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BY COURIER

October 17, 2016

Ms. Kirsten Walli
Board Secretary
Ontario Energy Board
Suite 2700, 2300 Yonge Street
P.O. Box 2319
Toronto, ON, M4P 1E4

Dear Ms. Walli:

EB-2016-0160 – Hydro One Networks Inc.'s 2017 and 2018 Transmission Cost-of-Service Application – Disclosure of previously filed Confidential Materials

Reference is made to the Board's Decision on Confidentiality Request dated September 26, 2016 (the "Board Decision") in the above-noted proceeding.

In response to the Board Decision, please find enclosed the following documents:

- the *Fosters Associates 2014 Failure Analysis Report* provided in response to interrogatory I-1-20;
- a summary of actual results for Inergi's performance indicators, which include the monthly, quarterly and yearly measures, for the period from March 2015 to February 2016 provided in response to interrogatory I-1-118;
- the Inergi outsourcing agreement provided in response to I-2-11, redacted and provided as described in Hydro One's motion dated September 30, 2016 requesting review and variance of the Board Decision;
- a submission to Hydro One's Board of Directors regarding the 2017-2018 Transmission Application in response to interrogatory I-6-1;
- *Updated Discussion Notes – Preliminary CEO/CFO Pay Benchmarking* by Hugesson Consulting (April 2015), *Executive Compensation Benchmarking Report* by Towers Watson dated October 16, 2015, and *Non-executive Compensation Benchmarking Report* by Towers Watson dated October 16, 2015 provided in response to interrogatory I-6-57; and
- *Results and Analysis of Phase 1 Insulator Tests Performed in Support of Hydro One Insulator Replacement Program* and the *Galvatech Coating System Assessment – Aging Performance, Service Life and Evaluation of Field Applications* by EPRI provided in response to interrogatory I-9-6

This filing has been submitted electronically using the Board's Regulatory Electronic Submission System and two (2) hard copies will be sent via courier.

Sincerely,

ORIGINAL SIGNED BY ODED HUBERT

Oded Hubert

cc. Parties to EB-2016-0160 (electronic only)

Encls.

2014
Asset Failure Analysis

foster associates

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Fort Myers, Florida 33908
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Ronald E. White, Ph.D.
Chairman

August 19, 2014

Mr. Bruno Jesus
Manager Asset Strategies
HYDRO ONE NETWORKS INC.
483 Bay Street, 14th Floor
Toronto, ON M5G 2P5

RE: 2014 Asset Failure Analysis

Dear Mr. Jesus:

Foster Associates is pleased to submit our report of a 2014 Asset Failure Analysis for Hydro One Networks Inc. This report presents the results of our analysis of physical and inspection failures observed in selected plant categories using the Iowa curve family to validate studies conducted by Hydro One using the Weibull statistical distribution function.

Section I provides an overview of our investigation and a discussion of the statistical techniques employed in the analysis. The principal findings are summarized in Section II including a description of the data sets analyzed, the recorded failures over the observation period, the full band censoring, Weibull parameters estimated by Hydro One and the projection life and Iowa curve Foster Associates would select based solely on a consideration of the statistical analysis conducted for each data set. Section III contains the actuarial service life analysis for each data set as described in Section I.

We wish to express our appreciation for the opportunity to again be of service to Hydro One and for the able assistance and cooperation provided by your staff. We would be pleased to discuss the study with you or others at your convenience.

Respectfully submitted,
FOSTER ASSOCIATES, INC.
by

Ronald E. White, Ph.D.
Chairman

REW:ml

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August 2014

Executive Summary

EXECUTIVE SUMMARY

INTRODUCTION

This report presents a 2014 statistical analysis of physical and inspection failures observed in selected plant categories classified in Transmission Lines, Transmission Stations and Distribution Lines owned and operated by Hydro One Networks Inc. (Company or Hydro One). Foster Associates was requested by the Company to conduct the analysis using the Iowa curve family to validate studies conducted by Hydro One using the Weibull statistical distribution function.

Physical failures are defined as the removal of plant no longer providing intended services. Causes of physical failures with near immediate removal include deterioration, wear and tear, actions of the elements, accidents and obsolescence. Inspection failures (*e.g.*, distribution wood poles) are defined as plant tagged for eventual physical removal and/or replacement by failing to pass service criteria inspections.

It is important to emphasize that this study does not provide a prediction of the mean or expected age of future failures. The investigation provides a mathematical description of forces of failure observed in the past and an estimate of the mean age of reported failures. This distinction is often described by a two–step procedure for estimating the mortality characteristics of a plant category. The first step (called *life analysis*) is largely mechanical and primarily concerned with history. Statistical techniques are used in this step to obtain a mathematical description of the forces of retirement acting upon a plant category and an estimate of the *projection life* descriptive of the parent population from which a plant category is viewed as a random sample.

The second step (called *life estimation*) is concerned with predicting the expected remaining life of property units still exposed to forces of retirement. It is a process of blending the results of a life analysis with informed judgment (including expectations about the future) to obtain an appropriate projection life and curve descriptive of the population exposed to retirement. The amount of weight given to a life analysis will depend upon the extent to which past retirement experience is considered descriptive of the future. The scope of the current investigation was limited to a life analysis of the subject properties.

THE WEIBULL DISTRIBUTION AND THE IOWA CURVE FAMILY

The Weibull distribution function is prominent in the statistical analysis of asset lives because of its versatility in modeling various modalities of asset failure and its ability to replicate other distributions such as the Negative Exponential, the Rayleigh, or the normal distribution. The function's three–parameter definition offers an unlimited set of estimation possibilities. That advantage, however, is offset by the lack of a simplified classification of parameters to model common sets of service life scenarios such as that available in the Iowa Curve family.

Developed at Iowa State University, the Iowa curve family is a set of 31 distributions defined by the location of the mode relative to the mean (left, center, and right of the mean, depicted as L, S, and R respectively) and the height of the mode. This classification and finite set of distributions offers the Iowa curve family a level of usability unavailable with other statistical functions such as the Weibull distribution. Although a more detailed discussion of the Iowa curve family and the Weibull distribution function is beyond the scope of this report, it has been shown that the Weibull distribution offers an acceptable approximation to the Iowa curve family and that there exists a bounded range of values of the Weibull shape parameter which should be considered in such approximations.[1]

ANALYSIS

Thirty–two data sets were initially provided to Foster Associates by Hydro One. Twenty–nine of the data sets included physical failures and age distributions of survivors at December 31, 2013. Two of the remaining three data sets (*i.e.*, Transmission Steel Structures, and Transmission Wood Poles) included age distributions of surviving plant and physical failures identified only by age and not by vintage year of placement.[2] The remaining data set (*i.e.* Distribution Wood Poles) contained inspection failures and age distributions of survivors at December 31, 2013. Five of the thirty–two physical failure data sets were combined with related sets to provide a more consistent comparison with the Weibull distribution analysis conducted by Hydro One in 2010. This report, therefore, contains an analysis of twenty–seven data sets and one additional set subsequently provided to identify physical failures of distribution poles rather than pole inspection failures.

Distribution pole inspection failures reported by Hydro One were obtained from inspections conducted in six geographical regions using a six–year cycle such that every pole is inspected at least once in six years. A failure through inspection is defined as a pole "not satisfying full service criteria." This definition of failure does not mean that a pole is retired from service. Nor does the data provided include pole retirements from non–inspection events such as storms, accidents, road construction, and normal pole failure unrelated to that observed during inspections. Accordingly, an inspection failure means that the pole is a candidate for physical retirement which could occur at a later date. The measured "service life" statistic for inspection failure, therefore, is the average age at which a pole is considered a candidate for retirement.

Further discussion with Hydro One concerning the desirability of obtaining a statistic descriptive of Distribution wood pole physical failures resulted in Hydro

[1]Kateregga, Kimbugwe A., "Equipment Lives", M.Sc. Thesis, University College of Swansea, University of Wales, 1981.

[2]Data provided subsequently by Hydro One identified the vintage year of placement and permitted all data sets to be analyzed similarly.

One providing Foster Associates data on physical removals. The available information, however, was limited to the age distribution of survivors at mid–year 2011 and mid–year 2014. Foster Associates used the two age distributions to derive implied physical failures distributed evenly among the three years.

The conventional treatment of plant additions and retirements in conducting a statistical analysis of physical property is to assume that such activity occurs at the mid–point of a calendar year (*i.e.*, July 1). Using this so–called "half–year convention" required that 2011 survivors be positioned at December 31, 2011 and retirements at mid–year 2012, 2013 and 2014. The bias, if any, introduced by this assumption would be ± six months added to a mean service life estimated in years. Any bias introduced by the half–year convention, however, would be small in relation to the assumed uniform distribution of retirements within the three–year interval between 2011 and 2014.

The first step in an actuarial analysis involves a systematic treatment of the available data for the purpose of constructing an observed life table. A complete life table contains the life history of a group of property units installed during the same accounting period and various probability relationships derived from the data. A life table is arranged by age–intervals (usually defined as one year) and shows the number of units (or dollars) entering and leaving each age–interval and probability relationships associated with this activity. A life table minimally shows the age of each survivor and the age of each failure or retirement from a group of units installed in a given accounting year.

A life table can be constructed in any one of at least five methods. The annual–rate or retirement–rate method was used in this study for the 29 data sets for which vintaged physical failures were initially available.[3] The mechanics of the annual–rate method require the calculation of a series of ratios obtained by dividing the number of units (or dollars) surviving at the beginning of an age interval into the number of units (or dollars) retired during the same interval. This ratio (called a "retirement ratio") is an estimator of the hazard rate or conditional probability of retirement during an age interval given survival to the beginning of the age interval. The cumulative proportion surviving is obtained by multiplying the retirement ratio for each age interval by the proportion of the original group surviving at the beginning of that age interval and subtracting this product from the proportion surviving at the beginning of the same interval. The annual–rate method is applied to multiple groups or vintages by combining the retirements and/or survivors of like ages for each vintage included in the analysis.

Construction of life tables for the three data sets for which vintage identifica-

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[3]Winfrey, Robley. Statistical Analyses of Industrial Property Retirements. Iowa State University Engineering Research Institute Bulletin 125, revised edition. 1967, p. 27.

tion of retirements was not initially provided was achieved using the individual–unit method.[4] The data consisted of the age (in years) and the number of property units retired at each age. The number of property units surviving at each consecutive age was obtained from a reverse cumulative summation of the retirements, assuming the oldest retirement was recorded in 2013. The earliest vintage year was derived as the difference between 2013 and the age of the oldest retirement. The individual–unit method produces a single vintage with zero censoring that can be analyzed using the same statistical techniques as applied to a life table constructed from the annual–rate method.[5]

After conducting a preliminary analysis of the three accounts using the individual–unit method, Hydro One collected additional data to identify vintage years and permit application of the annual–rate method. Vintaged transactions were subsequently provided to allow observed life tables to be constructed for all twenty–seven data sets using the annual–rate method.

The second step in an actuarial analysis involves graduating or smoothing the observed life table and fitting the smoothed series to a family of survival functions. The functions used in this study are the Iowa–type curves which are mathematically described by the Pearson frequency curve family. The observed life table was smoothed by a weighted least–squares procedure in which first, second and third degree orthogonal polynomials were fitted to the observed retirement ratios.[6] The resulting function can be expressed as a survivorship function which is numerically integrated to obtain an estimate of the projection life. The smoothed survivorship function is then fitted by an unweighted least–squares procedure to the Iowa–curve family to obtain a mathematical description or classification of the dispersion characteristics of the data. A minimum sum of squares criterion is used to identify the "best fitting" Iowa curve.

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[4]*Ibid.* p. 19.

[5]A life table is considered *censored* when the observed proportion surviving in the last age interval is greater than zero percent. Statistical inferences drawn from heavily censored life tables are less meaningful than inferences drawn from lightly censored tables in which the observed proportion surviving is approaching zero percent.

[6]Weighting is used in the polynomial linear regression to address the non–constant variance of hazard rates over the span of observations. Although unweighted and other weighting schemes such as inverse of age or inverse of variance can be used, exposure weighting was used in this study to simplify an understanding of how the weight given to successive retirement ratios was reduced over increasing age–intervals. The weights constitute the diagonal of a weight matrix used in estimating the parameters of the assumed polynomial equation. R. A. Fisher's adaptation of the orthogonal polynomials of Tchebycheff was used to reduce the computational time in a multiple regression analysis. Coefficients of successively higher degree polynomials can be estimated without re–estimating the coefficients of each lower degree term.

The set of computer programs used in this analysis provides multiple rolling–band, shrinking–band, and progressive–band analyses of an account. Observation bands are defined in terms of a "retirement era" that restricts the analysis to the retirement activity of all vintages represented by survivors at the beginning of a selected era. In a rolling–band analysis, a year of retirement experience is added to each successive retirement band and the earliest year from the preceding band is dropped. A shrinking–band analysis begins with the total retirement experience available and the earliest year from the preceding band is dropped for each successive band. A progressive–band analysis adds a year of retirement activity to a previous band without dropping earlier years from the analysis. Rolling, shrinking and progressive band analyses are used to detect the emergence of trends in the behavior of the dispersion and projection life.

Options available in the actuarial life–analysis program developed by Foster Associates include the width and location of both placement and observation bands; the interval of years included in a selected band analysis; the estimator of the hazard rate (actuarial, conditional proportion retired, or maximum likelihood); the elements to include on the diagonal of a weight matrix (exposures, inverse of age, inverse of variance, or unweighted); and the age at which an observed life table is truncated. The program also provides tabular and graphics output as an aid in the analysis.

A standard analysis using rolling, shrinking, and progressive bands was conducted for each data set. Underlying observed life tables were developed and analyzed using the proportion retired as the estimator of the hazard rates and exposures as weights. The scope of this engagement did not permit an extension of the analysis to alternative estimators of hazard rates such as the actuarial or maximum likelihood or to other weighting options such as inverse of age or inverse of variance.

SUMMARY AND RECOMMENDATIONS

The principal findings of the Hydro One Networks 2014 Asset Failure Analysis are summarized in Section II of this report. The section contains a table (page 9) showing a description of the data sets analyzed (Column A), the number of units surviving at December 31, 2013 (Column B), the recorded failures over the observation period (Column C), the full band censoring (Column D), Weibull parameters estimated by the Company in a 2010 analysis (Columns E, F, and G) and the projection life and Iowa curve (Column H) Foster Associates would select based solely on a consideration of the rolling band, shrinking band, progressive band, and graphical analysis conducted for each data set.

Actuarial service life analyses (Schedules A–E) are provided in Section III for each data set. Although a single observed life table, a single graphics analysis plot, and a single polynomial hazard function plot are provided, Foster Associates' selection was based upon an analysis of numerous trials and windows on the available data. The number of trials was dictated by the number of years in the observation band. The 1980–2013 observation band in the 115kV Breakers dataset, for example, yielded 30 five–year rolling bands, 17 two–year shrinking bands, and 17 two–year progressive bands. Each trial indicated a separate dispersion and average service life for the 1st, 2nd, and 3rd degree polynomial graduations. In most cases, however, the selected parameters are reflective of the full band analysis.

As noted earlier, the 2014 Failure Analysis does not provide a prediction of the mean or expected age of future failures. The study was undertaken to compare service life indications derived using the Iowa curve family with indications derived by Hydro One using the Weibull survival function. Absent further investigation, it cannot be concluded that future forces of asset failures will be identical to those observed in the past or the response to such forces will be described by statistics derived from an analysis of historical failures. The scope of the current investigation was limited to a statistical *life analysis* without consideration of the elements of *life estimation.*

SECTION II

Analysis

ANALYSIS

INTRODUCTION

This section provides an explanation of the supporting schedules developed in the Hydro One Networks Asset Failure Analysis. Supporting schedules include:

Schedule A – Observed Life Table;

Schedule B – Actuarial Life Analysis;

Schedule C – Graphics Analysis;

Schedule D – Polynomial Hazard Function; and

Schedule E – Selected Projection Life Curve;

The format and content of these schedules are briefly described below.

SCHEDULE A – OBSERVED LIFE TABLE

This schedule provides a tabulation of retirements, exposures, conditional proportion retired (retirement ratio), conditional proportion surviving (survivor ratio), and cumulative proportion surviving at consecutive ages for a selected placement and observation band. The conditional proportion retired is an estimator of the hazard rate for an age interval.

SCHEDULES B – ACTUARIAL LIFE ANALYSIS

These schedules provide a summary of the dispersion and life indications obtained from an actuarial life analysis for a specified placement band. The observation band (Column A) is specified to produce a rolling–band (Schedule B1), shrinking–band (Schedule B2), or progressing–band (Schedule B3) analysis depending upon the movement of the end points of the band.

The degree of censoring (or point of truncation) of the observed life table is shown in Column B for each observation band. The estimated average service life, best fitting Iowa dispersion, and a statistical measure of the goodness of fit are shown for each degree polynomial (First, Second, and Third) fitted to the estimated hazard rates. Options available in the analysis include the width and location of both the placement and observation bands; the interval of years included in a selected rolling, shrinking, or progressive band analysis; the estimator of the hazard rate (actuarial, conditional proportion retired, or maximum likelihood); the elements to include on the diagonal of a weight matrix (exposures, inverse of age, inverse of variance, or unweighted); and the age at which an observed life table is truncated.

Estimated projection lives (Columns C, F, and I) are flagged with an asterisk if negative hazard rates are indicated by the fitted polynomial. All negative hazard rates are set equal to zero in the calculation of the graduated survivor curve. The Conformance Index (Columns E, H, and K) is the square root of the mean sum–of–squared differences between the graduated survivor curve and the best fitting Iowa curve. A Conformance Index of zero would indicate a perfect fit.

SCHEDULE C – GRAPHICS ANALYSIS

This schedule provides a graphics plot of a) the observed proportion surviving for a selected placement and observation band; and b) the statistically best fitting Iowa dispersions and respective average service lives derived from the 1st, 2nd and 3rd degree polynomial hazard functions. The estimator of the hazard rates and weighting used in fitting orthogonal polynomials to the observed hazard rates are displayed in the title block of the displayed graph.

SCHEDULE D – POLYNOMIAL HAZARD FUNCTION

This schedule provides a plot of the observed hazard rates and the graduated 1st, 2nd and 3rd degree polynomial hazard function for a selected placement and observation band. The estimator of the hazard rates and weighting used in fitting orthogonal polynomials to the observed data are displayed in the title block of the displayed graph.

SCHEDULE E – ESTIMATED PROJECTION LIFE CURVE

This schedule provides a plot of the projection curve and projection life considered a reasonable descriptor of future forces of mortality in relation to the observed proportion surviving for a selected placement and observation band.

HYDRO ONE NETWORKS INC.
Comparative Summary
December 31, 2013

	Account Description	12/31/2013 Survivors	Observed Failures	Censoring (%)	2010 Weibull Parameters β	η	μ	Iowa Curve
	A	B	C	D	E	F	G	H
Distribution Lines								
DLDXPOLES1	Poles - Inspection Failures	1,455,349	64,987	55.1				100-S0
DLDXPOLES2	Poles - Physically Removed	1,438,512	53,542	22.6				57-SC
Transmission Lines								
TLOHLINES	Overhead Lines (in Meters)	21,854,370	3,072,283	43.6	11.6	87.4	83.7	88-S3
TLSTSTRCT	Steel Structures	48,548	588	97.2				100-R5
TLUGCABLE	Underground Cables (in Meters)	237,000	28,600	21.7	10.4	59.3	56.5	55-R4
TLWDPOLES	Wood Poles	36,395	9,089	48.8	13.5	63.1	60.7	90-S1
Transmission Stations								
TS050BRKX	50kV Breakers	2,607	1,022	19.3	5.1	56.0	50.3	53-R1.5
TS050CONA	50kV Conventional and Metalclad Air Breakers	285	163	0.0	8.1	59.5	55.9	47-S2
TS050CONO	50kV Conventional Oil Breakers	1,327	602	22.0	5.9	59.3	53.0	57-R2.5
TS050CONS	50kV Conventional and Metalclad SF6 Breakers	756	234	44.5	4.2	32.7	29.7	30-R3
TS050CONV	50kV Conventional and Metalclad Vacuum Breakers	239	23	37.3	7.6	23.0	20.8	25-R3
TS115BRKX	115kV Breakers	743	449	14.7	6.5	63.6	54.0	50-S1
TS115CONO	115kV Conventional Oil Breakers	307	381	18.2	7.6	64.4	56.3	56-L3
TS115CONS	115kV Conventional SF6 Breakers	436	68	2.4	5.0	37.1	34.0	25-R3
TS230BRKX	230kV Breakers	705	357	3.6	7.9	47.1	44.4	40-R2
TS230CONA	230kV Conventional Air Breakers	134	119	42.0	13.7	44.7	43.1	43-R4
TS230CONO	230kV Conventional Oil Breakers	182	146	4.3	7.1	50.7	47.5	46-L3
TS230CONS	230kV Conventional and GIS SF6 Breakers	389	92	53.4	1.6	73.9	25.7	42-L0
TS500BRKX	500kV Breakers	238	75	37.7	10.3	38.9	37.1	35-R1
TS500CONA	500kV Conventional Air Breakers	56	25	44.8	7.6	41.3	39.0	45-L2
TS500CONS	500kV Conventional and GIS SF6 Breakers	182	50	56.3	4.8	28.6	26.2	33-R1
TSAUTOTRN	Auto Transformers	151	39	54.3	4.6	58.2	53.2	75-L0
TSCAPACIT	Capacitors	349	77	32.2	2.2	27.2	24.0	45-L1
TSHVSDTRN	HV Stepdown Transformers	621	277	9.6	5.2	58.5	53.9	54-R1.5
TSLVSDTRN	LV Stepdown Transformers	6	5	28.6	10.2	63.0	60.0	45-L1
TSREACTOR	Reactors	509	49	0.0	2.6	42.6	35.5	35-R1
TSREGLTRN	Regulating Transformers	20	39	20.2	5.2	53.2	49.0	45-R3
TSSWITCHX	Switches	7,601	1,025	0.0	7.9	83.2	21.3	33-R0.5

SECTION III

Supporting Schedules

Schedule A

HYDRO ONE NETWORKS INC.

Distribution Lines

Account: DXPOLES1 Poles - Inspection Failures

Placement Band: 1929 - 2013
Observation Band: 2005 - 2013

Observed Life Table

Age at Beginning of Interval	Exposures	Retirements	Conditional Proportion Retired	Conditional Proportion Surviving	Cumulative Proportion Surviving
A	B	C	D=C/B	E=1-D	F
0.0	94,834	282	0.00297	0.99703	1.00000
0.5	110,112	123	0.00112	0.99888	0.99703
1.5	122,016	112	0.00092	0.99908	0.99591
2.5	130,254	122	0.00094	0.99906	0.99500
3.5	135,120	242	0.00179	0.99821	0.99407
4.5	127,044	342	0.00269	0.99731	0.99229
5.5	130,791	562	0.00430	0.99570	0.98961
6.5	128,051	616	0.00481	0.99519	0.98536
7.5	122,531	636	0.00519	0.99481	0.98062
8.5	120,712	613	0.00508	0.99492	0.97553
9.5	116,019	830	0.00715	0.99285	0.97058
10.5	110,734	603	0.00545	0.99455	0.96364
11.5	109,421	280	0.00256	0.99744	0.95839
12.5	115,656	433	0.00374	0.99626	0.95594
13.5	128,336	357	0.00278	0.99722	0.95236
14.5	156,226	413	0.00264	0.99736	0.94971
15.5	172,420	525	0.00304	0.99696	0.94720
16.5	189,062	405	0.00214	0.99786	0.94431
17.5	214,311	311	0.00145	0.99855	0.94229
18.5	245,006	408	0.00167	0.99833	0.94092
19.5	268,734	673	0.00250	0.99750	0.93936
20.5	283,075	524	0.00185	0.99815	0.93700
21.5	277,948	556	0.00200	0.99800	0.93527
22.5	291,279	540	0.00185	0.99815	0.93340
23.5	273,197	650	0.00238	0.99762	0.93167
24.5	280,238	661	0.00236	0.99764	0.92945
25.5	275,017	715	0.00260	0.99740	0.92726
26.5	265,490	818	0.00308	0.99692	0.92485
27.5	244,796	810	0.00331	0.99669	0.92200
28.5	237,893	867	0.00364	0.99636	0.91895
29.5	237,995	957	0.00402	0.99598	0.91560
30.5	247,801	1,038	0.00419	0.99581	0.91192
31.5	235,029	1,097	0.00467	0.99533	0.90810
32.5	238,332	1,368	0.00574	0.99426	0.90386
33.5	223,837	1,261	0.00563	0.99437	0.89867
34.5	226,127	1,297	0.00574	0.99426	0.89361
35.5	218,164	1,094	0.00501	0.99499	0.88848

Schedule A

HYDRO ONE NETWORKS INC.

Distribution Lines

Account: DXPOLES1 Poles - Inspection Failures

Placement Band: 1929 - 2013
Observation Band: 2005 - 2013

Observed Life Table

Age at Beginning of Interval	Exposures	Retirements	Conditional Proportion Retired	Conditional Proportion Surviving	Cumulative Proportion Surviving
A	B	C	D=C/B	E=1-D	F
36.5	222,847	1,301	0.00584	0.99416	0.88403
37.5	216,681	1,366	0.00630	0.99370	0.87886
38.5	211,168	1,236	0.00585	0.99415	0.87332
39.5	206,634	1,161	0.00562	0.99438	0.86821
40.5	201,714	1,150	0.00570	0.99430	0.86333
41.5	188,512	1,204	0.00639	0.99361	0.85841
42.5	185,604	1,101	0.00593	0.99407	0.85293
43.5	176,688	1,186	0.00671	0.99329	0.84787
44.5	180,890	1,141	0.00631	0.99369	0.84218
45.5	177,082	1,380	0.00779	0.99221	0.83687
46.5	187,915	1,452	0.00773	0.99227	0.83035
47.5	192,585	1,396	0.00725	0.99275	0.82393
48.5	194,113	1,386	0.00714	0.99286	0.81796
49.5	209,489	1,562	0.00746	0.99254	0.81212
50.5	221,906	1,592	0.00717	0.99283	0.80606
51.5	229,771	1,491	0.00649	0.99351	0.80028
52.5	238,953	1,486	0.00622	0.99378	0.79509
53.5	251,971	1,850	0.00734	0.99266	0.79014
54.5	259,333	1,870	0.00721	0.99279	0.78434
55.5	268,762	1,951	0.00726	0.99274	0.77868
56.5	290,160	2,203	0.00759	0.99241	0.77303
57.5	272,566	2,049	0.00752	0.99248	0.76716
58.5	249,696	2,050	0.00821	0.99179	0.76139
59.5	228,166	1,578	0.00692	0.99308	0.75514
60.5	201,688	1,384	0.00686	0.99314	0.74992
61.5	175,804	1,284	0.00730	0.99270	0.74478
62.5	140,782	908	0.00645	0.99355	0.73934
63.5	112,029	569	0.00508	0.99492	0.73457
64.5	73,583	658	0.00894	0.99106	0.73084
65.5	25,962	148	0.00570	0.99430	0.72430
66.5	19,611	199	0.01015	0.98985	0.72017
67.5	9,816	176	0.01793	0.98207	0.71286
68.5	2,756	77	0.02794	0.97206	0.70008
69.5	2,600	43	0.01654	0.98346	0.68052
70.5	2,522	85	0.03370	0.96630	0.66927
71.5	2,430	21	0.00864	0.99136	0.64671
72.5	2,269	30	0.01322	0.98678	0.64112

Schedule A

HYDRO ONE NETWORKS INC.

Distribution Lines

Account: DXPOLES1 Poles - Inspection Failures

Placement Band: 1929 - 2013
Observation Band: 2005 - 2013

Observed Life Table

Age at Beginning of Interval	Exposures	Retirements	Conditional Proportion Retired	Conditional Proportion Surviving	Cumulative Proportion Surviving
A	B	C	D=C/B	E=1-D	F
73.5	2,032	28	0.01378	0.98622	0.63265
74.5	1,397	8	0.00573	0.99427	0.62393
75.5	1,475	31	0.02102	0.97898	0.62036
76.5	1,248	29	0.02324	0.97676	0.60732
77.5	707	14	0.01980	0.98020	0.59321
78.5	299	7	0.02341	0.97659	0.58146
79.5	212	2	0.00943	0.99057	0.56785
80.5	178	2	0.01124	0.98876	0.56249
81.5	159	0	0.00000	1.00000	0.55617
82.5	145	0	0.00000	1.00000	0.55617
83.5	109	1	0.00917	0.99083	0.55617
84.5	0	0	0.00000	1.00000	0.55107

Schedule B1

HYDRO ONE NETWORKS INC.

Distribution Lines

Account: DXPOLES1 Poles - Inspection Failures

T-Cut: None

Placement Band: 1929-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Rolling Band Life Analysis

Observation Band	Censoring	First Degree			Second Degree			Third Degree		
		Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index
A	B	C	D	E	F	G	H	I	J	K
2005-2009	36.7	96.3	L1 *	6.42	93.8	L1.5	6.27	120.0	SC *	6.57
2006-2010	41.3	98.3	L1 *	5.86	96.5	L1.5	5.75	133.0	SC *	6.25
2007-2011	53.9	108.7	L1	3.74	106.0	L1	3.62	152.3	SC *	4.68
2008-2012	60.7	116.8	S0	3.07	109.1	S0	2.74	157.6	R0.5 *	3.85
2009-2013	62.0	117.0	S-.5	2.50	96.7	R1	1.50	146.4	SC *	1.98

Schedule B2

HYDRO ONE NETWORKS INC.

Distribution Lines

Account: DXPOLES1 Poles - Inspection Failures

T-Cut: None
Placement Band: 1929-2013
Hazard Function: Proportion Retired
Weighting: Exposures

Shrinking Band Life Analysis

Observation Band	Censoring	First Degree Average Life	First Degree Disper-sion	First Degree Conf. Index	Second Degree Average Life	Second Degree Disper-sion	Second Degree Conf. Index	Third Degree Average Life	Third Degree Disper-sion	Third Degree Conf. Index
A	B	C	D	E	F	G	H	I	J	K
2005-2013	55.1	106.7	L0.5	2.83	99.1	S0	2.39	144.6	SC *	3.34
2007-2013	56.7	109.5	S-.5	2.87	98.5	S0	2.28	145.4	SC *	3.16
2009-2013	62.0	117.0	S-.5	2.50	96.7	R1	1.50	146.4	SC *	1.98
2011-2013	64.4	127.4	SC	3.39	92.2	R1	2.04	140.1	SC *	1.89
2013-2013	40.6	102.8	O3	8.78	69.4	SC	5.78	108.7	O3 *	5.69

HYDRO ONE NETWORKS INC.

Distribution Lines

Account: DXPOLES1 Poles - Inspection Failures

T-Cut: None
Placement Band: 1929-2013
Hazard Function: Proportion Retired
Weighting: Exposures

Progressing Band Life Analysis

		First Degree			Second Degree			Third Degree		
Observation Band	Censoring	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index
A	B	C	D	E	F	G	H	I	J	K
2005-2006	38.5	96.9	L1.5 *	5.31	91.5	S0.5	5.03	83.1	R2 *	4.61
2005-2008	35.2	95.5	L1 *	6.36	93.5	L1.5	6.25	92.0	L1.5 *	6.22
2005-2010	40.1	98.9	L1 *	5.98	97.0	L1.5	5.87	132.0	SC *	6.34
2005-2012	55.1	107.6	L1	3.07	106.8	L1	3.04	151.6	SC *	4.23
2005-2013	55.1	106.7	L0.5	2.83	99.1	S0	2.39	144.6	SC *	3.34

Schedule C

HYDRO ONE NETWORKS INC.

Distribution Lines

Account: DXPOLES1 Poles - Inspection Failures

T-Cut: None

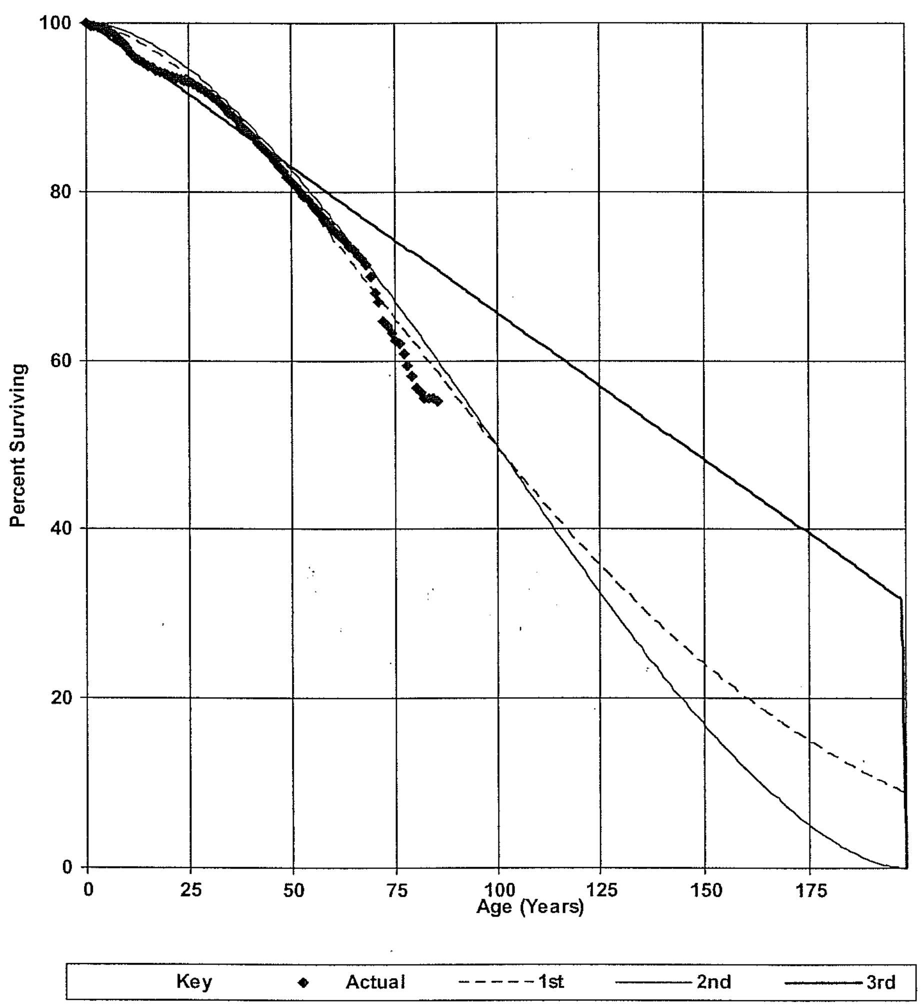
Placement Band: 1929-2013 Observation Band: 2005-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Graphics Analysis

1st: 106.7-L0.5 2nd: 99.1-S0 3rd: 144.6-SC



Schedule D

HYDRO ONE NETWORKS INC.

Distribution Lines

Account: DXPOLES1 Poles - Inspection Failures

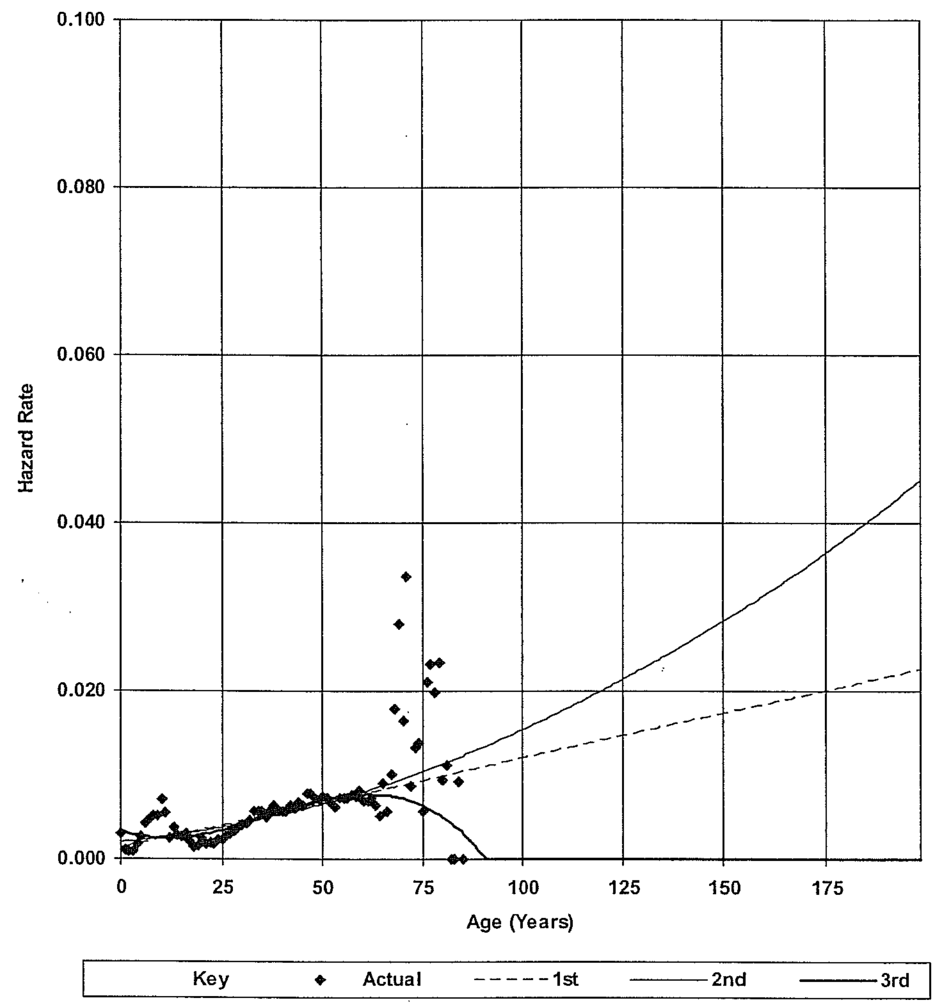
T-Cut: None

Placement Band: 1929-2013 Observation Band: 2005-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Polynomial Hazard Function 1st: 106.7-L0.5 2nd: 99.1-S0 3rd: 144.6-SC



Schedule E

HYDRO ONE NETWORKS INC.

Distribution Lines

Account: DXPOLES1 Poles - Inspection Failures

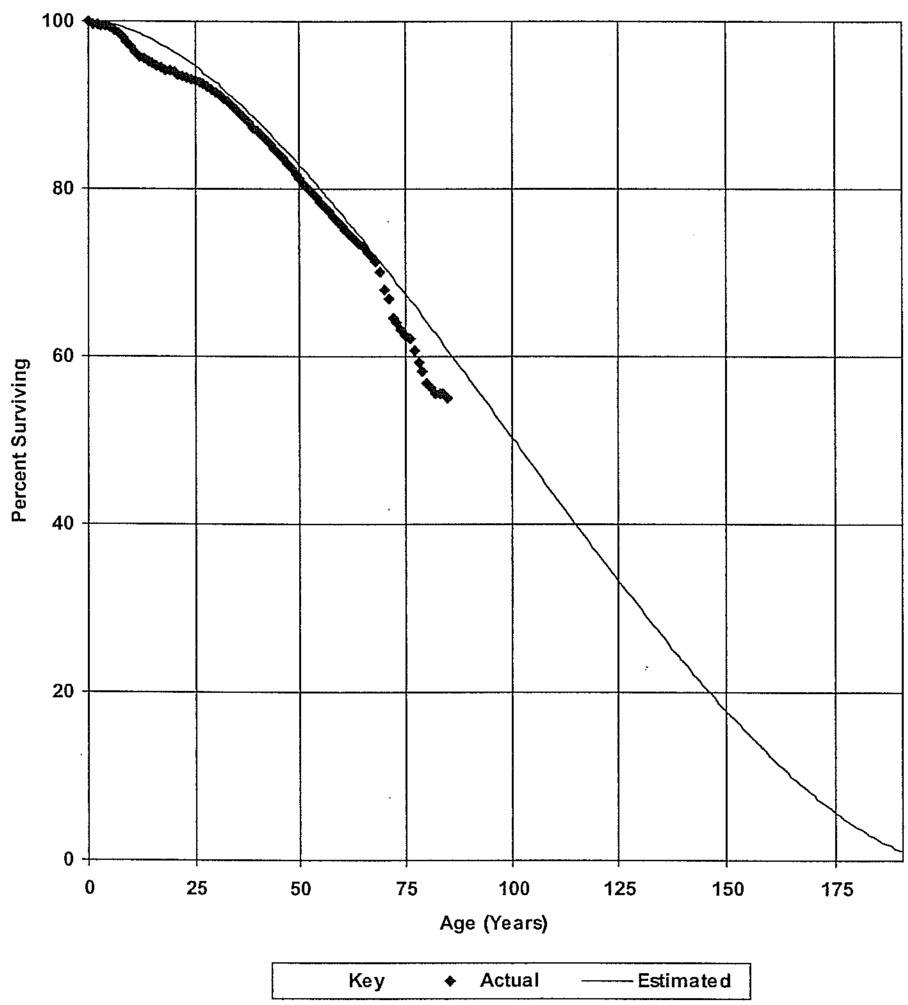
T-Cut: None

Placement Band: 1929-2013

Observation Band: 2005-2013

100.0-S0

Estimated Projection Life Curve



HYDRO ONE NETWORKS INC.

Distribution Lines

Account: DXPOLES2 Poles - Physically Removed

Placement Band: 1930 - 2011
Observation Band: 2012 - 2014

Observed Life Table

Age at Beginning of Interval	Exposures	Retirements	Conditional Proportion Retired	Conditional Proportion Surviving	Cumulative Proportion Surviving
A	B	C	D=C/B	E=1-D	F
0.0	0	0	0.00000	1.00000	1.00000
0.5	2,338	12	0.00527	0.99473	1.00000
1.5	9,672	52	0.00541	0.99459	0.99473
2.5	23,879	135	0.00567	0.99433	0.98934
3.5	32,476	203	0.00625	0.99375	0.98374
4.5	39,440	396	0.01004	0.98996	0.97759
5.5	41,513	611	0.01473	0.98527	0.96777
6.5	42,061	832	0.01977	0.98023	0.95352
7.5	43,754	867	0.01982	0.98018	0.93467
8.5	41,753	762	0.01825	0.98175	0.91614
9.5	46,803	734	0.01568	0.98432	0.89942
10.5	46,094	778	0.01688	0.98312	0.88532
11.5	39,975	740	0.01851	0.98149	0.87038
12.5	37,040	663	0.01791	0.98209	0.85427
13.5	34,162	540	0.01582	0.98418	0.83897
14.5	36,749	583	0.01585	0.98414	0.82570
15.5	33,526	474	0.01415	0.98585	0.81261
16.5	32,680	344	0.01054	0.98946	0.80111
17.5	30,657	195	0.00637	0.99363	0.79267
18.5	35,467	211	0.00595	0.99405	0.78762
19.5	45,533	253	0.00556	0.99444	0.78293
20.5	58,458	330	0.00564	0.99436	0.77858
21.5	86,554	437	0.00505	0.99495	0.77418
22.5	93,469	502	0.00537	0.99463	0.77028
23.5	99,627	537	0.00539	0.99461	0.76614
24.5	92,536	562	0.00607	0.99393	0.76201
25.5	106,435	654	0.00614	0.99386	0.75738
26.5	111,375	661	0.00594	0.99406	0.75273
27.5	105,528	639	0.00605	0.99395	0.74826
28.5	79,823	477	0.00597	0.99403	0.74373
29.5	81,791	516	0.00631	0.99369	0.73929
30.5	77,484	502	0.00648	0.99352	0.73462
31.5	96,298	690	0.00717	0.99283	0.72986
32.5	83,672	679	0.00811	0.99189	0.72463
33.5	84,310	722	0.00856	0.99144	0.71875
34.5	70,491	645	0.00915	0.99085	0.71260
35.5	73,948	683	0.00924	0.99076	0.70608

Schedule A

HYDRO ONE NETWORKS INC.

Distribution Lines

Account: DXPOLES2 Poles - Physically Removed

Placement Band: 1930 - 2011
Observation Band: 2012 - 2014

Observed Life Table

Age at Beginning of Interval	Exposures	Retirements	Conditional Proportion Retired	Conditional Proportion Surviving	Cumulative Proportion Surviving
A	B	C	D=C/B	E=1-D	F
36.5	77,386	768	0.00992	0.99008	0.69956
37.5	81,424	830	0.01019	0.98981	0.69262
38.5	77,304	793	0.01025	0.98975	0.68556
39.5	76,240	801	0.01051	0.98949	0.67853
40.5	72,012	781	0.01084	0.98916	0.67140
41.5	75,250	935	0.01243	0.98757	0.66412
42.5	65,401	807	0.01233	0.98767	0.65587
43.5	70,345	888	0.01262	0.98738	0.64778
44.5	65,258	809	0.01240	0.98760	0.63960
45.5	70,713	920	0.01301	0.98699	0.63167
46.5	65,841	878	0.01334	0.98666	0.62345
47.5	62,817	872	0.01389	0.98611	0.61514
48.5	54,194	786	0.01450	0.98550	0.60659
49.5	50,996	710	0.01392	0.98608	0.59780
50.5	50,015	712	0.01423	0.98577	0.58947
51.5	57,224	830	0.01451	0.98549	0.58109
52.5	61,059	947	0.01551	0.98449	0.57265
53.5	75,705	1,192	0.01575	0.98425	0.56377
54.5	81,628	1,288	0.01578	0.98422	0.55490
55.5	82,023	1,287	0.01569	0.98431	0.54614
56.5	84,138	1,290	0.01533	0.98467	0.53757
57.5	83,399	1,203	0.01442	0.98558	0.52933
58.5	86,590	1,236	0.01428	0.98572	0.52170
59.5	79,755	1,069	0.01340	0.98660	0.51425
60.5	86,868	1,226	0.01412	0.98588	0.50735
61.5	89,826	1,293	0.01439	0.98561	0.50019
62.5	103,728	1,952	0.01882	0.98118	0.49299
63.5	118,315	2,518	0.02128	0.97872	0.48372
64.5	94,249	2,227	0.02363	0.97637	0.47342
65.5	65,370	1,405	0.02149	0.97851	0.46224
66.5	24,764	572	0.02311	0.97689	0.45230
67.5	18,421	442	0.02398	0.97602	0.44185
68.5	8,201	261	0.03179	0.96821	0.43126
69.5	714	15	0.02100	0.97900	0.41755
70.5	357	15	0.04290	0.95710	0.40878
71.5	461	17	0.03759	0.96241	0.39124
72.5	1,183	58	0.04904	0.95096	0.37653

Schedule A

HYDRO ONE NETWORKS INC.

Distribution Lines

Account: DXPOLES2 Poles - Physically Removed

Placement Band: 1930 - 2011
Observation Band: 2012 - 2014

Observed Life Table

Age at Beginning of Interval	Exposures	Retirements	Conditional Proportion Retired	Conditional Proportion Surviving	Cumulative Proportion Surviving
A	B	C	D=C/B	E=1-D	F
73.5	1,077	55	0.05108	0.94892	0.35807
74.5	1,014	57	0.05623	0.94377	0.33978
75.5	847	36	0.04213	0.95787	0.32067
76.5	1,181	52	0.04432	0.95568	0.30716
77.5	1,017	47	0.04590	0.95410	0.29355
78.5	530	27	0.05094	0.94906	0.28007
79.5	144	4	0.03007	0.96993	0.26581
80.5	77	4	0.04775	0.95225	0.25781
81.5	85	2	0.02342	0.97658	0.24550
82.5	65	2	0.02554	0.97446	0.23975
83.5	39	1	0.03382	0.96618	0.23363
84.5	0	0	0.00000	1.00000	0.22573

Schedule B1

HYDRO ONE NETWORKS INC.

Distribution Lines

Account: DXPOLES2 Poles - Physically Removed

T-Cut: None

Placement Band: 1930-2011

Hazard Function: Proportion Retired

Weighting: Exposures

Rolling Band Life Analysis

Observation Band	Censoring	First Degree Average Life	First Degree Disper- sion	First Degree Conf. Index	Second Degree Average Life	Second Degree Disper- sion	Second Degree Conf. Index	Third Degree Average Life	Third Degree Disper- sion	Third Degree Conf. Index
A	B	C	D	E	F	G	H	I	J	K
2012-2014	22.6	69.7	L0	5.09	57.2	SC	2.14	58.0	SC	2.39

Schedule B2

HYDRO ONE NETWORKS INC.

Distribution Lines

Account: DXPOLES2 Poles - Physically Removed

T-Cut: None

Placement Band: 1930-2011

Hazard Function: Proportion Retired

Weighting: Exposures

Shrinking Band Life Analysis

		First Degree			Second Degree			Third Degree		
Observation Band	Censoring	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index
A	B	C	D	E	F	G	H	I	J	K
2012-2014	22.6	69.7	L0	5.09	57.2	SC	2.14	58.0	SC	2.39
2014-2014	22.5	69.8	L0	4.76	56.6	SC	3.28	57.3	SC	3.59

Schedule B3

HYDRO ONE NETWORKS INC.

Distribution Lines

Account: DXPOLES2 Poles - Physically Removed

T-Cut: None

Placement Band: 1930-2011

Hazard Function: Proportion Retired

Weighting: Exposures

Progressing Band Life Analysis

Observation Band	Censoring	First Degree Average Life	First Degree Disper-sion	First Degree Conf. Index	Second Degree Average Life	Second Degree Disper-sion	Second Degree Conf. Index	Third Degree Average Life	Third Degree Disper-sion	Third Degree Conf. Index
A	B	C	D	E	F	G	H	I	J	K
2012-2013	23.6	69.7	L0	4.96	57.4	SC	1.94	58.4	SC	2.16
2012-2014	22.6	69.7	L0	5.09	57.2	SC	2.14	58.0	SC	2.39

Schedule C

HYDRO ONE NETWORKS INC.

Distribution Lines

Account: DXPOLES2 Poles - Physically Removed

T-Cut: None

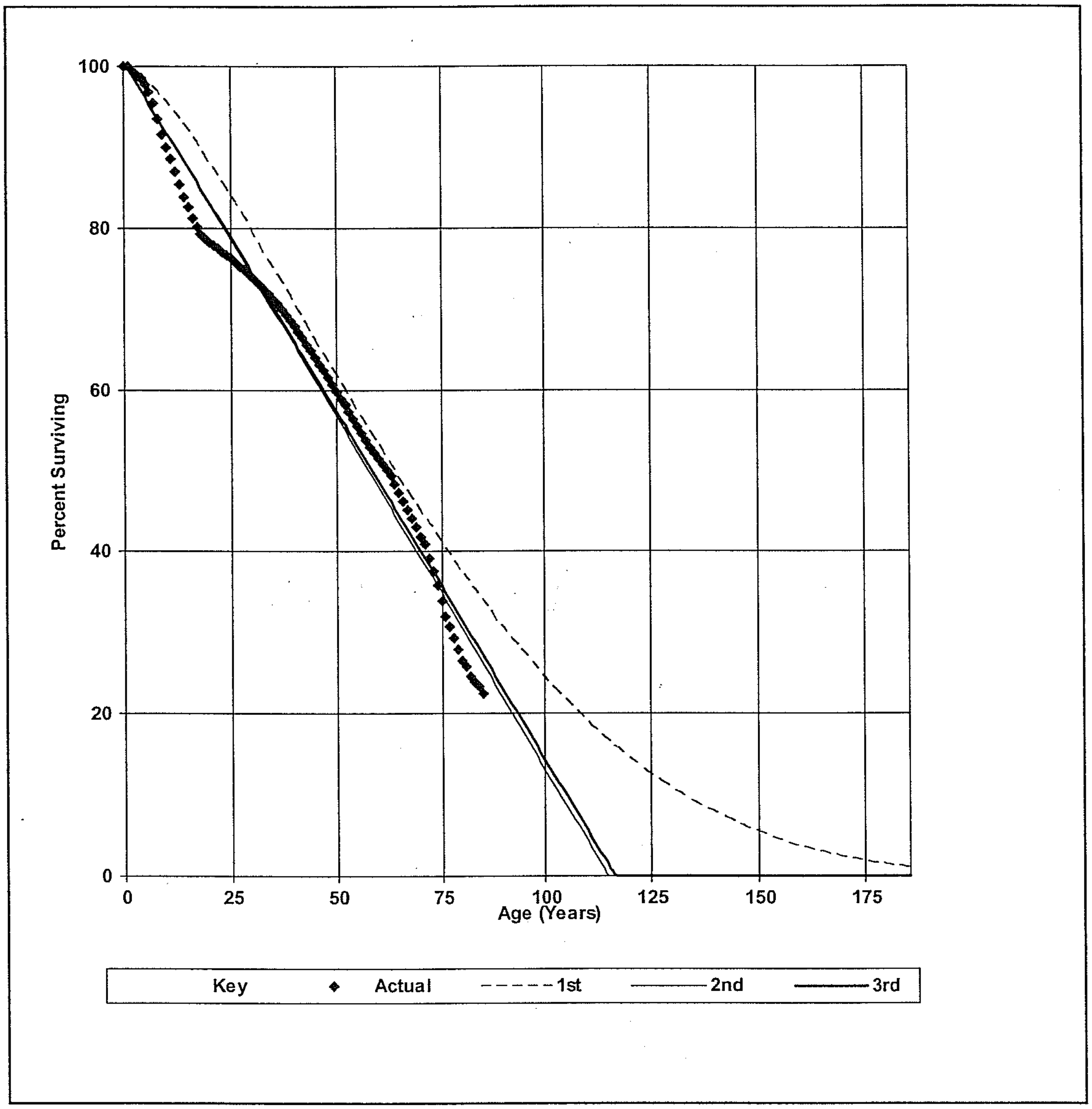
Placement Band: 1930-2011 Observation Band: 2012-2014

Hazard Function: Proportion Retired

Weighting: Exposures

Graphics Analysis

1st: 69.7-L0 2nd: 57.2-SC 3rd: 58.0-SC



Schedule D

HYDRO ONE NETWORKS INC.

