook, and the estimation of net salvage requirements.
- ENMAX Power Corporation. Studies have included the development of annual and accrued depreciation rates for all depreciable electric transmission assets. Elements of the studies included the service life analysis for all accounts using the retirement rate analysis, discussion with management regarding outlook, and the estimation of net salvage requirements. Studies were prepared for submission to the Alberta Department of Energy and more recently for submission to the Alberta Energy and Utilities Board. Similar studies have also been completed for submission for the ENMAX Electric Distribution assets for submission to the AUC. The ENMAX distribution asset assignments also included an extensive asset verification project where the plant accounting and operational asset records were verified to the field assets actually in service.
- Manitoba Hydro. A study was developed to determine the appropriate depreciation parameters for all electric generation, transmission and distribution assets. The study was submitted to the Manitoba Public Utilities Board. Elements of the study included a field review of electric generation and transmission plant, the service life analysis for all accounts using the retirement rate analysis, discussion with management regarding outlook, and the estimation of net salvage requirements. A similar study was also completed in 2006. Mr. Kennedy has also consulted with Manitoba Hydro on issues regarding IFRS compliance and required componentization.

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- Centra Gas Manitoba, Inc. The study included development of annual and accrued depreciation rates for all gas plant in service. Elements of the study included a field inspection of metering and compression facilities, service buildings and other gas plant; service life analysis for all accounts using the retirement rate analysis on a combined database developed from actuarial data and data developed through the computed method; discussions with management regarding outlook; and the estimation of net salvage requirements. A similar study was completed in 2006. Mr. Kennedy has also consulted on issues regarding IFRS compliance and required componentization.
- TransCanada PipeLines Limited – Alberta Facilities. The assignment included working with the company to develop the appropriate depreciation policy to align with the organization's overall goals and objectives. The resulting depreciation study, which was submitted to the Alberta Energy and Utilities Board, incorporated the concepts of time-based depreciation for gas transmission accounts and unit based depreciation for gathering facilities. The data was assembled from two different accounting systems and statistical analysis of service life and net salvage were preformed. For gathering accounts, the assignment included the oversight of the development of appropriate gas production and ultimate gas potential studies for specific areas of gas supply. Field inspections of gas compression, metering and regulating, and service operations were conducted. Studies were completed in 2002 and 2004, 2007, 2009 and 2012.
- TransCanada PipeLines Limited – Mainline Facilities. The study prepared for submission to the National Energy Board of Canada ("NEB") included the development of annual and accrued depreciation rates for gas transmission plant east of the Alberta – Saskatchewan border. Elements of the study included a field inspection of compression and metering facilities, service life and net salvage analysis for all accounts. The study was completed in 2002, and was supported through an appearance before the NEB. Study updates have been completed in 2005, 2007, 2009 and an additional full and comprehensive study has been submitted to the NEB for review in 2011.
- AltaGas Utilities Inc. A number of depreciation studies have been completed, which included the assembly of basic data from the Company's accounting systems, statistical analysis of retirements for service life and net salvage indications, discussions with management regarding the outlook for property, and the calculations of annual and accrued depreciation. The studies were prepared for submission to the Alberta Energy and Utilities Board.
- Mackenzie Valley Pipeline Project. This assignment included the review of the proposed depreciation schedule for the proposed Mackenzie Valley Pipeline. The review included a discussion of the policies used by the company and the depreciation concepts to be included in a depreciation schedule for a Greenfield pipeline. The review was supported through appearance at the oral public hearings before the National Energy Board of Canada.
- Alberta Municipal Affairs. The first assignment was conducted in two phases. The first phase involved significant consultation with the Alberta Department of Municipal Affairs and various stakeholder groups to develop a report outlining the method of depreciation that would most appropriately result in a fair market value assignment for the Province's oil and gas pipelines, and for all segments of the electric industry (generation, transmission and distribution). The second phase of the project was to develop specific depreciation schedules to implement the recommendations that were accepted by Alberta Municipal Affairs for the oil and gas pipelines, as well as for all three aspects of the Province's electric industry. A second assignment related to developing models for the determination of the fair assessment value for the Province's Telecommunication and Railway Systems was completed in 2004, and was updated in 2005 and 2006.

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- Property Tax Appeals. Mr. Kennedy has provided expert evidence regarding the fair market valuation for a number of clients before the Alberta Municipal government Board.
- The City of Calgary. These assignments consisted of providing advice and testimony for the City of Calgary on depreciation issues in various general rate applications. Elements of these assignments include the review of applicant evidence and policies, development of information requests, submission of evidence, response to information requests, and providing expert testimony.

Mr. Kennedy has successfully completed the series of week-long programs offered by Depreciation Programs, Inc. and is a past president of the Society of Depreciation Professionals.

Mr. Kennedy has appeared as an expert witness before various regulatory boards as summarized in the attached "Summary of Appearances".

LARRY E. KENNEDY				
SUMMARY OF CASES WHERE EVIDENCE WAS PROVIDED BUT APPEARANCES WERE NOT REQUIRED				
<u>Year</u>	<u>Client</u>	<u>Applicant</u>	<u>Regulatory Board</u>	<u>Proceeding Number</u>
2000	AltaGas Utilities Inc.	AltaGas Utilities Inc	Alberta Energy and Utilities Board	Decision 2002-43
2001	ENMAX Power Corporation	ENMAX Power Corporation – Electric Transmission Assets	Alberta Department of Energy	N/A
2002	Centra Gas British Columbia	Centra Gas British Columbia	British Columbia Utilities Commission	N/A
2002	ENMAX Power Corporation	ENMAX Power Corporation – Electric Transmission Assets	Alberta Department of Energy	N/A
2003	Centra Gas Manitoba	Centra Gas Manitoba	Manitoba Public Utilities Board	N/A
2003	Manitoba Hydro	Manitoba Hydro	Manitoba Public Utilities Board	N/A
2003	City of Calgary	ATCO Pipelines	Alberta Energy and Utilities Board	1292783
2003	City of Calgary	ATCO Electric –ISO Issues	Alberta Energy and Utilities Board	N/A
2004	AltaGas Utilities Inc.	AltaGas Utilities Inc.	Alberta Energy and Utilities Board	1305995
2005	Yukon Energy Corporation	Yukon Energy Corporation	Yukon Utilities Board	N/A
2005	NOVA Gas Transmission Ltd.	NOVA Gas Transmission Ltd.	Alberta Energy and Utilities Board	1375375
2005	FortisAlberta Inc.	FortisAlberta Inc.	Alberta Energy and Utilities Board	1371998
2005	ATCO Electric	ATCO Electric	Alberta Energy and Utilities Board	1399997
2005	The City of Red Deer	The City of Red Deer Electric System	Alberta Energy and Utilities Board	1402729
2005	Northland Utilities (Yellowknife) Inc.	Northland Utilities (Yellowknife) Inc.	Northwest Territories Utilities Board	N/A
2005	Northland Utilities (NWT) Inc.	Northland Utilities (NWT) Inc	Northwest Territories Utilities Board	N/A
2005	ENMAX Power Corporation	ENMAX Power Corporation- Transmission Assets	Alberta Energy and Utilities Board	N/A
2005	FortisBC, Inc	FortisBC, Inc	British Columbia Utilities Commission	N/A
2005	New Brunswick Board of Commissioners of Public Utilities	New Brunswick Power Distribution and Customer Service Company	New Brunswick Board of Commissioners of Public Utilities	N/A
2005	British Columbia Transmission Corporation	British Columbia Transmission Corporation	British Columbia Utilities Commission	N/A
2005	Manitoba Hydro	Manitoba Hydro	Manitoba Public Utilities Board	N/A
2005	Centra Gas Manitoba	Centra Gas Manitoba	Manitoba Public Utilities Board	N/A
2005	FortisAlberta Inc.	FortisAlberta Inc.	Alberta Energy and Utilities Board	N/A
2006	BC Hydro	BC Hydro	British Columbia Utilities Commission	N/A
2007	Enbridge Pipelines Limited	Enbridge Pipelines Limited	National Energy Board of Canada	RH-2-2007
2007	FortisAlberta Inc.	Fortis Alberta Inc.	Alberta Energy and Utilities Board	1514140
2007	Kinder Morgan	Terasen (Jet fuel) Pipeline Limited	British Columbia Utilities Commission	N/A

LARRY E. KENNEDY				
SUMMARY OF CASES WHERE EVIDENCE WAS PROVIDED BUT APPEARANCES WERE NOT REQUIRED				
<u>Year</u>	<u>Client</u>	<u>Applicant</u>	<u>Regulatory Board</u>	<u>Proceeding Number</u>
2008	ATCOGas	ATCOGas	Alberta Utilities Commission	1553052
2008	Heritage Gas	Heritage Gas Ltd.	Nova Scotia Utility and Review Board	N/A
2008	ENMAX Power Corporation	ENMAX Power Corporation	Alberta Utilities Commission	1512089
2008	City of Lethbridge Electric System	City of Lethbridge	Alberta Utilities Commission	N/A
2009	AltaGas Utilities Inc.	AltaGas Utilities Inc.	Alberta Utilities Commission	N/A
2010	Enbridge Pipelines Limited - Line 9	Enbridge Pipelines Limited - Line 9	National Energy Board of Canada	N/A
2010	Kinder Morgan	Kinder Morgan	National Energy Board of Canada	N/A
2010	Pacific Northern Gas	Pacific Northern Gas	British Columbia Utilities Commission	N/A
2011	SaskPower	SaskPower	Internal Review Committee	N/A
2011	FortisAlberta Inc.	Fortis Alberta, Inc.	Alberta Utilities Commission	1607159
2011	Quilq	Quilq	Utilities Rates Review Council	N/A
2011	Heritage Gas Ltd.	Heritage Gas Ltd.	Nova Scotia Utility and Review Board	N/A
2011	ATCO Electric	Northland Utilities (NWT) Inc.	Northwest Territories Utility Board	N/A
2012	Newfoundland and Labrador Hydro	Newfoundland and Labrador Hydro	Newfoundland and Labrador Board of Commissioners of Public Utilities	N/A
2012	City of Red Deer	City of Red Deer	Alberta Utilities Commission	1608641
2012	Enbridge Gas Distribution Inc.	Enbridge Gas Distribution Inc.	Ontario Energy Board	EB 2011-0345
2012	Northwest Territories Power Corporation	Northwest Territories Power Corporation	Northwest Territories Public Utilities Board	N/A

LARRY E. KENNEDY				
SUMMARY OF APPEARANCES BEFORE REGULATORY BOARDS				
<u>Year</u>	<u>Client</u>	<u>Applicant</u>	<u>Regulatory Board</u>	<u>Proceeding Number</u>
1999	ENMAX Corporation	Edmonton Power Corporation	Alberta Energy and Utilities Board	980550
2001	City of Calgary	ATCO Pipelines South	Alberta Energy and Utilities Board	2000-365
2001	City of Calgary	ATCO Gas South	Alberta Energy and Utilities Board	2000-350
2001	City of Calgary	ATCO Affiliate Proceeding	Alberta Energy and Utilities Board	1237673
2003	AltaLink Management Ltd	AltaLink Management Ltd	Alberta Energy and Utilities Board	1279345
2003	TransCanada PipeLines Limited	TransCanada PipeLines Limited	National Energy Board of Canada	RH-1-2002
2003	City of Calgary	ATCO Gas	Alberta Energy and Utilities Board	1275466
2003	City of Calgary	ATCO Electric	Alberta Energy and Utilities Board	1275494
2004	NOVA Gas Transmission Limited	NOVA Gas Transmission Limited	Alberta Energy and Utilities Board	1315423
2004	ENMAX Power Corporation	ENMAX Power Corporation	Alberta Energy and Utilities Board	1306819
2004	Westridge Utilities Inc	Westridge Utilities Inc.	Alberta Energy and Utilities Board	1279926
2004	Heritage Gas Ltd.	Heritage Gas Ltd.	Nova Scotia Utility and Review Board	N/A
2004	Central Alberta Midstream	Central Alberta Midstream	Municipal Government Board of Alberta	N/A
2004	AltaLink LP	AltaLink LP	Alberta Energy and Utilities Board	1336421
2004	Central Alberta Midstream	Central Alberta Midstream	Municipal Government Board of Alberta	N/A
2005	AltaGas Utilities Inc.	AltaGas Utilities Inc.	Alberta Energy and Utilities Board	1378000
2005	ATCO Power	ATCO Power	Municipal Government Board of Alberta	N/A
2005	ENMAX Power Corporation	ENMAX Power Corporation- Distribution Assets	Alberta Energy and Utilities Board	1380613
2006	AltaLink LP	AltaLink LP	Alberta Energy and Utilities Board	1456797
2006	Imperial Oil Resources Ventures Limited	McKenzie Valley Pipeline Project	National Energy Board of Canada	GH-1-2004
2008	ATCO Electric	Yukon Electrical Company Limited	Yukon Utilities Board	N/A
2009	Fortis Alberta Inc.	Fortis Alberta, Inc.	Alberta Utilities Commission	1605170
2010	Gazifere	Gazifere	La Regie de L'Energie	R-3724-2010

LARRY E. KENNEDY				
SUMMARY OF APPEARANCES BEFORE REGULATORY BOARDS				
<u>Year</u>	<u>Client</u>	<u>Applicant</u>	<u>Regulatory Board</u>	<u>Proceeding Number</u>
2010	ATCO Electric	ATCO Electric	Alberta Utilities Commission	1606228
2011	ATCO Gas	ATCO Gas	Alberta Utilities Commission	1606822
2011	Gaz Metro	Gaz Metro	La Regie de L'Energie	R-3752-2011
2011	AltaGas Utilities Inc.	AltaGas Utilities Inc.	Alberta Utilities Commission	1606694
2011	AltaLink	AltaLink	Alberta Utilities Commission	1606895
2011	FortisBC Energy, Inc.	FortisBC Energy, Inc.	British Columbia Utilities Commission	3698627
2011	TransAlta Utilities Corporation	TransAlta Utilities Corporation	Municipal Government Board of Alberta	N/A
2012	FortisBC, Inc.	FortisBC, Inc.	British Columbia Utilities Commission	3698620
2012	TransCanada PipeLines Limited	TransCanada PipeLines Limited	National Energy Board of Canada	RH-003-2011
2012	Manitoba Hydro	Manitoba Hydro	Manitoba Public Utilities Board	2013/2013 GRA
2013	IntraGaz Incorporated	IntraGaz Incorporated	La Regie de L'Energie	R-3807-2012
2013	AltaLink LP	AltaLink LP	Alberta Utilities Commission	Appearance Pending



The Yukon Electrical Company Limited
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Section 8 - Return on Rate Base

Overview

The return on rate base included in this Application is outlined in Schedule 8.1 and is:

	2008 Actual	2009 Actual	2010 Actual	2011 Actual	2012 Actual	Test Period		
						2013	2014	2015
	(\$000)							
Return on Rate Base	<u>3,163</u>	<u>4,191</u>	<u>4,071</u>	<u>4,266</u>	<u>4,642</u>	<u>5,308</u>	<u>6,255</u>	<u>7,003</u>

The increases in the return on rate base between 2008 and 2012 are mainly due to growth in rate base as a result of capital additions discussed in Section 9 of this Application. The increases from 2013 to 2015 are primarily due to growth in rate base as a result of capital additions discussed in Section 9 as well as an increase in the common equity ratio as discussed below.

The components of the return on rate base are as follows and are discussed below:

- Cost of Capital
 - Capital Structure and Cost of Capital
 - Forecast Long Term Debt Rates
 - No Cost Capital
- Rate Base
 - Capital Additions
 - Contributions
 - Deferred Charges and Credits
 - Working Capital
- Overview



The Yukon Electrical Company Limited
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Cost of Capital

Background

In its 2008-2009 GRA, Yukon Electrical filed expert evidence prepared by Kathleen McShane of Foster Associates to support its requested capital structure and return on equity (ROE). With respect to ROE, Yukon Electrical argued that reference to a formula approach was efficient from a regulatory perspective.

In Board Order 2009-2, the Board stated the following:

- The BCUC generic cost of capital is the most appropriate as it has been the most recently reviewed, and is generally accepted by the parties;
- It accepts that when using the BCUC generic cost of capital, a risk premium is required for Yukon utilities; and
- Yukon Electrical's risk premium shall be 46 basis points above the BCUC benchmark ROE.

In Board Order 2009-5 addressing Yukon Electrical's 2008-2009 GRA compliance filing, the Board approved ROEs for Yukon Electrical of 9.08% (8.62% + 0.46%) and 8.93% (8.47% + 0.46%) for 2008 and 2009, respectively, based on the BCUC Generic Cost of Capital (GCOC) benchmark ROE in place at that point in time as well as the 46 basis point risk premium.

With respect to the common equity ratio, Yukon Electrical's expert evidence from Kathleen McShane stated that Yukon Electrical's business risk suggested an equity ratio of 45% - 55%. Financial metrics suggested an equity ratio in the upper end of the 47.5% to 52.5% range. In Board Order 2009-2, the Board ultimately approved no change to the previously approved equity ratio of 40%. In this order, the Board stated the 40% equity ratio was similar to the equity ratio of 39.57% for Northland Utilities (Yellowknife) approved by the NWT PUB per Decision 12-2005. At the time of Board



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Order 2009-2, Yukon Electrical notes that the equity ratio for the BCUC GCOC benchmark utility was set at 35.01%.

Since Board Order 2009-2, two separate processes have occurred in British Columbia impacting the BCUC GCOC. In December 2009, the BCUC issued Order G-158-09 impacting the BCUC GCOC benchmark ROE and equity ratio as follows:

- A benchmark ROE of 9.5% was set effective July 1, 2009; and
- A benchmark equity ratio of 40% was set effective January 1, 2010.

In February 2012, the BCUC initiated a new GCOC proceeding to determine, in part, an updated benchmark ROE and equity ratio. On May 10, 2013, the BCUC issued Order G-75-13 addressing the following matters:

- A BCUC GCOC benchmark ROE of 8.75% was set effective January 1, 2013;
- A BCUC GCOC benchmark common equity ratio of 38.5% was set effective January 1, 2013; and
- An Automatic Adjustment Mechanism (AAM) formula for annually setting the ROE of the benchmark between BCUC GCOC proceedings will commence January 1, 2014.

A second phase of the BCUC GCOC proceeding is now underway which will determine an appropriate risk premium and deemed capital structure for British Columbia utilities that differ in risk from the benchmark utility. The published process schedule for this second phase has reply submissions set for mid-January 2014. This suggests an order on this second phase will not be available until the second quarter of 2014.

Further to the above changes to the BCUC GCOC, the following ROEs and common equity ratios have been approved by the Northwest Territories Public Utilities Board for Yukon Electrical's affiliate utilities in the Northwest Territories since Yukon Electrical



The Yukon Electrical Company Limited
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was last before the Yukon Utilities Board in 2008. Yukon Electrical, as detailed in the expert evidence prepared by Kathy McShane for the 2008-2009 GRA, shares similar business risk to its affiliate, Northland Utilities (Yellowknife) Limited.

2008-2010 Northland Utilities (Yellowknife) Limited GRA (Decision 24-2008)

- ROE of 9.10% and equity ratio of 43.5%

2011-2013 Northland Utilities (Yellowknife) Limited GRA (Decision 13-2011)

- ROE of 9.30% and equity ratio of 43.5%

2008-2010 Northland Utilities (NWT) Limited GRA (Decision 25-2008)

- ROE of 9.10% and equity ratio of 44%

2011-2013 Northland Utilities (NWT) GRA Limited (Decision 17-2011)

- ROE of 9.30% and equity ratio of 44%

Business Risk Analysis

Consistent with the various business risk factors identified in its 2008-2009 GRA, Yukon Electrical's ongoing business risks encompass market demand, operational costs, physical hazards and regulation. Yukon Electrical's small size and economic and geographic environments expose it to a greater degree of business risk than most utilities located in other areas of Canada.

Market demand risks relate to the volatility of sales and their impact on return on equity. Realization of sales forecasts in Yukon Electrical's service territory is subject to many variables including the weather and the economic health of the community. Yukon Electrical's sales are more sensitive to weather than other electric utilities due to the extreme range of temperatures experienced in northern Canada.



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Yukon Electrical also serves a relatively small market with considerably less economic strength and diversity than the service areas of other utilities. Its residential and commercial sales are primarily affected by the general economic activity within the communities served.

Operational cost risks comprise the potential for the actual return on equity to fall short of the approved return due to under-estimation of capital expenditures, financing costs and operating and maintenance expenses. The uncertainty of operating and maintenance expenses is greater for Yukon Electrical as well. The remote locations served by Yukon Electrical can result in higher than anticipated repair costs for unplanned maintenance of distribution facilities. Also, due to the severe weather conditions that can occur in northern Canada, repair costs can deviate substantially from those forecast in operating budgets which are based on normal weather conditions. The length of the winter period increases the probability that these severe weather conditions may be experienced.

Based on the above, Yukon Electrical continues to face greater business risk than the average Canadian or British Columbia utility.

Requested ROE and ROE Deferral Account

In accordance with prior Board direction, Yukon Electrical is requesting to link its ROE for the 2013-2015 test period to the recently approved BCUC GCOC benchmark rate of 8.75% plus a risk premium of 0.46%. This results in a total requested ROE of 9.21% for each of 2013, 2014 and 2015.

The requested risk premium of 0.46% over the BCUC GCOC benchmark return on equity is consistent with that previously approved in Board Order 2009-2. Yukon Electrical is requesting the 0.46% risk premium be maintained for purposes of regulatory efficiency associated with this Application.



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For 2014 and 2015, the BCUC GCOC benchmark return on equity is subject to an AAM that will become operative if a long term Canada bond yield of 3.8% is met or exceeded. In order to address the potential for the AAM to be invoked, Yukon Electrical is requesting a deferral account for 2014 and 2015 to flow through any change to the 8.75% ROE resulting from the AAM. For example, if the 2014 BCUC GCOC benchmark ROE was increased from 8.75% to 9.0%, Yukon Electrical would flow through the impact of changing its ROE from 9.21% to 9.46%.

Common Equity Ratio

Since Yukon Electrical was last before the Board in 2008, both the BCUC and the Northwest Territories Public Utilities Board have increased the awarded common equity ratios for the British Columbia benchmark utility and the Northland companies, respectively. In the case of the BCUC, the benchmark common equity ratio has increased from 35.01% to 38.5%. In the case of the Northland companies, Northland Utilities (Yellowknife)'s common equity ratio has increased from 39.57% to 43.5% and Northland Utilities (NWT)'s common equity ratio has increased from 40% to 44%. Given Yukon Electrical shares similar business risks as compared to its affiliates in the Northwest Territories as well as the increase to the common equity ratio benchmark in British Columbia, Yukon Electrical is requesting to increase its common equity ratio from the current level of 40% to 44% for each of 2013, 2014 and 2015.

Forecast Long Term Debt Rates

Yukon Electrical is forecasting to issue long term debt in the test period. The forecasted debenture rates detailed in the following table are based on the best information available at the time the forecast was prepared. Yukon Electrical used an average Long Canada Bond Rate and applied a spread to determine the forecast debenture rate. The forecast for Long Canada Bonds and credit spreads were based on discussions with ATCO's Treasury Department and with financial institutions at the time of the filing.



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	2013	2014	2015
Long Canada Bond Rate	2.4% - 3.1%	3.2% - 3.7%	4.0 - 4.4%
Credit Spread	1.45% - 1.65%	1.45% - 1.65%	1.45% - 1.65%
Debenture Rate	3.85% - 4.75%	4.65% - 5.35%	5.45% - 6.05%
Recommended Rate	4.30%	5.00%	5.75%
Issue Costs	0.05%	0.05%	0.05%
Recommended All-In Rate	4.35%	5.05%	5.80%

1 The cost of debt includes the weighted average cost of all long term advances from
2 Yukon Electrical's parent company. The cost of issuing the debt is included in the
3 overall embedded costs.

4 **No Cost Capital**

5 The no cost capital included in this Application relates to the balances for deferred
6 pensions including other post employment benefit plans ("OPEB") as well as the reserve
7 for injuries and damages.

8 Other post employment benefits are administered on a combined basis with Canadian
9 Utilities Limited, and affiliate corporations and cover such things as drug, health and
10 dental costs for retirees. For these benefits, Yukon Electrical is assessed a percentage
11 of its payroll at a rate calculated for the plan as a whole. Consistent with its last GRA
12 and Board Order 2009-2, both the pension plan and OPEB have been accounted for on
13 the cash basis in the test period.

14 The reserve for injuries and damages is used for uninsured and uninsurable losses and
15 the deductible portion of insurance claims. Maintaining the reserve mitigates rate
16 fluctuations by smoothing out the charges to O&M with respect to these types of losses.
17 The establishment of the reserve provides financial advantages over paying significantly
18 higher insurance premiums in order to reduce deductibles or to insure items which carry
19 prohibitively high premiums. Please see Attachment 1 for a copy of Yukon Electrical's
20 accounting policy regarding the reserve for injuries and damages.



The Yukon Electrical Company Limited
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1 The following charges have been made to the reserve for injuries and damages since
2 2008:

	(\$000)
2012	
Shipyards Transformer Failure (deductible)	<u>\$100</u>
2011	
Carmacks Diesel Fuel Spill (deductible)	<u>\$100</u>
2010	
Fish Lake Unit #1 (deductible)	<u>\$100</u>
2009	
Fish Lake Plant Spillway Damage	\$29
Fish Lake Plant Valve Failure	\$32
Pelly Diesel Plant Exhaust Valve Failure	\$41
Watson Lake Diesel Plant	\$45
	<u>\$147</u>
2008	<u>\$0</u>

3 Please refer to Attachment 2 for a description of each incident as well signoff by
4 Yukon Electrical's internal and external insurance professionals.

5 The forecast annual charge of \$100,000 in the 2013-2015 test period is based on the
6 average of the 2010-2012 actual charges. Yukon Electrical is proposing to amortize the
7 balance of \$73,000 at the end of 2012 as well as the forecast annual charges for the
8 test period over the three test years to bring the overall reserve for injuries and
9 damages to \$0 as of December 31, 2015.

10 The continuity schedule for no cost capital is outlined in Schedule 8.4 and the balances
11 are:

	2008 Actual	2009 Actual	2010 Actual	2011 Actual	2012 Actual	Test Period		
					(\$000)	2013	2014	2015
No Cost Capital	<u>693</u>	<u>702</u>	<u>666</u>	<u>649</u>	<u>631</u>	<u>632</u>	<u>651</u>	<u>670</u>



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1 **Rate Base**

2 Capital Additions

3 Total capital additions included in Schedule 8.6 and outlined in detail in Section 9 are:

	2008 Actual	2009 Actual	2010 Actual	2011 Actual	2012 Actual	Test Period		
						2013	2014	2015
	(\$000)							
Expenditures	<u>9,906</u>	<u>6,253</u>	<u>9,388</u>	<u>14,938</u>	<u>14,590</u>	<u>20,282</u>	<u>22,417</u>	<u>20,820</u>
Capital Additions	<u>9,170</u>	<u>7,469</u>	<u>6,848</u>	<u>12,266</u>	<u>17,116</u>	<u>21,962</u>	<u>23,017</u>	<u>20,820</u>

4 These additions are primarily driven by a requirement to upgrade, enhance and replace
5 components on the distribution and generation systems that have reached the end of
6 their life cycle as well as meet system needs due to load growth.

7 Please refer to Section 9 for further discussion of capital expenditures.

8 Contributions

9 Contributions in aid of construction are received from customers in accordance with the
10 company's investment policy that was approved in Board Order 2010-13. The
11 contributions outlined in Schedule 8.12 are:

	2008 Actual	2009 Actual	2010 Actual	2011 Actual	2012 Actual	Test Period		
						2013	2014	2015
	(\$000)							
Contributions in Aid of Construction (per year)	<u>2,133</u>	<u>3,072</u>	<u>3,771</u>	<u>5,732</u>	<u>3,618</u>	<u>3,918</u>	<u>4,695</u>	<u>4,426</u>

12 Yukon Electrical's forecast process involves a review of projects included in the capital
13 additions outlined in Section 9 to identify those which will require a customer
14 contribution.



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An **ATCO** Company

1 Deferred Charges and Credits

2 The mid year deferred charges and credit amounts included in rate base are outlined in
3 Schedule 8.8 and are as follows:

	2008 Actual	2009 Actual	2010 Actual	2011 Actual	2012 Actual	Test Period		
						2013	2014	2015
	(\$000)							
Mid Year Balance	<u>464</u>	<u>270</u>	<u>269</u>	<u>(457)</u>	<u>(515)</u>	<u>(268)</u>	<u>118</u>	<u>175</u>

4 The deferred charges and credit amount includes the following:

5 (a) Rate Case Reserve

6 Yukon Electrical is using a deferral account to flow through to customers the
7 costs associated with filing its GRAs. See Schedule 8.9 for a breakdown of the
8 Phase I and Phase II costs forecast for 2013-2015. No rate case write-off is
9 required from 2013-2015 to bring the overall deferred rate case balance to zero
10 by the end of the test period.

11 (b) Watson Lake Bi-Fuel Project Study Costs

12 See Business Case #6 included with this Application for a discussion of the
13 deferred charges related to this project.

14 (c) Pelly Crossing Deferral Account

15 As part of its 2008-2009 GRA, Yukon Electrical forecast generation in the test
16 period assuming the connection of Pelly Crossing to the main grid effective
17 November 1, 2008. As the timing of commencement of the service was
18 uncertain and the costs associated a change in the assumed connection date
19 were material, Yukon Electrical received approval in Board Order 2009-2 for a
20 deferral account for the incremental costs associated with any changes that
21 resulted from reliance on the assumption. Pelly Crossing was connected to the



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grid on November 27, 2008, resulting in incremental costs of \$33,000 which are included on Schedule 8.8. Yukon Electrical is proposing to collect \$11,000 each year over the period 2013-2015 resulting in a zero balance of the end of the test period.

(d) Kluane Wind Study

Yukon Electrical will incur \$20,000 worth of consulting costs to study the feasibility of using wind to generate power in the Burwash and Destruction Bay area. Yukon Electrical is proposing to collect this amount from customers over the period 2013-2015, resulting in a zero balance of the end of the test period.

Consistent with the treatment of deferred overhauls approved in the 1996/1997 and 2008/2009 GRA proceedings, Yukon Electrical continues to defer the costs associated with major cyclical diesel plant overhauls and rebuilds. These costs are written off over a five-year period commencing from the time of the overhaul.

As detailed in Section 1 Attachment 2, under IFRS, major overhauls are required to be classified as property, plant and equipment. Therefore, upon transition to IFRS at the beginning of 2011, Yukon Electrical ceased classifying the major cyclical diesel plant overhauls as deferred charges on Schedule 8.8 and reclassified them as capital on Schedule 9.1. There is no impact to overall revenue requirement as a result of this reclassification.

Similarly, Yukon Electrical had previously included the renewal costs for the Fish Lake Water License as deferred charges on Schedule 8.8. Under IFRS, these costs are classified not as deferred charges but as intangible assets. As a result, these costs have been transferred from Schedule 8.8 to Schedule 9.1 starting in 2011. There is no impact to overall revenue requirement as a result of this reclassification.



The Yukon Electrical Company Limited
An **ATCO** Company

1 Working Capital

2 *Overview*

3 Working capital is a component of the company's total rate base as generally the
4 payment of expense occurs in advance of the receipt of revenues.

5 The components of working capital are:

- 6 • Purchased Power;
- 7 • Operations and Maintenance;
- 8 • Income Tax;
- 9 • Goods and Services Tax;
- 10 • Depreciation Expense;
- 11 • Interest Expense;
- 12 • Common Equity (retained earnings component);
- 13 • Common Equity (dividend component); and
- 14 • Material and Supplies Inventory (based on the estimated inventory balance).

15 To determine the working capital for the 2013-2015 test period, Yukon Electrical
16 completed a review of the components of each of the items in necessary working capital
17 to ensure that the nature of the revenue/expenses included in each category had not
18 changed materially since the 2008 lead/lag study was conducted and filed in Yukon
19 Electrical's 2008-2009 GRA. Based on this review, the only component in the lead lag
20 study that required an update was salary and wages lead/lag days as a result of Yukon
21 Electrical moving to standard industry practice of bi-weekly payroll processing on
22 January 1, 2010 with a one week payment lag. Prior to the beginning of 2010, Yukon
23 Electrical employees received semi-monthly payroll payments, which compensated
24 employees up to the end of the last day worked in any particular pay period. The
25 updated lead/lag days for salary and wages are reported on Schedule 8.10, which
26 reflect an increase in lag days from the lag days reported in the 2008 lead lag study.



The Yukon Electrical Company Limited
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1 The working capital included in rate base in this Application is outlined on Schedule 8.5
2 with the details on the components incorporating working capital disclosed on
3 Schedule 8.10 and is as follows:

	2008 Actual	2009 Actual	2010 Actual	2011 Actual	2012 Actual	Test Period		
						2013	2014	2015
	(\$000)							
Working Capital	<u>2,901</u>	<u>2,842</u>	<u>2,380</u>	<u>2,903</u>	<u>3,013</u>	<u>3,207</u>	<u>3,864</u>	<u>3,619</u>

4 The increase in working capital in the test period is mainly a result of higher operating
5 expenses and depreciation expense, as well as the change in the O&M lag days from
6 5 days for the years prior to 2013 to 7 days in the test period due to the update in the
7 salary and wages lead/lag days.

The Yukon Electrical Company Limited
2013 - 2015 General Rate Application
Return on Rate Base
(\$000s)

Schedule 8.1

Line No.	Description	Cross Ref.	Mid Year Balance	Ratio	Mid Year Rate Base	Mid Year Cost Rate	Return
1	<u>2008 Actual</u>						
2	Long-Term Debt	S.8.2 L.19	24,575	56.81%	26,100	6.97%	1,819
3	Common Stock		17,994	41.59%	19,110	7.03%	1,344
4	No Cost Capital	S.8.4 L.8	693	1.60%	735	0.00%	-
5	Total	S.8.5 L.21 S.1.1 L.15	<u>43,262</u>	<u>100.0%</u>	<u>45,946</u>	<u>6.88%</u>	<u>3,163</u>
6	<u>2009 Actual</u>						
7	Long-Term Debt	S.8.2 L.42	27,650	57.34%	28,166	6.73%	1,895
8	Common Stock		19,866	41.20%	20,236	11.35%	2,296
9	No Cost Capital	S.8.4 L.8	702	1.45%	715	0.00%	-
10	Total	S.8.5 L.21 S.1.1 L.15	<u>48,217</u>	<u>100.0%</u>	<u>49,116</u>	<u>8.53%</u>	<u>4,191</u>
11	<u>2010 Actual</u>						
12	Long-Term Debt	S.8.2 L.63	29,950	57.27%	28,649	6.58%	1,884
13	Common Stock		21,682	41.46%	20,740	10.54%	2,187
14	No Cost Capital	S.8.4 L.8	666	1.27%	637	0.00%	-
15	Total	S.8.5 L.21 S.1.1 L.15	<u>52,298</u>	<u>100.0%</u>	<u>50,026</u>	<u>8.14%</u>	<u>4,071</u>
16	<u>2011 Actual</u>						
17	Long-Term Debt	S.8.2 L.85	32,450	57.36%	30,062	6.42%	1,931
18	Common Stock		23,472	41.49%	21,745	10.74%	2,335
19	No Cost Capital	S.8.4 L.8	649	1.15%	601	0.00%	-
20	Total	S.8.5 L.21 S.1.1 L.15	<u>56,571</u>	<u>100.0%</u>	<u>52,408</u>	<u>8.14%</u>	<u>4,266</u>
21	<u>2012 Actual</u>						
22	Long-Term Debt	S.8.2 L.107	36,950	58.35%	35,031	6.16%	2,158
23	Common Stock		25,740	40.65%	24,403	10.18%	2,484
24	No Cost Capital	S.8.4 L.8	631	1.00%	598	0.00%	-
25	Total	S.8.5 L.21 S.1.1 L.15	<u>63,321</u>	<u>100.0%</u>	<u>60,033</u>	<u>7.73%</u>	<u>4,642</u>

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Return on Rate Base
(\$000s)

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Line No.	Description	Cross Ref.	Mid Year Balance	Ratio	Mid Year Rate Base	Mid Year Cost Rate	Return
26	<u>2013 Test Period</u>						
27	Long-Term Debt	S.8.3 L.23	40,150	55.52%	40,154	5.99%	2,404
28	Common Stock		31,540	43.61%	31,544	9.21%	2,904
29	No Cost Capital	S.8.4 L.8	632	0.87%	632	0.00%	-
30	Total	S.8.5 L.21 S.1.1 L.15	<u>72,322</u>	<u>100.0%</u>	<u>72,329</u>	<u>7.34%</u>	<u>5,308</u>
31	<u>2014 Test Period</u>						
32	Long-Term Debt	S.8.3 L.48	47,950	55.58%	47,835	5.84%	2,793
33	Common Stock		37,670	43.66%	37,579	9.21%	3,462
34	No Cost Capital	S.8.4 L.8	651	0.75%	649	0.00%	-
35	Total	S.8.5 L.21 S.1.1 L.15	<u>86,271</u>	<u>100.0%</u>	<u>86,063</u>	<u>7.27%</u>	<u>6,255</u>
36	<u>2015 Test Period</u>						
37	Long-Term Debt	S.8.3 L.73	54,550	55.62%	53,845	5.77%	3,105
38	Common Stock		42,860	43.70%	42,306	9.21%	3,898
39	No Cost Capital	S.8.4 L.8	670	0.68%	661	0.00%	-
40	Total	S.8.5 L.21 S.1.1 L.15	<u>98,080</u>	<u>100.0%</u>	<u>96,812</u>	<u>7.23%</u>	<u>7,003</u>
41	<u>2008 GRA Approved</u>						
42	Long-Term Debt	S.8.2 L.126	26,621	59.11%	27,243	6.87%	1,870
43	Common Stock		17,747	39.41%	18,162	9.08%	1,649
44	No Cost Capital	S.8.4 L.8	669	1.49%	685	0.00%	-
45	Total	S.8.5 L.21 S.1.1 L.15	<u>45,037</u>	<u>100%</u>	<u>46,090</u>	<u>7.64%</u>	<u>3,519</u>
46	<u>2009 GRA Approved</u>						
47	Long-Term Debt	S.8.2 L.148	29,730	59.17%	29,276	6.60%	1,934
48	Common Stock		19,820	39.45%	19,517	8.92%	1,741
49	No Cost Capital	S.8.4 L.8	695	1.38%	684	0.00%	-
50	Total	S.8.5 L.21 S.1.1 L.15	<u>50,245</u>	<u>100%</u>	<u>49,478</u>	<u>7.43%</u>	<u>3,675</u>

The Yukon Electrical Company Limited
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1	<u>2008 Actual</u>					<u>Net Capital Employed</u>						
2						Principal	Per \$100 of			Principal		Average
3			Issue	Coupon	Maturity	Amount	Total	Principal	Effective	Outstanding	Carrying	Embedded
4	Description	Series	Date	Rate	Date	Offered	Amount	Amount	Cost Rate *	31-Dec-08	Cost	Cost Rate
5		C	1989-11-30	10.28%	2009	2,000	2,000	100.00	10.33%	2,000	207	
6		D	1990-11-28	11.85%	2020	1,500	1,500	100.00	11.91%	1,500	179	
7		E	1992-05-08	9.46%	2023	2,500	2,500	100.00	9.51%	2,500	238	
8		K	1999-08-13	6.80%	2019	4,500	4,500	100.00	6.85%	4,500	308	
9		N	2002-11-22	6.16%	2017	3,900	3,900	100.00	6.21%	3,900	242	
10		O	2004-01-23	5.42%	2019	1,000	1,000	100.00	5.47%	1,000	55	
11		P	2004-11-18	5.11%	2014	500	500	100.00	5.16%	500	26	
12		Q	2005-11-21	5.18%	2035	4,300	4,300	100.00	5.23%	4,300	225	
13		R	2006-11-20	5.02%	2036	3,000	3,000	100.00	5.07%	3,000	152	
14		S	2008-05-26	5.57%	2038	1,290	1,290	100.00	5.62%	1,290	72	
15		T	2008-05-26	5.56%	2028	860	860	100.00	5.61%	860	48	
16	Total					25,350				25,350	1,752	6.91%
17	Prior Year									23,800	1,673	7.03%
18	Total									49,150	3,425	
19	Mid Year									24,575	1,712	6.97%
20												
21	<u>2009 Actual</u>					<u>Net Capital Employed</u>						
22						Principal	Per \$100 of			Principal		Average
23			Issue	Coupon	Maturity	Amount	Total	Principal	Effective	Outstanding	Carrying	Embedded
24	Description	Series	Date	Rate	Date	Offered	Amount	Amount	Cost Rate *	31-Dec-09	Cost	Cost Rate
25		C	1989-11-30	10.28%	2009	2,000	2,000	100.00	10.33%	-	-	
26		D	1990-11-28	11.85%	2020	1,500	1,500	100.00	11.91%	1,500	179	
27		E	1992-05-08	9.46%	2023	2,500	2,500	100.00	9.51%	2,500	238	
28		K	1999-08-13	6.80%	2019	4,500	4,500	100.00	6.85%	4,500	308	
29		L	2000-06-02	7.00%	2008	-	-	-	7.05%	-	-	
30		N	2002-11-22	6.16%	2017	3,900	3,900	100.00	6.21%	3,900	242	
31		O	2004-01-23	5.42%	2019	1,000	1,000	100.00	5.47%	1,000	55	
32		P	2004-11-18	5.11%	2014	500	500	100.00	5.16%	500	26	
33		Q	2005-11-21	5.18%	2035	4,300	4,300	100.00	5.23%	4,300	225	
34		R	2006-11-20	5.02%	2036	3,000	3,000	100.00	5.07%	3,000	152	
35		S	2008-05-26	5.66%	2028	860	860	100.00	5.61%	860	48	
36		T	2008-05-26	5.67%	2038	1,290	1,290	100.00	5.62%	1,290	72	
37		U	2009-03-06		2024	2,900	2,900	100.00	6.28%	2,900	182	
38		V	2009-03-06		2039	3,700	3,700	100.00	6.55%	3,700	242	
39	Total					31,950				29,950	1,970	6.58%
40	Prior Year									25,350	1,752	6.91%
41	Total									55,300	3,721	
42	Mid Year									27,650	1,861	6.73%

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43	<u>2010 Actual</u>					<u>Net Capital Employed</u>						
44						Principal	Per \$100 of		Principal		Average	
45			Issue	Coupon	Maturity	Amount	Total	Principal	Effective	Outstanding	Carrying	Embedded
46	Description	Series	Date	Rate	Date	Offered	Amount	Amount	Cost Rate *	31-Dec-10	Cost	Cost Rate
47		D	1990-11-28	11.85%	2020	1,500	1,500	100.00	11.91%	1,500	179	
48		E	1992-05-08	9.46%	2023	2,500	2,500	100.00	9.51%	2,500	238	
49		K	1999-08-13	6.80%	2019	4,500	4,500	100.00	6.85%	4,500	308	
50		L	2000-06-02	7.00%	2008	-	-	-	7.05%	-	-	
51		N	2002-11-22	6.16%	2017	3,900	3,900	100.00	6.21%	3,900	242	
52		O	2004-01-23	5.42%	2019	1,000	1,000	100.00	5.47%	1,000	55	
53		P	2004-11-18	5.11%	2014	500	500	100.00	5.16%	500	26	
54		Q	2005-11-21	5.18%	2035	4,300	4,300	100.00	5.23%	4,300	225	
55		R	2006-11-20	5.02%	2036	3,000	3,000	100.00	5.07%	3,000	152	
56		S	2008-05-26	5.66%	2028	860	860	100.00	5.61%	860	48	
57		T	2008-05-26	5.67%	2038	1,290	1,290	100.00	5.62%	1,290	72	
58		U	2009-03-06	6.78%	2024	2,900	2,900	100.00	6.28%	2,900	182	
59		V	2009-03-06	7.05%	2039	3,700	3,700	100.00	6.55%	3,700	242	
60	Total					29,950				29,950	1,970	6.58%
61	Prior Year									29,950	1,970	6.58%
62	Total									59,900	3,939	
63	Mid Year									29,950	1,970	6.58%
64												
65	<u>2011 Actual</u>					<u>Net Capital Employed</u>						
66						Principal	Per \$100 of		Principal		Average	
67			Issue	Coupon	Maturity	Amount	Total	Principal	Effective	Outstanding	Carrying	Embedded
68	Description	Series	Date	Rate	Date	Offered	Amount	Amount	Cost Rate *	31-Dec-11	Cost	Cost Rate
69		D	1990-11-28	11.85%	2020	1,500	1,500	100.00	11.91%	1,500	179	
70		E	1992-05-08	9.46%	2023	2,500	2,500	100.00	9.51%	2,500	238	
71		K	1999-08-13	6.80%	2019	4,500	4,500	100.00	6.85%	4,500	308	
72		N	2002-11-22	6.16%	2017	3,900	3,900	100.00	6.21%	3,900	242	
73		O	2004-01-23	5.42%	2019	1,000	1,000	100.00	5.47%	1,000	55	
74		P	2004-11-18	5.11%	2014	500	500	100.00	5.16%	500	26	
75		Q	2005-11-21	5.18%	2035	4,300	4,300	100.00	5.23%	4,300	225	
76		R	2006-11-20	5.02%	2036	3,000	3,000	100.00	5.07%	3,000	152	
77		S	2008-05-26	5.66%	2028	860	860	100.00	5.61%	860	48	
78		T	2008-05-26	5.67%	2038	1,290	1,290	100.00	5.62%	1,290	72	
79		U	2009-03-06	6.78%	2024	2,900	2,900	100.00	6.28%	2,900	182	
80		V	2009-03-06	7.05%	2039	3,700	3,700	100.00	6.55%	3,700	242	
81		W	2011-10-24	5.08%	2041	5,000	5,000	100.00	4.58%	5,000	229	
82	Total					34,950				34,950	2,199	6.29%
83	Prior Year									29,950	1,970	6.58%
84	Total									64,900	4,168	
85	Mid Year									32,450	2,084	6.42%

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86	<u>2012 Actual</u>					<u>Net Capital Employed</u>						
87						Per \$100 of				Principal		Average
88			Issue	Coupon	Maturity	Principal	Total	Principal	Effective	Principal	Carrying	Embedded
89	Description	Series	Date	Rate	Date	Amount	Amount	Amount	Cost Rate *	Outstanding	Cost	Cost Rate
90		D	1990-11-28	11.85%	2020	1,500	1,500	100.00	11.91%	1,500	179	
91		E	1992-05-08	9.46%	2023	2,500	2,500	100.00	9.51%	2,500	238	
92		K	1999-08-13	6.80%	2019	4,500	4,500	100.00	6.85%	4,500	308	
93		N	2002-11-22	6.16%	2017	3,900	3,900	100.00	6.21%	3,900	242	
94		O	2004-01-23	5.42%	2019	1,000	1,000	100.00	5.47%	1,000	55	
95		P	2004-11-18	5.11%	2014	500	500	100.00	5.16%	500	26	
96		Q	2005-11-21	5.18%	2035	4,300	4,300	100.00	5.23%	4,300	225	
97		R	2006-11-20	5.02%	2036	3,000	3,000	100.00	5.07%	3,000	152	
98		S	2008-05-26	5.56%	2028	860	860	100.00	5.61%	860	48	
99		T	2008-05-26	5.57%	2038	1,290	1,290	100.00	5.62%	1,290	72	
100		U	2009-03-06	6.23%	2024	2,900	2,900	100.00	6.28%	2,900	182	
101		V	2009-03-06	6.50%	2039	3,700	3,700	100.00	6.55%	3,700	242	
102		W	2011-10-24	4.53%	2041	5,000	5,000	100.00	4.58%	5,000	229	
103		X	2012-11-01	3.84%	2052	4,000	4,000	100.00	3.89%	4,000	156	
104	Total					38,950				38,950	2,354	6.04%
105	Prior Year									34,950	2,199	6.29%
106	Total									73,900	4,553	
107	Mid Year									36,950	2,276	6.16%

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<u>2008 GRA Approved</u>						<u>Net Capital Employed</u>		<u>Effective Cost Rate *</u>	<u>Principal Outstanding 31-Dec-08</u>	<u>Carrying Cost</u>	<u>Average Embedded Cost Rate</u>
<u>Description</u>	<u>Series</u>	<u>Issue Date</u>	<u>Coupon Rate</u>	<u>Maturity Date</u>	<u>Principal Amount Offered</u>	<u>Total Amount</u>	<u>Per \$100 of Principal Amount</u>				
	C	1989-11-30	10.28%	2009	2,000	2,000	100.00	10.33%	2,000	207	
	D	1990-11-28	11.85%	2020	1,500	1,500	100.00	11.91%	1,500	179	
	E	1992-05-08	9.46%	2023	2,500	2,500	100.00	9.51%	2,500	238	
	K	1999-08-13	6.80%	2019	4,500	4,500	100.00	6.85%	4,500	308	
	L	2000-06-02	7.00%	2008	-	-	-	7.05%	-	-	
	N	2002-11-22	6.16%	2017	3,900	3,900	100.00	6.21%	3,900	242	
	O	2004-01-23	5.42%	2019	1,000	1,000	100.00	5.47%	1,000	55	
	P	2004-11-18	5.11%	2014	500	500	100.00	5.16%	500	26	
	Q	2005-11-21	5.18%	2035	4,300	4,300	100.00	5.23%	4,300	225	
	R	2006-11-20	5.02%	2036	3,000	3,000	100.00	5.07%	3,000	152	
	T	2008-11-20	5.12%	2038	6,242	6,242	100.00	5.623%	6,242	351	
Total					29,442				29,442	1,982	6.73%
Prior Year									23,800	1,673	7.03%
Total									53,242	3,655	
Mid Year									26,621	1,828	6.87%
<u>2009 GRA Approved</u>						<u>Net Capital Employed</u>		<u>Effective Cost Rate *</u>	<u>Principal Outstanding 31-Dec-09</u>	<u>Carrying Cost</u>	<u>Average Embedded Cost Rate</u>
<u>Description</u>	<u>Series</u>	<u>Issue Date</u>	<u>Coupon Rate</u>	<u>Maturity Date</u>	<u>Principal Amount Offered</u>	<u>Total Amount</u>	<u>Per \$100 of Principal Amount</u>				
	D	1990-11-28	11.85%	2020	1,500	1,500	100.00	11.91%	1,500	179	
	E	1992-05-08	9.46%	2023	2,500	2,500	100.00	9.51%	2,500	238	
	K	1999-08-13	6.80%	2019	4,500	4,500	100.00	6.85%	4,500	308	
	L	2000-06-02	7.00%	2008	-	-	-	7.05%	-	-	
	N	2002-11-22	6.16%	2017	3,900	3,900	100.00	6.21%	3,900	242	
	O	2004-01-23	5.42%	2019	1,000	1,000	100.00	5.47%	1,000	55	
	P	2004-11-18	5.11%	2014	500	500	100.00	5.16%	500	26	
	Q	2005-11-21	5.18%	2035	4,300	4,300	100.00	5.23%	4,300	225	
	R	2006-11-20	5.02%	2036	3,000	3,000	100.00	5.07%	3,000	152	
	T	2008-11-20	5.12%	2038	6,242	6,242	100.00	5.623%	6,242	351	
	U	2009-11-20	6.55%	2039	2,576	2,576	100.00	6.60%	2,576	170	
Total					30,018				30,018	1,945	6.48%
Prior Year									29,442	1,982	6.73%
Total									59,460	3,927	
Mid Year									29,730	1,964	6.60%

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1	<u>2013 Test Period</u>					<u>Net Capital Employed</u>						
2						Principal	Per \$100 of		Principal		Average	
3			Issue	Coupon	Maturity	Amount	Total	Principal	Effective	Outstanding	Carrying	Embedded
4	Description	Series	Date	Rate	Date	Offered	Amount	Amount	Cost Rate *	31-Dec-13	Cost	Cost Rate
5		D	1990-11-28	11.85%	2020	1,500	1,500	100.00	11.91%	1,500	179	
6		E	1992-05-08	9.46%	2023	2,500	2,500	100.00	9.51%	2,500	238	
7		K	1999-08-13	6.80%	2019	4,500	4,500	100.00	6.85%	4,500	308	
8		N	2002-11-22	6.16%	2017	3,900	3,900	100.00	6.21%	3,900	242	
9		O	2004-01-23	5.42%	2019	1,000	1,000	100.00	5.47%	1,000	55	
10		P	2004-11-18	5.11%	2014	500	500	100.00	5.16%	500	26	
11		Q	2005-11-21	5.18%	2035	4,300	4,300	100.00	5.23%	4,300	225	
12		R	2006-11-20	5.02%	2036	3,000	3,000	100.00	5.07%	3,000	152	
13		S	2008-05-26	5.56%	2028	860	860	100.00	5.61%	860	48	
14		T	2008-05-26	5.57%	2038	1,290	1,290	100.00	5.62%	1,290	72	
15		U	2009-03-06	6.23%	2024	2,900	2,900	100.00	6.28%	2,900	182	
16		V	2009-03-06	6.50%	2039	3,700	3,700	100.00	6.55%	3,700	242	
17		W	2011-10-24	4.53%	2041	5,000	5,000	100.00	4.58%	5,000	229	
18		X	2012-11-01	3.84%	2052	5,000	5,000	100.00	3.89%	5,000	195	
19		Y	2013-11-01	4.30%	2053	1,400	1,400	100.00	4.35%	1,400	61	
20	Total					41,350				41,350	2,454	5.93%
21	Prior Year									38,950	2,354	6.04%
22	Total									80,300	4,808	
23	Mid Year									40,150	2,404	5.99%
24												
25	<u>2014 Test Period</u>					<u>Net Capital Employed</u>						
26						Principal	Per \$100 of		Principal		Average	
27			Issue	Coupon	Maturity	Amount	Total	Principal	Effective	Outstanding	Carrying	Embedded
28	Description	Series	Date	Rate	Date	Offered	Amount	Amount	Cost Rate *	31-Dec-14	Cost	Cost Rate
29		D	1990-11-28	11.85%	2020	1,500	1,500	100.00	11.91%	1,500	179	
30		E	1992-05-08	9.46%	2023	2,500	2,500	100.00	9.51%	2,500	238	
31		K	1999-08-13	6.80%	2019	4,500	4,500	100.00	6.85%	4,500	308	
32		N	2002-11-22	6.16%	2017	3,900	3,900	100.00	6.21%	3,900	242	
33		O	2004-01-23	5.42%	2019	1,000	1,000	100.00	5.47%	1,000	55	
34		P	2004-11-18	5.11%	2014	500	500	100.00	5.16%	-	26	
35		Q	2005-11-21	5.18%	2035	4,300	4,300	100.00	5.23%	4,300	225	
36		R	2006-11-20	5.02%	2036	3,000	3,000	100.00	5.07%	3,000	152	
37		S	2008-05-26	5.56%	2028	860	860	100.00	5.61%	860	48	
38		T	2008-05-26	5.57%	2038	1,290	1,290	100.00	5.62%	1,290	72	
39		U	2009-03-06	6.23%	2024	2,900	2,900	100.00	6.28%	2,900	182	
40		V	2009-03-06	6.50%	2039	3,700	3,700	100.00	6.55%	3,700	242	
41		W	2011-10-24	4.53%	2041	5,000	5,000	100.00	4.58%	5,000	229	
42		X	2012-11-01	3.84%	2052	5,000	5,000	100.00	3.89%	5,000	195	
43		Y	2013-11-01	4.30%	2053	1,400	1,400	100.00	4.35%	1,400	61	
44		Z	2014-11-01	5.00%	2054	13,700	13,700	100.00	5.05%	13,700	692	
45	Total					55,050				54,550	3,146	5.77%
46	Prior Year									41,350	2,454	5.93%
47	Total									95,900	5,600	
48	Mid Year									47,950	2,800	5.84%

The Yukon Electrical Company Limited
2013 - 2015 General Rate Application
Schedule of Debt Capital Employed and Embedded Cost 2008 - 2012
(\$000s)

Schedule 8.3
Page 2 of 2

Line
No.

Line No.	2015 Test Period					Net Capital Employed			Effective Cost Rate *	Principal Outstanding 31-Dec-15	Carrying Cost	Average Embedded Cost Rate
						Principal Amount Offered	Total Amount	Per \$100 of Principal Amount				
53	Description	Series	Issue Date	Coupon Rate	Maturity Date							
54		D	1990-11-28	11.85%	2020	1,500	1,500	100.00	11.91%	1,500	179	
55		E	1992-05-08	9.46%	2023	2,500	2,500	100.00	9.51%	2,500	238	
56		K	1999-08-13	6.80%	2019	4,500	4,500	100.00	6.85%	4,500	308	
57		N	2002-11-22	6.16%	2017	3,900	3,900	100.00	6.21%	3,900	242	
58		O	2004-01-23	5.42%	2019	1,000	1,000	100.00	5.47%	1,000	55	
59		P	2004-11-18	5.11%	2014	500	500	100.00	5.16%	-	26	
60		Q	2005-11-21	5.18%	2035	4,300	4,300	100.00	5.23%	4,300	225	
61		R	2006-11-20	5.02%	2036	3,000	3,000	100.00	5.07%	3,000	152	
62		S	2008-05-26	5.56%	2028	860	860	100.00	5.61%	860	48	
63		T	2008-05-26	5.57%	2038	1,290	1,290	100.00	5.62%	1,290	72	
64		U	2009-03-06	6.23%	2024	2,900	2,900	100.00	6.28%	2,900	182	
65		V	2009-03-06	6.50%	2039	3,700	3,700	100.00	6.55%	3,700	242	
66		W	2011-10-24	4.53%	2041	5,000	5,000	100.00	4.58%	5,000	229	
67		X	2012-11-01	3.84%	2052	5,000	5,000	100.00	3.89%	5,000	195	
68		Y	2013-11-01	4.30%	2053	1,400	1,400	100.00	4.35%	1,400	61	
69		Z	2014-11-01	5.00%	2054	13,700	13,700	100.00	5.05%	13,700	692	
70		AA	2015-11-01	5.75%	2055	-	-	100.00	5.80%	-	-	
71	Total					55,050				54,550	3,146	5.77%
72	Prior Year									54,550	3,146	5.77%
73	Total									109,100	6,292	
74	Mid Year									54,550	3,146	5.77%

The Yukon Electrical Company Limited
2013 - 2015 General Rate Application
Continuity Schedule of No Cost Capital
(\$000s)

Schedule 8.4

Line No.	Description	Cross Ref.	Actual 2008	Actual 2009	Actual 2010	Actual 2011	Actual 2012	2013	Test Period 2014	2015	GRA Approved 2008	GRA Approved 2009
1	No Cost Capital											
2	Deferred Pension and Regulatory Asset/Liability											
3												
4	Mid-Year Balance Summary											
5	Other Post Employment Benefits (OPEB)	L.16	537	537	537	537	537	537	537	537	537	537
6	Defined Benefit Pension	L.23	170	167	163	160	156	152	148	144	171	171
7	Injuries & Damages	L.30	(15)	(2)	(34)	(48)	(62)	(58)	(35)	(12)	(39)	(13)
8	Total No Cost Capital Mid-Year Balance	S.8.1 L.4,9,14,19, 24,29,34,39	<u>693</u>	<u>702</u>	<u>666</u>	<u>649</u>	<u>631</u>	<u>632</u>	<u>651</u>	<u>670</u>	<u>669</u>	<u>695</u>
9												
10												
11	Other Post Employment Benefits (OPEB)											
12	Balance at Beginning of Year		537	537	537	537	537	537	537	537	537	537
13	Add: Charges		37	24	20	11	37	37	37	37	60	60
14	Less: Cash Payments		(37)	(24)	(20)	(11)	(37)	(37)	(37)	(37)	(60)	(60)
15	Balance at End of Year		<u>537</u>	<u>537</u>	<u>537</u>	<u>537</u>	<u>537</u>	<u>537</u>	<u>537</u>	<u>537</u>	<u>537</u>	<u>537</u>
16	Mid-Year Balance	(L.12+L.15) / 2	<u>537</u>	<u>537</u>	<u>537</u>	<u>537</u>	<u>537</u>	<u>537</u>	<u>537</u>	<u>537</u>	<u>537</u>	<u>537</u>
17												
18	Defined Benefit Pension											
19	Balance at Beginning of Year		171	169	164	161	158	154	150	146	171	171
20	Add: Charges		629	659	798	851	1,276	1,276	1,276	1,276	588	623
21	Less: Cash Payments		(631)	(664)	(801)	(854)	(1,280)	(1,280)	(1,280)	(1,280)	(588)	(623)
22	Balance at End of Year		<u>169</u>	<u>164</u>	<u>161</u>	<u>158</u>	<u>154</u>	<u>150</u>	<u>146</u>	<u>142</u>	<u>171</u>	<u>171</u>
23	Mid-Year Balance	(L.19+L.22) / 2	<u>170</u>	<u>167</u>	<u>163</u>	<u>160</u>	<u>156</u>	<u>152</u>	<u>148</u>	<u>144</u>	<u>171</u>	<u>171</u>
24												
25	Injuries & Damages											
26	Balance at Beginning of Year		(52)	23	(27)	(41)	(55)	(69)	(46)	(23)	(52)	(26)
27	Add: Write-off	S.10.1 L.8	75	97	86	86	86	123	123	123	86	86
28	Less: Costs	S.10.1 L.17	-	(147)	(100)	(100)	(100)	(100)	(100)	(100)	(60)	(60)
29	Balance at End of Year		<u>23</u>	<u>(27)</u>	<u>(41)</u>	<u>(55)</u>	<u>(69)</u>	<u>(46)</u>	<u>(23)</u>	<u>-</u>	<u>(26)</u>	<u>-</u>
30	Mid-Year Balance	(L.26+L.29) / 2	<u>(15)</u>	<u>(2)</u>	<u>(34)</u>	<u>(48)</u>	<u>(62)</u>	<u>(58)</u>	<u>(35)</u>	<u>(12)</u>	<u>(39)</u>	<u>(13)</u>

The Yukon Electrical Company Limited
2013 - 2015 General Rate Application
Computation of Rate Base
(\$000s)

Schedule 8.5

Line No.	Description	Cross Ref.	Actual 2008	Actual 2009	Actual 2010	Actual 2011	Actual 2012	Test Period			GRA Approved 2008	GRA Approved 2009
								2013	2014	2015		
1	Property, Plant and Equipment											
2	Year End Balance	S.8.6 L.14	127,008	132,981	141,719	155,160	168,829	187,670	208,812	228,537	126,434	133,801
3	Deduct:											
4	Accumulated Depreciation	S.8.6 L.25	56,612	59,806	62,764	64,609	67,891	72,895	79,161	86,672	56,682	59,904
5	Construction-in-Progress	S.9.1 L.35	1,771	555	3,095	5,767	3,241	1,561	961	961	620	580
6	Total Deductions		58,383	60,361	65,859	70,376	71,132	74,456	80,121	87,632	57,302	60,484
7	Net Plant in Service											
8	Current Year End Balance		68,625	72,620	75,860	84,784	97,697	113,214	128,691	140,904	69,132	73,318
9	Previous Year End Balance		62,683	68,625	72,620	75,860	84,784	97,697	113,214	128,691	62,683	69,132
10	Total		131,308	141,245	148,480	160,644	182,481	210,910	241,904	269,595	131,815	142,450
11	Mid-Year Balance		65,654	70,623	74,240	80,322	91,240	105,455	120,952	134,797	65,907	71,225
12	Mid-Year Deferred Charges/Credits	S.8.8 L.19	464	270	269	(457)	(515)	(268)	118	175	645	458
13	Working Capital	S.8.10 L.29	2,901	2,842	2,380	2,903	3,013	3,207	3,864	3,619	2,833	2,627
14	Gross Rate Base		69,019	73,735	76,889	82,768	93,738	108,394	124,934	138,591	69,385	74,310
15	Deduct:											
16	Contributions in Aid of Construction											
17	Current Year End Balance	S.8.12 L.11	23,649	25,588	28,138	32,581	34,828	37,302	40,440	43,117	24,093	25,571
18	Previous Year End Balance		22,496	23,649	25,588	28,138	32,581	34,828	37,302	40,440	22,496	24,093
19	Total		46,145	49,237	53,726	60,719	67,409	72,130	77,742	83,557	46,589	49,664
20	Mid-Year Balance		23,073	24,619	26,863	30,360	33,705	36,065	38,871	41,779	23,295	24,832
		S.8.1 L.5,10,15,20, 25, 30, 35, 40										
21	Net Rate Base		45,946	49,116	50,026	52,408	60,033	72,329	86,063	96,812	46,090	49,478

The Yukon Electrical Company Limited
2013 - 2015 General Rate Application
Continuity Schedule of Property, Plant and Equipment
(\$000)

Schedule 8.6

Line No.	Description	Cross Ref.	Actual 2008	Actual 2009	Actual 2010	Actual 2011	Actual 2012	Test Period			GRA Approved 2008	GRA Approved 2009
								2013	2014	2015		
1	<u>Property, Plant and Equipment</u>											
2												
3	Balance at Beginning of Year		116,451	125,237	132,426	138,624	149,393	165,588	186,109	207,851	116,451	125,814
4												
5	Additions	S.9.1 L.33	9,170	7,469	6,848	12,266	17,116	21,962	23,017	20,820	9,714	7,758
6	Reclassify from Deferred Charges	S. 8.8 L.32+L.42	-	-	-	950	-	-	-	-	-	-
7	Retirement and Disposals	S.8.7 L.22	(384)	(280)	(650)	(2,447)	(922)	(1,440)	(1,276)	(1,095)	(351)	(351)
8		S.7.2, 7.3, 7.4 L.51	8,786	7,189	6,198	10,769	16,194	20,522	21,742	19,725	9,363	7,407
9												
10	Balance at End of Year	S.7.2, 7.3, 7.4 L.53	125,237	132,426	138,624	149,393	165,588	186,109	207,851	227,576	125,814	133,221
11												
12	Construction-in-Progress	S.9.1 L.35	1,771	555	3,095	5,767	3,241	1,561	961	961	620	580
13												
14	Total Property, Plant and Equipment	S.8.5 L.2	127,008	132,981	141,719	155,160	168,829	187,670	208,812	228,537	126,434	133,801
15												
16	<u>Accumulated Depreciation</u>											
17												
18	Balance at Beginning of Year		53,768	56,612	59,806	62,764	64,609	67,891	72,895	79,161	53,768	56,682
19	Reclassify from Deferred Charges	S. 8.8 L.33+L.43	-	-	-	176	-	-	-	-	-	-
20	Depreciation Expense	S.7.1 L.4	3,181	3,446	3,683	4,129	4,192	6,570	7,509	8,569	3,354	3,661
21	Depreciation Capitalized	S.7.1 L.3	22	64	43	48	67	75	82	87	24	24
22	Dismantling		25	(36)	(118)	(62)	(55)	(200)	(50)	(50)	(113)	(113)
23	Retirements	S.8.7 L.22	(384)	(280)	(650)	(2,446)	(922)	(1,440)	(1,276)	(1,095)	(351)	(351)
24												
25	Balance at End of Year	S.8.5 L.4	56,612	59,806	62,764	64,609	67,891	72,895	79,161	86,672	56,682	59,904
26												
27												
28	Net Property, Plant and Equipment		70,396	73,175	78,955	90,551	100,938	114,774	129,651	141,865	69,752	73,898

The Yukon Electrical Company Limited
2013 - 2015 General Rate Application
Continuity Schedule of Capital Retirements by Function
(\$000)

Schedule 8.7

Line No.	Description	Cross Ref.	Actual 2008	Actual 2009	Actual 2010	Actual 2011	Actual 2012	Test Period			GRA Approved 2008	GRA Approved 2009
								2013	2014	2015		
1	Generation											
2	Internal Combustion		-	-	-	(2,269)	-	(977)	(343)	(369)	-	-
3	Hydro		-	-	-	-	(619)	-	(200)	-	-	-
4	Other Retirements Less Than \$20,000		-	-	-	-	-	-	-	-	(14)	(14)
5	Total Generation Retirements		-	-	-	(2,269)	(619)	(977)	(543)	(369)	(14)	(14)
6												
7												
8	Distribution											
9	Poles, Towers & Fixtures		(90)	(57)	(227)	(35)	(62)	(80)	(80)	(80)	(68)	(68)
10	Line Transformers		(3)	(3)	(30)	(21)	(13)	(112)	(12)	(12)	(18)	(18)
11	Meters		(96)	-	(166)	(70)	(16)	(58)	(427)	(427)	(82)	(82)
12	Other Retirements Less Than \$20,000		(47)	(13)	(22)	(19)	(14)	(16)	(16)	(16)	(8)	(8)
13	Total Distribution Retirements		(236)	(73)	(445)	(144)	(105)	(267)	(536)	(536)	(176)	(176)
14												
15	General Plant											
16	Office Furniture & Equipment		(38)	(57)	(30)	(15)	(16)	(32)	(32)	(32)	(44)	(44)
17	Vehicles		(44)	(109)	(154)	(5)	(162)	(127)	(127)	(120)	(57)	(57)
18	Tool & Work Equipment		(59)	(18)	(17)	(13)	(17)	(31)	(31)	(31)	(59)	(59)
19	Other Retirements Less Than \$20,000		(7)	(23)	(5)	-	(3)	(7)	(7)	(7)	(1)	(1)
20	Total General Plant Retirements		(148)	(207)	(205)	(33)	(198)	(197)	(197)	(190)	(161)	(161)
21												
22	Total Capital Retirements	S.8.6 L.7	(384)	(280)	(650)	(2,447)	(922)	(1,440)	(1,276)	(1,095)	(351)	(351)

The Yukon Electrical Company Limited
2013 - 2015 General Rate Application
Continuity Schedule of Deferred Charges & Credits
(\$000s)

Schedule 8.8

Line No.	Description	Cross Ref.	Actual 2008	Actual 2009	Actual 2010	Actual 2011	Actual 2012	2013	Test Period 2014	2015	GRA Approved 2008	GRA Approved 2009
1	Total Deferred Charges & Credits Summary											
2												
3	Write-off Summary											
4	Rate Case Costs	L. 24 + L.25	(600)	(150)	(150)	(150)	(150)	-	-	-	(150)	(150)
5	Diesel Plant Major Overhaul Costs	L. 35	(124)	(141)	(141)	-	-	-	-	-	(123)	(123)
6	Fish Lake License Renewal Costs / Other Deferred Costs	L. 45	(147)	(147)	-	-	-	-	-	-	(154)	(154)
7	Watson Lake LNG Study Costs	L. 53	-	-	-	-	-	(22)	(22)	(22)	-	-
8	Pelly Crossing Deferral Account	L. 61	-	-	-	-	-	(11)	(11)	(11)	-	-
9	Kluane Wind Study	L. 69	-	-	-	-	-	(7)	(7)	(6)	-	-
10	Total Write-off	S.1.1 L.14	<u>(871)</u>	<u>(438)</u>	<u>(291)</u>	<u>(150)</u>	<u>(150)</u>	<u>(40)</u>	<u>(40)</u>	<u>(39)</u>	<u>(427)</u>	<u>(427)</u>
11												
12	Deferred Credits Mid-Year Balance Summary											
13	Rate Case Reserve	L. 28	(133)	(321)	(420)	(490)	(548)	(402)	(97)	-	90	75
14	Diesel Plant Major Overhaul Costs	L. 38	427	354	213	-	-	-	-	-	399	306
15	Fish Lake Licence Reserve	L. 48	153	204	443	-	-	-	-	-	156	77
16	Watson Lake LNG Study Costs	L. 56	-	-	-	-	100	189	167	-	-	-
17	Pelly Crossing Deferral Account	L. 64	17	33	33	33	33	28	17	6	-	-
18	Kluane Wind Study	L. 72	-	-	-	-	-	7	10	3	-	-
19	Total Deferred Credits Mid-Year Balance	S.8.5 L.12	<u>464</u>	<u>270</u>	<u>269</u>	<u>(457)</u>	<u>(515)</u>	<u>(268)</u>	<u>118</u>	<u>175</u>	<u>645</u>	<u>458</u>
20												
21	Rate Case Costs											
22	Balance at Beginning of Year		30	(296)	(345)	(495)	(485)	(611)	(193)	-	30	150
23	Add: Rate Case Costs	S. 8.9 L.8, L.15	274	101	-	160	24	417	193	-	720	-
24	Less: Rate Case (Write-off) Credit		(150)	(150)	(150)	(150)	(150)	-	-	-	(150)	(150)
25	Less: Adjustment for Board Order 2009-2		(450)	-	-	-	-	-	-	-	(450)	-
26	Balance at End of Year		<u>(296)</u>	<u>(345)</u>	<u>(495)</u>	<u>(485)</u>	<u>(611)</u>	<u>(193)</u>	<u>-</u>	<u>-</u>	<u>150</u>	<u>-</u>
27												
28	Mid-Year Balance	(L.22+L.26)/2	<u>(133)</u>	<u>(321)</u>	<u>(420)</u>	<u>(490)</u>	<u>(548)</u>	<u>(402)</u>	<u>(97)</u>	<u>-</u>	<u>90</u>	<u>75</u>
29												
30	Diesel Plant Major Overhaul Costs											
31	Balance at Beginning of Year		430	424	283	142	-	-	-	-	430	367
32	IFRS Opening Balance Reclass to PP&E	S. 8.6 L.6	-	-	-	(283)	-	-	-	-	-	-
33	IFRS Opening Balance Reclass to Accumulated Dep	S. 8.6 L.19	-	-	-	141	-	-	-	-	-	-
34	Add: Major Overhaul Costs		118	-	-	-	-	-	-	-	60	-
35	Less: Major Overhaul Write-off		(124)	(141)	(141)	-	-	-	-	-	(123)	(123)
36	Balance at End of Year		<u>424</u>	<u>283</u>	<u>142</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>367</u>	<u>244</u>
37												
38	Mid-Year Balance	(L.31+L.36)/2	<u>427</u>	<u>354</u>	<u>213</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>399</u>	<u>306</u>
39												
40	Fish Lake License Renewal Costs											
41	Balance at Beginning of Year		158	148	260	618	-	-	-	-	158	154
42	IFRS Opening Balance Reclass to PP&E	S. 8.6 L.6	-	-	-	(667)	-	-	-	-	-	-
43	IFRS Opening Balance Reclass to Accumulated Dep	S. 8.6 L.19	-	-	-	35	-	-	-	-	-	-
44	Add: Fish Lake Costs		137	259	358	14	-	-	-	-	150	-
45	Less: Fish Lake Write-off		(147)	(147)	-	-	-	-	-	-	(154)	(154)
46	Balance at End of Year		<u>148</u>	<u>260</u>	<u>618</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>154</u>	<u>-</u>
47												
48	Mid-Year Balance	(L.41+L.46)/2	<u>153</u>	<u>204</u>	<u>443</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>156</u>	<u>77</u>
49												
50	Watson Lake LNG Study Costs											
51	Balance at Beginning of Year		-	-	-	-	-	-	200	178	-	-
52	Add: Costs		-	-	-	-	-	222	-	-	-	-
53	Less: Write-off		-	-	-	-	-	(22)	(22)	(22)	-	-
54	Balance at End of Year		<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>200</u>	<u>178</u>	<u>155</u>	<u>-</u>	<u>-</u>
55												
56	Mid-Year Balance	(L.51+L.54)/2	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>100</u>	<u>189</u>	<u>167</u>	<u>-</u>	<u>-</u>
57												
58	Pelly Crossing Deferral Account											
59	Balance at Beginning of Year		-	33	33	33	33	33	22	11	-	-
60	Add: Costs		33	-	-	-	-	-	-	-	-	-
61	Less: Write-off		-	-	-	-	-	(11)	(11)	(11)	-	-
62	Balance at end of year		<u>33</u>	<u>33</u>	<u>33</u>	<u>33</u>	<u>33</u>	<u>22</u>	<u>11</u>	<u>-</u>	<u>-</u>	<u>-</u>
63												
64	Mid-Year Balance	(L.59+L.62)/2	<u>17</u>	<u>33</u>	<u>33</u>	<u>33</u>	<u>33</u>	<u>28</u>	<u>17</u>	<u>6</u>	<u>-</u>	<u>-</u>
65												
66	Kluane Wind Study											
67	Balance at Beginning of Year		-	-	-	-	-	-	13	6	-	-
68	Add: Costs		-	-	-	-	-	20	-	-	-	-
69	Less: Write-off		-	-	-	-	-	(7)	(7)	(6)	-	-
70	Balance at End of Year		<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>13</u>	<u>6</u>	<u>-</u>	<u>-</u>	<u>-</u>
71												
72	Mid-Year Balance	(L.67+L.70)/2	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>7</u>	<u>10</u>	<u>3</u>	<u>-</u>	<u>-</u>

The Yukon Electrical Company Limited
2013 - 2015 General Rate Application
Rate Case Costs
(\$000s)

Schedule 8.9

Line No.	Description	Cross Ref.	Test Period		
			2013	2014	2015
1	<u>Phase I</u>				
2	Legal Expenses		93	-	-
3	Depreciation Expert		81	-	-
4	ATCO Electric Disbursements		8	-	-
5	Yukon Electrical Disbursements		9	-	-
6	Intervener Costs		90	-	-
7	Board Costs		136	-	-
8	Total Costs	S. 8.8 L. 23	<u>417</u>	<u>-</u>	<u>-</u>
9					
10	<u>Phase II</u>				
11	Legal Expenses		-	60	-
12	Yukon Electrical Disbursements		-	13	-
13	Intervener Costs		-	45	-
14	Board Costs		-	75	-
15	Total Costs	S. 8.8 L. 23	<u>-</u>	<u>193</u>	<u>-</u>

The Yukon Electrical Company Limited
2013 - 2015 General Rate Application
Computation of Allowance for Working Capital
(\$000s)

Schedule 8.10

Line No.	Description	Cross Ref.	Actual 2008	Actual 2009	Actual 2010	Actual 2011	Actual 2012	Test Period			GRA Approved 2008	GRA Approved 2009
								2013	2014	2015		
1	Operations and Maintenance	S.1.1 L.9	8,593	9,474	9,625	9,799	11,059	11,735	12,319	12,507	8,644	8,826
2	Purchase Power	S.1.1 L.7	24,157	23,211	23,462	24,093	26,923	25,630	26,472	27,013	24,121	23,841
3	Diesel Fuel	S.1.1 L.8	6,603	3,758	5,146	5,539	5,637	6,611	6,701	6,704	5,829	5,397
5	Property Taxes	S.1.1 L.11	231	239	230	235	250	257	265	273	244	254
6	Net O&M		39,585	36,682	38,463	39,666	43,869	44,234	45,756	46,497	38,838	38,318
7	O&M Lag Days		5	5	5	5	5	7	7	7	5	5
8	Operating Expenses Working Capital		542	502	527	543	601	848	878	892	577	569
9	Tax Installments		554	250	13	540	172	0	248	828	0	300
10	Income Tax Installment Lag Days		22	22	22	22	22	22	22	22	22	22
11	Tax Installments Working Capital		33	15	1	33	10	0	15	50	0	18
12	Income Taxes Receivable (Payable)		672	592	(289)	90	172	(248)	704	50	344	(211)
13	Tax Receivable Lag Days		204	204	204	204	204	204	204	204	204	204
14	Taxes Payable Working Capital		376	331	(162)	50	96	(139)	393	28	192	(118)
15	Inventory (Three-Year Average)		1,754	1,756	1,769	1,938	2,018	1,938	1,938	1,938	1,858	1,942
16	GST Impact on Working Capital	S.8.11 L.40	115	90	105	129	137	163	176	170	111	98
17	Return - Long Term Debt		1,819	1,895	1,884	1,931	2,158	2,404	2,793	3,105	1,870	1,934
18	Combined Long Term Debt Lag Days		(52)	(52)	(52)	(52)	(52)	(52)	(52)	(52)	(52)	(52)
19	Long Term Debt Working Capital		(259)	(270)	(268)	(275)	(307)	(343)	(398)	(442)	(266)	(276)
20	Return - 50% of Common Equity		672	1,135	1,094	1,168	1,242	1,452	1,731	1,949	825	871
21	Dividend Lag Days		(4)	(4)	(4)	(4)	(4)	(4)	(4)	(4)	(4)	(4)
22	Common Equity (Dividend) Working Capital		(7)	(12)	(12)	(13)	(14)	(16)	(19)	(21)	(9)	(10)
23	Return - 50% of Common Equity		672	1,135	1,094	1,168	1,242	1,452	1,731	1,949	825	871
24	Depreciation Lag Days		42	42	42	42	42	42	42	42	42	42
25	Common Equity (Retained Earnings) Working Capital		77	131	126	134	143	167	199	224	95	100
26	Net Depreciation		2,201	2,313	2,462	2,840	2,821	5,126	5,952	6,820	2,391	2,633
27	Depreciation Lag Days		42	42	42	42	42	42	42	42	42	42
28	Depreciation Working Capital		253	266	283	327	325	590	685	785	275	303
29	Working Capital	S.8.5 L.13	2,901	2,842	2,380	2,903	3,013	3,207	3,864	3,619	2,833	2,627

The Yukon Electrical Company Limited
2013 - 2015 General Rate Application
Effect of GST on Working Capital
(\$000s)

Schedule 8.11

Line No.	Description	Cross Ref.	Actual 2008	Actual 2009	Actual 2010	Actual 2011	Actual 2012	Test Period			GRA Approved 2008	GRA Approved 2009
								2013	2014	2015		
1	REVENUE:											
2	Total Operating Revenue Subject to GST	S.2.1 L.51	44,824	42,725	44,555	45,884	49,923	53,679	57,458	59,912	44,021	44,437
3	GST Rate		5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%
4	GST Billable		2,241	2,136	2,228	2,294	2,496	2,684	2,873	2,996	2,201	2,222
5												
6	Day Factor - Revenues		41.9	41.9	41.9	41.9	41.9	41.9	41.9	41.9	41.9	41.9
7	Day Factor - Remittance Lag		56.6	56.6	56.6	56.6	56.6	56.6	56.6	56.6	56.6	56.6
8			(14.7)	(14.7)	(14.7)	(14.7)	(14.7)	(14.7)	(14.7)	(14.7)	(14.7)	(14.7)
9												
10	GST Impact on Working Capital Increase/(Decrease)	(L.4*L.8)/365	(91)	(86)	(90)	(93)	(100)	(108)	(116)	(121)	(89)	(90)
11												
12	EXPENSES:											
13	Total Utility Expenses	S.1.1 L.17	45,726	43,634	45,565	46,983	51,175	54,956	58,707	61,187	44,831	45,264
14	Property Taxes	S.1.1 L.11	(231)	(239)	(230)	(235)	(250)	(257)	(265)	(273)	(244)	(254)
15	Labour and Fringe		(4,526)	(5,069)	(5,449)	(5,419)	(5,522)	(5,929)	(6,208)	(6,412)	(4,602)	(4,762)
16	Depreciation	S.1.1 L.12	(3,181)	(3,446)	(3,683)	(4,129)	(4,192)	(6,570)	(7,509)	(8,569)	(3,354)	(3,661)
17	Amortization of Contributions	S.1.1 L.13	980	1,133	1,221	1,289	1,371	1,444	1,557	1,749	963	1,028
18	Income Tax	S.1.1 L.16	94	(10)	(278)	62	(307)	248	704	828	344	(211)
19	Fish Lake Costs		137	259	358	14	-	-	-	-	150	-
20	Fish Lake Amortization		(147)	(147)	-	-	-	-	-	-	(154)	(154)
21	Plant Maintenance Reserve Costs		118	-	-	-	-	-	-	-	60	-
22	Plant Maintenance Reserve Amortization		(124)	(141)	(141)	-	-	-	-	-	(123)	(123)
23	Injuries & Damages Costs		-	(147)	(100)	(100)	(100)	(100)	(100)	(100)	(60)	(60)
24	Injuries & Damages Write-off		75	97	86	86	86	123	123	123	86	86
25	Rate Case Costs		274	101	-	160	24	417	193	-	720	-
26	Rate Case Write-off		(150)	(150)	(150)	(150)	(150)	-	-	-	(150)	(150)
27	Other Deferrals and Studies Costs	S.8.8 L. 52,60,68	-	-	-	-	-	242	-	-	-	-
28	Other Deferrals and Studies Wite-off	S.8.8 L. 53,61,69	-	-	-	-	-	(40)	(40)	(39)	-	-
29	Capital Expenditures		9,906	6,253	9,388	14,297	14,590	20,282	22,417	20,820	9,299	7,718
30	Net Costs Subject to GST		48,950	42,128	46,588	52,858	56,725	64,815	69,580	69,314	47,766	44,721
31	GST Rate		5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%
32	GST Refundable		2,448	2,106	2,329	2,643	2,836	3,241	3,479	3,466	2,388	2,236
33												
34	Day Factor - Expense (Including Capital)		26.0	26.0	26.0	26.0	26.0	26.0	26.0	26.0	26.0	26.0
35	Day Factor - Remittance Lag		56.6	56.6	56.6	56.6	56.6	56.6	56.6	56.6	56.6	56.6
36			30.6	30.6	30.6	30.6	30.6	30.6	30.6	30.6	30.6	30.6
37												
38	GST Impact on Working Capital Increase/(Decrease)	(L.32*L.36)/365	205	177	195	222	238	272	292	291	200	187
39												
40	Net Impact of GST on Working Capital	S.8.10 L.16	115	90	105	129	137	163	176	170	111	98

The Yukon Electrical Company Limited
 2013 - 2015 General Rate Application
 Continuity Schedule of Contributions in Aid of Construction
 (\$000)

Line No.	Description	Cross Ref.	Actual 2008	Actual 2009	Actual 2010	Actual 2011	Actual 2012	Test Period			GRA Approved 2008	GRA Approved 2009
								2013	2014	2015		
1	Contributions in Aid of Construction											
2	Prior Year Gross Contributions		36,205	38,338	41,379	44,938	50,503	54,075	57,851	62,404	36,205	38,765
3	Additions to Property		2,133	3,072	3,771	5,732	3,618	3,918	4,695	4,426	2,560	2,506
4	Retirements		-	(31)	(212)	(167)	(46)	(142)	(142)	(142)	-	-
5	Current Year Gross Contributions		38,338	41,379	44,938	50,503	54,075	57,851	62,404	66,688	38,765	41,271
6	Accumulated Amortization											
7	Prior Year Accumulated Amortization		13,709	14,689	15,791	16,800	17,922	19,247	20,549	21,964	13,709	14,672
8	Gross Amortization	S.1 L.13	980	1,133	1,221	1,289	1,371	1,444	1,557	1,749	963	1,028
9	Retirements		-	(31)	(212)	(167)	(46)	(142)	(142)	(142)	-	-
10	Current Year Accumulated Amortization		14,689	15,791	16,800	17,922	19,247	20,549	21,964	23,571	14,672	15,700
11	Net Contributions in Aid of Construction	S.8.5 L.17	23,649	25,588	28,138	32,581	34,828	37,302	40,440	43,117	24,093	25,571

THE YUKON ELECTRICAL COMPANY LIMITED ACCOUNTING POLICY MANUAL	<i>Reserve for Injuries and Damages</i>
	Date: 94-12-08 Number: E.5
PREPARED BY: K. Trunzo	APPROVED BY: David Freedman
	UPDATED: December 15, 2010

INTRODUCTION

The charges made against the Reserve for Injuries and Damages fall into two main categories. The first category is insured losses and the second is uninsured or uninsurable losses.

Insured Losses:

With respect to incurred losses, the item in question must be covered by insurance. Charges against the reserve include the deductible portion of insured losses as well as any portion of the claim not paid by the insurance company.

Uninsured or Uninsurable Losses:

An uninsured loss is one where insurance coverage could have been obtained except that the exposure risk was minimal or the cost of the insurance was prohibitively high.

An uninsurable loss is one where insurance coverage was not available as a result of very high-risk exposure.