Distribution Lines

Account: DXPOLES2 Poles - Physically Removed

T-Cut: None

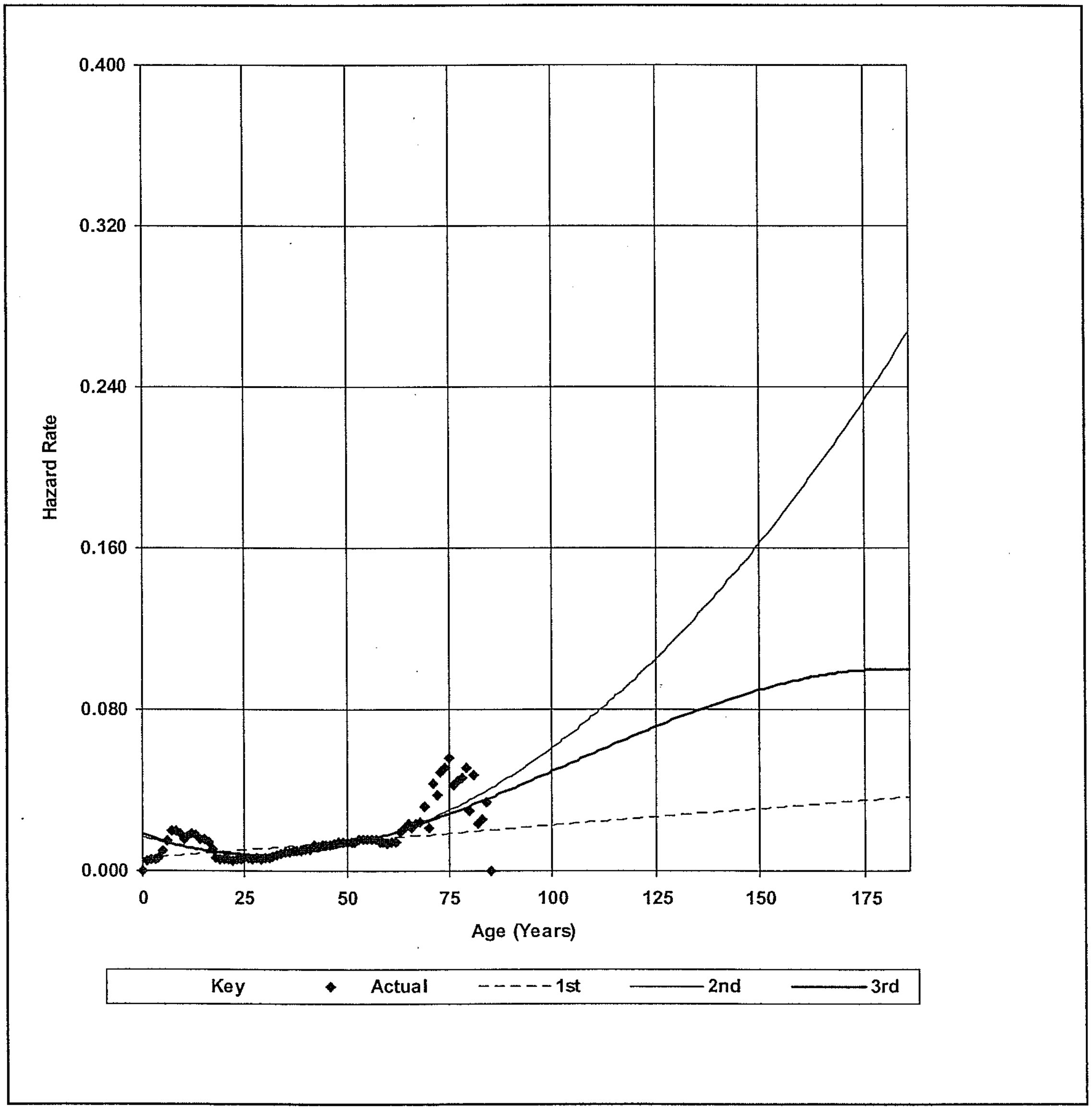
Placement Band: 1930-2011 Observation Band: 2012-2014

Hazard Function: Proportion Retired

Weighting: Exposures

Polynomial Hazard Function

1st: 69.7-L0 2nd: 57.2-SC 3rd: 58.0-SC



Schedule E

HYDRO ONE NETWORKS INC.

Distribution Lines

Account: DXPOLES2 Poles - Physically Removed

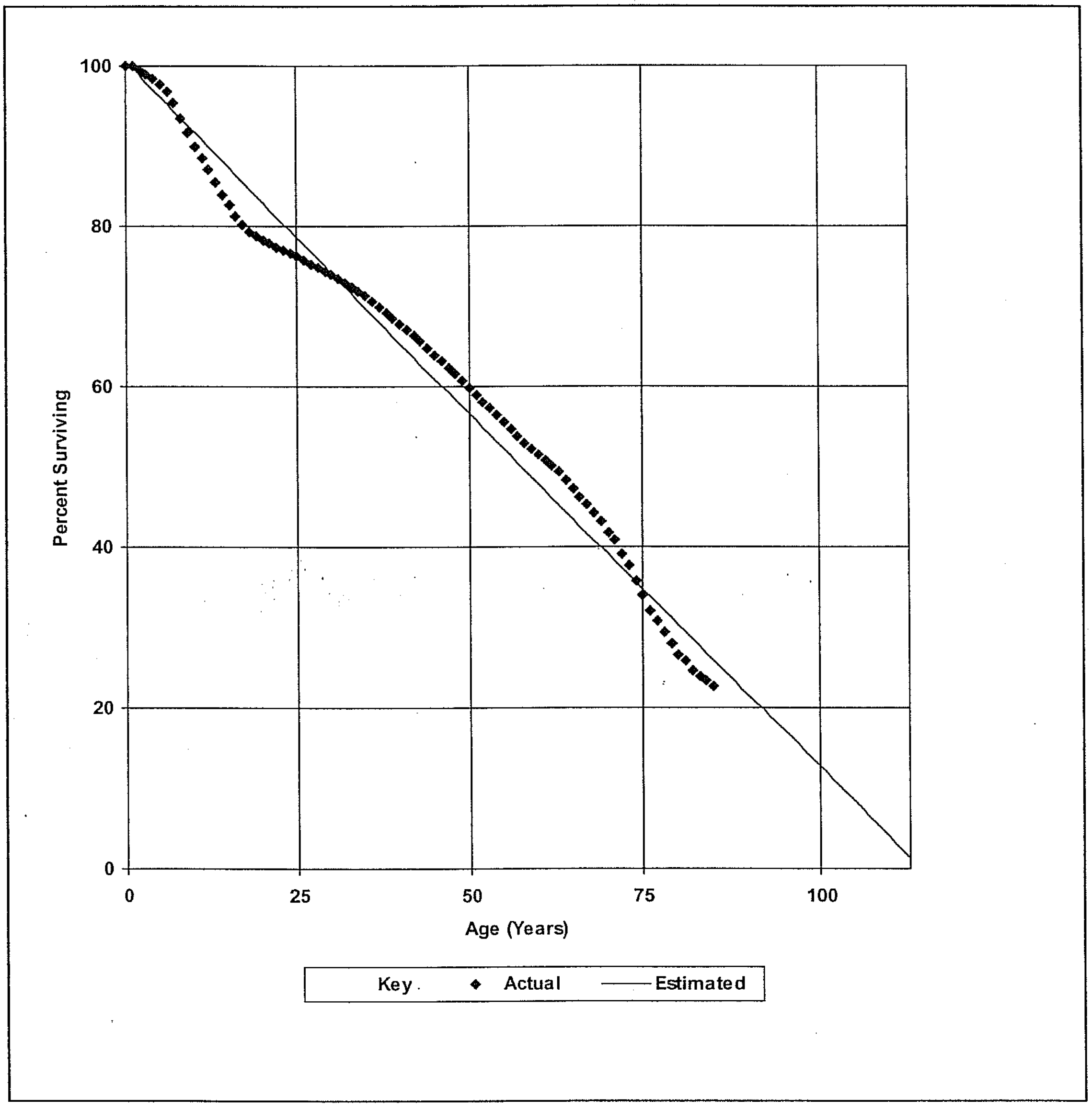
T-Cut: None

Placement Band: 1930-2011

Observation Band: 2012-2014

Estimated Projection Life Curve

57.0-SC



HYDRO ONE NETWORKS INC.

Transmission Lines

Account: OHLINES Overhead Lines (in Metres)

Placement Band: 1905 - 2012
Observation Band: 1988 - 2013

Observed Life Table

Age at Beginning of Interval	Exposures	Retirements	Conditional Proportion Retired	Conditional Proportion Surviving	Cumulative Proportion Surviving
A	B	C	D=C/B	E=1-D	F
0.0	2,679,470	0	0.00000	1.00000	1.00000
0.5	2,885,080	0	0.00000	1.00000	1.00000
1.5	2,562,270	0	0.00000	1.00000	1.00000
2.5	2,516,530	0	0.00000	1.00000	1.00000
3.5	2,470,320	0	0.00000	1.00000	1.00000
4.5	2,419,620	0	0.00000	1.00000	1.00000
5.5	2,553,970	0	0.00000	1.00000	1.00000
6.5	2,659,950	0	0.00000	1.00000	1.00000
7.5	3,347,050	0	0.00000	1.00000	1.00000
8.5	3,362,620	0	0.00000	1.00000	1.00000
9.5	3,592,610	0	0.00000	1.00000	1.00000
10.5	3,925,560	0	0.00000	1.00000	1.00000
11.5	4,189,710	0	0.00000	1.00000	1.00000
12.5	4,596,570	0	0.00000	1.00000	1.00000
13.5	4,621,730	0	0.00000	1.00000	1.00000
14.5	4,646,630	0	0.00000	1.00000	1.00000
15.5	5,098,280	0	0.00000	1.00000	1.00000
16.5	5,487,550	0	0.00000	1.00000	1.00000
17.5	6,920,600	0	0.00000	1.00000	1.00000
18.5	7,121,120	0	0.00000	1.00000	1.00000
19.5	7,098,530	0	0.00000	1.00000	1.00000
20.5	7,199,750	0	0.00000	1.00000	1.00000
21.5	7,359,300	0	0.00000	1.00000	1.00000
22.5	7,456,530	0	0.00000	1.00000	1.00000
23.5	7,335,920	0	0.00000	1.00000	1.00000
24.5	7,802,500	0	0.00000	1.00000	1.00000
25.5	7,756,410	0	0.00000	1.00000	1.00000
26.5	7,783,860	0	0.00000	1.00000	1.00000
27.5	7,768,760	0	0.00000	1.00000	1.00000
28.5	8,033,640	0	0.00000	1.00000	1.00000
29.5	8,663,200	0	0.00000	1.00000	1.00000
30.5	9,101,780	0	0.00000	1.00000	1.00000
31.5	9,155,020	0	0.00000	1.00000	1.00000
32.5	9,396,330	0	0.00000	1.00000	1.00000
33.5	9,065,160	0	0.00000	1.00000	1.00000
34.5	9,327,700	0	0.00000	1.00000	1.00000
35.5	9,491,820	0	0.00000	1.00000	1.00000

HYDRO ONE NETWORKS INC.

Transmission Lines

Account: OHLINES Overhead Lines (in Metres)

Placement Band: 1905 - 2012
Observation Band: 1988 - 2013

Observed Life Table

Age at Beginning of Interval	Exposures	Retirements	Conditional Proportion Retired	Conditional Proportion Surviving	Cumulative Proportion Surviving
A	B	C	D=C/B	E=1-D	F
36.5	9,631,725	0	0.00000	1.00000	1.00000
37.5	11,546,655	0	0.00000	1.00000	1.00000
38.5	11,142,945	0	0.00000	1.00000	1.00000
39.5	11,551,455	0	0.00000	1.00000	1.00000
40.5	11,430,585	0	0.00000	1.00000	1.00000
41.5	11,175,245	0	0.00000	1.00000	1.00000
42.5	10,731,855	16,587	0.00155	0.99845	1.00000
43.5	9,265,218	11,058	0.00119	0.99881	0.99845
44.5	9,177,341	65,936	0.00718	0.99282	0.99726
45.5	8,793,736	0	0.00000	1.00000	0.99010
46.5	9,014,496	65,936	0.00731	0.99269	0.99010
47.5	9,031,700	0	0.00000	1.00000	0.98286
48.5	8,759,180	0	0.00000	1.00000	0.98286
49.5	8,589,830	0	0.00000	1.00000	0.98286
50.5	8,453,047	0	0.00000	1.00000	0.98286
51.5	8,449,087	0	0.00000	1.00000	0.98286
52.5	8,318,737	2,907	0.00035	0.99965	0.98286
53.5	8,667,722	23,960	0.00276	0.99724	0.98251
54.5	8,471,402	11,980	0.00141	0.99859	0.97980
55.5	8,333,812	0	0.00000	1.00000	0.97841
56.5	8,257,172	0	0.00000	1.00000	0.97841
57.5	8,324,960	0	0.00000	1.00000	0.97841
58.5	8,330,860	3,340	0.00040	0.99960	0.97841
59.5	9,008,301	0	0.00000	1.00000	0.97802
60.5	8,736,891	155,806	0.01783	0.98217	0.97802
61.5	8,246,365	38,473	0.00467	0.99533	0.96058
62.5	7,777,952	8,393	0.00108	0.99892	0.95610
63.5	5,877,008	18,626	0.00317	0.99683	0.95506
64.5	5,791,832	82,727	0.01428	0.98572	0.95204
65.5	5,359,426	47,809	0.00892	0.99108	0.93844
66.5	5,117,570	20,190	0.00395	0.99605	0.93007
67.5	5,863,601	23,175	0.00395	0.99605	0.92640
68.5	5,746,267	5,173	0.00090	0.99910	0.92274
69.5	5,741,094	637,963	0.11112	0.88888	0.92191
70.5	5,063,490	0	0.00000	1.00000	0.81946
71.5	5,040,590	4,625	0.00092	0.99908	0.81946
72.5	4,993,615	196,440	0.03934	0.96066	0.81871

Schedule A

HYDRO ONE NETWORKS INC.

Transmission Lines

Account: OHLINES Overhead Lines (in Metres)

Placement Band: 1905 - 2012
Observation Band: 1988 - 2013

Observed Life Table

Age at Beginning of Interval	Exposures	Retirements	Conditional Proportion Retired	Conditional Proportion Surviving	Cumulative Proportion Surviving
A	B	C	D=C/B	E=1-D	F
73.5	4,597,875	782,583	0.17021	0.82979	0.78650
74.5	3,576,242	0	0.00000	1.00000	0.65264
75.5	3,571,552	13,272	0.00372	0.99628	0.65264
76.5	3,297,380	0	0.00000	1.00000	0.65021
77.5	4,006,007	0	0.00000	1.00000	0.65021
78.5	3,903,297	0	0.00000	1.00000	0.65021
79.5	3,557,707	132,544	0.03726	0.96274	0.65021
80.5	3,322,753	0	0.00000	1.00000	0.62599
81.5	2,822,303	182,160	0.06454	0.93546	0.62599
82.5	2,228,811	0	0.00000	1.00000	0.58558
83.5	2,137,561	463,771	0.21696	0.78304	0.58558
84.5	1,491,020	0	0.00000	1.00000	0.45853
85.5	1,172,160	56,850	0.04850	0.95150	0.45853
86.5	1,100,380	0	0.00000	1.00000	0.43630
87.5	1,037,670	0	0.00000	1.00000	0.43630
88.5	1,022,320	0	0.00000	1.00000	0.43630
89.5	740,160	0	0.00000	1.00000	0.43630
90.5	725,390	0	0.00000	1.00000	0.43630
91.5	634,800	0	0.00000	1.00000	0.43630
92.5	634,800	0	0.00000	1.00000	0.43630
93.5	543,380	0	0.00000	1.00000	0.43630
94.5	543,380	0	0.00000	1.00000	0.43630
95.5	543,380	0	0.00000	1.00000	0.43630
96.5	543,380	0	0.00000	1.00000	0.43630
97.5	543,380	0	0.00000	1.00000	0.43630
98.5	261,120	0	0.00000	1.00000	0.43630
99.5	169,300	0	0.00000	1.00000	0.43630
100.5	169,300	0	0.00000	1.00000	0.43630
101.5	169,300	0	0.00000	1.00000	0.43630
102.5	169,300	0	0.00000	1.00000	0.43630
103.5	3,500	0	0.00000	1.00000	0.43630
104.5	3,500	0	0.00000	1.00000	0.43630
105.5	3,500	0	0.00000	1.00000	0.43630
106.5	3,500	0	0.00000	1.00000	0.43630
107.5	0	0	0.00000	1.00000	0.43630

Schedule B1

HYDRO ONE NETWORKS INC.

Transmission Lines

Account: OHLINES Overhead Lines (in Metres)

T-Cut: None

Placement Band: 1905-2012

Hazard Function: Proportion Retired

Weighting: Exposures

Rolling Band Life Analysis

Observation Band	Censoring	First Degree Average Life	First Degree Disper-sion	First Degree Conf. Index	Second Degree Average Life	Second Degree Disper-sion	Second Degree Conf. Index	Third Degree Average Life	Third Degree Disper-sion	Third Degree Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1988-1992	3.1	74.9	L3 *	9.90	71.2	R3 *	8.86	74.0	R4 *	8.88
1989-1993	3.3	76.9	L3 *	11.45	72.7	R3 *	9.43	74.3	S3 *	8.99
1990-1994	10.8	65.1	L3 *	16.80	57.8	R1.5 *	18.80	69.6	R4 *	7.17
1991-1995	22.4	79.0	L3 *	14.88	66.6	R2 *	18.57	73.1	R4 *	11.13
1992-1996	17.9	76.2	L3 *	17.05	64.4	R2 *	21.06	71.5	R4 *	13.56
1993-1997	17.9	76.7	L3 *	16.62	64.4	R2 *	21.02	71.8	R4 *	13.33
1994-1998	19.7	73.7	L3 *	13.50	64.3	R2 *	17.12	72.2	R4 *	10.50
1995-1999	51.7	102.3	L2 *	5.01	94.2	S2 *	4.65	122.5	L0.5 *	4.62
1996-2000	59.9	115.4	L2 *	5.39	102.8	S2 *	5.51	120.9	L1.5 *	5.15
1997-2001	78.1	138.9	S1 *	5.24	150.1	R1 *	5.15	171.1	R1.5 *	4.26
1998-2002	10.9	71.6	L3 *	15.27	70.3	R3 *	11.10	68.7	R3 *	12.57
1999-2003	11.8	74.6	L3 *	17.02	71.8	R3 *	13.55	70.4	R3 *	14.74
2000-2004	20.5	75.4	L3 *	16.63	72.9	R3 *	13.46	69.8	R2.5 *	16.21
2001-2005	25.3	75.9	L3 *	16.35	74.0	R3 *	13.24	68.3	R2 *	18.67
2002-2006	38.9	76.4	L3 *	17.20	75.2	S3 *	14.86	67.8	R1.5 *	22.78
2003-2007	98.8	192.1	R5 *	0.35	184.8	R4 *	0.42	194.9	S6 *	0.56
2004-2008	99.1	192.4	R5 *	0.43	186.1	R4 *	0.50	195.4	SQ *	0.71
2005-2009	100.0				No Retirements					
2006-2010	100.0				No Retirements					
2007-2011	100.0				No Retirements					
2008-2012	100.0				No Retirements					
2009-2013	100.0				No Retirements					

Schedule B2

HYDRO ONE NETWORKS INC.

Transmission Lines

Account: OHLINES Overhead Lines (in Metres)

T-Cut: None
Placement Band: 1905-2012
Hazard Function: Proportion Retired
Weighting: Exposures

Shrinking Band Life Analysis

Observation Band	Censoring	First Degree Average Life	First Degree Disper-sion	First Degree Conf. Index	Second Degree Average Life	Second Degree Disper-sion	Second Degree Conf. Index	Third Degree Average Life	Third Degree Disper-sion	Third Degree Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1988-2013	43.6	94.4	L3 *	6.96	88.5	S3 *	6.76	91.6	L3 *	7.97
1990-2013	43.4	93.3	L3 *	7.28	88.3	S3 *	6.98	93.6	L2 *	8.65
1992-2013	50.1	100.8	L3 *	6.51	92.4	S3 *	6.73	94.9	L3 *	7.73
1994-2013	48.4	98.5	L3 *	6.68	91.4	S3 *	6.74	95.5	L3 *	8.26
1996-2013	63.0	110.6	S1.5 *	5.60	101.7	S3 *	6.21	130.6	SC *	7.69
1998-2013	65.0	110.7	S1.5 *	6.12	102.7	S2 *	6.63	133.7	SC *	8.67
2000-2013	66.4	111.5	S1.5 *	6.76	102.8	S3 *	7.23	131.3	SC *	10.14
2002-2013	64.5	106.9	L3 *	7.66	100.2	S3 *	7.96	124.9	SC *	12.51
2004-2013	99.4	196.0	SQ *	0.17	194.1	S6 *	0.20	197.6	S6 *	0.28
2006-2013	100.0				No Retirements					
2008-2013	100.0				No Retirements					
2010-2013	100.0				No Retirements					
2012-2013	100.0				No Retirements					

Schedule B3

HYDRO ONE NETWORKS INC.

Transmission Lines

Account: OHLINES Overhead Lines (in Metres)

T-Cut: None

Placement Band: 1905-2012

Hazard Function: Proportion Retired

Weighting: Exposures

Progressing Band Life Analysis

Observation Band	Censoring	First Degree Average Life	First Degree Disper-sion	First Degree Conf. Index	Second Degree Average Life	Second Degree Disper-sion	Second Degree Conf. Index	Third Degree Average Life	Third Degree Disper-sion	Third Degree Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1988-1989	0.0	129.3	S0.5 *	19.61	107.0	S2	19.96	89.6	R4 *	20.11
1988-1991	2.4	69.5	L3 *	9.73	66.5	R3 *	9.62	71.3	R4 *	9.57
1988-1993	3.4	80.2	L3 *	11.89	75.4	R3 *	10.05	76.8	S3 *	9.97
1988-1995	12.6	71.8	L3 *	13.18	64.5	R2.5 *	13.67	72.8	R4 *	6.05
1988-1997	10.3	75.9	L3 *	12.91	67.6	R2.5 *	12.54	74.7	R4 *	6.11
1988-1999	23.5	78.7	L3 *	10.99	71.6	R3 *	10.51	77.2	S4 *	5.01
1988-2001	31.0	84.0	L3 *	9.23	76.2	R3 *	8.39	80.3	S4 *	4.63
1988-2003	18.7	75.7	L3 *	12.46	70.2	R3 *	10.81	76.2	S4 *	5.28
1988-2005	23.1	79.1	L3 *	11.13	73.6	R3 *	9.34	77.2	R4 *	6.10
1988-2007	27.7	82.8	L3 *	9.74	77.1	R3 *	7.96	78.5	S3 *	6.78
1988-2009	33.3	86.6	L3 *	8.47	80.8	R3 *	7.11	80.4	R3 *	7.41
1988-2011	37.7	90.4	L3 *	7.73	84.6	S3 *	6.69	83.5	R2.5 *	7.80
1988-2013	43.6	94.4	L3 *	6.96	88.5	S3 *	6.76	91.6	L3 *	7.97

Schedule C

HYDRO ONE NETWORKS INC.

Transmission Lines

Account: OHLINES Overhead Lines (in Metres)

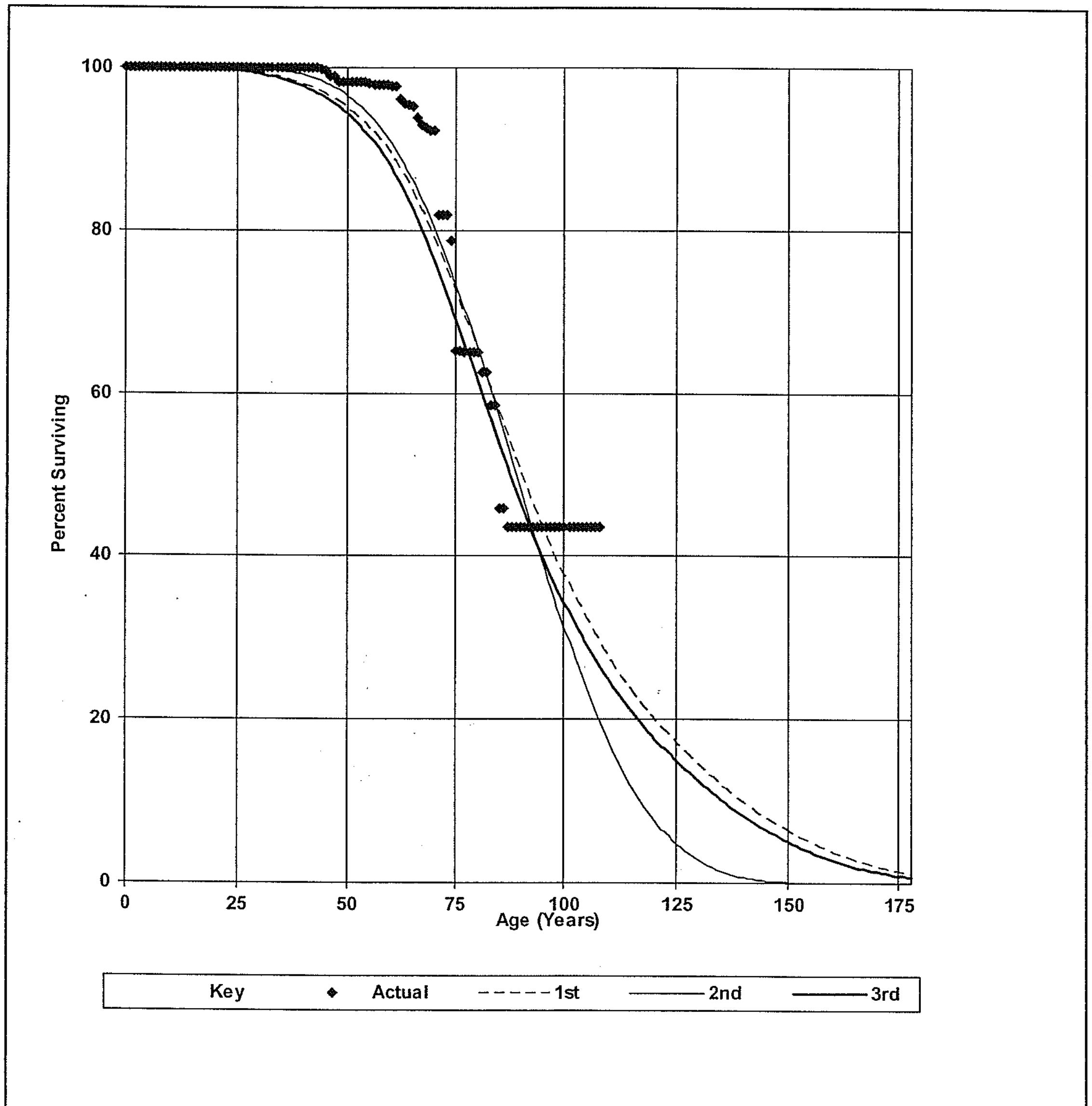
T-Cut: None

Placement Band: 1905-2012 Observation Band: 1988-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Graphics Analysis 1st: 94.4-L3 2nd: 88.5-S3 3rd: 91.6-L3



Schedule D

HYDRO ONE NETWORKS INC.

Transmission Lines

Account: OHLINES Overhead Lines (in Metres)

T-Cut: None

Placement Band: 1905-2012 Observation Band: 1988-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Polynomial Hazard Function

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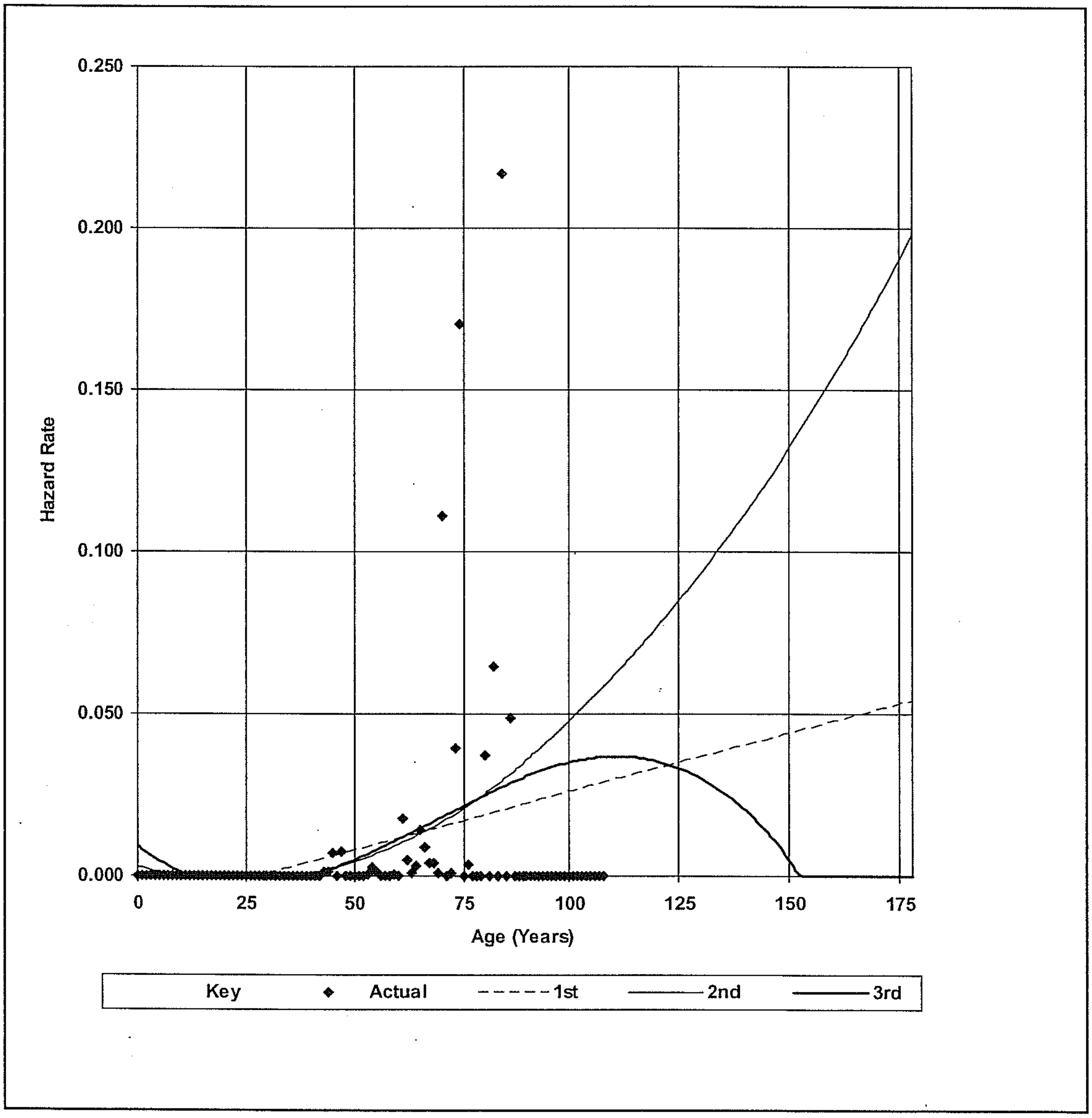


Schedule E

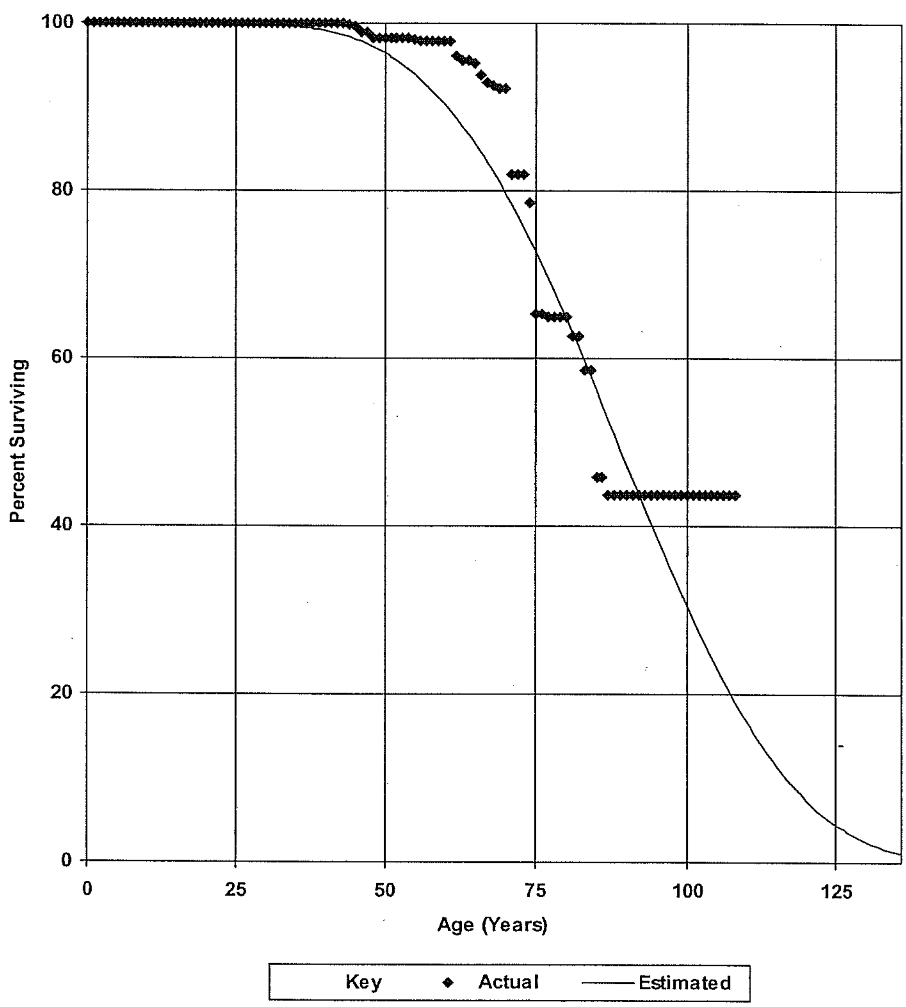
HYDRO ONE NETWORKS INC.

Transmission Lines

Account: OHLINES Overhead Lines (in Metres)

T-Cut: None
Placement Band: 1905-2012
Observation Band: 1988-2013
88.0-S3

Estimated Projection Life Curve



HYDRO ONE NETWORKS INC.

Transmission Lines

Account: STSTRCT Steel Structures

Placement Band: 1910 - 2013
Observation Band: 1929 - 2013

Observed Life Table

Age at Beginning of Interval	Exposures	Retirements	Conditional Proportion Retired	Conditional Proportion Surviving	Cumulative Proportion Surviving
A	B	C	D=C/B	E=1-D	F
0.0	44,110	0	0.00000	1.00000	1.00000
0.5	45,342	52	0.00115	0.99885	1.00000
1.5	45,230	5	0.00011	0.99989	0.99885
2.5	45,157	20	0.00044	0.99956	0.99874
3.5	45,148	1	0.00002	0.99998	0.99830
4.5	44,901	1	0.00002	0.99998	0.99828
5.5	44,892	10	0.00022	0.99978	0.99826
6.5	45,091	10	0.00022	0.99978	0.99803
7.5	45,037	3	0.00007	0.99993	0.99781
8.5	45,020	0	0.00000	1.00000	0.99775
9.5	44,928	4	0.00009	0.99991	0.99775
10.5	44,568	3	0.00007	0.99993	0.99766
11.5	44,544	3	0.00007	0.99993	0.99759
12.5	44,538	3	0.00007	0.99993	0.99752
13.5	44,761	5	0.00011	0.99989	0.99746
14.5	45,577	5	0.00011	0.99989	0.99734
15.5	45,571	3	0.00007	0.99993	0.99723
16.5	45,565	6	0.00013	0.99987	0.99717
17.5	45,558	11	0.00024	0.99976	0.99704
18.5	47,316	2	0.00004	0.99996	0.99680
19.5	46,568	12	0.00026	0.99974	0.99675
20.5	46,556	5	0.00011	0.99989	0.99650
21.5	46,509	19	0.00041	0.99959	0.99639
22.5	45,038	1	0.00002	0.99998	0.99598
23.5	44,150	1	0.00002	0.99998	0.99596
24.5	43,770	0	0.00000	1.00000	0.99594
25.5	42,893	4	0.00009	0.99991	0.99594
26.5	42,327	0	0.00000	1.00000	0.99585
27.5	42,285	2	0.00005	0.99995	0.99585
28.5	42,283	10	0.00024	0.99976	0.99580
29.5	42,273	1	0.00002	0.99998	0.99556
30.5	42,063	26	0.00062	0.99938	0.99554
31.5	41,699	9	0.00022	0.99978	0.99492
32.5	41,386	22	0.00053	0.99947	0.99471
33.5	38,835	2	0.00005	0.99995	0.99418
34.5	38,771	3	0.00008	0.99992	0.99413
35.5	38,206	17	0.00044	0.99956	0.99405

Schedule A

HYDRO ONE NETWORKS INC.

Transmission Lines

Account: STSTRCT Steel Structures

Placement Band: 1910 - 2013
Observation Band: 1929 - 2013

Observed Life Table

Age at Beginning of Interval	Exposures	Retirements	Conditional Proportion Retired	Conditional Proportion Surviving	Cumulative Proportion Surviving
A	B	C	D=C/B	E=1-D	F
36.5	37,584	6	0.00016	0.99984	0.99361
37.5	36,991	10	0.00027	0.99973	0.99345
38.5	35,818	12	0.00034	0.99966	0.99318
39.5	35,552	8	0.00023	0.99977	0.99285
40.5	35,454	15	0.00042	0.99958	0.99263
41.5	34,721	1	0.00003	0.99997	0.99221
42.5	33,943	2	0.00006	0.99994	0.99218
43.5	30,472	0	0.00000	1.00000	0.99212
44.5	29,868	14	0.00047	0.99953	0.99212
45.5	29,142	5	0.00017	0.99983	0.99166
46.5	29,085	29	0.00100	0.99900	0.99149
47.5	28,660	9	0.00031	0.99969	0.99050
48.5	27,797	6	0.00022	0.99978	0.99019
49.5	27,630	78	0.00282	0.99718	0.98997
50.5	26,305	8	0.00030	0.99970	0.98718
51.5	26,257	11	0.00042	0.99958	0.98688
52.5	25,647	0	0.00000	1.00000	0.98646
53.5	25,638	1	0.00004	0.99996	0.98646
54.5	25,297	0	0.00000	1.00000	0.98643
55.5	24,726	4	0.00016	0.99984	0.98643
56.5	24,317	2	0.00008	0.99992	0.98627
57.5	24,199	7	0.00029	0.99971	0.98618
58.5	23,408	5	0.00021	0.99979	0.98590
59.5	22,069	14	0.00063	0.99937	0.98569
60.5	21,737	6	0.00028	0.99972	0.98506
61.5	20,936	8	0.00038	0.99962	0.98479
62.5	20,416	1	0.00005	0.99995	0.98442
63.5	14,865	1	0.00007	0.99993	0.98437
64.5	14,643	1	0.00007	0.99993	0.98430
65.5	13,914	0	0.00000	1.00000	0.98423
66.5	13,195	1	0.00008	0.99992	0.98423
67.5	12,503	2	0.00016	0.99984	0.98416
68.5	12,497	2	0.00016	0.99984	0.98400
69.5	12,495	4	0.00032	0.99968	0.98384
70.5	12,475	0	0.00000	1.00000	0.98353
71.5	12,407	0	0.00000	1.00000	0.98353
72.5	11,679	1	0.00009	0.99991	0.98353

HYDRO ONE NETWORKS INC.

Transmission Lines

Account: STSTRCT Steel Structures

Placement Band: 1910 - 2013
Observation Band: 1929 - 2013

Observed Life Table

Age at Beginning of Interval	Exposures	Retirements	Conditional Proportion Retired	Conditional Proportion Surviving	Cumulative Proportion Surviving
A	B	C	D=C/B	E=1-D	F
73.5	10,854	0	0.00000	1.00000	0.98344
74.5	10,852	0	0.00000	1.00000	0.98344
75.5	10,817	3	0.00028	0.99972	0.98344
76.5	10,800	0	0.00000	1.00000	0.98317
77.5	10,791	0	0.00000	1.00000	0.98317
78.5	10,470	0	0.00000	1.00000	0.98317
79.5	9,819	2	0.00020	0.99980	0.98317
80.5	9,520	0	0.00000	1.00000	0.98297
81.5	7,629	0	0.00000	1.00000	0.98297
82.5	5,833	0	0.00000	1.00000	0.98297
83.5	5,712	1	0.00018	0.99982	0.98297
84.5	4,985	0	0.00000	1.00000	0.98280
85.5	3,754	0	0.00000	1.00000	0.98280
86.5	3,745	5	0.00134	0.99866	0.98280
87.5	3,734	0	0.00000	1.00000	0.98149
88.5	3,610	3	0.00083	0.99917	0.98149
89.5	3,364	0	0.00000	1.00000	0.98067
90.5	3,308	0	0.00000	1.00000	0.98067
91.5	2,928	5	0.00171	0.99829	0.98067
92.5	2,920	0	0.00000	1.00000	0.97900
93.5	2,917	0	0.00000	1.00000	0.97900
94.5	2,917	0	0.00000	1.00000	0.97900
95.5	2,917	0	0.00000	1.00000	0.97900
96.5	2,917	0	0.00000	1.00000	0.97900
97.5	2,916	1	0.00034	0.99966	0.97900
98.5	2,615	1	0.00038	0.99962	0.97866
99.5	1,765	0	0.00000	1.00000	0.97829
100.5	1,765	6	0.00340	0.99660	0.97829
101.5	1,759	6	0.00341	0.99659	0.97496
102.5	1,753	0	0.00000	1.00000	0.97164
103.5	0	0	0.00000	1.00000	0.97164

Schedule B1

HYDRO ONE NETWORKS INC.

Transmission Lines

Account: STSTRCT Steel Structures

T-Cut: None

Placement Band: 1910-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Rolling Band Life Analysis

		First Degree			Second Degree			Third Degree		
Observation Band	Censoring	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1929-1933	99.5	198.6	SQ *	0.32	198.3	SQ *	0.23	61.6	R4 *	0.17
1930-1934	99.9	198.9	SQ *	0.02	198.8	SQ *	0.03	82.1	S3 *	0.03
1931-1935	100.0				No Retirements					
1932-1936	100.0				No Retirements					
1933-1937	100.0				No Retirements					
1934-1938	100.0				No Retirements					
1935-1939	100.0				No Retirements					
1936-1940	100.0	198.9	SQ *	0.01	198.8	SQ *	0.02	124.8	S3 *	0.02
1937-1941	100.0	198.9	SQ *	0.01	198.9	SQ *	0.02	130.2	S3 *	0.01
1938-1942	100.0	198.9	SQ *	0.02	198.9	SQ *	0.02	139.0	S3 *	0.01
1939-1943	100.0	198.9	SQ *	0.02	198.9	SQ *	0.02	139.2	S3 *	0.02
1940-1944	100.0	198.9	SQ *	0.02	198.9	SQ *	0.02	136.8	S3 *	0.01
1941-1945	100.0				No Retirements					
1942-1946	100.0				No Retirements					
1943-1947	100.0	198.9	SQ *	0.02	198.9	SQ *	0.02	151.0	S3 *	0.02
1944-1948	100.0	198.9	SQ *	0.03	198.9	SQ *	0.02	147.3	S3 *	0.02
1945-1949	100.0	198.9	SQ *	0.03	198.9	SQ *	0.02	145.8	S3 *	0.02
1946-1950	99.8	198.3	SQ *	0.13	155.9	R3 *	0.17	198.0	SQ *	0.20
1947-1951	99.9	198.4	SQ *	0.13	176.7	R3 *	0.11	198.5	SQ *	0.10
1948-1952	99.9	198.5	SQ *	0.14	175.7	R3 *	0.11	198.5	SQ *	0.10
1949-1953	99.6	198.3	SQ *	0.06	185.9	R4	0.05	198.3	SQ *	0.05
1950-1954	99.2	198.0	SQ *	0.13	180.0	R4	0.16	198.0	SQ *	0.16
1951-1955	99.0	198.2	SQ *	0.41	194.0	S6	0.43	198.3	SQ *	0.43
1952-1956	98.8	197.3	SQ *	0.34	197.7	SQ *	0.34	197.9	SQ *	0.33
1953-1957	98.5	196.1	SQ	0.45	197.7	SQ *	0.45	197.8	SQ *	0.43
1954-1958	99.1	197.9	SQ *	0.25	192.6	R5	0.27	198.0	SQ *	0.21
1955-1959	99.5	197.1	SQ	0.15	198.5	SQ *	0.14	198.4	SQ *	0.13
1956-1960	99.3	197.3	SQ	0.27	198.5	SQ *	0.26	198.4	SQ *	0.25
1957-1961	99.7	198.2	SQ *	0.13	188.9	R5 *	0.11	174.7	R4 *	0.11
1958-1962	99.7	198.2	SQ *	0.09	185.6	R4 *	0.06	177.6	R4 *	0.06
1959-1963	99.6	198.3	SQ *	0.07	185.6	R4 *	0.07	198.3	SQ *	0.07
1960-1964	99.4	197.9	SQ *	0.09	169.2	R3 *	0.06	197.5	S6 *	0.10
1961-1965	99.2	197.7	SQ *	0.09	169.1	R3 *	0.06	197.4	SQ *	0.09
1962-1966	99.4	198.3	SQ *	0.11	182.0	R4 *	0.11	198.1	SQ *	0.06
1963-1967	99.6	198.1	SQ *	0.07	183.0	R4 *	0.06	198.0	SQ *	0.09
1964-1968	99.5	198.0	SQ *	0.04	185.5	R4 *	0.02	198.0	SQ *	0.03
1965-1969	99.7	198.3	SQ *	0.03	196.5	S6 *	0.03	172.9	R4 *	0.02
1966-1970	98.8	197.2	SQ *	0.26	197.3	SQ *	0.27	160.1	R4 *	0.30

Schedule B1

HYDRO ONE NETWORKS INC.

Transmission Lines

Account: STSTRCT Steel Structures

T-Cut: None

Placement Band: 1910-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Rolling Band Life Analysis

Observation Band	Censoring	First Degree Average Life	First Degree Disper-sion	First Degree Conf. Index	Second Degree Average Life	Second Degree Disper-sion	Second Degree Conf. Index	Third Degree Average Life	Third Degree Disper-sion	Third Degree Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1967-1971	98.9	197.2	SQ*	0.17	197.2	SQ*	0.17	160.5	R4*	0.19
1968-1972	96.5	187.3	R4	0.78	189.2	R5	0.79	195.1	SQ*	0.72
1969-1973	96.6	187.8	R4	0.78	192.9	S6*	0.78	195.2	SQ*	0.72
1970-1974	94.7	188.2	R4	1.81	194.4	SQ*	1.81	195.4	SQ*	1.75
1971-1975	98.3	188.7	R4*	0.30	194.1	SQ*	0.30	196.4	SQ*	0.25
1972-1976	98.6	189.5	R5*	0.21	195.5	SQ*	0.22	196.5	SQ*	0.20
1973-1977	99.7	198.5	SQ*	0.05	198.5	SQ*	0.05	175.1	R4*	0.04
1974-1978	99.7	198.5	SQ*	0.04	198.5	SQ*	0.04	179.2	R4*	0.03
1975-1979	99.4	198.0	SQ*	0.12	195.9	S6*	0.14	198.1	SQ*	0.14
1976-1980	99.0	197.6	S6*	0.26	193.6	S6*	0.28	197.3	SQ*	0.28
1977-1981	99.2	197.8	SQ*	0.16	192.8	R5*	0.19	197.9	SQ*	0.19
1978-1982	99.3	197.9	SQ*	0.09	194.2	S6*	0.11	197.9	SQ*	0.11
1979-1983	99.2	197.7	SQ*	0.08	191.3	R5*	0.09	188.6	R5*	0.09
1980-1984	99.5	198.2	SQ*	0.06	196.0	S6	0.06	178.6	R4*	0.05
1981-1985	99.8	198.5	SQ	0.03	197.4	SQ	0.03	186.8	R5*	0.02
1982-1986	99.7	198.2	SQ	0.04	196.7	S6	0.04	190.5	R5	0.04
1983-1987	99.7	198.3	SQ	0.04	196.8	S6	0.03	192.5	R5	0.04
1984-1988	99.7	198.4	SQ	0.07	198.8	SQ*	0.06	198.8	SQ*	0.06
1985-1989	99.9	198.4	SQ	0.03	198.8	SQ*	0.04	198.8	SQ*	0.04
1986-1990	99.7	198.3	SQ*	0.06	198.5	SQ*	0.05	196.1	S6*	0.04
1987-1991	98.7	197.3	SQ*	0.34	192.2	R5	0.31	196.8	SQ*	0.20
1988-1992	98.8	197.2	SQ*	0.19	192.9	S6	0.17	196.9	SQ*	0.12
1989-1993	99.1	197.3	SQ*	0.10	192.6	R5	0.09	197.1	SQ*	0.11
1990-1994	99.1	197.2	SQ*	0.13	192.2	R5*	0.16	197.0	SQ*	0.19
1991-1995	99.1	197.5	S6*	0.10	192.3	R5*	0.08	197.3	SQ*	0.07
1992-1996	99.8	198.7	SQ*	0.03	198.1	SQ	0.03	198.7	SQ*	0.03
1993-1997	99.8	198.7	SQ*	0.04	197.5	SQ	0.03	198.6	SQ*	0.03
1994-1998	99.5	198.6	SQ*	0.21	197.4	SQ	0.20	198.5	SQ*	0.16
1995-1999	99.4	197.6	S6	0.17	198.3	SQ*	0.17	198.3	SQ*	0.12
1996-2000	65.3	188.7	R4	10.93	194.4	SQ*	10.95	194.5	S6*	10.93
1997-2001	73.4	189.1	R5	8.42	194.4	SQ*	8.46	194.5	SQ*	8.43
1998-2002	97.2	188.6	R4	0.75	193.8	S6*	0.70	193.9	S6*	0.67
1999-2003	97.0	189.0	R5	0.76	193.8	S6*	0.64	193.8	S6*	0.62
2000-2004	96.8	187.8	R4	1.13	192.4	SQ*	0.73	192.2	SQ*	0.75
2001-2005	98.0	195.0	SQ*	0.45	195.8	SQ*	0.19	179.1	R4*	0.16
2002-2006	90.9	191.0	R5*	4.62	169.9	R3*	3.47	183.7	R4*	1.67
2003-2007	90.2	188.9	R5*	3.98	170.3	R3*	2.88	182.6	R4*	1.47
2004-2008	90.6	187.2	R4*	2.48	171.9	R3	1.61	181.5	R3*	1.12

Schedule B1

HYDRO ONE NETWORKS INC.

Transmission Lines

Account: STSTRCT Steel Structures

T-Cut: None

Placement Band: 1910-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Rolling Band Life Analysis

Observation Band	Censoring	First Degree Average Life	First Degree Disper-sion	First Degree Conf. Index	Second Degree Average Life	Second Degree Disper-sion	Second Degree Conf. Index	Third Degree Average Life	Third Degree Disper-sion	Third Degree Conf. Index
A	B	C	D	E	F	G	H	I	J	K
2005-2009	88.0	187.7	R4 *	5.40	167.6	R2.5	3.99	180.1	R3 *	2.24
2006-2010	91.3	186.0	R4 *	1.35	169.9	R2.5	1.04	179.5	R3 *	2.27
2007-2011	92.7	185.9	R4 *	1.24	188.1	R4 *	0.78	163.0	R4 *	0.40
2008-2012	93.0	185.5	R4	0.90	186.9	R4 *	0.78	168.3	R3 *	0.41
2009-2013	94.1	187.8	R4	0.64	185.6	R4	0.77	173.0	R3	0.46

Schedule B2

HYDRO ONE NETWORKS INC.

Transmission Lines

Account: STSTRCT Steel Structures

T-Cut: None

Placement Band: 1910-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Shrinking Band Life Analysis

Observation Band	Censoring	First Degree Average Life	First Degree Disper-sion	First Degree Conf. Index	Second Degree Average Life	Second Degree Disper-sion	Second Degree Conf. Index	Third Degree Average Life	Third Degree Disper-sion	Third Degree Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1929-2013	97.2	193.7	S6	0.15	193.7	S6	0.15	195.4	SQ *	0.16
1931-2013	97.2	193.7	S6	0.15	193.7	S6	0.15	195.4	SQ *	0.16
1933-2013	97.2	193.7	S6	0.15	193.7	S6	0.14	195.4	SQ *	0.15
1935-2013	97.1	193.7	S6	0.14	193.6	S6	0.14	195.4	SQ *	0.16
1937-2013	97.1	193.8	S6	0.14	193.6	S6	0.14	195.4	SQ *	0.16
1939-2013	97.1	193.8	S6	0.14	193.5	SQ	0.15	195.4	SQ *	0.16
1941-2013	97.1	193.8	S6	0.14	193.5	SQ	0.15	195.3	SQ *	0.16
1943-2013	97.1	193.8	S6	0.14	193.4	SQ	0.15	195.3	SQ *	0.16
1945-2013	97.1	193.8	S6	0.14	193.4	SQ	0.15	195.3	SQ *	0.16
1947-2013	97.1	193.8	S6	0.15	193.4	SQ	0.15	195.3	SQ *	0.16
1949-2013	97.1	193.8	S6	0.15	193.3	SQ	0.15	195.2	SQ *	0.16
1951-2013	97.1	193.7	S6	0.15	193.5	S6	0.15	195.2	SQ *	0.16
1953-2013	97.0	193.7	S6	0.14	193.4	SQ	0.14	195.2	SQ *	0.15
1955-2013	97.0	193.7	S6	0.14	193.5	SQ	0.14	195.2	SQ *	0.15
1957-2013	97.0	193.7	S6	0.14	193.3	SQ	0.15	195.1	SQ *	0.16
1959-2013	97.0	193.7	S6	0.14	193.2	S6	0.15	195.1	SQ *	0.16
1961-2013	96.9	193.7	S6	0.14	193.1	S6	0.15	195.0	SQ *	0.16
1963-2013	96.9	193.7	S6	0.15	193.4	SQ	0.15	195.0	SQ *	0.16
1965-2013	96.9	193.6	S6	0.15	193.6	S6	0.15	194.9	SQ *	0.16
1967-2013	96.9	193.6	S6	0.15	193.6	S6	0.15	194.9	SQ *	0.16
1969-2013	96.8	193.5	SQ	0.16	193.6	S6	0.16	194.8	S6 *	0.16
1971-2013	96.9	193.4	SQ	0.16	193.8	S6	0.16	194.9	SQ *	0.17
1973-2013	96.8	193.7	S6	0.15	193.3	SQ	0.15	194.9	SQ *	0.16
1975-2013	96.8	193.6	S6	0.16	193.1	S6	0.16	194.8	S6 *	0.17
1977-2013	96.7	193.6	S6	0.17	192.9	S6	0.17	194.7	S6 *	0.17
1979-2013	96.6	193.5	SQ	0.18	192.7	S6	0.18	194.5	SQ *	0.18
1981-2013	96.6	193.2	SQ	0.18	193.3	SQ	0.18	194.5	SQ *	0.18
1983-2013	96.3	193.1	S6	0.25	192.9	S6	0.26	194.2	SQ *	0.25
1985-2013	96.1	193.0	S6	0.29	192.7	S6	0.29	194.0	SQ *	0.27
1987-2013	96.0	192.8	S6	0.26	192.3	R5	0.26	193.6	S6 *	0.25
1989-2013	95.8	192.5	S6	0.25	191.8	R5	0.26	193.3	SQ *	0.25
1991-2013	95.5	192.2	SQ*	0.33	191.3	R5	0.33	192.8	S6 *	0.30
1993-2013	94.8	191.8	R5	0.83	192.1	R5 *	0.87	192.7	S6 *	0.82
1995-2013	94.6	191.3	R5*	0.70	191.3	R5	0.73	192.0	R5 *	0.67
1997-2013	93.7	190.6	R5*	1.19	189.9	R5	1.19	190.9	R5 *	1.07
1999-2013	93.3	189.7	R5*	0.96	188.3	R4	0.92	189.7	R5 *	0.78
2001-2013	93.3	190.5	R5*	0.96	183.1	R4	0.64	188.7	R5 *	0.52
2003-2013	92.1	189.4	R5*	1.01	179.9	R4	0.64	187.0	R4 *	0.62

Schedule B2

HYDRO ONE NETWORKS INC.