PURPOSE OF THE RESERVE

The reserve serves as a protection against uninsured and uninsurable losses and the deductible portion of insurance claims. Maintaining the reserve will mitigate rate fluctuations by smoothing out the charges to O&M with respect to these types of losses. The establishment of such a reserve provides financial advantages over paying significantly higher insurance premiums in order to reduce deductibles or to insure items which carry prohibitively high premiums.

The reserve is established for the payment of:

1. The deductible portion of insured losses including any portion of a claim not paid by the insurance company.
2. Uninsured and uninsurable losses resulting from but not limited to design error, failure to supply (blackout, brownout), professional liability and pollution liability.

Also, effective with events charging to the reserve after January 1, 1999, only those that are significant and of low probability shall be charged to the reserve.

All events will be considered on a case by case basis and will be reviewed and approved by the Manager, Insurance and by a representative from the company's insurance adjusters.



Corporate Office

Company: **Yukon Electrical Company Limited**

Location: **Whitehorse, Yukon**

Account Number	Description	Date of Loss	Deductible	Total Amount charged to reserve
Y12441	Shipyards Transformer Failure	17-Jan-12	Not Applicable	\$ 103,977

Reviewed by:

A handwritten signature in blue ink, appearing to read "Richard Stewart", written over a horizontal line.

R. J. Stewart
Manager, Risk & Insurance

Reviewed by:

A handwritten signature in blue ink, appearing to read "J. Bicknell", written over a horizontal line.

J. Bicknell
Kendal Adjusters Inc.

Date: **December 21th, 2012**

ATCO LTD. & CANADIAN UTILITIES LIMITED

710, 909 - 11th Avenue S.W., Calgary, Alberta T2R 1N6 Tel (403) 292-7500 Fax (403) 292-7643



The Yukon Electrical Company Limited
An **ATCO** Company

Yukon Electrical
Reserve for Injuries and Damages Claim
Shipyard Substation - T2 Transformer Failure
Date of Incident: January 2012

Description of Asset Damaged:

Pioneer Transformer S/N G12716-1, built 2003
7.5 MVA ONAN
HV 34.5kv
LV 25kv/12.5kv

Incident Summary:

Shipyard Substation is located in the downtown core of Whitehorse. It is comprised of 2 x 7.5 MVA transformers and associated electrical apparatus that supply the majority of the load in downtown Whitehorse.

On January 17, 2012 at approximately 1240 hours, T2 in Shipyard Substation had a catastrophic failure. Power was lost to approximately 1,000 customers. Yukon Electrical was able to get all customers back on that day through reconfiguration of the power system. In the subsequent 3 days after the incident, Yukon Electrical personnel worked to remove the damaged transformer, install a temporary replacement and reconfigure the substation to supply reliable power again.

An independent consultant, Van Kooy Transformer Consulting Services Inc., performed an incident investigation and failure analysis of T2. The consultant identified a failure of the low voltage winding as the root cause of the transformer failure.

Industry standard for this type of transformer is a 30+ year life expectancy. T2 has been in service since 2004.

Company: **Yukon Electrical**

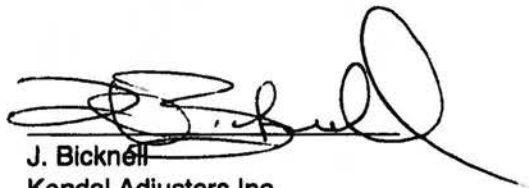
Location: **Carmack, Yukon**

Account Number	Description	Date of Loss	Deductible (000's)	Total Amount charged to reserve
Y12125	Diesel fuel spill	19-May-11	\$100,000.00	\$100,000.00

Reviewed by:


S.C. Hoffert
Manager, Insurance

Reviewed by:


J. Bicknell
Kendal Adjusters Inc.

Date: **December 16th, 2011**



The Yukon Electrical Company Limited
An **ATCO** Company

Yukon Electrical
Reserve for Injuries and Damages Claim
Carmacks Diesel Fuel Spill
Date of Incident: May 2011

Description of Asset Damaged:

Land contaminated by released diesel fuel

Incident Summary:

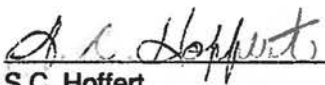
A power line contractor, who was on-site to pick up a power pole, reported that fuel was leaking from the 50,000L diesel fuel tank at the Carmacks power plant. Yukon Electrical responded to stop the fuel leak, contain the release and remediate the site. It was determined that a safety valve between the main tank and the automatic valve (normally used to control the flow of fuel) failed in operation. The safety valve is designed to shut off if there is seismic activity or similar issues. It is unknown what caused the failure of the valve.

Company: **Yukon Electrical Company**

Location: **Fish Lake, Yukon**

Account Number	Description	Date of Loss	Deductible (000's)	Total Amount charged to reserve
Y11952	Catastrophic failure of the turbine generator	03-Mar-10	\$100,000.00	\$100,000.00

Reviewed by:


S.C. Hoffert
Manager, Insurance

Reviewed by:


I. Botly
Derrick Adjusters Inc.

Date: **December 20th, 2010**



The Yukon Electrical Company Limited
An **ATCO** Company

Yukon Electrical
Reserve for Injuries and Damages Claim
Fish Lake Unit #1 Incident
Date of Incident: March 2010

Description of Asset Damaged:
CUL #109 1952 Gilkes Turbine

Incident Summary:

In March 2010, a catastrophic failure of Fish Lake Unit #1 plant occurred, irreparably damaging the facility when the runner and shaft were ejected from the turbine casing. The engineering firm who was brought in after the incident to assess the situation determined that the segment of the runner which became embedded in the upstream wall broke off the runner, punching a hole in the casing as the segment was thrown out. The severely unbalanced runner continued to rotate for a few more revolutions until the turbine bearings failed allowing the runner to be flung into the air eventually rotating about the generator room and landing on the floor.

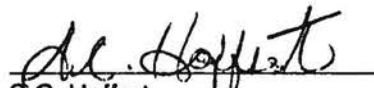
They also noted a section of the runner containing 4 blades cracked completely through and the broken segment was thrown through the casing. The resultant out of balance runner, aided by the flow out the top of the unit caused the turbine bearings to fail and eventually the runner and shaft to be thrown out of the unit.

Company: **Yukon Electrical Company Limited**

Location: **Fish Lake Plant, Yukon**

Account Number	Description	Date of Loss	Deductible (000's)	Total Amount charged to reserve
Y11473	Water eroded material under spillway which resulted in damage to the spillway	May 2009	\$100,000.00	\$28,654.00

Reviewed by:


S.C. Hoffert
Manager, Insurance

Reviewed by:


I. Botly
Derrick Adjusters Inc.

Date:

January 8th, 2010



The Yukon Electrical Company Limited
An **ATCO** Company

Yukon Electrical
Reserve for Injuries and Damages Claim
Fish Lake Plant Unit #1 Spillway Failure
Date of Incident: May 2009

Description of Asset Damaged:
Fish Lake Plant Unit #1 Spillway

Incident Summary:

During maintenance operations of Fish Lake #1 Plant, it is necessary to divert water to Ditch # 1 spillway. The spillway is built into the retaining walls or banks of the Ditch #1 and at a specific pre-determined water level, the excess water flows into the spillway. This controlled management of excess water prevents water from escaping Ditch #1 in other less desirable areas which could lead to uncontrolled erosion of retaining walls or ditch berms.

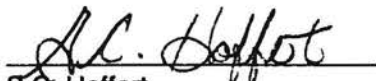
This incident occurred when water began to seep underneath the spillway structure that is designed to divert the excess water from the Ditch #1. The water eroded the earthen fill around the spillway structure which caused the failure of the spillway system.

Company: **Yukon Electrical Company Limited**

Location: **Fish Lake Plant, Yukon**

Account Number	Description	Date of Loss	Deductible (000's)	Total Amount charged to reserve
Y11445	Water valve failed and was replaced	March 2009	\$100,000.00	\$32,104.00

Reviewed by:


S.C. Hoffert
Manager, Insurance

Reviewed by:


I. Botly
Derrick Adjusters Inc.

Date:

January 8th, 2010



The Yukon Electrical Company Limited
An **ATCO** Company

**Yukon Electrical
Reserve for Injuries and Damages Claim
Fish Lake Plant Unit #1 Generator & Valve Failure
Date of Incident: March 2009**

Description of Asset Damaged:

CUL #109 1952 Gilkes Turbine

Incident Summary:

During phase one of the project to rebuild the Fish Lake Unit #1 generator, the unit was sent out of the Yukon for rebuilding; it was re-installed 10 weeks later. After the unit was back in operation for approximately 4 weeks, an internal bearing that had been replaced deviated from the initial alignment, requiring a secondary repair to the unit. As the cause of the deviation could not be isolated, coupled with the service agreements to work on units aging back to the early 1950s, determination of fault could not be placed upon either the contractors or service company who rebuilt the unit in phase one.

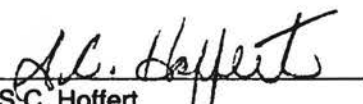
Safety and repair work require the diversion of water from the unit by use of a shut-off valve. This shut-off valve is required to eliminate the use of a spillway route at Head pond #1 which would require permits from the Department of Fisheries and Oceans (DFO), as well as a fish salvage plan and erosion studies should this spillway be used for extended periods of time. Therefore, usage of the shut-off valve provides a more cost effective and timely procedure. During the repair, this shut-off valve failed due to a blown out bearing packing while the valve was turned off requiring further repairs prior to placing the generator back in service.

Company: **Yukon Electrical Company Limited**

Location: **Pelly Diesel Plant, Yukon**

Account Number	Description	Date of Loss	Deductible (000's)	Total Amount charged to reserve
Y112211	Premature failure of exhaust valve on #2 cylinder caused damage to 3 other cylinders	08-Jun-08	\$100,000.00	\$41,038.00

Reviewed by:


S.C. Hoffert
Manager, Insurance

Reviewed by:


I. Botly
Derrick Adjusters Inc.

Date:

January 8th, 2010



The Yukon Electrical Company Limited
An **ATCO** Company

Yukon Electrical
Reserve for Injuries and Damages Claim
Pelly Diesel Plant Unit #3
Date of Incident: June 2008

Description of Asset Damaged:

CUL#405 1997 Detroit Diesel S60 DDEC III S/N 06R0399193

Incident Summary:

A piece of the exhaust valve from the #2 cylinder broke off with approximately 5,000 hours of service. Typical life expectancy of this type of exhaust valve is 10,000 to 12,000 hours. Approximate value of this exhaust valve including labour to replace is \$3,000, which has been reduced from the total claim amount.

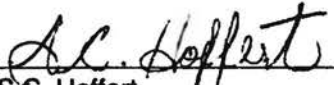
Debris from the failed valve spread into 3 cylinders causing excessive damage to the cylinder head, injectors and turbo charger. Repairs required the engines top end, cylinder head, cylinders, and turbo charger to be cleaned and repaired before the engine was put back in service.

Company: **Yukon Electrical Company Limited**

Location: **Watson Lake Diesel Plant, Yukon**

Account Number	Description	Date of Loss	Deductible (000's)	Total Amount charged to reserve
Y11541	Turbo charger failed causing damage to the engine	04-Apr-09	\$100,000.00	\$45,218.00

Reviewed by:


S.C. Hoffert
Manager, Insurance

Reviewed by:


J. Botly
Derrick Adjusters Inc.

Date:

January 8th, 2010



The Yukon Electrical Company Limited
An **ATCO** Company

**Yukon Electrical
Reserve for Injuries and Damages Claim
Watson Lake Unit #4
Date of Incident: April 2009**

Description of Asset Damaged:

CUL #258 1985 Caterpillar 3606 S/N 08RB00292

Incident Summary:

Unit #4 is a 1.5 megawatt Caterpillar diesel engine (Series 3606) located in the Watson Lake generating plant. It is the largest of the six units at this plant, which supplies electricity to Watson Lake, Lower Post and Upper Liard. A new turbo charger was installed on this unit 14 months prior to this failure. The turbo had a warranty of 12 months and a life expectancy of more than 20,000 hours.

In April 2009, the turbo failed after 14 months of operation (approximately 6,500 hours), well under the 20,000+ operating hours of life expectancy. Damages were significant and it was costly to repair the turbo charger. The original estimate of the repair cost was reduced by Finning, since they admitted that the turbo charger had only run 65% of its life expectancy. The cause of the premature failure was determined to be a failed bearing that caused the shaft which the bearing held to fail. This resulted in damage to the turbo charger, generator housing and other components.



The Yukon Electrical Company Limited
An **ATCO** Company

Section 9 – Capital Additions

Overview

The capital expenditures and additions included in this Application are outlined in Schedule 9.1 and are:

	2008 Actual	2009 Actual	2010 Actual	2011 Actual	2012 Actual	Test Period		
						2013	2014	2015
	(\$000)							
Capital expenditures	<u>9,906</u>	<u>6,253</u>	<u>9,388</u>	<u>14,938</u>	<u>14,590</u>	<u>20,282</u>	<u>22,417</u>	<u>20,820</u>
Capital additions to rate base	<u>9,170</u>	<u>7,469</u>	<u>6,848</u>	<u>12,266</u>	<u>17,116</u>	<u>21,962</u>	<u>23,017</u>	<u>20,820</u>

The capital additions as summarized on Schedule 9.1 are broken down into the following categories:

Generation

Generation assets are continually monitored through power plant inspections and monitoring. Components are repaired or replaced due to obsolescence, performance and electrical system requirements or in accordance with manufacturer specifications. The reliability and integrity of the power generation system is a key consideration when critical replacement decisions are being contemplated. Growth from the communities (load), premature failure, safety requirements, and community-identified needs and environmental regulations can dictate the need for additional generation assets to be put in place.

New Extensions

Yukon Electrical develops its new extension capital forecast based on discussions with communities, developers, engineering firms, and customers in addition to its own knowledge of areas of development within its service area. Yukon Electrical assesses the ability of the existing infrastructure to accommodate the proposed growth taking into account the specific service requirements of the customer. A forecast is developed for



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the facilities required for the new extension and inserted into the forecast. In addition, Yukon Electrical considers historical customer additions to account for walk-in customers that are expected to require service.

Distribution Improvements

Distribution improvement projects fall into four major categories:

1. System Performance Projects – are required to maintain system performance at an acceptable level. This category includes system protection, voltage, current and line clearance projects.
2. Life Extension Projects – are required to increase the life cycle of the distribution system. This category includes electrical equipment refurbishments or upgrade and major overhauls of diesel generators.
3. System Replacement Projects – are required to replace distribution system facilities on a planned basis when they have reached the end of their life cycle. This includes replacement of distribution poles, ground system, conductor, overhead/underground system and equipment.
4. Forced Projects – are required to correct unplanned system failures and upgrades due to other projects in the area or a new development.

In addition to the above, Yukon Electrical tracks distribution system performance on an ongoing basis and the performance is reviewed when preparing the capital forecast. Additionally, Yukon Electrical reviews outages that may be attributed to system deficiencies.



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1 The priorities for distribution improvements fall into two classifications as follows:

Type A priorities are to:

- Eliminate safety hazards such as:
 - o Unplanned conditions
 - o Substandard conditions
 - o Critical conditions

Type B priorities are to:

- Reduce adverse effects
- Increase operating efficiency
- Function according to standardized operating practices
- Benefit from long term cost savings

2 Yukon Electrical reviews unplanned outages that may be attributed to system
3 deficiencies. Yukon Electrical reviews the options that are available to correct a
4 problem and completes engineering to analyze and determine the most effective way to
5 complete the required work. Yukon Electrical works closely with each of its communities
6 and completes much of its work in conjunction with the municipality.

7 **Street and Sentinel Lights**

8 Expenditures are required to provide street and sentinel lighting in Yukon Electrical's
9 service area. Streetlights that require replacement due to poor condition assessment
10 are included in this category. A condition assessment is based on performance of
11 street lights, deficiencies or substandard conditions and the general physical condition.
12 Inspection of the general physical condition includes the base and metal structure for
13 deterioration, rust, broken bolts and damage. New installations or requests from
14 customers & developers are also included. The forecast is determined based on known
15 areas of development in the communities, the results of streetlight audits, as well as a
16 review of historic replacement requirements.

17 **Meters**

18 Capital meter additions includes new meters that are required to replace obsolete or
19 end of life meters as identified by Measurement Canada. For 2010 and forward, this
20 also includes the installation of new meters required to accommodate load growth



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1 associated with customer requests for service. Prior to 2010, these meters were
2 grouped with new extensions. These expenditures allow Yukon Electrical to meet its
3 obligation to provide metered service connections. The capital meter additions are
4 forecasted based on known areas of development and expected connection requests.

5 **General Property and Equipment**

6 This portion of the capital forecast provides for replacement of equipment and for the
7 purchase of new equipment required to support Yukon Electrical's operations. These
8 include tools, office furniture, office computer equipment and software communication
9 equipment, transportation equipment, lands and buildings.

10 A listing of the capital expenditures for 2008-2015 is provided in the following pages.
11 For significant projects greater than \$100,000, a description of the project is included.
12 Business cases for all major capital projects (\$500,000 or greater) are being filed with
13 this Application as directed in Board Order 2009-2.



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CAPITAL EXPENDITURE INFORMATION 2008 – 2015
2008 CAPITAL EXPENDITURES

GENERATION PLANTS **\$853,000**

- Fish Lake Unit #1 Generator End of Life Rebuild **\$463,000**

Removed generator and shipped it out to be cleaned and inspected and refurbishment requirements assessed. The generator was found to be at end of life and complete rebuild of core, stator and windings was completed. During inspection of hydro turbine, various components were fully replaced or refurbished.

- Haines Junction Plant Upgrades **\$100,000**

Replacement of concrete foundation, upgrade fuel system monitoring and leak detection and various electrical upgrades to generator bus and control system.

- Pelly Crossing Tie into Transmission Grid **\$92,500**

- Watson Lake Generator Upgrades and Fresh Air Intakes **\$76,500**

- Destruction Bay Compton Protection Relay Replacement and Battery Charger Upgrade **\$65,000**

- Other Projects **\$56,000**

DISTRIBUTION NEW EXTENSIONS **\$3,244,000**
(Gross of Customer Contribution)

Capital expenditures required for the connection of new residential and commercial customers in Yukon Electrical's service area. Yukon Electrical's investment in new extension projects is based on the maximum investment levels included in the Board-approved Terms and Conditions.



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2008 CAPITAL EXPENDITURES – Continued

New extensions include:

- Miscellaneous O/H Services – Various Subdivisions \$1,304,000

Capital expenditures required for the connection of new residential and commercial customers in Yukon Electrical's service area in compliance with Terms and Conditions. Any new extension (driven by a customer) that is under \$25k is included in this category.

- Mountain Air Subdivision \$317,000

New subdivision developed in Whitehorse on Range Road.

- Hamilton Boulevard Main Infrastructure Extension \$266,000

Project to provide electrical infrastructure in the area of the road extension.

- Yukon Government Whitehorse Copper Phase II \$262,000

New country residential subdivision south of Whitehorse.

- Little Atlin Feeder Tap \$178,000

New customer extension east of Tagish.

- Stan McCowan Subdivision \$126,000

New Whitehorse subdivision in Porter Creek.



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2008 CAPITAL EXPENDITURES – Continued

• Land Rights	\$100,000
The costs charged to this project are to obtain easements once property is registered in land titles. Costs include monitoring title status, drafting of easements and obtaining easements.	
• Miscellaneous New U/G Services	\$95,000
• 4 th Ave and Strickland Condominiums	\$92,000
• Arkell Subdivision Infill	\$78,000
• Skookum Asphalt Plant	\$61,000
• Lot 16 Marwell Subdivision	\$53,000
• Connection of Minto Landing into Yukon Interconnected System	\$47,000
• General Drafting and Mapping	\$46,000
• New Customer Connection at Minto Crossing	\$40,000
• Whitehorse Cadet Camp Three Phase Service	\$40,000
• Carcross Tagish First Nation Carcross Line Rerouting	\$32,000
• Lot 10 Centennial Street	\$28,000
• Other Projects less than \$20,000	\$79,000



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2008 CAPITAL EXPENDITURES – Continued

DISTRIBUTION IMPROVEMENTS	\$3,395,000

Improvements include:

• 4L311 Upgrade Distribution Lines Between 1st and 6th Avenue Downtown Whitehorse	\$439,000

This critical line in the downtown core is a main artery between two substations in the downtown core. The existing overhead lines were nearing their design maximum. New distribution lines were installed underground.

• Connect Pelly Crossing into Yukon Interconnected System	\$435,000

Yukon Electrical designed and built a new substation and distribution lines to connect the Pelly Crossing distribution system to the expanded Yukon Interconnected System.

• Ketz Court Live Front Transformers Replacement	\$346,000

Replaced old underground system with new system built to present standards. The existing system was end of life and utility employees were not able to operate equipment when energized.

• 5L628 Squanga Road Rebuild	\$290,000

Replacement of an end of life overhead line with a new underground primary system.

• Right of Way Widening	\$268,000

Widen existing rights of way (ROW) to current standards to allow for access, wild fire reduction, and increased reliability.

Locations included: 5L628 North Klondike highway, Porter Creek, Crestview, Stewart Crossing and 9L Teslin area.

• 9L - Km 129 to Km 132 South Klondike Highway - Distribution Line Rebuild	\$189,000

Section of 35kV line on South Klondike highway replaced due to age and condition of poles. New distribution line was built on highway ROW.



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2008 CAPITAL EXPENDITURES – Continued

• Hillcrest Subdivision Conversion	\$93,000
See Business Case #18	
• System Upgrades Lot 1378/79 Range Road	\$93,000
• Miscellaneous Pole Replacements	\$92,000
• Cadet Camp Three Phase Service System Improvement	\$83,000
• 9L Reliability Upgrade Squanga Lake Area	\$77,000
• Test and Treat Pole Program	\$72,000
• Tagish Bridge Conduit Replacement	\$60,000
• Little Atlin Lake Area 3 Phase Pole Upgrades	\$60,000
• Echo Lake Road Upgrade	\$52,000
• McIntyre Subdivision 34.5kV Upgrade	\$47,000
• Morley Bay Line Upgrade	\$46,000
• Birch Alley Upgrade	\$45,000
• Campbell Highway Relocation	\$43,000
• Carmacks Upper Bench Rerouting	\$31,000
• Paddlewheel Line Relocation	\$30,000
• Carmacks Planned Pole Replacements	\$28,000
• Porter Creek Regulator Upgrade	\$26,000
• Beaver Creek Planned Pole Replacements	\$25,000
• North Star Clearance Upgrade	\$24,000



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2008 CAPITAL EXPENDITURES – Continued

• McIntyre Creek Pumphouse Upgrade	\$23,000
• McDonald Road to Centennial Road Upgrade	\$23,000
• Convert Spirit Lake to 14.4kV	\$22,000
• Marwell Subdivision Improvements	\$21,000
• Arkell Subdivision Upgrade	\$21,000
• Other Projects less than \$20,000	\$291,000

STREET AND SENTINEL LIGHTING	\$839,000

• Hamilton Boulevard Extension	\$435,000
Expansion of road required new line of lights. Installed the new infrastructure to light to proper levels.	
• Whitehorse Copper Light Additions	\$131,000
Street Lights added per customer request.	
• Foxhaven Street Lights Relocation	\$82,000
• 4 th Ave & Strickland Street Light Upgrade	\$41,000
• Pine Street Light Replacement	\$25,000
• Quartz Road Street Lights Relocation	\$21,000
• Carmacks High Pressure Sodium Light Upgrade	\$20,000
• Other Projects	\$84,000



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2008 CAPITAL EXPENDITURES – Continued

METERS	\$31,000

GENERAL PROPERTY & EQUIPMENT	\$509,000

• Transportation Equipment	\$139,000

o Replacement of Service Vehicles; Units 884, 885, 887, and 888	

• Oracle HRxcellence Human Resource (HR) Management	\$138,000

Purchase of fully integrated HR management software that builds on the functionality and foundation of the Oracle HR system. The object of the project was to streamline, improve and standardize current processes in Yukon Electrical and automate a number of HR management functions.

• Communication Equipment	\$57,000

• Whitehorse Service Complex Pole Relocation	\$51,000

• Miscellaneous Tools and Instruments	\$45,000

• Other Projects	\$79,000

CIS BILLING SYSTEM CONVERSION	\$1,035,000

The customer care and billing system was over 30 years old and was based on an IMS database technology that was no longer economically supportable. In late 2006 and early 2007, Yukon Electrical completed a detailed search and evaluation of various billing solutions. A decision to proceed with ATCO-CIS was made in the first half of 2007 with the implementation phases starting thereafter. The customer care and billing system conversion project was completed in 2008.



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CAPITAL EXPENDITURE INFORMATION 2008 – 2015
2009 CAPITAL EXPENDITURES

GENERATION PLANTS **\$779,000**

- Haines Junction Plant Controls Upgrade **\$324,000**

The upgrades to the power plant included relocating plant and tank onto concrete pad to address sinking/movement in current location, meet post disaster standards for building, modify control to allow for increase unit and substation control to assist with pick up of community load as well as relocate 480V contactor and transformers due to arc flash levels of contactor within plant and clearance violations

- Fish Lake Unit #2 New Wheel, Shaft and Bearing Pedestal **\$153,000**

Maintenance inspections by hydro turbine consultants recommended that this unit needed a rebuild of various turbine equipment. Worn generator thrust bearings were also replaced.

- Fish Lake Unit #1 Replacement Wheel **\$80,000**
- Fish Lake Incremental Purchase Power **\$69,000**

Additional purchase power from YEC due to Fish Lake Unit #1 Generator end of life rebuilding capitalized in accordance with Board Decision 2009-2.

- Fish Lake Control Room Monitor Upgrade **\$52,000**
- Swift River Unit #1 Replacement **\$32,000**
- Other Projects **\$69,000**



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2009 CAPITAL EXPENDITURES – Continued

DISTRIBUTION NEW EXTENSIONS (Gross of Customer Contribution)	\$3,437,000

Capital expenditures required for the connection of new residential and commercial customers in Yukon Electrical's service area. Yukon Electrical's investment in new extension projects is based on the maximum investment levels included in the Board-approved Terms and Conditions.

New extensions include:

• Miscellaneous O/H Services – Various Subdivisions	\$969,000
Capital expenditures required for the connection of new residential and commercial customers in Yukon Electrical's service area in compliance with Terms and Conditions. Any new extension (driven by a customer) that is under \$25k is included in this.	
• Ingram Subdivision	\$717,000
New subdivision in the Copper Ridge area of Whitehorse.	
• Takhini North Infill	\$341,000
New lots in existing subdivision in Whitehorse.	
• Two City Water Wells in Riverdale	\$107,000
Electrical Service for two water wells designed and installed by City of Whitehorse.	
• Hamilton Boulevard Main Infrastructure Extension	\$100,000
Continued development of electrical infrastructure on new road extension.	
• New Whitehorse Correctional Centre	\$90,000
• Yukon Housing 8-Plex	\$88,000



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2009 CAPITAL EXPENDITURES – Continued

• Burns Road Lot Development	\$86,000
• General Drafting and Mapping	\$75,000
• City of Whitehorse Public Safety Building	\$61,000
• Ta'an Kwach'an Council Subdivision – Klondike Highway North	\$60,000
• Yukon Government New Airport Parking Area	\$58,000
• Land Rights	\$56,000
• 35 Unit Condominium Wann Road	\$53,000
• Yukon Government Army Beach Sewage Lagoon	\$47,000
• Whitehorse Lot 1097	\$46,000
• Lot 1095 Gentain Lane	\$41,000
• Teslin Seniors 8-Plex	\$40,000
• Selkirk First Nation Child Care Center	\$36,000
• Miscellaneous New U/G Services	\$36,000
• Champagne Aishihik First Nation Subdivision	\$36,000
• Yukon Government Carcross Water Front Place	\$35,000
• Watson Lake Line Move	\$35,000
• Takhini Lot 1371	\$33,000
• Yukon Government Carmacks Sewer Treatment Plant	\$32,000
• Whitehorse General Hospital Staff Residence	\$32,000



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2009 CAPITAL EXPENDITURES – Continued

• Northwestel Communication Tower Hotspings Road	\$27,000
• Other Projects less than \$20,000	\$100,000

DISTRIBUTION IMPROVEMENTS	\$1,203,000

Improvements include:

• Right of Way Widening	\$240,000
Widen existing rights of way (ROW) to allow for access, wild fire reduction, and reliability.	
Locations Included: Ross River, Watson Lake, Teslin, Carcross, Porter Creek, Riverdale and North Klondike Highway	
• Arkell Substation Upgrades	\$197,000
Upgraded 5 MVA transformer to 10 MVA due to continued load growth on the substation. Load growth is attributable to new housing in Copper Ridge and Ingram subdivisions.	
• Hillcrest Subdivision Conversion	\$152,000
See Business Case #18	
• Wickstrom Road Line Relocation for Whitehorse General Hospital Residence and Medical Building	\$83,000
• Echo Lake Road Upgrade	\$75,000
• 9L Reliability Upgrade Squanga Lake Area	\$51,000
• Robinson Substation Upgrade	\$39,000
• Birch Alley Upgrade	\$32,000
• Liard River Crossing	\$29,000
• Whitehorse Airport Conversion	\$29,000
• McDonald Road to Centennial Road Upgrade	\$24,000



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2009 CAPITAL EXPENDITURES – Continued

• Miscellaneous Pole Replacements	\$22,000
• System Upgrade on Hotsprings River Road	\$22,000
• Watson Lake Hotel Upgrade	\$20,000
• Teslin and Klondike Road Upgrade	\$20,000
• Other Projects less than \$20,000	\$168,000

STREET AND SENTINEL LIGHTING	\$354,000

• Yukon Government Ingram Subdivision Street Lights Installation of Street Lights in new subdivision.	\$113,000
• Takhini North Subdivision	\$86,000
• Ta'an Kwach'an Council Subdivision	\$54,000
• Hamilton Boulevard Extension	\$41,000
• Other Projects	\$60,000

TRANSFORMERS & REGULATORS	\$80,000

GENERAL PROPERTY & EQUIPMENT	\$400,000

• Oracle HRxcellence HR Management Software	\$117,000

Purchase of fully integrated HR management software that builds on the functionality and foundation of the Oracle HR system. The object of the project was to streamline, improve and standardize current processes in Yukon Electrical and automate a number of HR management functions.



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2009 CAPITAL EXPENDITURES – Continued

• Transportation Equipment	\$100,000
o Purchased Used Hot Line Bucket Truck	
o Purchased Used Ford Escape	
o Box liners and Toolboxes for Service Vehicle	
• Communication Equipment	\$47,000
• Miscellaneous Tools and Instruments	\$37,000
• Other Projects	\$99,000



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CAPITAL EXPENDITURE INFORMATION 2008 – 2015
2010 CAPITAL EXPENDITURES

GENERATION PLANTS	\$1,810,000
Fish Lake Unit #2 Penstock Replacement See Business Case #1	\$486,000
Fish Lake Unit #2 New Wheel, Shaft and Bearing Pedestal Maintenance inspections by hydro turbine consultants recommended that this unit required a rebuild of various turbine equipment. Worn generator thrust bearings were also replaced.	\$294,000
Destruction Bay Unit #1 Replacement Replaced smallest rated unit as it was at end of life. Reconfiguration of power plant equipment and programmable logic controller were also completed.	\$275,000
Watson Lake Unit #5 Replacement Replaced existing unit at end of life. Existing unit had identified mechanical deficiencies with the head, block and cooling system that were not repairable.	\$232,000
Fish Lake Unit #1 Spillway Replaced existing wood structure with concrete and steel structure. This structure diverts water from head pond #1 during an overspill situation to the diversion spillway as the existing wood structure deteriorated to an ineffective state.	\$212,000



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2010 CAPITAL EXPENDITURES – Continued

- Purchase Unit for Pelly Crossing Power Plant \$101,000

Purchase of used generator set as a replacement for existing generator set that was due for major rebuild. Generator set is standby rated and matched to the new standby configuration of the plant.
- Fish Lake Unit #1 Wheel Replacement \$45,000
- Fish Lake Ditch #3 Drop Box Concrete Upgrade \$32,000
- Swift River Unit #1 Replacement \$25,000
- Pelly Crossing Plant Automation \$25,000
- Other Projects \$83,000

DISTRIBUTION NEW EXTENSIONS \$3,397,000
(Gross of Customer Contribution)

Capital expenditures required for the connection of new residential and commercial customers in Yukon Electrical's service area. Yukon Electrical's investment in new extension projects is based on the maximum investment levels included in the Board-approved Terms and Conditions.

New extensions include:

- Miscellaneous O/H Services – Various Subdivisions \$1,022,000

Capital expenditures required for the connection of new residential and commercial customers in Yukon Electrical's service area in compliance with Terms and Conditions. Any new extension (driven by a customer) that is under \$25k is included in this.



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2010 CAPITAL EXPENDITURES – Continued

• Lower Post Health Center 3 Phase Line	\$733,000
New construction of distribution power line to serve Lower Post Health Center. This new power line extension was completed as per customer request.	
• Takhini North Infill	\$312,000
New lots in existing subdivision in Whitehorse.	
• New Country Residential Subdivision in Haines Junction	\$105,000
New subdivision designed and built per customer design and request.	
• Miscellaneous New U/G Services	\$86,000
• Haines Junction Cultural Centre	\$74,000
• Whitehorse Water Front Place Line Relocation	\$73,000
• Land Rights	\$66,000
• Marsh Lake Landfill	\$64,000
• Yukon Government Core Library	\$59,000
• Yukon Gardens Subdivision	\$59,000
• Stan McGowan 12-Plex	\$59,000
• Yukon College	\$57,000
• 35 Unit Condominium Near Mountain Air Subdivision	\$50,000
• 10 Units on Range Road	\$46,000
• Main Street Condominium	\$45,000



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2010 CAPITAL EXPENDITURES – Continued

• Yukon Housing Seniors Housing – Jeckell Street	\$44,000
• Yukon Government - Yukon River Crossing Study and Design	\$43,000
• Lot 1018 Main Street	\$42,000
• Yukon Government Haines Junction Willow Acres Residential Infill	\$37,000
• Grove Street New Lots	\$35,000
• Carcross Landfill	\$33,000
• Whitehorse General Hospital Staff Residence	\$30,000
• Crestview Booster Station	\$29,000
• Lot 1100 Tagish	\$29,000
• Lot 40 Mount Sima	\$22,000
• Little Salmon Carmacks First Nation Healing Centre	\$21,000
• Other Projects less than \$20,000	\$122,000

DISTRIBUTION IMPROVEMENTS	\$2,251,000

Improvements include:

• Whistle Bend 34.5kV Substation Distribution Lines	\$492,000
See Business Case #19	
• Right of Way Widening	\$304,000

Widen existing rights of way (ROW) to allow for access, wild fire reduction, and reliability.

Locations Included: Carmacks, Carcross, Tagish, Riverdale and Porter Creek.



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2010 CAPITAL EXPENDITURES – Continued

• Hillcrest Subdivision Conversion	\$226,000
See Business Case #18	
• Takhini North Upgrade	\$134,000
City of Whitehorse infill in this area expedited need to convert this area to the distribution source 12.5kV. This conversion allowed the increased loading from the new developments to utilize existing infrastructure without any further upgrades.	
• Watson Lake 3-Phase System Protection Upgrade	\$100,000
Purchased and installed new relays with engineered settings to coordinate on the Watson Lake distribution system. This ensured protection coordination and reduced the number of outages.	
• Main Steel Alley 4 th – 7 th Avenue Upgrade	\$98,000
Distribution system upgrades were needed to address increased loading due to new condominium projects in the area.	
• Test and Treat Program	\$57,000
• Porter Creek Breaker Replacement	\$54,000
• Destruction Bay Distribution Breaker Addition	\$54,000
• Haines Junction Distribution Breaker Addition	\$51,000
• Old Crow Pole Change Outs	\$46,000
• Main Street Alley Upgrade	\$44,000
• Destruction Bay Main Feeder	\$42,000
• North Klondike Grounding Improvements	\$42,000
• Mount Sima Subdivision	\$42,000



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2010 CAPITAL EXPENDITURES – Continued

• Nordenskiold River Bridge Rerouting	\$42,000
• System Frequency Upgrades at S150 Substation	\$39,000
• 4L316 Two Mile Hill Conductor Upgrade	\$38,000
• Klondike Road Improvements	\$30,000
• Whitehorse Copper Rebuild	\$27,000
• Miscellaneous Pole Replacements	\$26,000
• Pole Removal Wickstrom Road	\$25,000
• McIntyre Subdivision Prebuilding Work	\$22,000
• Other Projects less than \$20,000	\$216,000

STREET AND SENTINEL LIGHTING **\$486,000**

• Pine Street Light Replacements	\$161,000
System Improvement project to replace Pine Street Lights. Replacement of bases, davits and installation of new wires in ducts.	
• Whistle Bend Way Light Additions	\$62,000
• Takhini North Subdivision	\$56,000
• Ingram Subdivision Street Lights	\$50,000
• Takhini River Lights	\$24,000
• Street Light Identification	\$24,000
• Other Projects less than \$20,000	\$109,000



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2010 CAPITAL EXPENDITURES – Continued

METERS **\$460,000**

- Replacement of Meters and Installing New Meters **\$460,000**

The installation of new meters is required to accommodate load growth associated with customer requests for service. These expenditures allow Yukon Electrical to meet its obligation to provide metered service connections. The capital meter additions are planned based on known areas of development and expected connection requests. New meters are also required to replace obsolete or end of life meters as identified by Measurement Canada.

GENERAL PROPERTY & EQUIPMENT **\$985,000**

- Transportation Equipment **\$358,000**
 - o Replacement of Units 92, 93, 94, 96, and 956
 - o Purchase New 2010 Royal Cargo Trailer for UTV
- Miscellaneous Tools and Instruments **\$176,000**
 - o 3-Phase Relay Test Sets
 - o Underground Fault Locator and Diagnostic Equipment
 - o Miscellaneous Small Tools and Equipment
- Distribution SCADA Equipment **\$138,000**

Equipment purchased in order to operate devices and acquire information from remote sites to the Whitehorse Dispatch Centre. Device provides remote control capability and diagnostics.



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2010 CAPITAL EXPENDITURES – Continued

- Oracle HRxcellence HR Management Software \$103,000

Purchase of fully integrated HR management software that builds on the functionality and foundation of the Oracle HR system. The object of the project was to streamline, improve and standardize current processes in Yukon Electrical and automate a number of HR management functions.
- Service Complex Engineering Department Renovations \$86,000
- Credit Card Pre-Authorized Payment Plan System \$67,000
- Other Projects \$57,000



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CAPITAL EXPENDITURE INFORMATION 2008 – 2015
2011 CAPITAL EXPENDITURES

GENERATION PLANTS	\$1,652,000
• Fish Lake Unit #1 Turbine and Building Replacement See Business Case #2	\$717,000
• Fish Lake Unit #1 Tailrace Reconstruction Upgrade to the outlet of Fish Lake Unit #1 power plant. The concrete ditch was reinforced with shotcrete to extend the life of the unit waterway.	\$173,000
• Fish Lake Penstock #2 Replacement	\$70,000
• Louise Lake Control Structure Gate Replacement	\$68,000
• Fish Lake Ditch #3 Concrete Upgrade at Drop Box and Bypass	\$57,000
• Fish Lake Dyke Widening	\$52,000
• Ross River Substation Improvements	\$52,000
• Purchase of Used Spare Generator	\$50,000
• Watson Lake Protection Upgrade	\$48,000
• Hobo for Franklin Lake Water Monitoring	\$36,000
• Teslin Programmable Logic Controller (PLC) Replacement	\$33,000
• Watson Lake Unit #5 Replacement	\$32,000
• Stewart Crossing Radio Replacement and Programmable Logic Controller (PLC) Upgrade for Remote Control	\$30,000
• Fish Lake Unit #1 Spillway	\$26,000
• Hobo Water Monitor for Fish Lake at Range Road	\$22,000
• High Voltage Switching Cubicle and Terminations for Old Crow Plant	\$20,000
• Teslin Plant Combustible Air Intake and Louver Improvements	\$19,000
• Fish Lake Unit #2 Wheel, Shaft, and Bearing Improvements	\$18,000
• Haines Junction Plant Relocation on to Foundation	\$14,000



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2011 CAPITAL EXPENDITURES – Continued

• Ross River Unit Protection Relay	\$11,000
• Pelly Crossing Plant Automation	\$10,000
• Other Projects	\$94,000

DISTRIBUTION NEW EXTENSIONS (Gross of Customer Contribution)	\$6,078,000

Capital expenditures required for the connection of new residential and commercial customers in Yukon Electrical's service area. Yukon Electrical's investment in new extension projects is based on the maximum investment levels included in the Board-approved Terms and Conditions.

New extensions include:

• Miscellaneous O/H Services – Various Subdivisions	\$1,274,000
Capital expenditures required for the connection of new residential and commercial customers in Yukon Electrical's service area in compliance with Terms and Conditions. Any new extension (driven by a customer) that is under \$25k is included in this.	
• Whistle Bend Subdivision Stage 1 & 2	\$1,242,000
See Business Case #16	
• Grizzly Valley New Extension Out of Subdivision	\$415,000
New subdivision on the North Klondike Highway north of Whitehorse.	
• Water Front Place Line Relocation	\$385,000
New electrical infrastructure to serve Whitehorse Water Front development.	
• 25 Wann Road – 65 Units	\$343,000
New townhouse development in Porter Creek Subdivision.	



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2011 CAPITAL EXPENDITURES – Continued

• Falcon Ridge Development Stage 4	\$271,000
Stage 4 of private development in Copper Ridge subdivision.	
• New Underground Line Extensions	\$216,000
New services installed to serve various customers in underground distribution areas.	
• Grizzly Valley New Extension In Subdivision	\$193,000
New subdivision on the North Klondike Highway north of Whitehorse.	
• Ingram 6-Plex Subdivision	\$165,000
New private development in Arkell Subdivision.	
• Diamond Ranch Extension	\$130,000
New Line Extension	
• Yukon Government Haines Junction Willow Acres Residential Infill	\$124,000
New subdivision development in Haines Junction.	
• Watson Lake Hospital Upgrade	\$104,000
New electrical infrastructure installed to serve the Watson Lake Hospital.	
• Mount Sima T-Bar	\$86,000
• River's Edge Development	\$81,000
• Lot 1368 Mayo Road	\$80,000
• F.H. Collins Secondary School Transformer	\$72,000
• Land Rights	\$72,000
• Carcross Retail Shops	\$51,000



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2011 CAPITAL EXPENDITURES – Continued

• Yukon Housing Abbeyfield Senior's Residence	\$48,000
• Eagle Eye Subdivision	\$45,000
• 6-Plex 1204 Centennial	\$44,000
• Lot 1084 Grizzly Valley	\$37,000
• 8-Plex Lot 1127 Hillcrest	\$35,000
• Kulan Area Line Improvements	\$34,000
• Yukon Government Water Treatment Plant	\$34,000
• 14 th Ave Whitehorse	\$34,000
• Condominium – 602 Main Street	\$33,000
• Lot 1309 Ibex	\$33,000
• Kwanlin Dun First Nation Cultural Centre	\$31,000
• Other Projects less than \$20,000	\$366,000

DISTRIBUTION IMPROVEMENTS	\$4,626,000

Improvements include:

• Whistle Bend Substation	\$1,690,000
See Business Case #20	
• System Upgrade, Extension of 5L628 to Grizzly Valley	\$454,000

Extension of Whitehorse distribution to supply power to new Yukon Government subdivision. Yukon Electrical system improvement was to provide better system load balance, adequate voltage and protection of distribution system.



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2011 CAPITAL EXPENDITURES – Continued

- Laberge Substation Distribution Upgrades \$416,000

Design and installation of a new 25kV distribution line out of Laberge substation. This system improvement was driven by the expansion of Whistle Bend in the area and continued system load growth.
- Right of Way Widening \$331,000

Widen existing rights of way (ROW) to allow for access, wild fire reduction, and reliability.

Locations Included: 9L Line west of Teslin, Watson Lake, Teslin and Riverdale subdivision in Whitehorse.
- PCB Identification and Transformer Change Outs \$239,000

Identification of Polychlorinated Biphenyl (PCB) content of all oil-filled equipment, in compliance with the Canadian Environmental Protection Act 1999. Oil-filled equipment containing PCBs in a concentration of at least 50 mg/kg but less than 500 mg/kg is being removed from service.
- 5L626 Double Circuit Line to Whistle Bend Substation \$200,000

Existing 5L626 line from Mountainview substation toward Whistle Bend substation did not have adequate conductor size for the additional load of Whistle Bend. A majority of the poles were replaced as they were not adequately sized for the increased weight of the new conductors.
- Hotsprings Road Upgrade \$190,000

Relocated and upgraded 40 year-old single phase line to 3-phase to address protection coordination problems, load balance and system voltage.
- Upgrade Laberge Substation Transformer to 10 MVA \$189,000

Upgrade of station transformer and substation regulators to accommodate load increase on substation.
- Whistle Bend 34.5kV Substation Distribution Lines \$156,000

See Business Case #19



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2011 CAPITAL EXPENDITURES – Continued

• Whistle Bend Substation Transformer	\$127,000
Purchased a 25 kV/12.5kV transformer that accommodates the integration of the Whistle Bend substation to the Porter Creek distribution system.	
• Line Upgrade and Relocation Army Beach	\$92,000
• Miscellaneous Pole Replacements	\$70,000
• Line Upgrade and Relocation Lot 56 Paint Mountain	\$69,000
• System Upgrade 113 Copper Road	\$53,000
• System Frequency Upgrades at S150	\$37,000
• Line Relocation Eagle Way	\$30,000
• Carcross Town Pole Replacements	\$27,000
• Configure Pelly Substation to Yukon Interconnected System	\$23,000
• Centennial Street Upgrades	\$20,000
• Hillcrest Subdivision Conversion	\$2,000
See Business Case #18	
• Other Projects less than \$20,000	\$211,000
STREET AND SENTINEL LIGHTING	\$1,045,000
• Whistle Bend Stage 1 & 2 Street Lights	\$257,000
See Business Case # 26	



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2011 CAPITAL EXPENDITURES – Continued

• Morley and Peel Street Light Replacement	\$150,000
System Improvement project to replace Morley and Peel Street Lights. Replacement of base, davits and installation of new wires in ducts.	
• Wharf Lighting 1 st Ave. Whitehorse	\$147,000
New Street Lights installed along 1 st Ave. in Whitehorse.	
• Whistle Bend Way Light Additions	\$143,000
Street Lights installed in new subdivision in Whitehorse.	
• Trail Lighting along Whitehorse Waterfront to Shipyards Park	\$100,000
New Street Lights installed along 1 st Ave. in Whitehorse.	
• Boxwood Light Upgrade	\$44,000
• Grizzly Valley Street Lights	\$27,000
• Black Street Additions and Rebuild	\$20,000
• Other Projects less than \$20,000	\$157,000

METERS	\$199,000

• Replacement of Meters and Installing New Meters	\$199,000
The installation of new meters is required to accommodate load growth associated with customer requests for service. These expenditures allow Yukon Electrical to meet its obligation to provide metered service connections. The capital meter additions are planned based on known areas of development and expected connection requests. New meters are also required to replace obsolete or end of life meters as identified by Measurement Canada.	



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2011 CAPITAL EXPENDITURES – Continued

TRANSFORMERS & REGULATORS	\$9,000
GENERAL PROPERTY & EQUIPMENT	\$1,330,000
• Fish Lake Water Licence Renewal	\$491,000
See Business Case #28	
• Transportation Equipment	\$257,000
o Replacement on Units 265, 266, 267, 369, 370 and 371	
• Demand Side Management Costs	\$204,000
See Business Case #30	
• Office Furniture	\$72,000
• Miscellaneous Tools and Instruments	\$67,000
• Communication Equipment	\$49,000
• New Cashier System	\$33,000
• Service Complex Construction Department Renovations	\$31,000
• Other Projects less than \$20,000	\$126,000



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CAPITAL EXPENDITURE INFORMATION 2008 – 2015
2012 CAPITAL EXPENDITURES

GENERATION PLANTS	\$3,115,000
Fish Lake Unit #1 Turbine and Building Replacement See Business Case #2	\$1,024,000
Watson Lake Unit #4 Replacement See Business Case #3	\$354,000
Watson Lake Unit #3 Major Overhaul Performed scheduled major overhaul on Watson Lake Unit #3. Overhaul work composed of two parts: (i) required replacement; and (ii) required inspection. Items found during inspection to be out of manufacturer's tolerance range were refurbished or replaced.	\$247,000
Beaver Creek Programmable Logic Control (PLC) Upgrade Replacement of circa 1982 IDEC PLC as this control equipment is no longer supported or available from the manufacturer. The software driver is not compatible with the next generation System C and Data Acquisition (SCADA) program. Design and procurement of control equipment and panels completed in 2012. Onsite installation and commissioning of the equipment will take place in 2013.	\$206,000
Fish Lake Unit #2 Step-up Transformer Replace existing failing transformer with a new transformer. This transformer connects Fish Lake Unit #2 to the Yukon Interconnected System.	\$172,000
Fish Lake Unit #2 Turbine Inlet Valve (TIV) Replacement Removed existing TIV that was at the end of its life. Replaced with new TIV valve, which was fitted with a motor operator for automatic operation. Control system was upgraded for automatic operation.	\$171,000
Beaver Creek Control Room Separation from Plant Installation of separate control room from diesel generator room. This will prevent further degradation of controls due to excessive vibration, heat and carbon buildup within the diesel generator room.	\$137,000



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2012 CAPITAL EXPENDITURES – Continued

• Carmacks Fuel System Upgrade	\$100,000
Entire fuel system was upgraded for 100% spill containment and automatic alarms added to SCADA.	
• Old Crow Generator Change Out	\$90,000
• Watson Lake Bi-Fuel Project	\$90,000
See Business Case #6	
• Swift River Unit #2 Replacement	\$53,000
• Pelly Crossing Plant New Governors for Automation	\$53,000
• Teslin Fuel System Upgrade	\$41,000
• Ross River Fuel System Upgrade	\$37,000
• Water Pressure Monitor (Hobo) for Louise Lake	\$37,000
• Teslin Programmable Logic Controller (PLC) Replacement	\$31,000
• Destruction Bay Fuel System Upgrade	\$21,000
• Haines Junction Fuel System Upgrade	\$20,000
• Other Projects less than \$20,000	\$231,000

DISTRIBUTION NEW EXTENSIONS
(Gross of Customer Contribution)

\$4,919,000

Capital expenditures required for the connection of new residential and commercial customers in Yukon Electrical's service area. Yukon Electrical's investment in new extension projects is based on the maximum investment levels included in the Board-approved Terms and Conditions.



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2012 CAPITAL EXPENDITURES – Continued

New extensions include:

• Miscellaneous O/H Services – Various Subdivisions	\$992,000
Capital expenditures required for the connection of new residential and commercial customers in Yukon Electrical's service area in compliance with Terms and Conditions. Any new extension (driven by a customer) that is under \$25k is included in this.	
• Whistle Bend Subdivision Stage 1 & 2	\$683,000
Design and installation of underground electrical infrastructure to provide service to a new subdivision in Whitehorse.	
• Northwestel Fox Point	\$308,000
Design and installation of new overhead distribution line extension to a communication tower.	
• Northwestel Minto	\$308,000
Design and installation of new overhead distribution line extension to a communication tower.	
• Grizzly Valley New Extension In Subdivision	\$272,000
New subdivision on the North Klondike Highway north of Whitehorse.	
• Grey Wolf 1583 Wann Road	\$198,000
Design and installation of underground electrical infrastructure to provide service to a new town home subdivision in Whitehorse.	
• Lot 1146 Crestview Development	\$161,000
Design and installation of electrical infrastructure to provide service to new condominiums in Whitehorse.	



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2012 CAPITAL EXPENDITURES – Continued

• Mah's Point Condominiums	\$193,000
Design and installation of underground electrical infrastructure to provide service to new condominiums in downtown Whitehorse.	
• New Underground Line Extensions	\$144,000
New services installed to serve various customers in underground distribution areas.	
• Lot 405 Takhini	\$130,000
Design and installation of underground electrical infrastructure to provide service to a new town home subdivision in Whitehorse.	
• Yukon Government Ross River Pole Relocation	\$122,000
Relocation of electrical infrastructure needed to accommodate customer civil project.	
• Yukon Government Tagish Landfill	\$104,000
Design and installation of electrical infrastructure to provide service to Tagish Landfill.	
• Water Front Place Line Relocation	\$100,000
Design and installation of electrical infrastructure to serve Whitehorse Water Front development.	
• Carcross Tagish First Nation C82B Subdivision	\$86,000
• Hidden Haven	\$78,000
• Daylu Dena 10 Lots Lower Post	\$74,000
• Yukon Government Teslin Pole Moves	\$67,000



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2012 CAPITAL EXPENDITURES – Continued

• Betty's Haven Shelter Lot 6	\$65,000
• Yukon Government Yukon River Crossing	\$62,000
• Yukon Government Civil Excavations in Watson Lake	\$62,000
• Ingram Subdivision 15 Units	\$60,000
• City of Whitehorse Selkirk Street Pump House #6	\$58,000
• Liard First Nation Lots 123 and 134 2 Mile Subdivision	\$55,000
• New Hangar Condor Road	\$51,000
• F.H. Collins Secondary School Transformer	\$48,000
• Lot 1395 North Klondike Highway	\$47,000
• Kulan Area Line Improvements	\$41,000
• Lot 1014 Alaska Highway South	\$39,000
• Lot 105 Otter Road	\$35,000
• City of Whitehorse Ponderosa Communication Tower	\$34,000
• Falcon Ridge Development Stage 4	\$34,000
• Lots 1095/1096 Grizzly Subdivision	\$32,000
• City of Whitehorse Marwell Reroute	\$28,000
• Yukon Government Mt. Lorne Land Fill	\$27,000
• 20 Laberge Road Service Upgrade	\$26,000
• Other Projects less than \$20,000	\$95,000



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2012 CAPITAL EXPENDITURES – Continued

DISTRIBUTION IMPROVEMENTS **\$4,018,000**

Improvements include:

- 5L628 Crestview to Mayo Road Corner Double Circuit **\$628,000**
See Business Case #21
- Shipyards Substation Transformer Failure and Upgrades **\$473,000**
Transformer failed in Shipyard's Substation. Investigation determined a design flaw contributed to the loss. Failed, as well as second identical transformer replaced. Additional improvements made to substation to accommodate increase of system load in the Whitehorse downtown core.
- Whistle Bend Substation **\$423,000**
See Business Case #20
- PCB Identification and Transformer Change Outs **\$401,000**
Identification of Polychlorinated Biphenyl (PCB) content of all oil-filled equipment, in compliance with the Canadian Environmental Protection Act 1999. Oil-filled equipment containing PCBs in a concentration of at least 50 mg/kg but less than 500 mg/kg is being removed from service.
- Right of Way Widening - Widen existing rights of way (ROW) to allow for access, wild fire reduction, and reliability. **\$377,000**
Locations Included: Tagish, Nares Lakes, Carcross Road, Marsh Lake, McPherson and Porter Creek.
- Hillcrest Conversion **\$252,000**
See Business Case #18



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2012 CAPITAL EXPENDITURES – Continued

• Regulator to North Klondike Highway	\$154,000
Design and installation of a three phase regulator bank to improve voltage performance on 5L628 North Klondike Highway due to system load increases and new line extensions.	
• Test and Treat Program	\$153,000
This program tests and evaluates our poles for structural integrity. It identifies poles that have degraded internally due to rot or pest infestation. The inspection bore holes are treated to ensure no degradation of pole will occur due to the bore holes.	
• Laberge Substation 34.5kV Conductor Upgrade	\$103,000
Upgrade of 34.5kV conductor to Laberge substation is required due to increased capability of substation transformer for system load growth.	
• Whitehorse Elementary School Transformer Upgrade	\$94,000
• Breaker Replacement in Services Substation	\$84,000
• Old Crow 3 rd Distribution Breaker	\$78,000
• 97 Lewes Boulevard Transformer Upgrade	\$70,000
• Miscellaneous Pole Replacements	\$60,000
• Laberge Substation Upgrade	\$57,000
• Range Road Line Rerouting	\$56,000



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2012 CAPITAL EXPENDITURES – Continued

• Marsh Lake Substation Upgrade	\$45,000
• Ponderosa Road Vault Addition and Service Upgrade	\$35,000
• Ross River Recloser for S7580	\$30,000
• CRE Breaker Replacement in Lewes Boulevard	\$30,000
• Porter Creek Underground Vaults Replacement	\$28,000
• Whitehorse Service Area Line Clearance Upgrades	\$25,000
• System Improvements Lowe Street	\$21,000
• Marsh Lake Structure Upgrade	\$21,000
• Other Projects less than \$20,000	\$320,000

STREET AND SENTINEL LIGHTING **\$456,000**

• Whistle Bend Stage 1 & 2 Street Lights	\$150,000
See Business Case #26	
• Yukon Government Lights on 8 th Street Watson Lake	\$143,000
• Black Street – 6th Avenue Escarpment	\$37,000
• Yukon Government Grizzly Valley Street Lights	\$33,000
• Other Projects	\$93,000



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2012 CAPITAL EXPENDITURES – Continued

METERS **\$283,000**

- Replacement of Meters and Installing New Meters **\$283,000**

The installation of new meters is required to accommodate load growth associated with customer requests for service. These expenditures allow Yukon Electrical to meet its obligation to provide metered service connections. The capital meter additions are planned based on known areas of development and expected connection requests. New meters are also required to replace obsolete or end of life meters as identified by Measurement Canada.

TRANSFORMERS & REGULATORS **\$34,000**

GENERAL PROPERTY & EQUIPMENT **\$1,766,000**

- Fish Lake Water Licence Renewal **\$688,000**

See Business Case #28

- Transportation Equipment **\$421,000**

- o Purchase New Cargo Trailer for Underground Electrical Testing Equipment
- o Replacement of Units 642, 268 and 673

- Miscellaneous Tools and Instruments **\$166,000**

- o Powermate Instrument Analyzer for instrument meters
- o Hand-Held TTR - device used for testing transformers
- o Fire Retardant Clothing for High Voltage electrical work
- o Miscellaneous Small Tools and Equipment



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2012 CAPITAL EXPENDITURES – Continued

• Demand Side Management Costs	\$143,000
See Business Case #30	
• Downtown Office Interior Renovations	\$62,000
• Windows 7 Upgrades	\$61,000
• Whitehorse Service Complex HVAC Replacement	\$59,000
• Communication Equipment	\$57,000
• Office Furniture	\$24,000
• Other Projects	\$85,000



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CAPITAL EXPENDITURE INFORMATION 2008 – 2015
2013 CAPITAL EXPENDITURES

GENERATION PLANTS **\$6,696,000**

- Fish Lake Unit #1 Turbine and Building Replacement **\$2,167,000**
See Business Case #2
- Watson Lake Unit #4 Replacement **\$1,120,000**
See Business Case #3
- 500kW Mobile Generator **\$750,000**
See Business Case #4
- Beaver Creek Unit #2 Replacement **\$600,000**
See Business Case #5
- Watson Lake Bi-Fuel Project **\$363,000**
See Business Case #6
- Fish Lake Dyke Upgrade **\$300,000**
See Business Case #7
- Old Crow Plant Expansion **\$300,000**
See Business Case #8
- Watson Lake Unit # 6 Major Overhaul **\$250,000**

Perform scheduled major overhaul on Watson Lake Unit #6. Overhaul work to be composed of two parts including: (i) required replacement; and (ii) required inspection. Items during inspection found to be out of manufacturer's tolerance range will be refurbished or replaced.



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2013 CAPITAL EXPENDITURES – Continued

• Beaver Creek Programmable Logic Control (PLC) Upgrade	\$180,000
Replacement of circa 1982 IDEC PLC as this control equipment is no longer supported or available from the manufacturer. The software driver is not compatible with the next generation Supervisory Control and Data Acquisition (SCADA) program. Design and procurement of control equipment and panels completed in 2012. Onsite installation and commissioning of the equipment will take place in 2013.	
• New 250kW Mobile Generator	\$175,000
This generator provides contingency power to smaller communities. Contingency situations include emergency backup and scheduled maintenance shutdowns of power plants. The unit is also used during other system improvement projects to supply temporary power.	
• Destruction Bay Plant Foundation Refurbishment	\$150,000
Inspection and evaluation of power plant foundation has identified and recommended specific refurbishment that will prevent further degradation and will provide life extension to existing power plant.	
• Fish Lake Unit #2 SCADA	\$50,000
• Fish Lake Unit #2 Penstock Improvements	\$40,000
• Fish Lake Unit #2 Siding Replacement	\$35,000
• Fish Lake Head Pond #2 Spillway Upgrade	\$30,000
• Swift River Unit #2 Replacement	\$30,000
• Fish Lake Unit #2 Vibration Monitoring	\$20,000
• Fish Lake Unit #1 Fiber Communication from Head Pond to Unit	\$20,000
• Fish Lake Unit #2 Building Improvements	\$20,000
• Fish Lake Unit #1 Spillway Diversion Structure	\$20,000
• Other Projects	\$76,000



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2013 CAPITAL EXPENDITURES – Continued

DISTRIBUTION NEW EXTENSIONS (Gross of Customer Contribution)	\$5,149,000

Capital expenditures required for the connection of new residential and commercial customers in Yukon Electrical's service area. Yukon Electrical's investment in new extension projects is based on the maximum investment levels included in the Board-approved Terms and Conditions.

New extensions include:

• Miscellaneous O/H Services – Various Subdivisions	\$3,625,000

Capital expenditures required for the connection of new residential and commercial customers in Yukon Electrical's service area in compliance with Terms and Conditions. Any new extension (driven by a customer) that is under \$25k is included in this.

• New Underground Line Extensions	\$600,000

New services installed to serve various customers in underground distribution areas.

• Service to proposed City of Whitehorse Municipal Services Building on Robert Service Way	\$420,000

Design and installation of underground electrical infrastructure to provide service to a new Municipal Services Building in Whitehorse.

• Land Rights	\$190,000

The costs charged to this project are for costs to obtain easements once property is registered in land titles. Costs include monitoring title status, drafting of easements and obtaining easements.

• General Drafting and Mapping	\$80,000
• Yukon Government Teslin Sawmill Subdivision	\$75,000
• Lot 11 Marion Crescent	\$53,000



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2013 CAPITAL EXPENDITURES – Continued

• Lot 1000 Airport Road	\$53,000
• Other Projects less than \$20,000	\$53,000

DISTRIBUTION IMPROVEMENTS	\$4,137,000

Improvements include:

• McIntyre Subdivision Replacement Stage 1	\$475,000
See Business Case #22	
• Downtown Whitehorse 4L313 Lambert Street to Elliot Street - Replace with Underground Lines	\$424,000
Upgrade and replacement of existing overhead distribution infrastructure with underground electrical distribution.	
• Right of Way Widening	\$374,000
Widen existing rights of way (ROW) to allow for access, wild fire reduction, and reliability.	
Locations Included: 9L Alaska Highway South km 1253.4 – 1264 and km 1273.1 – 1283.5, Carmacks Mount Berdoe, Porter Creek subdivision south, and downtown Whitehorse.	
• Tagish 5L600 Rebuild	\$300,000
Rebuild of existing distribution line needed to increase conductor size due to load increase and heavy ice loading zone.	
• Hillcrest Conversion	\$275,000
See Business Case #18	



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2013 CAPITAL EXPENDITURES – Continued

- Miscellaneous Distribution Pole Replacement \$260,000

Various deficient poles are identified through distribution system inspections, test and treat program and in unplanned situations. System inspections identify ground rot, pest infestation, broken or damaged poles and electrical degradation. The test and treat program identifies internal condition of the pole. Unplanned situations include emergency situations due to failure of the pole and forced projects.

- Downtown Whitehorse 4L316 6th Avenue 266 Reconductor \$250,000

Upgrade and replacement of existing conductor on 4L316 in the downtown core of Whitehorse. Upgrade is due to load increase in the downtown core. Existing infrastructure is near limit and the development in the downtown core continues to add electrical load.

- Crestview to Mayo Road 5L628 Upgrade to 266 MCM \$250,000

The Project is to install new large conductor (266 MCM) on bottom circuit of existing structures. The replacement of conductor in this area of 5L628 is due to insufficient capacity of existing conductor to continue to supply electrical service to the 2,200 Whitehorse North customers. The existing conductor has failed previously due to the increased load on 5L628.

- Old Alaska Highway Bypass \$248,000

Extension of 5L628 main line on Alaska Highway West that will bypass the Old Alaska Highway subdivision. Project will provide better voltage and system performance. Existing system voltage is being degraded due to length of single phase line on the Alaska Highway West.

- PCB Identification and Transformer Change Outs \$175,000

Identification of Polychlorinated Biphenyl (PCB) content of all oil-filled equipment, in compliance with the Canadian Environmental Protection Act 1999. Oil-filled equipment containing PCBs in a concentration of at least 50 mg/kg but less than 500 mg/kg is being removed from service.



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2013 CAPITAL EXPENDITURES – Continued

• Hotsprings Road Main Line Relocation and Upgrade	\$325,000
Upgrade of main line due to voltage performance and load balancing. Relocation of line within Highway Right of Way done in conjunction with Road Improvement project by Yukon Government.	
• Test and Treat Program	\$110,000
This program tests and evaluates our poles for structural integrity. It identifies poles that have degraded internally due to rot or pest infestation. The inspection bore holes are treated to ensure no degradation of pole will occur due to the bore holes.	
• Jack Hulland School Upgrades	\$100,000
Replacement of transformer and underground infrastructure that services Jack Hulland School in Porter Creek. The existing system was end of life and utility employees were not able to operate equipment safely when energized.	
• Carmacks North Main Line Rebuild	\$100,000
Rebuild of section of main line as identified in distribution system inspections. Poles are in a compromised state due to age and general degradation of 40 year old infrastructure.	
• Pelly Crossing Substation Fence	\$100,000
Site improvements and installation of fence at Pelly Substation	
• Whitehorse Asset Management – Create a Pole Database	\$75,000
• Whitehorse Area Line Clearance Upgrades	\$65,000
• Teslin Area Pole Upgrades	\$53,000
• Teslin Sawmill Road Upgrade for New Subdivision	\$38,000
• Lot 1037 Range Road Line Upgrade	\$34,000
• Whitehorse Safety Code Corrections	\$30,000
• Other Projects less than \$20,000	\$76,000



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2013 CAPITAL EXPENDITURES – Continued

STREET AND SENTINEL LIGHTING **\$420,000**

- Miscellaneous Street Light Replacements \$330,000

Planned replacement program based on street light inspections and condition assessment of infrastructure. Condition assessment is based on performance of street lights, deficiencies or substandard conditions and the general physical condition. Inspection of the general physical condition includes the base and metal structure for deterioration, rust, broken bolts and damage.

- Whistle Bend Stage 1 & 2 & 3 Street Lights \$75,000

See Business Case #26

- Other Projects \$15,000

METERS **\$600,000**

- Replacement of Meters and Installing New Meters \$600,000

The installation of new meters is required to accommodate load growth associated with customer requests for service. These expenditures allow Yukon Electrical to meet its obligation to provide metered service connections. The capital meter additions are planned based on known areas of development and expected connection requests. New meters are also required to replace obsolete or end of life meters as identified by Measurement Canada. The new meters to be installed in 2013 will be AMR compatible in preparation for the conversion to AMR in 2014 and 2015.

Locations include Chestnut, Mulberry and Hickory Street.

TRANSFORMERS & REGULATORS **\$10,000**



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2013 CAPITAL EXPENDITURES – Continued

GENERAL PROPERTY & EQUIPMENT	\$3,270,000
• Fish Lake Water Licence Renewal	\$650,000
See Business Case #28	
• Downtown Office Building Envelope Upgrades	\$600,000
See Business Case #29	
• Transportation Equipment	\$424,000
- o Replacement of Units 161, 163, 372, 674 and 675 - o Purchase New Pole Trailer - o Purchase New Service Truck PLT Team Lead - o Purchase Zoom Boom Personnel Lift - o 4 Place Stringing and Pulling Trailer	
• Display Change to Yukon Electrical Billing Statements	\$259,000
To provide customers with additional electrical consumption information about their own consumption and to provide additional transparency about the electrical rate structure in the Yukon and how customer consumption translates to their actual electrical costs.	
• Windows 7 Upgrades	\$146,000
Yukon Electrical uses Windows XP desktop computers and laptops as primary business tools across its operations. The operating system used on the computers is being upgraded to Windows 7 as Windows XP will no longer be supported by Microsoft after April 2014.	
At the same time, the MS Office Suite 2003 will also be upgraded to MS 2010 to ensure that the software remains vendor supported.	
• Whitehorse Service Complex Pole Storage	\$150,000
Environmental requirement to get poles off of ground	



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2013 CAPITAL EXPENDITURES – Continued

- Demand Side Management Costs \$135,000
See Business Case #30
- E-Post Billing \$125,000

This project is to give customers the option of receiving their monthly statements electronically. The statements will be available for review and payment on the Canada Post E-Post website.
- Miscellaneous Tools and Instruments \$117,000
 - o Fire Retardant Clothing for High Voltage electrical work
 - o Underground Line Tools
 - o Miscellaneous Small Tools and Equipment
- Whitehorse Service Complex Parking Lot Expansion and Improvements \$100,000

The current employee and customer parking areas will be repositioned. This will allow for unencumbered and safer access to and from vehicles at the Service Complex. The parking area will be paved to provide for proper draining and a stable surface for walking for employees and customers.
- Downtown Office Interior Renovations \$100,000

Renovation needed to optimize existing work areas for adequate office and meeting room space.
- Whitehorse Service Complex Operations Department and Meeting Room Renovations \$80,000
- Whitehorse Service Complex – Roof/Insulation, Reception Area, and Lighting Upgrades in Service Bays \$70,000



The Yukon Electrical Company Limited
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2013 CAPITAL EXPENDITURES – Continued

• Field Collection System	\$55,000
• Office Furniture	\$44,000
• Field Collection System – Report Development (ITBS)	\$43,000
• Yukon Electric Website Improvements	\$35,000
• New Cashier System	\$25,000
• Whitehorse Service Complex – Fence Extension	\$20,000
• Other Projects	\$92,000



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CAPITAL EXPENDITURE INFORMATION 2008 – 2015
2014 CAPITAL EXPENDITURES

GENERATION PLANTS **\$7,759,000**

- Old Crow Plant Expansion **\$1,650,000**
See Business Case #8
- Fish Lake Ditch #3 Diversion Structure Replacement **\$1,640,000**
See Business Case #9
- Fish Lake Dyke Upgrade **\$1,420,000**
See Business Case #7
- Destruction Bay Unit #2 Replacement **\$600,000**
See Business Case #14
- Old Crow Unit #4 Addition **\$500,000**
See Business Case #10
- Watson Lake Bi-Fuel Project **\$372,000**
See Business Case #6
- Destruction Bay Unit #3 Replacement **\$450,000**

Purchase new unit complete with new manufacturer supplied and sized, radiator, exhaust, and heat exchanger. Remove existing unit, install new unit and supplied devices, integrate unit into electrical supply and control systems, connect unit into waste heat and fuel systems.

- Destruction Bay Programmable Logic Controller Upgrade **\$300,000**

Replacement of circa 1982 IDEC PLC as this control equipment is no longer supported or available from the manufacturer. The software driver is not compatible with the next generation System C and Data Acquisition (SCADA) program. Includes design and procurement of control equipment and panels as well as onsite installation and commissioning of the equipment.



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2014 CAPITAL EXPENDITURES – Continued

- Watson Lake Unit #5 Major Overhaul \$200,000

Perform major overhaul on unit. Overhaul to be completed as per manufacturers guidelines. Overhaul work to be composed of two parts including: (i) required replacement; and (ii) required inspection. Items during inspection found to be out of manufacturers tolerance range will be refurbished or replaced.
- Watson Lake Replace ABB 5HK Breakers \$180,000

Current breakers are end of life and obsolete technology. Replace existing breakers with vacuum breakers and install them into existing cells.
- Stewart Crossing Plant Improvements \$120,000

General improvements including control system upgrades as well as building heating improvements. This will improve reliable operation of the generator and improve the energy efficiency of the building.
- Fish Lake Unit #1 Spillway Diversion Structure \$100,000

Rebuild deteriorated existing wood structure that diverts water around the #1 power plant site from head pond #1 when in an overspill condition.
- Stewart Crossing Plant Building Insulation \$60,000
- Ross River Replace ABB 5HK Breakers \$45,000
- Fish Lake Unit #2 Head Pond Low Level Outlet Pipe \$30,000
- Other Projects \$92,000

DISTRIBUTION NEW EXTENSIONS \$5,370,000
(Gross of Customer Contribution)

Capital expenditures required for the connection of new residential and commercial customers in Yukon Electrical's service area. Yukon Electrical's investment in new extension projects is based on the maximum investment levels included in the Board-approved Terms and Conditions.



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2014 CAPITAL EXPENDITURES – Continued

New extensions include:

- Miscellaneous O/H Services – Various Subdivisions \$2,900,000

Capital expenditures required for the connection of new residential and commercial customers in Yukon Electrical's service area in compliance with Terms and Conditions. Any new extension (driven by a customer) that is under \$25k is included in this.

- Whistle Bend Stage 3 \$1,200,000

See Business Case #17

- New Underground Line Extensions \$1,000,000

New services installed to serve various customers in underground distribution areas.

- Land Rights \$190,000

The costs charged to this annual project are for costs to obtain easements once property is registered in land titles. Costs include monitoring title status, drafting of easements and obtaining easements.

- Other Projects less than \$20,000 \$80,000

DISTRIBUTION IMPROVEMENTS \$4,638,000

Improvements include:

- Whitehorse 5L628 and New 34.5kV Build \$1,890,000

See Business Case #23

- Downtown Whitehorse 25kV Conversion \$450,000

See Business Case #24



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2014 CAPITAL EXPENDITURES – Continued

- Right of Way Widening \$389,000

Widen existing rights of way (ROW) to allow for access, wild fire reduction, and reliability.

Locations Included: 5L628 Burma Road, South Klondike Highway km 127.5 – 138.6, Porter Creek subdivision north, and Carmacks town.
- Downtown Whitehorse 4L316 6th Avenue 266 Reconductor \$300,000

Upgrade and replacement of existing conductor on 4L316 in the downtown core of Whitehorse. Upgrade is due to load increase in the downtown core. Existing infrastructure is near limit and the development in the downtown core continues to add electrical load. This line ties directly to 4L315 and continues the upgrade of the Whitehorse downtown core.
- Miscellaneous Distribution Pole Replacement \$260,000

Various deficient poles are identified through distribution system inspections, test and treat program and in unplanned situations. System inspections identify ground rot, pest infestation, broken or damaged poles and electrical degradation. The test and treat program identifies internal condition of the pole. Unplanned situations include emergency situations and forced outages due to failure of the pole.
- McIntyre Subdivision Replacement Stage 1 \$250,000

See Business Case #22
- Hillcrest Conversion \$250,000

See Business Case #18
- Takhini/Marwell 4L315 Upgrade to 266 ACSR \$250,000

See Business Case #25



The Yukon Electrical Company Limited
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2014 CAPITAL EXPENDITURES – Continued

• Test and Treat Program	\$120,000
This program tests and evaluates our poles for structural integrity. It identifies poles that have degraded internally due to rot or pest infestation. The inspection bore holes are treated to ensure no degradation of pole will occur due to the bore holes	
• Marwell Lot 14 Transformer Upgrade	\$100,000
Replace live front transformer (circa 1973) and associated underground system. The existing system was end of life and utility employees were not able to operate equipment when energized.	
• Riverdale Lewes Substation 25kV Transformer	\$100,000
Replace old underground system with new system built to present standards. The existing system is end of life and utility employees are not able to operate equipment when energized.	
• PCB Identification and Transformer Change Outs	\$100,000
Identification of Polychlorinated Biphenyl (PCB) content of all oil-filled equipment, in compliance with the Canadian Environmental Protection Act 1999. Oil-filled equipment containing PCBs in a concentration of at least 50 mg/kg but less than 500 mg/kg is being removed from service.	
• Whitehorse Asset Management – Create a Pole Database	\$75,000
• Whitehorse Area Line Clearance Upgrades	\$70,000
• Other Projects less than \$20,000	\$34,000
STREET AND SENTINEL LIGHTING	\$945,000
• Whistle Bend Stage 1 & 2 & 3 Street Lights	\$450,000
See Business Case #26	



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2014 CAPITAL EXPENDITURES – Continued

- Miscellaneous Street Light Replacements \$450,000

Planned replacement program based on street light inspections and condition assessment of infrastructure. Condition assessment is based on performance of street lights, deficiencies or substandard conditions and the general physical condition. Inspection of the general physical condition includes the base and metal structure for deterioration, rust, broken bolts and damage.

Locations Include Pine and Evergreen Streets

- Other Projects \$45,000

METERS \$1,630,000

- Automated Meter Reading (AMR) \$1,580,000

See Business Case #27

- Replacement Meters \$50,000

TRANSFORMERS & REGULATORS \$10,000

GENERAL PROPERTY & EQUIPMENT \$2,066,000

- Transportation Equipment \$995,000
 - o Replacement of Forklift
 - o Replacement of Units 164, 777 and 887
 - o Replacement of Unit 780 - 1992 Digger Derrick



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2014 CAPITAL EXPENDITURES – Continued

- Demand Side Management Costs \$522,000
See Business Case #30
- Old Crow Staff Accommodations \$100,000
Operations and construction staff are required to stay and work in the community on a regular basis. Accommodation in the community is not available on a regular basis. The current accommodations cannot be repaired any further.
- Watson Lake Power Plant Connection to Town Water Supply \$100,000
Existing water supply from a drilled well is degrading. The Town of Watson Lake water line is now at the edge of the property. Connect power plant to the Town of Watson Lake water supply.
- Whitehorse Various Service Complex Renovations \$100,000
Creation of extra offices for additional employees and reorganization of current floor layout.
- Miscellaneous Tools and Instruments \$167,000
 - o GPS Survey Equipment
 - o Underground Equipment and Line Tools
 - o Fire Retardant Clothing for High Voltage Electrical Work
 - o Miscellaneous Small Tools and Equipment
- Communication Equipment \$11,000
- Other Projects \$71,000



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CAPITAL EXPENDITURE INFORMATION 2008 – 2015
2015 CAPITAL EXPENDITURES

GENERATION PLANTS	\$5,900,000
• Carcross 2MVA Generation Standby Unit	\$3,000,000
See Business Case #12	
• Watson Lake Unit #2 Replacement	\$1,350,000
See Business Case #13	
• Beaver Creek Unit #1 Replacement	\$600,000
See Business Case #11	
• Old Crow Unit #3 Replacement	\$500,000
See Business Case #15	
• Watson Lake Unit #1 Major Overhaul	\$250,000
Perform scheduled major overhaul on Watson Lake Unit #1 as per manufacturer's guidelines. Overhaul work to be composed of two parts including: (i) required replacement; and (ii) required inspection. Items during inspection found to be out of manufacturer's tolerance range will be refurbished or replaced.	
• Watson Lake Replace ABB 5HK Breakers	\$200,000
Current breakers are at end of life and obsolete technology. Replacement of existing breakers with vacuum breakers and install them into existing cells.	



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2015 CAPITAL EXPENDITURES – Continued

DISTRIBUTION NEW EXTENSIONS (Gross of Customer Contribution)	\$5,570,000

Capital expenditures required for the connection of new residential and commercial customers in Yukon Electrical's service area. Yukon Electrical's investment in new extension projects is based on the maximum investment levels included in the Board-approved Terms and Conditions.

New extensions include:

• Miscellaneous O/H Services – Various Subdivisions	\$4,300,000

Capital expenditures required for the connection of new residential and commercial customers in Yukon Electrical's service area in compliance with Terms and Conditions. Any new extension (driven by a customer) that is under \$25k is included in this.

• New Underground Line Extensions	\$1,000,000

New services installed to serve various customers in underground distribution areas.

• Land Rights	\$190,000

The costs charged to this annual project are for costs to obtain easements once property is registered in land titles. Costs include monitoring title status, drafting of easements and obtaining easements.

• Other Projects less than \$20,000	\$80,000

DISTRIBUTION IMPROVEMENTS	\$4,084,000

Major improvements include:

• Downtown Whitehorse 25kV Conversion	\$450,000
- See Business Case #24



The Yukon Electrical Company Limited
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2015 CAPITAL EXPENDITURES – Continued

- Right of Way Widening \$405,000

Widen existing rights of way (ROW) to allow for access, wild fire reduction, and reliability.

Locations included: Bay View Rd (Army Beach), North Klondike Highway km 191.8 – 201.8, Carmacks Nordenskiold subdivision, and 5L628 Policeman's Point Tap.
- Whitehorse Hotsprings Road 3 Phase Conversion \$363,000

5L628 upgrade of single phase line to three phase to improve load balancing and coordination of system protection.
- Takhini/Marwell 4L315 Upgrade to 266 ACSR \$350,000

See Business Case #25
- Takhini/Marwell Completion of Mountain Air Subdivision \$300,000

Complete the system improvement section of the underground power line feed in Mountain Air Subdivision. The new extension project was started in 2008. The subdivision was staged and developed over a number of years for residences. Yukon Electrical will complete the system improvement area now that all civil projects have been completed in the subdivision.
- Tagish 5L600 Rebuild \$276,000

Continuation of replacement of 25kV distribution line. The replacement of this section of 5L600 is due to conductor inadequacy and end of life condition. The existing conductor was installed circa 1970s and is the smallest conductor that Yukon Electrical utilizes with regard to ampacity. The load of the area has grown, the conductor has multiple repair locations and the Tagish area is identified as a heavy loading area due to considerable frost and snow loading in the winter. Some existing poles will be replaced as their condition assessment is poor.



The Yukon Electrical Company Limited
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2015 CAPITAL EXPENDITURES – Continued

- **Miscellaneous Distribution Pole Replacement** **\$260,000**

Various deficient poles are identified through distribution system inspections, test and treat program and in unplanned situations. System inspections identify ground rot, pest infestation, broken or damaged poles and electrical degradation. The test and treat program identifies internal condition of the pole. Unplanned situations include emergency situations and forced outages due to failure of the pole.
- **MacDonald Road Pole Change** **\$250,000**

Replace old poles with taller poles to allow for minimum clearances to be met. Add 3rd phase to the areas missing it so that customers can connect 3 phase loads in an industrial area where 3 phase power is the standard.
- **Riverdale Line 4L317 Tagish Road** **\$250,000**

Rebuild section of line that has been identified in distribution inspections with deficiencies due to shell rot on pole. Poles will be replaced and electrical equipment built to standard.
- **Lewes Lake Substation Conversion** **\$146,000**

Conversion of this substation and the subdivision will standardize the area. The existing substation transformer is from the 1960s. The voltage of the transformer and the subdivision are non standard. Yukon Electrical has limited stock left of this voltage. Converting to a standard will reduce inventory and ensure supply of transformers is available. The voltage conversion will improve line losses.
- **Whitehorse Airport Hanger D Area Rebuild** **\$140,000**

Rebuild overhead line and convert to 25kV standards. The existing line was built by the Airforce or Army and is 40 plus years old. The condition assessment of the poles is poor. Project will improve line losses and shift load off of heavily loaded line.
- **Test and Treat Program** **\$130,000**

This program tests and evaluates our poles for structural integrity. It identifies poles that have degraded internally due to rot or pest infestation. The inspection bore holes are treated to ensure no degradation of pole will occur due to the bore holes



The Yukon Electrical Company Limited
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2015 CAPITAL EXPENDITURES – Continued

• Upper Liard – Replace Liard River Crossing	\$100,000
Replacement of 260m long river crossing. Replacement is due to age of existing structures and deficiencies identified during distribution inspections.	
• Watson Lake Underground Subdivision Replacement	\$100,000
Rebuild part of underground subdivision to current standards. Underground infrastructure in place circa 1972. The underground infrastructure has had a number of life extension projects completed over the last 10 years. Failure of high voltage cables has occurred and they show that they are continuing to degrade.	
• PCB Identification and Transformer Change Outs	\$100,000
Identification of Polychlorinated Biphenyl (PCB) content of all oil-filled equipment, in compliance with the Canadian Environmental Protection Act 1999. Oil-filled equipment containing PCBs in a concentration of at least 50 mg/kg but less than 500 mg/kg is being removed from service.	
• McLintock Substation Upgrade	\$90,000
• Spirit Lake Substation Upgrade	\$88,000
• Grey Mountain 4L320 Tie Upgrade	\$65,000
• Deep Creek Subdivision Connection to Whitehorse Distribution	\$60,000
• Stewart Crossing West Town Conversion	\$60,000
• Upgrade of S2278	\$45,000
• Other Projects less than \$20,000	\$56,000



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2015 CAPITAL EXPENDITURES – Continued

STREET AND SENTINEL LIGHTING **\$813,000**

- New Street Light Installations **\$483,000**

Projected cost of project is based on historical data of fully contributed new street light installations.

- Street Light Replacements **\$330,000**

A section of lights on Alsek road have been identified for replacement due to multiple faults on underground cable and degrading of the metal light standard.

METERS **\$2,333,000**

- Automated Meter Reading (AMR) **\$2,283,000**

See Business Case #27

- Replacement of Meters and New Installations **\$50,000**

TRANSFORMERS & REGULATORS **\$10,000**

GENERAL PROPERTY & EQUIPMENT **\$2,110,000**

- Demand Side Management Costs **\$730,000**

See Business Case #30



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2015 CAPITAL EXPENDITURES – Continued

• Replacement of Unit 989 – 1995 Hot Line Bucket Truck	\$450,000
• Transportation Equipment	\$400,000
Replacement of Units 747, 851, 882 and 887	
• Whitehorse Service Complex Yard Extension	\$300,000
Civil project to extend existing Service Complex yard within existing lot. This will provide additional space for inventory and requisite spacing to allow large construction vehicles adequate room to maneuver.	
• Miscellaneous Tools and Instruments	\$115,000
o Underground Line Tools	
o Fire Retardant Clothing for High Voltage Electrical Work	
o Miscellaneous Small Tools and Equipment	
• Office Furniture	\$34,000
• Communication Equipment	\$12,000
• Other Projects	\$69,000

The Yukon Electrical Company Limited
2013 - 2015 General Rate Application
Plant Additions
(\$000s)

Schedule 9.1

Line No.	Description	Cross Ref.	Actual 2008	Actual 2009	Actual 2010	Actual 2011	Actual 2012	Test Period			GRA Approved 2008	GRA Approved 2009
								2013	2014	2015		
1	Work in Progress, Beginning of Year		1,035	1,771	555	3,095	5,767	3,241	1,561	961	1,035	620
2												
3	Generation:											
4	Generating Plants		853	779	1,810	1,652	3,115	6,696	7,759	5,900	1,083	1,193
5			853	779	1,810	1,652	3,115	6,696	7,759	5,900	1,083	1,193
6	Billing:											
7	New N60 Billing Systems		1,035	-	-	-	-	-	-	-	1,008	-
8			1,035	-	-	-	-	-	-	-	1,008	-
9	Distribution:											
10	New Extensions		3,244	3,437	3,397	6,078	4,919	5,149	5,370	5,570	3,141	2,962
11	Distribution Improvements		3,395	1,203	2,251	4,626	4,018	4,137	4,638	4,084	2,967	2,532
12	Street and Sentinel Lights		839	354	486	1,045	456	420	945	813	506	495
13	Meters		31	-	460	199	283	600	50	50	-	-
14	Meters - AMR		-	-	-	-	-	-	1,580	2,283	-	-
15	Transformers and Regulators		-	80	-	9	34	10	10	10	-	-
16			7,509	5,074	6,593	11,957	9,709	10,315	12,593	12,810	6,613	5,988
17	General Property and Equipment:											
18	Tools, Instruments & Equipment		45	37	176	67	178	117	167	115	50	57
19	Office Furniture & Equipment		10	1	10	72	24	44	42	34	13	10
20	Office Computer Equipment		3	22	4	36	-	5	5	5	6	5
21	Software		138	117	103	13	62	700	2	52	-	-
22	Fish Lake Water License Renewal		-	-	-	491	688	650	-	-	-	-
23	Demand Side Management Costs		-	-	-	204	143	135	522	730	-	-
24	Communication Equipment		57	47	228	49	57	65	11	12	102	54
25	Transportation Equipment		139	100	358	257	421	424	995	850	205	230
26	Land and Buildings		117	76	106	141	193	1,131	321	312	219	181
27			509	400	985	1,330	1,766	3,270	2,066	2,110	595	537
28												
29	Miscellaneous Other		-	-	-	-	-	-	-	-	-	-
30												
31	Total Capital Expenditures		9,906	6,253	9,388	14,938	14,590	20,282	22,417	20,820	9,299	7,718
32												
33	Less: Transfers to Rate Base	S.8.6 L.5	(9,170)	(7,469)	(6,848)	(12,266)	(17,116)	(21,962)	(23,017)	(20,820)	(9,714)	(7,758)
34												
35	Work in Progress, End of Year	S.8.5 L.5	1,771	555	3,095	5,767	3,241	1,561	961	961	620	580

Section 10 - Income Tax

Overview

The income tax expense included in this Application is outlined in Schedule 10.1 and is as follows:

	2008 Actual	2009 Actual	2010 Actual	2011 Actual	2012 Actual	Test Period		
						2013	2014	2015
	(\$000)							
Income Tax Expense	<u>(94)</u>	<u>10</u>	<u>278</u>	<u>61</u>	<u>(307)</u>	<u>248</u>	<u>704</u>	<u>828</u>

Yukon Electrical continues to use the flow through method in calculating the income tax expense. Under the flow through method, Yukon Electrical calculates the income tax expense based on taxable income which is minimized by claiming the maximum of all available deductions including capital cost allowance (CCA). Yukon Electrical also does not book deferred taxes under this methodology.