Transmission Lines

Account: STSTRCT Steel Structures

T-Cut: None

Placement Band: 1910-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Shrinking Band Life Analysis

Observation Band	Censoring	First Degree Average Life	First Degree Disper-sion	First Degree Conf. Index	Second Degree Average Life	Second Degree Disper-sion	Second Degree Conf. Index	Third Degree Average Life	Third Degree Disper-sion	Third Degree Conf. Index
A	B	C	D	E	F	G	H	I	J	K
2005-2013	91.1	188.7	R5 *	1.50	175.0	R3	0.83	184.9	R4 *	0.81
2007-2013	93.5	187.9	R4 *	0.88	188.8	R5 *	0.72	166.7	R4 *	0.33
2009-2013	94.1	187.8	R4	0.64	185.6	R4	0.77	173.0	R3	0.46
2011-2013	91.9	186.6	R4	1.08	178.3	R3	0.62	170.0	R3	0.81
2013-2013	100.0				No Retirements					

Schedule B3

HYDRO ONE NETWORKS INC.

Transmission Lines

Account: STSTRCT Steel Structures

T-Cut: None
Placement Band: 1910-2013
Hazard Function: Proportion Retired
Weighting: Exposures

Progressing Band Life Analysis

		First Degree			Second Degree			Third Degree		
Observation Band	Censoring	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1929-1930	99.1	197.8	SQ*	0.30	196.6	S6*	0.27	43.7	R4*	0.44
1929-1932	99.5	198.5	SQ*	0.27	198.0	SQ*	0.17	55.6	R4*	0.10
1929-1934	99.8	198.7	SQ*	0.10	198.5	SQ*	0.06	67.3	R4*	0.05
1929-1936	99.9	198.8	SQ*	0.03	198.7	SQ*	0.04	79.6	S3*	0.04
1929-1938	99.9	198.8	SQ*	0.02	198.8	SQ*	0.03	91.9	S3*	0.04
1929-1940	99.9	198.8	SQ*	0.01	198.8	SQ*	0.02	99.9	S3*	0.02
1929-1942	99.9	198.9	SQ*	0.01	198.8	SQ*	0.02	109.5	S3*	0.01
1929-1944	99.9	198.9	SQ*	0.01	198.9	SQ*	0.01	118.1	S3*	0.01
1929-1946	100.0	198.9	SQ*	0.01	198.9	SQ*	0.01	126.9	S3*	0.01
1929-1948	99.9	198.9	SQ*	0.01	198.9	SQ*	0.01	131.8	S3*	0.01
1929-1950	99.9	198.8	SQ*	0.02	187.2	R4*	0.01	198.8	SQ*	0.01
1929-1952	99.9	198.8	SQ*	0.02	189.0	R5*	0.01	198.8	SQ*	0.01
1929-1954	99.8	198.6	SQ*	0.02	185.8	R4	0.01	198.6	SQ*	0.01
1929-1956	99.7	198.5	SQ*	0.03	188.9	R5	0.02	198.5	SQ*	0.02
1929-1958	99.7	198.5	SQ*	0.03	189.9	R5	0.03	198.5	SQ*	0.02
1929-1960	99.7	198.6	SQ*	0.03	192.2	R5	0.03	198.5	SQ*	0.02
1929-1962	99.7	198.5	SQ*	0.03	192.8	R5	0.02	198.5	SQ*	0.02
1929-1964	99.7	198.5	SQ*	0.03	189.5	R5	0.02	198.4	SQ*	0.02
1929-1966	99.7	198.5	SQ*	0.03	191.5	R5	0.02	198.4	SQ*	0.02
1929-1968	99.7	198.4	SQ*	0.02	193.7	S6	0.02	198.4	SQ*	0.02
1929-1970	99.6	198.2	SQ*	0.02	197.0	SQ	0.02	198.2	SQ*	0.02
1929-1972	99.0	195.6	S6	0.14	184.4	R4	0.13	197.1	SQ*	0.12
1929-1974	99.0	196.1	SQ	0.15	188.5	R5	0.14	197.5	SQ*	0.13
1929-1976	99.2	196.5	SQ	0.08	191.9	R5	0.08	197.6	S6*	0.07
1929-1978	99.3	196.9	SQ	0.06	193.9	S6	0.06	197.7	SQ*	0.05
1929-1980	99.3	197.5	S6*	0.05	194.3	S6	0.05	197.7	SQ*	0.05
1929-1982	99.4	197.7	SQ*	0.04	195.4	SQ	0.04	197.8	SQ*	0.04
1929-1984	99.3	197.7	SQ*	0.04	195.4	SQ	0.04	197.8	SQ*	0.04
1929-1986	99.3	197.8	SQ*	0.04	195.7	S6	0.04	197.9	SQ*	0.03
1929-1988	99.4	197.9	SQ*	0.03	196.4	SQ	0.03	197.9	SQ*	0.03
1929-1990	99.4	197.9	SQ*	0.03	197.0	SQ	0.03	197.9	SQ*	0.03
1929-1992	99.3	197.9	SQ*	0.04	196.4	SQ	0.04	197.8	SQ*	0.03
1929-1994	99.4	197.9	SQ*	0.04	196.7	S6	0.04	197.9	SQ*	0.03
1929-1996	99.4	198.0	SQ*	0.03	196.8	SQ	0.04	197.9	SQ*	0.03
1929-1998	99.4	198.0	SQ*	0.03	196.7	S6	0.03	197.9	SQ*	0.03
1929-2000	98.9	195.9	SQ	0.09	195.5	SQ	0.09	197.2	SQ*	0.09
1929-2002	98.9	195.9	SQ	0.09	196.5	S6*	0.09	197.1	SQ*	0.09
1929-2004	98.8	195.6	S6	0.12	196.9	SQ*	0.09	197.0	SQ*	0.10

Schedule B3

HYDRO ONE NETWORKS INC.

Transmission Lines

Account: STSTRCT Steel Structures

T-Cut: None
Placement Band: 1910-2013
Hazard Function: Proportion Retired
Weighting: Exposures

Progressing Band Life Analysis

		First Degree			Second Degree			Third Degree		
Observation Band	Censoring	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1929-2006	98.6	196.0	SQ	0.10	194.6	S6	0.11	196.7	SQ *	0.12
1929-2008	98.4	195.3	SQ	0.13	196.1	SQ *	0.11	196.4	SQ *	0.13
1929-2010	98.2	194.8	S6	0.14	196.0	SQ *	0.11	196.2	SQ *	0.12
1929-2012	97.1	193.5	SQ	0.15	193.2	S6	0.16	195.3	SQ *	0.16
1929-2013	97.2	193.7	S6	0.15	193.7	S6	0.15	195.4	SQ *	0.16

HYDRO ONE NETWORKS INC.

Transmission Lines

Account: STSTRCT Steel Structures

T-Cut: None

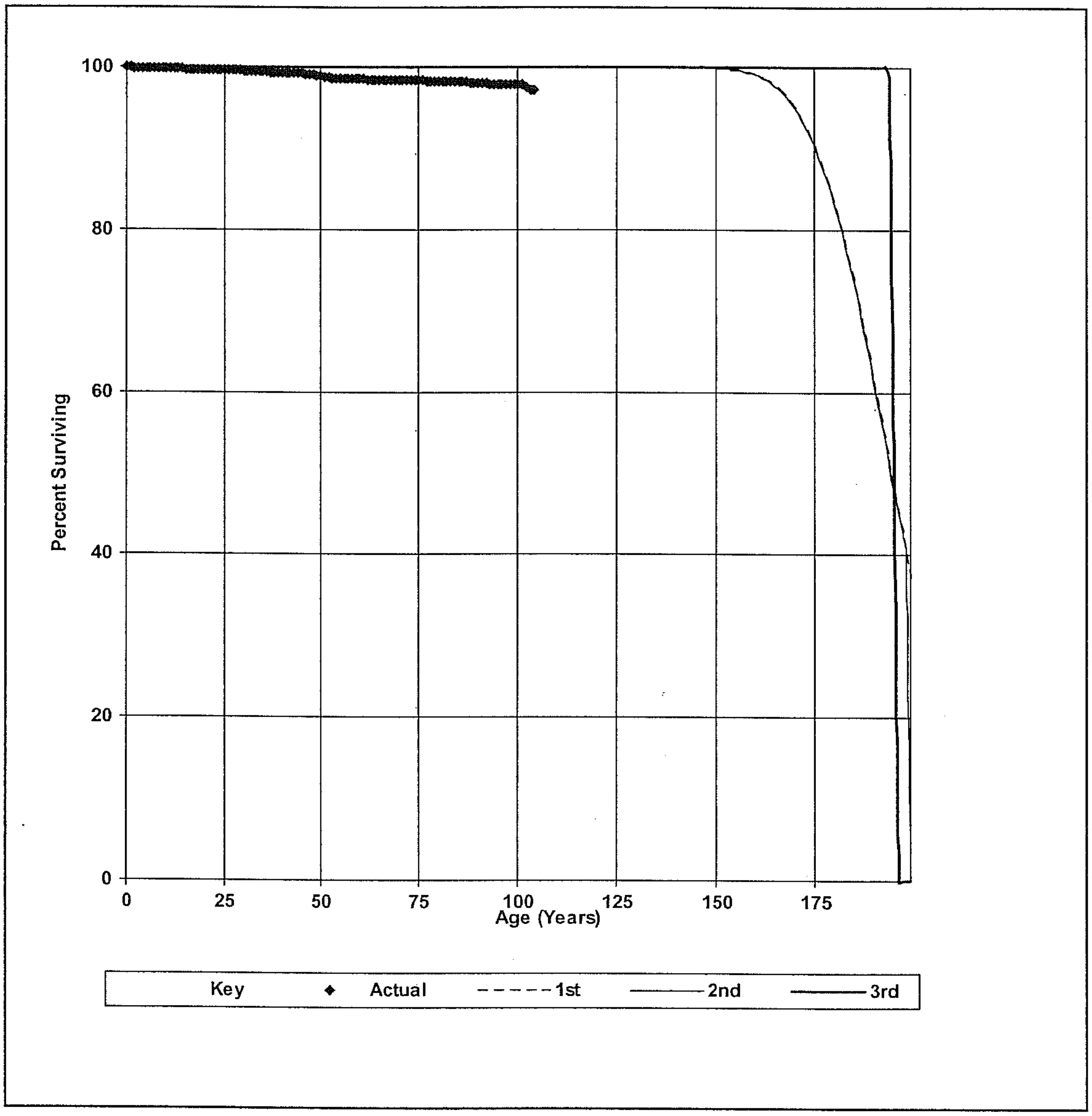
Placement Band: 1910-2013 Observation Band: 1929-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Graphics Analysis

1st: 193.7-S6 2nd: 193.7-S6 3rd: 195.4-SQ



Schedule D

HYDRO ONE NETWORKS INC.

Transmission Lines

Account: STSTRCT Steel Structures

T-Cut: None

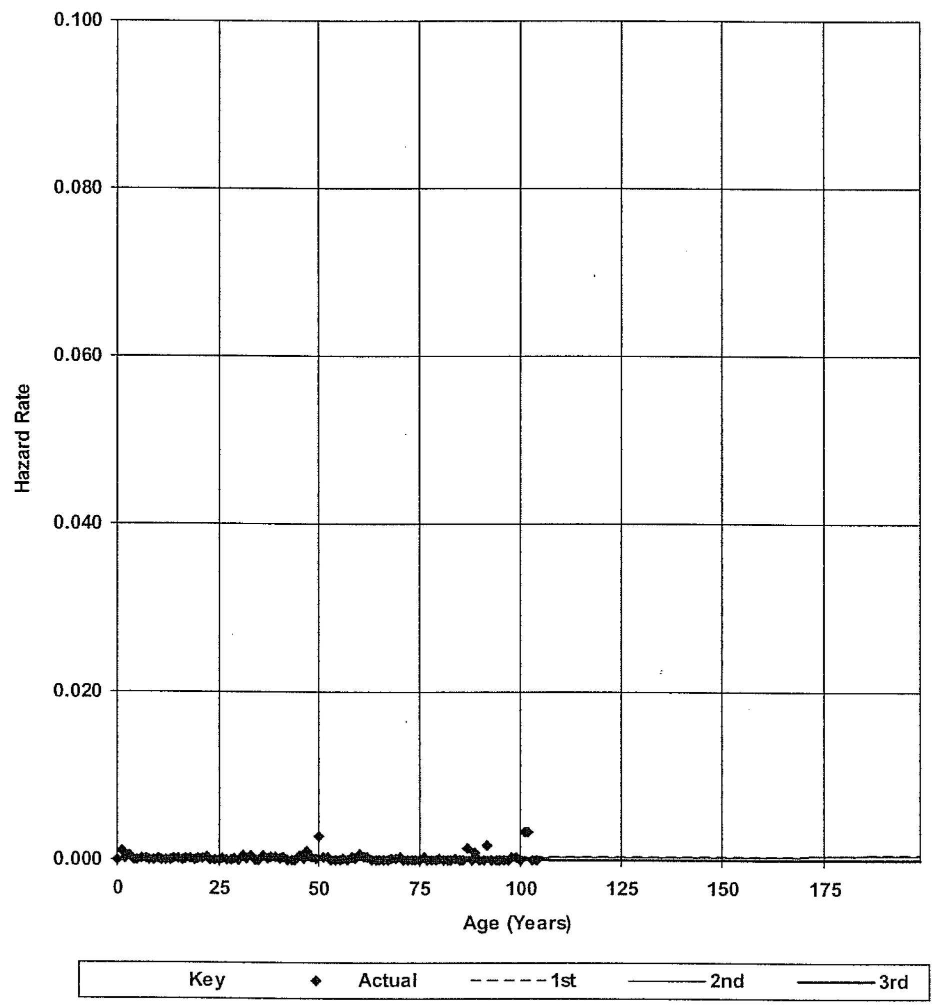
Placement Band: 1910-2013 Observation Band: 1929-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Polynomial Hazard Function

1st: 193.7-S6 2nd: 193.7-S6 3rd: 195.4-SQ



Schedule E

HYDRO ONE NETWORKS INC.

Transmission Lines

Account: STSTRCT Steel Structures

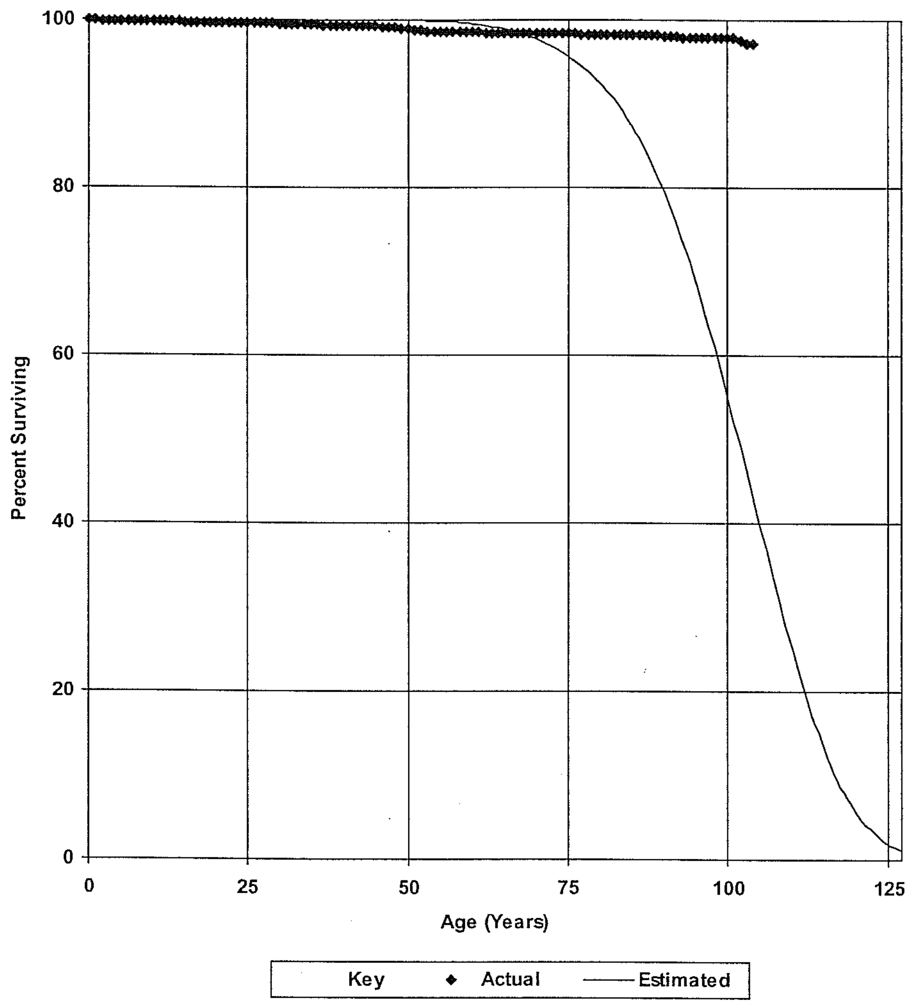
T-Cut: None

Placement Band: 1910-2013

Observation Band: 1929-2013

100.0-R5

Estimated Projection Life Curve



Schedule A

HYDRO ONE NETWORKS INC.

Transmission Lines

Account: UGCABLE Underground Cables (in Metres)

Placement Band: 1951 - 2009
Observation Band: 1999 - 2013

Observed Life Table

Age at Beginning of Interval	Exposures	Retirements	Conditional Proportion Retired	Conditional Proportion Surviving	Cumulative Proportion Surviving
A	B	C	D=C/B	E=1-D	F
0.0	18,700	0	0.00000	1.00000	1.00000
0.5	18,700	0	0.00000	1.00000	1.00000
1.5	18,700	0	0.00000	1.00000	1.00000
2.5	19,200	0	0.00000	1.00000	1.00000
3.5	19,200	0	0.00000	1.00000	1.00000
4.5	17,400	0	0.00000	1.00000	1.00000
5.5	25,100	0	0.00000	1.00000	1.00000
6.5	40,300	0	0.00000	1.00000	1.00000
7.5	44,900	0	0.00000	1.00000	1.00000
8.5	43,600	0	0.00000	1.00000	1.00000
9.5	46,600	0	0.00000	1.00000	1.00000
10.5	51,100	0	0.00000	1.00000	1.00000
11.5	55,300	0	0.00000	1.00000	1.00000
12.5	55,300	0	0.00000	1.00000	1.00000
13.5	45,000	0	0.00000	1.00000	1.00000
14.5	45,000	0	0.00000	1.00000	1.00000
15.5	45,000	0	0.00000	1.00000	1.00000
16.5	69,700	0	0.00000	1.00000	1.00000
17.5	73,100	0	0.00000	1.00000	1.00000
18.5	78,900	0	0.00000	1.00000	1.00000
19.5	78,900	0	0.00000	1.00000	1.00000
20.5	78,300	0	0.00000	1.00000	1.00000
21.5	68,900	0	0.00000	1.00000	1.00000
22.5	70,000	0	0.00000	1.00000	1.00000
23.5	79,400	0	0.00000	1.00000	1.00000
24.5	86,400	0	0.00000	1.00000	1.00000
25.5	97,000	0	0.00000	1.00000	1.00000
26.5	92,800	0	0.00000	1.00000	1.00000
27.5	105,200	0	0.00000	1.00000	1.00000
28.5	109,400	0	0.00000	1.00000	1.00000
29.5	110,700	0	0.00000	1.00000	1.00000
30.5	121,200	1,900	0.01568	0.98432	1.00000
31.5	95,900	0	0.00000	1.00000	0.98432
32.5	102,000	0	0.00000	1.00000	0.98432
33.5	99,800	0	0.00000	1.00000	0.98432
34.5	102,300	0	0.00000	1.00000	0.98432
35.5	89,900	0	0.00000	1.00000	0.98432

HYDRO ONE NETWORKS INC.

Transmission Lines

Account: UGCABLE Underground Cables (in Metres)

Placement Band: 1951 - 2009
Observation Band: 1999 - 2013

Observed Life Table

Age at Beginning of Interval	Exposures	Retirements	Conditional Proportion Retired	Conditional Proportion Surviving	Cumulative Proportion Surviving
A	B	C	D=C/B	E=1-D	F
36.5	84,100	2,000	0.02378	0.97622	0.98432
37.5	95,600	0	0.00000	1.00000	0.96092
38.5	87,600	0	0.00000	1.00000	0.96092
39.5	87,400	0	0.00000	1.00000	0.96092
40.5	74,100	0	0.00000	1.00000	0.96092
41.5	86,100	0	0.00000	1.00000	0.96092
42.5	79,900	0	0.00000	1.00000	0.96092
43.5	79,500	1,400	0.01761	0.98239	0.96092
44.5	76,800	0	0.00000	1.00000	0.94399
45.5	73,300	3,400	0.04638	0.95362	0.94399
46.5	68,600	0	0.00000	1.00000	0.90021
47.5	64,600	0	0.00000	1.00000	0.90021
48.5	61,000	0	0.00000	1.00000	0.90021
49.5	58,500	800	0.01368	0.98632	0.90021
50.5	57,700	1,300	0.02253	0.97747	0.88790
51.5	56,400	0	0.00000	1.00000	0.86789
52.5	42,000	0	0.00000	1.00000	0.86789
53.5	40,600	0	0.00000	1.00000	0.86789
54.5	30,800	0	0.00000	1.00000	0.86789
55.5	29,000	13,000	0.44828	0.55172	0.86789
56.5	15,200	2,400	0.15789	0.84211	0.47884
57.5	9,000	0	0.00000	1.00000	0.40323
58.5	5,200	0	0.00000	1.00000	0.40323
59.5	5,200	0	0.00000	1.00000	0.40323
60.5	5,200	0	0.00000	1.00000	0.40323
61.5	5,200	2,400	0.46154	0.53846	0.40323
62.5	0	0	0.00000	1.00000	0.21712

Schedule B1

HYDRO ONE NETWORKS INC.

Transmission Lines

Account: UGCABLE Underground Cables (in Metres)

T-Cut: None

Placement Band: 1951-2009

Hazard Function: Proportion Retired

Weighting: Exposures

Rolling Band Life Analysis

Observation Band	Censoring	First Degree Average Life	First Degree Disper-sion	First Degree Conf. Index	Second Degree Average Life	Second Degree Disper-sion	Second Degree Conf. Index	Third Degree Average Life	Third Degree Disper-sion	Third Degree Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1999-2003	85.1	116.6	L1.5 *	1.84	99.7	S1 *	1.89	72.3	R4 *	1.87
2000-2004	76.9	101.8	L2 *	4.21	67.2	R3 *	5.24	59.2	R5 *	3.99
2001-2005	70.7	80.0	L2 *	3.41	65.6	S3 *	2.74	63.1	R4 *	2.46
2002-2006	78.5	89.0	L2 *	2.03	74.8	S2 *	1.88	133.2	SC *	1.92
2003-2007	72.9	72.4	L2 *	3.25	65.5	S2 *	1.96	132.7	SC *	5.93
2004-2008	73.5	74.1	L2 *	3.04	68.3	S2 *	2.48	139.2	SC *	7.72
2005-2009	57.3	72.8	L2 *	3.76	65.7	S3 *	3.20	66.9	S2 *	3.32
2006-2010	62.6	85.1	L2 *	5.01	69.4	S3 *	4.68	68.2	R4 *	4.46
2007-2011	71.5	87.3	L2 *	3.59	72.7	S3 *	3.17	72.1	S3 *	3.07
2008-2012	84.7	119.8	L2 *	3.05	82.0	S3 *	3.97	73.6	S4 *	2.43
2009-2013	18.6	57.1	L3 *	17.48	41.8	R0.5 *	30.01	50.2	R3 *	17.31

Schedule B2

HYDRO ONE NETWORKS INC.

Transmission Lines

Account: UGCABLE Underground Cables (in Metres)

T-Cut: None

Placement Band: 1951-2009

Hazard Function: Proportion Retired

Weighting: Exposures

Shrinking Band Life Analysis

		First Degree			Second Degree			Third Degree		
Observation Band	Censoring	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1999-2013	21.7	65.0	L3 *	10.26	51.6	R2.5 *	14.37	54.3	R4 *	8.24
2001-2013	22.0	63.9	L3 *	10.71	50.7	R2 *	15.90	54.2	R4 *	8.77
2003-2013	21.9	62.4	L3 *	10.75	49.0	R1.5 *	17.83	54.0	R4 *	8.87
2005-2013	21.8	60.7	L3 *	10.80	47.6	R1.5 *	19.25	53.7	R4 *	9.13
2007-2013	22.6	59.2	L3 *	12.82	44.8	R1 *	24.18	52.7	R4 *	11.54
2009-2013	18.6	57.1	L3 *	17.48	41.8	R0.5 *	30.01	50.2	R3 *	17.31
2011-2013	20.1	52.5	S3 *	22.11	35.0	SC *	39.91	48.3	R2.5 *	20.26
2013-2013	2.2	42.5	S4 *	38.82	13.8	O4 *	71.91	40.2	R1 *	33.15

Schedule B3

HYDRO ONE NETWORKS INC.

Transmission Lines

Account: UGCABLE Underground Cables (in Metres)

T-Cut: None

Placement Band: 1951-2009

Hazard Function: Proportion Retired

Weighting: Exposures

Progressing Band Life Analysis

		First Degree			Second Degree			Third Degree		
Observation Band	Censoring	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1999-2000	83.9	104.4	L1	4.11	172.0	R2 *	3.48	167.2	R1 *	3.61
1999-2002	80.9	104.8	L1.5 *	2.21	87.2	S1.5 *	2.17	66.4	R4 *	2.35
1999-2004	73.6	97.9	L2 *	3.70	71.5	R3 *	3.52	60.5	R4 *	3.18
1999-2006	74.9	89.8	L2 *	2.39	75.1	S2 *	2.45	71.4	R3 *	2.44
1999-2008	79.6	84.2	L2 *	1.88	72.3	S2 *	1.39	131.7	SC *	1.96
1999-2010	61.6	84.8	L2 *	4.11	70.3	S3 *	3.34	67.2	S3 *	3.15
1999-2012	77.1	93.1	L2 *	1.78	77.8	S2 *	1.17	79.3	S2 *	1.21
1999-2013	21.7	65.0	L3 *	10.26	51.6	R2.5 *	14.37	54.3	R4 *	8.24

Schedule C

HYDRO ONE NETWORKS INC.

Transmission Lines

Account: UGCABLE Underground Cables (in Metres)

T-Cut: None

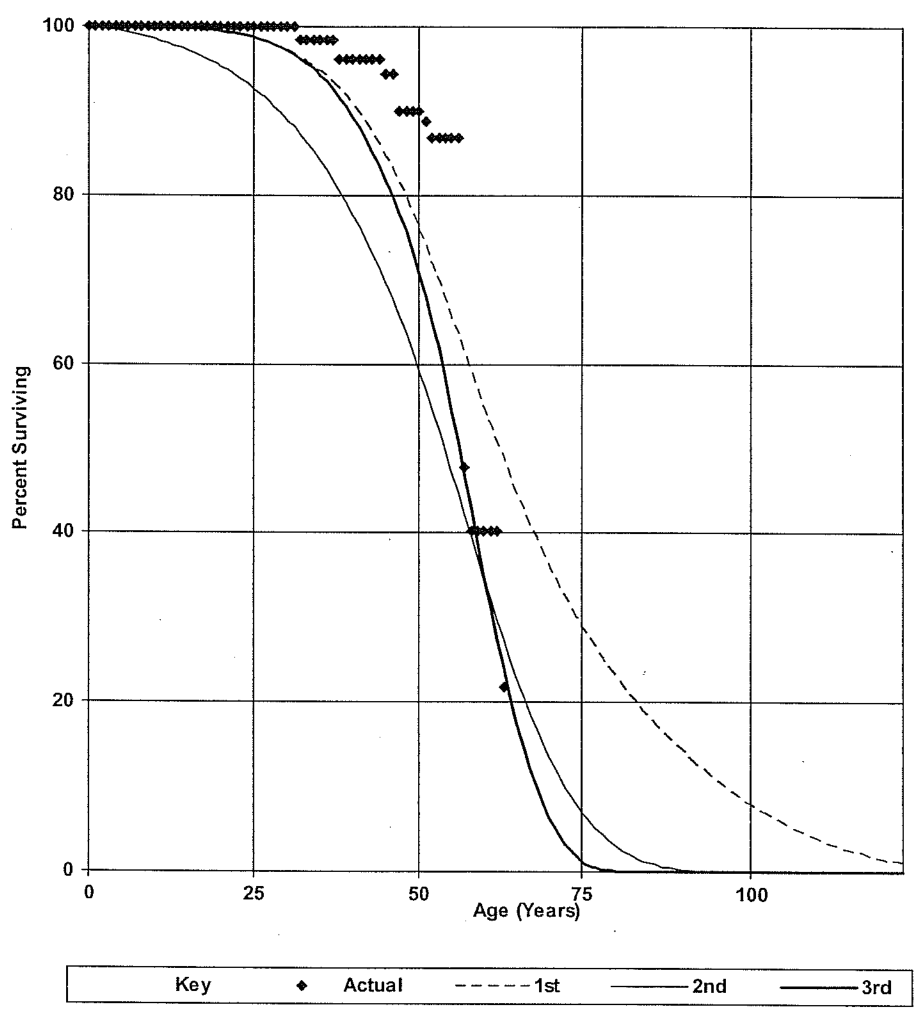
Placement Band: 1951-2009 Observation Band: 1999-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Graphics Analysis

1st: 65.0-L3 2nd: 51.6-R2.5 3rd: 54.3-R4



HYDRO ONE NETWORKS INC.

Transmission Lines

Account: UGCABLE Underground Cables (in Metres)

T-Cut: None

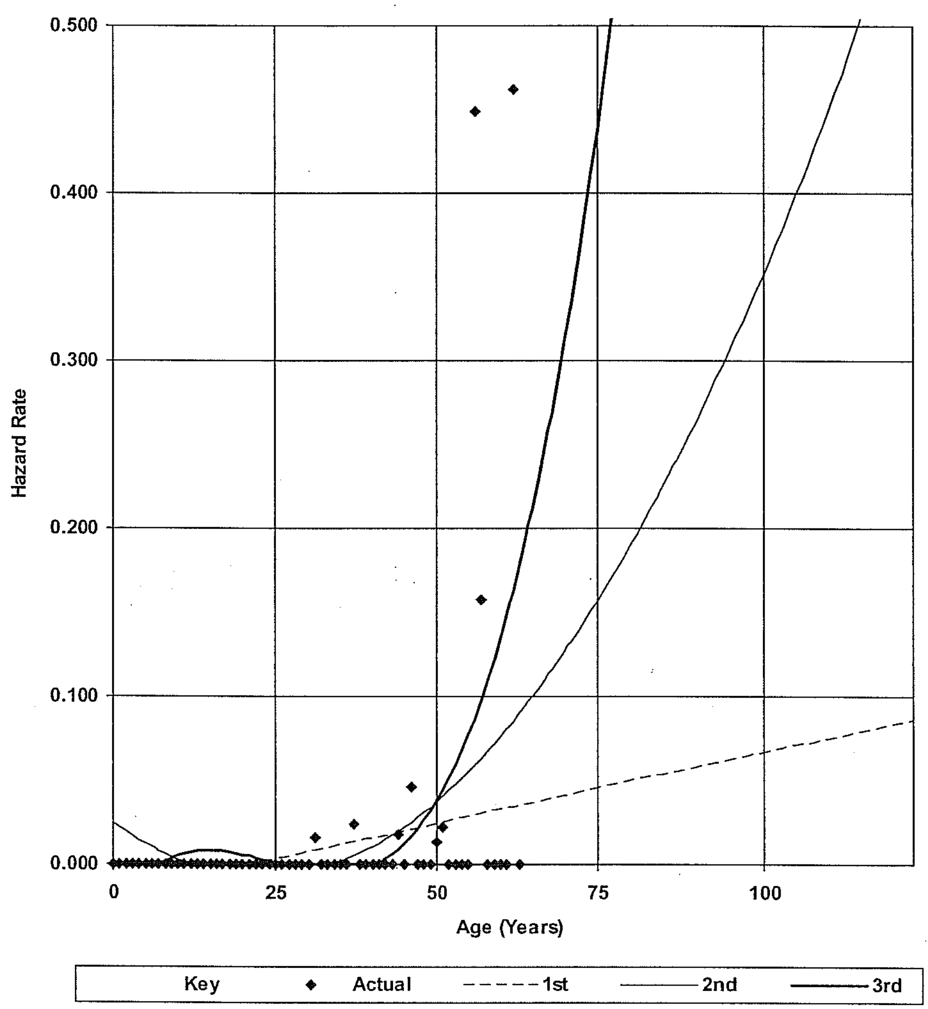
Placement Band: 1951-2009 Observation Band: 1999-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Polynomial Hazard Function

1st: 65.0-L3 2nd: 51.6-R2.5 3rd: 54.3-R4



Schedule E

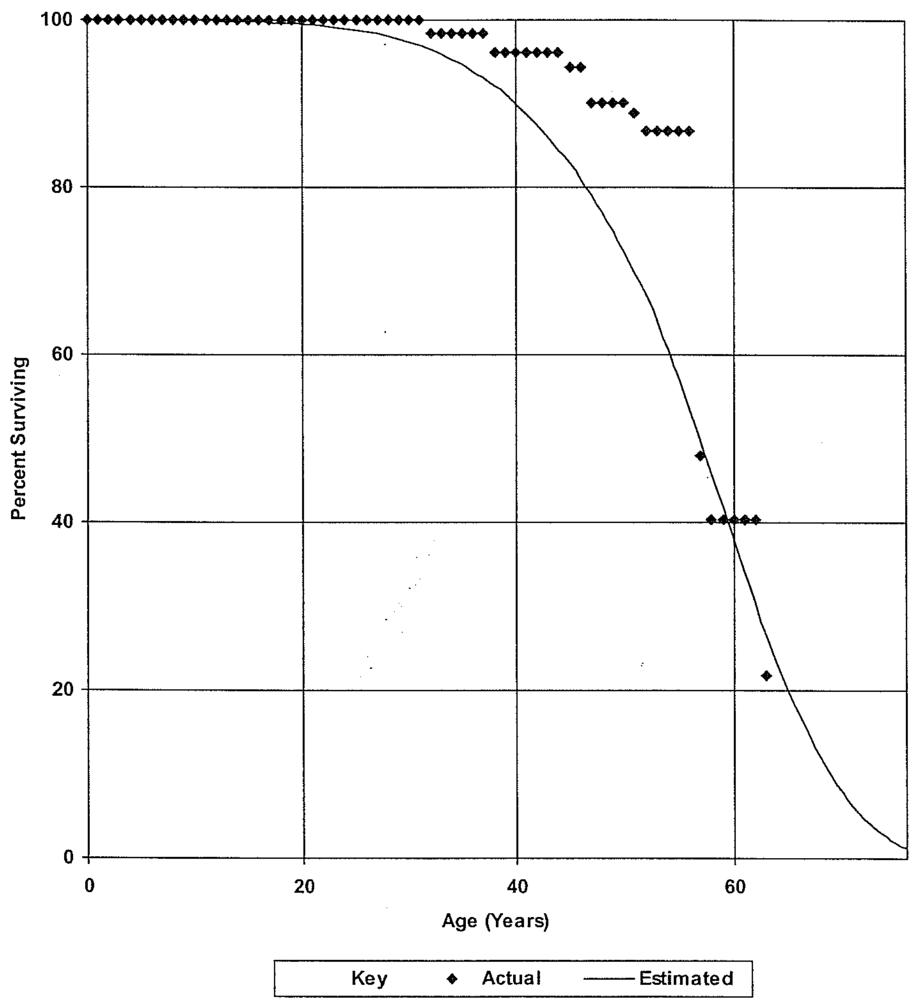
HYDRO ONE NETWORKS INC.

Transmission Lines

Account: UGCABLE Underground Cables (in Metres)

T-Cut: None
Placement Band: 1951-2009
Observation Band: 1999-2013
55.0-R4

Estimated Projection Life Curve



HYDRO ONE NETWORKS INC.

Transmission Lines

Account: WDPOLES Wood Poles

Placement Band: 1910 - 2013
Observation Band: 1922 - 2013

Observed Life Table

Age at Beginning of Interval	Exposures	Retirements	Conditional Proportion Retired	Conditional Proportion Surviving	Cumulative Proportion Surviving
A	B	C	D=C/B	E=1-D	F
0.0	44,126	0	0.00000	1.00000	1.00000
0.5	44,173	7	0.00016	0.99984	1.00000
1.5	45,028	14	0.00031	0.99969	0.99984
2.5	44,728	13	0.00029	0.99971	0.99953
3.5	44,258	49	0.00111	0.99889	0.99924
4.5	43,797	48	0.00110	0.99890	0.99813
5.5	43,228	12	0.00028	0.99972	0.99704
6.5	42,628	44	0.00103	0.99897	0.99676
7.5	42,329	20	0.00047	0.99953	0.99573
8.5	42,024	10	0.00024	0.99976	0.99526
9.5	41,515	5	0.00012	0.99988	0.99503
10.5	39,595	3	0.00008	0.99992	0.99491
11.5	37,354	3	0.00008	0.99992	0.99483
12.5	37,055	1	0.00003	0.99997	0.99475
13.5	35,956	1	0.00003	0.99997	0.99473
14.5	35,195	0	0.00000	1.00000	0.99470
15.5	34,981	2	0.00006	0.99994	0.99470
16.5	34,703	1	0.00003	0.99997	0.99464
17.5	34,632	4	0.00012	0.99988	0.99461
18.5	34,598	6	0.00017	0.99983	0.99450
19.5	34,589	3	0.00009	0.99991	0.99432
20.5	34,586	1	0.00003	0.99997	0.99424
21.5	34,584	2	0.00006	0.99994	0.99421
22.5	34,558	30	0.00087	0.99913	0.99415
23.5	34,521	1	0.00003	0.99997	0.99329
24.5	34,516	16	0.00046	0.99954	0.99326
25.5	34,498	1	0.00003	0.99997	0.99280
26.5	34,482	244	0.00708	0.99292	0.99277
27.5	34,221	9	0.00026	0.99974	0.98575
28.5	34,135	241	0.00706	0.99294	0.98549
29.5	33,893	12	0.00035	0.99965	0.97853
30.5	33,881	431	0.01272	0.98728	0.97818
31.5	33,425	62	0.00185	0.99815	0.96574
32.5	33,007	10	0.00030	0.99970	0.96395
33.5	32,993	30	0.00091	0.99909	0.96366
34.5	32,879	29	0.00088	0.99912	0.96278
35.5	32,705	100	0.00306	0.99694	0.96193

Schedule A

HYDRO ONE NETWORKS INC.

Transmission Lines

Account: WDPOLES Wood Poles

Placement Band: 1910 - 2013
Observation Band: 1922 - 2013

Observed Life Table

Age at Beginning of Interval	Exposures	Retirements	Conditional Proportion Retired	Conditional Proportion Surviving	Cumulative Proportion Surviving
A	B	C	D=C/B	E=1-D	F
36.5	32,235	93	0.00289	0.99711	0.95899
37.5	31,484	59	0.00187	0.99813	0.95622
38.5	30,260	63	0.00208	0.99792	0.95443
39.5	30,094	47	0.00156	0.99844	0.95244
40.5	29,367	398	0.01355	0.98645	0.95096
41.5	28,150	124	0.00440	0.99560	0.93807
42.5	26,914	37	0.00137	0.99863	0.93394
43.5	26,790	79	0.00295	0.99705	0.93265
44.5	26,575	64	0.00241	0.99759	0.92990
45.5	25,896	467	0.01803	0.98197	0.92766
46.5	24,970	372	0.01490	0.98510	0.91093
47.5	24,437	278	0.01138	0.98862	0.89736
48.5	24,057	68	0.00283	0.99717	0.88715
49.5	23,558	109	0.00463	0.99537	0.88465
50.5	23,231	135	0.00581	0.99419	0.88055
51.5	22,927	427	0.01862	0.98138	0.87544
52.5	22,488	82	0.00365	0.99635	0.85913
53.5	22,406	533	0.02379	0.97621	0.85600
54.5	21,783	480	0.02204	0.97796	0.83564
55.5	20,266	181	0.00893	0.99107	0.81722
56.5	18,618	85	0.00457	0.99543	0.80992
57.5	18,230	151	0.00828	0.99172	0.80623
58.5	17,290	149	0.00862	0.99138	0.79955
59.5	16,985	176	0.01036	0.98964	0.79266
60.5	15,827	274	0.01731	0.98269	0.78444
61.5	15,060	187	0.01242	0.98758	0.77086
62.5	13,450	529	0.03933	0.96067	0.76129
63.5	11,632	36	0.00309	0.99691	0.73135
64.5	11,581	38	0.00328	0.99672	0.72909
65.5	10,376	52	0.00501	0.99499	0.72669
66.5	10,034	61	0.00608	0.99392	0.72305
67.5	9,878	97	0.00982	0.99018	0.71866
68.5	9,491	113	0.01191	0.98809	0.71160
69.5	9,378	182	0.01941	0.98059	0.70313
70.5	9,004	206	0.02288	0.97712	0.68948
71.5	8,676	120	0.01383	0.98617	0.67371
72.5	8,510	81	0.00952	0.99048	0.66439

Schedule A

HYDRO ONE NETWORKS INC.

Transmission Lines

Account: WDPOLES Wood Poles

Placement Band: 1910 - 2013
Observation Band: 1922 - 2013

Observed Life Table

Age at Beginning of Interval	Exposures	Retirements	Conditional Proportion Retired	Conditional Proportion Surviving	Cumulative Proportion Surviving
A	B	C	D=C/B	E=1-D	F
73.5	7,922	76	0.00959	0.99041	0.65806
74.5	6,954	102	0.01467	0.98533	0.65175
75.5	6,851	29	0.00423	0.99577	0.64219
76.5	4,924	6	0.00122	0.99878	0.63947
77.5	3,965	22	0.00555	0.99445	0.63869
78.5	3,942	1	0.00025	0.99975	0.63515
79.5	3,752	704	0.18763	0.81237	0.63499
80.5	3,002	2	0.00067	0.99933	0.51584
81.5	2,995	1	0.00033	0.99967	0.51550
82.5	2,953	1	0.00034	0.99966	0.51533
83.5	2,280	0	0.00000	1.00000	0.51515
84.5	2,265	0	0.00000	1.00000	0.51515
85.5	1,592	0	0.00000	1.00000	0.51515
86.5	1,586	20	0.01261	0.98739	0.51515
87.5	1,158	18	0.01554	0.98446	0.50866
88.5	1,062	0	0.00000	1.00000	0.50075
89.5	620	0	0.00000	1.00000	0.50075
90.5	606	0	0.00000	1.00000	0.50075
91.5	566	1	0.00177	0.99823	0.50075
92.5	563	2	0.00355	0.99645	0.49987
93.5	402	0	0.00000	1.00000	0.49809
94.5	402	2	0.00498	0.99502	0.49809
95.5	400	0	0.00000	1.00000	0.49561
96.5	400	0	0.00000	1.00000	0.49561
97.5	315	3	0.00952	0.99048	0.49561
98.5	302	0	0.00000	1.00000	0.49089
99.5	201	0	0.00000	1.00000	0.49089
100.5	201	0	0.00000	1.00000	0.49089
101.5	201	1	0.00498	0.99502	0.49089
102.5	200	0	0.00000	1.00000	0.48845
103.5	0	0	0.00000	1.00000	0.48845

Schedule B1

HYDRO ONE NETWORKS INC.

Transmission Lines

Account: WDPOLES Wood Poles

T-Cut: None
Placement Band: 1910-2013
Hazard Function: Proportion Retired
Weighting: Exposures

Rolling Band Life Analysis

Observation Band	Censoring	First Degree Average Life	First Degree Disper-sion	First Degree Conf. Index	Second Degree Average Life	Second Degree Disper-sion	Second Degree Conf. Index	Third Degree Average Life	Third Degree Disper-sion	Third Degree Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1922-1926	99.2	117.1	S0 *	0.16	70.9	S1.5 *	0.12	196.9	SQ *	0.23
1923-1927	99.5	151.1	R1.5 *	0.10	88.2	S1.5 *	0.10	197.9	SQ *	0.12
1924-1928	99.7	159.0	R2 *	0.07	118.4	S1 *	0.07	198.0	SQ *	0.14
1925-1929	99.9	198.5	SQ *	0.03	198.7	SQ *	0.04	57.5	S3 *	0.02
1926-1930	99.9	198.7	SQ *	0.04	198.7	SQ *	0.04	58.1	S3 *	0.04
1927-1931	99.8	198.7	SQ *	0.05	198.8	SQ *	0.05	60.8	S3 *	0.05
1928-1932	99.9	198.8	SQ *	0.02	198.8	SQ *	0.02	63.3	S3 *	0.02
1929-1933	99.9	198.8	SQ *	0.02	198.8	SQ *	0.02	66.7	S3 *	0.02
1930-1934	100.0				No Retirements					
1931-1935	100.0				No Retirements					
1932-1936	100.0				No Retirements					
1933-1937	100.0				No Retirements					
1934-1938	100.0				No Retirements					
1935-1939	100.0				No Retirements					
1936-1940	100.0				No Retirements					
1937-1941	99.8	194.7	S6 *	0.05	198.8	SQ *	0.04	198.8	SQ *	0.04
1938-1942	99.9	196.4	SQ	0.03	198.7	SQ *	0.02	147.5	S3 *	0.02
1939-1943	99.9	197.0	SQ	0.03	198.8	SQ *	0.02	154.1	S3 *	0.02
1940-1944	99.9	197.5	S6	0.03	198.8	SQ *	0.03	169.5	R4 *	0.03
1941-1945	99.9	198.2	SQ	0.02	198.8	SQ *	0.02	189.0	R5 *	0.02
1942-1946	100.0	198.9	SQ *	0.02	188.7	R5 *	0.02	198.3	SQ *	0.02
1943-1947	100.0				No Retirements					
1944-1948	99.9	198.9	SQ *	0.07	165.7	R3 *	0.04	198.7	SQ *	0.02
1945-1949	99.8	198.8	SQ *	0.06	187.5	R4	0.05	198.7	SQ *	0.04
1946-1950	99.6	194.9	S6	0.09	198.2	SQ *	0.06	198.1	SQ *	0.07
1947-1951	98.4	194.7	S6	0.16	118.1	S2	0.24	81.5	S3 *	0.24
1948-1952	98.2	194.5	SQ	0.24	130.0	S2	0.24	85.0	S3 *	0.25
1949-1953	97.8	188.3	R4	0.37	144.8	S1.5	0.36	92.2	S3	0.36
1950-1954	97.5	191.7	R5	0.65	146.7	R2.5	0.64	100.4	S3	0.64
1951-1955	99.0	195.3	SQ	0.17	139.1	S2	0.13	114.5	S3	0.12
1952-1956	99.2	186.3	R4 *	0.11	164.3	R2.5	0.13	197.3	SQ *	0.11
1953-1957	98.8	185.0	R4 *	0.13	147.1	R2.5	0.19	166.2	R2	0.19
1954-1958	98.6	189.8	R5	0.21	150.2	R2.5	0.18	137.6	S2	0.18
1955-1959	99.0	190.1	R5 *	0.12	159.5	R2.5	0.11	134.0	R3	0.11
1956-1960	98.9	190.9	R5 *	0.14	165.2	R2.5	0.12	154.3	R2.5	0.12
1957-1961	99.6	198.5	SQ *	0.08	179.0	R4	0.06	116.6	S3 *	0.06
1958-1962	99.9	198.6	SQ *	0.05	198.7	SQ *	0.05	136.3	S3 *	0.06
1959-1963	98.5	174.2	R2.5 *	0.41	127.6	S2 *	0.49	192.9	S6 *	0.54

Schedule B1

HYDRO ONE NETWORKS INC.

Transmission Lines

Account: WDPOLES Wood Poles

T-Cut: None

Placement Band: 1910-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Rolling Band Life Analysis

Observation Band	Censoring	First Degree Average Life	First Degree Disper-sion	First Degree Conf. Index	Second Degree Average Life	Second Degree Disper-sion	Second Degree Conf. Index	Third Degree Average Life	Third Degree Disper-sion	Third Degree Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1960-1964	96.8	175.4	R3*	0.89	134.0	S2	0.84	194.3	SQ*	0.74
1961-1965	97.9	177.0	R3*	0.43	140.7	S1.5	0.44	194.9	SQ*	0.41
1962-1966	96.8	175.6	R3*	0.57	143.6	S1.5	0.54	194.5	S6*	0.45
1963-1967	98.1	174.6	R3*	0.28	152.8	R2*	0.30	194.9	SQ*	0.39
1964-1968	99.2	194.7	S6*	0.13	190.8	R5*	0.13	194.3	SQ*	0.13
1965-1969	99.1	195.1	S6*	0.22	192.8	R5*	0.22	197.6	S6*	0.22
1966-1970	98.5	195.1	SQ	0.39	186.4	R4	0.36	197.6	S6*	0.35
1967-1971	99.4	197.4	SQ	0.23	192.0	R5	0.21	198.4	SQ*	0.20
1968-1972	99.5	196.5	S6	0.11	188.2	R4	0.08	198.2	SQ*	0.08
1969-1973	99.6	196.7	S6	0.05	191.6	R5	0.05	198.2	SQ*	0.05
1970-1974	99.4	197.0	SQ	0.12	194.4	S6	0.12	198.2	SQ*	0.11
1971-1975	99.5	197.6	S6	0.09	198.2	SQ*	0.10	198.4	SQ*	0.10
1972-1976	99.1	195.5	SQ	0.10	197.6	S6*	0.06	182.8	R4*	0.07
1973-1977	99.5	197.1	SQ*	0.22	197.7	SQ*	0.17	161.7	R4*	0.17
1974-1978	99.5	197.3	SQ*	0.18	197.8	SQ*	0.14	160.8	R4*	0.14
1975-1979	99.5	197.5	S6*	0.22	197.7	SQ*	0.19	168.8	R4*	0.19
1976-1980	99.4	197.6	S6*	0.16	197.8	SQ*	0.13	165.2	R4*	0.13
1977-1981	99.8	198.6	SQ*	0.03	196.2	SQ	0.03	198.6	SQ*	0.02
1978-1982	99.6	198.1	SQ*	0.04	196.9	SQ	0.04	198.3	SQ*	0.04
1979-1983	99.5	198.2	SQ*	0.11	196.8	S6	0.11	198.2	SQ*	0.09
1980-1984	99.8	197.6	S6	0.05	198.6	SQ*	0.03	198.6	SQ*	0.02
1981-1985	99.7	197.8	SQ	0.04	198.6	SQ*	0.03	198.6	SQ*	0.03
1982-1986	99.5	196.5	S6	0.09	198.2	SQ*	0.07	198.2	SQ*	0.07
1983-1987	99.6	196.3	SQ	0.13	198.2	SQ*	0.08	198.2	SQ*	0.07
1984-1988	99.6	196.6	S6	0.15	198.2	SQ*	0.09	198.2	SQ*	0.08
1985-1989	99.6	195.5	S6	0.21	198.0	SQ*	0.16	198.0	SQ*	0.15
1986-1990	99.5	194.9	S6	0.28	197.8	SQ*	0.21	197.8	SQ*	0.20
1987-1991	99.3	195.5	S6*	0.16	198.0	SQ*	0.14	194.5	S6*	0.15
1988-1992	99.0	196.7	S6*	0.17	198.3	SQ*	0.18	190.1	R5*	0.17
1989-1993	99.4	196.9	SQ*	0.11	198.4	SQ*	0.12	189.8	R5*	0.11
1990-1994	99.4	197.6	S6*	0.10	198.5	SQ*	0.11	185.1	R4*	0.10
1991-1995	99.4	198.0	SQ*	0.12	198.0	SQ*	0.12	186.0	R5*	0.11
1992-1996	94.5	172.5	R3*	0.89	134.8	R3*	1.98	119.6	R4*	0.90
1993-1997	91.2	170.0	R2.5*	2.55	141.6	S2*	1.79	133.4	S3	2.29
1994-1998	87.7	138.2	S1*	1.89	126.4	S1.5*	2.05	166.6	R1*	5.68
1995-1999	77.9	106.3	L1.5*	7.00	150.5	SC*	5.56	153.9	R0.5*	4.96
1996-2000	19.8	77.0	S1.5*	11.13	55.2	SC	23.02	65.1	R2*	12.38
1997-2001	14.8	76.9	L2*	10.74	60.3	R0.5	15.76	62.7	R1*	12.10

Schedule B1

HYDRO ONE NETWORKS INC.

Transmission Lines

Account: WDPOLES Wood Poles

T-Cut: None

Placement Band: 1910-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Rolling Band Life Analysis

		First Degree			Second Degree			Third Degree		
Observation Band	Censoring	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1998-2002	8.4	51.1	L1	9.58	49.7	L0.5	10.80	48.7	L0.5 *	11.47
1999-2003	5.1	41.3	L0	13.38	45.6	L0.5 *	10.01	42.6	L0.5 *	11.75
2000-2004	13.9	45.0	L0	13.51	48.0	L0.5 *	12.06	43.7	L0.5 *	14.94
2001-2005	26.4	46.2	O2	16.18	62.3	O4 *	14.73	68.5	O3 *	10.03
2002-2006	27.0	44.6	O2	17.95	57.3	O3 *	18.02	63.0	O3 *	13.45
2003-2007	41.1	65.3	O2	12.44	86.8	O4 *	13.54	95.0	O3 *	8.74
2004-2008	37.7	79.1	L0.5	5.97	83.9	L0	6.24	116.3	SC *	2.23
2005-2009	32.0	72.3	L0.5	8.43	79.2	O2 *	9.07	108.5	O3 *	2.72
2006-2010	34.3	69.8	L0.5	9.61	80.4	O3 *	10.58	102.0	O3 *	3.69
2007-2011	36.8	71.5	L0.5	8.94	83.9	O3 *	10.31	103.4	O3 *	3.42
2008-2012	46.6	83.2	L1	7.17	100.2	O3 *	8.96	118.3	SC *	3.04
2009-2013	56.6	101.5	L1	4.84	126.8	SC *	6.43	136.9	SC *	2.49

HYDRO ONE NETWORKS INC.