The increase in income tax expense between 2008 and 2009 is mainly due to higher Utility earnings before taxes offset by a 0.5% decrease in the Federal income tax rate in 2009. The increase in income tax expense between 2009 and 2010 is mainly due to higher Utility earnings before taxes and a lower CCA deduction, offset by a 1.0% decrease in the Federal income tax rate in 2010. The decrease in income tax expense between 2010 and 2011 is mainly due to higher deductions for rate case expenditures, Fish Lake water licence costs and ES&G and other deductible costs, as well as a further 1.5% decrease in the Federal income tax rate in 2011. The decrease in income tax expense between 2011 and 2012 is mainly due to a higher CCA deduction, as well as higher deductions for Fish Lake water licence costs and pension payments and a further 1.5% decrease in the Federal income tax rate in 2012.



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- 1 The increase in income tax expense for 2013-2015 is mainly due to higher Utility
- 2 income before taxes partially offset by various higher net deductions, including higher
- 3 CCA deductions as a result of increased rate base.

The Yukon Electrical Company Limited
2013 - 2015 General Rate Application
Income Tax Expense
(\$000s)

Schedule 10.1

Line No.	Description	Cross Ref.	Actual 2008	Actual 2009	Actual 2010	Actual 2011	Actual 2012	Test Period			GRA Approved 2008	GRA Approved 2009
								2013	2014	2015		
1	Utility Earnings Before Tax		1,250	2,306	2,465	2,396	2,177	3,152	4,166	4,726	1,305	1,953
2	Add:											
3	Depreciation	S.1.1 L.12	3,181	3,446	3,683	4,129	4,192	6,570	7,509	8,569	3,354	3,661
4	Amortization of Contributions	S.1.1 L.13	(980)	(1,133)	(1,221)	(1,289)	(1,371)	(1,444)	(1,557)	(1,749)	(963)	(1,028)
5	Non-Allowable Expenses		21	27	25	25	28	25	25	25	18	18
6	Plant Maintenance Write-off	S.8.8 L.36	124	141	141	-	-	-	-	-	123	123
7	Rate Case Write-off	S.8.8 L.24 + L.25	600	150	150	150	150	40	40	39	150	150
8	Injuries & Damages Write-off	S.8.4 L.27	75	97	86	86	86	123	123	123	86	86
9	Fish Lake Water License Write-off	S.8.8 L.45	147	147	-	-	-	-	-	-	154	154
10	Charges to Deferred Pension & OPEB		416	448	547	590	870	870	870	870	648	683
11	Sub-Total		<u>3,584</u>	<u>3,323</u>	<u>3,411</u>	<u>3,691</u>	<u>3,955</u>	<u>6,184</u>	<u>7,010</u>	<u>7,877</u>	<u>3,570</u>	<u>3,847</u>
12												
13	Deduct:											
14	CCA		3,461	3,668	3,006	3,085	3,559	4,523	5,689	6,651	3,515	3,700
15	Plant Maintenance Reserve Charges	S.8.8 L.34	118	-	-	-	-	-	-	-	60	-
16	Rate Case Expenditure	S.8.8 L.23	274	101	-	160	24	417	193	-	720	-
17	Injuries & Damages Costs	S.8.4 L.28	-	147	100	100	-	100	100	100	60	60
18	Fish Lake Water Licence Costs	S.8.8 L.34 / S.9.1 L. 22	137	259	358	491	688	650	-	-	150	-
19	Pension & OPEB payments	S.8.4 L.14 + L.21	668	688	821	865	1,317	1,317	1,317	1,317	648	683
20	Inventory Pool Costs Capitalized		215	243	238	193	277	287	297	290	358	376
21	Deferred Charges		38	58	-	-	28	-	-	-	-	-
22	Dismantling Costs		-	-	185	100	64	70	70	70	-	-
23	Cumulative Eligible Capital		11	11	11	10	10	44	44	44	10	9
24	ES&G & Other Deductible Costs		<u>431</u>	<u>325</u>	<u>732</u>	<u>1,054</u>	<u>1,122</u>	<u>1,103</u>	<u>1,121</u>	<u>1,371</u>	<u>350</u>	<u>350</u>
25	Sub-Total		<u>5,352</u>	<u>5,500</u>	<u>5,451</u>	<u>6,058</u>	<u>7,089</u>	<u>8,510</u>	<u>8,830</u>	<u>9,843</u>	<u>5,871</u>	<u>5,178</u>
26												
27	Taxable Income		(519)	129	424	29	(956)	826	2,346	2,760	(996)	622
28	Tax Rate		<u>34.5%</u>	<u>34.0%</u>	<u>33.0%</u>	<u>31.5%</u>	<u>30.0%</u>	<u>30.0%</u>	<u>30.0%</u>	<u>30.0%</u>	<u>34.5%</u>	<u>34.0%</u>
29	Income Tax		(179)	44	140	9	(287)	248	704	828	(344)	211
30	Book to Filing Adjustment		<u>85</u>	<u>(34)</u>	<u>138</u>	<u>52</u>	<u>(20)</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>
31	Total Current Provision	S.1.1 L.16	<u>(94)</u>	<u>10</u>	<u>278</u>	<u>61</u>	<u>(307)</u>	<u>248</u>	<u>704</u>	<u>828</u>	<u>(344)</u>	<u>211</u>

1 **Section 11 – Prior Board Directions**

2 **Summary**

3 The following attachments provide a response, or a reference to a response in this
4 Application, to the applicable Board Directions from Board Decisions respecting Phase I
5 matters.

6 **Board Directions**

7	Attachment 1	Decision 2009-2 Appendix A Board Direction No. 2
8	Attachment 2	Decision 2009-2 Appendix A Board Direction No. 8
9	Attachment 3	Decision 2009-2 Appendix A Board Direction No. 19
10	Attachment 4	Decision 2009-2 Appendix A Board Direction No. 20
11	Attachment 5	Decision 2009-2 Appendix A Board Direction No. 23
12	Attachment 6	Decision 2009-2 Appendix A Board Direction No. 26
13	Attachment 7	Decision 2009-2 Appendix A Board Direction No. 27



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Decision 2009-2, Appendix A

Direction No. 2, Reference: Pages 6-7

"The Board acknowledges that YECL performed a great deal of detailed analyses to arrive at its sales revenue forecasts as outlined in the Application. However, the Board is not convinced that a more simplified approach could not achieve reasonable results with far less effort and cost to ratepayers. Therefore, the Board directs YECL at the time of its next GRA to include comparisons of its analyses and the analyses undertaken by other utilities in Canada to arrive at sales revenue forecasts."

"The Board has concerns with the range of R^2 values used throughout the analyses and YECL's justification for the wide range of values. Accordingly, the Board directs YECL at the time of its next GRA to include a detailed study as to what other jurisdictions consider a minimum value for R^2 that is acceptable in regression analyses."

"Additionally the Board notes YECL's use of one variable in its regression analyses and the wide range of R^2 values in YECL's regression analyses. It is unclear to the Board whether or not the use of one variable in regression analyses is a contributing factor to the wide range of R^2 values. Consequently, the Board directs YECL to undertake a study that compares the types of regression analyses — for example, univariate or multivariate — that other utilities may use in order to arrive at their analyses."

Yukon Electrical's Response:

The following study compares the forecast methodology and the R^2 values used by other utilities in Canada.



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THE YUKON ELECTRICAL COMPANY LIMITED

STUDY ON CANADIAN ENERGY FORECASTING METHODOLOGIES



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1. Introduction

Yukon Electrical Company Limited (“Yukon Electrical”) has prepared this Study on Canadian Energy Forecasting Methodologies in response to Board Order 2009-02 Direction #2 which states:

“2. The Board directs YECL at the time of its next GRA to include comparisons of its analyses and the analyses undertaken by other utilities in Canada to arrive at sales revenue forecasts...”

For this study, Yukon Electrical examined the forecasting methodologies of 12 Canadian Utilities. Please refer to Table 1 for the list of the utilities examined and the summary of the forecasting methodologies they used.

In general, the study found that there were varying degrees of complexity involved in the forecasting methodologies used by the utilities examined. By comparison, the forecast methodology used for the Yukon Electrical’s forecast is quite simple, using an average monthly historical (weather normalized, or non-normalized) UPC to derive a monthly UPC forecast by community. Regression analysis was only used to weather normalize the historical data in an attempt to exclude the effect of abnormally cold or warm years and base the energy forecast on a true historical trend. A major reason for taking such a simplified approach is due to the lack of consistent actual data and the lack of forecasts for potentially relevant variables by credible independent agencies.

The study will be discussed in further detail in Sections 2 – 4.

2. Minimum Acceptable R2 in Regression Analyses

In Board Direction #2, the Board directs Yukon Electrical to:

“...include a detailed study as to what other jurisdictions consider a minimum value for R2 that is acceptable in regression analyses...”



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Please refer to Table 1 for the R2 results for the studied utilities. Not all utilities examined provided detail information about their models and the R2 results. For those who provided the information, the R2 ranged from 59.5% to 99.9% for regression models for UPC, customer counts and energy. For weather normalizing historical data alone (which is the only function of Yukon Electrical's forecast which regressions were used for), the R2 ranged from 59.5% to 88.9%.

R2 alone cannot be relied upon to judge a viability of a statistical model. In fact, statistical text books are full of examples of "Spurious Regression"¹, a regression model that shows a very high R2 but is void of any meaningful (theoretical or commonsense) relationship between the dependent and independent variables. Apart from ensuring that the relationship between the dependent variable and independent variable(s) follow some economic theories or, at least, commonsense, one should pay attention to whether or not the independent variables included in the model have the right signs and are statistically significant (t-stat) and the overall significance of the relationship (F-stat). At the end of the day, one is limited by the availability of data.

Facing data limitation for the remote and sparsely populated communities, Yukon Electrical's forecasting methodologies, used in the past and in this Application, are simple but consistent with the industry practices in other Canadian utilities.

3. Compare Types of Regression Analyses

Board Direction #2 also requested that Yukon Electrical:

"...undertake a study that compares the types of regression analyses that other utilities may use in order to arrive at their analyses..."

¹ (i) Egyptian infant mortality rate (Y), 1971-1990, annual data, on Gross aggregate income of American farmers (X) and Total Honduran money supply (M)

$$Y = 179.9 - .2952 X - .0439 M, \quad R^2 = 91.8 \%$$

(ii) US Defense Expenditure (Y), 1971-1990, annual data, on Population of South Africa (X)

$$Y = -368.99 + .0179 X, \quad R^2 = 94\%$$

Source: <http://www.eco.uc3m.es/~jgonzalo/teaching/timeseriesMA/examplesspuriousregression.pdf>



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As indicated in Table 1, there are different methodologies applied by different utilities examined. However, those methodologies have very little applicability to most communities under Yukon Electrical's service territory due to the size of the community and the lack of data.

4. Compare Analyses for Commercial Sales Forecast

In Board Direction #3, with respect to the commercial sales forecast, the Board directed Yukon Electrical to:

"...provide a comparative study as to the analyses other utilities make use of to derive sales-revenue forecasts. "

Please refer to Table 1.



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Table 1

Company	Reference	R ²	Forecast Methodology	Additional Comments
ATCO Electric	2011-2012 GTA (Filed: May 2010) Approved Decision (April, 13, 2011)	R ² for Res UPC = 95% (Application, Attachment 3) R ² for Com UPC = 90% (Application, Attachment 3)	Residential: (Application, Section 13, P13-8) Customers: service installation projections prepared by ATCO Electric's Distribution Department. UPC: Single-equation regression model using monthly data, HDD, CDD, per capita Alberta real GDP, 12-month lagged normalized UPC, a dummy variable for January and a dummy variable for post-2007. <i>Where, HDD is Heating Degree Days, CDD, Cooling Degree Days and GDP, Gross Domestic Product</i> Commercial: (Application, Section 13, P13-9) Customers: See above UPC: Single-equation regression model using monthly data, HDD, CDD, per capita Alberta real GDP, 12-month lagged normalized UPC, a dummy variable for January and a dummy variable for post-2007. <i>Weather normalization of actual data was based on regressing monthly UPC on HDD and CDD; "Normal" weather is defined as a 20-year rolling average.</i>	
Fortis Alberta	2012/2013 Tariff Application. Exhibit 0002.00.FORTIS- 1147	The detail of regression analysis and R ² are not provided, however, the methodology Fortis has used is not changed over the years. Based on 2008-09 GTA application the R ² for Res = 71% and R ² for Rate 61 (commercial) = 89%	Rate 11 Residential (P231): Customers: estimated using single equation regression based on Alberta Housing Starts and Count-1. UPC: Weather Normalized UPC using 20-year average HDD and CDD The UPC is regressed against the recorded HDD and CDD to derive coefficients for each. The coefficients derived in the first step are then multiplied by the variance between the recorded and 20-year rolling average HDD and CDD to arrive at weather normalized UPC. Historical monthly normalized UPC is multiplied by the recorded number of customers in order to arrive at the normalized energy for each month. Rate 61 Small General Service (P235): Customers: estimated using a single equation regression based on Alberta Real GDP and Count-1. Energy: forecast using single equation regression using Count, Days, HDD and CDD	



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Company	Reference	R ²	Forecast Methodology	Additional Comments
Enmax	2007-2016 Formula Based Ratemaking. Decision 2009-35.	R ² for Residential Sites forecast = 99.9% R ² for Commercial Energy = 99% No regression results found for weather normalizing residential UPC	3 key forecast driver variables: Calgary housing starts, Calgary population and Alberta real GDP Residential (P.4): Customers: estimated using a single equation regression based on cumulative Calgary housing starts. UPC: 4-yr average ("2003 to 2006") weather normalized (monthly) UPC (2005/2006 DT used average of 2002 to 2003 weather normalized UPC) Commercial (P.5): Total Commercial annual energy is estimated econometrically as a function of Alberta Real GDP and Total Commercial energy in the preceding year. Total then allocated among commercial rate classes based on 2006 weather normalized kWh contribution of each rate to Total Commercial kWh. Monthly energy for each of the commercial rate classes is next forecast by applying the 2005 to 2006 average shares of monthly weather normalized energy to the total annual weather normalized energy for each rate class.	
Northland Utilities (NWT)	2008-2010 GRA (Filed: Feb 8, 2008) Decision 25-2008	R ² for weather normalization for residential customers varied by community: 4 communities ranged from 73% to 79%; 3 communities from 26% to 56%.	Residential: UPC: 3-year average weather normalized UPC for all communities with the exception of one community for which 3-year average actual UPC was used. Commercial: 3-year average UPC	
Northland Utilities (Yellowknife)	2008-2010 GRA (Filed: Feb 8, 2008) Decision 24-2008	Res R ² = 88%	Residential: UPC: Regression using HDD, trend variable using increments of 0.5 per month and dummy variable for January Commercial: UPC: 3-year average	



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Company	Reference	R ²	Forecast Methodology	Additional Comments
NTPC	2012/13 and 2013/14 (on a fiscal year basis) GRA (Filed: March 2012) Decision 1-2013		UPC is forecast based on a five-year average UPC to “incorporates the effects of medium-term weather fluctuations, and thus represents a temperature normalized average UPC.” Residential: 1. The average annual customer count is forecast by applying the population growth estimates as per the NWT Bureau of Statistics to 2010/11 actual customer numbers. 2. The calculated five-year average UPC for each month is multiplied by the forecast customer counts for the respective forecast year to arrive at the sales forecast for each test year. General Service: 1. The average annual customer count is forecast by applying half of the population growth estimates to 2010/11 actual customer numbers as per the NWT Bureau of Statistics. 2. The base load forecast is estimated by multiplying the calculated average UPC per month by the general service estimated customer count for the respective forecast year.	
BC Hydro	F2011 Revenue Requirements App. (approved) Chapter 3 Load and Revenue Forecast		The residential and commercial sales forecasts both assume normalized weather which is defined as an average of degree days over a rolling 10-year period. Residential: (P2-2) Customers: uses Housing starts to project UPC: uses household income, equipment efficiency & saturation for heating, cooling and other residential uses of electricity Commercial: (P2-2) Employment, retail sales and commercial domestic product are main drivers of commercial sales. Also, historical commercial sales and forecasts for equipment efficiency & saturation for heating, cooling and other commercial uses of electricity are used in the model.	



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Company	Reference	R ²	Forecast Methodology	Additional Comments
Hydro One Networks (Ontario)	EB-2007-0681, Exhibit A, Tab 14, Schedule 3 dated Aug 15, 2007. Decision EB-2007-0681 dated December 18, 2008.	Monthly Model R ² :99% Annual Model R ² : 99%	31 Year normal weather is used. Customers P.10: Forecast takes into consideration the new customers requiring distribution services, existing customers moving out, provincial housing demand, population and household forecasts, vacancy rates and specific growth patterns of various customer groups. Forecast base-year is corrected for abnormal weather conditions and the forecast growth rates are applied to the normalized base-year value. Thus the forecast is weather-normal in the sense that it predicts the future load under normal weather conditions. Weather correction methodology uses 4 years of <u>daily</u> load and weather data to establish statistical relationship between weather and load. Weather variables used include temperature, wind speed, cloud cover and humidity. Both monthly and annual econometric and end-use models are used to prepare load forecast. Monthly Econometric Model Uses a multivariate time series approach linking monthly energy to Ontario GDP and residential building permits. Annual Econometric Model Uses personal disposable income per household, relative energy price and CDD, HDD. End-Use Model <u>Residential</u> Forecasts the number of accounts times appliance saturation rates and unit energy consumption <u>Commercial</u> Uses previous years consumption and growth rates based on the Hydro One provincial commercial end-use model. The model uses an end-use framework to provide estimates of energy use by building type.	Economic inputs were based on analyses prepared by such establishments as Global Insight, Conference Board of Canada, Centre for Spatial Economics, UofT, CMHC, Clayton Research



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Company	Reference	R ²	Forecast Methodology	Additional Comments
Manitoba Hydro	2012/13 & 2013/14 GRA 2012 Electric Load Forecast Approved July 2012		- Weather normalization is performed using 25 year average HDD and CDD in Winnipeg over the period April 1987 to March 2012 Residential: The Residential Basic forecast was calculated using a detailed end use approach. The forecast of the total number of Residential Customers was from Manitoba Hydro's 2012 Economic Outlook. The 2009 Residential Energy Use Survey provided current end use saturation rates, detailed information on newly constructed dwellings, and appliance age distributions and their expected lifetimes. The end use assumptions include usage information and efficiency improvement information. The number of appliances and their estimated usage were multiplied together to calculate an energy forecast for each end use, and then all uses were combined to calculate the total use for the Residential End Use Forecast. General Service P.3: Total GWh for the General Service Mass Market sector is forecast by multiplying the forecast number of customers in each rate class by the forecast average UPC in each rate class. The total number of customers in the GS Mass Market sector is forecast using econometric models, and then the total is allocated among the rate classes based on historical data. The average UPC is forecast using the five-year average for each rate class. One-third of the Plug-In Electric Vehicle forecast is added to the GWh for the Small Non- Demand rate class. (The other two-thirds of the electric vehicle forecast are allocated to the Residential forecast.) Forecast savings from future standards and construction codes are taken off of the forecast to calculate the Total Use.	http://www.hydro.mb.ca/regulatory_affairs/electric/gra_2012_2013/attachment_1.pdf



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Company	Reference	R ²	Forecast Methodology	Additional Comments
New Brunswick Power	Evidence April 19, 2007 Board Ref: 2007-004		- 30 Year normal HDD is used. Residential: # of customers is based on an analysis of population trends. Forecast UPC uses an appliance efficiency model. Penetration levels of major household electrical appliances are forecast based on Energy Planning Surveys of residential customers conducted every 3-5 years. General Service: Forecast based on GDP, HDD, real price of electricity and previous year's level of sales	Decision from Board of Commissioners of Public Utilities dated Jan 29/07 (prior to evidence this methodology is taken from) concludes that "the existing methodology for forecasting future loads is not adequate. The Board orders Disco to revise ... it's methodology to incorporate data and methods that will result in unbiased load forecasts ..." The April 19, 2007 Evidence document did not make any reference to this decision, however, the Decision dated Feb 22, 2008 references the April 19/07 Evidence Document and "finds that DISCO's load forecast is the most complete and best estimate for 2007/2008 and therefore approves it for use in determining the rates for 2007-2008"
Newfoundland Power (a Fortis Company)	2007-2008 GRA Decision P.U.32 (2007)	Could not find any detailed regression output information. Could not find any IRs requesting detailed forecast information.	Domestic: Customer growth primarily based on housing starts UPC forecast uses end-use/econometric model that includes the market share for electric space heating, personal disposable income and the marginal price of electricity in the current and previous year. Small General Service (0-100kW): Customer growth is primarily based on number of domestic customers. UPC forecast uses an econometric model that includes the GDP for the service sector per small general service customer and the average price of electricity in the current year. Large General Service (100kW +) Given the relatively small number of customers in this group, an informed opinion methodology is employed and energy sales are forecast on an individual customer basis.	



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Company	Reference	R ²	Forecast Methodology	Additional Comments
Nova Scotia Power	Approved Rates	Res R ² = 99.8% Com R ² = 99.8%	Residential: Residential load forecast using a regression with the following variables: appliance saturation, HDD, price/kWh, Commercial Goods Sales, residential energy sales from the previous year. 10-year average HDD is used Commercial: Commercial load forecast using a regression with the following variables: RQTOS (Real GDP, All Industries, at basic prices (Millions \$ 2002), Nova Scotia), Real personal disposable income, residential electricity sales and commercial electricity sales from the previous year	Email from Ron MacDougall, Sales Forecaster: "No magic R ² number...R ² alone does not describe a model, it is just one of the many parameters that describe model fit. I suspect for modeling remote communities you might be hard pressed to find good variables available to predict electricity growth".
Itron Inc.	Itron Inc. undertook a 'Weather Normalization Benchmark study' on July 29, 2005	It was based on an internet survey with about 20 questions. There were 172 respondents out of which 170 employed some type of normalization process and 2 did not employ any weather normalization process. Out of 170 respondents 76 % were electric companies who employed normalization processes. The majority of respondents, 71%, use 20 or more years to define "Normal" weather.	Weather Normalization is basically a method to remove the weather noise from historical data. The Weather Normalization regression model isolates the weather coefficient from underlying growth trends and captures the impact of weather over time.	www.aeic.org/load_research/docs/1_WeatherNorm_McMenamin.ppt https://www.itron.com



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1 **Decision 2009-2, Appendix A**

2 **Direction No. 8, Reference: Page 16**

3 *"The Board shares CW's concerns as to whether or not CPI is the appropriate*
4 *inflation index to apply to the basket of goods and services purchased by YECL.*
5 *Accordingly, the Board directs YECL in its next GRA to provide a study that*
6 *compares what other utilities use as a basis for non-labour inflation rates."*

7 **Yukon Electrical's Response:**

8 The following study details the non-labour inflation rates used by other utilities in their
9 recent filings.



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Summary of Non-Labour Inflation of Other Utilities

ATCO Electric (2011-2012 GTA)

- AE requested approval of non-labour inflation rates of 1.9% and 2.1%, for 2011 and 2012, respectively.
- The methodology is based on an average of Alberta CPI forecast rates from a number of government and financial institutions for the years 2011 and 2012.
- In [Decision 2011-134](#), the AUC confirmed that AE's proposed inflation rates were consistent with general trends in the economy and the electric industry. The rates were approved as requested.

AltaLink (2011-2012 GTA)

- AML requested approval of a general inflation rate of 2.1% for each of the 2011 and 2012 test years.
- The forecast is based on the rates provided in the Alberta Government's *Economic Outlook 2010-2013 (Published February 2010)*.
http://www.finance.alberta.ca/aboutalberta/economic_outlook.html (page 118)
- In [Decision 2011-453](#), the AUC determined that AML's inflation forecast reflects the Alberta Government's Economic Outlook 2010-2013 forecast factors which have been developed from independent third party resources. The rates were approved as requested.

EPCOR (2012 GTA)

- EDTI requested approval of non-labour inflation rates of 2.2% for 2012.
- The methodology is based on an average of Alberta CPI forecast rates from a number of government and financial institutions, as recommended by EDTI's expert witness, Dr. Ryan.
- In [Decision 2012-272](#), the AUC found EDTI's forecast inflation rates to be reasonable, and approved them as requested.

Fortis (2012 GTA)

- FAI requested approval of non-labour inflation rate of 2.2% for 2012.
- The methodology is based on using an average of Alberta CPI estimates from various government and financial institutions.
- In a Negotiated Settlement ([Decision 2012-108](#)), the inflation rates were agreed to by FAI and intervener groups, with no additional findings made by the AUC. Rates approved as negotiated.

Northland Utilities (NWT) (2011-2013 GRA)

- NUL (NWT) requested approval of non-labour inflation rates of 1.9%, 2.2%, and 2.1% for the 2011, 2012 and 2013 test years, respectively.



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- The methodology is based on using an average of Alberta CPI forecast rates from a number of government and financial institutions.
- In a Negotiated Settlement ([Decision 17-2011](#)), the inflation rates were agreed to by NWT and intervener groups, with no additional findings made by the PUB. Rates approved as negotiated.

Northland Utilities (NUY) (2011-2013 GRA)

- NUL (NUY) requested approval of non-labour inflation rates of 1.9%, 2.2%, and 2.1% for the 2011, 2012 and 2013 test years, respectively.
- The methodology is based on using an average of Alberta CPI forecast rates from a number of government and financial institutions.
- In a Negotiated Settlement ([Decision 13-2011](#)), the inflation rates were agreed to by NUY and intervener groups, with no additional findings made by the PUB. Rates approved as negotiated.



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1 **Decision 2009-2, Appendix A**

2 **Direction No. 19, Reference: Page 37**

3 *"The Board directs YECL in future to provide business cases for all major capital*
4 *expenditures at the time YECL files its rate applications to give the Board and*
5 *Interveners better opportunity to examine the business cases and time to allow*
6 *for written information requests. Further, the Board directs that YECL provide an*
7 *annual update on its capital plans and expenditures. The Board further directs*
8 *YECL in future rate applications to provide an itemized list of miscellaneous*
9 *capital expenditures."*

10 **Yukon Electrical's Response:**

11 Business cases for all capital expenditures greater than or equal to \$500,000 for the
12 years 2008-2015 are included with this Application. A detailed listing of capital
13 expenditures for the years 2008-2015, including an itemized list of miscellaneous capital
14 expenditures, can be found in Section 9 of this Application.



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Decision 2009-2, Appendix A

Direction No. 20, Reference: Pages 38-39

"Considering the above, the Board is not convinced that the Carcross generator is the best option at this time to mitigate outages in the Carcross-Tagish area. Therefore, the Board does not approve the proposed Carcross diesel unit in YECL's rate base for the test years. Accordingly, the Board directs YECL in its refiling to reflect the removal of the proposed Carcross diesel unit from its proposed capital additions. Further, at the time of its next GRA, the Board directs YECL to present its business case respecting the Carcross genset if it is still the preferred option to mitigate reliability concerns in the area."

"In addition, the Board has concerns with YECL's response to YUB-YECL-1. YECL failed to provide recognized indicators that could be used to benchmark distribution reliability in the area and indicated that it tracks reliability on its system as a whole rather than on a line or feeder basis. Recognizing the importance of system reliability, the Board directs YECL in its next GRA to present industry recognized statistics that affirm the success of its projects and program initiatives that have safety and reliability as their basis."

"Considering the number of miscellaneous pole-replacement projects YECL has proposed, the Board directs YECL to investigate the replacement of existing poles with taller poles as was suggested by LE and report back to the Board at the time of its next GRA. Further, the Board directs YECL at the time of its next GRA to provide a study that illustrates the initiatives that similar utilities (north of 60) are undertaking to address reliability concerns."

Yukon Electrical's Response:

A business case supporting the inclusion of a standby diesel unit in Carcross based on N-1 planning criteria is included with this Application (Business Case #12).

Attached are industry recognized statistics for Carcross and Tagish, as well as for Yukon Electrical as a whole. Yukon Electrical works to improve system performance and maintain safe, reliable power on a proactive basis through annual system improvement projects and planned programs. Yukon Electrical does not wait for unplanned failures to direct projects. Annual distribution system inspections, thermo



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vision inspections, continuous system monitoring, generation maintenance inspections, regular system load checks, as well as the test and treat pole program, are all programs designed to identify issues or deficiencies before they affect distribution system performance. All outages are reviewed on a weekly basis by the Operations and Engineering groups to identify any deficiencies in the distribution system.

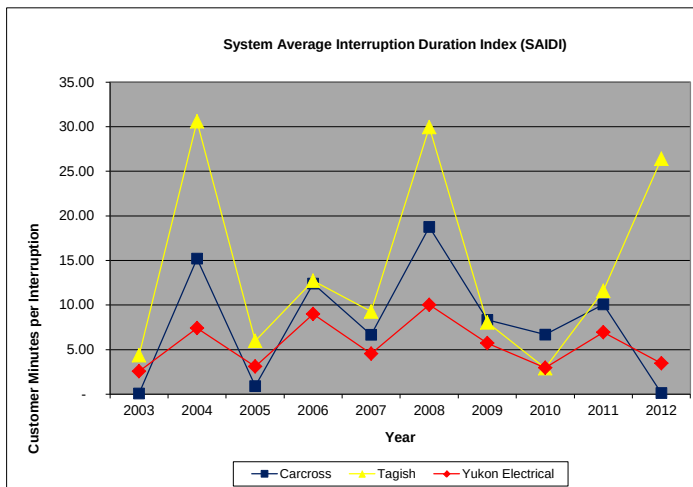
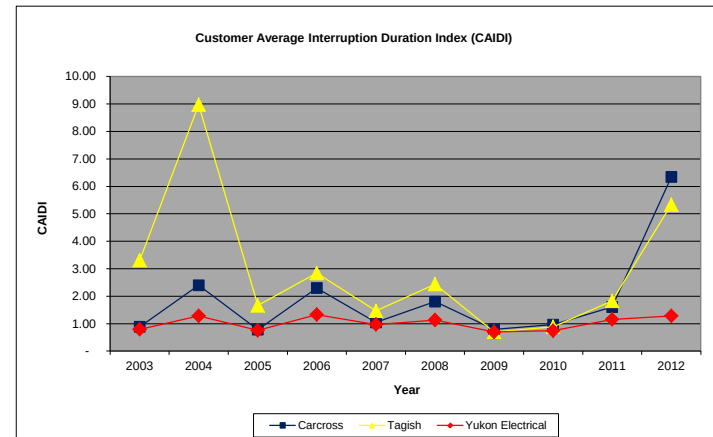
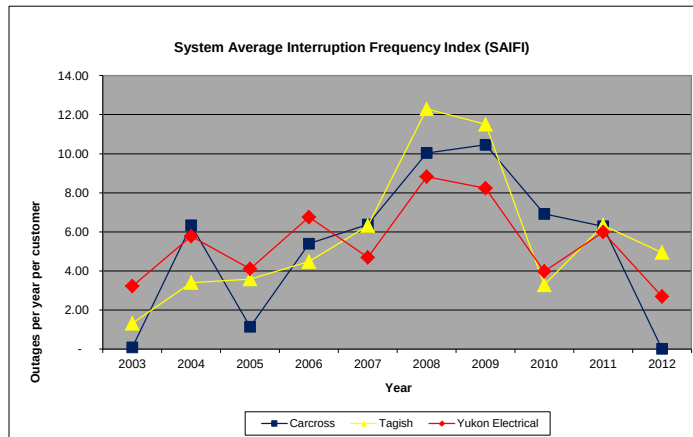
With regard to taller poles, whenever Yukon Electrical schedules a pole replacement due to a forced project, an unplanned situation or a deficiency identified in a distribution system inspection, an overall upgrade to a taller pole is fully considered. The considerations include building the new structure to current standards, the capacity of existing and new electrical equipment and installation of a taller pole for clearances and vegetation height in the area.

Regarding initiatives that similar utilities north of 60 are undertaking to address reliability concerns, a Northwest Territories Public Utilities Board (NWT PUB) proceeding is currently underway to address reliability concerns and the high incidence of power outages in the City Yellowknife. The responses to the NWT PUB received from both Northland Utilities (Yellowknife) and NWT Power Corporation (NTPC) regarding initiatives they have undertaken to address reliability are attached.

SAIFI			
Year	Carcross	Tagish	Yukon Electrical
2003	0.09	1.32	3.23
2004	6.34	3.41	5.78
2005	1.15	3.59	4.11
2006	5.40	4.48	6.76
2007	6.38	6.32	4.69
2008	10.04	12.29	8.83
2009	10.45	11.51	8.24
2010	6.92	3.29	3.98
2011	6.29	6.34	6.00
2012	0.02	4.95	2.70

SAIDI			
Year	Carcross	Tagish	Yukon Electrical
2003	0.08	4.37	2.57
2004	15.21	30.60	7.41
2005	0.90	5.98	3.11
2006	12.40	12.72	8.99
2007	6.66	9.26	4.54
2008	18.76	29.95	10.01
2009	8.33	8.04	5.73
2010	6.68	2.91	2.97
2011	10.08	11.59	6.95
2012	0.12	26.40	3.46

CAIDI			
Year	Carcross	Tagish	Yukon Electrical
2003	0.89	3.31	0.80
2004	2.40	8.97	1.28
2005	0.78	1.67	0.76
2006	2.30	2.84	1.33
2007	1.04	1.47	0.97
2008	1.80	2.44	1.13
2009	0.80	0.70	0.70
2010	0.97	0.89	0.74
2011	1.60	1.83	1.16
2012	6.34	5.34	1.28





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Responses to Northwest Territories Public Utilities Board Inquiry into the High Incidence of Power Outages in the City of Yellowknife Regarding Reliability

Northland Utilities Yellowknife

Northland Utilities (Yellowknife) Limited (NUL) has taken the following steps to implement additional/or improved reliability risk management strategies in order to minimize the frequency and duration of outages. The following preventative and predicative maintenance programs have been implemented to help identify and prevent electrical equipment failures impacting reliability.

1. Annual Infrared Scanning Program – Identifies temperature variances on power apparatus components which can indicate potential deficiencies.
2. Annual Pole Test & Treat Program – The testing part of the program is the core sampling of power poles to determine the condition of the poles. The treating part of the program is a chemical treatment done to a pole to extend its life.
3. Annual Substation Maintenance – The testing that is performed on all substation components to ensure the integrity of the said components.
4. Annual Brushing Program – A vegetation management program primarily focused on NUL's right of ways, which creates a safe environment for the public, employees, and contractors at all times. It also maintains the integrity, security and reliability of NUL's facilities.
5. Annual Line Patrol (Overhead & Underground) Program – The inspection of NUL's transmission system (34,000 volts) and distribution system (25,000 volts) to identify potential and/or system problems to ensure repairs are initiated in a planned proactive and timely manner.



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- 1 6. Annual Road Clearance Measurements – A program where NUL measures road
2 crossings (road surface to conductor) to ensure that engineering clearances are
3 being met.
- 4 7. Feeder Monitoring – A program which monitors the load (MW), frequency (Hz),
5 and/or voltage (V) of NUL's feeders to ensure the power quality of the system. As a
6 result of the 25kV Conversion project the monitoring system was upgraded to a
7 wireless real-time automated system versus the previous hardwired dial-up system
8 which was initially installed on the 4160V power system.
- 9 8. Wildlife Protection – The installation of wildlife protectors on facilities between an
10 energized circuit and grounded apparatus. This engineering standard started in 2010
11 and is approximately 42% completed in the Yellowknife Distribution System.
12 Annually additional protection is being added.
- 13 9. Polymeric Switches – A replacement program of porcelain switches to polymeric
14 switches. This action has been taken due to the history of porcelain switch failures
15 industry wide.
- 16 10. Semi Annual Oil Sampling of Substation Transformers – Oil samples are taken from
17 NUL's substation transformers to insure the integrity of the equipment.
- 18 11. High Voltage & Low Voltage Displays – An annual public education campaign on the
19 hazards of high and low voltages. These programs are delivered to schools and for
20 local contractors.
- 21 12. Call Before You Dig Awareness Program – An annual education and advertising
22 campaign to provide information to the public on the importance of contacting NUL
23 prior to digging on their property or job site.



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13. Annual Safety Code Audit – A third party inspection of all new electrical system construction to ensure engineering standards have been met.
14. System Improvements – An ongoing program that identifies electrical apparatus requiring upgrades to ensure the safety and reliability of NUL's electrical system. Issues are identified through daily work activities and annual line patrols.
15. Live Line Techniques – Includes of training of staff, testing equipment and personal protective equipment (PPE) to allow for safe work on energized power lines reducing planned outages to a minimum.
16. Emergency Response Plan – A document and/or electronic file that help facilitate access to additional human resources, communications, health, safety and environment, contractor's equipment and technical support as required; in a emergency or disaster if something ever happened to our power system. This document is updated annually and reviewed with all staff.
17. Business Continuity Plan – A document and/or electronic file that help facilitate access to additional human resources, communications, health, safety and environment, contractor's, equipment and technical support as required; in a emergency or disaster that would affect our daily business activities. Updated annually, a table top exercise is conducted annually.
18. Sparing Program (Inventory Levels) – In case of emergencies NUL keeps a reasonable inventory level of 34,000 volt transmission system materials and 25,000 volt distribution system materials. Inventory levels are replenished weekly as required.
19. Low Profile Substations – During the 25kV Conversion project NUL replaced seven high profile substations with three low profile substations. A low profile substation is



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described as having a low profile with less exposed overhead structure and thus less opportunity for wildlife to perch or climb on the equipment and cause faults.

20. Primary Underground Power Lines – During 25kV Conversion project NUL replaced approximately 2.5km of primary overhead power line with primary underground power line. Converting overhead power line to underground prevents frequent outages due to severe weather conditions (lightning, wind, freezing, and frost) and underground cables pose no hazard to low flying aircraft or to wildlife.

21. Engineering Standards – Focused on a safety and reliability, Safety Code Standards, and the Canadian Electrical Code. NUL's engineering standards meet or exceed the above mentioned. ATCO Electric Power Systems Worker Safety Manual, ATCO Safety Standards Manual, ATCO Electrical Distribution Standards Manual (ATCO Electrical Engineered Standards), all these manuals meet or exceed the Canadian Electrical Code.

22. Lightning Arrestors (Protection) – Through the 25kV Conversion project and current engineering standards, lightning arrestors have been installed and/or upgraded on all of our electrical facilities.



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NWT Power Corporation (NTPC)

<i>Element</i>	<i>Outcome(s)</i>	<i>Target Date</i>
Short-term Initiatives		
1. Foot Patrol of Bluefish Line	- Visual inspection of 31 km transmission line - Identify structures requiring bird deterrents - Detect any major physical problems with equipment (none found)	Completed-August 2012
2. Infrared and Corona Scans	- Look for signs of non-visible damage to lightning arrestors, conductors, substations, and other transmission equipment - Customer-owned substations have also been scanned - Scan has not detected any issues Completed-Sept.	Completed-September 2012
Medium-term Initiatives		
3. Bluefish Line Bird Deterrents and River Crossing Temporary Repair	- Replace damaged / missing bird deterrents identified by foot patrol. - Adjust conductors at river crossing to eliminate phase – phase contacts during high winds	April 2013
4. Upgrade Snare System Fault Detection	Install a new relay to improve distance and directional detection for transmission line faults	January 2013
5. Auto-recloser Investigation	- Examine options for installing equipment to automatically reclose generators or load (NUL) following system faults - Determine potential impacts of this installation with respect to an isolated system	June 2013
6. Protection Coordination Study and Implementation	- Adjust protective device settings to isolate line faults more effectively • - Limit the number of customers affected during interruptions	February 2013



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7. Bluefish Line Forestry Program	• Clear brush and trees from entire Bluefish transmission right of way • Eliminate line faults resulting from trees touching conductors • Currently underway	April 2013
8. Yellowknife River Crossing Permanent Repair	• Re-design Yellowknife River crossing to reduce chances of phase to phase contacts due to the long unsupported span • Complete construction of recommended structures	July 2013
Long-term Initiatives		
9. Lightning Protection Study and Upgrades	• Examine existing lightning protection on entire system • Identify any additional protection requirements including replacement shield wire known damage to 12 km of shield wire 16 km from Snare • Complete recommended upgrades and improvements	March 2015
10. System Stability Study and Implementation	• Improve generation response to system changes • Maintain power supply quality and stability after faults	August 2013
11. Upgrade Snare Hydroelectric Generator	• Replace existing generator governors with modern electronic equipment • Five governors to be replaced – three in first year, two in following year • Estimated cost of \$1 Million per generator	December 2014



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1 Decision 2009-2, Appendix A

2 Direction No. 23, Reference: Pages 41-42

3 *"The Board has concerns with the business case for AMR. The business case*
4 *has an escalation of 3% and yet YECL has asked for a 5% inflation rate over the*
5 *test years. In the Board's view, several of the benefits in the business case*
6 *appear overstated. That the cross-over of the benefits is nine years away puts*
7 *the economic benefits of the business case at risk. Due to these concerns, the*
8 *Board is not prepared to accept this project at this time and directs YECL to*
9 *remove this project and its costs from rate base. The Board encourages YECL to*
10 *work with all Interveners, including YEC, to review and assess the costs and*
11 *potential benefits of the AMR project. Upon completion of the review, YECL is to*
12 *submit a new business case that outlines the benefits of such a project over time,*
13 *how it addresses the concerns raised by Interveners, and describe potential*
14 *economies by partnering with YEC and the City of Whitehorse in the scope and*
15 *implementation of the project. The Board expects this business case to be filed*
16 *with YECL's next GRA."*

17 Yukon Electrical's Response:

18 An updated business case supporting the benefits of an AMR project in 2014 and 2015
19 is included with this Application (Business Case #28).



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1 **Decision 2009-2, Appendix A**

2 **Direction No. 26, Reference: Page 43**

3 *"The Board directs YECL, in conjunction with YEC, to consult with stakeholders*
4 *and develop a policy paper with respect to IPPs to be included as part of YECL's*
5 *and YEC's next GRA."*

6 **Yukon Electrical's Response:**

7 Yukon Electrical has participated in a joint government and utilities working group, led
8 by the Government of Yukon, which was established to develop an IPP policy. A draft
9 IPP policy is still in the development stages and it is Yukon Electrical's understanding
10 that the Yukon Government will be providing the public with an opportunity to comment
11 on that draft in the future. While Yukon Electrical is a participant in the policy
12 development process, it is not in a position to comment further on government
13 processes and/or timelines for moving the policy forward.