Transmission Lines

Account: WDPOLES Wood Poles

T-Cut: None

Placement Band: 1910-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Shrinking Band Life Analysis

		First Degree			Second Degree			Third Degree		
Observation Band	Censoring	Average Life	Disper- sion	Conf. Index	Average Life	Disper- sion	Conf. Index	Average Life	Disper- sion	Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1922-2013	48.8	95.3	L1.5*	3.03	90.4	S1 *	3.61	124.8	SC *	1.76
1924-2013	48.8	95.3	L1.5*	3.02	90.4	S1 *	3.61	124.8	SC *	1.76
1926-2013	48.8	95.3	L1.5*	3.02	90.4	S1 *	3.60	124.8	SC *	1.76
1928-2013	48.8	95.3	L1.5*	3.02	90.4	S1 *	3.60	124.8	SC *	1.76
1930-2013	48.8	95.3	L1.5*	3.02	90.4	S1 *	3.60	124.8	SC *	1.75
1932-2013	48.8	95.3	L1.5*	3.01	90.5	S1 *	3.60	124.8	SC *	1.75
1934-2013	48.8	95.3	L1.5*	3.01	90.5	S1 *	3.59	124.8	SC *	1.75
1936-2013	48.8	95.3	L1.5*	3.01	90.5	S1 *	3.59	124.8	SC *	1.75
1938-2013	48.8	95.2	L1.5*	3.00	90.5	S1 *	3.59	124.8	SC *	1.75
1940-2013	48.8	95.2	L1.5*	3.00	90.5	S1 *	3.58	124.8	SC *	1.75
1942-2013	48.8	95.2	L1.5*	2.99	90.5	S1 *	3.57	124.9	SC *	1.74
1944-2013	48.8	95.2	L1.5*	2.98	90.5	S1 *	3.56	124.9	SC *	1.74
1946-2013	48.8	95.1	L1.5*	2.97	90.5	S1 *	3.55	124.8	SC *	1.74
1948-2013	48.7	95.1	L1.5*	2.96	90.5	S1 *	3.54	124.8	SC *	1.73
1950-2013	48.7	95.1	L1.5*	2.96	90.5	S1 *	3.53	124.8	SC *	1.73
1952-2013	48.7	95.0	L1.5*	2.95	90.6	S1 *	3.52	124.8	SC *	1.73
1954-2013	48.7	94.9	L1.5*	2.95	90.6	S1 *	3.50	124.8	SC *	1.72
1956-2013	48.6	94.8	L1.5*	2.93	90.6	S1 *	3.47	124.8	SC *	1.71
1958-2013	48.5	94.7	L1.5*	2.92	90.7	S1 *	3.45	124.7	SC *	1.70
1960-2013	48.5	94.5	L1.5*	2.91	90.7	S1 *	3.42	124.6	SC *	1.70
1962-2013	48.4	94.4	L1.5*	2.90	90.7	S1 *	3.38	124.5	SC *	1.69
1964-2013	48.3	94.2	L1.5*	2.90	90.7	S1 *	3.36	124.4	SC *	1.68
1966-2013	48.1	94.0	L1.5*	2.89	90.7	S1 *	3.33	124.1	SC *	1.67
1968-2013	47.9	93.7	L1.5*	2.87	90.6	L2 *	3.27	123.9	SC *	1.66
1970-2013	47.6	93.3	L1.5*	2.87	90.5	L2 *	3.23	123.5	SC *	1.64
1972-2013	47.4	92.8	L1.5*	2.89	90.4	L2 *	3.20	123.1	SC *	1.63
1974-2013	47.1	92.2	L1.5*	2.97	90.3	L2 *	3.20	122.6	SC *	1.62
1976-2013	46.7	91.5	L1.5*	3.01	90.2	L1.5 *	3.16	121.9	SC *	1.61
1978-2013	46.2	90.7	L1.5*	3.07	90.1	L1.5 *	3.14	121.2	SC *	1.61
1980-2013	45.5	89.6	L1.5*	3.06	90.0	L1.5 *	3.02	120.0	SC *	1.57
1982-2013	44.6	88.3	L1.5*	3.09	89.8	L1.5 *	2.94	118.6	SC *	1.54
1984-2013	43.4	86.8	L1.5*	3.11	89.6	L1 *	2.82	116.9	SC *	1.51
1986-2013	42.0	84.8	L1*	3.17	89.4	L1 *	2.70	114.8	L0 *	1.50
1988-2013	40.6	82.4	L1	3.43	89.4	L0.5 *	2.72	112.2	O3 *	1.53
1990-2013	38.8	79.6	L1	3.80	89.8	O2 *	2.80	109.0	O3 *	1.59
1992-2013	36.5	76.2	L0.5	4.52	89.8	O2 *	3.34	104.9	O3 *	1.90
1994-2013	34.4	72.4	L0.5	5.54	88.4	O3 *	4.22	99.9	O3 *	2.55
1996-2013	31.4	68.2	L0.5	6.34	85.2	O3 *	5.02	93.7	O3 *	3.27

HYDRO ONE NETWORKS INC.

Transmission Lines

Account: WDPOLES Wood Poles

T-Cut: None

Placement Band: 1910-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Shrinking Band Life Analysis

Observation Band	Censoring	First Degree Average Life	First Degree Disper-sion	First Degree Conf. Index	Second Degree Average Life	Second Degree Disper-sion	Second Degree Conf. Index	Third Degree Average Life	Third Degree Disper-sion	Third Degree Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1998-2013	28.4	63.8	L0	7.35	80.8	O3 *	6.20	86.7	O3 *	4.48
2000-2013	26.8	62.7	L0	6.43	78.2	O3 *	5.59	82.9	O3 *	4.26
2002-2013	32.0	62.2	L0	10.25	80.7	O4 *	10.31	85.8	O3 *	7.04
2004-2013	52.4	89.0	L0.5	7.47	108.9	O3 *	7.95	125.9	SC *	2.76
2006-2013	49.5	84.5	L0.5	8.10	104.7	O3 *	8.91	119.4	SC *	3.72
2008-2013	52.9	91.2	L1	6.67	112.0	O3 *	8.26	127.5	SC *	3.03
2010-2013	58.1	111.5	L1	3.81	137.2	SC *	4.23	143.6	SC *	2.85
2012-2013	88.3	181.5	R4 *	3.26	164.5	R3 *	3.23	182.9	R3 *	3.12

Schedule B3

HYDRO ONE NETWORKS INC.

Transmission Lines

Account: WDPOLES Wood Poles

T-Cut: None
Placement Band: 1910-2013
Hazard Function: Proportion Retired
Weighting: Exposures

Progressing Band Life Analysis

		First Degree			Second Degree			Third Degree		
Observation Band	Censoring	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1922-1923	99.5	94.5	L1 *	0.33	50.5	S1.5 *	0.20	196.5	SQ *	0.40
1922-1925	99.0	100.5	L1 *	0.23	54.0	S1.5 *	0.13	195.9	SQ *	0.22
1922-1927	99.2	132.3	S0 *	0.13	96.5	S1 *	0.12	197.2	SQ *	0.16
1922-1929	99.4	155.1	R1.5 *	0.10	197.4	SQ *	0.09	197.7	SQ *	0.06
1922-1931	99.5	171.4	R2.5 *	0.13	198.1	SQ *	0.12	198.1	SQ *	0.09
1922-1933	99.6	181.7	R4 *	0.08	198.4	SQ *	0.07	198.4	SQ *	0.06
1922-1935	99.8	188.3	R4	0.05	198.6	SQ *	0.03	198.6	SQ *	0.03
1922-1937	99.9	192.5	R5	0.04	198.7	SQ *	0.02	198.7	SQ *	0.02
1922-1939	99.9	194.6	S6	0.03	198.7	SQ *	0.01	191.5	R5 *	0.01
1922-1941	99.8	193.3	S6	0.04	198.7	SQ *	0.02	198.7	SQ *	0.02
1922-1943	99.9	195.7	S6	0.03	198.7	SQ *	0.02	145.9	S3 *	0.01
1922-1945	99.9	196.9	SQ	0.03	198.8	SQ *	0.01	145.4	S3 *	0.01
1922-1947	99.9	197.7	SQ	0.02	198.8	SQ *	0.01	148.1	S3 *	0.01
1922-1949	99.9	198.1	SQ	0.02	198.8	SQ *	0.01	198.8	SQ *	0.01
1922-1951	98.8	193.5	S6	0.14	145.9	R2.5	0.18	86.1	S3 *	0.20
1922-1953	98.7	192.3	R5	0.19	158.5	R2.5	0.16	99.2	S3	0.14
1922-1955	99.0	194.4	SQ	0.15	169.2	R3	0.11	116.8	S3	0.10
1922-1957	98.5	190.0	R5	0.14	147.8	R2.5	0.09	106.3	S3	0.10
1922-1959	98.6	192.3	R5	0.20	161.7	R2.5	0.11	120.7	S3	0.09
1922-1961	99.1	194.0	S6	0.08	171.7	R3	0.05	142.1	R3	0.05
1922-1963	98.2	184.3	R4 *	0.29	136.6	S2	0.24	134.7	S2	0.24
1922-1965	98.5	187.1	R4 *	0.23	148.7	R2.5	0.21	189.9	R5 *	0.19
1922-1967	98.6	187.6	R4 *	0.16	155.1	R2.5	0.19	194.0	SQ *	0.16
1922-1969	98.8	189.7	R5 *	0.14	165.2	R2.5	0.16	196.3	SQ *	0.11
1922-1971	98.9	191.1	R5	0.14	172.1	R3	0.17	196.9	SQ *	0.11
1922-1973	99.0	191.8	R5	0.13	177.3	R3	0.16	197.2	SQ *	0.10
1922-1975	99.1	193.0	S6	0.11	183.8	R4	0.14	197.5	SQ *	0.07
1922-1977	99.2	192.9	S6	0.11	192.5	R5	0.12	197.5	S6 *	0.06
1922-1979	99.3	194.1	S6	0.11	195.1	SQ	0.10	197.7	SQ *	0.05
1922-1981	99.3	194.9	S6	0.10	197.1	SQ *	0.08	197.8	SQ *	0.04
1922-1983	99.3	195.1	SQ	0.10	197.4	SQ *	0.07	197.8	SQ *	0.04
1922-1985	99.4	195.7	S6	0.09	197.7	SQ *	0.06	197.9	SQ *	0.03
1922-1987	99.3	195.3	SQ	0.13	197.7	SQ *	0.07	197.8	SQ *	0.05
1922-1989	99.4	195.5	S6	0.12	197.7	SQ *	0.07	197.8	SQ *	0.05
1922-1991	99.1	195.6	S6	0.10	197.7	SQ *	0.07	197.8	SQ *	0.08
1922-1993	99.2	196.1	SQ	0.09	197.8	SQ *	0.06	197.9	SQ *	0.07
1922-1995	99.2	196.4	SQ	0.08	197.9	SQ *	0.06	197.9	SQ *	0.07
1922-1997	95.7	189.5	R5 *	0.80	171.4	R3	0.53	145.4	S3	0.48

HYDRO ONE NETWORKS INC.

Transmission Lines

Account: WDPOLES Wood Poles

T-Cut: None
Placement Band: 1910-2013
Hazard Function: Proportion Retired
Weighting: Exposures

Progressing Band Life Analysis

		First Degree			Second Degree			Third Degree		
Observation Band	Censoring	Average Life	Disper- sion	Conf. Index	Average Life	Disper- sion	Conf. Index	Average Life	Disper- sion	Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1922-1999	89.9	156.6	R2 *	1.08	138.0	S1.5 *	1.55	181.2	R3 *	0.95
1922-2001	41.2	125.7	S0.5 *	12.63	94.5	S3 *	9.19	86.0	R4 *	7.18
1922-2003	34.2	95.3	L2 *	8.16	85.0	S2	6.10	83.4	S2 *	5.88
1922-2005	44.3	97.1	L1.5 *	5.08	87.4	S1.5 *	3.87	88.1	S1.5 *	3.89
1922-2007	45.0	95.5	L1.5 *	3.80	87.1	S1.5 *	3.10	100.3	L1.5 *	2.97
1922-2009	44.3	92.8	L1.5 *	2.92	85.9	S1.5 *	2.98	107.1	L0.5 *	2.17
1922-2011	46.5	92.3	L1.5 *	2.89	86.7	S1.5 *	3.63	115.8	L0 *	2.02
1922-2013	48.8	95.3	L1.5 *	3.03	90.4	S1 *	3.61	124.8	SC *	1.76

Schedule C

HYDRO ONE NETWORKS INC.

Transmission Lines

Account: WDPOLES Wood Poles

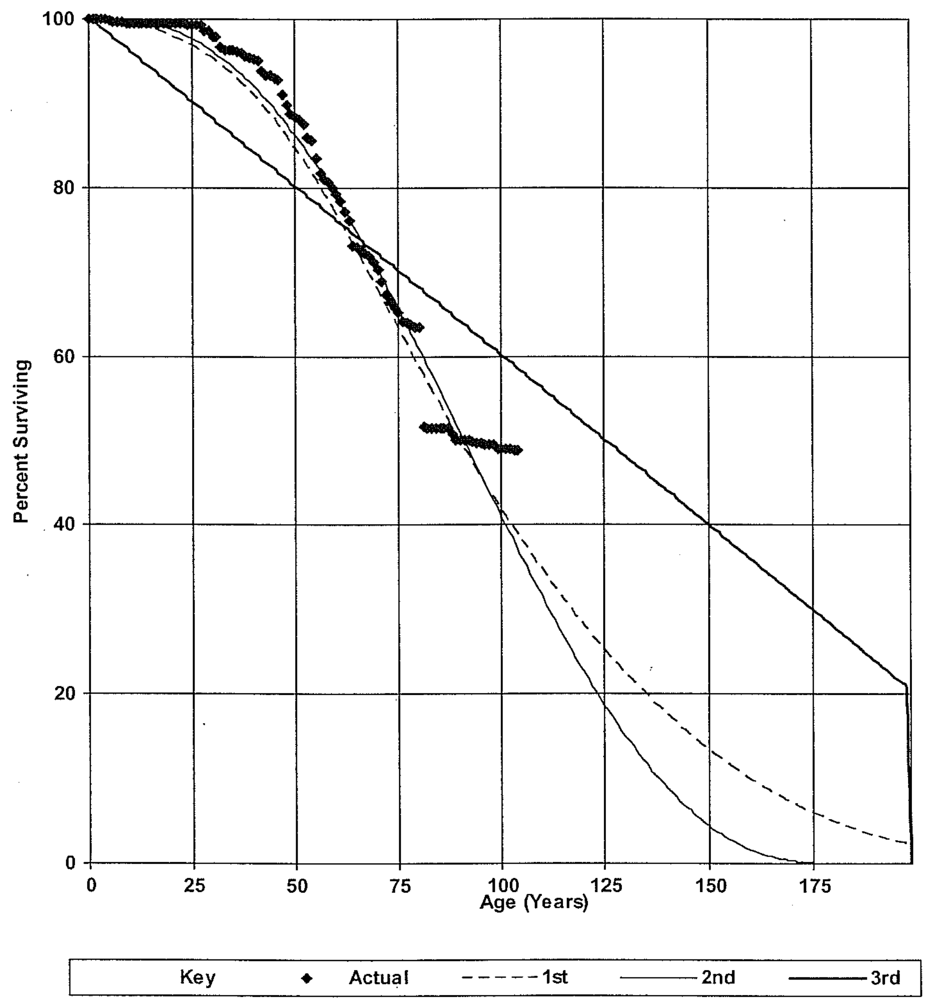
T-Cut: None

Placement Band: 1910-2013 Observation Band: 1922-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Graphics Analysis 1st: 95.3-L1.5 2nd: 90.4-S1 3rd: 124.8-SC



Schedule D

HYDRO ONE NETWORKS INC.

Transmission Lines

Account: WDPOLES Wood Poles

T-Cut: None

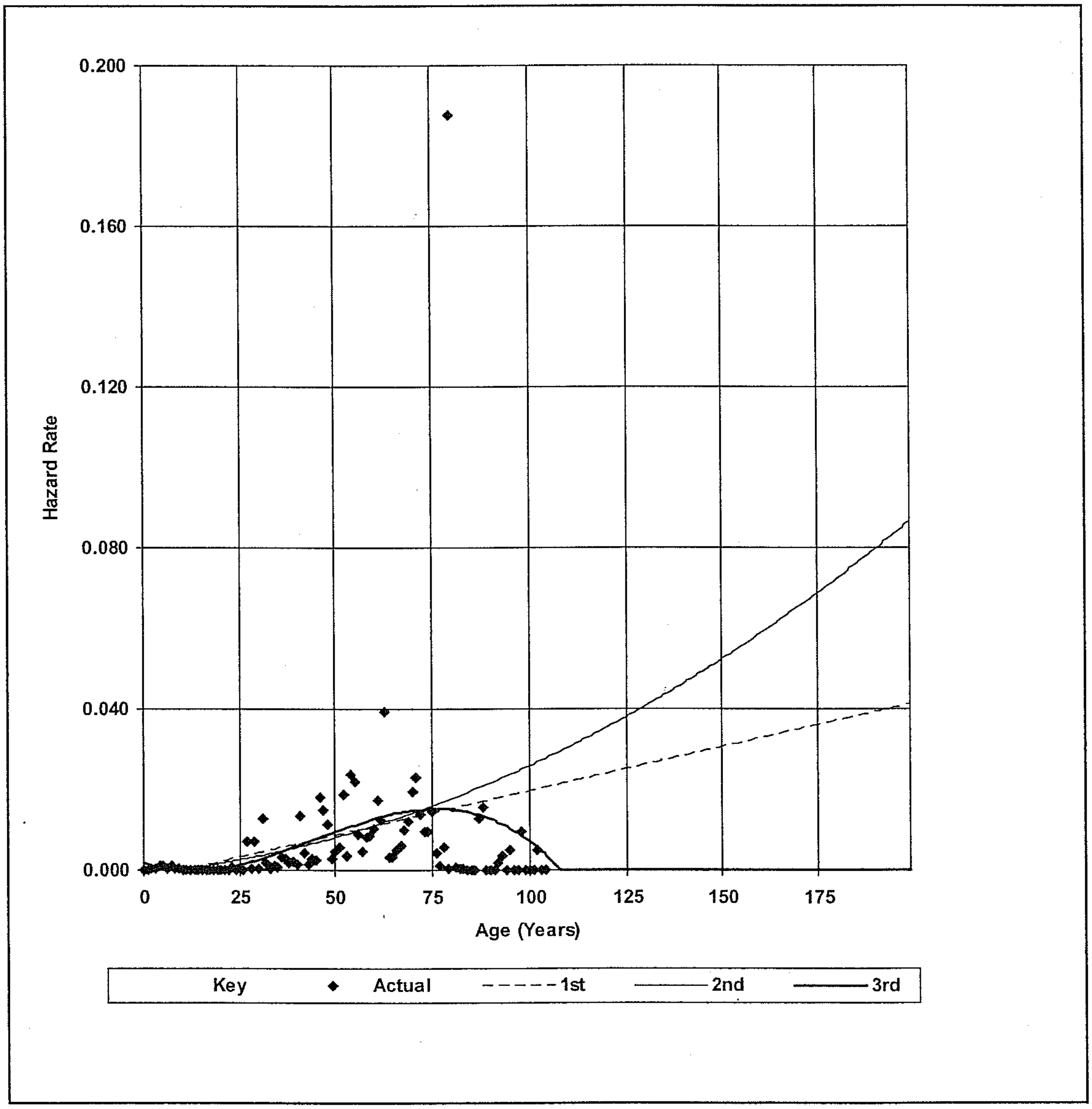
Placement Band: 1910-2013 Observation Band: 1922-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Polynomial Hazard Function

1st: 95.3-L1.5 2nd: 90.4-S1 3rd: 124.8-SC



Schedule E

HYDRO ONE NETWORKS INC.

Transmission Lines

Account: WDPOLES Wood Poles

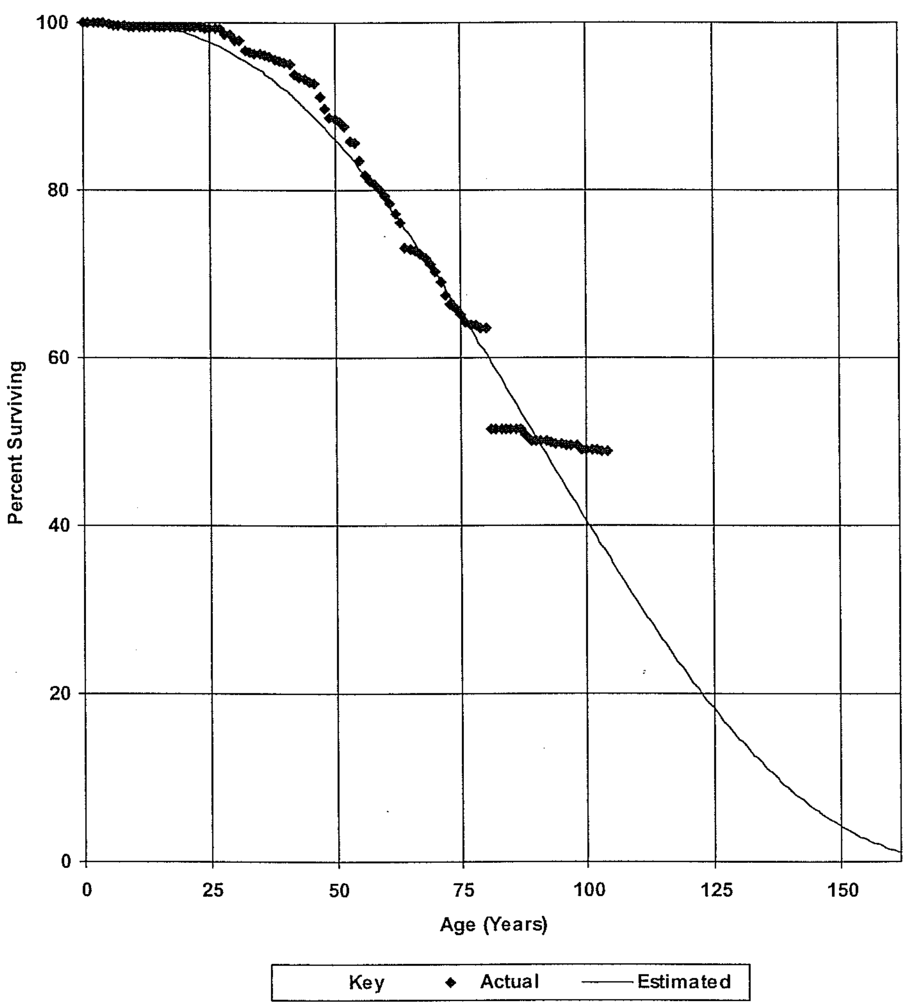
T-Cut: None

Placement Band: 1910-2013

Observation Band: 1922-2013

Estimated Projection Life Curve

90.0-S1



Schedule A

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 050BRKX 50kV Breakers

Placement Band: 1936 - 2013
Observation Band: 1981 - 2013

Observed Life Table

Age at Beginning of Interval	Exposures	Retirements	Conditional Proportion Retired	Conditional Proportion Surviving	Cumulative Proportion Surviving
A	B	C	D=C/B	E=1-D	F
0.0	501	4	0.00798	0.99202	1.00000
0.5	604	4	0.00662	0.99338	0.99202
1.5	855	4	0.00468	0.99532	0.98545
2.5	1,075	1	0.00093	0.99907	0.98084
3.5	1,249	3	0.00240	0.99760	0.97992
4.5	1,366	1	0.00073	0.99927	0.97757
5.5	1,629	0	0.00000	1.00000	0.97685
6.5	1,739	6	0.00345	0.99655	0.97685
7.5	1,772	4	0.00226	0.99774	0.97348
8.5	1,799	8	0.00445	0.99555	0.97129
9.5	1,839	9	0.00489	0.99511	0.96697
10.5	1,961	8	0.00408	0.99592	0.96223
11.5	2,056	19	0.00924	0.99076	0.95831
12.5	2,104	22	0.01046	0.98954	0.94945
13.5	2,225	5	0.00225	0.99775	0.93953
14.5	2,285	3	0.00131	0.99869	0.93741
15.5	2,348	22	0.00937	0.99063	0.93618
16.5	2,369	14	0.00591	0.99409	0.92741
17.5	2,362	20	0.00847	0.99153	0.92193
18.5	2,368	20	0.00845	0.99155	0.91412
19.5	2,379	17	0.00715	0.99285	0.90640
20.5	2,358	25	0.01060	0.98940	0.89993
21.5	2,326	20	0.00860	0.99140	0.89039
22.5	2,186	28	0.01281	0.98719	0.88273
23.5	2,051	35	0.01706	0.98294	0.87142
24.5	1,960	22	0.01122	0.98878	0.85655
25.5	1,934	23	0.01189	0.98811	0.84694
26.5	1,807	17	0.00941	0.99059	0.83687
27.5	1,840	17	0.00924	0.99076	0.82899
28.5	1,888	13	0.00689	0.99311	0.82133
29.5	1,896	14	0.00738	0.99262	0.81568
30.5	1,886	10	0.00530	0.99470	0.80966
31.5	1,838	35	0.01904	0.98096	0.80536
32.5	1,836	23	0.01253	0.98747	0.79003
33.5	1,840	18	0.00978	0.99022	0.78013
34.5	1,777	16	0.00900	0.99100	0.77250
35.5	1,746	9	0.00515	0.99485	0.76554

Schedule A

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 050BRKX 50kV Breakers

Placement Band: 1936 - 2013
Observation Band: 1981 - 2013

Observed Life Table

Age at Beginning of Interval	Exposures	Retirements	Conditional Proportion Retired	Conditional Proportion Surviving	Cumulative Proportion Surviving
A	B	C	D=C/B	E=1-D	F
36.5	1,721	26	0.01511	0.98489	0.76160
37.5	1,640	20	0.01220	0.98780	0.75009
38.5	1,563	25	0.01599	0.98401	0.74094
39.5	1,452	21	0.01446	0.98554	0.72909
40.5	1,396	23	0.01648	0.98352	0.71855
41.5	1,275	29	0.02275	0.97725	0.70671
42.5	1,192	12	0.01007	0.98993	0.69063
43.5	1,090	35	0.03211	0.96789	0.68368
44.5	948	19	0.02004	0.97996	0.66173
45.5	883	34	0.03851	0.96149	0.64847
46.5	751	9	0.01198	0.98802	0.62350
47.5	703	16	0.02276	0.97724	0.61602
48.5	653	15	0.02297	0.97703	0.60200
49.5	589	47	0.07980	0.92020	0.58818
50.5	518	17	0.03282	0.96718	0.54124
51.5	461	15	0.03254	0.96746	0.52348
52.5	412	13	0.03155	0.96845	0.50645
53.5	387	14	0.03618	0.96382	0.49047
54.5	352	13	0.03693	0.96307	0.47272
55.5	333	12	0.03604	0.96396	0.45526
56.5	292	13	0.04452	0.95548	0.43886
57.5	258	14	0.05426	0.94574	0.41932
58.5	242	11	0.04545	0.95455	0.39657
59.5	222	11	0.04955	0.95045	0.37854
60.5	199	5	0.02513	0.97487	0.35978
61.5	167	7	0.04192	0.95808	0.35074
62.5	142	6	0.04225	0.95775	0.33604
63.5	125	7	0.05600	0.94400	0.32184
64.5	108	4	0.03704	0.96296	0.30382
65.5	65	2	0.03077	0.96923	0.29257
66.5	42	2	0.04762	0.95238	0.28357
67.5	28	0	0.00000	1.00000	0.27006
68.5	23	4	0.17391	0.82609	0.27006
69.5	15	2	0.13333	0.86667	0.22309
70.5	11	0	0.00000	1.00000	0.19335
71.5	8	0	0.00000	1.00000	0.19335
72.5	5	0	0.00000	1.00000	0.19335

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 050BRKX 50kV Breakers

Placement Band: 1936 - 2013
Observation Band: 1981 - 2013

Observed Life Table

Age at Beginning of Interval	Exposures	Retirements	Conditional Proportion Retired	Conditional Proportion Surviving	Cumulative Proportion Surviving
A	B	C	D=C/B	E=1-D	F
73.5	0	0	0.00000	1.00000	0.19335

Schedule B1

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 050BRKX 50kV Breakers

T-Cut: None

Placement Band: 1936-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Rolling Band Life Analysis

		First Degree			Second Degree			Third Degree		
Observation Band	Censoring	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1981-1985	95.2	167.7	R2*	0.66	119.2	S1.5	0.57	73.4	R4 *	0.51
1982-1986	95.8	166.2	R2*	0.71	118.9	S2 *	0.67	82.9	S3 *	0.64
1983-1987	94.6	186.4	R4	1.67	96.5	S2 *	1.04	192.4	SQ *	0.87
1984-1988	86.5	117.7	S0*	2.87	76.3	S2	2.06	78.7	S1.5	2.02
1985-1989	86.8	114.7	S0	3.42	76.9	S1.5	2.71	133.7	SC *	2.50
1986-1990	57.7	111.4	L1	5.99	75.3	R2	4.82	69.9	R2.5	4.87
1987-1991	25.6	85.8	L1*	8.84	79.0	S0.5	8.56	141.5	SC *	8.42
1988-1992	26.2	72.6	L1.5*	7.62	98.7	O3 *	7.86	61.7	R2 *	7.44
1989-1993	33.9	82.6	L1	8.54	71.9	S0.5	7.99	144.6	SC *	8.21
1990-1994	43.3	70.9	L1.5*	5.06	64.3	S1	4.59	133.5	SC *	5.07
1991-1995	55.2	63.4	L1.5*	3.46	61.7	L1.5 *	3.57	130.0	SC *	2.92
1992-1996	45.4	57.9	L1.5*	4.48	54.3	S1.5	5.08	109.1	O3 *	3.98
1993-1997	36.1	51.8	L2*	3.79	49.9	S1.5	4.30	79.7	O3 *	2.99
1994-1998	26.1	49.1	L2*	3.99	48.3	S2	4.68	51.1	L3 *	4.09
1995-1999	0.0	43.2	L2*	5.25	43.0	R2.5	3.97	43.2	R2.5	4.26
1996-2000	0.0	43.0	L2*	5.86	41.3	R1.5	2.17	41.7	R2	2.49
1997-2001	0.0	42.2	L2*	6.32	38.8	R1	4.24	40.2	R1.5	2.25
1998-2002	5.7	44.0	L2*	6.12	38.5	R0.5	4.99	40.1	R1	2.38
1999-2003	12.0	44.5	L1.5*	5.76	38.0	R0.5	7.15	38.6	R0.5	6.02
2000-2004	26.0	53.0	L1	4.52	43.6	R0.5	6.12	43.5	SC	6.41
2001-2005	29.8	58.5	L0.5	4.95	48.0	R0.5	4.38	48.2	R0.5	4.91
2002-2006	55.2	77.8	L0	2.31	63.5	R0.5	2.71	101.2	O3 *	3.15
2003-2007	57.2	76.9	L0.5	2.07	83.1	L0	2.05	124.7	SC *	1.95
2004-2008	0.0	73.3	L1.5*	6.18	67.9	S0.5	6.11	64.8	R1.5 *	5.91
2005-2009	29.0	67.0	L1.5*	2.90	58.9	R1.5	3.21	57.6	R2 *	2.11
2006-2010	21.3	59.7	L1*	3.59	54.2	R1	5.14	53.0	R1 *	3.88
2007-2011	15.2	49.4	L0.5	4.95	44.6	SC	7.80	45.1	S-.5 *	4.96
2008-2012	16.8	48.4	L0	5.23	43.2	SC	8.37	44.4	S-.5 *	4.69
2009-2013	15.0	44.3	O2	5.81	39.2	O2	8.21	41.1	SC *	3.46

Schedule B2

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 050BRKX 50kV Breakers

T-Cut: None

Placement Band: 1936-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Shrinking Band Life Analysis

Observation Band	Censoring	First Degree Average Life	First Degree Disper-sion	First Degree Conf. Index	Second Degree Average Life	Second Degree Disper-sion	Second Degree Conf. Index	Third Degree Average Life	Third Degree Disper-sion	Third Degree Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1981-2013	19.3	57.2	L1.5*	3.71	52.5	R1.5	1.24	52.3	R1.5	1.36
1983-2013	19.0	56.7	L1.5*	3.70	52.1	R1.5	1.21	51.8	R1.5	1.37
1985-2013	18.7	56.0	L1.5*	3.71	51.5	S0.5	1.18	51.2	R1.5	1.35
1987-2013	18.2	55.1	L1.5*	3.61	50.7	R1	1.15	50.5	R1.5	1.30
1989-2013	17.9	54.4	L1.5*	3.39	50.3	R1	1.18	50.0	R1	1.24
1991-2013	17.3	53.2	L1.5*	3.16	49.5	S0	1.18	49.2	R1	1.23
1993-2013	17.0	52.7	L1.5*	3.26	49.1	S0	1.31	48.8	R1	1.35
1995-2013	16.3	51.6	L1*	3.25	48.0	S0	1.44	47.9	R1	1.45
1997-2013	16.4	51.2	L1	2.85	46.9	R0.5	2.44	47.1	R1	1.48
1999-2013	17.1	51.4	L0.5	2.73	46.3	R0.5	3.42	46.8	R0.5	1.56
2001-2013	20.2	54.8	L0.5	3.04	48.6	SC	3.76	49.0	R0.5 *	1.34
2003-2013	22.7	56.7	L0	3.41	51.1	SC	4.59	50.4	R1 *	1.74
2005-2013	22.2	54.9	L0	4.53	49.8	SC	6.13	49.0	R0.5 *	3.07
2007-2013	17.9	49.5	L0	5.22	45.4	SC	7.15	45.5	S-.5 *	4.05
2009-2013	15.0	44.3	O2	5.81	39.2	O2	8.21	41.1	SC *	3.46
2011-2013	14.5	41.5	O3	7.80	37.1	O3	9.53	39.3	L0 *	4.64
2013-2013	0.0	43.1	O3	48.31	33.9	O3	44.63	37.6	L0 *	53.78

Schedule B3

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 050BRKX 50kV Breakers

T-Cut: None

Placement Band: 1936-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Progressing Band Life Analysis

		First Degree			Second Degree			Third Degree		
Observation Band	Censoring	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1981-1982	99.0	195.3	SQ*	0.77	195.3	SQ*	0.72	77.3	R4*	0.64
1981-1984	78.3	159.3	R1.5*	5.06	107.1	S2	4.86	68.2	R4*	4.41
1981-1986	96.1	173.8	R2.5*	0.56	130.7	S1.5	0.47	78.6	R4*	0.43
1981-1988	88.5	124.1	S0*	1.36	79.6	S2	1.03	68.9	R3	1.29
1981-1990	60.2	125.3	S0*	5.44	83.5	S2	4.82	68.7	S3	4.48
1981-1992	29.6	92.8	L1.5*	9.66	77.2	S1	9.14	66.7	R3*	8.72
1981-1994	49.4	86.5	L1.5*	6.29	69.0	S1.5	5.08	71.3	S1.5	5.15
1981-1996	57.6	71.7	L1.5*	2.85	61.0	S1.5	2.47	62.6	S1.5	2.32
1981-1998	38.5	62.4	L2*	4.12	54.6	S2	1.81	53.6	R3	2.47
1981-2000	0.0	55.9	L2*	6.85	50.0	R2.5	3.28	49.9	R3*	3.15
1981-2002	8.9	54.8	L2*	6.18	48.9	R2	2.33	49.1	R2.5	2.16
1981-2004	21.6	55.9	L2*	5.34	49.9	R2	1.51	49.9	R2.5	1.54
1981-2006	30.1	58.4	L2*	4.15	52.2	R2	1.78	52.0	R2	1.86
1981-2008	0.0	58.5	L2*	5.15	52.9	R2	3.20	53.0	R2	3.20
1981-2010	16.3	58.2	L1.5*	3.72	52.9	R1.5	1.81	52.7	R2	1.93
1981-2012	19.6	57.4	L1.5*	3.64	52.6	R1.5	1.30	52.3	R1.5	1.46
1981-2013	19.3	57.2	L1.5*	3.71	52.5	R1.5	1.24	52.3	R1.5	1.36

Schedule C

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 050BRKX 50kV Breakers

T-Cut: None

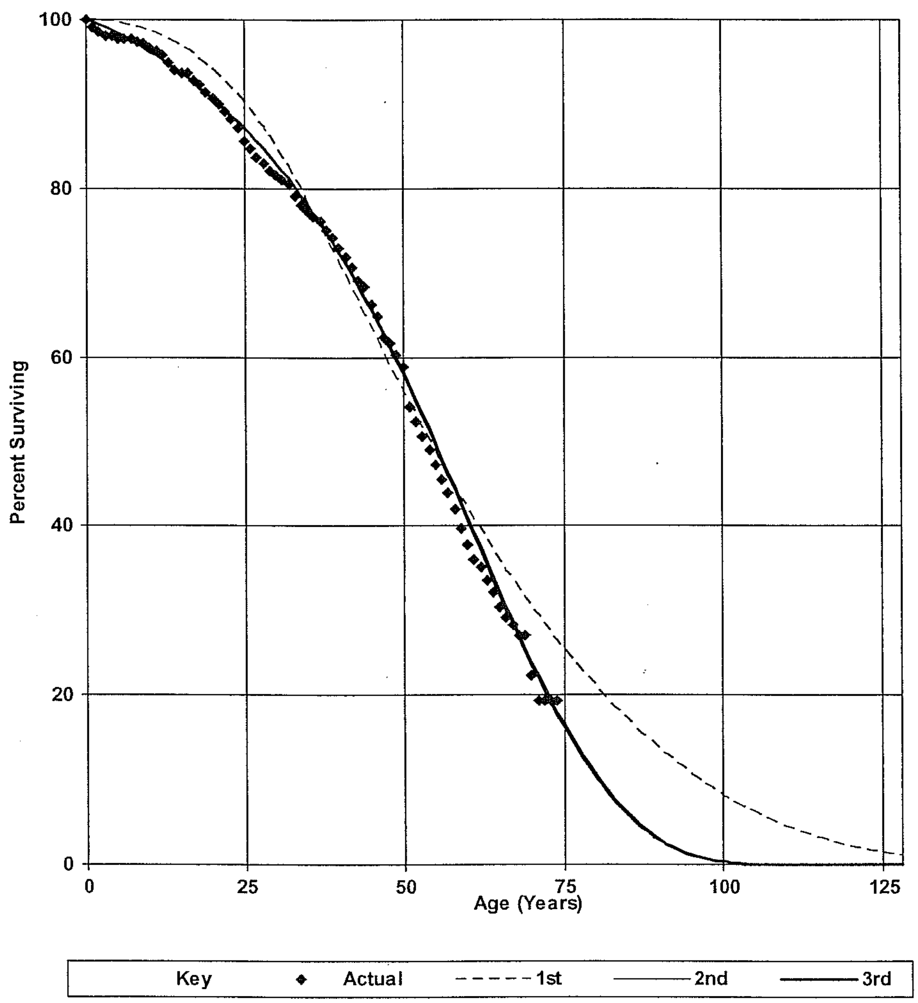
Placement Band: 1936-2013 Observation Band: 1981-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Graphics Analysis

1st: 57.2-L1.5 2nd: 52.5-R1.5 3rd: 52.3-R1.5



Schedule D

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 050BRKX 50kV Breakers

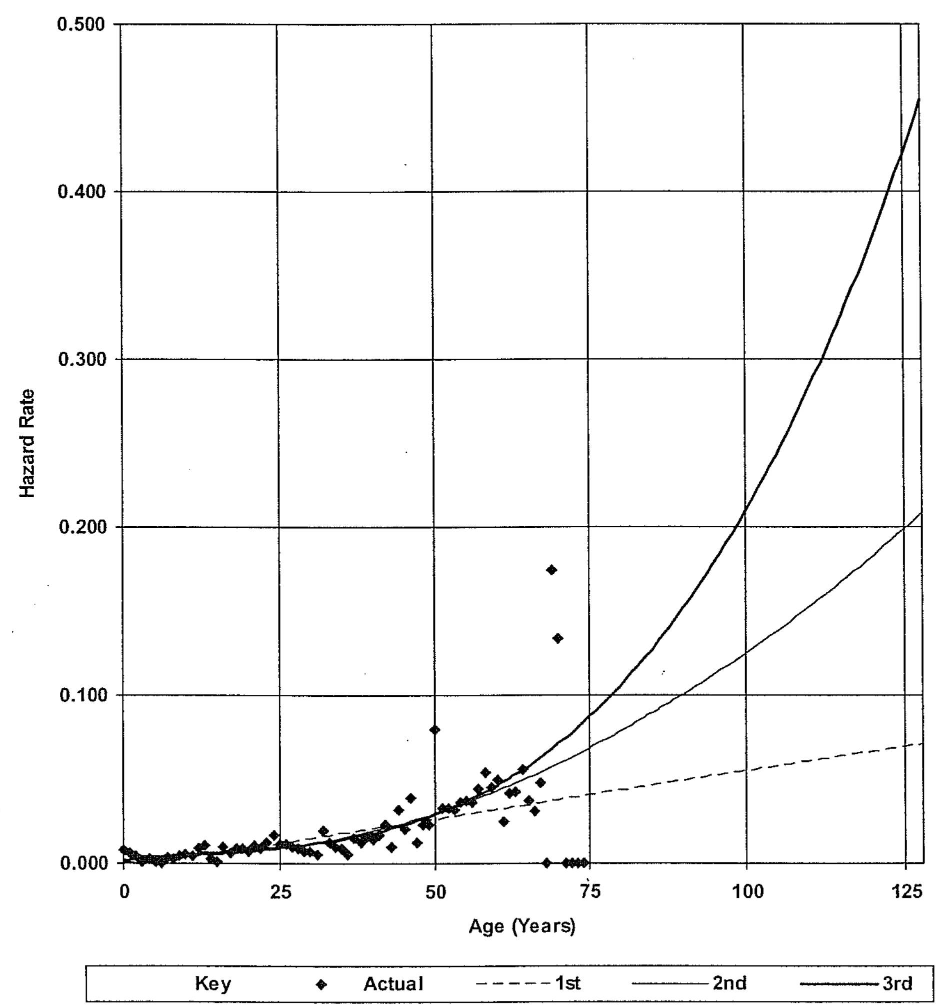
T-Cut: None

Placement Band: 1936-2013 Observation Band: 1981-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Polynomial Hazard Function 1st: 57.2-L1.5 2nd: 52.5-R1.5 3rd: 52.3-R1.5



Schedule E

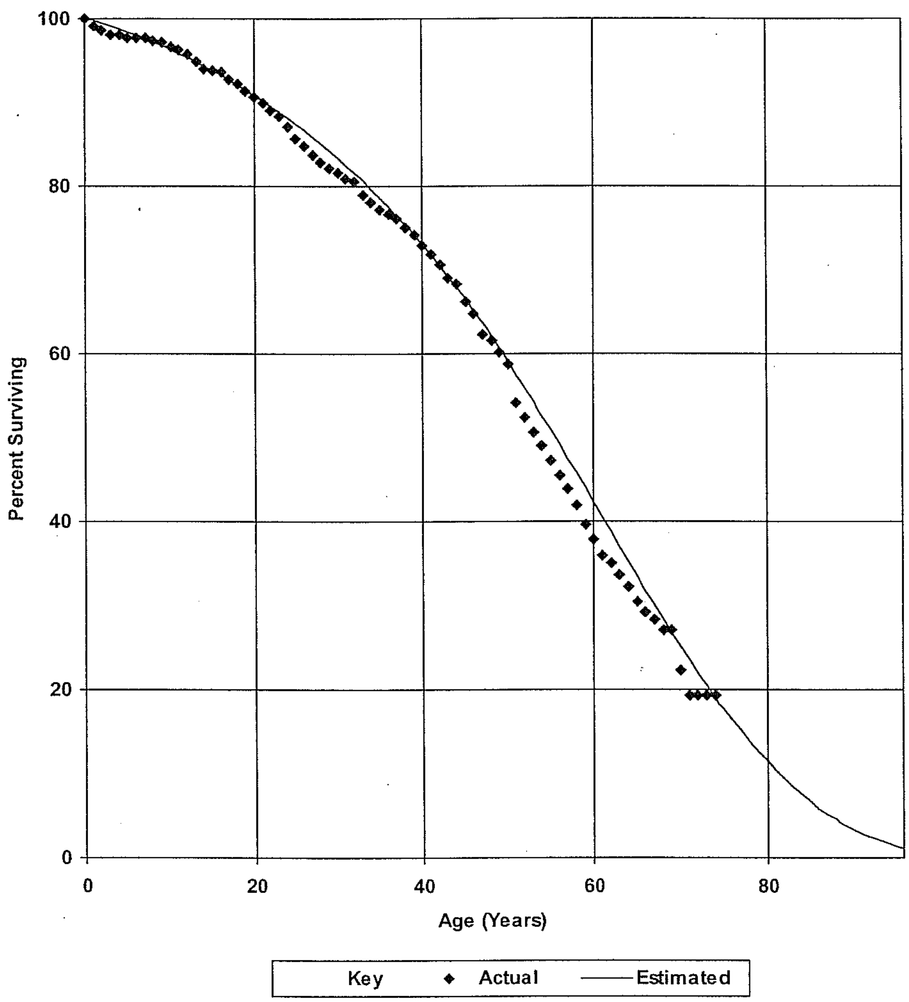
HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 050BRKX 50kV Breakers

T-Cut: None
Placement Band: 1936-2013
Observation Band: 1981-2013
53.0-R1.5

Estimated Projection Life Curve



Schedule A

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 050CONA 50kV Conventional and Metalclad Air Breakers

Placement Band: 1949 - 1987
Observation Band: 1983 - 2013

Observed Life Table

Age at Beginning of Interval	Exposures	Retirements	Conditional Proportion Retired	Conditional Proportion Surviving	Cumulative Proportion Surviving
A	B	C	D=C/B	E=1-D	F
0.0	27	0	0.00000	1.00000	1.00000
0.5	45	0	0.00000	1.00000	1.00000
1.5	77	0	0.00000	1.00000	1.00000
2.5	116	0	0.00000	1.00000	1.00000
3.5	122	0	0.00000	1.00000	1.00000
4.5	125	0	0.00000	1.00000	1.00000
5.5	144	0	0.00000	1.00000	1.00000
6.5	150	0	0.00000	1.00000	1.00000
7.5	168	0	0.00000	1.00000	1.00000
8.5	179	0	0.00000	1.00000	1.00000
9.5	181	0	0.00000	1.00000	1.00000
10.5	217	0	0.00000	1.00000	1.00000
11.5	224	0	0.00000	1.00000	1.00000
12.5	249	0	0.00000	1.00000	1.00000
13.5	284	0	0.00000	1.00000	1.00000
14.5	297	0	0.00000	1.00000	1.00000
15.5	349	4	0.01146	0.98854	1.00000
16.5	348	0	0.00000	1.00000	0.98854
17.5	350	0	0.00000	1.00000	0.98854
18.5	352	1	0.00284	0.99716	0.98854
19.5	351	4	0.01140	0.98860	0.98573
20.5	356	2	0.00562	0.99438	0.97450
21.5	355	0	0.00000	1.00000	0.96902
22.5	355	4	0.01127	0.98873	0.96902
23.5	352	4	0.01136	0.98864	0.95810
24.5	365	0	0.00000	1.00000	0.94722
25.5	368	10	0.02717	0.97283	0.94722
26.5	373	3	0.00804	0.99196	0.92148
27.5	370	7	0.01892	0.98108	0.91407
28.5	365	2	0.00548	0.99452	0.89677
29.5	363	8	0.02204	0.97796	0.89186
30.5	345	0	0.00000	1.00000	0.87220
31.5	326	30	0.09202	0.90798	0.87220
32.5	272	10	0.03676	0.96324	0.79194
33.5	236	3	0.01271	0.98729	0.76282
34.5	229	8	0.03493	0.96507	0.75313
35.5	219	2	0.00913	0.99087	0.72682

HYDRO ONE NETWORKS INC.
Transmission Stations
Account: 050CONA 50kV Conventional and Metalclad Air Breakers

Placement Band: 1949 - 1987
Observation Band: 1983 - 2013

Observed Life Table

Age at Beginning of Interval	Exposures	Retirements	Conditional Proportion Retired	Conditional Proportion Surviving	Cumulative Proportion Surviving
A	B	C	D=C/B	E=1-D	F
36.5	202	12	0.05941	0.94059	0.72018
37.5	185	1	0.00541	0.99459	0.67740
38.5	190	1	0.00526	0.99474	0.67373
39.5	178	15	0.08427	0.91573	0.67019
40.5	163	0	0.00000	1.00000	0.61371
41.5	128	2	0.01563	0.98438	0.61371
42.5	120	0	0.00000	1.00000	0.60412
43.5	101	4	0.03960	0.96040	0.60412
44.5	70	1	0.01429	0.98571	0.58020
45.5	60	0	0.00000	1.00000	0.57191
46.5	53	0	0.00000	1.00000	0.57191
47.5	53	0	0.00000	1.00000	0.57191
48.5	53	0	0.00000	1.00000	0.57191
49.5	51	15	0.29412	0.70588	0.57191
50.5	28	0	0.00000	1.00000	0.40370
51.5	28	0	0.00000	1.00000	0.40370
52.5	23	1	0.04348	0.95652	0.40370
53.5	22	0	0.00000	1.00000	0.38615
54.5	22	3	0.13636	0.86364	0.38615
55.5	19	0	0.00000	1.00000	0.33349
56.5	16	4	0.25000	0.75000	0.33349
57.5	10	1	0.10000	0.90000	0.25012
58.5	9	0	0.00000	1.00000	0.22511
59.5	1	1	1.00000	0.00000	0.22511
60.5	0	0	0.00000	1.00000	0.00000

Schedule B1

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 050CONA 50kV Conventional and Metalclad Air Breakers

T-Cut: None

Placement Band: 1949-1987

Hazard Function: Proportion Retired

Weighting: Exposures

Rolling Band Life Analysis

Observation Band	Censoring	First Degree Average Life	First Degree Disper-sion	First Degree Conf. Index	Second Degree Average Life	Second Degree Disper-sion	Second Degree Conf. Index	Third Degree Average Life	Third Degree Disper-sion	Third Degree Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1983-1987	92.3	77.8	L1.5 *	1.98	48.6	S2 *	2.20	46.2	S3 *	2.01
1984-1988	96.9	120.9	S-.5	2.86	187.0	R4 *	2.26	85.1	R4 *	2.19
1985-1989	96.6	146.0	R1	2.37	187.6	R4 *	1.84	67.1	R4 *	1.71
1986-1990	95.7	171.6	R2	1.84	188.2	R5 *	1.21	64.2	R4 *	1.06
1987-1991	59.5	49.8	L2 *	4.36	47.1	S1.5 *	4.32	121.5	SC *	4.96
1988-1992	65.4	52.2	L2 *	3.15	63.0	L0.5 *	3.19	128.7	SC *	5.12
1989-1993	69.8	55.5	L2 *	3.88	64.1	L1.5 *	3.98	127.0	SC *	10.60
1990-1994	52.0	46.6	L2 *	5.22	76.3	O4 *	5.24	90.6	O4 *	18.45
1991-1995	39.9	42.0	L2 *	7.48	76.0	O4 *	7.65	62.8	O4 *	27.89
1992-1996	33.8	42.6	L3 *	7.98	55.9	O3 *	7.98	51.2	O4 *	35.62
1993-1997	28.7	43.6	L3 *	11.05	68.2	O4 *	10.63	40.6	O4 *	43.63
1994-1998	23.9	44.7	L3 *	14.41	84.2	O4 *	13.42	36.6	O4 *	46.22
1995-1999	0.0	35.4	S3 *	8.16	36.0	S3 *	9.36	35.9	S3 *	10.18
1996-2000	0.0	36.6	S3 *	6.54	32.2	R1.5	12.86	37.1	R3 *	8.01
1997-2001	0.0	38.9	S3 *	12.91	25.3	SC	33.70	39.0	R3 *	10.83
1998-2002	0.0	38.7	S3 *	13.46	21.0	O3	42.28	38.6	R3 *	10.82
1999-2003	5.3	39.1	S3 *	11.88	17.3	O4	49.19	38.6	R3 *	9.47
2000-2004	76.7	103.0	L0	4.97	64.5	R1	11.13	62.6	R1.5	7.10
2001-2005	74.1	97.0	L1 *	4.04	148.9	SC *	4.36	76.3	R2.5 *	4.56
2002-2006	63.1	93.0	L1 *	7.89	145.1	SC *	8.49	124.3	SC *	19.90
2003-2007	54.7	58.3	L2 *	6.08	134.5	SC *	5.76	71.1	O4 *	37.22
2004-2008	46.1	54.4	L2 *	7.38	124.1	SC *	6.75	39.6	O4 *	53.97
2005-2009	53.4	46.5	O2	17.25	120.6	SC *	2.43	119.9	SC *	2.46
2006-2010	54.1	43.8	O2	20.11	114.8	O3 *	2.93	113.5	O3 *	3.23
2007-2011	17.6	48.0	S1.5 *	5.92	47.7	S1.5 *	6.12	47.7	S2 *	3.43
2008-2012	42.8	57.5	L3 *	4.63	25.6	O4	47.87	53.3	R4 *	2.87
2009-2013	0.0	58.0	S3 *	7.99	6.5	O4	79.45	54.3	R4 *	4.59

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 050CONA 50kV Conventional and Metalclad Air Breakers

T-Cut: None
Placement Band: 1949-1987
Hazard Function: Proportion Retired
Weighting: Exposures

Shrinking Band Life Analysis

		First Degree			Second Degree			Third Degree		
Observation Band	Censoring	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1983-2013	0.0	48.8	L2 *	4.82	47.5	S2 *	4.24	46.9	S2 *	4.24
1985-2013	0.0	48.9	L2 *	4.68	47.5	S2 *	4.22	46.8	S2 *	4.20
1987-2013	0.0	48.7	L2 *	4.52	47.4	S1.5 *	4.19	46.5	S1.5 *	4.15
1989-2013	0.0	48.6	S1.5 *	4.56	47.6	S2 *	4.34	46.6	S2 *	4.33
1991-2013	0.0	48.0	L3 *	4.33	47.2	S1.5 *	4.23	46.0	S1.5 *	4.17
1993-2013	0.0	48.7	L3 *	4.40	47.7	S2 *	4.29	46.5	S2 *	4.10
1995-2013	0.0	48.8	L3 *	4.19	47.5	S2 *	4.12	46.6	S2 *	3.74
1997-2013	0.0	50.5	L3 *	4.80	42.5	R1	11.83	47.6	R3 *	3.85
1999-2013	0.0	49.4	L3 *	4.72	37.2	SC	18.98	46.8	R2.5 *	3.77
2001-2013	0.0	58.4	L3 *	6.79	43.4	R0.5	19.75	52.6	R3 *	5.52
2003-2013	0.0	58.1	L3 *	7.06	39.1	SC	26.39	52.4	R3 *	5.46
2005-2013	0.0	55.9	L3 *	6.87	32.2	O2	35.16	51.5	R3 *	5.06
2007-2013	0.0	53.2	L3 *	7.04	22.7	O4	48.37	50.3	R3 *	4.81
2009-2013	0.0	58.0	S3 *	7.99	6.5	O4	79.45	54.3	R4 *	4.59
2011-2013	0.0	54.9	L4 *	16.94	2.7	O4 *	86.65	55.5	S5 *	16.64
2013-2013	0.0	56.9	S4 *	16.55	1.8	O3 *	94.29	57.0	S6 *	9.61