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1 **Decision 2009-2, Appendix A**

2 **Direction No. 27, Reference: Page 44**

3 *"The Board views DSM as another critical issue for Yukon. The Board directs*
4 *YECL in conjunction with YEC, to consult with stakeholders and develop a policy*
5 *paper with respect to DSM initiatives and include this policy paper as part of*
6 *YECL's and YEC's next GRA."*

7 **Yukon Electrical's Response:**

8 The DSM policy paper developed in conjunction with Yukon Energy, as directed by the
9 Board, has been filed as part of this Application.



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Section 12 – Interim Refundable Rate Rider

In this section, Yukon Electrical is requesting that YECL Rate Adjustment Rider, Rider R, be set at 6.5% for electrical consumption on or after July 1, 2013. This request addresses:

- The Board's previously identified considerations applicable to an interim rate application; and
- Rates arising from the final order in this GRA will not be in place until 2014 and any required 2013 "true-up" will be part of the Board's final order setting rates for this GRA.

In Board Order 2008-6, Appendix A, pertaining to Yukon Electrical's 2008-2009 GRA Interim Rate Application, the Board set out the following:

- Interim refundable rate orders provide the flexibility necessary to accommodate regulatory lag, which might otherwise deprive a utility a reasonable opportunity to recover its prudent costs;
- Denying interim rates could jeopardize the ability of a utility to implement and recover the final approved revenue requirement;
- Any difference between the amounts collected on interim refundable rates and those finally approved by the Board will be refunded to, or recovered from customers; and
- Granting interim rates for some percentage of the forecast revenue requirement increase will help to minimize the turbulence of rate changes over short periods.

More recently, in Board Order 2012-5 where the Board approved Yukon Energy's applied-for 6.4% interim Rider J for retail customers effective July 1, 2012, the Board stated:



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1 ...the Board observes that there are areas of the General Rate Application that
2 are likely to be contested. However, granting an order approving 2012 interim
3 refundable rates preserves YEC's opportunity to recover the revenues ultimately
4 determined by the Board to be just and reasonable for that year but these rates
5 may be changed based on the final decision of the Board.

6 The Board also considers (sic) important that the interim rates would only be
7 collected for approximately one-half of the applied for revenue requirement
8 increase for 2012. The Board is of the view that, until the merits of the General
9 Rate Application are determined, these interim refundable rates promote rate
10 stability and are just and reasonable to both the utility and consumers.

11 In a manner consistent with Yukon Energy's 2012 Interim Rate Request,
12 Yukon Electrical is hereby requesting to commence the collection of \$1,825,000 (which
13 is 50% of the non-fuel portion of the \$4,720,000 total shortfall detailed in Schedule 2.1),
14 on an interim refundable basis, using the YECL Rate Adjustment Rider, Rider R. Yukon
15 Electrical has designed Rider R on the basis of the Board's previously quoted
16 considerations regarding interim rates and in accordance with OIC 2012/68, which
17 amends Rate Policy Directive (OIC 1995/090), to adjust firm rates for both retail
18 customers and major industrial customers equally when measured as a percentage.
19 Yukon Electrical requests approval to set Rider R to 6.5% effective July 1, 2013, (please
20 refer to Schedule 12.1) and proposes that it will continue until approval is received on
21 the final revenue requirement. After approval is received, Rider R will be adjusted and
22 actual collections reconciled to reflect the final approved revenue requirement. Rider R
23 will then continue on a final basis until new base rates are established through a future
24 Phase II GRA. The Fuel Adjustment Rider, Rider F, will remain in place, to recover
25 diesel fuel cost variances. It will be adjusted as required by the current Rider F fuel cost
26 recovery process.



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1 With respect to the Board's letter of May 7, 2013 addressing impacts of the the effective
2 dates of rate changes on consumer bills, Yukon Electrical and Yukon Energy have
3 agreed to jointly recommend to the Board that rate changes apply to consumption on or
4 after the effective date of the rate change. This recommendation has been jointly
5 submitted to the Board under separate cover. However, in order for Yukon Electrical to
6 commence collection of its revenue shortfall as soon as possible and in order to
7 minimize rate impacts that could result from delaying the implementation of the
8 proposed interim rate, Yukon Electrical respectfully requests that the Board provide
9 approval for Yukon Electrical to apply Rider R to consumption on and after July 1, 2013
10 for the purpose of this Application. For greater clarity, this request is a change from the
11 historical practice of a rate change applying to all bills issued on or after the effective
12 date, which bills would have included charges for electricity consumption prior to the
13 effective date of the rate change. Yukon Electrical is able to confirm, at this time, that
14 this change in the implementation of Rider R does not result in any incremental billing
15 system costs. Yukon Electrical also requests that the Board provide approval of Rider R
16 by June 24, 2013, to provide Yukon Electrical sufficient time to implement the rider into
17 its billing system.

18 Further to the above, Yukon Electrical recognizes this request results in an abbreviated
19 timeline between the filing of this Application and the need for a June 24 decision
20 allowing for a July 1 implementation. Other than the date of this filing, which was
21 delayed due to the timing of the May 10, 2013 BCUC Order G-75-13 on Generic Cost of
22 Capital and the incorporation of its findings into Yukon Electrical's filing, the matters
23 before the Board in this Interim Rate Application requesting collection of the above
24 noted 50% of the forecast 2013 shortfall are consistent with those that were addressed
25 and approved last year as part of Yukon Energy's 2012 Interim Rate Application. For
26 these reasons, Yukon Electrical respectfully requests an expedited process.

The Yukon Electrical Company Limited
Determination of the 2013 Rate Adjustment Rider R
Effective July 1, 2013
(\$000's)

Line No.			
1	Revenues		
2	2013 Retail Revenue Requirement	S2.1 L.51	53,679
3	2013 Retail Revenue on Existing Rates	S2.1 L.51	48,959
4	Revenue Shortfall	L.2 - L.3	4,720
5	less, Impact of Higher Fuel Costs Recovered Through Rider F	S2.1 L.53	1,071
6	Non-Fuel Portion of Revenue Shortfall	L.4 - L.5	3,649
7	Percentage of Revenue Shortfall		50%
8	Percentage of Non-Fuel Portion of Revenue Shortfall	L.6 * L.7	1,825
9	2013 Primary Sales Revenues on Existing Primary Rates		
10	Yukon Electrical: July - December 2013		23,159
11	Yukon Energy: July - December 2013		4,936
12	Total Primary Sales Revenues	L.10 + L.11	28,096
13	Rate Adjustment Rider R Effective July 1, 2013	L.8/L.12*100	6.5%

Effective: 2013 07 01
Supersedes: 2010 01 01

RIDER R
YECL RATE ADJUSTMENT RIDER

<u>AVAILABLE:</u>	To all electric service throughout the Yukon Territory.
<u>APPLICABLE:</u>	To all classes of service except Rate Schedule 32, Rate Schedule 42 and Rate Schedule 43. To collect a portion of the shortfall between the 2013 GRA Revenue Requirement and Revenue on existing rates on an interim refundable basis.
<u>RATE:</u>	A surcharge of 6.5% applicable to base rates with all Yukon Energy Corporation recoveries from this rider to flow through to Yukon Electrical Company Limited.



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Business Case #1

Fish Lake Unit #2 Penstock Replacement

Title: Fish Lake Unit #2 Penstock Replacement

Summary: The existing woodstave penstock has been in use since it was installed in the 1950s and is at the end of its life. The penstock is an integral part of hydro production for Fish Lake Unit #2 and an uncontrolled loss of the penstock would be catastrophic for the immediate area until the water supply is shut down. The best alternative is to replace the existing penstock with a new penstock.

Project Description: Replacement of the current above ground woodstave penstock with a new penstock. The new penstock will be installed in the same general area as the existing penstock. Civil works will be completed for the new penstock as an 'in ground' installation. Water in this section of the Fish Lake hydro system will be passed through the overflow spillway at Headpond #2 to maintain water flow through the system to McIntyre Creek until the project is complete.

Project Cost: 2010 - \$486,000
2011 - \$70,000

Business and Technical Drivers:

Business Drivers: The existing penstock has multiple breaches and leaks caused by age and vandalism. Repairs are made regularly, but the repairs are not always completely effective. An uncontrolled loss of the penstock would be catastrophic for the immediate area until the water supply is shut down manually.

It is beneficial to ratepayers to maintain the safe and reliable operation of Fish Lake Unit #2, which produces clean hydroelectric power for the Yukon Interconnected System. The penstock is an integral part of hydro production for Fish Lake Unit #2.

Technical Drivers: Recent evaluation of the penstock has clearly demonstrated that the structural integrity is compromised and continues to degrade.

Alternatives:

Alternative # 1: Continue use of the existing penstock. Due to the age and condition, the failure of this penstock is expected to eventually occur. The risk in continuing operation until the undetermined time of failure is not considered acceptable.

Alternative # 2: Replace end of life penstock with current engineered standard for penstocks designed for the Fish Lake hydro system.



Recommendation: Proceed with replacement of the penstock.



Figure 1 – Photo of Leak in Fish Lake Penstock #2



Figure 2 - Photo of Leak in Fish Lake Penstock #2



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Figure 3 - Photo of Leak in Fish Lake Penstock #2



Figure 4 - Photo of Patch Repairing a Leak



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Figure 5 - Photo of Leak in Fish Lake Penstock #2



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Business Case #2

Fish Lake Unit #1 Turbine and Building
Replacement

Title: **Fish Lake Unit #1 Turbine and Building Replacement**

Summary:

This project is to return the Fish Lake Unit #1 hydro-electric generating plant to operation. The project offers a clear economic benefit to ratepayers by utilizing existing hydro system infrastructure to supply hydro generation to the Yukon Interconnected System as well as providing a positive environmental impact by displacing diesel generation and its associated emissions.

The project consists of installing a modern, more efficient Pelton turbine, which has increased efficiencies and a lower operating cost, and constructing a new building to house the unit.

The levelized cost of energy for this project is 6.7¢/kWh – which compares favourably against the existing wholesale rate of 8.298¢/kWh and a forecast diesel rate of 30¢/kWh – clearly indicating this project is of high value to Yukon ratepayers and needs to proceed as outlined.

Not proceeding with this project carries the following risks:

- Increased costly diesel generation expected now that diesel is on-the-margin.
- Unrealized benefits of clean and renewable energy for Yukon ratepayers.
- In compliance with Yukon Electrical's water licence, water in the Fish Lake Hydro system would continue to be managed in and around Fish Lake Unit #1 plant. Stated otherwise, costs would be incurred irrespective of the replacement of Fish Lake Unit #1.



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Background:

Yukon Electrical's Fish Lake Hydro facility has been in service for over 60 years, producing low-cost, emission-free electricity for the benefit of Yukon ratepayers. The Fish Lake hydro system operates as a cascading hydro system, where water is managed from Fish Lake to Louise Lake to Head pond #1, where it enters Penstock #1 and travels down to Fish Lake Unit #1 turbine. The outlet of Fish Lake Unit #1 turbine tailrace directs the water to Head pond #2, where Penstock #2 transfers the water to Fish Lake Unit #2 turbine. The outlet of Fish Lake Unit #2 directs water in to East McIntyre Creek. (See Figure 1.)

The Fish Lake Unit #1 plant consisted of a powerhouse and residence. The powerhouse contained a de-commissioned Pelton turbine-generator set, circa 1898, and a newer, 700kW Turgo turbine-generator set, circa 1952. The residence was originally used by an onsite plant operator. Fish Lake Unit #2 plant consists of a 600kW Francis turbine-generator set, circa 1955.

As a system, the rated capacity of the Fish Lake Hydro was 1.3MW and its last Yukon Utility Board approved forecast generation was 8.73GWh/year per Board Order 2009-02.

In March 2010, a catastrophic failure of Fish Lake Unit #1 plant occurred, irreparably damaging the facility. In consideration of Yukon Electrical's ongoing water management responsibilities, existing hydro system infrastructure, the continued operation of Fish Lake Unit #2 as well as the ongoing declarations of diesel being on-the-margin;^{1,2} returning Fish Lake Unit #1 to operation has been determined to be the best option available.

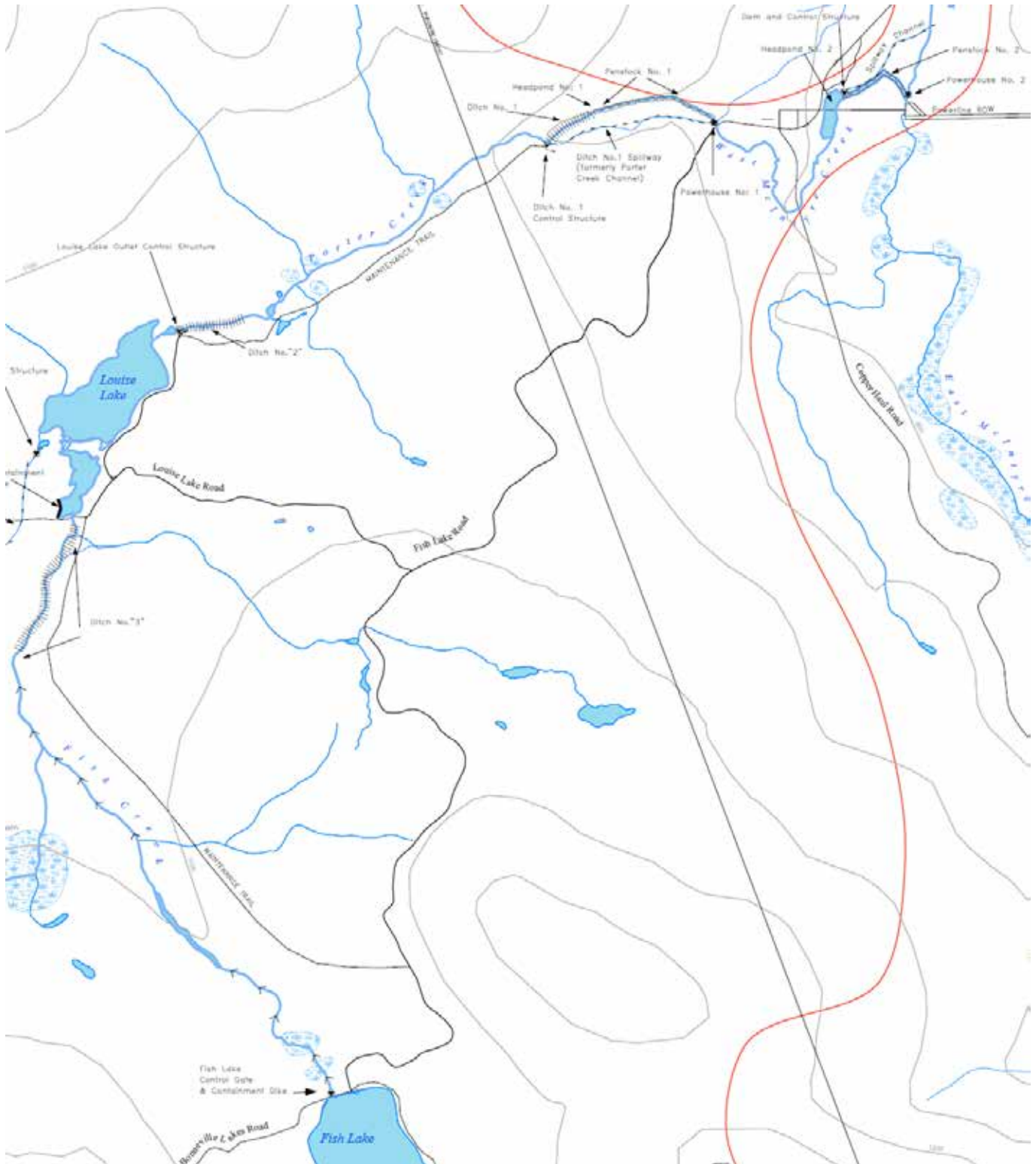
¹ From YEC Mayo B application, p. 41: "The Mayo B Project will materially reduce overall ratepayer costs through displacing diesel generation that would otherwise be required as available surplus hydro by 2012 will have been reduced to the level where the system (WAF and MD) returns to a condition of diesel being on the margin."

² From YEC 2012-2013 GRA, p. 3: "Increased diesel generation costs related to grid load growth are a key cost pressure. As anticipated in Yukon Energy's 2008/2009 General Rate Application, continued non-industrial and industrial growth has effectively depleted the surplus hydro available since the 1998 Faro mine shut down, and the Yukon grid has reached the point today of requiring diesel generation to supply a growing share of new grid load under long-term average water conditions. With diesel once again "on the margin", as was the case (to a lesser extent) when the Faro mine was operating, measures are once again required to enable customer rates to recover diesel costs based on long-term average annual hydro generation (rather than fluctuating short-term hydro forecasts) and a reactivated Diesel Contingency Fund to address variances in diesel generation costs due to hydro generation variability."



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Figure 1 – Fish Lake Hydro System Layout and Facilities



Project Description:

Yukon Electrical is replacing the Fish Lake Unit #1 hydro turbine. The original scope of work was to procure, install, and commission:

- One horizontal shaft Pelton or Turgo type, hydraulic turbine;
- One turbine inlet valve and hydraulic power unit;
- One electronic governor and associated hydraulic power unit;
- One generator and associated electrical equipment;
- One excitation system;
- One generator breaker;
- One electronic unit control system complete with remote and manual modes and including synchronizing equipment;
- One unit protection system; and
- Auxiliary equipment, including instrumentation, protection and alarm initiating devices.

During detailed civil engineering design on site, however, critical foundation issues were discovered necessitating that the existing building be replaced.

Project Cost:

The forecast total cost of the project is forecast at \$3,908,000. The breakdown of costs is as follows:

Table 1 – Project Costs (\$000s)

	2010 Actual	2011 Actual	2012 Actual	2013 Forecast	Total Forecast
Turbine and Building Replacement	559	1,114	1,024	2,167	4,864
Reserve for Injuries and Damages	(100)	-	-	-	(100)
Insurance Proceeds	(459)	(397)	-	-	(856)
Total	-	717	1,024	2,167	3,908



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Alternatives:

Decision #1: Following the loss of Fish Lake Unit #1 hydro turbine, and prior to the identification of critical foundation issues at the building, the analysis and alternatives to replace the unit are shown in Table 2.

Table 2 – Decision matrix regarding returning the plant to service

Option	Decommission Fish Lake Plant 1	Rehabilitate existing unit	Replace existing unit with modern equipment
Conclusion	<i>Not recommended</i>	<i>Not recommended</i>	<i>Recommended</i>
Analysis	- Water from Porter Creek would continue to be managed in and around the Fish Lake Plant #1 area in compliance with Yukon Electrical's water licence. Managing water without generating energy is not the optimal economic solution.	- Improved efficiencies of modern hydro turbine will go unrealized. - Economic analysis indicates modern turbine equipment will be paid back in a reasonable time frame.	- Modern hydro turbine will be more efficient. - Modern hydro turbine will have lower operating costs. - Economic analysis indicates incremental cost of new equipment will be paid back in a reasonable time frame.

Decision #2: After critical foundation issues at the building were identified, the analysis and alternatives are shown in Table 3.

Table 3 – Decision matrix regarding replacing the building

Option	Decommission Fish Lake Plant 1	Replace building
Conclusion	<i>Not recommended</i>	<i>Recommended</i>
Analysis	- Water from Porter Creek would continue to be managed in and around the Fish Lake Plant #1 area in compliance with Yukon Electrical's water licence. Managing water without generating energy is not the optimal economic solution.	- Project economics are favorable with additional costs of building replacement. - Continued utilization of legacy hydro infrastructure to provide clean, renewable energy to Yukon ratepayers.



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Economic Analysis:

To determine whether to rehabilitate the existing unit or replace the existing unit with a modern unit, Yukon Electrical used the parameters in Table 4.

Table 4 – Forecast improvements of Canyon Pelton unit over existing Turgo

	Rehabilitate Existing Turgo Unit	Replace with New Canyon Unit	% Improvement
Forecast Annual Output (kWh)	5,038,544	5,641,368	13
Forecast O & M (\$000s)	72	50	30
Forecast Installation Cost (\$000s)	1,286	1,883	-

A simple payback of the additional cost was run at the wholesale rate of 8.298¢/kWh and at a forecast diesel cost of 30¢/kWh. (See Table 5.)

Table 5 – Simple payback of additional capital cost to proceed with new unit

Line	Description	At Wholesale Rate (8.298¢/kWh)	At Diesel Rate (30¢/kWh)
[1]	Difference in Output (kWh)	602,824	602,824
[2]	Annual Value of Improved Output (\$000s)	50	181
[3]	Annual Value of Improved O&M (\$000s)	22	22
[4] = [2] + [3]	Annual Value of Upgrading Unit (\$000s)	72	203
[5]	Additional Capital Cost (\$000s)	597	597
[6] = [5] / [4]	Simple Payback	8.3 years	2.9 years

The simple payback indicated the new Canyon unit's additional cost would be paid for by its improved efficiencies and reduced O&M in less than 10 years, signifying the Canyon Unit was the best way forward.

When analyzing whether to proceed with a new building in conjunction with the new turbine, Yukon Electrical performed a levelized cost of energy study (LCOE) using the following formula:

$$LCOE = \frac{\sum_{t=1}^n \frac{I_t + M_t}{(1+r)^t}}{\sum_{t=1}^n \frac{E_t}{(1+r)^t}}$$



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Where:

I_t = Investment expenditures in the year t

M_t = Operations and maintenance expenditures in the year t

E_t = Electricity generation in the year t

r = Discount rate

n = Life of the system

In addition:

- O&M expense was inflated at 2% per year from \$50,000
- Life of plant is 40 years
- Discount rate is 8.857%

The LCOE for this project is \$0.067/kWh.

Recommendation:

Proceed with the replacement of Fish Lake Unit #1 hydro-electric generating plant. The project is beneficial to Yukon ratepayers as a clean, renewable energy source with an acceptable levelized cost of energy. Further, the system capacity benefit for the Yukon Interconnected System and the continued use of a legacy hydro system with a current water licence is prudent.



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Business Case #3

Watson Lake Unit #4 Replacement



Summary:

Project Description:

Business and Technical Drivers

Business Drivers:

Unit Availability: As previously stated, the existing unit leaks coolant due to an irreparable condition with the engine block when in standby mode. To address this, Yukon Electrical staff drains the unit of coolant. As a result, the unit is only available in manual dispatch mode and reliable operation is not certain.



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Technical Drivers:

Generation Capacity Required to Meet Electrical Load: This unit is rated at 1.5 MW and is the largest unit within the Watson Lake plant. Its unavailability due to its current state impacts the generating capacity of the plant.

Figure 1 – Watson Lake Generating Capacity

Watson Lake Generating Facility		
Unit #	Unit Name	Unit Size (kW)
1	CUL 422	800
2	CUL 257	800
3	CUL 352	1,000
4	CUL 258	1,500
5	CUL 466	650
6	CUL 423	800
Installed Capacity (kW)		5,550
Firm Capacity (kW)		4,050

In 2011, a peak of 3,205kW was recorded for the community; in 2012, a peak of 3,126kW was recorded. With CUL 258 unavailable, four out of the remaining available five units in the Watson Lake plant are required to supply reliable power. If the next largest unit, CUL 352, was also unavailable, the facility would then be unable to meet this peak.

Project Cost:

Forecast costs to complete this project, including the purchase and delivery of a new unit, radiator, heat exchanger and exhaust, and the installation of the unit and connection of its mechanical and electrical systems, are as follows:

- 2012 - \$354,000
- 2013 - \$1,120,000

Alternatives:

Alternative #1: Refurbish CUL 258. The existing unit is at the end of its operational life. A new block is unavailable from the manufacturer. An attempt could be made on block repairs, with no guarantee of success. The unit is also due for a top end overhaul, which work does nothing to fix the block and does not provide any guarantee of increased operational life.



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Alternative #2: Retire CUL 258 with no replacement unit. This unit is required to meet the load in Watson Lake. With this unit unavailable, it limits Yukon Electrical's ability to perform maintenance on or tolerate the unavailability of additional units during peak load season.

Alternative #3: Replace CUL 258 with a larger size unit. This alternative addresses the current concerns with CUL 258 and the operational capacity of the Watson Lake facility. However, this alternative is not preferred for the following reasons:

- Available plant floor space in the existing unit position is not sufficient to allow for a larger unit;
- Maintaining the same output capacity allows Yukon Electrical to continue use of existing electrical equipment; and
- The rating of the existing unit (1.5 MW) has and continues to provide the most beneficial heat rate and load capacity for the Watson Lake district.

Alternative #4: Replace CUL 258 with a similarly sized unit. This alternative addresses the current concerns with CUL 258 and the operational capacity of the Watson Lake facility.

Recommendation:

Proceed with replacement of CUL 258 with a unit of similar size and generating capacity to continue to meet the community's load and avoid further costs in respect of this unit, which is at the end of its life.



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Business Case #4

500kW Mobile Generator



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Title: 500kW Mobile Generator

Summary: Purchase a 500kW 2400V mobile generator to provide contingency power to isolated generation communities. The load in these communities has increased, resulting in the existing 350kW mobile generator not being large enough to provide full contingency power in the event of a planned or unplanned plant shutdown. As a result, a larger mobile unit is required.

Project Description: Purchase of 500kW mobile generator. A larger unit is required to meet current load requirements of isolated diesel generation communities.

Project Cost: 2013 - \$750,000

Business and Technical Drivers

Business Drivers: The role of a utility is to have a safe and reliable supply of power for its customers. Yukon Electrical's current mobile generator is not able to meet the current load requirements of the isolated communities it serves. Purchasing a new larger unit and keeping the existing mobile unit will allow Yukon Electrical to have additional contingency for its isolated communities.

Technical Drivers: The existing 350kW unit is unable to meet the current peak loads of the communities it serves. In 2011, a system peak of 359kW was recorded for Beaver Creek and Destruction Bay had a system peak of 389kW. In 2012, a system peak of 355kW was recorded for Beaver Creek and Destruction Bay had a system peak of 415kW. The mobile units will continue to provide emergency backup as well as system supply for planned regular maintenance and plant shutdowns.

Alternatives:

Alternative #1: Status quo; continue to rely on the existing 350kW mobile unit for contingency power. Yukon Electrical would not be able to meet the peak load requirements of the isolated communities in the event of a plant shutdown.

Alternative #2: Continue use of existing 350kW mobile unit and rent additional generation as required to handle peaks. This alternative is unrealistic due to the lack of availability of a rental unit, as there are currently none in the Yukon. Delivery time of rental unit from out of Territory would be at least several days. This extended timeframe is poor for customers if it is required due to an emergency. Also, 2400V standby generation is becoming difficult to locate.



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Alternative #3: Purchase an additional 350kW mobile generator. This option would provide full contingency for the isolated communities. However, both 350kW mobile generators would be required concurrently. There would be technical difficulties in configuring the units to operate in synchronicity. In addition, physical space limitations, fuel system interconnections and system protection coordination would be technical issues that would be difficult or impossible to overcome.

Alternative #4: Purchase a larger mobile generator capable of meeting the load requirements of isolated communities in the event of planned regular maintenance and plant shutdowns as well as unplanned, emergency shutdowns.

Recommendation:

Purchase 500kW mobile unit to provide full contingency power to the isolated communities.



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Business Case #5

Beaver Creek Unit #2 Replacement



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Title: Beaver Creek Unit #2 Replacement

Summary: Replace Unit #2 in the Beaver Creek plant, which is at the end of its life, with a similarly sized unit.

Project Description: Purchase new diesel generator unit complete with manufacturer-supplied and specified radiator, exhaust, and heat exchanger. Remove existing unit, install new unit and supplied devices, integrate unit into electrical supply and control systems and connect unit into waste heat and fuel systems.

Project Cost: 2013 - \$600,000

Business and Technical Drivers

Business Drivers: The primary function of the utility to provide a safe and reliable supply of electrical energy. Due to the isolated nature of Beaver Creek, end of life replacements need to be planned and occur in a timely fashion in order to ensure that safe and reliable supply can be maintained.

Technical Drivers: Existing unit has over 100,000 operating hours to the end of 2012. Canadian Off Grid Utilities Association planning criteria for 1200 RPM units recommends replacement after 90,000 to 126,000 hours of operation. Regular maintenance, inspections and life extension projects have identified various major components that are at the end of their serviceable life.

Alternatives:

Alternative #1: Perform a major life extension on the existing unit. Yukon Electrical has determined that life extensions performed on units in excess of 100,000 operational hours do not guarantee reliable operation. The unit may not operate long enough to provide payback of the life extension investment. The result would be poor reliability which could lead to unplanned outages and poor customer service.

Alternative # 2: Run unit to failure and not replace. The 2011 recorded system peak load was 359kW and the 2012 recorded system peak load was 355kW. The removal of Unit #2, without replacement, would not provide enough available generation to ensure 110% of peak loading with the largest unit removed (N-1 criteria).

Alternative # 3: Replace unit with a new, similarly sized unit.



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Recommendation:

Proceed with replacement of Beaver Creek Unit #2 with a unit of similar size and generating capacity to avoid further costs in respect of this unit, which is at the end of its life.



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Business Case #6

Watson Lake Bi-Fuel Project



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Title: **Watson Lake Bi-Fuel Project**

Summary:

Phase 1 of the project (2013) involves the modification of Watson Lake power plant generation Unit #5 to a bi-fuel system which allows the unit to run on a combination of diesel and natural gas (NG). The purpose of this phase is to verify that NG injection into the engine provides reliable electricity generation for a utility power system along with the environmental benefit to reduce emissions. Phase 2 of the project (2014) will convert the remaining 5 units at the Watson Lake power plant to bi-fuel operation.

Diesel fuel is utilized for fossil fuel power generation when cleaner burning natural gas is not available. As natural gas is currently unavailable through direct pipeline, the fuel will be supplied by a truck transporting Liquefied Natural Gas (LNG) to the Watson Lake power plant. The availability of LNG allows for reduced emissions in existing generating units through the displacement of diesel fuel. The project would seek to reach an average of 50% displacement of the amount of diesel fuel normally used.

This project will reduce the dependency of Watson Lake on a single fuel (diesel). In addition to the environmental benefits of this project to reduce emissions of particulate matter, sulfur oxides, nitrogen oxides and carbon dioxide, this initiative will assist in determining the operational and financial benefits of the use of LNG as an alternate fuel for electricity generation.

Project Description:

The first phase of the project will modify Unit #5 through the installation of a bi-fuel system which allows natural gas to be added to the air intake upstream of the diesel turbo unit. The natural gas will be trucked to Watson Lake as LNG from a production facility near Delta, British Columbia in a specialized, low pressure, double-walled, well-insulated or vacuum jacketed vessel. Once on site, the LNG will be transferred to storage tanks until the LNG is required for use in the power plant. The LNG will then be re-gasified through a vaporization unit utilizing heat recovered from the power plant to accomplish the gasification. The resulting NG will be piped to the power plant for mixture with air and diesel fuel for combustion in the existing generating unit. These single fuel units still require a portion of the fuel to contain diesel for its lubricating and cooling characteristics as well as combustion.

Unit performance is anticipated to average a displacement of 50% of diesel fuel consumption. Emissions testing will be performed. An assessment of the condition of the unit will be carried out as part of Phase 1.



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Project Cost:

Phase 1:

2012 - \$90,000 and 2013 - \$363,000 for infrastructure from the NG supply to the unit and to convert Unit #5 to bi-fuel operation.

2013 - \$222,000 for study costs incurred in 2012 and 2013 including consulting costs for feasibility, surveying, engineering, and acquisition of required permits and licenses (included in Schedule 8.8 and amortized over 10 years).

Phase 2:

2014 - \$372,000 to convert the remaining units to bi-fuel operation.

Business and Technical Drivers

Business Drivers:

- A primary objective of this project is to reduce emissions from the production of electricity, particularly in light of increased reliance on diesel.
- Deliver an environmental benefit to the community of Watson Lake through the reduction of emissions of particulate matter, SO_x, NO_x and CO₂.
- Reduce dependency on a single fuel (diesel).
- Facilitate implementation of an alternate energy project that utilizes existing electricity generation infrastructure.
- Pursue initiatives that reduce the cost of power production from diesel fueled generating facilities.
- Utilize a supplemental fuel technology that provides the operational ability for the existing power plant to seamlessly revert back to operating on 100% diesel.

Technical Drivers:

- The component technologies have been successfully used in on and off-grid applications such as for continuous and back-up power generation for oil and gas companies and commercial buildings.
- LNG is more widely available and is becoming a more utilized commodity for use in transportation and energy generation.
- Technology for the storage and re-vaporization of LNG has become more accessible and cost effective.
- The efficiencies of this technology are ready to be demonstrated by a utility for power generation in Northern Canada.



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Alternatives:

Alternative #1: Status quo; continue to generate power using only diesel. This would not address community and utility interest in reducing emissions related to power generation. This would also not address continued exposure to the increasing cost of diesel.

Alternative #2: Install a new dual fuel engine that runs on either 100% diesel or 100% NG. This would result in a project cost significantly higher than modifying the existing generating units.

Alternative #3: Modify existing generating units in a phased approach to utilize natural gas injection to displace the amount of diesel fuel used. This alternative minimizes the capital cost investment required by utilizing existing equipment and infrastructure while allowing optional flexibility to reliably revert back to full diesel operation.

Recommendation:

Proceed with Alternative #3 on a phased approach to convert one unit in the first phase to verify operational requirements then proceed with the second phase of the project to modify the remaining 5 units.



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Business Case #7

Fish Lake Dyke Upgrade



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Title: Fish Lake Dyke Upgrade

Summary: The Fish Lake dyke is a low earthworks berm lying across the former natural outlet channel of Fish Lake. It is a 60 year old structure that was constructed long before modern dam safety guidelines were developed. As would be expected for a structure of this age, the condition of the structure has deteriorated with time. The deterioration includes displacement of upstream armouring, and reduction of the crest width in some locations. In addition to the observed deterioration, the discharge culvert within the dyke is approaching the end of its service life. As a result, an upgrade is required to the Fish Lake dyke to meet the requirements of the 2012 Dam Safety Report prepared by Northland Earth & Water Consulting Inc. and water licence HY10-083.

Project Description: Install two (2) 39m long, 1.05m diameter polyvinyl chloride (PVC) pipes 20m east of the existing intake structure complete with 3.3m tall winged concrete headwall housing both conduits. The top width of the dyke will be increased to 5.0m. Elevation will be increased to a uniform 1,114.0m above sea level (ASL). Install a layer of EPDM geomembrane (high performing rubber liner) placed on the dyke face extending 14m laterally from the intake. A 12m wide rock lined auxiliary spillway channel will also be constructed to ensure the inflow design flood (IDF) can be safely passed. Following commissioning of the new control structure, the old system will be decommissioned and replaced with fill and armour protection.

Project Costs:

2013 - \$300,000
2014 - \$1,420,000

Business and Technical Drivers

Business Drivers: Ensure safe and efficient use of the Fish Lake dyke while also meeting the regulatory requirements included in water licence HY10-83. This requirement was identified as item 2008-04 of the 2012 Dam Safety Report and, subsequently as a result, item 36 and 37 of Yukon Electrical's water licence.

Technical Drivers: The Fish Lake dyke requires upgrades to meet the December 2012 updated IDF passage requirements. The IDF requirement was identified in the 2012 Dam Safety Report. An interim operational protocol was developed at that time to mitigate the IDF risk until a Board-approved design was developed. A design and final operating protocol was submitted to the Yukon Water Board in March 2013.



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Alternatives:

Alternative #1: Status Quo. This will lead to further deterioration of the dyke face due to wave action. The result will be a narrow and compromised dyke that would not withstand a 100-year IDF event. A complete loss of the dyke structure could result. Yukon Electrical would not fulfill its obligations with item 36 and 37 of water licence HY10-83.

Alternative #2: Upgrade Fish Lake Dyke to an engineered standard that will meet current water licence and Canadian Dam Association Guidelines.

Recommendation:

Upgrade Fish Lake Dyke.



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Business Case #8

Old Crow Plant Expansion



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Title: **Old Crow Plant Expansion**

Summary:

Yukon Electrical is planning to construct a 1,350 square foot additional generating building adjacent to the existing Old Crow plant. Both the existing building and the new building will be sized to house two diesel generators, associated equipment, and provide sufficient working space for regular work to be safely performed.

The additional building is required as the existing plant does not provide enough space to replace the existing units as they reach their end of life, as new units of the same or greater kW rating will not physically fit in the same space as the current units. It also does not provide adequate wall or floor space to facilitate the installation of new control equipment and does not allow for the addition of any more units as are required due to load growth. See Business Case #10 for discussion of the need for an additional unit to be added to the Old Crow plant in 2014 and Business Case #15 for discussion of the need to replace the existing Unit #3 with a larger unit in 2015.

This improvement project will ensure that planned work can safely be completed with minimal outages to the community. It will also provide contingency and space for additional capacity in Old Crow.

Project
Description:

Building

The building will be of non-combustible construction and will conform to the requirements of a structure built for the purpose of primary electricity generation. It will be sufficiently sized to house two diesel generators, associated equipment, and provide sufficient working space for regular work to be performed. Electrical equipment for these units will be placed within a control room in the same structure. This control room will be isolated from the engine room by a sound and fire rated wall.

Fuel Systems

The new building will be provided with a separate connection to the existing fuel storage system in Old Crow. Piping between storage tanks and the new building will be above ground and provide 100% containment of the fuel piping system from tank to plant.

Waste Heat

Existing waste heat system will be expanded to include the new building and units. The connection between buildings will be accomplished by above ground piping installed within containment.



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Electrical Distribution

Electrical connection to both the generation system and distribution lines will be accomplished by a combination of overhead and underground methods.

As contingency, the new building will be able to supply energy to the distribution system through either the existing 2.4kV generation system or, in the case of emergency or planned maintenance, directly onto the distribution feeders.

Project Cost:

2013 - \$300,000
2014 - \$1,650,000

The forecast covers:

- Completion of required project permitting;
- Design of the building and interconnections to fuel, waste heat, and electrical distribution systems;
- Shipment of materials to site;
- Required earthwork and site modifications;
- Construction of foundation and building;
- Modifications if required and connection to the existing waste heat system and all associated heating appliances;
- Connection to the fuel storage system;
- Electrical connection to the existing plant 2.4kV bus; and
- Modification and connection to the 2.4kV distribution system.

The forecast cost does not include the purchase of generation units and all associated equipment to be housed within the new building.

Business and Technical Drivers

Business Drivers:

Contingency

Old Crow is a fly in community north of the Arctic Circle. In an unplanned situation, where backup or emergency generation is required, the response time would take multiple days. This is primarily due to the logistics of securing air transportation to the community. If the need for contingency generation is caused by loss of the building or multiple generating units, the duration of this outage would not be measured in hours but days.

With a new building, Yukon Electrical would be able to provide



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contingency for the above mentioned situations; save a loss of fuel supply.

The new building will be designed to operate in conjunction with, or isolated from, the existing building. Generating capacity of the building would be sufficient to supply community loading at any given time.

The electrical systems of the existing building are at the end of their serviceable life and require replacement. The Programmable Logic Controller (PLC) used for plant control (IDEC FA-2J) is obsolete and no longer supported by the manufacturer. For this PLC replacement work to be completed, full isolation and shutdown of the existing plant is required. A full shutdown of the power plant would result in an extended outage to all customers or mobile generation would need to be flown in to the community.

Size of Current Building

The size of the existing building raises the following concerns:

- Limited space does not allow for a full flow rated heat exchanger to be installed on unit #1;
- As existing units are replaced at end of life, new units of the same kW rating will not physically fit in same space as current units; and
- The current building does not provide adequate wall or floor space to facilitate the installation of new control equipment.



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Existing Old Crow Plant

With a new building, Yukon Electrical would be able to reconfigure the existing building to a two-unit plant, which would alleviate the above concerns of inadequate spacing.

See Business Case #8, Attachment #1 for a drawing of the planned new structure.

Load Growth

Since 2008, the community of Old Crow has seen a steady increase in load.

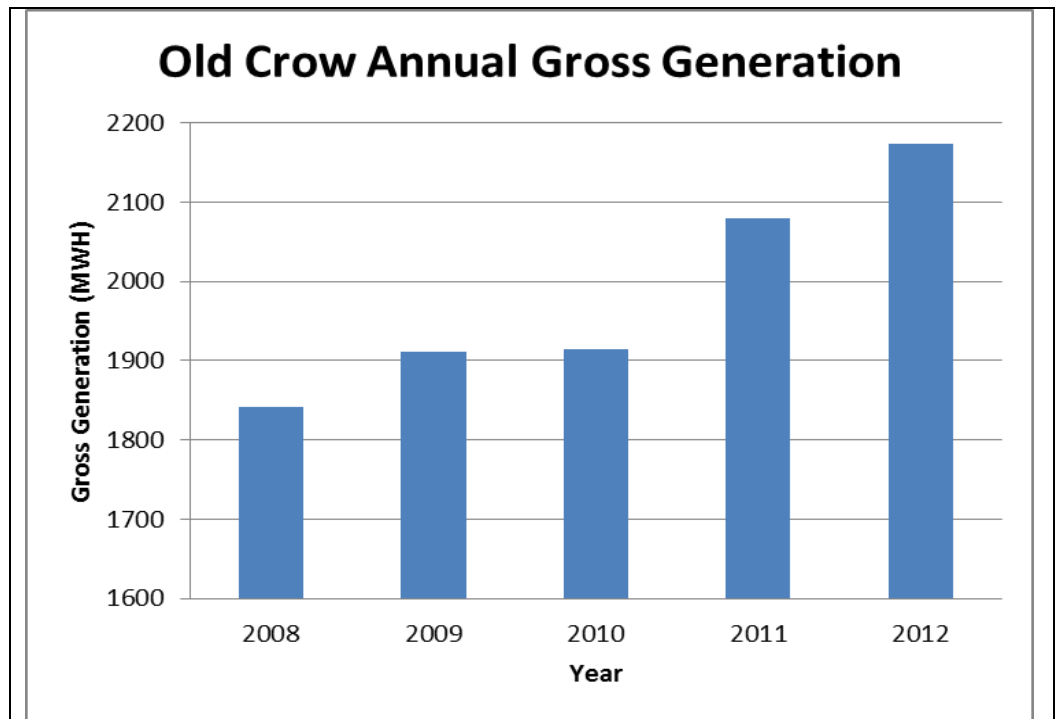


Figure 1 – Old Crow Gross Generation 2008 to 2012

In part, this load increase can be attributed to incremental load growth and the connection of the following buildings to the Old Crow distribution system:

- In 2008, six new homes and the Old Crow visitor information system;
- In 2010, the Old Crow research building; and
- In 2012, two new homes and the water treatment building.

This increase has also affected the peak load for the community. In 2010, a peak of 450kW was recorded and in 2011, 478kW was recorded.



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Technical Drivers:

Unit Size

The current building contains the following three units which under normal operation are dispatched to efficiently meet the load of the community.

Old Crow Generating Capacity		
Unit #	Unit Name	Unit Size (kW)
1	CUL 414	600
2	CUL 355	400
3	CUL 384	170
Installed Capacity (kW)		1170
Firm Capacity (kW)		570

Figure 2 – Old Crow Generating Capacity

As a result of annual load growth, the base load for the community has increased. CUL 384, being the smallest unit, has been affected by this increase and the unit's hours of automatic dispatched operation have decreased.

CUL 384 Annual Hours of Operation	
Year	Hours
2007	1576
2008	1209
2009	1003
2010	1015
2011	681
2012	939

Figure 3 – CUL 384 Hours of Operation

Although this unit adds to the firm capacity of the building, for a major portion of the year it is unable to effectively supply 100% of the load to the community, thereby reducing the building to a two engine plant during those periods.

If a situation arises during the winter which removes one of the larger units from operation, the other unit is then enlisted into 24/7 operation. If the situation persists, and the 24/7 running unit is required to be taken offline for a regular service; then a partial outage to the community must occur to reduce the community load to a level that can be handled by the smaller 170kW CUL 384.



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A solution for this situation would be to replace CUL 384 with a larger capacity unit. Currently the existing building is unable to house a larger unit; an additional building would best provide the space to serve this purpose.