Schedule B3

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 050CONA 50kV Conventional and Metalclad Air Breakers

T-Cut: None

Placement Band: 1949-1987

Hazard Function: Proportion Retired

Weighting: Exposures

Progressing Band Life Analysis

Observation Band	Censoring	First Degree Average Life	First Degree Disper-sion	First Degree Conf. Index	Second Degree Average Life	Second Degree Disper-sion	Second Degree Conf. Index	Third Degree Average Life	Third Degree Disper-sion	Third Degree Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1983-1984	84.6	48.4	L2*	6.38	35.1	S3*	7.03	32.9	S4*	5.22
1983-1986	92.0	68.5	L1.5*	2.78	44.3	S3*	3.29	41.0	R4*	2.61
1983-1988	90.4	77.2	L1.5*	2.63	157.5	R0.5*	2.48	175.1	R2*	2.38
1983-1990	93.2	105.1	L1*	1.43	183.3	R4*	1.22	184.1	R4*	1.20
1983-1992	66.3	55.5	L2*	3.54	50.9	S1.5*	3.40	136.2	SC*	3.07
1983-1994	61.6	53.0	L2*	4.12	50.7	S1*	4.12	129.4	SC*	3.39
1983-1996	42.7	45.6	L2*	6.71	43.9	S1.5*	6.40	99.6	O4*	6.30
1983-1998	46.0	49.8	L2*	7.66	48.7	S1*	7.61	111.6	O3*	6.18
1983-2000	0.0	40.0	L3*	6.92	39.2	S3*	6.99	39.5	R3*	7.39
1983-2002	0.0	41.9	L3*	6.48	40.7	S3*	6.31	40.7	R3*	6.49
1983-2004	22.2	44.5	S1.5*	5.26	42.9	S2*	5.27	42.7	R3*	5.34
1983-2006	30.8	47.0	L2*	4.54	45.2	S2*	4.49	45.0	S2*	4.51
1983-2008	28.9	46.0	L2*	3.69	44.9	S2*	3.34	60.3	O3*	3.30
1983-2010	31.0	47.3	L2*	3.55	46.5	S1.5*	3.39	80.9	O4*	3.39
1983-2012	22.2	48.2	L2*	3.52	47.0	S1.5*	3.09	47.5	S1.5*	3.05
1983-2013	0.0	48.8	L2*	4.82	47.5	S2*	4.24	46.9	S2*	4.24

Schedule C

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 050CONA 50kV Conventional and Metalclad Air Breakers

T-Cut: None

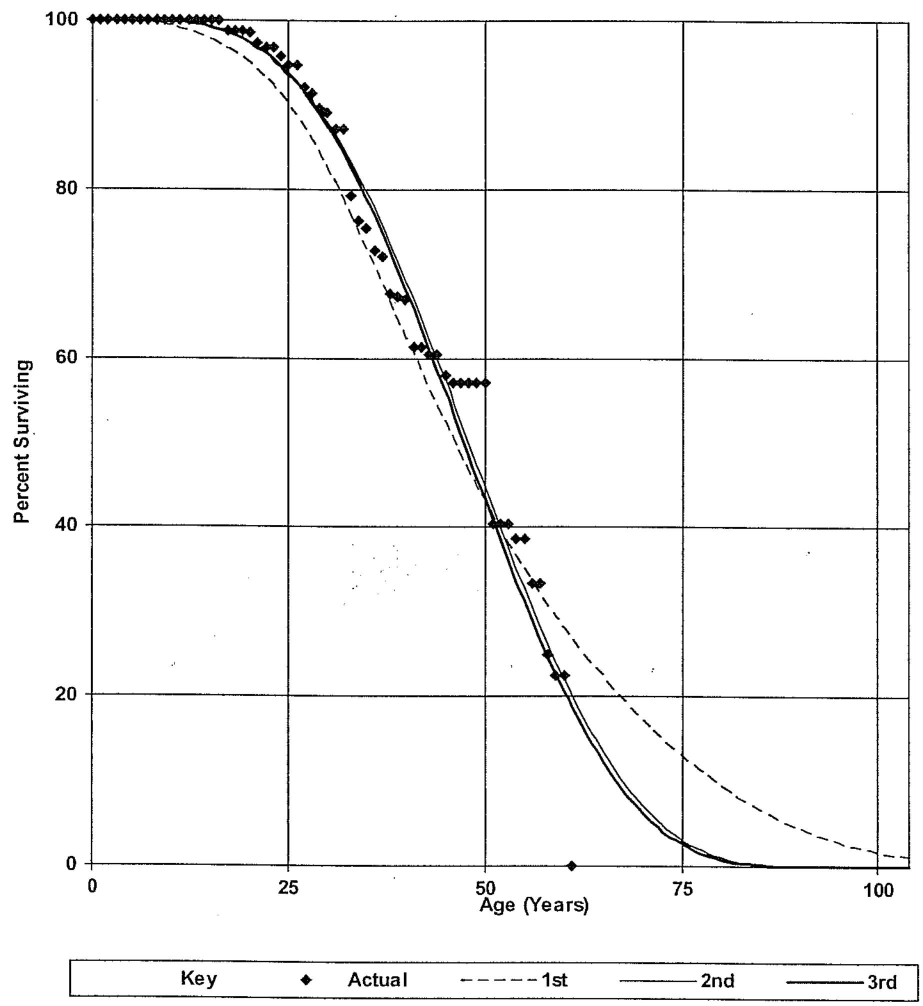
Placement Band: 1949-1987 Observation Band: 1983-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Graphics Analysis

1st: 48.8-L2 2nd: 47.5-S2 3rd: 46.9-S2



HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 050CONA 50kV Conventional and Metalclad Air Breakers

T-Cut: None

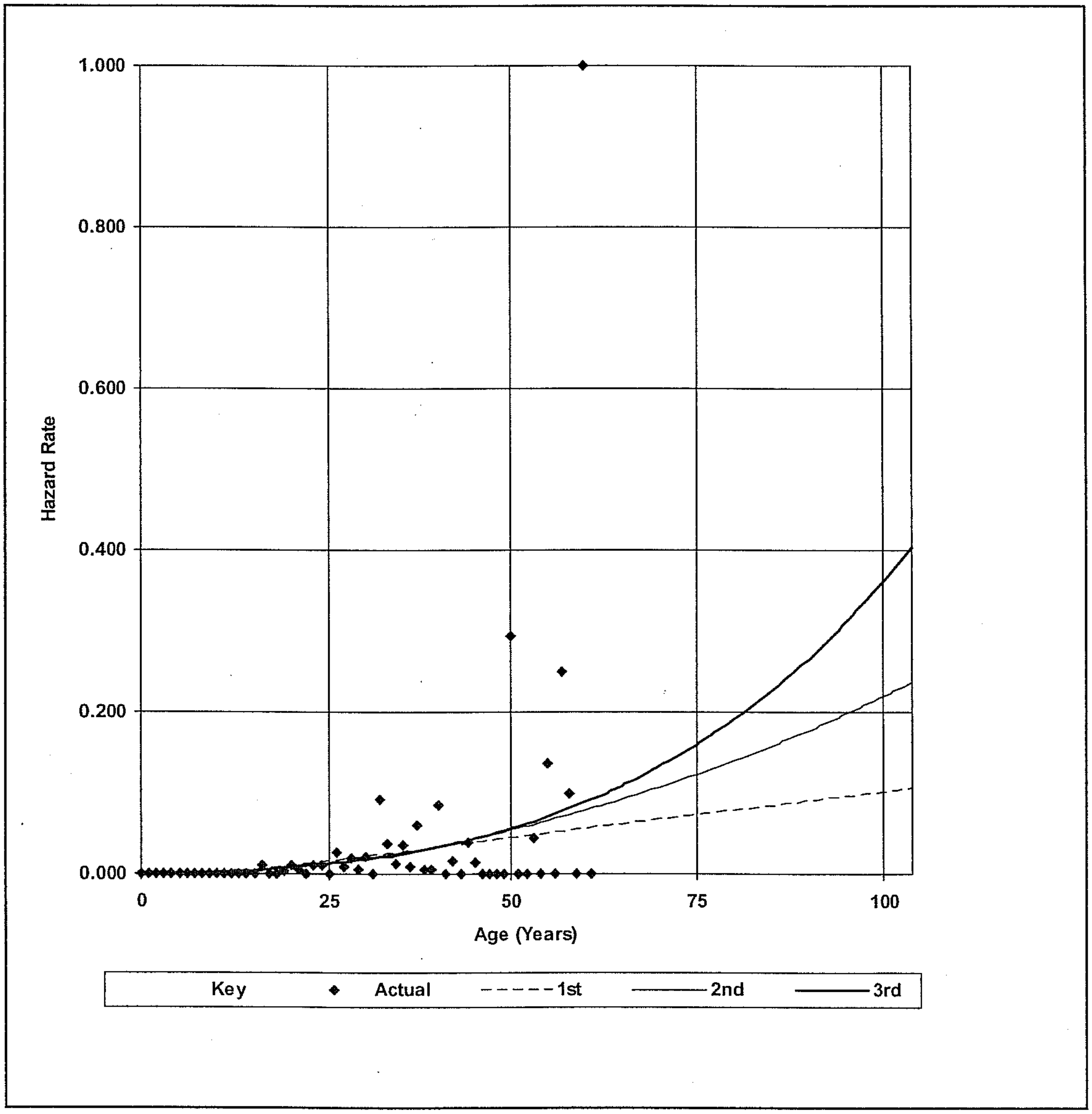
Placement Band: 1949-1987 Observation Band: 1983-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Polynomial Hazard Function

1st: 48.8-L2 2nd: 47.5-S2 3rd: 46.9-S2



Schedule E

HYDRO ONE NETWORKS INC.

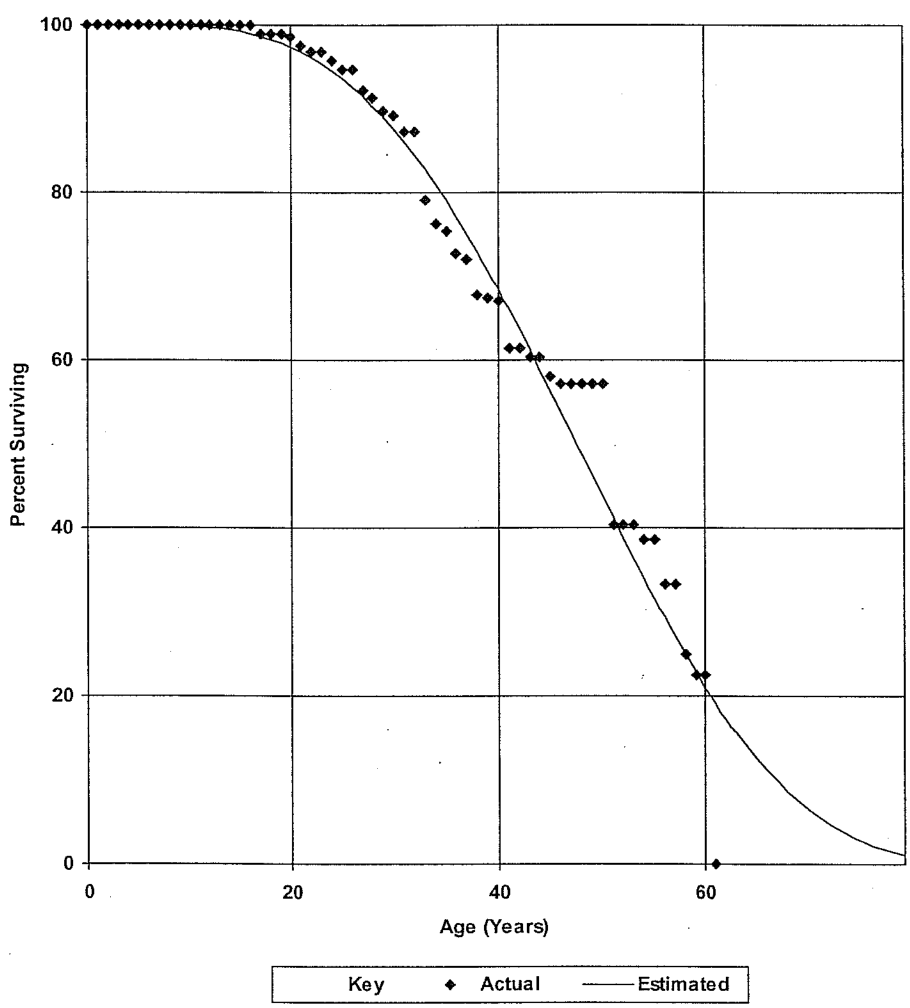
Transmission Stations

Account: 050CONA 50kV Conventional and Metalclad Air Breakers

T-Cut: None
Placement Band: 1949-1987
Observation Band: 1983-2013

Estimated Projection Life Curve

47.0-S2



Schedule A

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 050CONO 50kV Conventional Oil Breakers

Placement Band: 1936 - 2011
Observation Band: 1981 - 2013

Observed Life Table

Age at Beginning of Interval	Exposures	Retirements	Conditional Proportion Retired	Conditional Proportion Surviving	Cumulative Proportion Surviving
A	B	C	D=C/B	E=1-D	F
0.0	121	4	0.03306	0.96694	1.00000
0.5	126	0	0.00000	1.00000	0.96694
1.5	208	1	0.00481	0.99519	0.96694
2.5	228	0	0.00000	1.00000	0.96229
3.5	235	0	0.00000	1.00000	0.96229
4.5	298	0	0.00000	1.00000	0.96229
5.5	369	0	0.00000	1.00000	0.96229
6.5	461	1	0.00217	0.99783	0.96229
7.5	530	2	0.00377	0.99623	0.96021
8.5	597	1	0.00168	0.99832	0.95658
9.5	661	3	0.00454	0.99546	0.95498
10.5	743	0	0.00000	1.00000	0.95065
11.5	854	2	0.00234	0.99766	0.95065
12.5	902	1	0.00111	0.99889	0.94842
13.5	1,022	2	0.00196	0.99804	0.94737
14.5	1,074	0	0.00000	1.00000	0.94551
15.5	1,119	3	0.00268	0.99732	0.94551
16.5	1,184	3	0.00253	0.99747	0.94298
17.5	1,198	9	0.00751	0.99249	0.94059
18.5	1,235	6	0.00486	0.99514	0.93352
19.5	1,263	2	0.00158	0.99842	0.92899
20.5	1,272	1	0.00079	0.99921	0.92752
21.5	1,310	4	0.00305	0.99695	0.92679
22.5	1,313	3	0.00228	0.99772	0.92396
23.5	1,345	11	0.00818	0.99182	0.92185
24.5	1,369	11	0.00804	0.99196	0.91431
25.5	1,370	7	0.00511	0.99489	0.90696
26.5	1,372	6	0.00437	0.99563	0.90233
27.5	1,426	9	0.00631	0.99369	0.89838
28.5	1,484	7	0.00472	0.99528	0.89271
29.5	1,516	6	0.00396	0.99604	0.88850
30.5	1,525	7	0.00459	0.99541	0.88498
31.5	1,511	5	0.00331	0.99669	0.88092
32.5	1,563	13	0.00832	0.99168	0.87801
33.5	1,603	15	0.00936	0.99064	0.87070
34.5	1,547	8	0.00517	0.99483	0.86256
35.5	1,526	7	0.00459	0.99541	0.85810

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 050CONO 50kV Conventional Oil Breakers

Placement Band: 1936 - 2011
Observation Band: 1981 - 2013

Observed Life Table

Age at Beginning of Interval	Exposures	Retirements	Conditional Proportion Retired	Conditional Proportion Surviving	Cumulative Proportion Surviving
A	B	C	D=C/B	E=1-D	F
36.5	1,518	14	0.00922	0.99078	0.85416
37.5	1,454	19	0.01307	0.98693	0.84628
38.5	1,372	24	0.01749	0.98251	0.83522
39.5	1,273	6	0.00471	0.99529	0.82061
40.5	1,232	23	0.01867	0.98133	0.81674
41.5	1,146	27	0.02356	0.97644	0.80150
42.5	1,071	12	0.01120	0.98880	0.78261
43.5	988	31	0.03138	0.96862	0.77385
44.5	877	18	0.02052	0.97948	0.74956
45.5	822	34	0.04136	0.95864	0.73418
46.5	697	9	0.01291	0.98709	0.70381
47.5	649	16	0.02465	0.97535	0.69472
48.5	599	15	0.02504	0.97496	0.67760
49.5	537	32	0.05959	0.94041	0.66063
50.5	489	17	0.03476	0.96524	0.62126
51.5	432	15	0.03472	0.96528	0.59966
52.5	388	12	0.03093	0.96907	0.57884
53.5	364	14	0.03846	0.96154	0.56094
54.5	329	10	0.03040	0.96960	0.53937
55.5	313	12	0.03834	0.96166	0.52297
56.5	275	9	0.03273	0.96727	0.50292
57.5	247	13	0.05263	0.94737	0.48646
58.5	232	11	0.04741	0.95259	0.46086
59.5	220	10	0.04545	0.95455	0.43901
60.5	198	5	0.02525	0.97475	0.41905
61.5	166	7	0.04217	0.95783	0.40847
62.5	141	6	0.04255	0.95745	0.39125
63.5	124	7	0.05645	0.94355	0.37460
64.5	107	4	0.03738	0.96262	0.35345
65.5	64	2	0.03125	0.96875	0.34024
66.5	41	2	0.04878	0.95122	0.32961
67.5	27	0	0.00000	1.00000	0.31353
68.5	22	4	0.18182	0.81818	0.31353
69.5	14	2	0.14286	0.85714	0.25652
70.5	10	0	0.00000	1.00000	0.21988
71.5	7	0	0.00000	1.00000	0.21988
72.5	4	0	0.00000	1.00000	0.21988

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 050CONO 50kV Conventional Oil Breakers

Placement Band: 1936 - 2011
Observation Band: 1981 - 2013

Observed Life Table

Age at Beginning of Interval	Exposures	Retirements	Conditional Proportion Retired	Conditional Proportion Surviving	Cumulative Proportion Surviving
A	B	C	D=C/B	E=1-D	F
73.5	0	0	0.00000	1.00000	0.21988

Schedule B1

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 050CONO 50kV Conventional Oil Breakers

T-Cut: None

Placement Band: 1936-2011

Hazard Function: Proportion Retired

Weighting: Exposures

Rolling Band Life Analysis

		First Degree			Second Degree			Third Degree		
Observation Band	Censoring	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1981-1985	96.3	183.3	R4	0.74	107.7	S2 *	0.64	69.0	S4 *	0.76
1982-1986	97.4	178.0	R3 *	0.59	107.4	S2 *	0.55	74.8	S4 *	0.57
1983-1987	97.6	179.2	R3 *	0.54	112.2	S2 *	0.50	78.6	S4 *	0.45
1984-1988	90.2	108.1	L1.5 *	1.54	79.9	S2	1.67	71.0	S3 *	1.68
1985-1989	91.7	105.3	L1.5 *	2.33	82.3	S1.5	2.70	74.0	R3 *	2.60
1986-1990	60.7	102.0	L1.5 *	4.78	81.1	S1.5	4.68	65.8	R3 *	4.27
1987-1991	29.2	92.5	L1.5 *	7.79	83.0	S1	7.68	61.4	R3 *	6.84
1988-1992	27.4	76.1	L1.5 *	8.02	74.4	L1.5 *	7.98	58.6	R3 *	7.10
1989-1993	37.4	84.2	L1.5 *	7.98	87.3	L1.5 *	8.02	62.0	R3 *	7.20
1990-1994	48.9	73.9	L2 *	4.83	67.7	S1.5 *	4.50	61.7	R3 *	4.09
1991-1995	61.0	67.8	L2 *	5.64	66.5	L2 *	5.68	122.9	SC *	5.40
1992-1996	48.2	60.3	S1.5 *	9.71	57.9	S2 *	10.14	100.3	O3 *	6.63
1993-1997	37.0	53.7	L3 *	9.85	52.5	S2 *	10.58	71.3	O3 *	5.25
1994-1998	24.7	50.9	L3 *	14.07	49.6	S2 *	13.83	48.3	R2.5 *	11.18
1995-1999	0.0	48.0	L3 *	17.10	44.5	R2	12.47	47.2	R3 *	17.08
1996-2000	0.0	48.0	L3 *	29.32	42.4	R1.5	21.15	43.4	R2	22.85
1997-2001	0.0	47.1	L3 *	11.03	38.4	R1	4.86	41.1	R1.5	3.00
1998-2002	6.6	50.3	L3 *	9.22	40.4	R1	6.81	43.4	R1.5	2.71
1999-2003	13.7	51.6	L3 *	11.64	43.6	R1.5	3.35	38.5	SC *	10.02
2000-2004	23.2	56.8	L3 *	16.75	44.9	R0.5	4.13	50.7	O4 *	19.14
2001-2005	29.6	61.6	L3 *	12.64	53.8	R1.5	5.80	65.8	O4 *	20.58
2002-2006	55.9	77.1	L1.5 *	8.51	68.7	S0.5	4.90	90.2	O4 *	21.69
2003-2007	55.4	82.5	L1 *	8.73	69.8	R1	4.05	87.2	O4 *	23.49
2004-2008	0.0	78.2	L2 *	23.10	51.7	SC	7.18	53.9	O2 *	9.06
2005-2009	16.6	70.8	L3 *	34.69	40.8	SC	12.24	43.1	SC	12.08
2006-2010	13.8	66.5	L3 *	28.31	37.4	O3	13.09	39.2	SC	11.21
2007-2011	13.4	62.8	L3 *	26.62	28.6	O4	22.31	26.6	O4	25.25
2008-2012	7.8	62.7	L3 *	49.26	24.5	O4	11.90	15.8	O4 *	21.40
2009-2013	0.0	64.0	L2 *	79.31	11.4	O4	18.16	5.1	O4 *	9.63

Schedule B2

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 050CONO 50kV Conventional Oil Breakers

T-Cut: None
Placement Band: 1936-2011
Hazard Function: Proportion Retired
Weighting: Exposures

Shrinking Band Life Analysis

Observation Band	Censoring	First Degree Average Life	First Degree Disper-sion	First Degree Conf. Index	Second Degree Average Life	Second Degree Disper-sion	Second Degree Conf. Index	Third Degree Average Life	Third Degree Disper-sion	Third Degree Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1981-2013	22.0	61.8	L2*	4.71	56.9	R2.5	2.06	56.8	R2.5	1.62
1983-2013	20.6	61.4	L2*	8.37	56.4	R2.5	5.66	56.0	R2	4.65
1985-2013	19.7	61.0	L2*	10.68	55.4	R2	7.04	54.6	R1.5 *	5.09
1987-2013	19.0	60.4	S1.5*	11.74	54.2	R2	6.95	53.0	R1.5 *	3.70
1989-2013	18.5	60.1	S1.5*	13.02	53.2	R1.5	6.96	52.1	R1 *	2.46
1991-2013	16.7	59.5	S1.5*	17.47	52.4	R1.5	10.65	52.5	R0.5 *	4.15
1993-2013	15.0	59.4	L3*	22.80	52.0	R1.5	15.36	53.8	O2 *	6.29
1995-2013	12.8	58.8	L3*	29.02	49.5	R1	18.78	50.7	O2 *	8.73
1997-2013	14.4	59.2	L3*	23.15	46.0	R0.5	7.85	45.6	O3 *	5.85
1999-2013	12.0	61.9	L3*	36.63	43.4	SC	14.93	41.3	O3 *	3.28
2001-2013	10.6	64.7	L3*	44.88	40.2	SC	16.77	37.3	O4 *	5.94
2003-2013	10.0	67.9	L2*	49.12	33.5	O3	10.62	29.1	O4 *	5.04
2005-2013	0.0	68.4	L3*	82.84	30.3	O4	40.38	24.6	O4 *	32.21
2007-2013	0.0	65.2	L3*	81.30	20.8	O4	29.22	13.1	O4 *	17.48
2009-2013	0.0	64.0	L2*	79.31	11.4	O4	18.16	5.1	O4 *	9.63
2011-2013	0.0	65.3	L2*	79.54	8.9	O4	15.32	2.7	O4 *	7.97
2013-2013	0.0	55.5	O4*	51.09	2.0	O3 *	7.89	0.7	O2 *	11.97

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 050CONO 50kV Conventional Oil Breakers

T-Cut: None
Placement Band: 1936-2011
Hazard Function: Proportion Retired
Weighting: Exposures

Progressing Band Life Analysis

Observation Band	Censoring	First Degree Average Life	First Degree Disper- sion	First Degree Conf. Index	Second Degree Average Life	Second Degree Disper- sion	Second Degree Conf. Index	Third Degree Average Life	Third Degree Disper- sion	Third Degree Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1981-1982	99.0	195.3	SQ*	0.77	195.3	SQ*	0.72	77.3	R4*	0.64
1981-1984	79.5	178.3	R3	5.19	99.1	S2*	4.85	64.7	S4*	4.03
1981-1986	97.1	186.8	R4	0.60	115.8	S2*	0.52	73.2	S4*	0.60
1981-1988	90.7	120.7	S0.5*	1.18	80.2	S2	1.34	66.1	R4*	1.63
1981-1990	61.3	121.2	S0*	5.29	84.2	S2	4.85	66.5	R4*	4.26
1981-1992	30.7	97.6	L1.5*	10.00	77.0	S1.5	9.35	63.0	R4*	8.23
1981-1994	52.3	89.0	L1.5*	6.33	70.5	S2	5.23	63.4	R3*	4.43
1981-1996	61.0	74.9	L2*	3.17	62.5	S2	2.31	59.7	R3*	3.39
1981-1998	39.7	62.9	L2*	4.32	54.9	R2.5	1.78	54.2	R3*	3.29
1981-2000	0.0	58.7	L2*	7.30	51.8	R2.5*	3.71	52.4	R4*	3.60
1981-2002	9.9	57.2	S1.5*	6.27	51.1	R2.5*	2.74	52.3	R3*	3.05
1981-2004	23.6	58.0	L2*	5.28	52.6	R2.5	1.65	53.2	R3	2.53
1981-2006	32.7	60.5	L2*	4.24	55.5	R2.5	2.46	55.5	R2.5	2.18
1981-2008	0.0	61.1	L2*	5.57	56.3	S2	3.93	56.3	S2	3.68
1981-2010	16.4	61.2	L2*	4.30	56.4	R2.5	2.66	56.3	R2.5	2.48
1981-2012	21.8	61.4	L2*	4.30	56.9	R2.5	2.21	56.7	R2.5	1.74
1981-2013	22.0	61.8	L2*	4.71	56.9	R2.5	2.06	56.8	R2.5	1.62

Schedule C

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 050CONO 50kV Conventional Oil Breakers

T-Cut: None

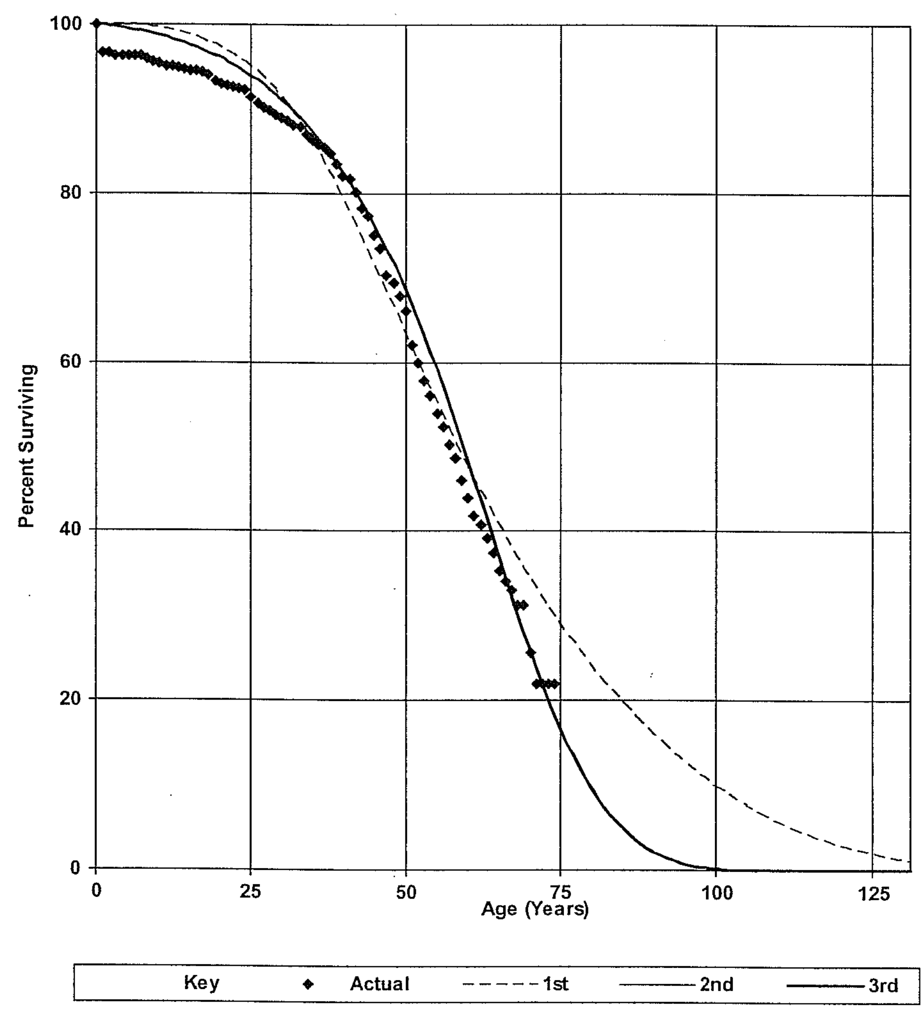
Placement Band: 1936-2011 Observation Band: 1981-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Graphics Analysis

1st: 61.8-L2 2nd: 56.9-R2.5 3rd: 56.8-R2.5



Schedule D

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 050CONO 50kV Conventional Oil Breakers

T-Cut: None

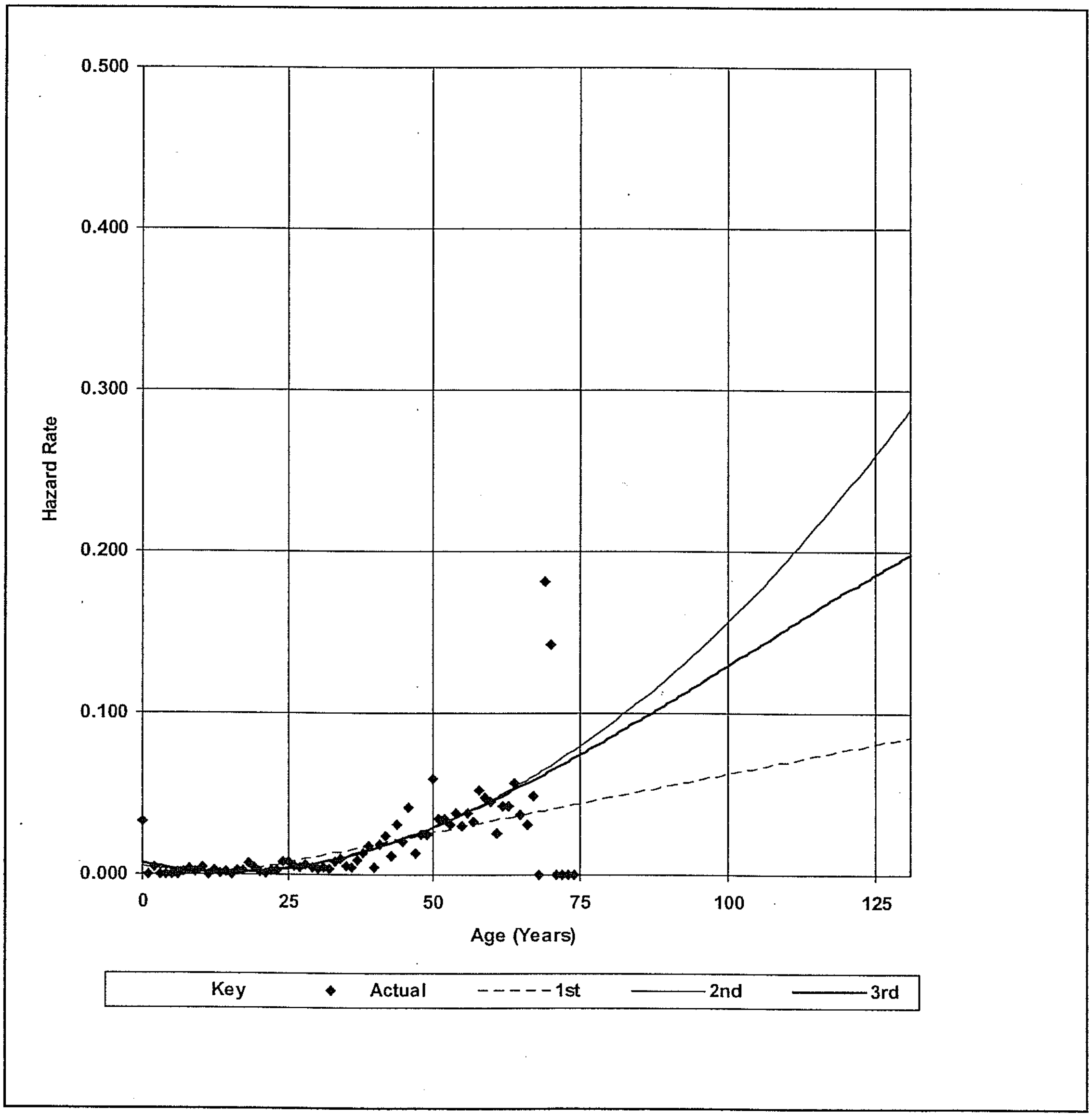
Placement Band: 1936-2011 Observation Band: 1981-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Polynomial Hazard Function

1st: 61.8-L2 2nd: 56.9-R2.5 3rd: 56.8-R2.5



Schedule E

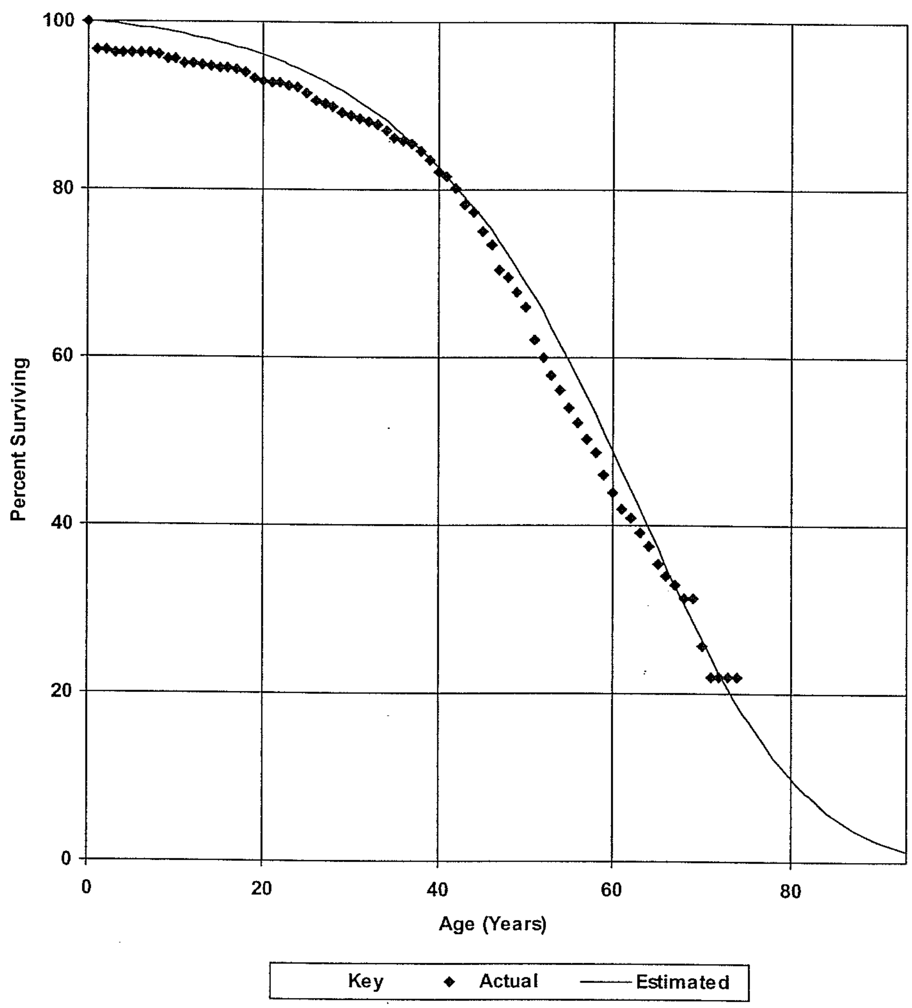
HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 050CONO 50kV Conventional Oil Breakers

T-Cut: None
Placement Band: 1936-2011
Observation Band: 1981-2013
57.0-R2.5

Estimated Projection Life Curve



Schedule A

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 050CONS 50kV Conventional and Metalclad SF6 Breakers

Placement Band: 1980 - 2008
Observation Band: 1993 - 2013

Observed Life Table

Age at Beginning of Interval	Exposures	Retirements	Conditional Proportion Retired	Conditional Proportion Surviving	Cumulative Proportion Surviving
A	B	C	D=C/B	E=1-D	F
0.0	157	0	0.00000	1.00000	1.00000
0.5	218	2	0.00917	0.99083	1.00000
1.5	369	2	0.00542	0.99458	0.99083
2.5	531	0	0.00000	1.00000	0.98546
3.5	683	3	0.00439	0.99561	0.98546
4.5	751	1	0.00133	0.99867	0.98113
5.5	924	0	0.00000	1.00000	0.97982
6.5	927	5	0.00539	0.99461	0.97982
7.5	894	2	0.00224	0.99776	0.97454
8.5	914	7	0.00766	0.99234	0.97236
9.5	901	5	0.00555	0.99445	0.96491
10.5	915	8	0.00874	0.99126	0.95955
11.5	904	17	0.01881	0.98119	0.95116
12.5	879	21	0.02389	0.97611	0.93328
13.5	850	3	0.00353	0.99647	0.91098
14.5	847	3	0.00354	0.99646	0.90777
15.5	835	10	0.01198	0.98802	0.90455
16.5	797	10	0.01255	0.98745	0.89372
17.5	779	7	0.00899	0.99101	0.88250
18.5	764	13	0.01702	0.98298	0.87457
19.5	748	11	0.01471	0.98529	0.85969
20.5	713	22	0.03086	0.96914	0.84705
21.5	645	16	0.02481	0.97519	0.82091
22.5	502	19	0.03785	0.96215	0.80055
23.5	340	20	0.05882	0.94118	0.77025
24.5	212	11	0.05189	0.94811	0.72494
25.5	181	6	0.03315	0.96685	0.68733
26.5	47	2	0.04255	0.95745	0.66454
27.5	43	1	0.02326	0.97674	0.63626
28.5	38	4	0.10526	0.89474	0.62147
29.5	16	0	0.00000	1.00000	0.55605
30.5	15	3	0.20000	0.80000	0.55605
31.5	0	0	0.00000	1.00000	0.44484

Schedule B1

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 050CONS 50kV Conventional and Metalclad SF6 Breakers

T-Cut: None
Placement Band: 1980-2008
Hazard Function: Proportion Retired
Weighting: Exposures

Rolling Band Life Analysis

		First Degree			Second Degree			Third Degree		
Observation Band	Censoring	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1993-1997	96.1	188.6	R5 *	0.67	41.4	S1.5	0.79	189.4	R5 *	0.61
1994-1998	96.7	139.7	R0.5	0.75	46.8	S1.5	0.74	191.1	R5 *	0.52
1995-1999	91.0	45.9	L1.5 *	1.88	34.3	S1.5	1.88	179.0	R3 *	0.95
1996-2000	81.4	33.4	L1.5 *	2.77	27.3	S1.5	3.01	163.4	R1 *	1.28
1997-2001	79.5	30.9	L1.5 *	3.03	28.5	S1 *	3.28	157.9	R0.5 *	1.58
1998-2002	80.3	33.0	L1.5 *	3.02	114.8	O3 *	2.54	160.6	R1 *	0.97
1999-2003	80.6	33.6	L1 *	3.96	151.1	SC *	1.73	161.8	R1 *	0.75
2000-2004	83.3	42.0	L0.5	5.13	165.5	R1 *	0.77	167.8	R1.5 *	0.58
2001-2005	78.6	43.0	L0.5	2.16	149.1	SC *	1.48	154.9	R0.5 *	1.48
2002-2006	84.4	54.0	L0.5	1.57	163.6	R1 *	1.17	171.3	R2 *	1.10
2003-2007	87.8	66.3	L0.5	1.55	173.3	R2 *	0.94	178.7	R3 *	1.09
2004-2008	90.1	64.7	L1.5 *	1.19	54.8	S1 *	1.30	41.4	R3 *	1.77
2005-2009	85.6	69.2	L1	1.66	51.7	S1	1.13	51.1	S1	1.13
2006-2010	79.0	45.3	L2 *	2.63	36.6	S2 *	3.21	143.5	SC *	2.09
2007-2011	0.0	33.6	L3 *	9.63	28.3	R3 *	8.10	28.3	R4 *	7.13
2008-2012	0.0	33.6	L3 *	9.58	29.2	R3 *	8.19	29.3	S3	7.54
2009-2013	44.8	32.2	S1.5 *	2.81	29.5	R2.5	3.17	29.6	R2.5	3.45

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 050CONS 50kV Conventional and Metalclad SF6 Breakers

T-Cut: None

Placement Band: 1980-2008

Hazard Function: Proportion Retired

Weighting: Exposures

Shrinking Band Life Analysis

Observation Band	Censoring	First Degree Average Life	First Degree Disper-sion	First Degree Conf. Index	Second Degree Average Life	Second Degree Disper-sion	Second Degree Conf. Index	Third Degree Average Life	Third Degree Disper-sion	Third Degree Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1993-2013	44.5	36.2	L1.5 *	2.99	30.5	R2	1.39	29.3	R3 *	1.53
1995-2013	44.7	35.9	L2 *	2.85	30.3	R2	1.82	29.2	R3 *	1.55
1997-2013	44.3	35.8	L2 *	3.15	29.6	R2	2.65	28.9	R2.5 *	1.57
1999-2013	44.3	35.6	L2 *	2.98	29.2	R2	3.89	28.4	R2.5 *	2.00
2001-2013	44.5	35.6	L2 *	3.85	29.3	R2	3.01	28.8	R3 *	1.64
2003-2013	46.9	35.4	S1.5 *	2.66	30.3	R3 *	2.10	30.0	R3	1.71
2005-2013	47.7	35.0	L3 *	2.08	30.7	R3 *	1.87	30.6	S3 *	1.65
2007-2013	47.8	34.4	L3 *	2.28	30.6	S3 *	1.94	30.6	S3 *	1.92
2009-2013	44.8	32.2	S1.5 *	2.81	29.5	R2.5	3.17	29.6	R2.5	3.45
2011-2013	40.9	31.0	L3 *	1.37	29.2	R3 *	2.41	29.5	S3 *	2.11
2013-2013	0.0	32.2	L2 *	53.82	56.4	O4 *	53.77	100.8	O4 *	53.07

Schedule B3

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 050CONS 50kV Conventional and Metalclad SF6 Breakers

T-Cut: None

Placement Band: 1980-2008

Hazard Function: Proportion Retired

Weighting: Exposures

Progressing Band Life Analysis

Observation Band	Censoring	First Degree Average Life	First Degree Disper-sion	First Degree Conf. Index	Second Degree Average Life	Second Degree Disper-sion	Second Degree Conf. Index	Third Degree Average Life	Third Degree Disper-sion	Third Degree Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1993-1994	88.0	192.0	SQ*	5.60	29.1	R2.5	5.14	188.0	R5 *	4.44
1993-1996	95.9	190.0	R5*	0.81	33.7	S2	0.95	188.2	R5 *	0.82
1993-1998	95.8	191.7	S6*	0.52	35.9	R2.5	0.91	188.3	R5 *	0.79
1993-2000	82.8	37.4	L1.5*	2.00	25.9	S2	2.83	165.2	R1 *	1.24
1993-2002	82.3	35.0	L1.5*	2.42	30.4	S1 *	3.02	164.0	R1 *	1.02
1993-2004	84.4	40.2	L1.5*	2.72	129.3	SC *	2.14	168.2	R1.5 *	0.58
1993-2006	82.3	44.4	L1	2.06	157.0	R0.5 *	1.27	168.6	R1.5 *	0.87
1993-2008	81.8	54.5	L0.5	1.79	170.1	R1.5 *	1.21	171.9	R2 *	1.36
1993-2010	73.9	45.3	L1	1.28	45.5	L1	1.26	132.0	SC *	1.04
1993-2012	0.0	37.1	L1.5*	10.71	30.4	R2	8.58	28.7	R3 *	7.39
1993-2013	44.5	36.2	L1.5*	2.99	30.5	R2	1.39	29.3	R3 *	1.53

Schedule C

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 050CONS 50kV Conventional and Metalclad SF6 Breakers

T-Cut: None

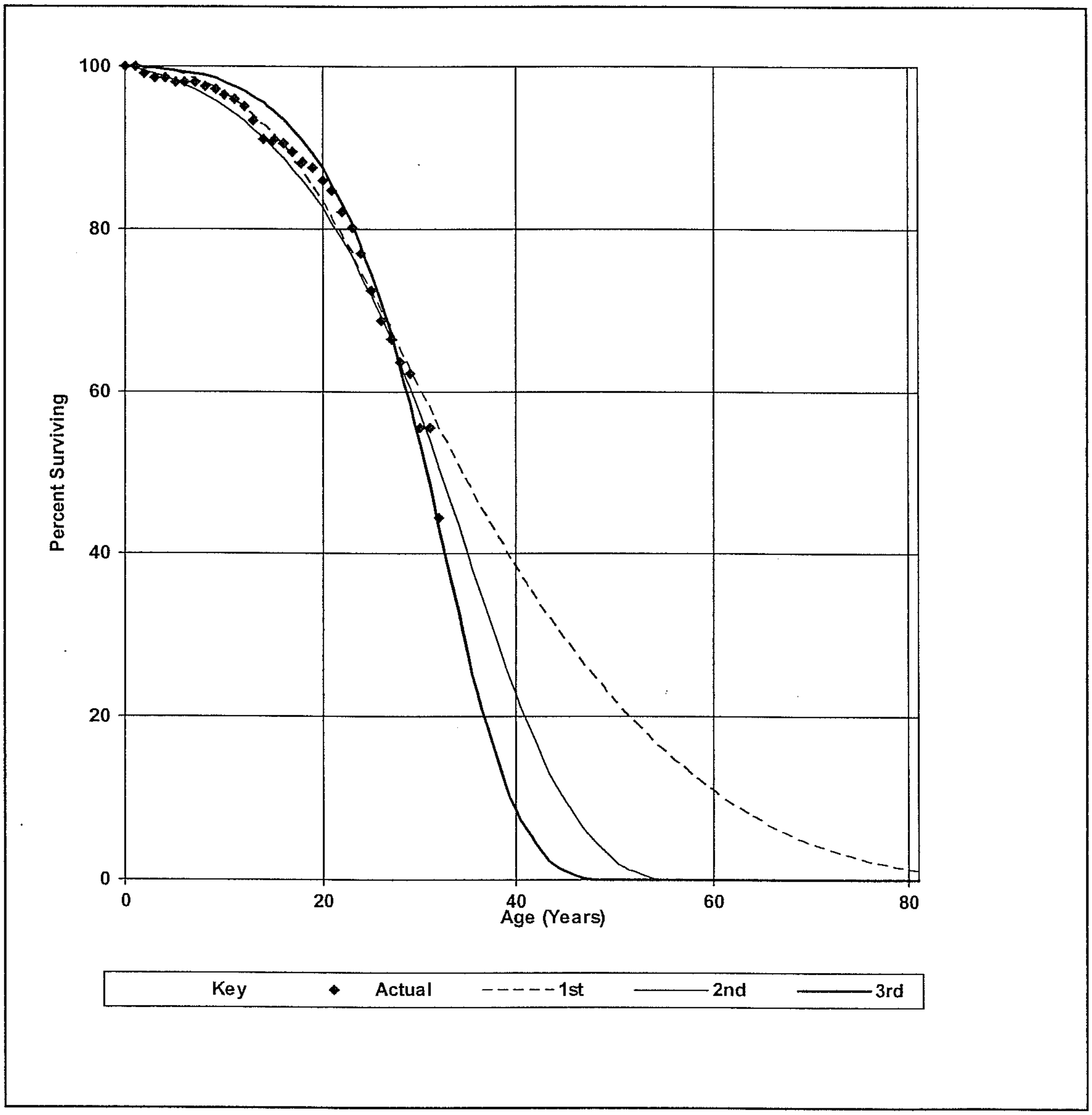
Placement Band: 1980-2008 Observation Band: 1993-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Graphics Analysis

1st: 36.2-L1.5 2nd: 30.5-R2 3rd: 29.3-R3



Schedule D

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 050CONS 50kV Conventional and Metalclad SF6 Breakers

T-Cut: None

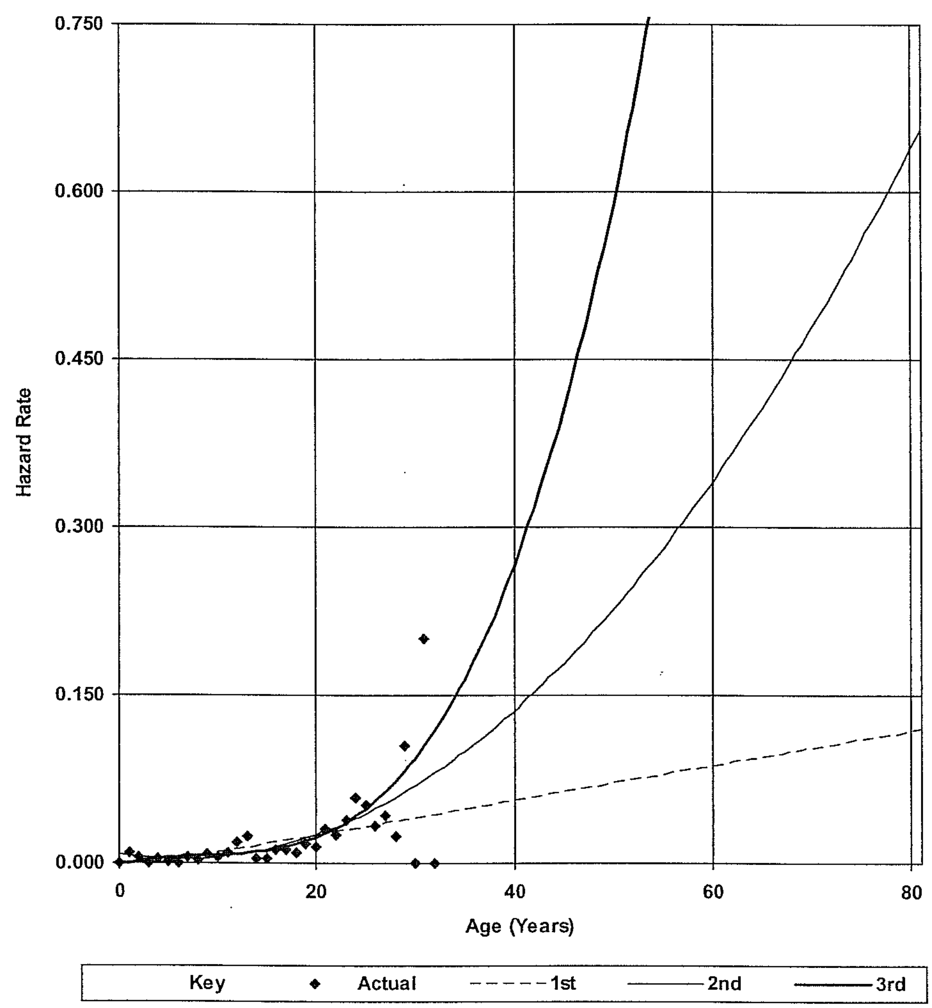
Placement Band: 1980-2008 Observation Band: 1993-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Polynomial Hazard Function

1st: 36.2-L1.5 2nd: 30.5-R2 3rd: 29.3-R3



Schedule E

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 050CONS 50kV Conventional and Metalclad SF6 Breakers

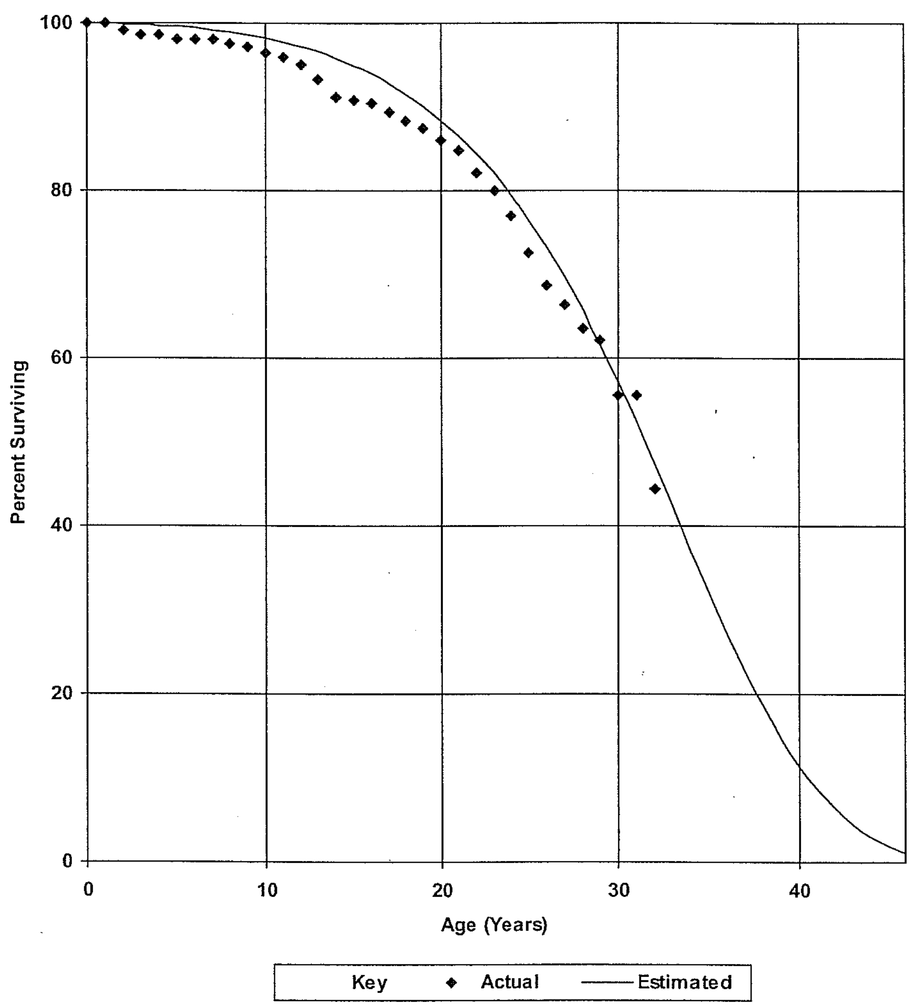
T-Cut: None

Placement Band: 1980-2008

Observation Band: 1993-2013

30.0-R3

Estimated Projection Life Curve



HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 050CONV 50kV Conv. and Metalclad Vacuum Breakers

Placement Band: 1986 - 2013
Observation Band: 1987 - 2013

Observed Life Table

Age at Beginning of Interval	Exposures	Retirements	Conditional Proportion Retired	Conditional Proportion Surviving	Cumulative Proportion Surviving
A	B	C	D=C/B	E=1-D	F
0.0	196	0	0.00000	1.00000	1.00000
0.5	215	2	0.00930	0.99070	1.00000
1.5	201	1	0.00498	0.99502	0.99070
2.5	200	1	0.00500	0.99500	0.98577
3.5	209	0	0.00000	1.00000	0.98084
4.5	192	0	0.00000	1.00000	0.98084
5.5	192	0	0.00000	1.00000	0.98084
6.5	201	0	0.00000	1.00000	0.98084
7.5	180	0	0.00000	1.00000	0.98084
8.5	109	0	0.00000	1.00000	0.98084
9.5	96	1	0.01042	0.98958	0.98084
10.5	86	0	0.00000	1.00000	0.97062
11.5	74	0	0.00000	1.00000	0.97062
12.5	74	0	0.00000	1.00000	0.97062
13.5	69	0	0.00000	1.00000	0.97062
14.5	67	0	0.00000	1.00000	0.97062
15.5	45	5	0.11111	0.88889	0.97062
16.5	40	1	0.02500	0.97500	0.86278
17.5	35	4	0.11429	0.88571	0.84121
18.5	17	0	0.00000	1.00000	0.74507
19.5	17	0	0.00000	1.00000	0.74507
20.5	17	0	0.00000	1.00000	0.74507
21.5	16	0	0.00000	1.00000	0.74507
22.5	16	2	0.12500	0.87500	0.74507
23.5	14	0	0.00000	1.00000	0.65194
24.5	14	0	0.00000	1.00000	0.65194
25.5	14	0	0.00000	1.00000	0.65194
26.5	14	6	0.42857	0.57143	0.65194
27.5	0	0	0.00000	1.00000	0.37253

Schedule B1

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 050CONV 50kV Conv. and Metalclad Vacuum Breakers

T-Cut: None

Placement Band: 1986-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Rolling Band Life Analysis

		First Degree			Second Degree			Third Degree		
Observation Band	Censoring	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1987-1991	90.9	164.1	R1 *	6.96	7.9	R2 *	4.24	171.3	R2 *	4.18
1988-1992	100.0				No Retirements					
1989-1993	100.0				No Retirements					
1990-1994	100.0				No Retirements					
1991-1995	100.0				No Retirements					
1992-1996	100.0				No Retirements					
1993-1997	100.0				No Retirements					
1994-1998	100.0				No Retirements					
1995-1999	100.0				No Retirements					
1996-2000	100.0				No Retirements					
1997-2001	100.0				No Retirements					
1998-2002	26.7	21.4	L1.5 *	33.01	16.3	R2 *	30.08	16.0	R3 *	33.57
1999-2003	61.3	23.0	L1.5 *	6.92	19.6	R2.5	6.66	18.7	R3	7.39
2000-2004	61.3	24.9	L1.5 *	7.84	22.4	S1	8.11	128.4	SC *	7.31
2001-2005	72.5	26.9	L1.5 *	4.16	26.2	L1.5 *	4.02	127.8	SC *	7.48
2002-2006	74.3	29.2	L1.5 *	3.99	39.7	O3 *	4.24	127.4	SC *	8.25
2003-2007	100.0				No Retirements					
2004-2008	100.0				No Retirements					
2005-2009	74.4	39.0	L1.5 *	3.32	29.6	S3 *	3.48	27.6	S4 *	4.96
2006-2010	62.0	37.4	L1.5 *	7.56	30.5	S2	8.90	97.5	O4 *	7.94
2007-2011	13.8	29.6	L1.5 *	29.39	27.8	S1.5 *	30.24	106.7	O4 *	24.37
2008-2012	15.7	31.3	L2 *	30.55	29.9	S1 *	31.00	105.8	O4 *	23.99
2009-2013	35.3	24.0	L2 *	11.10	23.6	R3 *	8.14	24.3	S3	7.04

Schedule B2

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 050CONV 50kV Conv. and Metalclad Vacuum Breakers

T-Cut: None

Placement Band: 1986-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Shrinking Band Life Analysis

Observation Band	Censoring	First Degree Average Life	First Degree Disper-sion	First Degree Conf. Index	Second Degree Average Life	Second Degree Disper-sion	Second Degree Conf. Index	Third Degree Average Life	Third Degree Disper-sion	Third Degree Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1987-2013	37.3	28.1	L2 *	6.42	24.9	R3 *	6.55	24.9	R3	6.18
1989-2013	37.6	27.8	L2 *	6.77	25.1	S3 *	6.63	25.2	R4 *	6.17
1991-2013	37.6	27.8	L2 *	6.72	25.1	S3 *	6.62	25.2	R4 *	6.16
1993-2013	37.6	27.8	L2 *	6.74	25.1	S3 *	6.62	25.2	R4 *	6.16
1995-2013	37.6	27.8	L2 *	6.81	25.1	S3 *	6.62	25.2	R4 *	6.16
1997-2013	37.4	27.7	L2 *	6.82	25.1	S3 *	6.55	25.1	R4 *	6.14
1999-2013	37.4	27.4	L2 *	7.14	25.0	S3 *	6.58	25.1	R4 *	6.14
2001-2013	37.4	27.0	L2 *	7.69	25.0	S3 *	6.72	25.0	R4 *	6.16
2003-2013	41.2	28.6	L2 *	9.11	25.7	S3 *	7.60	26.1	S4 *	5.96
2005-2013	36.1	27.7	L2 *	7.02	25.4	S3 *	5.82	26.0	R4 *	7.27
2007-2013	36.0	26.2	L2 *	8.54	24.8	S3 *	6.49	25.5	R4 *	6.54
2009-2013	35.3	24.0	L2 *	11.10	23.6	R3 *	8.14	24.3	S3	7.04
2011-2013	44.4	23.1	S1.5 *	19.74	23.2	R3 *	15.92	24.6	R4 *	12.20
2013-2013	57.1	19.0	L3 *	43.99	19.0	R2.5 *	39.47	23.4	R5 *	26.58

Schedule B3

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 050CONV 50kV Conv. and Metalclad Vacuum Breakers

T-Cut: None

Placement Band: 1986-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Progressing Band Life Analysis

		First Degree			Second Degree			Third Degree		
Observation Band	Censoring	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1987-1988	90.9	148.1	SC*	14.81	172.8	R2*	3.70	172.8	R2*	3.70
1987-1990	90.9	160.9	R1*	8.34	6.6	R2.5*	4.14	172.8	R2*	3.85
1987-1992	90.9	165.5	R1*	6.16	9.3	R2*	4.11	170.4	R2*	4.41
1987-1994	92.9	171.1	R2*	5.40	12.7	R2.5*	3.93	174.8	R2.5*	3.98
1987-1996	92.9	174.5	R2.5*	4.05	15.7	R2.5*	3.25	174.8	R2.5*	3.78
1987-1998	92.9	176.0	R2.5*	3.51	18.5	R2.5*	3.20	174.2	R2*	3.96
1987-2000	93.5	177.4	R3*	3.50	21.8	R2.5*	3.32	175.7	R2.5*	3.87
1987-2002	69.5	25.5	L1	5.36	17.1	R2.5*	4.61	16.4	R3*	3.46
1987-2004	72.2	31.7	L1	4.03	21.4	R2.5	2.86	125.5	SC*	3.32
1987-2006	75.8	38.9	L1	4.33	27.2	R2	3.99	153.9	SC*	3.46
1987-2008	78.3	47.3	L1	4.78	34.6	S1	4.81	160.6	R1*	3.35
1987-2010	65.7	36.2	L1.5*	4.57	28.4	R2.5	4.62	130.0	SC*	3.65
1987-2012	59.3	34.6	L1.5*	6.33	29.7	S1.5	6.26	126.4	SC*	3.79
1987-2013	37.3	28.1	L2*	6.42	24.9	R3*	6.55	24.9	R3	6.18

Schedule C

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 050CONV 50kV Conv. and Metalclad Vacuum Breakers

T-Cut: None

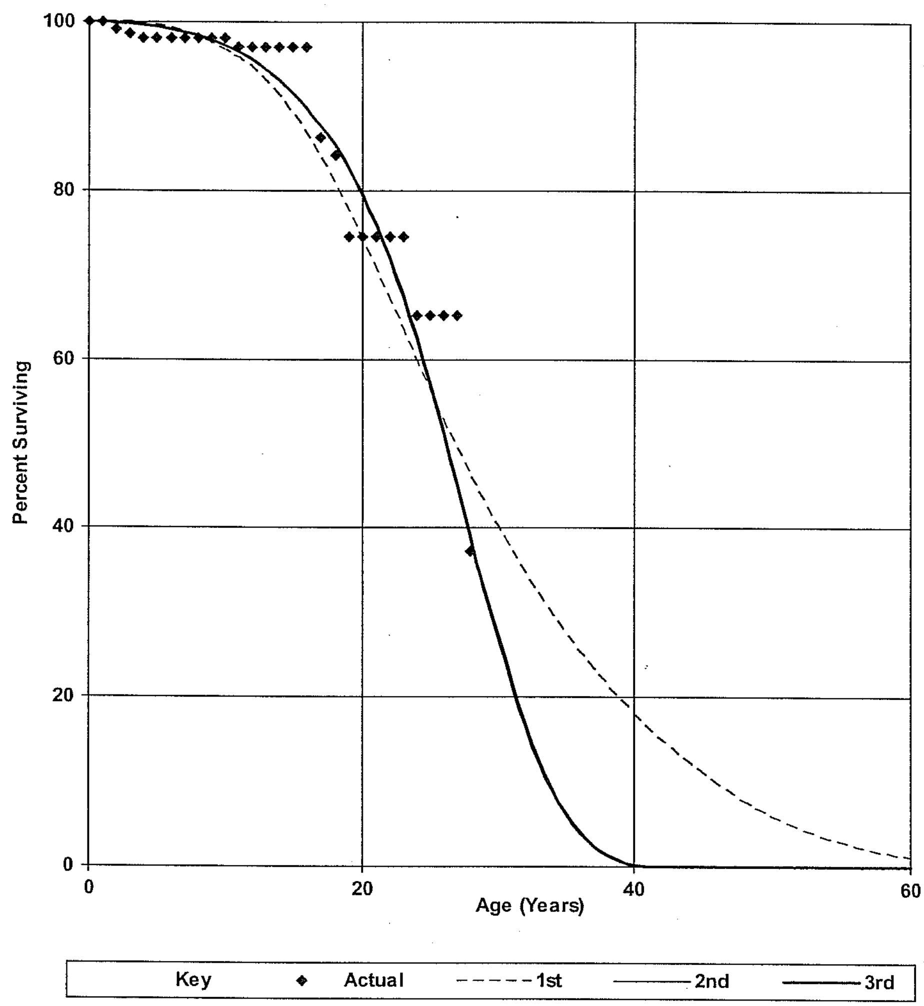
Placement Band: 1986-2013 Observation Band: 1987-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Graphics Analysis

1st: 28.1-L2 2nd: 24.9-R3 3rd: 24.9-R3



Schedule D

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 050CONV 50kV Conv. and Metalclad Vacuum Breakers

T-Cut: None

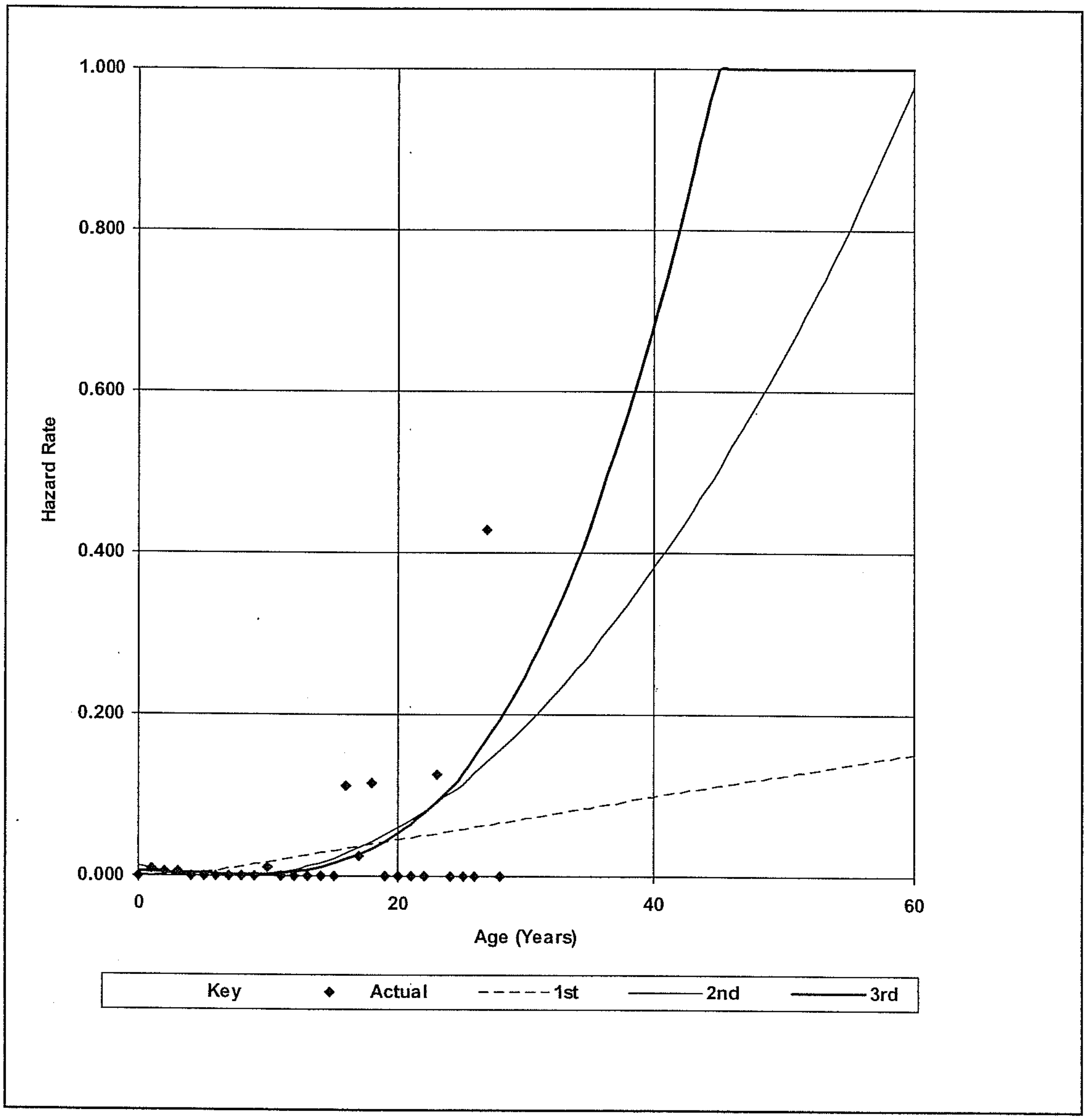
Placement Band: 1986-2013 Observation Band: 1987-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Polynomial Hazard Function

1st: 28.1-L2 2nd: 24.9-R3 3rd: 24.9-R3



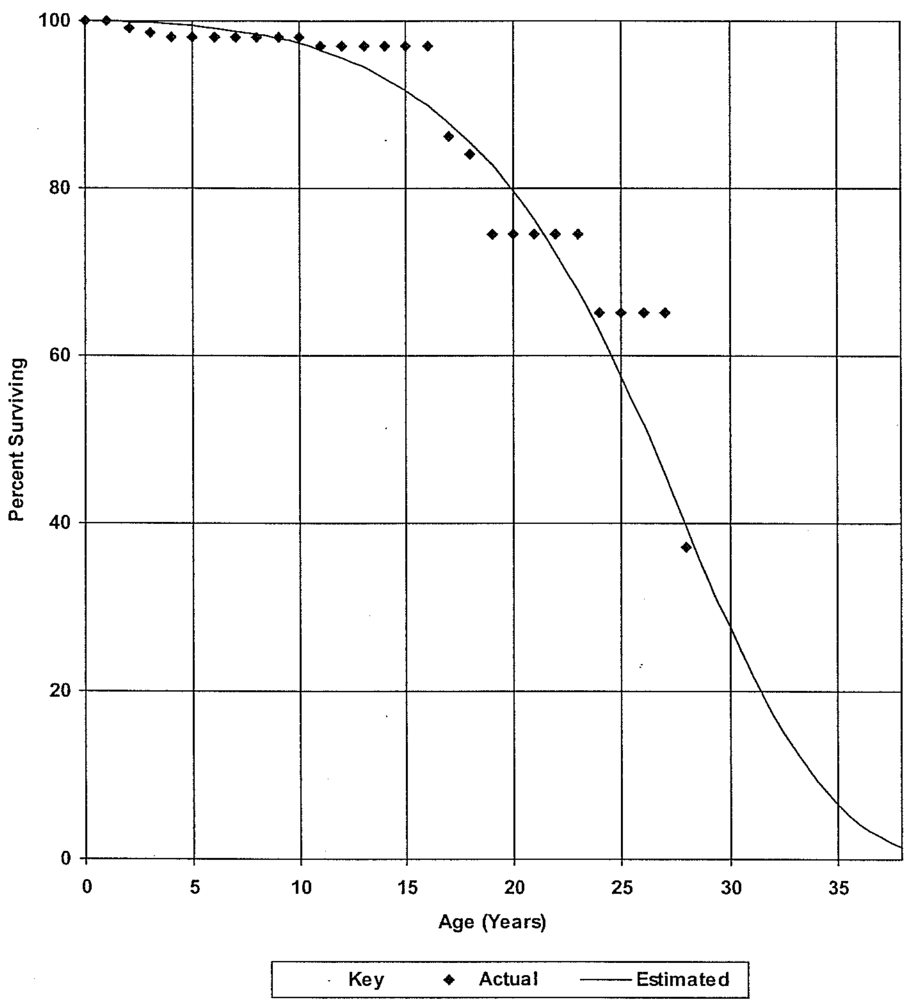
HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 050CONV 50kV Conv. and Metalclad Vacuum Breakers

T-Cut: None
Placement Band: 1986-2013
Observation Band: 1987-2013
25.0-R3

Estimated Projection Life Curve



Schedule A

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 115BRKX 115kV Breakers

Placement Band: 1939 - 2013
Observation Band: 1980 - 2013

Observed Life Table

Age at Beginning of Interval	Exposures	Retirements	Conditional Proportion Retired	Conditional Proportion Surviving	Cumulative Proportion Surviving
A	B	C	D=C/B	E=1-D	F
0.0	464	3	0.00647	0.99353	1.00000
0.5	415	2	0.00482	0.99518	0.99353
1.5	344	0	0.00000	1.00000	0.98875
2.5	260	0	0.00000	1.00000	0.98875
3.5	222	0	0.00000	1.00000	0.98875
4.5	202	0	0.00000	1.00000	0.98875
5.5	188	1	0.00532	0.99468	0.98875
6.5	187	5	0.02674	0.97326	0.98349
7.5	162	1	0.00617	0.99383	0.95719
8.5	176	3	0.01705	0.98295	0.95128
9.5	193	3	0.01554	0.98446	0.93507
10.5	228	1	0.00439	0.99561	0.92053
11.5	242	1	0.00413	0.99587	0.91649
12.5	268	1	0.00373	0.99627	0.91271
13.5	270	0	0.00000	1.00000	0.90930
14.5	278	0	0.00000	1.00000	0.90930
15.5	275	0	0.00000	1.00000	0.90930
16.5	270	4	0.01481	0.98519	0.90930
17.5	277	1	0.00361	0.99639	0.89583
18.5	294	1	0.00340	0.99660	0.89260
19.5	307	3	0.00977	0.99023	0.88956
20.5	332	2	0.00602	0.99398	0.88087
21.5	352	8	0.02273	0.97727	0.87556
22.5	330	4	0.01212	0.98788	0.85566
23.5	334	3	0.00898	0.99102	0.84529
24.5	336	4	0.01190	0.98810	0.83770
25.5	341	3	0.00880	0.99120	0.82773
26.5	356	1	0.00281	0.99719	0.82044
27.5	419	3	0.00716	0.99284	0.81814
28.5	430	5	0.01163	0.98837	0.81228
29.5	480	6	0.01250	0.98750	0.80284
30.5	512	19	0.03711	0.96289	0.79280
31.5	559	8	0.01431	0.98569	0.76338
32.5	597	4	0.00670	0.99330	0.75246
33.5	620	2	0.00323	0.99677	0.74741
34.5	632	3	0.00475	0.99525	0.74500
35.5	629	5	0.00795	0.99205	0.74147

Schedule A

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 115BRKX 115kV Breakers

Placement Band: 1939 - 2013
Observation Band: 1980 - 2013

Observed Life Table

Age at Beginning of Interval	Exposures	Retirements	Conditional Proportion Retired	Conditional Proportion Surviving	Cumulative Proportion Surviving
A	B	C	D=C/B	E=1-D	F
36.5	588	6	0.01020	0.98980	0.73557
37.5	574	7	0.01220	0.98780	0.72807
38.5	572	11	0.01923	0.98077	0.71919
39.5	571	6	0.01051	0.98949	0.70536
40.5	564	8	0.01418	0.98582	0.69795
41.5	554	16	0.02888	0.97112	0.68805
42.5	537	11	0.02048	0.97952	0.66817
43.5	510	31	0.06078	0.93922	0.65449
44.5	464	19	0.04095	0.95905	0.61470
45.5	437	28	0.06407	0.93593	0.58953
46.5	390	12	0.03077	0.96923	0.55176
47.5	376	26	0.06915	0.93085	0.53478
48.5	345	20	0.05797	0.94203	0.49780
49.5	325	25	0.07692	0.92308	0.46895
50.5	300	19	0.06333	0.93667	0.43287
51.5	278	14	0.05036	0.94964	0.40546
52.5	263	12	0.04563	0.95437	0.38504
53.5	247	21	0.08502	0.91498	0.36747
54.5	216	11	0.05093	0.94907	0.33623
55.5	198	7	0.03535	0.96465	0.31910
56.5	183	3	0.01639	0.98361	0.30782
57.5	176	4	0.02273	0.97727	0.30278
58.5	169	5	0.02959	0.97041	0.29590
59.5	160	1	0.00625	0.99375	0.28714
60.5	151	4	0.02649	0.97351	0.28535
61.5	121	4	0.03306	0.96694	0.27779
62.5	111	1	0.00901	0.99099	0.26861
63.5	93	1	0.01075	0.98925	0.26619
64.5	74	0	0.00000	1.00000	0.26332
65.5	45	0	0.00000	1.00000	0.26332
66.5	22	3	0.13636	0.86364	0.26332
67.5	9	2	0.22222	0.77778	0.22742
68.5	6	1	0.16667	0.83333	0.17688
69.5	5	0	0.00000	1.00000	0.14740
70.5	5	0	0.00000	1.00000	0.14740
71.5	5	0	0.00000	1.00000	0.14740
72.5	3	0	0.00000	1.00000	0.14740

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 115BRKX 115kV Breakers

Placement Band: 1939 - 2013
Observation Band: 1980 - 2013

Observed Life Table

Age at Beginning of Interval	Exposures	Retirements	Conditional Proportion Retired	Conditional Proportion Surviving	Cumulative Proportion Surviving
A	B	C	D=C/B	E=1-D	F
73.5	0	0	0.00000	1.00000	0.14740

Schedule B1

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 115BRKX 115kV Breakers

T-Cut: None

Placement Band: 1939-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Rolling Band Life Analysis

Observation Band	Censoring	First Degree Average Life	First Degree Disper-sion	First Degree Conf. Index	Second Degree Average Life	Second Degree Disper-sion	Second Degree Conf. Index	Third Degree Average Life	Third Degree Disper-sion	Third Degree Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1980-1984	99.5	182.4	R4 *	0.24	197.2	SQ *	0.30	197.3	SQ *	0.29
1981-1985	100.0				No Retirements					
1982-1986	97.2	138.4	S0.5 *	1.05	190.0	R5 *	1.31	190.3	R5 *	1.61
1983-1987	91.4	127.0	S0 *	1.05	186.1	R4 *	1.12	188.5	R5 *	1.17
1984-1988	83.7	161.6	R1 *	2.28	173.0	R2 *	1.61	168.4	R1.5 *	3.31
1985-1989	78.5	112.5	SC	2.36	149.5	SC *	2.65	162.1	R1 *	2.47
1986-1990	79.7	120.0	SC	2.00	164.2	R1 *	2.52	162.0	R1 *	2.42
1987-1991	73.6	85.4	L0.5	2.56	71.7	R1	1.92	145.1	SC *	1.76
1988-1992	66.8	67.1	L1.5 *	4.47	58.1	R2	2.94	93.8	O3 *	2.68
1989-1993	52.7	56.7	L2 *	3.83	54.5	S3 *	1.94	54.4	S3 *	1.95
1990-1994	29.5	50.1	L3 *	4.67	48.9	R3 *	3.92	48.2	R4 *	3.55
1991-1995	0.0	45.4	L3 *	4.36	45.8	R3 *	9.13	44.2	R3 *	7.43
1992-1996	15.1	44.1	L3 *	8.85	45.5	R3 *	3.50	45.4	R3 *	2.54
1993-1997	10.5	42.6	L3 *	10.09	43.9	R3 *	4.56	45.1	R3 *	2.44
1994-1998	7.9	42.5	L3 *	14.06	40.4	R1.5 *	10.40	43.2	R2.5 *	5.55
1995-1999	9.7	42.2	L3 *	10.88	39.0	R1 *	8.95	40.5	R1.5	6.08
1996-2000	16.1	43.8	L3 *	8.14	40.3	R1	7.39	40.4	R1	7.11
1997-2001	15.6	43.8	L2 *	8.01	36.8	SC	10.66	36.7	SC	10.94
1998-2002	20.7	43.9	L0.5	5.80	36.1	SC	9.81	38.1	O2 *	11.36
1999-2003	30.7	46.8	L0.5	4.58	42.6	SC	7.28	66.8	O4 *	11.00
2000-2004	41.3	50.5	O2	7.18	48.7	O2	7.49	79.2	O4 *	10.83
2001-2005	40.0	51.5	O2	6.43	47.8	O2	7.56	77.7	O4 *	13.09
2002-2006	45.0	61.2	O2	4.41	84.6	O4 *	3.34	100.2	O4 *	6.20
2003-2007	42.7	66.3	L0	7.21	98.3	O3 *	8.37	115.7	O3 *	8.92
2004-2008	40.2	64.0	O2	6.95	105.1	O3 *	6.70	111.9	O3 *	8.39
2005-2009	38.3	66.2	L1.5 *	5.29	66.5	L1.5 *	5.28	64.9	L1.5 *	5.14
2006-2010	37.0	61.8	L0.5	4.72	75.2	O3 *	4.28	54.1	S-.5 *	3.89
2007-2011	14.8	45.8	O2	11.69	66.0	O4 *	8.15	41.7	L0 *	7.14
2008-2012	3.2	34.0	O2	15.62	39.8	O3 *	10.39	41.2	O3 *	11.45
2009-2013	0.1	27.4	O2	20.61	26.9	L0.5 *	14.67	27.5	L0.5 *	15.37

Schedule B2

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 115BRKX 115kV Breakers

T-Cut: None
Placement Band: 1939-2013
Hazard Function: Proportion Retired
Weighting: Exposures

Shrinking Band Life Analysis

		First Degree			Second Degree			Third Degree		
Observation Band	Censoring	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1980-2013	14.7	51.5	L2*	4.56	50.5	S1	3.97	75.4	O3 *	4.85
1982-2013	14.2	50.4	L1.5*	4.40	49.5	S0.5	3.82	74.2	O3 *	5.06
1984-2013	13.5	48.9	L1.5*	4.04	48.3	L1.5 *	3.61	72.5	O3 *	5.05
1986-2013	12.7	47.0	L1.5*	3.62	46.9	L1.5 *	3.49	70.5	O3 *	5.05
1988-2013	12.1	45.3	L1*	3.37	45.5	L1 *	3.62	68.7	O3 *	5.32
1990-2013	11.3	43.4	L1	2.88	44.4	L1 *	3.63	67.1	O3 *	5.52
1992-2013	10.2	41.3	L1	2.58	43.6	L1 *	3.77	64.3	O3 *	6.05
1994-2013	9.7	40.0	L0.5	2.28	43.7	L0.5 *	3.62	61.9	O3 *	5.99
1996-2013	10.0	39.7	L0	2.01	46.3	O2 *	3.21	61.3	O4 *	5.25
1998-2013	10.3	39.4	O2	2.19	48.8	O3 *	2.79	58.0	O4 *	3.90
2000-2013	10.4	40.2	O2	3.50	53.8	O4 *	2.57	57.8	O4 *	3.17
2002-2013	8.0	39.0	O2	6.52	52.0	O4 *	5.02	55.2	O4 *	6.06
2004-2013	5.5	36.6	O2	9.47	47.1	O4 *	6.21	48.4	O4 *	6.74
2006-2013	3.9	34.6	O2	10.82	41.2	O3 *	6.36	43.6	O3 *	7.60
2008-2013	1.1	29.3	O2	13.68	30.5	L0.5 *	8.05	31.7	L0.5 *	8.86
2010-2013	0.0	24.9	O2	18.20	22.5	L1 *	10.90	23.6	L1 *	12.32
2012-2013	0.0	20.7	O2	13.74	17.0	L1.5 *	14.51	20.4	L1.5 *	10.15

Schedule B3

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 115BRKX 115kV Breakers

T-Cut: None

Placement Band: 1939-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Progressing Band Life Analysis

Observation Band	Censoring	First Degree Average Life	First Degree Dispersion	First Degree Conf. Index	Second Degree Average Life	Second Degree Dispersion	Second Degree Conf. Index	Third Degree Average Life	Third Degree Dispersion	Third Degree Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1980-1981	98.9	154.9	R1.5*	0.60	189.2	R5 *	0.66	195.1	SQ *	0.72
1980-1983	99.4	177.2	R3*	0.31	196.6	S6 *	0.38	197.0	SQ *	0.38
1980-1985	99.5	186.0	R4*	0.19	197.5	S6 *	0.24	197.6	S6 *	0.22
1980-1987	94.8	135.1	S0.5*	0.60	184.2	R4 *	0.71	191.1	R5 *	0.69
1980-1989	90.4	126.3	S0	0.77	94.5	S1	0.84	178.5	R2.5 *	1.09
1980-1991	84.7	101.3	L1.5*	1.27	76.2	S1.5	1.04	86.1	L2 *	1.06
1980-1993	61.8	71.0	L2*	2.45	57.2	R3 *	2.28	55.2	R4 *	2.01
1980-1995	0.0	58.5	L3*	8.46	48.2	R2.5 *	7.93	49.0	R4 *	4.64
1980-1997	16.9	54.1	L3*	7.55	46.1	R2.5 *	8.00	48.7	R4 *	2.12
1980-1999	12.6	52.4	L3*	7.94	44.6	R2 *	7.80	47.7	R4 *	1.88
1980-2001	17.2	53.0	L3*	6.90	46.5	R2.5 *	5.17	48.4	R3	1.74
1980-2003	27.4	53.8	L3*	5.19	48.5	R2.5 *	3.38	48.9	R2.5	2.81
1980-2005	35.5	54.6	L2*	4.73	50.3	R2.5	4.11	50.6	R2 *	4.31
1980-2007	38.1	56.1	L2*	4.82	52.9	R2.5	4.61	76.8	O3 *	4.53
1980-2009	29.0	56.2	L2*	4.23	53.9	S1.5	3.88	78.8	O3 *	3.18
1980-2011	23.9	55.6	L2*	4.05	54.2	S1 *	3.94	84.7	O3 *	3.16
1980-2013	14.7	51.5	L2*	4.56	50.5	S1	3.97	75.4	O3 *	4.85

Schedule C

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 115BRKX 115kV Breakers

T-Cut: None

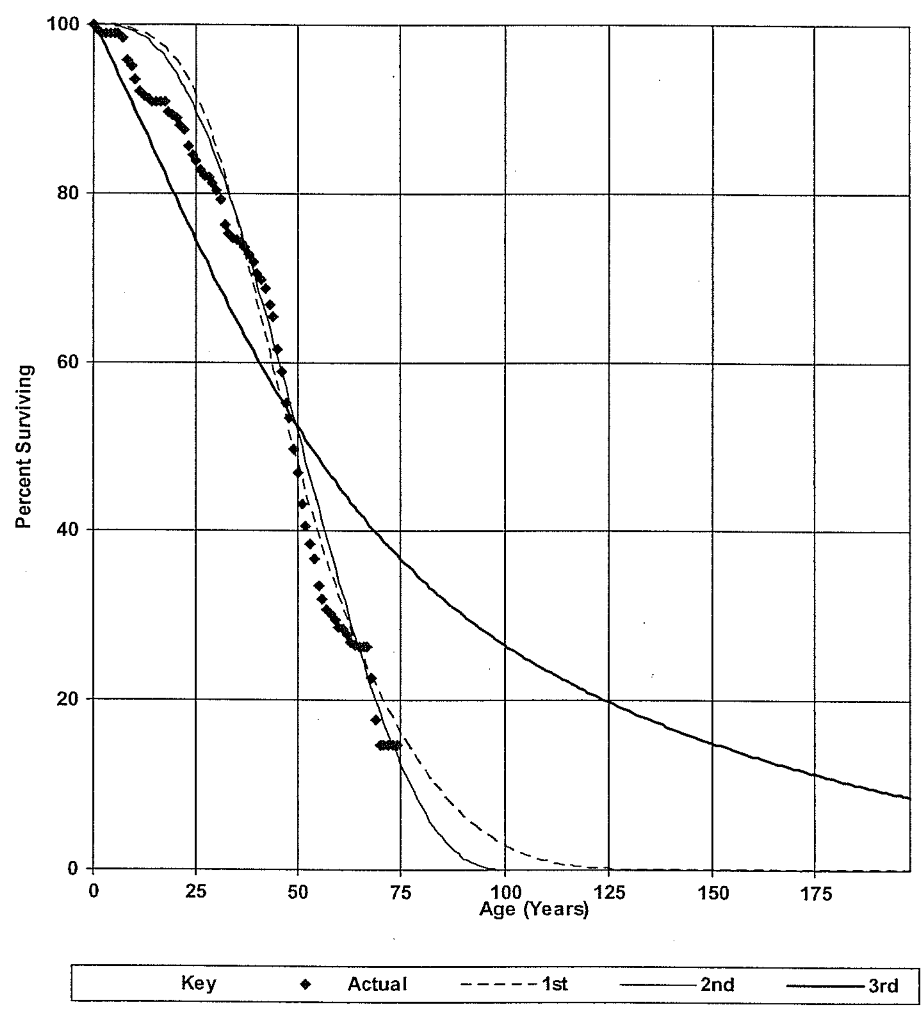
Placement Band: 1939-2013 Observation Band: 1980-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Graphics Analysis

1st: 51.5-L2 2nd: 50.5-S1 3rd: 75.4-O3



Schedule D

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 115BRKX 115kV Breakers

T-Cut: None

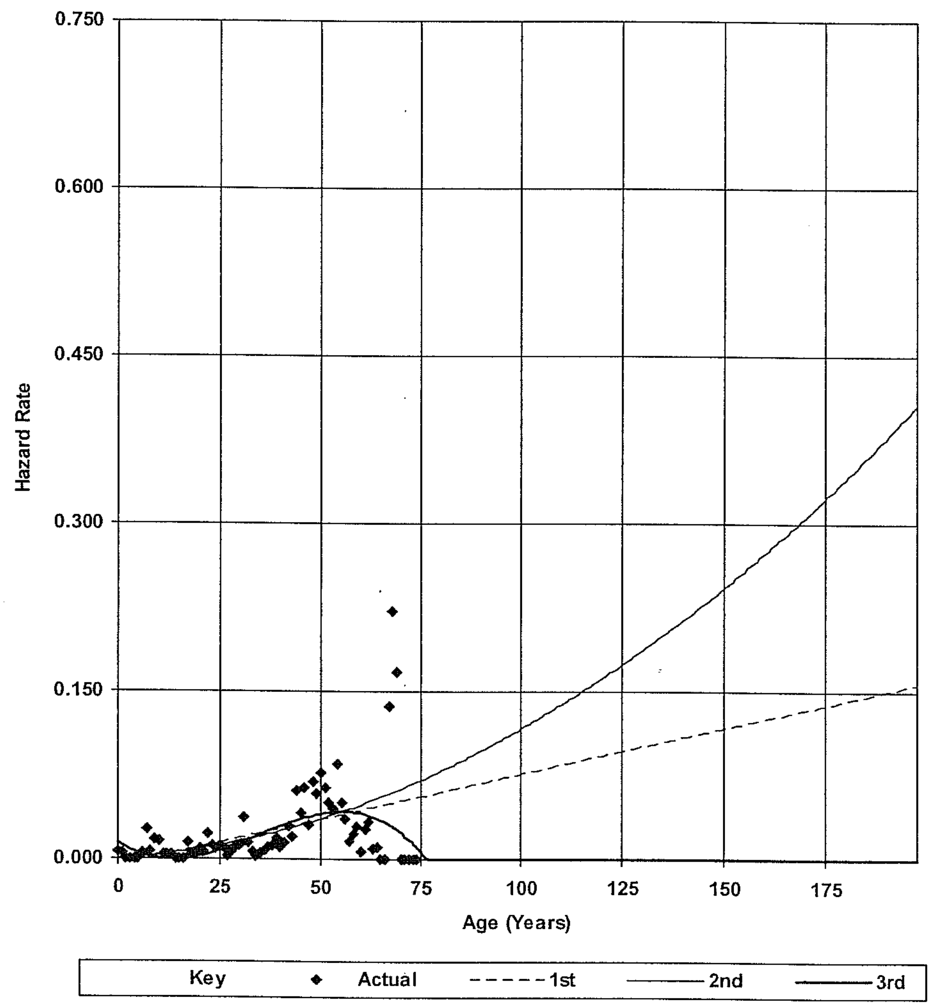
Placement Band: 1939-2013 Observation Band: 1980-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Polynomial Hazard Function

1st: 51.5-L2 2nd: 50.5-S1 3rd: 75.4-O3



Schedule E

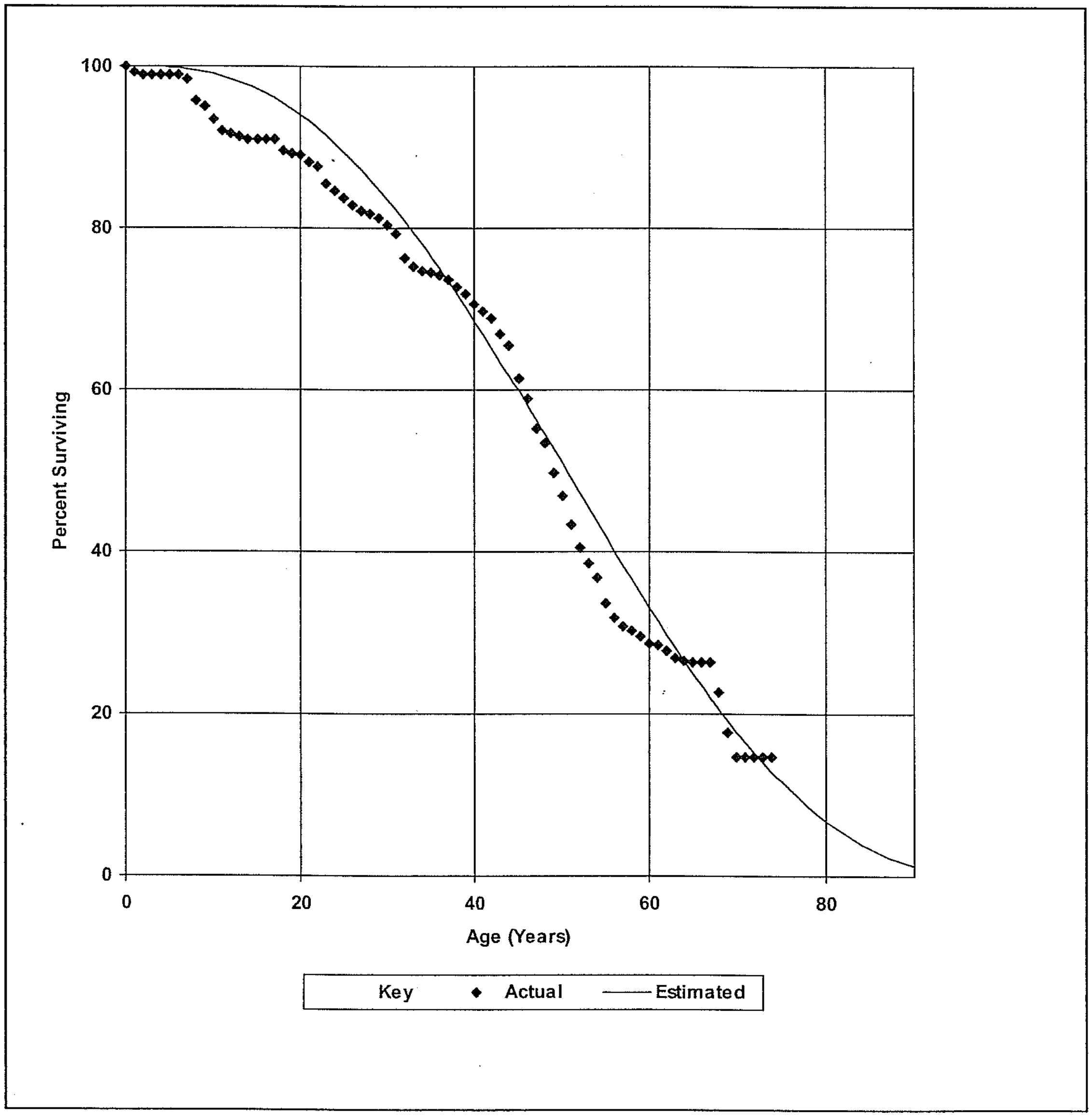
HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 115BRKX 115kV Breakers

T-Cut: None
Placement Band: 1939-2013
Observation Band: 1980-2013
50.0-S1

Estimated Projection Life Curve



HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 115CONO 115kV Conventional Oil Breakers

Placement Band: 1939 - 1982
Observation Band: 1980 - 2013

Observed Life Table

Age at Beginning of Interval	Exposures	Retirements	Conditional Proportion Retired	Conditional Proportion Surviving	Cumulative Proportion Surviving
A	B	C	D=C/B	E=1-D	F
0.0	7	0	0.00000	1.00000	1.00000
0.5	8	0	0.00000	1.00000	1.00000
1.5	8	0	0.00000	1.00000	1.00000
2.5	37	0	0.00000	1.00000	1.00000
3.5	48	0	0.00000	1.00000	1.00000
4.5	52	0	0.00000	1.00000	1.00000
5.5	56	0	0.00000	1.00000	1.00000
6.5	62	0	0.00000	1.00000	1.00000
7.5	64	0	0.00000	1.00000	1.00000
8.5	69	0	0.00000	1.00000	1.00000
9.5	90	0	0.00000	1.00000	1.00000
10.5	126	0	0.00000	1.00000	1.00000
11.5	141	0	0.00000	1.00000	1.00000
12.5	168	0	0.00000	1.00000	1.00000
13.5	171	0	0.00000	1.00000	1.00000
14.5	179	0	0.00000	1.00000	1.00000
15.5	179	0	0.00000	1.00000	1.00000
16.5	179	1	0.00559	0.99441	1.00000
17.5	190	0	0.00000	1.00000	0.99441
18.5	208	1	0.00481	0.99519	0.99441
19.5	221	1	0.00452	0.99548	0.98963
20.5	248	1	0.00403	0.99597	0.98515
21.5	269	0	0.00000	1.00000	0.98118
22.5	284	0	0.00000	1.00000	0.98118
23.5	295	0	0.00000	1.00000	0.98118
24.5	300	1	0.00333	0.99667	0.98118
25.5	309	0	0.00000	1.00000	0.97791
26.5	327	0	0.00000	1.00000	0.97791
27.5	391	3	0.00767	0.99233	0.97791
28.5	402	2	0.00498	0.99502	0.97041
29.5	455	3	0.00659	0.99341	0.96558
30.5	490	14	0.02857	0.97143	0.95921
31.5	543	4	0.00737	0.99263	0.93181
32.5	585	3	0.00513	0.99487	0.92494
33.5	609	0	0.00000	1.00000	0.92020
34.5	624	3	0.00481	0.99519	0.92020
35.5	621	5	0.00805	0.99195	0.91578

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 115CONO 115kV Conventional Oil Breakers

Placement Band: 1939 - 1982
Observation Band: 1980 - 2013

Observed Life Table

Age at Beginning of Interval	Exposures	Retirements	Conditional Proportion Retired	Conditional Proportion Surviving	Cumulative Proportion Surviving
A	B	C	D=C/B	E=1-D	F
36.5	588	6	0.01020	0.98980	0.90840
37.5	574	7	0.01220	0.98780	0.89913
38.5	572	11	0.01923	0.98077	0.88817
39.5	571	6	0.01051	0.98949	0.87109
40.5	564	8	0.01418	0.98582	0.86194
41.5	554	16	0.02888	0.97112	0.84971
42.5	537	11	0.02048	0.97952	0.82517
43.5	510	31	0.06078	0.93922	0.80827
44.5	464	19	0.04095	0.95905	0.75914
45.5	437	28	0.06407	0.93593	0.72805
46.5	390	12	0.03077	0.96923	0.68140
47.5	376	26	0.06915	0.93085	0.66044
48.5	345	20	0.05797	0.94203	0.61477
49.5	325	25	0.07692	0.92308	0.57913
50.5	300	19	0.06333	0.93667	0.53458
51.5	278	14	0.05036	0.94964	0.50072
52.5	263	12	0.04563	0.95437	0.47551
53.5	247	21	0.08502	0.91498	0.45381
54.5	216	11	0.05093	0.94907	0.41523
55.5	198	7	0.03535	0.96465	0.39408
56.5	183	3	0.01639	0.98361	0.38015
57.5	176	4	0.02273	0.97727	0.37392
58.5	169	5	0.02959	0.97041	0.36542
59.5	160	1	0.00625	0.99375	0.35461
60.5	151	4	0.02649	0.97351	0.35239
61.5	121	4	0.03306	0.96694	0.34306
62.5	111	1	0.00901	0.99099	0.33172
63.5	93	1	0.01075	0.98925	0.32873
64.5	74	0	0.00000	1.00000	0.32519
65.5	45	0	0.00000	1.00000	0.32519
66.5	22	3	0.13636	0.86364	0.32519
67.5	9	2	0.22222	0.77778	0.28085
68.5	6	1	0.16667	0.83333	0.21844
69.5	5	0	0.00000	1.00000	0.18203
70.5	5	0	0.00000	1.00000	0.18203
71.5	5	0	0.00000	1.00000	0.18203
72.5	3	0	0.00000	1.00000	0.18203

Schedule A

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 115CONO 115kV Conventional Oil Breakers

Placement Band: 1939 - 1982
Observation Band: 1980 - 2013

Observed Life Table

Age at Beginning of Interval	Exposures	Retirements	Conditional Proportion Retired	Conditional Proportion Surviving	Cumulative Proportion Surviving
A	B	C	D=C/B	E=1-D	F
73.5	0	0	0.00000	1.00000	0.18203

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 115CONO 115kV Conventional Oil Breakers

T-Cut: None
Placement Band: 1939-1982
Hazard Function: Proportion Retired
Weighting: Exposures

Rolling Band Life Analysis

		First Degree			Second Degree			Third Degree		
Observation Band	Censoring	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1980-1984	99.5	182.4	R4*	0.24	197.2	SQ*	0.30	197.3	SQ*	0.29
1981-1985	100.0				No Retirements					
1982-1986	97.2	138.4	S0.5*	1.05	190.0	R5*	1.31	190.3	R5*	1.61
1983-1987	91.4	127.0	S0*	1.05	186.1	R4*	1.12	188.5	R5*	1.17
1984-1988	87.4	128.7	S-.5	2.04	181.9	R4*	1.59	183.0	R4*	1.80
1985-1989	84.1	100.6	L1*	2.21	173.9	R2*	1.79	177.2	R2.5*	2.06
1986-1990	85.5	106.3	L1	2.48	174.5	R2*	1.61	176.5	R2.5*	1.45
1987-1991	80.1	82.6	L1.5*	1.72	144.9	SC*	1.62	94.1	S0*	1.67
1988-1992	73.4	66.4	L2*	2.63	63.2	S1.5*	2.48	121.4	SC*	5.46
1989-1993	52.7	56.9	L3*	2.08	54.3	S2*	2.00	54.0	S2*	2.39
1990-1994	29.5	51.1	L3*	3.50	37.3	SC*	20.24	48.6	R4*	3.61
1991-1995	0.0	47.4	L3*	7.67	28.0	O3	29.27	45.4	R3*	7.49
1992-1996	15.0	46.7	S3*	4.28	26.4	O3*	36.13	46.5	R4*	2.21
1993-1997	10.4	45.5	L4*	4.30	23.4	O4	40.69	45.8	R4*	1.85
1994-1998	8.2	46.1	L4*	8.28	18.1	O4*	53.09	45.9	R4*	3.80
1995-1999	9.5	46.4	L4*	8.13	19.4	O4	43.34	37.7	R1	11.13
1996-2000	15.9	48.0	S3*	7.52	37.5	R0.5	12.95	25.4	O3	33.55
1997-2001	16.4	49.4	L3*	8.02	40.6	R1	9.04	22.3	O4*	41.19
1998-2002	21.5	53.2	L3*	13.62	49.2	S1	8.92	23.9	O4*	45.82
1999-2003	19.8	53.9	L2*	26.48	65.3	L1.5*	29.43	9.3	O4*	50.00
2000-2004	54.8	60.1	L1.5*	8.10	116.8	O3*	2.71	92.5	O4*	20.80
2001-2005	56.9	65.5	L2*	4.09	124.0	SC*	3.21	25.1	O4*	68.82
2002-2006	63.0	71.7	L2*	4.93	135.7	SC*	3.33	25.7	O4*	70.75
2003-2007	61.9	74.3	L2*	4.60	138.3	SC*	3.79	9.0	O4*	81.63
2004-2008	57.5	65.3	O2	15.86	134.6	SC*	2.50	124.9	SC*	6.11
2005-2009	50.4	71.0	L2*	4.55	112.3	O3*	3.12	66.3	S2*	3.60
2006-2010	53.0	71.4	L2*	5.98	99.8	O3*	3.45	65.6	R3*	3.34
2007-2011	34.3	51.3	O2	20.41	108.1	O3*	3.03	60.1	S2*	2.68
2008-2012	20.2	26.8	O3	43.27	84.1	O3*	2.89	57.4	L2*	3.31
2009-2013	6.9	18.7	O3	50.59	66.8	O3*	4.07	53.7	L3*	4.61

Schedule B2

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 115CONO 115kV Conventional Oil Breakers

T-Cut: None

Placement Band: 1939-1982

Hazard Function: Proportion Retired

Weighting: Exposures

Shrinking Band Life Analysis

Observation Band	Censoring	First Degree			Second Degree			Third Degree		
		Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1980-2013	18.2	55.7	L3 *	4.09	55.5	L3 *	4.00	74.2	O4 *	13.60
1982-2013	17.9	55.3	L3 *	3.78	55.4	L3 *	3.85	69.7	O4 *	17.10
1984-2013	17.5	54.7	L3 *	3.55	55.5	L3 *	3.72	63.8	O4 *	21.52
1986-2013	17.0	53.7	L3 *	3.52	58.4	L2 *	3.68	57.3	O4 *	26.06
1988-2013	16.6	52.8	L3 *	3.75	64.3	L2 *	3.78	49.6	O4 *	31.63
1990-2013	15.8	51.5	S1.5 *	4.13	69.5	O3 *	3.74	43.6	O4 *	35.37
1992-2013	14.9	49.8	L2 *	5.19	72.2	O3 *	3.82	38.0	O4 *	38.87
1994-2013	14.9	49.4	L2 *	5.64	74.5	O3 *	3.94	30.4	O4 *	45.26
1996-2013	15.1	50.5	L2 *	3.94	81.1	O3 *	6.60	45.7	O4 *	30.40
1998-2013	14.3	51.0	L1.5 *	6.96	86.5	O3 *	14.63	47.0	O4 *	25.30
2000-2013	20.7	51.3	L1 *	12.66	94.3	O3 *	3.61	96.2	O3 *	3.70
2002-2013	19.8	49.8	L1	15.30	94.8	O3 *	3.98	95.1	O3 *	3.98
2004-2013	16.9	41.5	O2	24.25	90.8	O3 *	3.94	89.7	O3 *	3.90
2006-2013	14.7	34.1	O2	33.03	84.1	O3 *	3.82	67.0	L0.5 *	3.95
2008-2013	9.7	20.7	O3	47.80	70.8	O3 *	3.26	54.6	L3 *	3.61
2010-2013	2.8	11.8	O3 *	55.76	60.1	L2 *	5.10	49.5	L4 *	4.98
2012-2013	0.3	4.9	O4	63.93	45.9	L5 *	5.42	44.0	L5 *	5.60

Schedule B3

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 115CONO 115kV Conventional Oil Breakers

T-Cut: None
Placement Band: 1939-1982
Hazard Function: Proportion Retired
Weighting: Exposures