Alternatives:

Alternative #1: Maintain the status quo with the existing building. This alternative does nothing to deal with future contingency, required increase in plant size due to physical size of new units, or the replacement of obsolete equipment and load growth. The primary function of the utility is to provide a safe and reliable supply of electrical energy. Maintaining the status quo will jeopardize Yukon Electrical's ability to do so.

Alternative #2: Expand existing building. This alternative is not feasible. Existing building is over 30 years old and in close proximity to other existing structures, electrical and mechanical equipment. Without relocation of existing structures (fuels tanks, storage), the amount of expansion possible would be minimal. Relocation of the four 80,000L fuel tanks and the electrical and mechanical equipment would require full isolation of the power plant for at least a week. Temporary generation would be required.

For efficient use of this newly expanded space, the existing switchgear and other equipment within the plant would need to be relocated. This would then drive the need to have temporary generation onsite during the construction period. In comparison, building a new building would provide a larger structure with provision for future expansion, create contingency and not require backup generation during the construction period. Expansion of the existing building would be similar in cost to a new building.

Alternative #3: Build another generating plant elsewhere in the community with full contingency and modern equipment. Communication and controls between two physically separate plants adds complexity and cost. For two plants to run together into one system requires a more complex distribution system. Lastly, fuel delivery to the new tanks and plant would require an additional apron to be added to the airstrip, this would be outside Yukon Electrical's scope or authority to complete.

A new generating plant location was explored in discussions with Yukon Government and Vuntut Gwitchin First Nation. The preliminary costs exceeded \$14M to build a new generating plant at a location



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designated by the Governments. The project would be done in coordination with Old Crow Airport Improvements. This project was not deemed prudent.

Alternative #4: Construct an additional building adjacent to the current plant. This alternative addresses all current concerns with the existing Old Crow generating building.

Recommendation:

Construct additional building adjacent to the current plant.

[illegible]



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Business Case #9

Fish Lake Ditch #3 Diversion Structure
Replacement

Title: Fish Lake Ditch #3 Diversion Structure Replacement

Summary: Fish Lake Ditch #3 is not able to adequately handle a 100-Year Inflow Design Flood (IDF) event, as required to comply with recommendation item 2013-2 of the 2012 Dam Safety Report and, consequently, items 36 and 37 of Yukon Electrical's current water licence HY10-83. In the event of an IDF event, the Drop Box and Ditch #3 infrastructure would be at risk of catastrophic failure and risks impacting all remaining downstream infrastructure. As a result, Yukon Electrical is planning to replace and upgrade the Ditch #3 diversion structure and spillway to an engineered design that meets the IDF flow rates.

Project Description: Reestablishment of the Fish Lake Ditch #3 Diversion will allow water to escape the Fish Lake hydro system through a control structure and ditch to Franklin Lake. This project will construct a diversion structure and 750m long spillway ditch capable of diverting all flows in excess of 4.4 m³/s out of Ditch #3 and into Franklin Lake prior to entering Ditch #3.

Project Costs: 2014 - \$1,640,000

Business and Technical Drivers

Business Drivers: Comply with recommendation item 2013-2 of the 2012 Dam Safety Report and, subsequently, items 36 and 37 of Yukon Electrical's current water licence HY10-83. Yukon Electrical is required to be able to adequately and safely manage a flood event. An interim engineered operating protocol has been developed to temporarily comply with the 2012 Dam Safety Report but a long term solution is required. Minimize use of the Louise Lake Auxiliary Spillway. Provide controlled inflows into Franklin Lake.

Technical Drivers: The Ditch #3 Drop Box can adequately manage a maximum of 4.4 m³/s of water flow. The IDF rate of water flow for Ditch #3 is currently 9.0m³/s and it will be 15.2m³/s after the Fish Lake Dyke upgrade project is completed in 2014. With the current inability to release water from the Fish Lake Hydro system upstream of Ditch #3, the Drop Box and Ditch #3 infrastructure poses a risk of catastrophic failure and risks of impact to all remaining downstream infrastructure during an IDF event.

Alternatives: Alternative # 1: Status Quo. This alternative could lead to future compliance issues with Yukon Electrical's current water licence, HY10-83, and a new 25 year licence. It also risks Fish Lake



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infrastructure (Ditch #3) during an IDF event.

Alternative # 2: Build a bypass structure at the Drop Box on Ditch #3. The bypass alternative was designed and studied; however, the structure could still not adequately bypass $15.2\text{m}^3/\text{s}$ of water flow. Ditch #3 would still be at risk.

Alternative # 3: Replace and upgrade the Ditch #3 diversion structure and spillway to an engineered design that meets the IDF flow rates.

Recommendation:

Replace and upgrade the Ditch #3 diversion structure and spillway.



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Business Case #10

Old Crow Unit # 4 Addition



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Title: Old Crow Unit #4 Addition

Summary: Purchase a new 400kW unit to be installed in the new Old Crow building (see Business Case #8). This project is required to provide full contingency generation for the isolated community of Old Crow in the event of a scheduled plant shutdown or an unplanned shutdown.

Project Description: Purchase new unit complete with new manufacturer-supplied and sized radiator, exhaust, and heat exchanger. Unit is to be installed in new building and, as a result, the purchase of switchgear and engine control components will be required. Install new unit and supplied devices, integrate unit into electrical supply and control systems, and connect unit into waste heat and fuel systems.

Project Cost: 2014 - \$500,000

Business and Technical Drivers

Business Drivers: The primary function of a utility is to provide a safe and reliable supply of electrical energy. Yukon Electrical does not currently have sufficient capacity to handle non-peak community loads in the event the existing units or power plant are unavailable. During downtime for repairs on units in the old building, the new unit, which will be housed in the new building, will be used to avoid outages.

Technical Drivers: Contingency; ability to provide backup generation to the community in the event of loss of existing plant. In an emergency situation for the existing plant, transportation of mobile backup generation to this isolated fly in only community is a lengthy process due to known locations of Hercules aircraft that are out of Territory. This process would result in a long duration outage. The cost to complete this in an emergency situation would be approximately 25% of the cost of this planned project. This unit would also be able to provide full backup for scheduled maintenance shutdowns or upgrades that require a complete outage to the community. There will be a number of scheduled full shutdowns needed in the next three years.

Modernization of existing facility; plant Programmable Logic Controller is obsolete and the control system requires replacement. To complete this work a complete shutdown of the existing plant is needed. Onsite backup generation is required to avoid day long outages for multiple days, this need would be satisfied by the new unit.



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Scheduled Maintenance; difficulty and high cost in obtaining backup generation to site require that maintenance of critical plant components is performed under community outage conditions.

Alternatives:

Alternative #1: Status quo; the only contingency for a plant emergency would be expensive and result in a multiple day outage. Fly in transport and use of mobile generation for contingency during construction or maintenance scenarios will be expensive and for emergency purposes not readily available. The aircraft needed to transport mobile generation are not readily available.

Alternative #2: Install additional unit in new building properly sized to provide contingency for the community of Old Crow.

Recommendation:

Install additional Unit #4 in the new building in Old Crow to provide dependable contingency to the isolated community.



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Business Case #11

Beaver Creek Unit # 1 Replacement

Title: Beaver Creek Unit #1 Replacement

Summary: Replace Unit # 1 in the Beaver Creek plant, which is at the end of its life, with a similarly sized unit.

Project Description: Purchase new diesel generator unit complete with manufacturer-supplied and specified radiator, exhaust, and heat exchanger. Remove existing unit, install new unit and supplied devices, integrate unit into electrical supply and control systems, and connect unit into waste heat and fuel systems.

Project Cost: 2015 - \$600,000

Business and Technical Drivers

Business Drivers: The primary function of a utility to provide a safe and reliable supply of electrical energy. Due to the isolated nature of Beaver Creek, end of life replacements need to be planned and occur in a timely fashion in order to ensure that safe and reliable supply can be maintained.

Technical Drivers: The existing Unit #1 has 85,237 operating hours as of January 2013. Based on a five-year average, this unit is forecasted to run 4,849 hours annually for 2013 and 2014. The forecast total operating hours at time of replacement in mid-2015 would be approximately 97,360. Canadian Off Grid Utilities Association planning criteria for 1800 RPM units recommends replacement after 60,000 to 88,000 hours of operation. Also, unit is scheduled for a top end (minor) overhaul at 92,717 hours. The benefits of performing life extension at these high operational hours are minimal.

Alternatives: Alternative #1: Perform a major life extension on the existing unit. Yukon Electrical has determined that life extensions performed on units in excess of 100,000 operational hours do not guarantee reliable operation. The unit may not operate long enough to provide payback of the life extension investment. The result would be poor reliability which could lead to unplanned outages and poor customer service. Replacement of the failed unit in an unplanned situation will leave the community exposed to inadequate capacity for a significant amount of time as the lead time to procure and obtain units of this rating varies from three to nine months.

Alternative #2: Run unit to failure and not replace. The 2011 recorded system peak load was 359kW and the 2012 system peak load was



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355kW. The removal of Unit #1, without replacement, would not provide enough available generation to ensure 110% of peak loading with largest unit removed (N-1 criteria).

Alternative # 3: Replace unit with a new, similarly sized unit.

Recommendation:

Proceed with replacement of Beaver Creek Unit #1 with a unit of similar size and generating capacity to avoid further costs in respect of this unit, which will be at the end of its life.



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Business Case #12

Carcross 2 MVA Standby Project

Title: **Carcross 2MVA Standby Diesel Unit**

Summary:

This project includes the purchase and installation of a 2MW self-contained generating unit for contingency in the Carcross substation. The communities of Carcross and Tagish, including the surrounding areas, have peak load demands of 1.5MW in the winter with approximately 712 total customers.

Should a loss of generation on the Yukon Interconnected System or loss of Distribution System capability on the single radial line to the service area occur, customers in Carcross and Tagish would be without electricity. A back up power supply would provide these customers with a backup power supply similar to six other Yukon communities. A power system planning principle, "N-1," is used as a criterion to ensure contingency of supply to meet customer peak loads while a largest generating unit or major distribution/transmission component is out of service. This criterion is used in larger customer centers to provide a high reliability level to customers, however, is not practical on an individual customer basis. Yukon Electrical proposes a threshold minimum load of 1.0MWHs and 300 customers to enact the N-1 planning criteria.

Project Description:

Purchase a 2MW self-contained generator set with synchronizing capability. Install the unit in the Carcross substation and connect via a 3 phase step up transformer and associated protection. Install and connect the unit to SCADA system.

Project Costs:

2015 - \$3,000,000

Business and Technical Drivers

Business Drivers:

The Carcross substation provides service to the communities of Carcross and Tagish, which have a total of 712 customers. The area has a peak load of 1.5MW. The customers in the area include a nursing station, a RCMP detachment and a school. Yukon Electrical currently has 6 standby generators in various communities throughout the Yukon; not one of these communities has as many customers as the Carcross/Tagish area.

A petition by area residents was submitted to the Yukon Legislative Assembly dated October 31, 2012 requesting a diesel backup generator. (See Business Case #12, Attachment 1). Customers have voiced concerns that they are not being treated the same as customers in similar communities that have backup generation.



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Approval of this project allows for setting a planning threshold related to standby generation.

Technical Drivers:

The generating unit, once installed, can synchronize to the grid to supply power into the Southern Lakes/Whitehorse area to provide additional generation if required.

Alternatives:

Alternative #1: Status quo; continue to not provide contingency power to the communities of Carcross and Tagish. This would not address concerns of inconsistent electrical infrastructure in existing communities of Yukon that have a standby generation plant. This would not be consistent with an N-1 system planning criterion.

Alternative #2: Complete a 34.5kV/25kV distribution loop through Tagish to 9L line at Jakes Corner. This option would cost significantly more for the approximately 50 kms of new 34.5kV and 15 kms of 25kV distribution lines than a standby generator. This option does not provide full contingency if there is a loss of supply from Whitehorse. Also, there is no beneficial incremental generation capability to the grid.

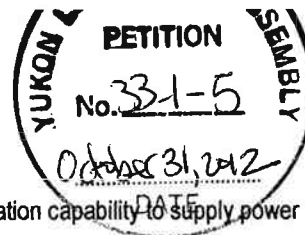
Alternative #3: Continue to plan and execute staged distribution improvements in the area. This option is continuing as the distribution improvements are completed due to poor condition assessments of the line or reliability concerns. Though these distribution improvements contribute to system reliability, they do not address loss of supply from the Yukon Interconnected System.

Alternative #4: Install a 2MW self-contained generating unit to provide standby capacity during loss of electricity supply situations for Carcross and area customers.

Recommendation:

Proceed with alternative #4 to install backup generating capacity in Carcross. This initiative is based on security of supply power system planning principles.

PETITION



Business Case #12
Attachment 1

To The Yukon Legislative Assembly:

This petition of the undersigned shows:

THAT most Yukon communities that are tied to the electrical grid have backup diesel generation capability to supply power during outages,

AND THAT the Carcross-Tagish area contains a population that exceeds the population of some of the communities that currently have backup power generation capability,

AND THAT backup diesel generation capability is essential for residents, businesses, institutions and governments in the Carcross-Tagish area to supply power during outages,

AND THAT emergency services in the Carcross-Tagish area including ambulance, fire protection, emergency measures and policing services require a reliable source of power to function properly,

AND THAT a backup generation system for the Carcross-Tagish area meets the criteria accepted by the Public Utilities Board that communities with loads over 1 mega watt should have local generation to serve them during line failures,

THEREFORE, the undersigned ask the Yukon Legislative Assembly

To urge the Government of Yukon to take the necessary measures to ensure that backup diesel generation capability is established near Tagish with sufficient capacity to supply the Carcross-Tagish area.



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Business Case #13

Watson Lake Unit #2 Replacement



Summary:

Project Description:

Business and Technical Drivers

Business Drivers:

Unit Availability: As stated previously, the condition of the AC generator is poor. If failure of this unit was to occur and a new AC generator was required, the lead time could be as long as a year and the loss of this



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unit would affect plant capacity and contingency.

Technical Drivers:

Additional Generation Capacity Required to Meet Electrical Load: The Watson Lake plant had a recent peak of 3,205kW recorded for the community. With the addition of the new hospital and other forecasted residential loads, this peak is expected to rise. In the case of an unplanned loss of the largest unit in the Watson Lake plant (Unit #4), the remaining generators would not be able to be taken out of service for regular maintenance without negatively impacting customers. A major overhaul of a unit is usually 4-6 weeks in length; the minor overhauls are 1-2 weeks, during which time the unit is out of service.

Figure 1 – Watson Lake Generating Capacity

Watson Lake Generating Facility		
Unit #	Unit Name	Unit Size (kW)
1	CUL 422	800
2	CUL 257	800
3	CUL 352	1,000
4	CUL 258	1,500
5	CUL 466	650
6	CUL 423	800
Installed Capacity (kW)		5,550
Firm Capacity (kW)		4,050

Project Cost:

Forecast costs to complete this project, including the purchase and delivery of a new unit, radiator, heat exchanger and exhaust, and the installation of the unit and connection of its mechanical and electrical systems, are as follows:

· 2015 - \$1,350,000

Alternatives:

Alternative #1: Perform major overhaul on CUL 257. Based on previous operational experience, Yukon Electrical has seen marginal benefit in reliable operation of 1200RPM units that are overhauled past the 100,000 hour mark. The extensive hours on the unit have resulted in stresses and wearing that cannot be fully repaired. Factoring in the current age and state of the AC generator, this alternative does not return the unit to a satisfactory condition in terms of reliable and efficient operation.



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Alternative #2: Replace AC generator and perform major overhaul on unit CUL 257. AC generators are expected to run the life of the engine unit. Purchasing a new unit for another 15,000hrs or less of service is not an effective solution. The generator could be removed and refitted to another unit once CUL 257 is retired; however, this is not ideal as new units are best specified as an engine and generator matched set. Also, coupling this used AC generator to a new unit may, as the engine accumulates hours, put Yukon Electrical in a similar situation as it currently faces with CUL 257. As previously stated, a major overhaul and life extension on a diesel engine with more than 100,000 hours does not guarantee reliable operation.

Alternative #3: Replace CUL 258 with a new, larger size unit. This option addresses the end of life replacement of CUL 257 and the need for additional capacity in the Watson Lake facility.

Recommendation:

Proceed with replacement of CUL 257 with a unit of similar size and generating capacity to continue to meet the community's load and avoid further costs in respect of this unit, which will be at the end of its life.



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Business Case #14

Destruction Bay Unit #2 Replacement

Title: **Destruction Bay Unit #2 Replacement**

Summary: Replace Unit #2 in Destruction Bay, which is at the end of its life, with a new diesel generator. Based on forecast load growth and Yukon Electrical's planning criteria, the new unit is planned to have similar generating capacity in comparison to the existing unit.

Project Description: Purchase new unit complete with a manufacturer-supplied and specified radiator, exhaust and heat exchanger. Remove existing unit and install new unit and supplied devices, integrate unit into electrical supply and control systems, and connect unit into waste heat and fuel systems.

Project Cost: 2014 - \$600,000

Business and Technical Drivers

Business Drivers: The primary function of the utility is to provide a safe and reliable supply of electrical energy.

Technical Drivers: As of January 2013, the existing unit has 93,054 operating hours. Based on a five-year average, this unit is forecast to run 4,354 hours annually in each of 2013 and 2014 and, as a result, is forecast to have approximately 100,000 operating hours at the time of replacement. Canadian Off Grid Utilities Association planning criteria for 1200 RPM units recommends replacement after 90,000 to 126,000 hours of operation.

Alternatives: Alternative #1: Perform a life extension on the existing unit. Yukon Electrical has determined that life extensions performed on units in excess of 100,000 operational hours do not guarantee reliable operation. The unit may not operate long enough to provide payback of the life extension investment. The result would be poor reliability which could lead to unplanned outages and poor customer service. Replacement of a failed unit in an unplanned situation would leave significant exposure time to inadequate capacity and the lead time to procure and obtain units of this rating can vary from three to nine months.

Alternative # 2: Run unit to failure and not replace. The 2011 recorded system peak load was 389kW and the 2012 peak load was 415kW. The removal of Unit #2, without replacement, would not provide enough available generation to ensure 110% of peak loading with largest unit



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removed (N-1 criteria).

Alternative # 3: Replace unit with a new, similarly sized unit.

Recommendation:

Replace of Destruction Bay Unit #2 in 2014 with a unit of similar size and generating capacity to avoid further costs in respect of this unit, which is at the end of its life.



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Business Case #15

Old Crow Unit #3 Replacement



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Title: Old Crow Unit #3 Replacement

Summary: Purchase and install a new 250kW unit to replace the existing undersized 170kW unit (CUL 384). Load growth and load duration of Old Crow community have steadily diminished the utilization of the existing unit due to its rated capacity. The new 250kW unit will be installed in the new building in Old Crow (see Business Case #8), as it will not physically fit in the existing building, so the purchase of new switchgear and engine controls components is also required.

Project Description: Purchase new unit complete with manufacturer-supplied and sized, radiator, exhaust and heat exchanger. Unit is to be installed in the new building and, as a result, the purchase of switchgear and engine control components will be required. Install new unit and supplied devices, integrate unit into electrical supply and control systems, connect unit into waste heat and fuel systems.

Project Cost: 2015 - \$500,000

Business and Technical Drivers

Business Drivers: Primary function of utility to provide reliable and efficient supply of electrical energy.

Technical Drivers: Load Growth: Load in Old Crow has grown and, as a result, the annual operational hours of CUL 384 have decreased significantly. In both 2011 and 2012, the unit ran less than 1,000 hours.

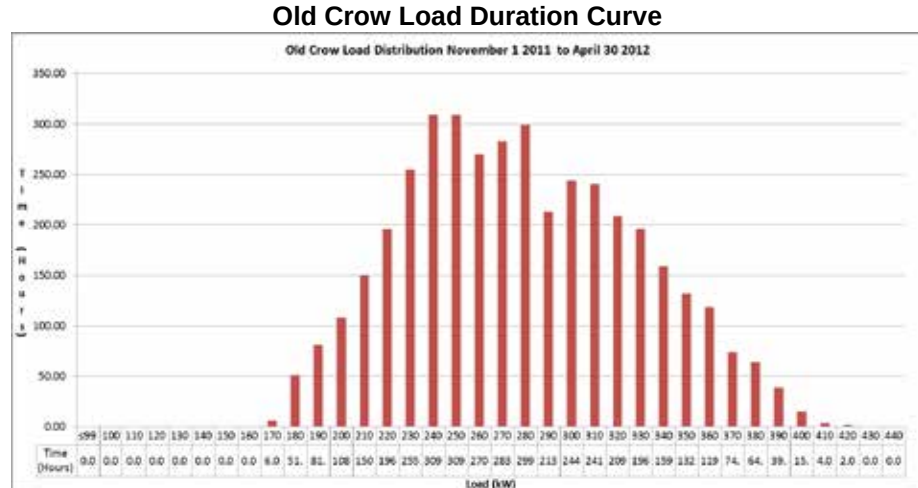
CUL 384 Annual Hours of Operation	
Year	Hours
2007	1576
2008	1209
2009	1003
2010	1015
2011	681
2012	939

The annual hours of operation have decreased due to the fact that the hourly average load did not drop under 170kW for the periods January 1 - May 1 and November 1 - December 31. This effectively reduced the Old Crow facility to a two engine plant during these periods. As can be seen in the chart below, the base load of Old Crow



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through the winter months is higher than the rating of Old Crow Unit #3.



Plant Efficiency: The next largest unit is rated at 400kW and is dispatched to operate in the range of 150kW - 350kW. Operating at low load levels is inefficient and can negatively affect the unit as proper temperatures will not be maintained.

Alternatives:

Alternative # 1: Status quo; this will result in the Old Crow plant operating as a two unit plant for the majority of the year. In this configuration, when one of the remaining units is offline for scheduled maintenance or an unplanned condition, the plant will not meet the N-1 criteria.

Alternative # 2: Manufacturer was contacted to explore the possibility of increasing the output of the existing 170kW unit. This would decrease the life expectancy of unit. As this unit has completed approximately 75% of its life cycle, it may fail prematurely. Further retrofitting of the generator and other mechanical systems would also be needed. There is no guarantee or warranty for this work.

Alternative # 3: Replace Old Crow Unit #3 with a 250kW unit. This unit will provide a better heat rate for lower loads than the 400kW unit that is currently being used to operate at low load levels. Operational hours for Old Crow Unit #3 would improve.

Recommendation:

Replace Old Crow Unit #3 with a 250kW unit.



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Business Case #16

Whistle Bend Subdivision Stage 1 & 2

Title: Whistle Bend Subdivision Stages 1 & 2

Summary: Design, build and install fully contributed electrical infrastructure to service stages 1 & 2 of a new subdivision in Whitehorse in agreement with the developer and in accordance with Terms and Conditions.

Project Description: Design electrical service to all properties, procure material, install electrical infrastructure, commission and energize in coordination with developer (Yukon Government).

As this project is a new extension, it is 100% customer contributed.

Project Cost: 2011 - \$1,242,000
2012 - \$683,000

Business and Technical Drivers

Business Drivers: Obligation to serve customers in Yukon Electrical's service area.

Technical Drivers: Design and build a distribution system in compliance with Utility Codes and Regulations.

Alternatives: There are no acceptable alternatives to not provide service to Yukon Electrical's customers.

Recommendation: Design and build a distribution system in coordination with developer.



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Business Case #17

Whistle Bend Subdivision Stage 3



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Title: Whistle Bend Subdivision Stage 3

Summary: Design, build and install fully contributed electrical infrastructure to service stage 3 of a new subdivision in Whitehorse in agreement with the developer and in accordance with Terms and Conditions.

Project Description: Design electrical service to all properties, procure materials, install electrical infrastructure, commission and energize in coordination with developer (Yukon Government).

As this project is a new extension it is 100% customer contributed.

Project Cost: 2014 - \$1,200,000

Business and Technical Drivers

Business Drivers: Obligation to serve customers in Yukon Electrical's service area.

Technical Drivers: Design and build a distribution system in compliance with Utility Codes and Regulations.

Alternatives: There are no acceptable alternatives to not provide service to Yukon Electrical's customers.

Recommendation: Design and build a distribution system in coordination with developer.



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Business Case #18

Hillcrest Subdivision Conversion



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Title: Hillcrest Subdivision Conversion

Summary: The project is to reduce the load on 4L306 by converting a subdivision to 25kV electrical infrastructure and transferring to 5L630. The existing infrastructure is also at end of life condition with poor condition of poles and aged electrical hardware that is degrading.

Project Description: Upgrade and replace electrical hardware through entire subdivision. Various poles will be changed where needed based on condition of pole and ability to accommodate new conductor and hardware upgrades. A new supply of 5L630 will be built in to subdivision with a staged conversion from 12.5kV to 25kV system. Existing locations of power lines will be used where available.

Project Cost:

2008 – \$93,000
2009 – \$152,000
2010 – \$226,000
2011 – \$2,000
2012 – \$252,000
2013 – \$275,000
2014 – \$250,000

Business and Technical Drivers

Business Drivers: The reassignment of system load from a long, heavily loaded line will provide stability and increased capability of the line to meet load growth in the area. New and upgraded electrical infrastructure will continue to provide reliability and increased safety.

Technical Drivers: Hillcrest subdivision is at the end of 4L306, the most heavily loaded line in Whitehorse. The significant loading of the line does not allow it to be restored after unplanned outages without considerable field work to sectionalize the load. Recent increases in load on 4L306 include the new Whitehorse Corrections Centre, new City of Whitehorse Public Safety Building and new Takhini residential infill lots that were developed with electric space heating. There is more development forecasted to be built on Range Road. Transferring the load of the subdivision to another substation will off load 4L306 line and Mountainview substation which will allow the new additional load to be added without compromising the integrity of 4L306 or Mountainview substation.

Alternatives: Alternative #1: Status quo. Outage restoration will continue to be time



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consuming and labour-intensive due to the need to sectionalize the line. The increasing electrical load may compromise the integrity of 4L306 by exceeding its rated capacity.

Alternative #2: Convert subdivision to 25kV and install underground electrical infrastructure. This is a much more expensive option that will accomplish the same outcome as overhead infrastructure.

Alternative #3: Convert subdivision to 25kV utilizing overhead infrastructure and rebuilding in same location where possible. Transfer load of subdivision to Arkell substation.

Recommendation: Proceed with staged upgrade and conversion of subdivision.



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Business Case #19

Whistle Bend 34.5kV Substation Distribution Lines

Title: **Whistle Bend 34.5kV Substation Distribution Lines**

Summary: Build a new 34.5kV distribution line between Laberge substation and Mountainview substation. This new distribution line is required to provide service to the new Whistle Bend substation with a contingency interconnection to 5L648.

Project Description: Build new distribution structures and line from Laberge substation east to the Whistle Bend substation and south to Mountainview substation. Required permits, easement, brushing and construction will be completed to standard.

Project Cost: 2010 - \$492,000
2011 - \$156,000

Business and Technical Drivers

Business Drivers: Provide service to the new Whistle Bend substation. Continuation of the line to Mountainview substation provides necessary electrical contingency interconnection.

Technical Drivers: New line to Whistle Bend substation has to be built to accommodate the expected load of the area. The line has sufficient ampacity to provide for demand of the large load while considering reliability, safety and system line losses.

Alternatives: Alternative #1: Build radial 34.5kV line to serve Whistle Bend substation. This provides no contingency for an area of Whitehorse that is expected to have significant development and 8,800 residents. This would be contrary to prudent utility practice.

Alternative #2: Build 34.5kV line with system capacity to serve the large, new Whistle Bend subdivision.

Recommendation: Build new 34.5kV distribution line with contingency interconnection.



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Business Case #20

Whistle Bend Substation

Title: Whistle Bend Substation

Summary: Build a new substation to serve a new subdivision in Whitehorse designed to serve 8,800 residents.

Project Description: Build a 20MVA substation complete with required electrical bus, switches, voltage regulators and two distribution breakers for a new subdivision. The design will incorporate room for other distribution breakers that can be utilized for system contingency. This substation will be designed in the Whitehorse Distribution system to provide service to Whistle Bend subdivision and to have the ability to reassign load from existing distribution lines that are at or near capacity.

Project Cost: 2011 - \$1,690,000
2012 - \$423,000

Business and Technical Drivers

Business Drivers: Obligation to serve customers in Yukon Electrical's service area.

Technical Drivers: The existing substations near Whistle Bend (Porter Creek and Mountainview substations) cannot provide service to Whistle Bend. The substations both have a capacity of 10MVA and regularly load to 75%. Design and build a Distribution system in compliance with Utility Codes and Regulations.

Alternatives: Alternative #1: There are no alternatives to building a new substation as the load is too substantial.

Recommendation: Build a new substation to serve the new Whistle Bend subdivision.



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Business Case #21

Crestview to Mayo Road Corner Double Circuit



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Title: Crestview to Mayo Road Corner Double Circuit

Summary: Replace existing 5L628 line from Crestview to Mayo Road Corner due to end of life condition of existing 25kV distribution. The new distribution line will be built in a double circuit configuration to accommodate future expansion of 34.5kV.

Project Description: Build a new distribution line in double circuit configuration from Crestview area to the Mayo road intersection. The new 34.5 kV top distribution line will be built with 266 ACSR conductors. The bottom circuit, 5L628, will be replacing the existing distribution line. Permitting, easements, brushing and construction will be completed to standard.

Project Cost: 2012 - \$628,000

Business and Technical Drivers

Business Drivers: The existing 5L628 distribution line is undersized for the load that it serves and the poles and electrical hardware have deteriorated to an end of life condition. Yukon Electrical was made aware that a new 34.5kV supply will be built at Takhini Switching Station. This new supply source is intended to reinforce the Whitehorse Distribution System. A new line is required to connect the source to the system.

Technical Drivers: The existing line, 5L628, has conductor in this area that is severely undersized for the load that it serves (all 2,200 Whitehorse North customers). There was an extended outage in severe winter weather due to the size of this conductor.

As there is a new 34.5kV source being made available close to Whitehorse, it is prudent for Yukon Electrical to connect to take full advantage of this system reinforcement.

Alternatives:

Alternative #1: Build two separate distribution lines. This would require twice as many structures and the two lines would be in close proximity.

Alternative #2: Do not rebuild 5L628 and do not connect to new source for Whitehorse. The existing conductor in this area of 5L628 is undersized and will have more unplanned outages if replacement is not completed. Not connecting to a valuable new system reinforcement for Whitehorse is not beneficial.



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Alternative #3: Rebuild section of 5L628 that is at end of life. Build the distribution line in a double circuit configuration at the same time in preparation for a new supply source north of Whitehorse.

Recommendation:

Rebuild 5L628 in a double circuit configuration.



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Business Case #22

McIntyre Subdivision Replacement Stage 1

Title: **McIntyre Subdivision Replacement Stage 1**

Summary: This project is to replace the existing 34.5kV underground infrastructure, which was built circa 1977, with new 25kV infrastructure within McIntyre subdivision in Whitehorse due to the end of life condition of the infrastructure. The end of life assessment is based on the degradation of cables and electrical equipment along with inoperability due to safety reasons at many locations throughout the subdivision.

Project Description: Replacement of all high and low voltage distribution cables, transformers, and high voltage switch cubicles in an underground configuration throughout McIntyre subdivision.

The project will be done in stages to effectively build, transfer and complete construction during the short construction season in the Yukon. The construction plan will be discussed with and have approval of the community as all work will be done curbside in close proximity to property lines.

The majority of low voltage service lines to residences will not be replaced. Many of these services were located and inspected over the last five years in coordination with the subdivision fencing project that Kwanlin Dun First Nation (KDFN) completed.

The electrical infrastructure in the undeveloped areas of the subdivision will not be replaced at this time. An agreement will be put in place to replace that infrastructure when the area is developed.

Project Cost: 2013 - \$475,000
2014 - \$250,000

Business and Technical Drivers

Business Drivers: The electrical infrastructure is circa 1977. There have been failures of high voltage cables that have caused extended outages to a large number of customers. There are many pieces of equipment (transformers and switch cubicles) that cannot be operated safely. Also, there are many cable switch points that cannot be operated at all. This makes troubleshooting and sectionalizing of the distribution system impossible during unplanned outages in many areas of the subdivision. Some equipment cannot be operated due to poor cable condition and is tagged as inoperable in the field. This equipment is in service and can only be serviced or operated by isolating a larger area of the



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subdivision to complete work safely.

Technical Drivers:

The high voltage terminations have been discontinued for 10 plus years. Yukon Electrical has a small number of emergency replacements in inventory. There is no availability of these electrical parts. Yukon Electrical also has a limited supply of replacement transformers and high voltage switch cubicles.

Inoperability of the system in multiple locations. This is due to installation as direct buried cable as well as transformers and switch cubicles installed without underground vaults. There is no ability to fix the issue temporarily.

Physical condition of metal service pedestals and transformers have deteriorated and are rusting.

Alternatives:

Alternative #1: Status quo. Underground cable will continue to degrade to the point of failure. Unplanned extended outages to troubleshoot the electrical distribution in the subdivision and repair. Continue to accept the inoperability of the system. Not recommended.

Alternative #2: Replace underground system with overhead electrical infrastructure. Service guidelines in the City of Whitehorse mandate underground electrical service to remain as underground. Not possible.

Alternative #3: Replace end of life underground electrical system.

Recommendation:

Replace the existing 34.5kV underground infrastructure, which is at the end of its life, with new 25kV infrastructure within McIntyre subdivision.



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Business Case #23

Whitehorse 5L628 and New 35kV Build



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Title: Whitehorse 5L628 and New 34.5kV Build

Summary: Yukon Electrical will build a new double circuit distribution line to connect a new Yukon Energy supply source to the Whitehorse Distribution System. This new supply source is a significant system reinforcement project for the Whitehorse Distribution System.

Project Description:

The project is to build a double circuit distribution line on the North Klondike Highway to the Yukon Energy Takhini Switching Station.

The new top circuit will be built to 34.5kV standards with sufficient capacity to safely accommodate the design of the supply source.

The bottom circuit will be a replacement of 5L628 in this area. The existing line in the area serves all customers on the North Klondike Highway (approximately 750). Most poles in the area are unable to accommodate the addition of another circuit. Where possible, existing infrastructure will be utilized to complete the project.

Project Cost: 2014 - \$1,890,000

Business and Technical Drivers

Business Drivers: Yukon Energy has designed and planned a new 34.5kV supply that will be built at Takhini Switching Station. This new supply source is intended to reinforce the Whitehorse Distribution System. Yukon Electrical will design and build a new distribution line to connect the new source to the system.

Technical Drivers: The distribution lines will be built to standard with sufficient capacity for a safe supply of electricity.

Alternatives:

Alternative #1: Build only a new 34.5kV distribution line and utilize existing 5L628. There would then be two distribution lines on the North Klondike Highway, occupying both sides of the highway as there is insufficient space to build a line beside the existing 5L628. This option would require twice as much brushing, double the number of poles and have complications with existing power lines that cross the highway.

Alternative #2: Build a double circuit distribution line in the same location as the existing power line and utilize existing easements.



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Recommendation:

Build a new double circuit distribution line to connect the new Yukon Energy supply source to the Whitehorse Distribution System.



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Business Case #24

Downtown Whitehorse 25kV Conversion



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Title: **Downtown Whitehorse 25kV Conversion**

Summary:

System load growth in the downtown core of Whitehorse has increased significantly over the past 5 years and has introduced loading near capacity limits of distribution system. Key reasons for this load growth are; increased utilization of and demand for electric heat; zero lot line and increased height allowances add to the densification of the downtown core in Whitehorse and the trend of developers to build all commercial and condominium projects exclusively with electric heat.

The existing 12.5kV system is at or near capacity in a number of areas of the downtown core.

This is Stage 1 of a multi-year project that will ultimately convert the 12.5kV distribution system to 25kV. This increase in voltage will be directly proportional to the decrease in current on the system. This will then allow the existing conductors that are near capacity limits to safely handle increased loading.

Project
Description:

Yukon Electrical has had the conversion of the Whitehorse Downtown core to 25kV identified in its long-term system plan since 1996. For the last approximately 15 years, all new transformers installed in the downtown core are a dual voltage configuration (12.5kV/25kV). The Shipyard substation (the main source for the area) was designed and built to allow for this conversion with all electrical equipment configured and rated for dual voltage capability.

The conversion will be a multi-staged project based on select areas in the downtown core. The key considerations for priority and scheduling for a conversion is current system load, forecasted load growth and the ability of the existing electrical infrastructure to accommodate the load demands.

The conversion will utilize existing conductors (both overhead and underground), existing structures and the current locations of electrical infrastructure in the distribution system. There will be areas that require transformer and hardware upgrades to utilize the new 25kV voltage.

This project will consist of the following:

- Change out necessary insulation, switches, transformers and lightning arrestors to 25kV rating.
- Establish, by specific distribution line, which area will be converted.



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Project Cost:

2014 - \$450,000
2015 - \$450,000

Business and Technical Drivers

Business Drivers:

Yukon Electrical needs to address system growth and capacity issues to ensure safety and reliability.

Distribution lines are designed to ensure redundancy and contingency to supply other distribution lines. This contingency design is for both regular operations (maintenance shutdowns) and emergency conditions (loss of major transformer or line). Currently, there are distribution lines unable to provide contingency power as they are near their maximum capacity.

Multifamily projects, condominiums and commercial buildings have been built exclusively with electric heat in the downtown core in the last five years.

Technical Drivers:

Existing conductors are close to their current carrying capacity in a number of areas during normal system operations. The load limit of existing conductors will double with the conversion.

Alternatives:

Alternative #1: Status quo; continue to watch loading of system. There will be failures of overloaded conductors at some point with no ability for contingency supply.

Alternative #2: Add another 34.5kV line and substation into the downtown core. There is no location identified for a new substation. Currently there is a premium on lots which would drive up cost of substation.

Alternative #3: Change all existing conductors to a larger size wire. The majority of the poles in the downtown core are circa 1960s and 1970s; they are not designed for larger wire. Whereas, with a change in source voltage, the existing conductors on existing poles can be utilized.

Alternative #4: Start conversion of downtown core as planned.

Recommendation:

Proceed with multi-staged conversion of downtown Whitehorse.



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Business Case #25

Takhini Marwell 4L315 Upgrade to 266 ACSR

Title: Takhini Marwell 4L315 Upgrade to 266 ACSR

Summary: Upgrade Marwell distribution line 4L315 from Services Substation to interconnect with distribution line 4L306 on Range road. This upgrade is required to ensure reliability and adequate capacity of 4L315 that is currently near capacity of the conductors.

Project Description: Upgrading existing #2 ACSR conductors to #266 ACSR. The distribution line will be replaced in its current location due to existing property lines and roadways. The majority of the structures are 1970 vintage and are unable to facilitate the clearance and loading of the larger conductor. New anchors are required to address the increased weight of the new conductor.

Project Cost: 2014 - \$250,000 Services Substation to Copper Road
2015 - \$350,000 Copper Road to Range Road

Business and Technical Drivers

Business Drivers: Reliability, safety and load growth. The existing conductor on 4L315 is at capacity. It cannot adequately provide a contingency electrical tie to 4L306. Distribution breakers and lines that are electrically tied provide contingency for the system. Customer and system growth have pushed capacity limits of the distribution system.

Technical Drivers: The existing peak load on this line is 3.1MW under normal winter conditions. If the temperature is below -40 deg C for an extended period of time there will be more load on this feeder than the normal winter peak.
The maximum capacity of the conductor is 4MW. Under normal operating conditions, there is insufficient capacity for contingency.

Alternatives: Alternative #1: Status quo. The line is at capacity now, anymore load growth puts 4L315 at risk of failure. This also will not provide any contingency for other distribution lines in the area.
Alternative #2: Concrete poles. This would provide greater distances between pole locations. This is a more expensive option with limited benefits. Due to current locations of structures at property lines to provide service to multiple customers, movement of existing structures is not feasible. Yukon Electrical has no experience with concrete poles.



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Alternative #3: Replace line with underground cable rather than overhead. The cost for this is approximately five times more expensive than overhead option. This will require extensive changes to service existing customers. Overhead lines are best suited for an Industrial Subdivision.

Alternative #4: Replace existing conductor with larger, greater capacity conductor while rebuilding distribution line in current location.

Recommendation:

Upgrade the conductor on line 4L315 to meet increased system load demand.



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Business Case #26

Whistle Bend Stage 1, 2 & 3 Street Lights

Title: Whistle Bend Stage 1, 2 & 3 Street Lights

Summary: The installation of new street lights in the Whistle Bend subdivision at the request of the developer and installed per Road and Transportation Association of Canada (RTAC) standards. Yukon Electrical investment will be in accordance with Terms and Conditions.

Project Description: Installation of various types of street lights and underground electrical infrastructure that adhere to the design of the new subdivision. The types of street lights vary in relation to the type of road. The arterial roads are lit with 250W HPS lights on 12m davits; the residential collectors and local roads are lit with 150W HPS lights. Based on the final design of stage 3 from the developer; Yukon Electrical forecasts to install street lights in 2014 as per RTAC standards.

Project Cost:

2011 - \$257,000
2012 - \$150,000
2013 - \$75,000
2014 - \$450,000

Business and Technical Drivers

Business Drivers: Provide electrical service to new customers per the Terms and Conditions. The customer specifically requested the type of lighting we have designed.

Technical Drivers: Every new road in a new subdivision in urban areas is required to be lit to RTAC standards. Provide the lighting design to meet RTAC standards. The goal of these standards is to promote a roadway lighting system sufficient to meet the demands of traffic safety on the roads at night.

Alternatives:

Alternative #1: Do not install the lights. Yukon Electrical would not fulfill its obligation to serve as a regulated utility serving this area.

Alternative #2: Install street lights only at corners and intersections. The City of Whitehorse requires all new urban residential subdivisions in the city be lit to RTAC standards. This would be contrary to the standard required.

Alternative #3: Install street lights as requested and paid for by the customer as per RTAC standards as mandated by City of Whitehorse requirements.



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Recommendation: Design and install new street lights in subdivision in agreement with developer and in accordance with City of Whitehorse and RTAC standards.



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Business Case #27

Automated Meter Reading – Whitehorse and area



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Title: **Automated Meter Reading – Whitehorse and area**

Summary:

This project is to convert conventional electronic and mechanical meters to Automated Meter Reading (AMR) technology. The project will convert all meters in the Whitehorse area, Marsh Lake, Carcross, Tagish and Teslin communities to AMR technology, which is approximately 80% of all Yukon Electrical meters. The benefits of conversion will be improved customer service, improved safety performance for employees and customers and reduced vehicle emissions, as well as long term cost savings of over \$2 million over 25 years as compared to conventional meter reading (please refer to Attachment 1 for the economic analysis of the AMR project).

Project Description:

The project consists of installing Two Way Automatic Communication System (TWACS) substation communication equipment (SCE) at Whitehorse Substation S150 and McIntyre Substation S170. The project also consists of exchanging approximately 12,903 residential and 1,579 commercial conventional meters with AMR meters.

Background:

Yukon Electrical's parent company, ATCO Electric, has extensive experience in the implementation, operation and support of a system-wide AMR system using a powerline frequency carrier technology known as Two-Way Automatic Communication System (TWACS). ATCO Electric has been using this AMR technology for more than 20 years. Although this business case is based on using this same technology, another powerline carrier AMR technology ("Turtle") was investigated for cost comparison purposes. The choice of TWACS was mainly predicated on the fact that ATCO Electric has an established process and team in place to deal with its own AMR systems and that there would be minimal incremental charges being incurred and allocated to Yukon Electrical. The technology is compatible with the ATCO-CIS billing system so it would not require extensive modification. Furthermore, given Yukon Electrical's relatively small size and modest technical resources, Yukon Electrical does not want to install a new and unknown technology platform.