Progressing Band Life Analysis

Observation Band	Censoring	First Degree Average Life	First Degree Dispersion	First Degree Conf. Index	Second Degree Average Life	Second Degree Dispersion	Second Degree Conf. Index	Third Degree Average Life	Third Degree Dispersion	Third Degree Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1980-1981	98.9	154.9	R1.5 *	0.60	189.2	R5 *	0.66	195.1	SQ *	0.72
1980-1983	99.4	177.2	R3 *	0.31	196.6	S6 *	0.38	197.0	SQ *	0.38
1980-1985	99.5	186.0	R4 *	0.19	197.5	S6 *	0.24	197.6	S6 *	0.22
1980-1987	94.8	135.1	S0.5 *	0.60	184.2	R4 *	0.71	191.1	R5 *	0.69
1980-1989	92.8	116.5	L1.5 *	0.80	145.0	SC *	0.81	184.5	R4 *	0.56
1980-1991	86.7	97.0	L1.5 *	0.97	82.1	S1.5 *	0.94	79.9	S1.5 *	0.96
1980-1993	63.2	69.8	L2 *	2.40	57.0	R3 *	3.85	55.8	R4 *	2.16
1980-1995	0.0	58.0	L3 *	8.29	45.3	R2 *	13.14	49.4	R4 *	4.92
1980-1997	17.3	53.9	L3 *	7.19	42.5	R1.5 *	15.28	49.2	R4 *	2.40
1980-1999	13.2	52.6	L3 *	7.54	41.6	R1 *	15.88	49.0	R4 *	2.36
1980-2001	18.3	53.4	L3 *	6.24	45.2	R2 *	10.80	50.7	R4 *	1.85
1980-2003	29.5	54.3	L3 *	4.38	49.4	R2.5 *	6.11	50.0	R3 *	5.16
1980-2005	38.9	55.5	L3 *	4.39	53.7	S3 *	4.43	58.9	L2 *	9.96
1980-2007	41.7	57.0	L3 *	4.71	56.0	S2 *	4.82	81.1	O4 *	12.71
1980-2009	31.8	57.4	L3 *	3.85	56.5	S2 *	3.80	81.9	O4 *	11.13
1980-2011	27.4	57.9	L3 *	3.71	57.4	L3 *	3.66	84.8	O4 *	11.36
1980-2013	18.2	55.7	L3 *	4.09	55.5	L3 *	4.00	74.2	O4 *	13.60

Schedule C

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 115CONO 115kV Conventional Oil Breakers

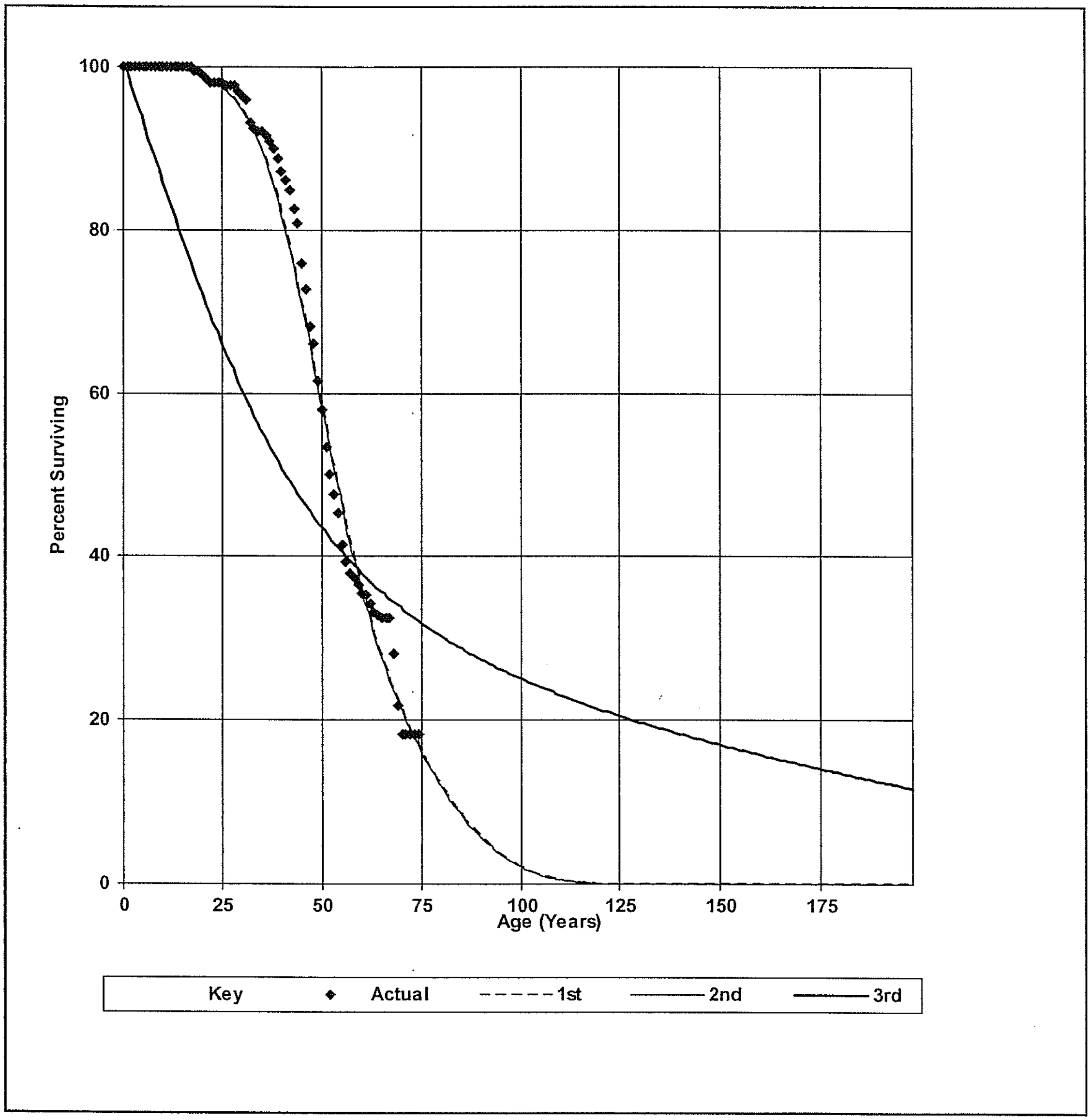
T-Cut: None

Placement Band: 1939-1982 Observation Band: 1980-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Graphics Analysis 1st: 55.7-L3 2nd: 55.5-L3 3rd: 74.2-O4



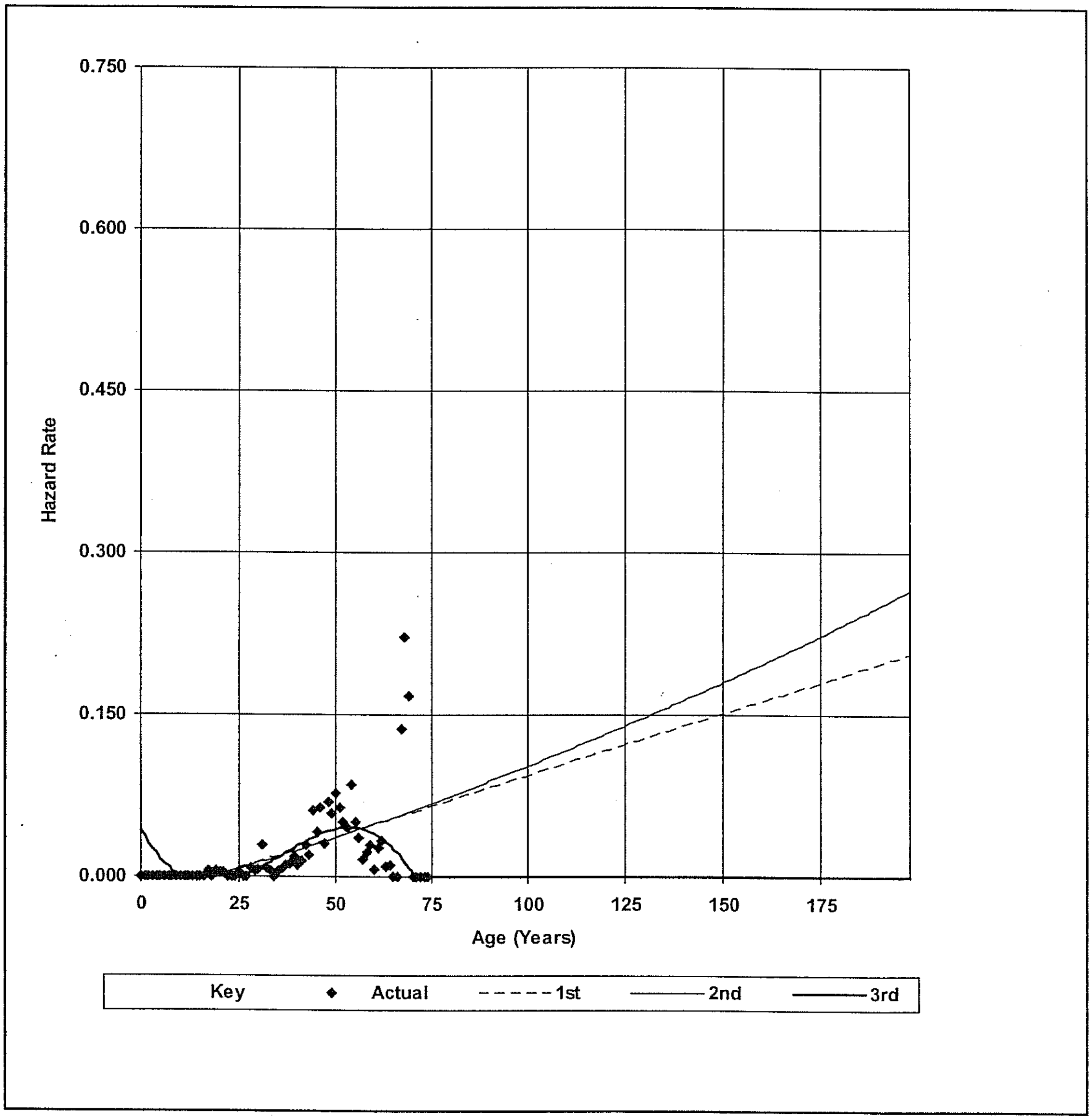
Schedule D

HYDRO ONE NETWORKS INC.
Transmission Stations
Account: 115CONO 115kV Conventional Oil Breakers

T-Cut: None
Placement Band: 1939-1982 Observation Band: 1980-2013
Hazard Function: Proportion Retired
Weighting: Exposures

Polynomial Hazard Function

1st: 55.7-L3 2nd: 55.5-L3 3rd: 74.2-O4



Schedule E

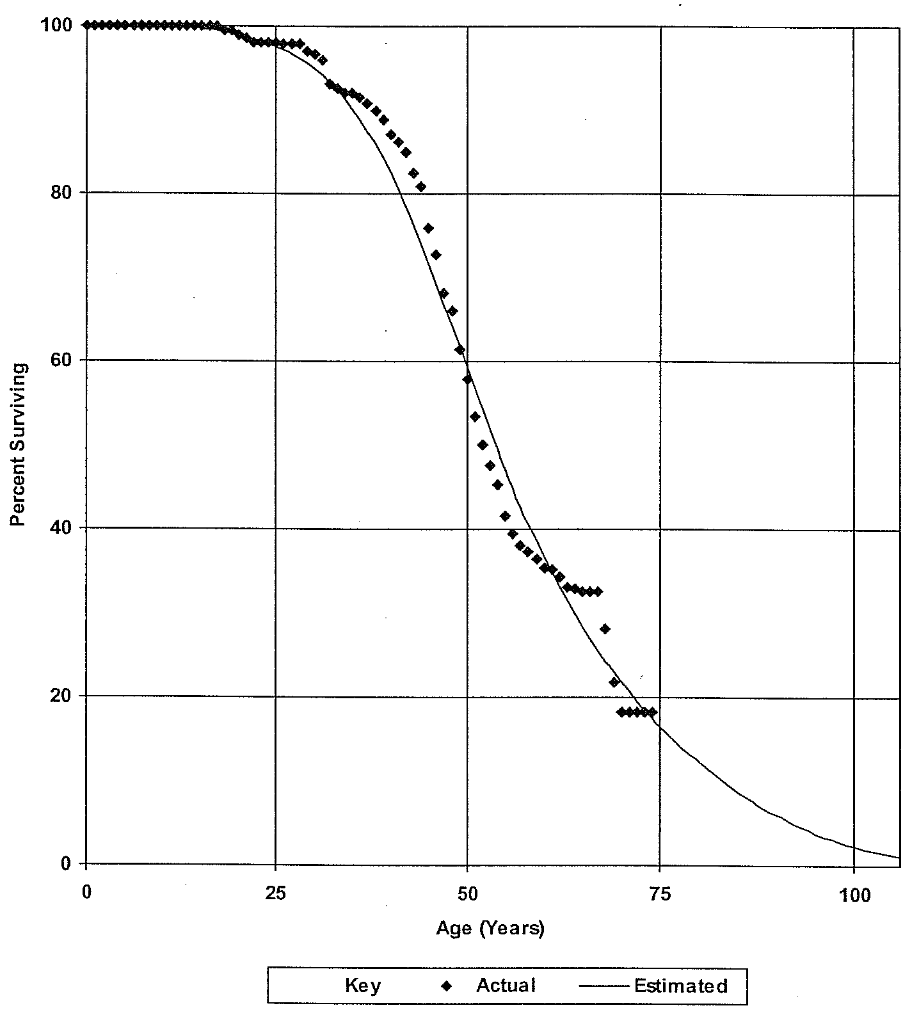
HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 115CONO 115kV Conventional Oil Breakers

T-Cut: None
Placement Band: 1939-1982
Observation Band: 1980-2013
56.0-L3

Estimated Projection Life Curve



HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 115CONS 115kV Conventional SF6 Breakers

Placement Band: 1978 - 2013
Observation Band: 1988 - 2013

Observed Life Table

Age at Beginning of Interval	Exposures	Retirements	Conditional Proportion Retired	Conditional Proportion Surviving	Cumulative Proportion Surviving
A	B	C	D=C/B	E=1-D	F
0.0	457	3	0.00656	0.99344	1.00000
0.5	407	2	0.00491	0.99509	0.99344
1.5	336	0	0.00000	1.00000	0.98855
2.5	223	0	0.00000	1.00000	0.98855
3.5	174	0	0.00000	1.00000	0.98855
4.5	150	0	0.00000	1.00000	0.98855
5.5	132	1	0.00758	0.99242	0.98855
6.5	125	5	0.04000	0.96000	0.98106
7.5	98	1	0.01020	0.98980	0.94182
8.5	107	3	0.02804	0.97196	0.93221
9.5	103	3	0.02913	0.97087	0.90607
10.5	94	1	0.01064	0.98936	0.87968
11.5	93	1	0.01075	0.98925	0.87033
12.5	92	1	0.01087	0.98913	0.86097
13.5	91	0	0.00000	1.00000	0.85161
14.5	91	0	0.00000	1.00000	0.85161
15.5	88	0	0.00000	1.00000	0.85161
16.5	83	3	0.03614	0.96386	0.85161
17.5	79	1	0.01266	0.98734	0.82083
18.5	78	0	0.00000	1.00000	0.81044
19.5	78	2	0.02564	0.97436	0.81044
20.5	76	1	0.01316	0.98684	0.78966
21.5	75	8	0.10667	0.89333	0.77927
22.5	38	4	0.10526	0.89474	0.69615
23.5	31	3	0.09677	0.90323	0.62287
24.5	28	3	0.10714	0.89286	0.56259
25.5	24	3	0.12500	0.87500	0.50231
26.5	21	1	0.04762	0.95238	0.43952
27.5	20	0	0.00000	1.00000	0.41859
28.5	20	3	0.15000	0.85000	0.41859
29.5	17	3	0.17647	0.82353	0.35580
30.5	14	5	0.35714	0.64286	0.29302
31.5	8	4	0.50000	0.50000	0.18837
32.5	4	1	0.25000	0.75000	0.09418
33.5	3	2	0.66667	0.33333	0.07064
34.5	0	0	0.00000	1.00000	0.02355

Schedule B1

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 115CONS 115kV Conventional SF6 Breakers

T-Cut: None
Placement Band: 1978-2013
Hazard Function: Proportion Retired
Weighting: Exposures

Rolling Band Life Analysis

		First Degree			Second Degree			Third Degree		
Observation Band	Censoring	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1988-1992	88.1	40.6	L0.5	2.72	171.2	R2 *	2.63	172.8	R2 *	1.90
1989-1993	100.0				No Retirements					
1990-1994	100.0				No Retirements					
1991-1995	100.0				No Retirements					
1992-1996	100.0				No Retirements					
1993-1997	100.0				No Retirements					
1994-1998	95.2	175.9	R2.5 *	4.49	175.6	R2.5 *	4.64	27.6	R4 *	3.84
1995-1999	86.6	58.4	O2	6.14	154.2	R0.5 *	5.57	23.7	R4 *	2.72
1996-2000	86.4	128.3	SC *	6.65	149.2	SC *	6.09	25.4	R4 *	2.62
1997-2001	82.9	130.1	SC *	12.08	146.0	SC *	8.51	25.7	R2 *	6.09
1998-2002	76.6	119.2	SC *	14.14	133.2	SC *	8.48	25.7	R1 *	6.10
1999-2003	78.7	45.8	O2	11.17	131.6	SC *	8.96	25.9	R2.5 *	6.40
2000-2004	66.0	32.2	L0.5	7.65	32.5	L0.5	7.45	24.9	R2 *	6.23
2001-2005	61.2	29.4	L1	7.46	27.7	S0	8.50	24.8	R1.5 *	7.77
2002-2006	63.6	33.3	L2 *	3.13	32.0	S1 *	3.04	118.3	SC *	2.95
2003-2007	60.2	36.6	L2 *	5.51	34.4	S1.5 *	5.51	132.7	SC *	4.20
2004-2008	60.0	37.8	L2 *	5.40	34.6	S1.5 *	4.98	123.9	SC *	4.39
2005-2009	63.5	42.8	L2 *	4.91	36.3	S3 *	4.48	35.5	S3 *	4.72
2006-2010	50.6	35.0	L2 *	6.93	32.7	S3 *	3.32	30.1	R3 *	5.85
2007-2011	16.2	25.4	L2 *	14.34	27.7	L4 *	4.70	26.4	R3 *	7.14
2008-2012	0.0	21.1	L2 *	9.86	25.7	R4 *	15.33	24.1	R2.5 *	10.41
2009-2013	0.1	17.8	L2 *	9.02	23.3	S3 *	25.92	22.4	R2.5	22.86

Schedule B2

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 115CONS 115kV Conventional SF6 Breakers

T-Cut: None
Placement Band: 1978-2013
Hazard Function: Proportion Retired
Weighting: Exposures

Shrinking Band Life Analysis

		First Degree			Second Degree			Third Degree		
Observation Band	Censoring	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1988-2013	2.4	24.4	L2 *	9.19	25.1	R3 *	5.37	24.4	R2.5 *	3.02
1990-2013	2.4	24.5	L2 *	9.19	25.2	R3 *	5.32	24.6	R2.5 *	3.06
1992-2013	2.3	24.4	L2 *	9.00	25.2	R3 *	5.62	24.5	R2.5 *	3.07
1994-2013	2.3	24.2	L2 *	8.82	25.1	R3 *	5.77	24.3	R2.5 *	3.05
1996-2013	2.3	24.0	L2 *	8.85	25.1	R3 *	6.03	24.0	R2.5 *	2.98
1998-2013	2.2	23.5	L2 *	8.59	25.0	R3 *	6.87	23.5	R2 *	2.94
2000-2013	2.3	23.4	L2 *	9.41	25.3	S3 *	6.51	23.8	R2.5 *	3.08
2002-2013	2.1	22.8	L2 *	9.04	25.4	S3 *	8.28	23.9	R2.5 *	3.72
2004-2013	2.0	21.9	L2 *	10.56	25.3	S3 *	8.01	24.0	R2.5 *	4.20
2006-2013	1.6	21.3	L2 *	12.02	25.3	R4 *	8.41	24.1	R2.5 *	5.15
2008-2013	0.9	19.1	L2 *	12.38	24.2	R4 *	12.51	23.2	R2.5	9.02
2010-2013	0.0	16.5	L2 *	8.53	22.4	S3 *	23.36	21.7	R3	20.85
2012-2013	0.0	14.6	L2 *	26.84	20.7	S3 *	14.02	20.0	R2.5	11.90

Schedule B3

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 115CONS 115kV Conventional SF6 Breakers

T-Cut: None

Placement Band: 1978-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Progressing Band Life Analysis

Observation Band	Censoring	First Degree Average Life	First Degree Disper-sion	First Degree Conf. Index	Second Degree Average Life	Second Degree Disper-sion	Second Degree Conf. Index	Third Degree Average Life	Third Degree Disper-sion	Third Degree Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1988-1989	85.6	19.5	L1	5.13	145.1	SC *	9.83	155.4	R0.5 *	5.23
1988-1991	88.1	35.7	L0.5	2.91	166.7	R1 *	3.87	168.9	R1.5 *	2.70
1988-1993	89.3	48.0	L0.5	2.85	175.9	R2.5 *	1.74	176.3	R2.5 *	1.57
1988-1995	92.4	67.9	L0.5	2.04	183.3	R4 *	0.99	183.3	R4 *	0.99
1988-1997	93.9	101.5	L0.5	1.77	187.9	R5 *	1.07	51.7	R5 *	1.04
1988-1999	85.1	51.3	L0.5	2.89	169.2	R1.5 *	2.69	24.3	R4 *	2.20
1988-2001	84.3	55.9	L0	3.25	166.2	R1 *	2.78	27.9	R3 *	2.45
1988-2003	77.9	47.7	L0	3.37	156.1	R0.5 *	2.87	27.1	R3 *	2.29
1988-2005	62.1	34.9	L1	2.88	31.2	S0.5	2.83	26.4	R2.5 *	2.18
1988-2007	66.1	40.5	L1	2.44	48.8	O2 *	2.47	30.8	R2 *	2.47
1988-2009	56.3	39.3	L1	2.59	34.8	S0.5	2.34	29.9	R2.5 *	2.16
1988-2011	17.5	29.1	L2 *	6.88	27.5	R3 *	5.38	26.2	R2.5 *	3.78
1988-2013	2.4	24.4	L2 *	9.19	25.1	R3 *	5.37	24.4	R2.5 *	3.02

Schedule C

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 115CONS 115kV Conventional SF6 Breakers

T-Cut: None

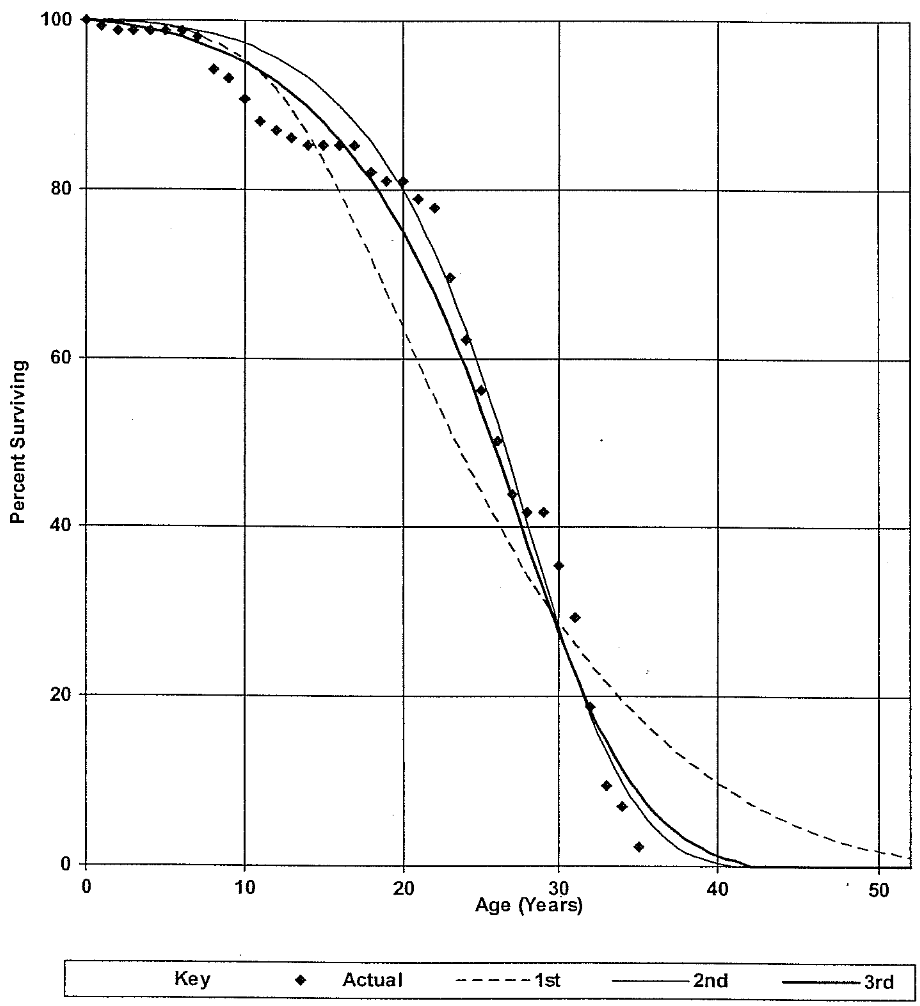
Placement Band: 1978-2013 Observation Band: 1988-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Graphics Analysis

1st: 24.4-L2 2nd: 25.1-R3 3rd: 24.4-R2.5



Schedule D

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 115CONS 115kV Conventional SF6 Breakers

T-Cut: None

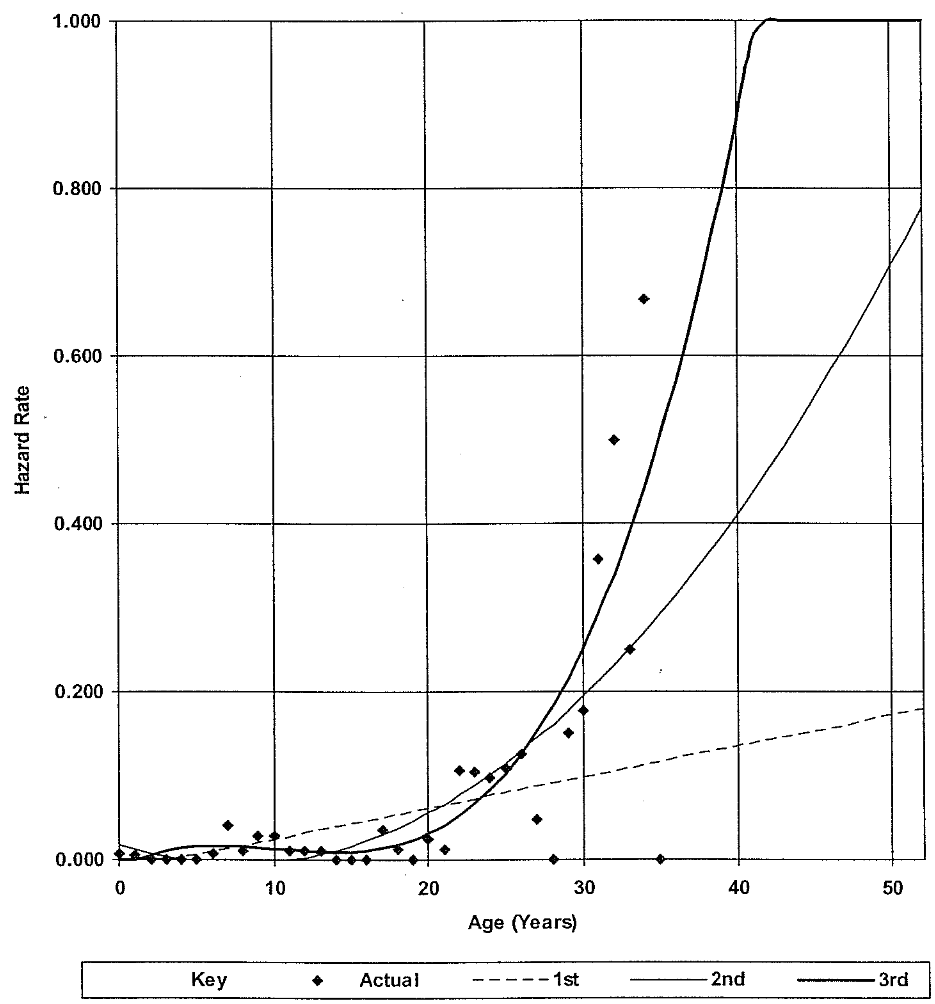
Placement Band: 1978-2013 Observation Band: 1988-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Polynomial Hazard Function

1st: 24.4-L2 2nd: 25.1-R3 3rd: 24.4-R2.5



HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 115CONS 115kV Conventional SF6 Breakers

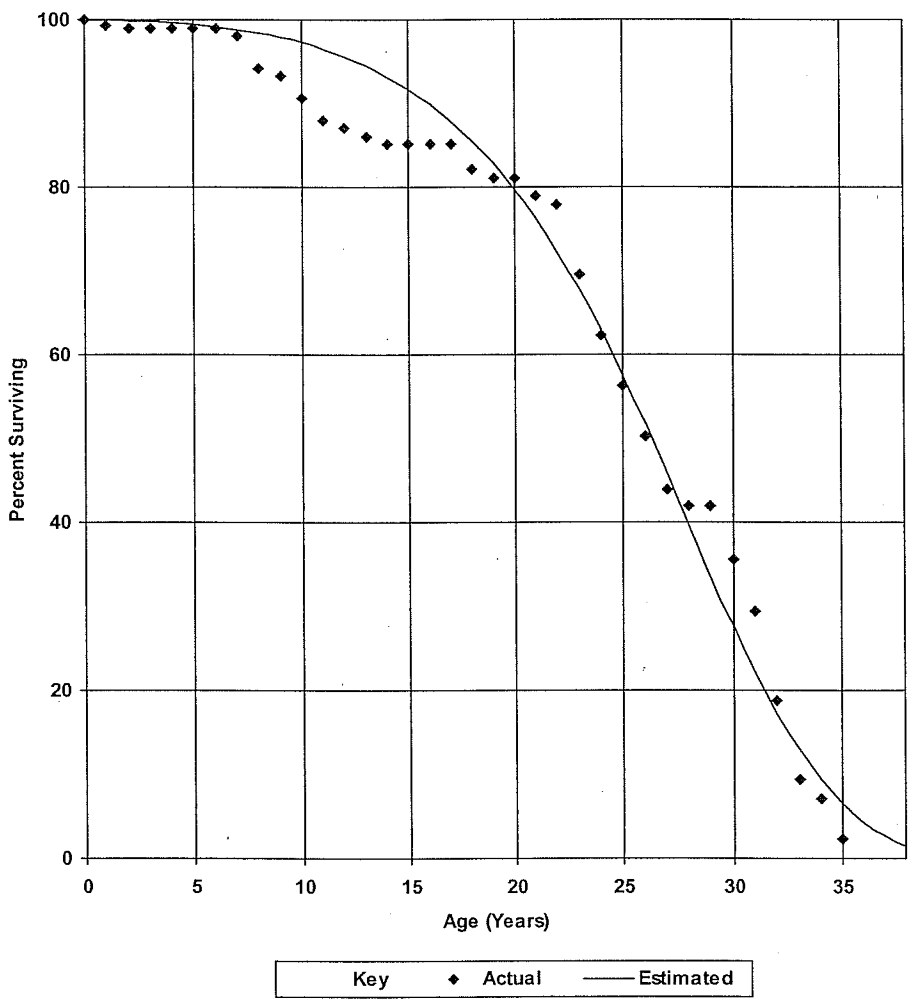
T-Cut: None

Placement Band: 1978-2013

Observation Band: 1988-2013

25.0-R3

Estimated Projection Life Curve



HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 230BRKX 230kV Breakers

Placement Band: 1947 - 2012
Observation Band: 1975 - 2013

Observed Life Table

Age at Beginning of Interval	Exposures	Retirements	Conditional Proportion Retired	Conditional Proportion Surviving	Cumulative Proportion Surviving
A	B	C	D=C/B	E=1-D	F
0.0	360	0	0.00000	1.00000	1.00000
0.5	401	0	0.00000	1.00000	1.00000
1.5	400	9	0.02250	0.97750	1.00000
2.5	386	2	0.00518	0.99482	0.97750
3.5	372	0	0.00000	1.00000	0.97244
4.5	414	6	0.01449	0.98551	0.97244
5.5	444	1	0.00225	0.99775	0.95834
6.5	397	3	0.00756	0.99244	0.95618
7.5	388	4	0.01031	0.98969	0.94896
8.5	409	2	0.00489	0.99511	0.93917
9.5	421	6	0.01425	0.98575	0.93458
10.5	415	0	0.00000	1.00000	0.92126
11.5	447	5	0.01119	0.98881	0.92126
12.5	527	8	0.01518	0.98482	0.91096
13.5	518	3	0.00579	0.99421	0.89713
14.5	537	4	0.00745	0.99255	0.89193
15.5	594	0	0.00000	1.00000	0.88529
16.5	618	16	0.02589	0.97411	0.88529
17.5	611	4	0.00655	0.99345	0.86237
18.5	617	5	0.00810	0.99190	0.85672
19.5	616	7	0.01136	0.98864	0.84978
20.5	612	4	0.00654	0.99346	0.84012
21.5	593	3	0.00506	0.99494	0.83463
22.5	588	1	0.00170	0.99830	0.83041
23.5	586	3	0.00512	0.99488	0.82900
24.5	597	4	0.00670	0.99330	0.82476
25.5	560	3	0.00536	0.99464	0.81923
26.5	573	2	0.00349	0.99651	0.81484
27.5	577	21	0.03640	0.96360	0.81200
28.5	556	6	0.01079	0.98921	0.78244
29.5	550	6	0.01091	0.98909	0.77400
30.5	537	1	0.00186	0.99814	0.76556
31.5	521	5	0.00960	0.99040	0.76413
32.5	508	8	0.01575	0.98425	0.75680
33.5	486	6	0.01235	0.98765	0.74488
34.5	482	10	0.02075	0.97925	0.73568
35.5	464	10	0.02155	0.97845	0.72042

Schedule A

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 230BRKX 230kV Breakers

Placement Band: 1947 - 2012
Observation Band: 1975 - 2013

Observed Life Table

Age at Beginning of Interval	Exposures	Retirements	Conditional Proportion Retired	Conditional Proportion Surviving	Cumulative Proportion Surviving
A	B	C	D=C/B	E=1-D	F
36.5	400	11	0.02750	0.97250	0.70489
37.5	368	2	0.00543	0.99457	0.68551
38.5	355	12	0.03380	0.96620	0.68178
39.5	343	9	0.02624	0.97376	0.65874
40.5	312	7	0.02244	0.97756	0.64145
41.5	281	15	0.05338	0.94662	0.62706
42.5	251	32	0.12749	0.87251	0.59359
43.5	189	16	0.08466	0.91534	0.51791
44.5	131	6	0.04580	0.95420	0.47407
45.5	107	5	0.04673	0.95327	0.45235
46.5	101	8	0.07921	0.92079	0.43122
47.5	75	19	0.25333	0.74667	0.39706
48.5	54	11	0.20370	0.79630	0.29647
49.5	43	4	0.09302	0.90698	0.23608
50.5	37	5	0.13514	0.86486	0.21412
51.5	32	7	0.21875	0.78125	0.18518
52.5	17	0	0.00000	1.00000	0.14467
53.5	15	1	0.06667	0.93333	0.14467
54.5	14	3	0.21429	0.78571	0.13503
55.5	11	0	0.00000	1.00000	0.10609
56.5	11	0	0.00000	1.00000	0.10609
57.5	10	0	0.00000	1.00000	0.10609
58.5	10	2	0.20000	0.80000	0.10609
59.5	8	0	0.00000	1.00000	0.08488
60.5	7	1	0.14286	0.85714	0.08488
61.5	6	0	0.00000	1.00000	0.07275
62.5	6	0	0.00000	1.00000	0.07275
63.5	4	0	0.00000	1.00000	0.07275
64.5	2	1	0.50000	0.50000	0.07275
65.5	0	0	0.00000	1.00000	0.03638

Schedule B1

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 230BRKX 230kV Breakers

T-Cut: None
Placement Band: 1947-2012
Hazard Function: Proportion Retired
Weighting: Exposures

Rolling Band Life Analysis

		First Degree			Second Degree			Third Degree		
Observation Band	Censoring	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1975-1979	87.5	161.4	R1 *	3.89	169.4	R1.5 *	2.04	37.3	R3 *	1.67
1976-1980	87.8	164.4	R1 *	4.06	169.2	R1.5 *	2.20	33.3	R3 *	1.53
1977-1981	86.5	161.3	R1 *	4.90	164.2	R1 *	3.45	30.7	R3 *	1.57
1978-1982	90.3	175.6	R2.5 *	1.96	115.7	R3 *	1.70	38.3	R3 *	1.37
1979-1983	88.4	173.0	R2 *	2.71	50.5	R1.5	3.20	33.4	R3 *	2.64
1980-1984	96.6	90.3	L1.5 *	0.69	55.0	S2 *	0.61	180.9	R3 *	0.77
1981-1985	90.0	140.0	R1	3.71	58.8	S2	3.08	48.1	R3	3.11
1982-1986	83.7	162.0	R1.5	6.48	64.0	S2	5.99	54.8	R3	6.01
1983-1987	78.1	185.6	R4 *	9.25	68.6	R2.5	8.83	73.2	S1.5	8.82
1984-1988	90.8	123.9	SC	3.17	178.4	R3 *	1.77	176.8	R2.5 *	2.04
1985-1989	92.1	122.1	SC	3.92	177.6	R2.5 *	2.25	175.4	R2 *	2.90
1986-1990	91.4	141.7	SC	2.53	180.5	R3 *	1.06	180.3	R3 *	1.13
1987-1991	80.9	92.3	L0.5	2.06	166.6	R1 *	1.74	165.5	R1 *	1.37
1988-1992	72.5	75.1	L1 *	1.87	67.4	S0.5	1.81	56.8	R2.5 *	2.06
1989-1993	68.3	88.5	L0	2.53	55.1	R1	2.62	47.8	R2.5	2.72
1990-1994	60.0	68.5	L0.5	4.32	49.5	R1.5	2.98	46.0	R2	3.24
1991-1995	53.1	56.5	L1.5 *	3.40	44.6	R1	5.17	43.1	R2 *	3.11
1992-1996	41.7	49.5	L2 *	6.79	39.9	R1.5	10.24	40.1	R2 *	6.42
1993-1997	31.2	46.2	L2 *	8.27	37.5	R1	12.00	38.1	R1.5 *	8.04
1994-1998	23.2	44.5	L3 *	10.41	39.0	R2 *	12.70	39.5	R2 *	9.88
1995-1999	0.0	44.3	L3 *	12.80	37.1	R1.5 *	16.85	38.3	R2 *	13.02
1996-2000	6.5	43.1	L3 *	11.96	36.2	R1.5 *	16.72	38.6	R2 *	11.56
1997-2001	3.5	40.3	L3 *	13.18	35.1	R2 *	15.50	39.9	R4 *	7.03
1998-2002	2.4	41.0	L3 *	13.90	35.6	R2 *	15.60	41.5	S4 *	6.58
1999-2003	2.1	42.3	L3 *	12.88	37.0	R2.5 *	12.28	41.5	R4 *	7.18
2000-2004	5.2	43.4	L3 *	11.85	39.0	R3 *	9.85	40.7	R4 *	7.53
2001-2005	10.5	45.7	L3 *	10.24	42.2	R3 *	6.11	41.7	R3 *	6.36
2002-2006	29.1	59.5	L2 *	11.25	50.0	R2.5	7.41	50.8	R2	7.64
2003-2007	23.5	54.4	L1.5 *	11.98	47.2	R1.5	9.02	79.7	O4 *	10.01
2004-2008	21.6	44.7	L1.5 *	6.02	42.5	S0.5	5.14	54.7	L1.5 *	5.87
2005-2009	7.5	31.5	O2	4.91	30.1	O2	5.05	29.6	O2	5.42
2006-2010	3.6	31.2	L0	6.56	30.3	SC	7.56	29.5	SC	6.47
2007-2011	3.7	30.2	L0	6.81	29.9	SC	8.00	28.7	L0	6.08
2008-2012	2.1	31.3	L0	5.94	31.3	SC	7.41	28.7	L0	4.21
2009-2013	0.8	33.2	O2	7.31	33.0	SC	9.30	30.2	SC	5.33

Schedule B2

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 230BRKX 230kV Breakers

T-Cut: None

Placement Band: 1947-2012

Hazard Function: Proportion Retired

Weighting: Exposures

Shrinking Band Life Analysis

		First Degree			Second Degree			Third Degree		
Observation Band	Censoring	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1975-2013	3.6	45.2	L2*	8.70	40.2	R1.5	3.81	40.3	R2	3.20
1977-2013	3.6	45.2	L2*	8.80	39.9	R1.5	3.81	40.0	R2	3.19
1979-2013	3.6	45.3	L2*	8.71	40.0	R1.5	3.86	40.1	R2	3.24
1981-2013	3.7	45.4	L2*	8.55	40.3	R2	3.90	40.4	R2	3.29
1983-2013	3.6	45.3	L2*	8.63	40.1	R1.5	3.88	40.1	R2	3.27
1985-2013	3.6	45.3	L2*	8.76	39.9	R1.5	3.88	39.8	R1.5	3.25
1987-2013	3.6	45.1	L2*	8.74	39.8	R1.5	3.93	39.7	R1.5	3.27
1989-2013	3.5	44.9	L2*	8.84	39.8	R1.5	3.96	39.6	R1.5	3.27
1991-2013	3.3	44.1	L2*	8.79	39.2	R1.5	4.08	38.9	R1.5	3.32
1993-2013	3.2	43.5	L2*	8.84	38.8	R1.5	4.38	38.5	R1.5	3.52
1995-2013	3.1	43.1	L2*	8.73	39.0	R1.5	4.97	38.6	R1.5	4.05
1997-2013	3.1	43.0	L2*	8.87	39.3	R1.5	5.28	38.9	R1.5	4.54
1999-2013	3.1	42.3	L2*	9.10	38.7	R1.5	6.05	38.4	R1.5	5.48
2001-2013	3.5	40.9	L1.5*	8.63	37.7	R1	6.59	37.5	R1	6.26
2003-2013	4.3	39.7	L0.5	6.43	37.0	R0.5	5.48	36.0	R0.5	4.10
2005-2013	3.1	36.2	L0	5.11	34.8	SC	4.91	33.4	SC	3.22
2007-2013	1.9	33.0	L0	5.82	32.6	SC	7.09	30.9	SC	4.39
2009-2013	0.8	33.2	O2	7.31	33.0	SC	9.30	30.2	SC	5.33
2011-2013	1.6	43.1	L0.5	9.59	42.0	R1	10.88	38.5	R0.5	5.97
2013-2013	18.1	40.0	L0	7.34	38.8	R0.5	10.08	37.4	SC	9.75

Schedule B3

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 230BRKX 230kV Breakers

T-Cut: None

Placement Band: 1947-2012

Hazard Function: Proportion Retired

Weighting: Exposures

Progressing Band Life Analysis

		First Degree			Second Degree			Third Degree		
Observation Band	Censoring	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1975-1976	98.8	192.3	SQ*	1.75	192.9	S6 *	1.40	30.6	S4 *	0.88
1975-1978	94.7	174.9	R2.5*	4.38	180.8	R3 *	2.56	30.0	R4 *	1.54
1975-1980	89.5	167.8	R1.5*	3.82	172.7	R2 *	2.06	34.1	R3 *	1.15
1975-1982	91.1	174.2	R2*	3.14	176.7	R2.5 *	1.92	34.5	R4 *	0.81
1975-1984	89.1	176.2	R2.5*	2.36	177.5	R2.5 *	1.91	35.4	R4 *	0.98
1975-1986	88.9	177.5	R2.5*	1.95	178.4	R3 *	1.62	38.1	R4 *	1.04
1975-1988	87.0	169.0	R1.5*	1.76	171.9	R2 *	1.22	171.9	R2 *	1.21
1975-1990	88.1	173.4	R2*	1.55	174.5	R2 *	1.20	81.4	R2.5	1.07
1975-1992	71.6	96.0	L0	2.40	59.1	R1.5	1.92	53.3	R2.5	2.21
1975-1994	64.8	82.1	L0	2.10	54.1	R1.5	2.10	48.8	R2.5	2.13
1975-1996	43.7	58.3	L1.5*	4.90	45.1	R1.5	5.77	44.3	R3 *	3.00
1975-1998	26.0	52.4	L2*	7.87	41.9	R2	8.25	42.8	R3 *	3.93
1975-2000	7.8	49.6	L2*	9.36	40.4	R2 *	9.57	41.9	R3 *	4.48
1975-2002	7.7	45.4	L2*	10.04	38.4	R2 *	9.16	40.9	R3 *	3.14
1975-2004	9.1	47.1	L2*	10.42	39.6	R2 *	7.83	41.8	R3 *	2.85
1975-2006	12.4	48.6	L2*	10.37	41.1	R2 *	6.19	42.5	R3 *	3.24
1975-2008	11.0	46.4	L2*	9.39	41.2	R2.5 *	5.00	41.7	R2.5	3.82
1975-2010	7.1	44.9	L2*	9.17	39.5	R2	4.36	39.8	R2	3.49
1975-2012	6.3	45.1	L2*	9.04	40.1	R2	4.12	40.3	R2	3.35
1975-2013	3.6	45.2	L2*	8.70	40.2	R1.5	3.81	40.3	R2	3.20

Schedule C

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 230BRKX 230kV Breakers

T-Cut: None

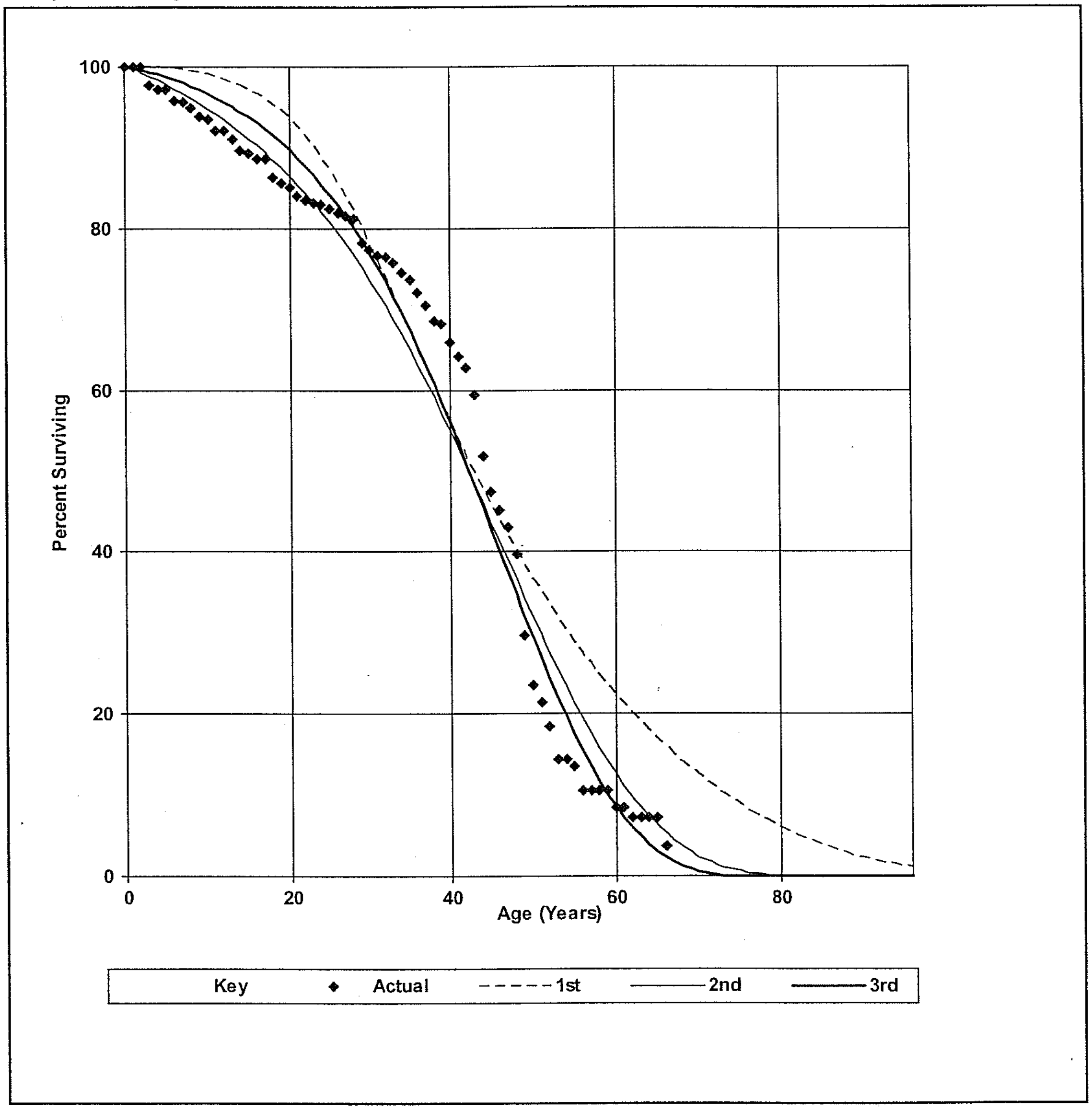
Placement Band: 1947-2012 Observation Band: 1975-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Graphics Analysis

1st: 45.2-L2 2nd: 40.2-R1.5 3rd: 40.3-R2



Schedule D

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 230BRKX 230kV Breakers

T-Cut: None

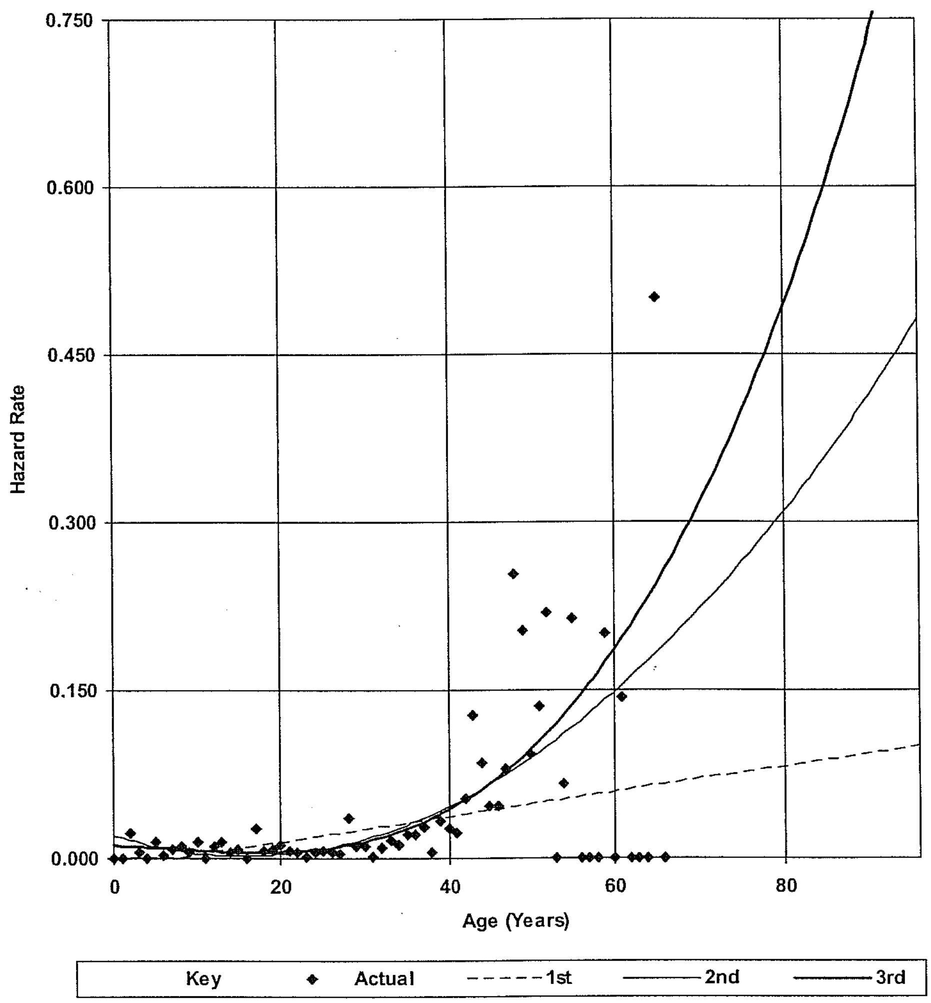
Placement Band: 1947-2013 Observation Band: 1975-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Polynomial Hazard Function

1st: 45.2-L2 2nd: 40.2-R1.5 3rd: 40.3-R2



Schedule E

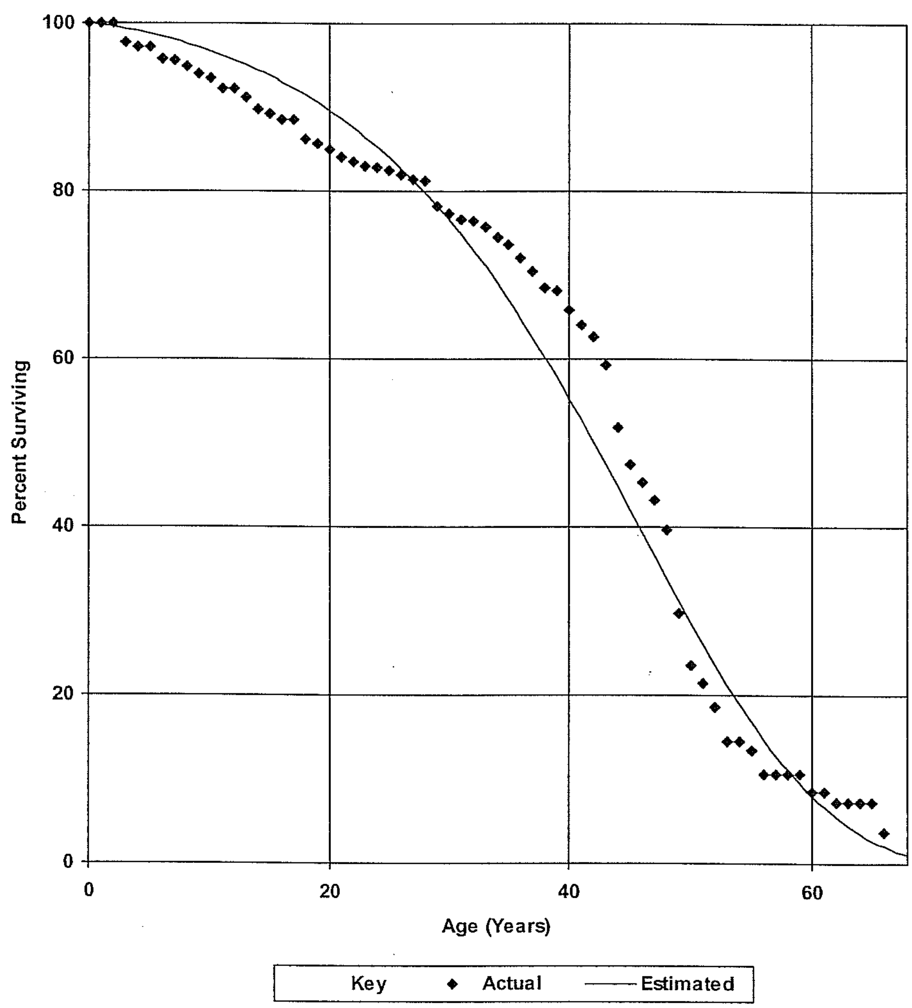
HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 230BRKX 230kV Breakers