Northland Utilities Limited (Yellowknife), an affiliate company to Yukon Electrical, implemented AMR in 2010. It has proven to be compatible in the northern climate and the system that was put in place is identical to that which Yukon Electrical is proposing. The Yellowknife AMR project was completed under budget and in the forecasted time line. Yukon Electrical has access to the knowledge gained by Northland Utilities Limited (Yellowknife) based on the field experience and project execution of the project managers. The latest 2013 AMR stats for

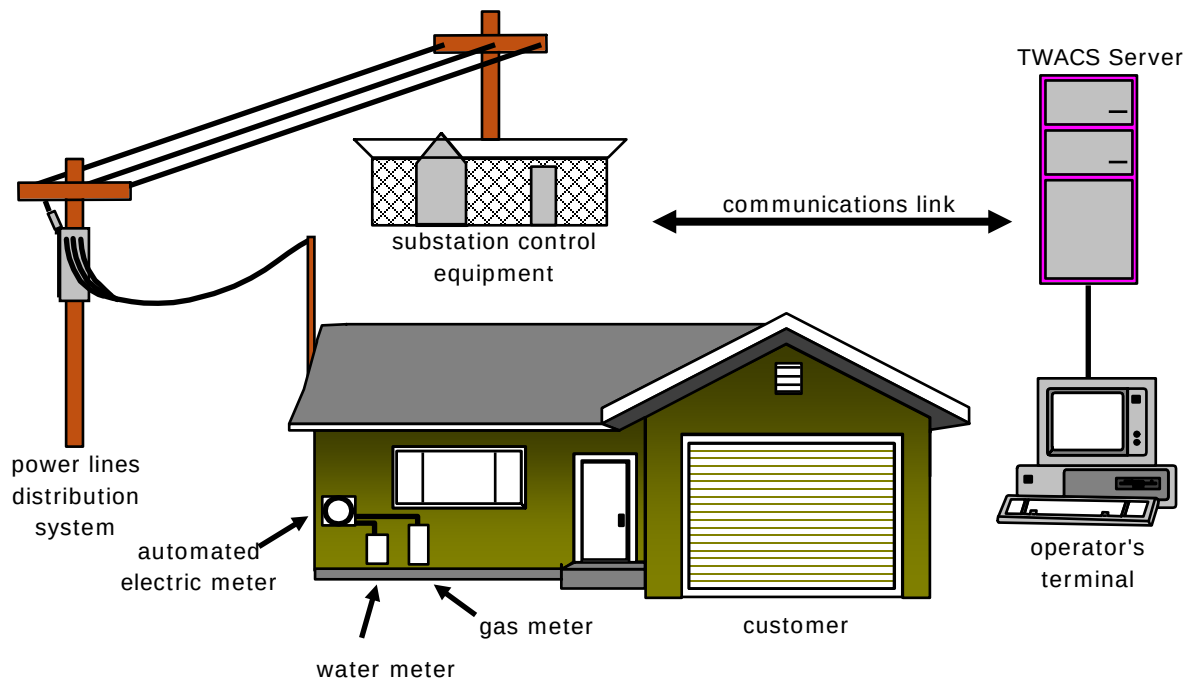


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Yellowknife show an overall success rate exceeding 99% for meter reading with AMR.

In recent discussions with the City of Whitehorse, Yukon Electrical has been advised that the City is investigating the utilization of AMR technology to obtain water meter readings. The City has commissioned a study to be completed regarding the feasibility of AMR for water meters. This study is forecasted to be completed in late fall 2013 at which time it will be presented to City Council for consideration. While Yukon Electrical considers the conversion to AMR to be a viable and beneficial stand alone project, there may be potential benefits to the project in terms of costs if the City chooses to partner with Yukon Electrical on the project.

How TWACS AMR works



Project Cost:

2014 – \$1,580,000
2015 – \$2,283,000



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Business and Technical Drivers

Business Drivers:

Implementation of AMR will provide better customer service, improved safety performance and long term cost savings.

Customer service will improve due to:

- Improved accuracy of meter reads as AMR eliminates human error occurrences in the reading of meters and the input of data. These errors currently result in customer dissatisfaction and further work to reread the meter and correct any billing issues.
- Consistent billing for customers as AMR will eliminate estimation of electrical usage. Estimated billing occurs for a variety of reasons such as poor access issues (locked property, dogs, and inaccessibility), poor weather conditions, data corruption and workload issues. AMR will also ensure that customers are read on a consistent time line regardless of holidays and weekends. Customer billing variations due to estimated meter reads result in customer dissatisfaction.
- Regular and accurate meter reads on a consistent timeline will provide the best solution for Yukon's tiered rate structure. Consistent 30-day monthly reads are especially important for all customers since the third rate block was established in 2011.

There will be improved safety for employees and the public due to a reduction in ongoing field work. Improved safety performance will occur due to:

- An elimination of Meter Readers accessing approximately 14,000 customer premises every month will significantly reduce hazard exposure. This hazard reduction includes exposure to dog attacks, customer premise hazards such as debris, uneven ground and construction. The two personal injuries in 2012 were a dog attack and a slip and fall incident requiring lost time and medical aid.
- It would also eliminate the 22,000 kilometers of average yearly driving that each Meter Reader completes. This is high hazard mileage as the Meter Readers drive throughout Whitehorse, the Southern Lakes and various subdivisions in all seasons. There were twelve vehicle incidents directly attributable to the task of meter reading for 2011 and 2012.



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There will be beneficial long term cost savings including:

- A reduction in reread and check read work requests due to inaccurate reading or an error during input of the meter read. Yukon Electrical averages sixty of these customer work requests every month. Each work request is completed by field staff (other than Meter Readers) which results in an additional visit to the customer's premise to read the meter. Any resulting work to correct the customer's account/bill is completed manually by Yukon Electrical Billing department staff.
- A work request for new customers moving into an existing address, transferring customers between addresses and other customer requests that require a special meter read can be completed through the AMR system. These work requests currently require field staff to drive to the residence to obtain the read, submit the work request to the Billing department and the data to be entered manually in to the billing system. Yukon Electrical averages 431 of these customer work requests every month. AMR will provide a significant decrease in field work to complete these customer work requests.
- A reduction in the Meter Reader complement, currently three positions, will occur once AMR is implemented.
- Further cost savings will occur due to improved reading accuracy of an electronic meter compared to the existing 8,239 mechanical meters in service. The electronic meter is able to register usage at 5 watts compared to the 24 watts of a mechanical meter, has a lower watts loss internally and will maintain a linear accuracy (100%) throughout its life while a mechanical meter is known to slow down over time.
- Please refer to Attachment 1 for the detailed financial analysis regarding the project and future benefits to ratepayers.

Technical Drivers:

AMR is able to provide voltage readings and momentary outage information at the meter when required for engineering studies, operational requirements and customer conflicts.

Measurement Canada has implemented new regulations for mechanical meters that take effect January 1, 2014. The regulations are for meter sampling and testing for seal extensions of mechanical meters. The number of meters in a given sample group will increase which will result in more field work to exchange more meters throughout Yukon



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Electrical's service area. Measurement Canada life extensions of meters will decrease to a maximum four years (from current six year extension) which will result in more meters tested more frequently. Also, monetary fines will be administered if meter test groups fail in service. All this increases the risk of mechanical meter fleet management. At this time Yukon Electrical has approximately 8,239 mechanical meters in service. In 2012, Yukon Electrical was required to exchange over 1,000 meters for testing.

Alternatives:

Alternative #1: Continue with current manual meter reading. As the Meter Reader positions are entry level and physically demanding, they have a high turnover rate. Yukon Electrical has to invest significant time training new individuals. New Meter Readers tend to make a higher percentage of input and read mistakes that result in customer complaints and extra work to correct. Labour costs will escalate to keep pace with increase in customers and meter reads. Estimates of customer billing will continue. Vehicle incidents will continue.

Alternative #2: Continue with manual meter reading but reduce actual meter reading frequency to bimonthly using billing system estimates. This option was tested in the field with negative customer reactions. Though the billing system will automatically produce a calculated reading estimate, it is not always accurate to actual usage. Also, with the Yukon's tiered rates, accurate readings for actual usage give the customer the most accurate consumption in the various energy blocks.

Alternative #3: Implement AMR 'Turtle' technology. This technology provides meter reads via similar technology as TWACS but at a slower rate of data collection. This technology requires its own unique data collector that differs from TWACS. This data collector would have to be able to transfer meter data to Yukon Electrical's billing system at an extra cost. This would also leave Yukon Electrical as the sole owner of the technology with no support or economies of scale from ATCO Electric.

Alternative #4: Implement Advanced Metering Infrastructure (AMI) technology. This technology was investigated, through ATCO Electric, with various options such as frequent data capture, in-home displays, remote connect and disconnect capability and remote load limiting capabilities. The pilot project was completed with varying results that indicated AMI was not a prudent option at this time. The AMR meters that Yukon Electrical is proposing to use have the time of use ability built into the meter. There are functional limitations in integrating this function to the billing system that were not explored at this time as there



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is no rate structure to drive the need.

Alternative #5: Install TWACS substation communication equipment in S150 and McIntyre substations. Replace all residential and commercial meters in the Whitehorse, Carcross, Tagish, Marsh Lake and Teslin communities with new AMR meters.

Recommendation:

Proceed with TWACS AMR implementation for Whitehorse and the Southern Lakes district.

Cost Comparison: Yukon Electrical AMR Project

- General Assumptions:
1. Analysis is over 25 years
 2. AMR Implementation is over 2 years
 3. Escalation Rate 2%
 4. Analysis is on an incremental basis
 5. Sunk capital costs are ignored
 6. Future meter replacement costs are included

Societal

Year	AMR Meters	No AMR
1	\$1,407.3	\$650.0
2	\$1,883.7	\$1,267.2
3	\$2,388.6	\$1,852.6
4	\$2,838.0	\$2,407.4
5	\$3,237.6	\$2,924.8
6	\$3,592.5	\$3,369.6
7	\$3,907.4	\$3,784.3
8	\$4,186.3	\$4,171.1
9	\$4,433.2	\$4,531.8
10	\$4,651.3	\$4,868.3
11	\$4,843.6	\$5,182.2
12	\$5,012.9	\$5,475.1
13	\$5,161.6	\$5,748.3
14	\$5,292.0	\$6,003.3
15	\$5,401.4	\$6,236.5
16	\$5,490.6	\$6,454.2
17	\$5,522.2	\$6,657.8
18	\$5,545.2	\$6,848.3
19	\$5,566.8	\$7,026.5
20	\$5,587.0	\$7,193.2
21	\$5,605.8	\$7,349.1
22	\$5,623.5	\$7,495.0
23	\$5,640.0	\$7,631.4
24	\$5,655.5	\$7,759.1
25	\$5,669.9	\$7,878.5

Revenue Requirement

	AMR Meters	No AMR
CPV @ Year 5 (thousands)	\$3,237.6	\$2,924.8
CPV @ Year 25 (thousands)	\$5,669.9	\$7,878.5

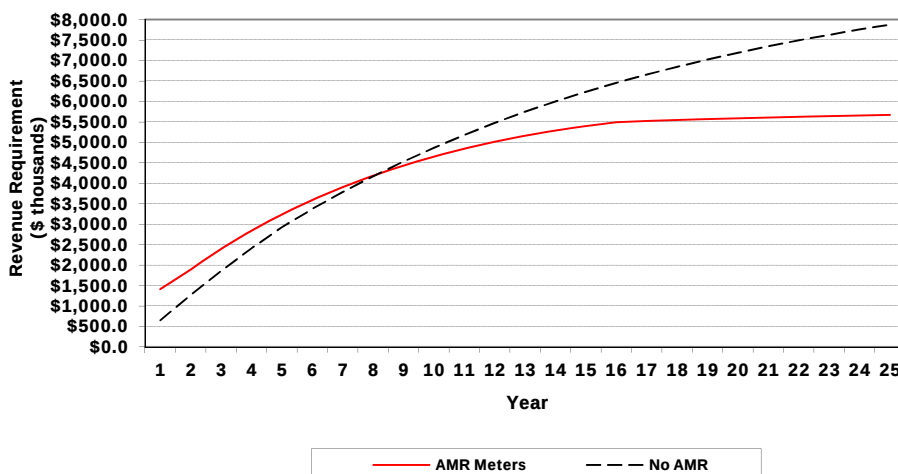
2014/2015

Capital Cost Summary

	AMR Meters	No AMR
<i>(thousands)</i>		
Generation Incremental		
Generation Existing		
Distribution	\$3,862.8	\$307.1
Transmission		
Total	\$3,862.8	\$307.1

CPV of AMR vs Conventional Meters: Cost Comparison

CPV of Revenue Requirement



Inflated Costs																										
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
Jan-14	Jan-15	Jan-16	Jan-17	Jan-18	Jan-19	Jan-20	Jan-21	Jan-22	Jan-23	Jan-24	Jan-25	Jan-26	Jan-27	Jan-28	Jan-29	Jan-30	Jan-31	Jan-32	Jan-33	Jan-34	Jan-35	Jan-36	Jan-37	Jan-38	Jan-39	Jan-40
\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
\$729,445	\$754,400	\$26,244	\$26,769	\$27,305	\$27,851	\$28,408	\$28,976	\$29,556	\$30,147	\$30,750	\$31,365	\$31,992	\$32,632	\$33,284	\$33,950	\$34,629	\$35,322	\$36,028	\$36,749	\$37,484	\$38,233	\$38,998	\$39,778	\$40,573	\$41,385	\$42,213
\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
\$0	\$702,655	\$10,966	\$11,185	\$11,409	\$11,637	\$11,870	\$12,107	\$12,349	\$12,596	\$12,848	\$13,105	\$13,367	\$13,634	\$13,907	\$14,185	\$14,469	\$14,758	\$15,053	\$15,355	\$15,662	\$15,975	\$16,294	\$16,620	\$16,953	\$17,292	\$17,638
\$104,660	\$108,240	\$3,765	\$3,841	\$3,918	\$3,996	\$4,076	\$4,157	\$4,241	\$4,325	\$4,412	\$4,500	\$4,590	\$4,682	\$4,776	\$4,871	\$4,969	\$5,068	\$5,169	\$5,273	\$5,378	\$5,486	\$5,595	\$5,707	\$5,821	\$5,938	\$6,057
\$0	\$323,695	\$5,052	\$5,153	\$5,256	\$5,361	\$5,468	\$5,577	\$5,689	\$5,803	\$5,919	\$6,037	\$6,158	\$6,281	\$6,407	\$6,535	\$6,665	\$6,799	\$6,935	\$7,073	\$7,215	\$7,359	\$7,506	\$7,657	\$7,810	\$7,966	\$8,125
\$63,430	\$81,390	\$2,529	\$2,579	\$2,631	\$2,683	\$2,737	\$2,792	\$2,848	\$2,905	\$2,963	\$3,022	\$3,082	\$3,144	\$3,207	\$3,271	\$3,336	\$3,403	\$3,471	\$3,541	\$3,611	\$3,684	\$3,757	\$3,832	\$3,909	\$3,987	\$4,067
\$250,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
\$11,417	\$14,650	\$455	\$464	\$474	\$483	\$493	\$503	\$513	\$523	\$533	\$544	\$555	\$566	\$577	\$589	\$601	\$613	\$625	\$637	\$650	\$663	\$676	\$690	\$704	\$718	\$732
\$20,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
\$117,895	\$198,503	\$4,901	\$4,999	\$5,099	\$5,201	\$5,305	\$5,411	\$5,519	\$5,630	\$5,742	\$5,857	\$5,974	\$6,094	\$6,216	\$6,340	\$6,467	\$6,596	\$6,728	\$6,863	\$7,000	\$7,140	\$7,283	\$7,428	\$7,577	\$7,729	\$7,883
\$58,948	\$99,252	\$2,451	\$2,500	\$2,550	\$2,601	\$2,653	\$2,706	\$2,760	\$2,815	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
\$1,355,795	\$2,282,785	\$56,363	\$57,490	\$58,640	\$59,812	\$61,009	\$62,229	\$63,473	\$64,743	\$63,166	\$64,430	\$65,718	\$67,033	\$68,373	\$69,741	\$71,136	\$72,558	\$74,010	\$75,490	\$77,000	\$78,540	\$80,110	\$81,713	\$83,347	\$85,014	\$86,714
\$160,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
\$35,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
\$19,500	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
\$9,750	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
\$224,250	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
\$1,580,045	\$2,328,440	\$56,363	\$57,490	\$58,640	\$59,812	\$61,009	\$62,229	\$63,473	\$64,743	\$63,166	\$64,430	\$65,718	\$67,033	\$68,373	\$69,741	\$71,136	\$72,558	\$74,010	\$75,490	\$77,000	\$78,540	\$80,110	\$81,713	\$83,347	\$85,014	\$86,714
\$0	\$2,847	\$5,807	\$5,923	\$6,042	\$6,163	\$6,286	\$6,412	\$6,540	\$6,671	\$6,804	\$6,940	\$7,079	\$7,221	\$7,365	\$7,512	\$7,663	\$7,816	\$7,972	\$8,132	\$8,294	\$8,460	\$8,629	\$8,802	\$8,978	\$9,158	\$9,341
\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
\$0	\$839	\$1,711	\$1,746	\$1,781	\$1,816	\$1,853	\$1,890	\$1,927	\$1,966	\$2,005	\$2,045	\$2,086	\$2,128	\$2,171	\$2,214	\$2,258	\$2,303	\$2,349	\$2,396	\$2,444	\$2,493	\$2,543	\$2,594	\$2,646	\$2,699	\$2,753
\$0	\$612	\$1,249	\$1,274	\$1,300	\$1,326	\$1,352	\$1,379	\$1,407	\$1,435	\$1,464	\$1,493	\$1,523	\$1,553	\$1,584	\$1,616	\$1,649	\$1,681	\$1,715	\$1,749	\$1,784	\$1,820	\$1,856	\$1,894	\$1,931	\$1,970	\$2,010
\$0	\$4,446	\$9,071	\$9,252	\$9,437	\$9,626	\$9,818	\$10,015	\$10,215	\$10,419	\$10,628	\$10,840	\$11,057	\$11,278	\$11,504	\$11,734	\$11,969	\$12,208	\$12,452	\$12,701	\$12,955	\$13,214	\$13,478	\$13,741	\$14,023	\$14,304	\$14,590
\$0	\$10,151	\$20,709	\$21,123	\$21,545	\$21,976	\$22,416	\$22,864	\$23,321	\$23,788	\$24,264	\$24,749	\$25,244	\$25,749	\$26,264	\$26,789	\$27,325	\$27,871	\$28,429	\$28,997	\$29,577	\$30,169	\$30,772	\$31,387	\$32,015	\$32,656	\$33,309
\$0	\$210	\$428	\$436	\$454	\$464	\$472	\$482	\$491	\$501	\$511	\$522	\$532	\$543	\$553	\$565	\$576	\$587	\$599	\$611	\$623	\$636	\$649	\$661	\$675	\$688	\$698
\$0	\$4,594	\$9,371	\$9,558	\$9,750	\$9,945	\$10,143	\$10,346	\$10,553	\$10,764	\$10,980	\$11,199	\$11,423	\$11,652	\$11,885	\$12,122	\$12,365	\$12,612	\$12,864	\$13,122	\$13,384	\$13,652	\$13,925	\$14,203	\$14,487	\$14,777	\$15,073
\$0	\$1,594	\$3,252	\$3,317	\$3,383	\$3,451	\$3,520	\$3,590	\$3,662	\$3,735	\$3,810	\$3,886	\$3,964	\$4,043	\$4,124	\$4,207	\$4,291	\$4,376	\$4,464	\$4,553	\$4,644	\$4,737	\$4,832	\$4,929	\$5,027	\$5,128	\$5,230
\$689,400	\$629,748	\$79,903	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
\$689,400	\$655,041	\$131,501	\$52,630	\$53,683	\$54,756	\$55,852	\$56,969	\$58,108	\$59,270	\$60,455	\$61,665	\$62,898	\$64,156	\$65,439	\$66,748	\$68,083	\$69,444	\$70,833	\$72,250	\$73,695	\$75,169	\$76,672	\$78,206	\$79,770	\$81,365	\$82,992
\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
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\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
\$689,400	\$655,041	\$131,501	\$52,630	\$53,683	\$54,756	\$55,852	\$56,969	\$58,108	\$59,270	\$60,455	\$61,665	\$62,898	\$64,156	\$65,439	\$66,748	\$68,083	\$69,444	\$70,833	\$72,250	\$73,695	\$75,169	\$76,672	\$78,206	\$79,770	\$81,365	\$82,992
\$2,269,445	\$2,983,482	\$187,863	\$110,120	\$112,322	\$114,569	\$116,860	\$119,197	\$121,581	\$124,013	\$123,622	\$126,094	\$128,616	\$131,189	\$133,812	\$136,489	\$139,218	\$142,003	\$144,843	\$147,740	\$150,694	\$153,708	\$156,783	\$159,918	\$163,117	\$166,379	\$169,706

	Return	Ratio	B.T. Cost	A.T. Cost
Debt	5.800 %	56.00 %	0.0325	0.0325
Preferred	0.000 %	0.00 %	0.0000	0.0000
Common	9.210 %	44.00 %	0.0579	0.0405
TOTALS			9.037%	7.300%

H Incremental Capital Cost:

1. Conventional Q&M Costs:

[illegible]

Year	Jan-14	Jan-15	Jan-16	Jan-17	Jan-18	Jan-19	Jan-20	Jan-21	Jan-22	Jan-23	Jan-24	Jan-25	Jan-26	Jan-27	Jan-28	Jan-29	Jan-30	Jan-31	Jan-32	Jan-33	Jan-34	Jan-35	Jan-36	Jan-37	Jan-38	Jan-39	Jan-40	Jan-41
REVENUES:	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20	Year 21	Year 22	Year 23	Year 24	Year 25	Year 26	Year 27
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Revenue Requirement	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0																	

[illegible]

Yukon Electrical AMR Project
AMR Cost Impact

	Return	Ratio	B.T. Cost	A.T. Cost
Debt	5.800%	56%	0.0325	0.0325
Preferred	0.000%	0%	0.0000	0.0000
Common	9.210%	44%	0.0579	0.0405
Tax Rate	30.000%		9.037%	7.300%

CASH FLOWS SUMMARY:

Year		Revenue Requirements					Revenue Allowance	Surplus (Deficit)	CPV at 9.037%	Used Year
		Ratebase	Return	Dep'n	Inc. Tax	O&M				
0	Jan-14	0	0	0	0	689,400	0	(689,400)	(689,400)	0
1	Jan-15	790,022	57,675	56,329	13,721	655,041	0	(782,765)	(1,407,289)	1
2	Jan-16	2,666,108	194,564	194,038	46,286	131,501	0	(566,389)	(1,883,682)	2
3	Jan-17	3,612,462	263,724	275,420	62,739	52,630	0	(654,513)	(2,388,570)	3
4	Jan-18	3,365,224	245,675	277,429	58,445	53,683	0	(635,232)	(2,837,972)	4
5	Jan-19	3,116,540	227,520	279,479	54,126	54,756	0	(615,881)	(3,237,571)	5
6	Jan-20	2,866,381	209,257	281,569	49,782	55,852	0	(596,460)	(3,592,494)	6
7	Jan-21	2,614,718	190,885	283,701	45,411	56,969	0	(576,966)	(3,907,362)	7
8	Jan-22	2,361,521	172,400	285,876	41,014	58,108	0	(557,398)	(4,186,340)	8
9	Jan-23	2,106,759	153,802	288,095	36,589	59,270	0	(537,756)	(4,433,180)	9
10	Jan-24	1,850,401	135,087	290,358	32,137	60,455	0	(518,036)	(4,651,260)	10
11	Jan-25	1,592,415	116,253	292,666	27,656	61,665	0	(498,239)	(4,843,621)	11
12	Jan-26	1,331,332	97,193	294,918	23,122	62,898	0	(478,130)	(5,012,920)	12
13	Jan-27	1,068,629	78,014	297,215	18,559	64,156	0	(457,944)	(5,161,631)	13
14	Jan-28	804,274	58,715	299,557	13,968	65,439	0	(437,680)	(5,291,982)	14
15	Jan-29	538,233	39,293	285,216	9,348	66,748	0	(400,605)	(5,401,403)	15
16	Jan-30	287,204	20,967	262,030	4,988	68,083	0	(356,068)	(5,490,598)	16
17	Jan-31	60,044	4,383	62,529	1,043	69,444	0	(137,400)	(5,522,164)	17
18	Jan-32	33,083	2,415	35,618	575	70,833	0	(109,441)	(5,545,223)	18
19	Jan-33	33,744	2,463	36,330	586	72,250	0	(111,629)	(5,566,793)	19
20	Jan-34	34,419	2,513	37,057	598	73,695	0	(113,862)	(5,586,972)	20
21	Jan-35	35,107	2,563	37,798	610	75,169	0	(116,139)	(5,605,848)	21
22	Jan-36	35,810	2,614	38,554	622	76,672	0	(118,462)	(5,623,506)	22
23	Jan-37	36,526	2,667	39,325	634	78,206	0	(120,831)	(5,640,024)	23
24	Jan-38	37,256	2,720	40,111	647	79,770	0	(123,248)	(5,655,477)	24
25	Jan-39	38,001	2,774	40,913	660	81,365	0	(125,713)	(5,669,932)	25
26	Jan-40	38,761	2,830	41,732	673	0	0	(45,235)	(5,674,702)	26
27	Jan-41	39,537	2,886	42,566	687	0	0	(46,139)	(5,679,164)	27
28	Jan-42	40,327	2,944	43,418	700	0	0	(47,062)	(5,683,338)	28
29	Jan-43	(3,090)	(226)	(3,091)	(54)	0	0	3,371	(5,683,064)	29
30	Jan-44	1	0	0	0	0	0	(0)	(5,683,064)	30
31	Jan-45	1	0	0	0	0	0	(0)	(5,683,064)	31
32	Jan-46	1	0	0	0	0	0	(0)	(5,683,064)	32
33	Jan-47	1	0	0	0	0	0	(0)	(5,683,064)	33
34	Jan-48	1	0	0	0	0	0	(0)	(5,683,064)	34
35	Jan-49	1	0	0	0	0	0	(0)	(5,683,064)	35
36	Jan-50	1	0	0	0	0	0	(0)	(5,683,064)	36
37	Jan-51	1	0	0	0	0	0	(0)	(5,683,064)	37
38	Jan-52	1	0	0	0	0	0	(0)	(5,683,064)	38
39	Jan-53	1	0	0	0	0	0	(0)	(5,683,064)	39
40	Jan-54	1	0	0	0	0	0	(0)	(5,683,064)	40

Yukon Electrical AMR Project Conventional Meter Cost Impact

[illegible]

Yukon Electrical AMR Project Conventional Meter Cost Impact

[illegible]

Yukon Electrical AMR Project
Conventional Meter Cost Impact

	Return	Ratio	B.T. Cost	A.T. Cost
Debt	5.800%	56%	0.0325	0.0325
Preferred	0.000%	0%	0.0000	0.0000
Common	9.210%	44%	0.0579	0.0405
Tax Rate	###		9.037%	7.300%

CASH FLOWS SUMMARY:

		Revenue Requirements						Revenue	Surplus	CPV at	Used
Year		Ratebase	Return	Dep'n	Inc. Tax	O&M	Total	Allowance	(Deficit)	9.037%	Year
0	Jan-14	0	0	0	0	0	0	0	0	0	0
1	Jan-15	32,375	2,364	2,619	562	703,188	708,733	0	(708,733)	(649,992)	1
2	Jan-16	96,153	6,947	7,910	1,653	717,252	733,761	0	(733,761)	(1,267,163)	2
3	Jan-17	154,623	11,288	13,361	2,695	731,597	750,931	0	(750,931)	(1,852,599)	3
4	Jan-18	210,662	15,379	18,975	3,659	746,229	784,242	0	(784,242)	(2,407,419)	4
5	Jan-19	191,687	13,994	18,975	3,329	761,153	797,452	0	(797,452)	(2,924,825)	5
6	Jan-20	172,712	12,609	18,975	3,000	712,838	747,422	0	(747,422)	(3,369,578)	6
7	Jan-21	153,737	11,223	18,975	2,670	727,095	759,964	0	(759,964)	(3,784,314)	7
8	Jan-22	134,761	9,638	18,975	2,340	741,637	772,791	0	(772,791)	(4,171,096)	8
9	Jan-23	115,786	8,453	18,975	2,011	756,470	785,909	0	(785,909)	(4,531,842)	9
10	Jan-24	96,811	7,068	18,975	1,681	771,599	799,323	0	(799,323)	(4,868,337)	10
11	Jan-25	77,835	5,682	18,975	1,352	787,031	813,040	0	(813,040)	(5,182,238)	11
12	Jan-26	58,860	4,297	18,975	1,022	802,772	827,068	0	(827,068)	(5,475,069)	12
13	Jan-27	39,885	2,912	18,975	693	819,827	841,407	0	(841,407)	(5,748,325)	13
14	Jan-28	20,910	1,526	18,975	363	835,204	856,069	0	(856,069)	(6,003,282)	14
15	Jan-29	1,934	141	1,934	34	851,908	854,017	0	(854,017)	(6,236,547)	15
16	Jan-30	0	0	0	0	868,946	868,946	0	(868,946)	(6,454,218)	16
17	Jan-31	0	0	0	0	886,325	886,325	0	(886,325)	(6,657,841)	17
18	Jan-32	0	0	0	0	904,051	904,051	0	(904,051)	(6,848,323)	18
19	Jan-33	0	0	0	0	922,132	922,132	0	(922,132)	(7,026,511)	19
20	Jan-34	0	0	0	0	940,575	940,575	0	(940,575)	(7,193,199)	20
21	Jan-35	0	0	0	0	959,386	959,386	0	(959,386)	(7,349,129)	21
22	Jan-36	0	0	0	0	978,574	978,574	0	(978,574)	(7,494,995)	22
23	Jan-37	0	0	0	0	998,146	998,146	0	(998,146)	(7,631,448)	23
24	Jan-38	0	0	0	0	1,018,109	1,018,109	0	(1,018,109)	(7,759,094)	24
25	Jan-39	0	0	0	0	1,038,471	1,038,471	0	(1,038,471)	(7,878,501)	25
26	Jan-40	0	0	0	0	1,059,240	1,059,240	0	(1,059,240)	(7,990,203)	26
27	Jan-41	0	0	0	0	1,080,425	1,080,425	0	(1,080,425)	(8,094,695)	27
28	Jan-42	0	0	0	0	1,102,034	1,102,034	0	(1,102,034)	(8,192,443)	28
29	Jan-43	0	0	0	0	0	0	0	(0)	(8,192,443)	29
30	Jan-44	0	0	0	0	0	0	0	(0)	(8,192,443)	30
31	Jan-45	0	0	0	0	0	0	0	(0)	(8,192,443)	31
32	Jan-46	0	0	0	0	0	0	0	(0)	(8,192,443)	32
33	Jan-47	0	0	0	0	0	0	0	(0)	(8,192,443)	33
34	Jan-48	0	0	0	0	0	0	0	(0)	(8,192,443)	34
35	Jan-49	0	0	0	0	0	0	0	(0)	(8,192,443)	35
36	Jan-50	0	0	0	0	0	0	0	(0)	(8,192,443)	36
37	Jan-51	0	0	0	0	0	0	0	(0)	(8,192,443)	37
38	Jan-52	0	0	0	0	0	0	0	(0)	(8,192,443)	38
39	Jan-53	0	0	0	0	0	0	0	(0)	(8,192,443)	39
40	Jan-54	0	0	0	0	0	0	0	(0)	(8,192,443)	40



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Business Case #28

Fish Lake Water Licence Renewal

Title: Fish Lake Water Licence Renewal

Summary: Renewal of current water licence HY10-083 to operate Fish Lake hydro system.

Project Description: Yukon Electrical was granted water licence HY10-083 by the Yukon Water Board on September 1, 2011 expiring March 31, 2013 (subsequently extended to May 31, 2013). This licence grants Yukon Electrical the right to operate and maintain the Fish Lake hydro system. The licence enabled Yukon Electrical to conduct various environmental and hydrological studies and accumulate information to support its application for a 25-year water licence.

An application for a 25-year licence was submitted in December 2012 and a hearing before the Yukon Water Board was completed in March 2013. A decision from the Yukon Water Board is expected before the end of May 2013.

Project Cost:

2011 – \$491,000
2012 – \$688,000
2013 – \$650,000

Business and Technical Drivers

Business Drivers: A water licence is required to operate the Fish Lake hydro system. The primary operational objective for managing the Fish Lake hydro system is to efficiently store and release water to maximize the generation while also meeting the regulatory requirements included in a water licence.

Alternatives:

Alternative #1: Do not renew the water licence and submit a decommissioning plan for the Fish Lake hydro system to the Yukon Water Board for approval. Yukon Electrical would still need a water licence in place until the decommissioning of the Fish Lake hydro system is completed. Furthermore, with diesel on the margin, decommissioning the Fish Lake hydro system would not be prudent.

Alternative #2: Renew the Fish Lake water licence for 25 years.

Recommendation: Renew the water licence and continue to operate the Fish Lake hydro system.



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Business Case #29

Downtown Office Building Envelope Upgrades



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Title: **Downtown Office Building Envelope Upgrades**

Summary: This project will replace the exterior building envelope of Yukon Electrical's downtown office. The exterior upgrades are required to improve the energy efficiency of the building and create a more comfortable environment for staff and customers, as well as preventing further water damage and potential mold growth in the future.

Project Description: The Yukon Electrical downtown office was constructed in 1967 as a one storey building. A second storey was added in 1989 and the building has undergone only minor renovations since that time. Some work has been completed to more effectively utilize the interior of the building; however, the continued implementation of minor repairs to the exterior is not sustainable. In general, the exterior cladding and building envelope materials have reached their end of life. The exterior displays visible signs of deterioration and age. The building envelope has been compromised by moisture and air.

A Building Evaluation Report was prepared in Q4 2011 that recommends that upgrades be carried out to the exterior of the building to improve and update the overall integrity of the building. The upgrades will also improve the comfort level of the occupants and it is projected that these improvements will result in an annual reduction in energy costs of 20%.

This project will consist of the following steps:

1. Remove exterior siding;
2. Spray polyurethane insulation;
3. Add new wood sheathing;
4. Add new vapour permeable moisture barrier;
5. Add new expanded polystyrene insulation; and
6. Add new fibre-cement board siding.

Project Cost: 2013 - \$600,000

Business and Technical Drivers

Business Drivers:

- The changes to the exterior construction and increase in insulation will improve the quality and comfort of the building for the occupants. The occupants of the building currently experience cold walls and drafts, which result in the use of individual electric space heaters.
- The changes to the exterior construction and increase in insulation



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will also result in cost savings and environmental benefits due to a reduction in both electricity use and furnace fuel consumption.

- This project will improve the overall appearance of the building and ensure it remains fit for purpose. The current appearance of the building is rundown and unkempt. It is often negatively commented on by walk-in customer traffic.

Technical Drivers:

- The current structure of the walls fall well below the City of Whitehorse bylaw, which mandates an insulated wall value of R-28.
- The building envelope rehabilitation will also prevent further water staining, moisture damage and prevent possible health issues related to mold growth in future.

Alternatives:

Alternative #1: Leave the building as is. The building condition will continue to deteriorate and potential problems related to moisture damage and mold could occur in the near future.

Alternative #2: Sell the building as is and relocate to a different location, such as 205 Tungsten Road. High costs would be incurred to relocate Yukon Electrical's office.

Alternative #3: Make the improvements to the exterior of the building as recommended by the Building Evaluation Report.

Recommendation:

Make improvements to the exterior of the office building to improve the energy efficiency and comfort, as well as preventing any further deterioration that could lead to significant problems in the future.



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Appendix 1 – Photos of Downtown Office Building



Photo 1 – Missing section of vinyl siding (moisture staining on wood sheathing).



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Photo 2 – Missing section of vinyl siding exposing wood sheathing.



Photo 3 – Exterior Glulam beams at area of moisture leakage.



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**Photo 4 – Interior of Glulam beam at area of moisture leakage
(water staining on ceiling, wall and in light fixture).**



Photo 5 – Moisture damage on Glulam beams.



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Photo 6 – Missing battens around windows.



Photo 7 – Moisture staining on wood framing around window.



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Photo 8 – Wood trim in poor condition.



Photo 9 – Moss growth/moisture damage to wood trim/post.



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Photo 10 – Metal flashing sloping toward building allowing water to rest against wood trim.



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Business Case #30

Demand Side Management



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Title

Demand-side Management Program for Residential and General Service Electrical Customers

Summary:

Yukon Electrical, in partnership with Yukon Energy (YEC), has developed a five-year plan (2013-2018) to implement and measure demand-side management (DSM) programs for the Yukon that is being filed with this Application.

The development of the DSM plan (policy paper) is based in part on the direction of the Yukon Utilities Board (YUB) and to address the increased residential and general service electrical demand across the Yukon. The YUB, through orders 2009-2, 2009-8, and 2010-13, directed the utilities to *"consult with stakeholders and develop a policy paper as part of YECL's and YEC's next GRA. To be clear, YEC and YECL are to jointly lead these processes and jointly submit the policy papers (IPP and DSM) in their next GRA. The DSM policy papers are to provide DSM initiatives developed through negotiations with Intervenor and communities in its service territory and YEC's service territory."*

To develop a plan for the territory, Yukon Electrical and YEC formed a joint committee with additional representation from the Yukon Government (YG) to examine DSM. The joint committee determined that the required baseline data was not available to pursue a DSM plan. From January 2011 through to April 2012, Yukon Electrical, YEC and YG have worked cooperatively to develop the Conservation Potential Review (CPR) for the Yukon to determine the feasibility of DSM savings for ratepayers.

The CPR outlined that growth in the residential and commercial sector could increase by 65% over the next 20 years and that electricity conservation could provide up to 35% savings of the new growth. Based on this information it was deemed that DSM was a feasible new generation option, Yukon Electrical and YEC continued toward the development of the five-year DSM plan. This plan includes the following:

- Background;
- DSM Working Group Scope;
- Commitments to Efficiency;
- Roles and Responsibilities;
- Management Plan;
- Implementation; and



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- Accountability.

The plan was developed by the utilities in collaboration with interveners, Yukon NGOs, community leaders, First Nation governments and the general public.

Project Description:

Demand-side Management is described as a mechanism, or suite of options for reducing, shifting or reallocating electrical demand. These definitions and terms reflect the specific needs and priorities of a jurisdiction of a utility and range from “Energy Security” to “Conservation and Demand-side Management.” In the Yukon, Yukon Electrical and YEC define DSM as a shared goal to work together for sustainable and secure electricity supply in the Yukon in an economically and socially responsible manner.

The CPR identified that the growth of electricity consumption in the Yukon (if no new electricity conservation programs were undertaken) would increase from 2010 to 2030 by approximately 65 per cent. Additionally, the CPR identified that between 32 and 48 per cent of new growth could be met by electricity conservation/efficiency programs.

Yukon Electrical and YEC have committed to an electricity conservation target of 8.5GWh of sustained savings by the end of the fifth year of the established DSM programs. This goal was identified based on the results of the CPR.

To meet the identified goal, Yukon Electrical and YEC developed the five-year DSM plan. The first task in the planning process was to determine which of the several hundred technologies and measures analyzed in the CPR should provide the initial program focus. The following seven-step priority opportunities screening process was utilized:

1. The results for the residential and commercial sectors were sorted on the basis of the following criteria:
 - Measures providing the largest electricity savings potential by 2015 and by 2020;
 - Measures providing electricity savings at the lowest levelized cost; and
 - Measures providing electricity savings with the shortest customer payback



2. Based on the results of Step 1, individual measures were assigned priority, with highest priority assigned to those measures that provided the largest savings potential in the period at the lowest levelized cost of electricity under the total resource cost test.
3. Priority measures were grouped into 'opportunity areas,' as applicable, complementary measures with smaller saving potential and/or higher levelized costs of electricity were added to the applicable opportunity areas to increase participation in the overall portfolio of programs
4. The qualitative notes from CPR workshops attended by members of the Yukon public and local experts were reviewed to determine if participants had noted any compelling technology or market considerations, either positive or negative, that would potentially affect the priorities established.
5. A scan of DSM program experience in other jurisdictions was conducted with the objective of identifying potential program delivery experience that would affect the priorities established.
6. The estimated potential electricity savings were calculated, together with an approximate weighted average CCE (Cost of Conserved Electricity) for each opportunity area. The results were compared with the identified target.
7. A select number of opportunity areas were recommended for this initial set of DSM programs.

These processes resulted in the following identified opportunity areas:

Residential

- Appliances and lighting
- Relatively low-cost, easy-to-install measures including low flow showerheads and pipe insulation, programmable thermostats
- Technologies providing significant potential savings but requiring further performance proofing in Yukon conditions.
- New Home Construction



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Commercial

- Lighting including: LED, high performance T8, pulse start MH, high output T5
- Building optimization – operations and HVAC
- Refrigeration and computer equipment

In working towards a program design plan, detailed market research was employed focused on providing clarity around four areas:

1. Market Barriers – are there financial, informational, technical, etc., constraints that prohibit or restrict customer use of the technology or measure?
2. Market Structure – how do products and services get to the customer? What is the regulatory or policy context? Are there market drivers such as building codes or certifications?
3. Actors – who are the providers of the products, installation and services? Where are the decisions made and who are the key decision makers? What are the key decision criteria?
4. Baseline Conditions – What is the current practice regarding sales of electricity efficiency models? What are the trends?

Knowledge gained from the market research provided key design inputs into the program design. In addition, the collection of baseline data provides important inputs to the cost effectiveness testing that are critical to the program design process, and to the eventual program evaluation requirements. Program design is developed with the constraints of ensuring that the electricity savings are achieved in a cost-effective manner and with minimum impact on ratepayers and electricity rates.

Consistent with best practice program design principles, two broad solutions-based programs are presented with multiple elements: General Service Program and Residential Program. The objective is to offer customers a broad suite of options to meet their electricity management needs, rather than forcing customers to sort through a variety of individual programs.

The final component is the implementation plan, a full breadth of operation requirements to create the designed program's transactional and operational infrastructure to operate the DSM programs. The implementation plan includes several sub-plans as listed:



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1. Operation Plan – work plan to develop process flows, procedures, forms, etc. Develop guidelines for participants, delivery channels, trade allies, etc.
2. Human Resource Plan – staffing definitions, recruitment strategies, internal staff capability development.
3. Marketing & Communication Plan – communication strategy, key messages, plan for public relation activities, on-going market research activities to test effectiveness of the strategy.
4. Program Tracking System – terms of reference for the procurement of program tracking software and hardware for the development of an in-house system.
5. Financial Plan – detailed budgets including program costs forecast and incentive expenses forecast, updated cost-effectiveness tests.
6. Evaluation, Measurement and Verification Plans – description of program theory, program logic. Evaluation requirements for process, impact, market effect evaluations.

These components represent the five-year DSM plan for the Yukon and will deliver to the ratepayer a set of ready to launch programs for the General Service and Residential sectors designed to deliver the sustained savings target of 8.5GWh by the end of the five-year DSM program cycle.

*It should be noted that Yukon Electrical and YEC agreed that large industrial customers would be addressed separately from this five-year DSM program since it is more practical to work directly with these customers. However, savings resulting from Industrial programs conducted by either or both utilities will be calculated toward the goal of 8.5GWh by the end of the five-year DSM program cycle.

Project Cost:

2011 - \$204,000
2012 - \$143,000
2013 - \$135,000
2014 - \$522,000
2015 - \$730,000

Business and Technical Drivers

Business Drivers: The programs proposed will benefit residential and general service customers by reducing their electricity use and, in turn, reducing their electrical bills.

It also ensures that Yukon Electrical is providing tools for customers to educate themselves about electricity in the territory and help them to control their own consumption.

Technical Drivers: By reducing electricity consumption there is a reduced requirement to utilize diesel to meet the growing demand in the Yukon.

Additionally, the benefit in the off-grid communities is a reduced emissions impact on the environment.

Alternatives:

Alternative #1: Yukon Electrical can choose to participate in the programs only to the extent of the YUB order, which only extends to the development of a plan.

Alternative #2: Yukon Electrical can choose to continue to engage in information-only based DSM which has a much less effective rate and is not measurable.

Alternative #3: Yukon Electrical can singly pursue DSM, thus doubling Yukon Electrical's financial commitment to DSM.

Alternative #4: Yukon Electrical can pursue DSM initiatives in conjunction with YEC.

Recommendation: Yukon Electrical will pursue DSM initiatives jointly with YEC.