T-Cut: None
Placement Band: 1947-2012
Observation Band: 1975-2013
40.0-R2

Estimated Projection Life Curve



Schedule A

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 230CONA 230kV Conventional Air Breakers

Placement Band: 1957 - 1982
Observation Band: 1975 - 2013

Observed Life Table

Age at Beginning of Interval	Exposures	Retirements	Conditional Proportion Retired	Conditional Proportion Surviving	Cumulative Proportion Surviving
A	B	C	D=C/B	E=1-D	F
0.0	15	0	0.00000	1.00000	1.00000
0.5	26	0	0.00000	1.00000	1.00000
1.5	37	0	0.00000	1.00000	1.00000
2.5	57	0	0.00000	1.00000	1.00000
3.5	58	0	0.00000	1.00000	1.00000
4.5	98	0	0.00000	1.00000	1.00000
5.5	144	1	0.00694	0.99306	1.00000
6.5	168	0	0.00000	1.00000	0.99306
7.5	174	4	0.02299	0.97701	0.99306
8.5	194	2	0.01031	0.98969	0.97023
9.5	215	4	0.01860	0.98140	0.96022
10.5	211	0	0.00000	1.00000	0.94236
11.5	213	0	0.00000	1.00000	0.94236
12.5	213	0	0.00000	1.00000	0.94236
13.5	213	0	0.00000	1.00000	0.94236
14.5	217	0	0.00000	1.00000	0.94236
15.5	220	0	0.00000	1.00000	0.94236
16.5	233	0	0.00000	1.00000	0.94236
17.5	242	0	0.00000	1.00000	0.94236
18.5	242	0	0.00000	1.00000	0.94236
19.5	242	0	0.00000	1.00000	0.94236
20.5	242	0	0.00000	1.00000	0.94236
21.5	242	0	0.00000	1.00000	0.94236
22.5	242	1	0.00413	0.99587	0.94236
23.5	241	3	0.01245	0.98755	0.93847
24.5	238	1	0.00420	0.99580	0.92678
25.5	237	2	0.00844	0.99156	0.92289
26.5	235	2	0.00851	0.99149	0.91510
27.5	233	2	0.00858	0.99142	0.90731
28.5	231	0	0.00000	1.00000	0.89953
29.5	231	1	0.00433	0.99567	0.89953
30.5	230	1	0.00435	0.99565	0.89563
31.5	217	0	0.00000	1.00000	0.89174
32.5	217	4	0.01843	0.98157	0.89174
33.5	213	4	0.01878	0.98122	0.87530
34.5	209	5	0.02392	0.97608	0.85886
35.5	204	6	0.02941	0.97059	0.83832

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 230CONA 230kV Conventional Air Breakers

Placement Band: 1957 - 1982
Observation Band: 1975 - 2013

Observed Life Table

Age at Beginning of Interval	Exposures	Retirements	Conditional Proportion Retired	Conditional Proportion Surviving	Cumulative Proportion Surviving
A	B	C	D=C/B	E=1-D	F
36.5	198	2	0.01010	0.98990	0.81366
37.5	196	0	0.00000	1.00000	0.80544
38.5	195	11	0.05641	0.94359	0.80544
39.5	174	4	0.02299	0.97701	0.76000
40.5	166	4	0.02410	0.97590	0.74253
41.5	143	14	0.09790	0.90210	0.72464
42.5	128	29	0.22656	0.77344	0.65370
43.5	75	11	0.14667	0.85333	0.50559
44.5	37	1	0.02703	0.97297	0.43144
45.5	20	0	0.00000	1.00000	0.41978
46.5	19	0	0.00000	1.00000	0.41978
47.5	2	0	0.00000	1.00000	0.41978
48.5	0	0	0.00000	1.00000	0.41978

Schedule B1

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 230CONA 230kV Conventional Air Breakers

T-Cut: None

Placement Band: 1957-1982

Hazard Function: Proportion Retired

Weighting: Exposures

Rolling Band Life Analysis

		First Degree			Second Degree			Third Degree		
Observation Band	Censoring	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1975-1979	91.2	156.3	R0.5 *	5.91	172.0	R2 *	3.21	31.3	R3 *	2.13
1976-1980	92.4	165.5	R1 *	7.14	174.6	R2 *	3.29	29.7	R4 *	1.93
1977-1981	91.6	162.5	R1 *	9.05	168.3	R1.5 *	6.01	29.1	R4 *	1.78
1978-1982	95.9	177.5	R2.5 *	5.99	181.1	R4 *	4.22	33.2	R5 *	1.21
1979-1983	92.0	173.3	R2 *	5.28	50.3	R1.5	6.68	33.4	R4 *	2.90
1980-1984	96.6	82.4	L2 *	0.66	54.9	S2 *	0.61	183.7	R4 *	0.99
1981-1985	95.0	89.5	L1.5 *	1.18	61.3	S2 *	1.15	190.0	R5 *	1.06
1982-1986	88.9	97.5	L1.5 *	4.21	68.9	S2 *	4.20	191.5	R5 *	3.73
1983-1987	83.3	106.3	L1.5 *	7.34	79.1	S1.5 *	7.33	192.3	SQ *	6.80
1984-1988	100.0				No Retirements					
1985-1989	100.0				No Retirements					
1986-1990	100.0				No Retirements					
1987-1991	90.9	66.6	L2 *	2.08	44.0	R3 *	7.64	40.4	R5 *	3.30
1988-1992	92.0	69.3	L2 *	1.69	46.4	R3 *	6.76	43.8	S4 *	1.83
1989-1993	92.9	72.1	L2 *	1.37	49.4	R3 *	5.62	48.2	S4 *	1.39
1990-1994	84.3	56.0	L3 *	2.28	44.1	R3 *	6.63	51.5	L2 *	11.09
1991-1995	78.7	54.6	L3 *	2.22	49.8	S2 *	2.09	106.3	O4 *	30.79
1992-1996	83.8	66.5	L2 *	2.01	157.3	R0.5 *	2.00	132.9	SC *	21.69
1993-1997	71.1	74.7	L1.5 *	6.20	171.3	R1.5 *	6.61	151.7	SC *	12.20
1994-1998	55.6	77.5	L0.5	11.86	171.4	R1.5 *	13.00	158.3	R0.5 *	12.63
1995-1999	94.3	149.8	SC *	11.89	181.6	R3 *	2.46	115.4	R4 *	2.56
1996-2000	60.4	51.7	S3 *	5.48	19.9	O4 *	56.44	42.2	R4 *	8.17
1997-2001	0.0	39.8	L5 *	13.30	1.5	O3 *	90.13	34.6	R3 *	21.30
1998-2002	0.0	39.9	L5 *	9.40	1.0	O3 *	90.01	34.5	R3 *	19.05
1999-2003	0.0	40.3	L5 *	9.14	0.7	O2 *	89.12	34.3	R3 *	17.96
2000-2004	0.0	40.8	L5 *	9.60	0.5	O3 *	91.20	33.3	R3 *	23.64
2001-2005	0.0	41.9	L5 *	13.03	0.5	R5 *	90.02	31.9	S2 *	26.45
2002-2006	72.3	61.4	L3 *	6.19	7.0	O4	77.97	42.4	R4 *	2.34
2003-2007	47.6	51.3	L4 *	8.11	1.1	O3 *	89.60	37.6	R3 *	10.59
2004-2008	14.5	46.6	S4 *	9.95	0.5	O3 *	90.04	34.9	S3 *	19.67
2005-2009	23.0	44.7	L5 *	8.26	0.4	S3 *	88.84	36.5	S3 *	14.07
2006-2010	33.9	45.2	S4 *	7.76	0.5	O3 *	87.53	36.7	R3 *	12.05
2007-2011	47.4	45.7	L5 *	2.60	1.9	O3 *	89.53	42.7	R4 *	5.56
2008-2012	52.3	46.8	L4 *	3.69	56.4	L3 *	3.19	27.1	O4 *	62.61
2009-2013	59.8	46.5	L3 *	11.39	117.0	O3 *	5.19	0.7	O2 *	91.28

Schedule B2

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 230CONA 230kV Conventional Air Breakers

T-Cut: None
Placement Band: 1957-1982
Hazard Function: Proportion Retired
Weighting: Exposures

Shrinking Band Life Analysis

		First Degree			Second Degree			Third Degree		
Observation Band	Censoring	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1975-2013	42.0	46.9	L3 *	6.99	38.3	R1.5 *	10.98	42.3	R4 *	3.28
1977-2013	41.8	46.9	L3 *	6.58	36.0	R1 *	14.92	42.1	R4 *	3.29
1979-2013	42.8	46.9	L3 *	6.40	35.5	R1 *	17.49	43.0	R4 *	3.33
1981-2013	44.5	46.8	L3 *	7.05	36.4	R1 *	18.65	43.9	S4 *	3.72
1983-2013	44.5	46.8	L3 *	6.58	35.6	R1 *	20.05	43.6	R4 *	4.07
1985-2013	44.6	46.7	L3 *	6.16	32.7	SC *	25.86	43.6	R4 *	4.08
1987-2013	44.5	46.6	S3 *	5.66	29.4	SC *	32.37	43.5	R4 *	4.18
1989-2013	44.4	46.5	S3 *	5.23	25.6	O3 *	39.74	43.3	R4 *	4.37
1991-2013	44.2	46.3	S3 *	4.72	21.6	O4 *	47.62	43.0	R4 *	4.57
1993-2013	44.0	46.3	L4 *	4.29	16.7	O4 *	57.19	42.6	R4 *	5.03
1995-2013	43.6	46.4	L4 *	3.91	12.6	O4 *	64.93	42.6	R4 *	4.64
1997-2013	43.5	46.2	L4 *	3.80	9.9	O4 *	70.24	41.1	R3 *	7.53
1999-2013	38.8	45.9	L4 *	7.31	6.8	O4 *	72.78	18.2	O4	49.82
2001-2013	38.1	46.1	S4 *	8.62	4.8	O4	76.04	3.3	O4 *	78.97
2003-2013	50.4	48.8	L4 *	6.93	8.8	O4	70.86	0.6	O2 *	86.70
2005-2013	49.5	47.9	L4 *	6.21	6.5	O4	75.13	0.3	SC *	87.32
2007-2013	54.7	47.4	L4 *	3.19	47.3	L4 *	3.20	0.3	SC *	92.06
2009-2013	59.8	46.5	L3 *	11.39	117.0	O3 *	5.19	0.7	O2 *	91.28
2011-2013	82.3	55.5	L4 *	4.13	57.8	L4 *	4.29	0.3	SC *	97.12
2013-2013	75.1	49.1	L4 *	10.61	111.9	O3 *	12.43	0.3	SC *	96.57

Schedule B3

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 230CONA 230kV Conventional Air Breakers

T-Cut: None

Placement Band: 1957-1982

Hazard Function: Proportion Retired

Weighting: Exposures

Progressing Band Life Analysis

Observation Band	Censoring	First Degree Average Life	First Degree Disper-sion	First Degree Conf. Index	Second Degree Average Life	Second Degree Disper-sion	Second Degree Conf. Index	Third Degree Average Life	Third Degree Disper-sion	Third Degree Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1975-1976	98.8	192.3	SQ*	1.75	192.9	S6 *	1.40	30.6	S4 *	0.88
1975-1978	94.7	174.9	R2.5*	4.38	180.8	R3 *	2.56	30.0	R4 *	1.54
1975-1980	92.5	167.9	R1.5*	5.64	176.1	R2.5 *	2.81	31.3	R4 *	1.73
1975-1982	93.4	174.8	R2.5*	4.93	178.9	R3 *	2.89	33.1	R4 *	1.32
1975-1984	90.5	176.2	R2.5*	3.53	178.2	R3 *	2.82	34.7	R4 *	1.22
1975-1986	90.7	178.8	R3*	2.92	179.9	R3 *	2.44	38.0	R4 *	1.13
1975-1988	92.1	180.0	R3*	2.77	180.7	R3 *	2.45	41.2	R4 *	1.01
1975-1990	92.9	180.6	R3*	2.77	120.4	R3 *	2.62	44.5	R4 *	1.25
1975-1992	86.1	180.0	R3*	2.50	51.2	R2	4.07	41.2	R4 *	1.69
1975-1994	79.3	127.1	SC	3.06	46.9	R2	4.30	41.7	R3	2.06
1975-1996	78.0	104.6	L0	3.14	50.1	R2	3.33	47.0	R2.5	2.87
1975-1998	80.4	116.8	SC	2.65	55.3	R2	2.86	60.9	R1.5 *	2.99
1975-2000	53.4	72.2	L1.5*	4.42	43.9	R2 *	7.01	42.7	R4 *	4.14
1975-2002	0.0	48.2	L2*	11.24	32.4	R1 *	19.60	36.5	R4 *	11.20
1975-2004	0.0	50.7	L2*	11.59	34.3	R1 *	17.52	37.4	R4 *	10.09
1975-2006	0.0	51.3	L2*	11.49	36.2	R1.5 *	15.17	38.5	R4 *	8.10
1975-2008	0.0	47.5	S1.5*	11.64	34.2	R1 *	17.99	38.0	R3 *	9.17
1975-2010	22.9	46.0	L3*	9.44	34.8	R1 *	15.73	39.2	R4 *	5.49
1975-2012	39.1	47.2	S1.5*	7.20	37.6	R1.5 *	11.65	41.6	R4 *	3.10
1975-2013	42.0	46.9	L3*	6.99	38.3	R1.5 *	10.98	42.3	R4 *	3.28

Schedule C

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 230CONA 230kV Conventional Air Breakers

T-Cut: None

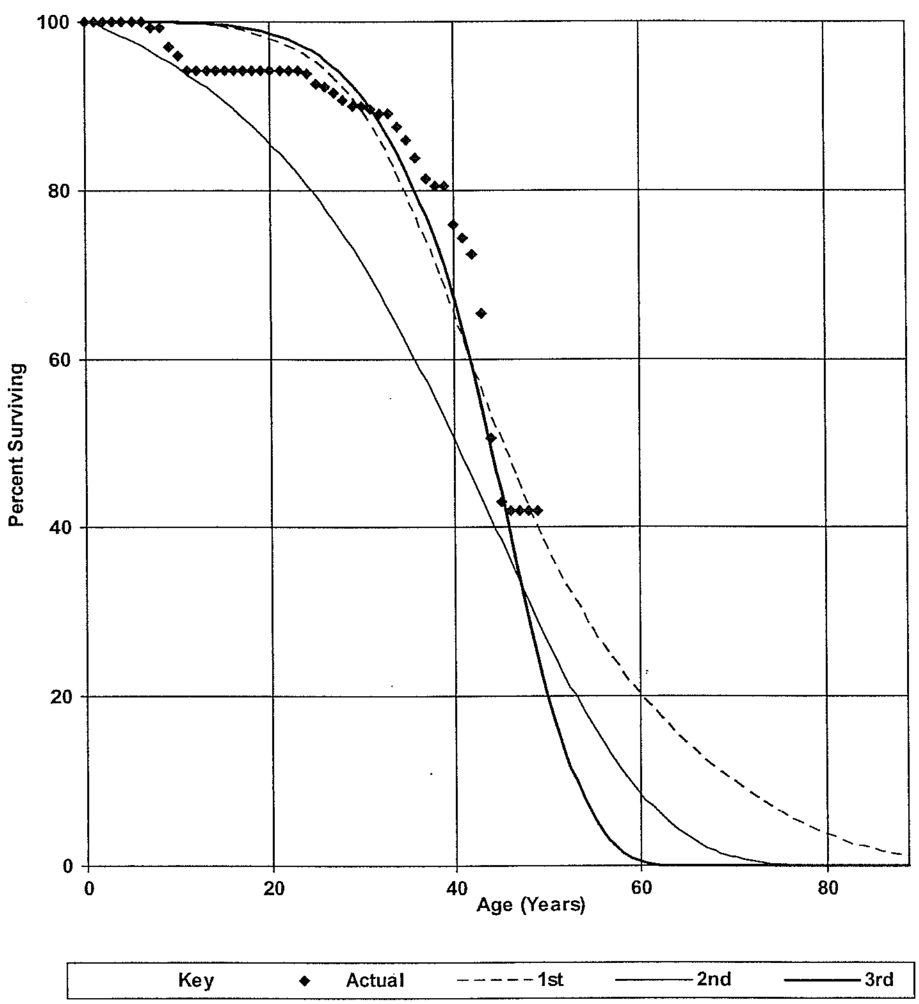
Placement Band: 1957-1982 Observation Band: 1975-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Graphics Analysis

1st: 46.9-L3 2nd: 38.3-R1.5 3rd: 42.3-R4



Schedule D

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 230CONA 230kV Conventional Air Breakers

T-Cut: None

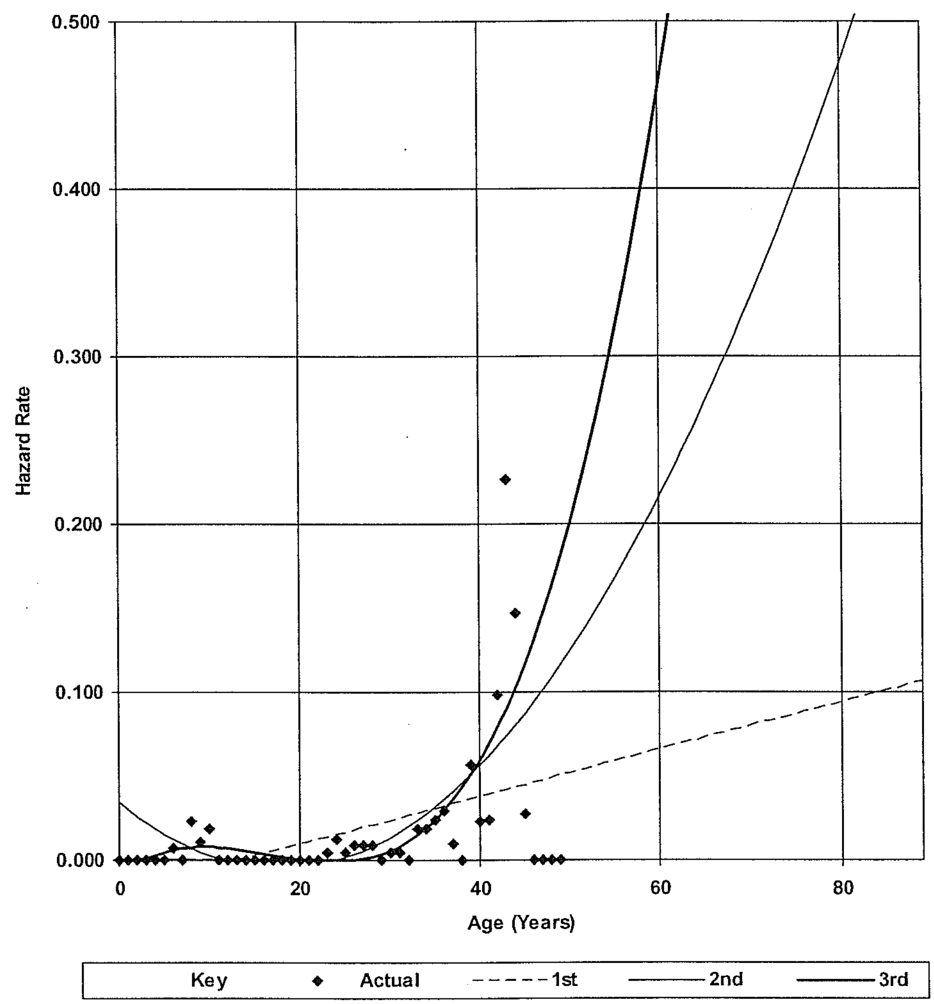
Placement Band: 1957-1982 Observation Band: 1975-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Polynomial Hazard Function

1st: 46.9-L3 2nd: 38.3-R1.5 3rd: 42.3-R4



Schedule E

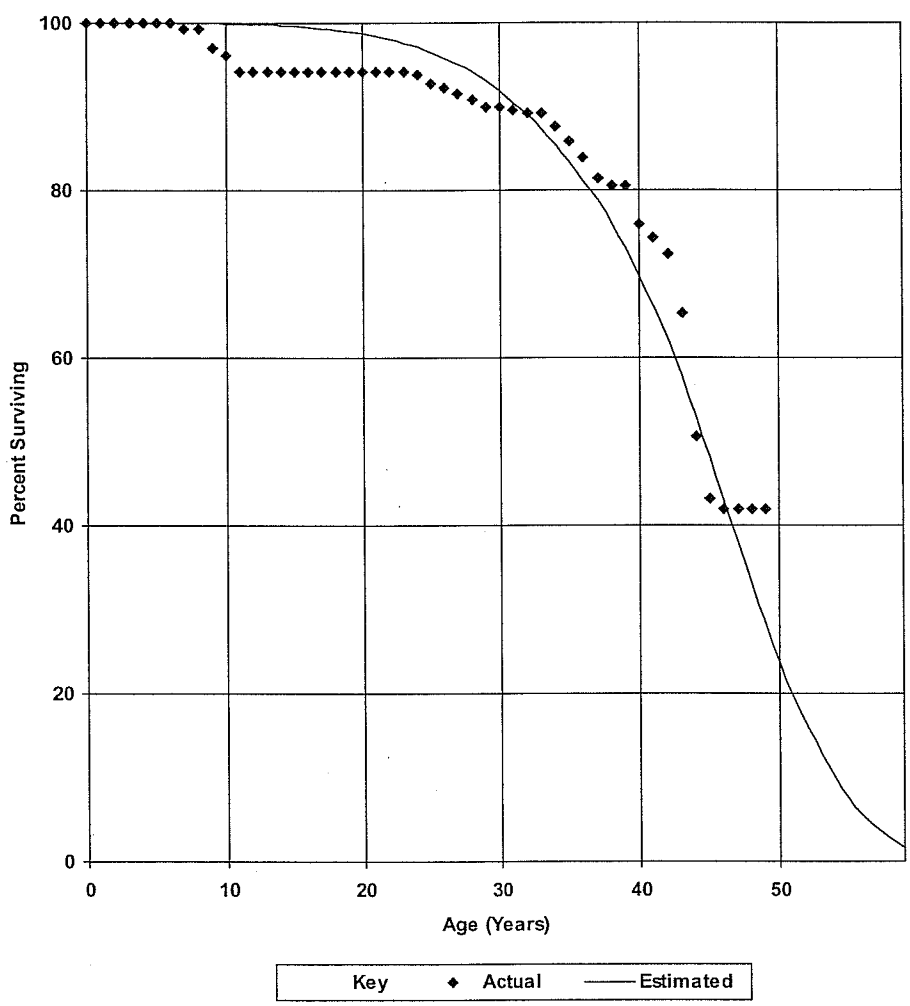
HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 230CONA 230kV Conventional Air Breakers

T-Cut: None
Placement Band: 1957-1982
Observation Band: 1975-2013
43.0-R4

Estimated Projection Life Curve



Schedule A

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 230CONO 230kV Conventional Oil Breakers

Placement Band: 1941 - 1980
Observation Band: 1988 - 2013

Observed Life Table

Age at Beginning of Interval	Exposures	Retirements	Conditional Proportion Retired	Conditional Proportion Surviving	Cumulative Proportion Surviving
A	B	C	D=C/B	E=1-D	F
0.0	0	0	0.00000	1.00000	1.00000
0.5	0	0	0.00000	1.00000	1.00000
1.5	0	0	0.00000	1.00000	1.00000
2.5	0	0	0.00000	1.00000	1.00000
3.5	0	0	0.00000	1.00000	1.00000
4.5	0	0	0.00000	1.00000	1.00000
5.5	0	0	0.00000	1.00000	1.00000
6.5	0	0	0.00000	1.00000	1.00000
7.5	6	0	0.00000	1.00000	1.00000
8.5	13	0	0.00000	1.00000	1.00000
9.5	23	1	0.04348	0.95652	1.00000
10.5	25	0	0.00000	1.00000	0.95652
11.5	60	0	0.00000	1.00000	0.95652
12.5	98	0	0.00000	1.00000	0.95652
13.5	113	0	0.00000	1.00000	0.95652
14.5	136	1	0.00735	0.99265	0.95652
15.5	142	0	0.00000	1.00000	0.94949
16.5	159	0	0.00000	1.00000	0.94949
17.5	165	1	0.00606	0.99394	0.94949
18.5	184	5	0.02717	0.97283	0.94373
19.5	183	4	0.02186	0.97814	0.91809
20.5	185	4	0.02162	0.97838	0.89802
21.5	182	3	0.01648	0.98352	0.87860
22.5	180	0	0.00000	1.00000	0.86412
23.5	180	0	0.00000	1.00000	0.86412
24.5	195	3	0.01538	0.98462	0.86412
25.5	194	1	0.00515	0.99485	0.85083
26.5	209	0	0.00000	1.00000	0.84644
27.5	215	2	0.00930	0.99070	0.84644
28.5	213	0	0.00000	1.00000	0.83857
29.5	213	5	0.02347	0.97653	0.83857
30.5	208	0	0.00000	1.00000	0.81888
31.5	215	4	0.01860	0.98140	0.81888
32.5	212	1	0.00472	0.99528	0.80365
33.5	214	1	0.00467	0.99533	0.79986
34.5	217	3	0.01382	0.98618	0.79612
35.5	209	4	0.01914	0.98086	0.78511

Schedule A

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 230CONO 230kV Conventional Oil Breakers

Placement Band: 1941 - 1980
Observation Band: 1988 - 2013

Observed Life Table

Age at Beginning of Interval	Exposures	Retirements	Conditional Proportion Retired	Conditional Proportion Surviving	Cumulative Proportion Surviving
A	B	C	D=C/B	E=1-D	F
36.5	202	9	0.04455	0.95545	0.77009
37.5	172	2	0.01163	0.98837	0.73578
38.5	160	1	0.00625	0.99375	0.72722
39.5	169	5	0.02959	0.97041	0.72268
40.5	146	3	0.02055	0.97945	0.70130
41.5	138	1	0.00725	0.99275	0.68689
42.5	123	3	0.02439	0.97561	0.68191
43.5	114	5	0.04386	0.95614	0.66528
44.5	94	5	0.05319	0.94681	0.63610
45.5	87	5	0.05747	0.94253	0.60226
46.5	84	8	0.09524	0.90476	0.56765
47.5	75	19	0.25333	0.74667	0.51359
48.5	56	11	0.19643	0.80357	0.38348
49.5	45	4	0.08889	0.91111	0.30815
50.5	39	5	0.12821	0.87179	0.28076
51.5	34	7	0.20588	0.79412	0.24477
52.5	19	0	0.00000	1.00000	0.19437
53.5	17	1	0.05882	0.94118	0.19437
54.5	16	5	0.31250	0.68750	0.18294
55.5	11	0	0.00000	1.00000	0.12577
56.5	11	0	0.00000	1.00000	0.12577
57.5	10	0	0.00000	1.00000	0.12577
58.5	10	2	0.20000	0.80000	0.12577
59.5	8	0	0.00000	1.00000	0.10062
60.5	7	1	0.14286	0.85714	0.10062
61.5	6	0	0.00000	1.00000	0.08624
62.5	6	0	0.00000	1.00000	0.08624
63.5	4	0	0.00000	1.00000	0.08624
64.5	2	1	0.50000	0.50000	0.08624
65.5	0	0	0.00000	1.00000	0.04312

Schedule B1

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 230CONO 230kV Conventional Oil Breakers

T-Cut: None

Placement Band: 1941-1980

Hazard Function: Proportion Retired

Weighting: Exposures

Rolling Band Life Analysis

		First Degree			Second Degree			Third Degree		
Observation Band	Censoring	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1988-1992	68.0	71.7	L0	3.88	141.7	SC *	2.12	54.1	R2 *	2.52
1989-1993	73.0	72.5	L1.5 *	4.33	56.1	R1.5	3.70	116.6	SC *	16.06
1990-1994	61.9	65.8	L2 *	11.05	44.8	R1	7.77	69.5	O4 *	19.27
1991-1995	60.4	55.4	L3 *	4.38	40.8	R0.5	19.40	48.4	R3	6.41
1992-1996	0.0	45.1	L3 *	14.70	15.4	O4 *	59.72	46.0	R4 *	8.54
1993-1997	0.0	42.5	L3 *	17.75	9.3	O4 *	69.71	44.9	R4 *	7.15
1994-1998	0.0	40.6	S3 *	18.10	5.5	O4 *	75.06	43.9	R4 *	4.96
1995-1999	0.0	39.9	L4 *	17.59	2.7	O4 *	77.86	43.3	R4 *	2.25
1996-2000	0.0	39.5	L4 *	15.25	1.8	O3 *	77.49	42.7	R4 *	3.01
1997-2001	7.7	41.1	L4 *	14.52	3.0	O4 *	81.47	44.9	R5 *	3.65
1998-2002	7.3	41.8	L4 *	12.84	4.0	O4 *	79.78	44.6	R5 *	3.33
1999-2003	10.9	43.7	L4 *	8.97	6.5	O4	73.59	20.5	O4	47.77
2000-2004	15.3	45.0	L4 *	6.82	21.5	O4	45.58	0.9	O3	82.83
2001-2005	19.2	48.1	L4 *	6.37	48.0	L4 *	6.41	0.8	O2 *	81.05
2002-2006	29.3	53.0	L3 *	6.92	83.2	O3 *	6.59	2.7	O4 *	80.38
2003-2007	24.2	52.7	L2 *	10.64	110.1	O3 *	10.59	62.2	O4 *	31.62
2004-2008	18.5	52.6	L3 *	16.62	101.5	O3 *	15.82	16.6	O4 *	62.84
2005-2009	22.0	52.4	L3 *	3.54	55.2	L3 *	3.33	52.2	S3 *	3.14
2006-2010	13.2	49.4	L4 *	3.30	52.2	L4 *	3.11	0.6	O2 *	80.69
2007-2011	12.9	49.1	L4 *	4.12	51.5	L4 *	4.08	0.3	SC *	80.40
2008-2012	5.7	49.2	S4 *	6.11	49.2	S4 *	6.08	0.3	SC *	80.11
2009-2013	1.6	49.9	S4 *	9.25	50.0	S4 *	9.32	0.3	SC *	77.93

Schedule B2

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 230CONO 230kV Conventional Oil Breakers

T-Cut: None
Placement Band: 1941-1980
Hazard Function: Proportion Retired
Weighting: Exposures

Shrinking Band Life Analysis

		First Degree			Second Degree			Third Degree		
Observation Band	Censoring	Average Life	Disper- sion	Conf. Index	Average Life	Disper- sion	Conf. Index	Average Life	Disper- sion	Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1988-2013	4.3	46.6	L3 *	7.22	31.0	SC	22.24	26.9	O3	29.12
1990-2013	3.7	46.6	L3 *	12.24	29.8	SC	17.70	17.1	O4 *	38.97
1992-2013	4.4	46.4	S3 *	6.00	29.5	SC	28.04	10.2	O4 *	60.56
1994-2013	4.1	46.1	S3 *	5.90	25.9	O3	32.84	3.7	O4 *	70.19
1996-2013	3.8	46.0	L4 *	7.11	23.1	O3	34.99	1.4	O3 *	71.61
1998-2013	5.2	47.6	L4 *	4.97	47.5	L4 *	4.27	2.0	O4 *	76.55
2000-2013	6.3	48.7	L4 *	4.10	48.6	L4 *	3.90	1.8	O3 *	76.55
2002-2013	7.6	50.0	L4 *	3.41	49.9	L4 *	3.38	3.1	O4 *	75.57
2004-2013	7.0	50.5	L4 *	4.21	50.3	L4 *	4.15	1.4	O3	77.45
2006-2013	5.4	50.2	L4 *	4.16	50.2	L4 *	4.15	0.7	O2	79.67
2008-2013	3.8	50.3	S4 *	6.15	50.3	S4 *	6.27	0.3	SC *	79.76
2010-2013	0.9	49.9	S4 *	11.07	49.8	L5 *	10.55	0.3	SC *	81.48
2012-2013	10.6	50.8	S4 *	15.40	4.1	O4	81.77	0.3	SC	87.41

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 230CONO 230kV Conventional Oil Breakers

T-Cut: None

Placement Band: 1941-1980

Hazard Function: Proportion Retired

Weighting: Exposures

Progressing Band Life Analysis

Observation Band	Censoring	First Degree Average Life	First Degree Disper-sion	First Degree Conf. Index	Second Degree Average Life	Second Degree Disper-sion	Second Degree Conf. Index	Third Degree Average Life	Third Degree Disper-sion	Third Degree Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1988-1989	72.7	107.6	O3*	10.90	126.6	SC*	8.55	45.3	R1*	7.50
1988-1991	73.3	129.5	SC*	7.55	147.1	SC*	2.72	77.2	R1*	2.51
1988-1993	70.9	72.7	L0.5	3.41	111.2	O3*	2.51	53.9	R2.5*	2.65
1988-1995	61.5	61.2	L2*	3.63	44.4	R0.5	13.42	49.8	R3*	4.65
1988-1997	0.0	46.5	L3*	9.51	26.0	O3*	34.57	44.5	R4*	5.60
1988-1999	0.0	44.7	L3*	11.92	20.2	O4*	44.86	44.2	R4*	2.54
1988-2001	0.0	44.0	L3*	11.71	18.9	O4*	46.52	43.9	R4*	2.57
1988-2003	8.0	44.5	L3*	9.80	20.8	O4*	42.40	44.2	R4*	3.08
1988-2005	12.0	45.4	L3*	8.42	24.0	O3*	35.75	44.0	R3*	3.27
1988-2007	12.6	45.9	L3*	7.28	28.8	SC	26.39	36.2	R0.5	13.30
1988-2009	8.6	46.5	L3*	7.01	29.5	SC	25.16	34.1	SC	17.20
1988-2011	10.3	46.5	L3*	7.43	30.6	SC	23.28	26.4	O3	30.35
1988-2013	4.3	46.6	L3*	7.22	31.0	SC	22.24	26.9	O3	29.12

Schedule C

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 230CONO 230kV Conventional Oil Breakers

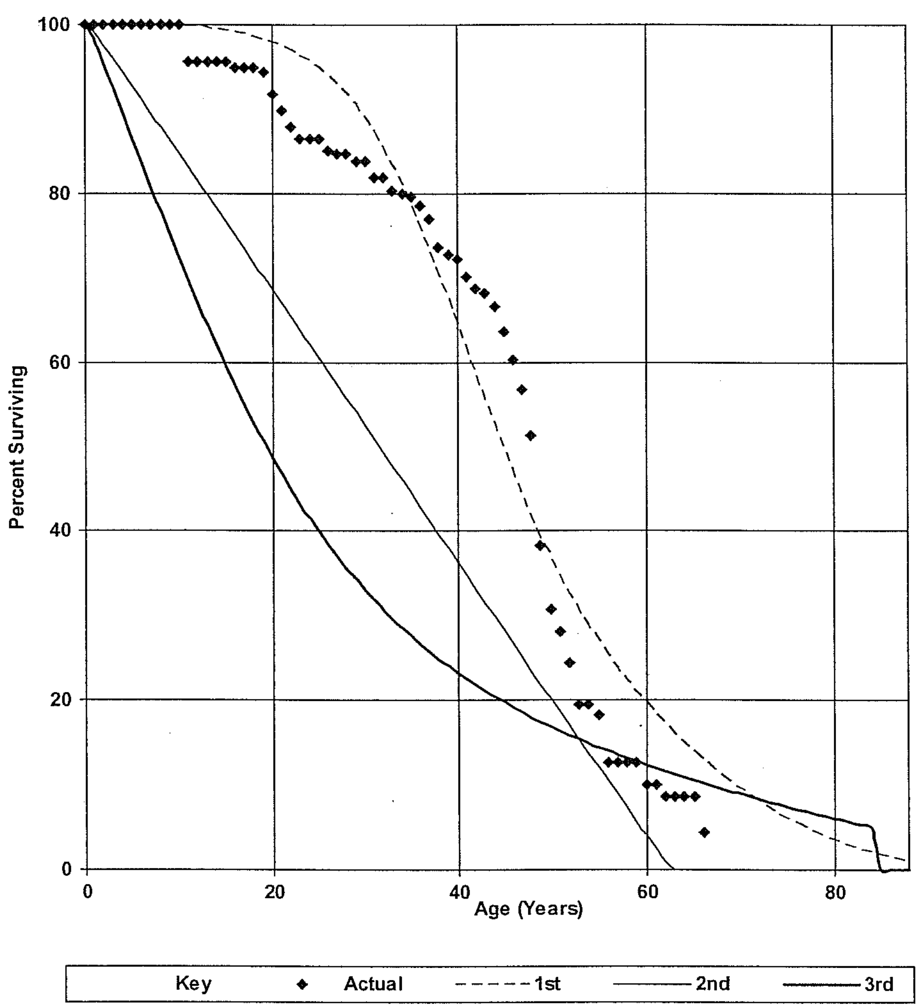
T-Cut: None

Placement Band: 1941-1980 Observation Band: 1988-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Graphics Analysis 1st: 46.6-L3 2nd: 31.0-SC 3rd: 26.9-O3



Schedule D

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 230CONO 230kV Conventional Oil Breakers

T-Cut: None

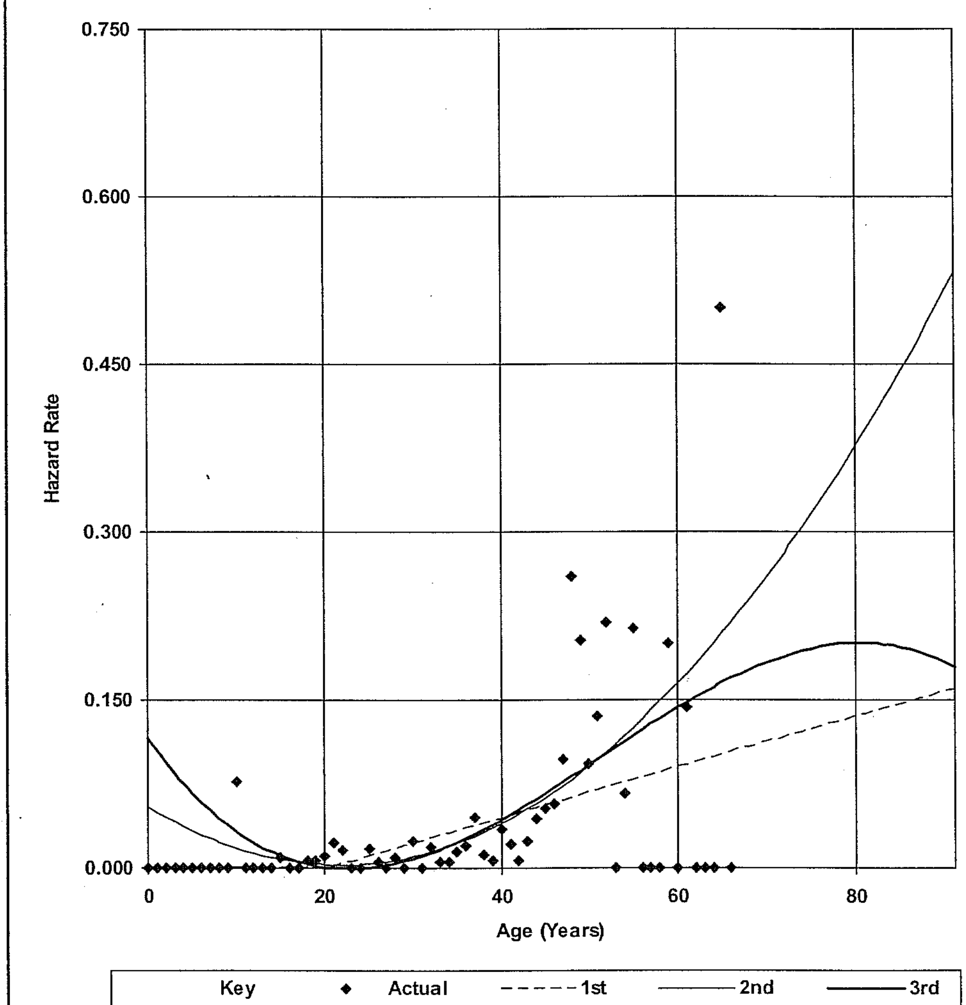
Placement Band: 1947-1980 Observation Band: 1989-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Polynomial Hazard Function

1st: 46.9-L3 2nd: 32.1-SC 3rd: 22.2-O4



HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 230CONO 230kV Conventional Oil Breakers

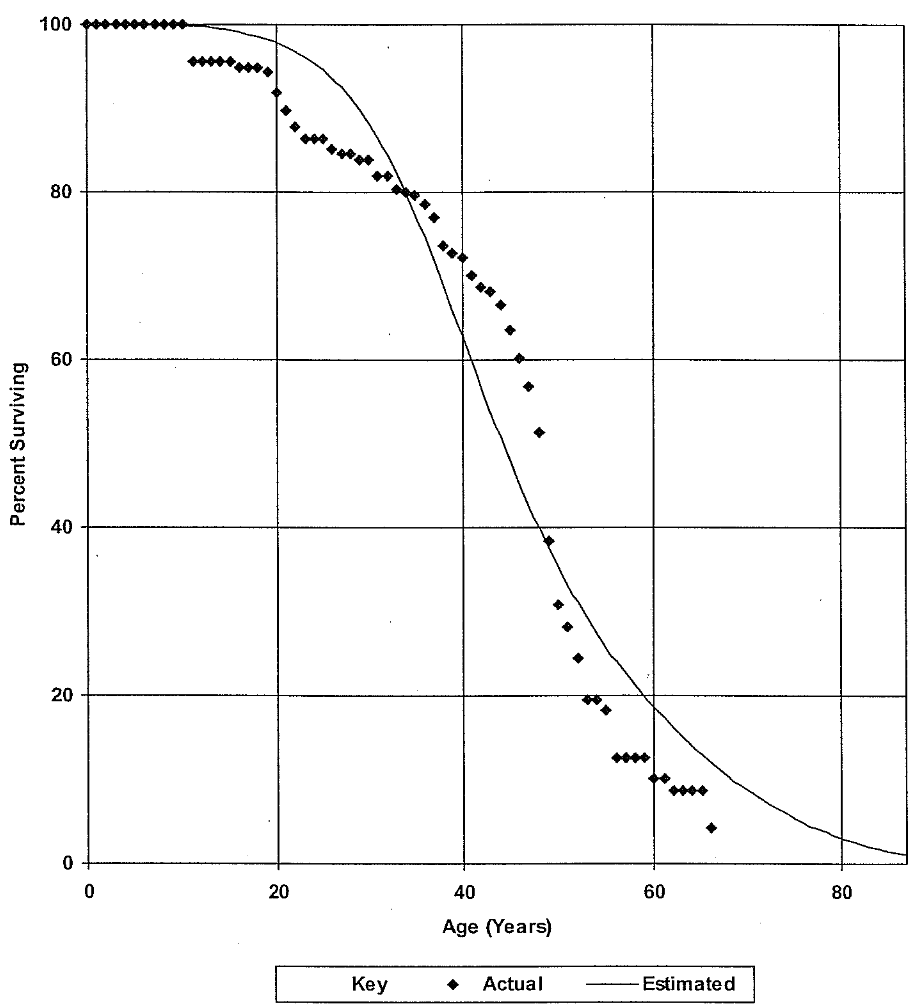
T-Cut: None

Placement Band: 1941-1980

Observation Band: 1988-2013

46.0-L3

Estimated Projection Life Curve



Schedule A

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 230CONS 230kV Conventional and GIS SF6 Breakers

Placement Band: 1977 - 2013
Observation Band: 1979 - 2013

Observed Life Table

Age at Beginning of Interval	Exposures	Retirements	Conditional Proportion Retired	Conditional Proportion Surviving	Cumulative Proportion Surviving
A	B	C	D=C/B	E=1-D	F
0.0	347	0	0.00000	1.00000	1.00000
0.5	375	0	0.00000	1.00000	1.00000
1.5	363	9	0.02479	0.97521	1.00000
2.5	329	2	0.00608	0.99392	0.97521
3.5	314	0	0.00000	1.00000	0.96928
4.5	309	6	0.01942	0.98058	0.96928
5.5	283	0	0.00000	1.00000	0.95046
6.5	212	3	0.01415	0.98585	0.95046
7.5	191	0	0.00000	1.00000	0.93701
8.5	185	0	0.00000	1.00000	0.93701
9.5	166	1	0.00602	0.99398	0.93701
10.5	162	0	0.00000	1.00000	0.93136
11.5	157	5	0.03185	0.96815	0.93136
12.5	199	8	0.04020	0.95980	0.90170
13.5	175	3	0.01714	0.98286	0.86545
14.5	167	3	0.01796	0.98204	0.85062
15.5	215	0	0.00000	1.00000	0.83534
16.5	209	16	0.07656	0.92344	0.83534
17.5	187	3	0.01604	0.98396	0.77139
18.5	174	0	0.00000	1.00000	0.75901
19.5	174	3	0.01724	0.98276	0.75901
20.5	168	0	0.00000	1.00000	0.74592
21.5	152	0	0.00000	1.00000	0.74592
22.5	149	0	0.00000	1.00000	0.74592
23.5	148	0	0.00000	1.00000	0.74592
24.5	147	0	0.00000	1.00000	0.74592
25.5	112	0	0.00000	1.00000	0.74592
26.5	112	0	0.00000	1.00000	0.74592
27.5	112	17	0.15179	0.84821	0.74592
28.5	95	6	0.06316	0.93684	0.63270
29.5	89	0	0.00000	1.00000	0.59274
30.5	89	0	0.00000	1.00000	0.59274
31.5	89	1	0.01124	0.98876	0.59274
32.5	79	3	0.03797	0.96203	0.58608
33.5	59	1	0.01695	0.98305	0.56383
34.5	56	2	0.03571	0.96429	0.55427
35.5	51	0	0.00000	1.00000	0.53448

Schedule A

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 230CONS 230kV Conventional and GIS SF6 Breakers

Placement Band: 1977 - 2013
Observation Band: 1979 - 2013

Observed Life Table

Age at Beginning of Interval	Exposures	Retirements	Conditional Proportion Retired	Conditional Proportion Surviving	Cumulative Proportion Surviving
A	B	C	D=C/B	E=1-D	F
36.5	0	0	0.00000	1.00000	0.53448

Schedule B1

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 230CONS 230kV Conventional and GIS SF6 Breakers

T-Cut: None

Placement Band: 1977-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Rolling Band Life Analysis

Observation Band	Censoring	First Degree Average Life	First Degree Disper-sion	First Degree Conf. Index	Second Degree Average Life	Second Degree Disper-sion	Second Degree Conf. Index	Third Degree Average Life	Third Degree Disper-sion	Third Degree Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1979-1983	96.2	186.0	R4 *	2.32	188.0	R5 *	1.28	8.1	R5 *	1.69
1980-1984	100.0				No Retirements					
1981-1985	85.7	15.6	L2 *	2.60	10.4	S3 *	3.61	9.6	S4 *	3.53
1982-1986	93.8	19.8	L2 *	1.77	14.4	S2 *	2.17	177.6	R3 *	2.29
1983-1987	93.8	24.7	L1.5 *	1.37	182.3	R4 *	1.18	176.8	R2.5 *	4.87
1984-1988	96.0	37.2	L1	1.99	188.6	R5 *	0.99	187.1	R4 *	1.41
1985-1989	95.8	46.2	L0.5	1.88	184.6	R4 *	2.53	186.8	R4 *	1.52
1986-1990	100.0				No Retirements					
1987-1991	93.3	34.3	L1.5 *	2.19	20.6	S3 *	1.83	18.9	R4 *	1.84
1988-1992	93.3	38.8	L1.5 *	1.75	25.9	S2 *	1.29	171.0	R1.5 *	1.29
1989-1993	81.3	22.5	L1.5 *	7.69	118.6	SC *	13.20	128.3	SC *	10.94
1990-1994	82.7	29.6	L1	4.95	132.2	SC *	12.66	136.0	SC *	9.91
1991-1995	77.5	29.8	L1	3.90	135.4	SC *	8.85	140.3	SC *	6.84
1992-1996	82.0	36.8	L0.5	3.85	146.4	SC *	7.98	149.5	SC *	6.28
1993-1997	79.9	37.7	L0.5	3.90	147.9	SC *	6.52	151.3	SC *	4.85
1994-1998	95.6	54.3	L1.5 *	2.19	153.6	SC *	2.58	181.5	R4 *	2.95
1995-1999	93.7	59.0	L1.5 *	1.71	177.8	R2.5 *	3.03	178.5	R3 *	3.27
1996-2000	96.8	95.3	L1.5 *	0.76	190.2	R5 *	1.22	189.9	R5 *	1.37
1997-2001	96.5	104.2	L1 *	0.83	190.1	R5 *	1.32	188.9	R5 *	1.42
1998-2002	100.0				No Retirements					
1999-2003	97.8	194.1	SQ *	0.66	193.5	S6 *	0.54	65.5	S4 *	0.54
2000-2004	98.6	194.1	SQ *	0.88	193.6	S6 *	0.93	60.7	R4 *	0.96
2001-2005	92.8	182.3	R4 *	1.68	183.5	R4 *	0.99	183.4	R4 *	0.96
2002-2006	88.5	175.9	R2.5 *	1.72	176.0	R2.5 *	1.10	174.9	R2 *	1.11
2003-2007	81.7	160.1	R1 *	3.84	157.8	R0.5 *	2.64	51.5	R2 *	2.74
2004-2008	69.5	38.4	L1.5 *	5.47	36.3	S0.5	4.73	36.2	S0.5	4.72
2005-2009	48.9	26.4	O2	10.95	48.7	O4 *	11.57	74.6	O4 *	10.37
2006-2010	34.8	27.2	O2	6.63	62.4	O4 *	7.02	72.5	O4 *	5.96
2007-2011	26.9	26.2	O2	6.29	58.7	O4 *	5.91	63.2	O4 *	5.46
2008-2012	26.6	26.4	L0	5.86	54.6	O4 *	7.17	60.4	O4 *	6.38
2009-2013	35.5	33.2	O3	6.28	74.7	O4 *	5.20	76.0	O4 *	5.09

Schedule B2

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 230CONS 230kV Conventional and GIS SF6 Breakers

T-Cut: None
Placement Band: 1977-2013
Hazard Function: Proportion Retired
Weighting: Exposures

Shrinking Band Life Analysis

		First Degree			Second Degree			Third Degree		
Observation Band	Censoring	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1979-2013	53.4	42.3	L0	2.74	44.7	L0	2.69	42.2	L0	2.69
1981-2013	53.6	42.3	L0	2.73	47.3	O2 *	2.69	41.0	L0.5	2.69
1983-2013	53.5	42.3	L0	2.73	46.2	O2 *	2.69	41.3	L0.5	2.69
1985-2013	53.4	42.3	L0	2.72	45.6	O2 *	2.68	41.0	L0.5	2.68
1987-2013	53.6	42.3	L0	2.76	45.0	L0	2.71	42.6	L0	2.71
1989-2013	53.6	42.3	L0	2.78	45.6	O2 *	2.73	41.0	L0.5	2.73
1991-2013	53.3	42.2	L0	2.79	44.8	O2	2.73	40.8	L0.5	2.73
1993-2013	53.3	42.3	L0	2.84	43.3	L0	2.76	41.8	L0	2.76
1995-2013	53.4	43.0	L0	2.81	40.4	L0.5	2.82	99.6	O4 *	2.82
1997-2013	52.7	42.8	L0	2.80	40.1	L0.5	2.82	97.1	O4 *	2.83
1999-2013	49.4	41.8	L0	3.50	40.3	L0	3.65	96.9	O4 *	3.71
2001-2013	47.5	39.6	O2	3.26	59.0	O4 *	3.10	98.5	O4 *	3.14
2003-2013	45.9	36.7	O2	3.22	80.0	O4 *	3.15	95.3	O4 *	3.06
2005-2013	44.2	33.2	O2	4.10	77.7	O4 *	5.17	86.4	O4 *	4.93
2007-2013	29.3	29.7	O2	5.68	67.1	O4 *	5.06	72.9	O4 *	4.54
2009-2013	35.5	33.2	O3	6.28	74.7	O4 *	5.20	76.0	O4 *	5.09
2011-2013	53.0	41.4	L0	4.69	86.4	O4 *	4.60	34.6	R0.5	4.08
2013-2013	31.2	53.8	O3	7.70	37.7	SC	8.34	35.8	R0.5	8.53

Schedule B3

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 230CONS 230kV Conventional and GIS SF6 Breakers

T-Cut: None

Placement Band: 1977-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Progressing Band Life Analysis

Observation Band	Censoring	First Degree Average Life	First Degree Disper-sion	First Degree Conf. Index	Second Degree Average Life	Second Degree Disper-sion	Second Degree Conf. Index	Third Degree Average Life	Third Degree Disper-sion	Third Degree Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1979-1980	87.5	5.1	L2 *	5.31	174.4	R2 *	0.00	174.4	R2 *	0.00
1979-1982	94.1	178.2	R3 *	1.99	186.4	R4 *	0.92	6.5	R5 *	1.58
1979-1984	96.2	186.9	R4 *	2.08	188.9	R5 *	1.08	9.6	R4 *	1.52
1979-1986	90.1	27.0	L0.5	1.62	14.0	R2.5	2.27	13.0	R3	2.35
1979-1988	92.3	172.3	R2 *	1.74	178.1	R3 *	1.31	181.2	R4 *	1.30
1979-1990	94.5	175.2	R2.5 *	1.38	185.9	R4 *	1.21	185.9	R4 *	1.20
1979-1992	88.2	41.0	L1	1.26	29.8	S1	1.29	170.4	R1.5 *	1.25
1979-1994	79.6	30.5	L1	2.53	145.7	SC *	4.86	144.4	SC *	5.00
1979-1996	78.1	36.5	L1	2.78	152.0	SC *	3.56	153.1	SC *	2.86
1979-1998	78.7	43.4	L0.5	3.42	157.4	R0.5 *	2.68	158.4	R1 *	2.03
1979-2000	81.4	57.6	L0.5	3.40	164.0	R1 *	2.32	164.3	R1 *	1.95
1979-2002	85.4	77.9	L0	2.29	168.8	R1.5 *	1.76	169.0	R1.5 *	1.44
1979-2004	85.5	106.9	SC	2.52	170.9	R1.5 *	1.43	171.0	R1.5 *	1.39
1979-2006	85.8	131.3	SC	2.16	169.2	R1.5 *	1.49	169.1	R1.5 *	1.47
1979-2008	70.2	46.6	L1	2.98	41.1	S0.5	2.99	33.9	R2.5 *	2.64
1979-2010	60.9	42.5	L0	3.36	41.3	L0.5	3.24	86.4	O4 *	3.24
1979-2012	55.0	41.8	L0.5	2.87	44.3	L0	2.83	41.8	L0.5	2.82
1979-2013	53.4	42.3	L0	2.74	44.7	L0	2.69	42.2	L0	2.69

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 230CONS 230kV Conventional and GIS SF6 Breakers

T-Cut: None

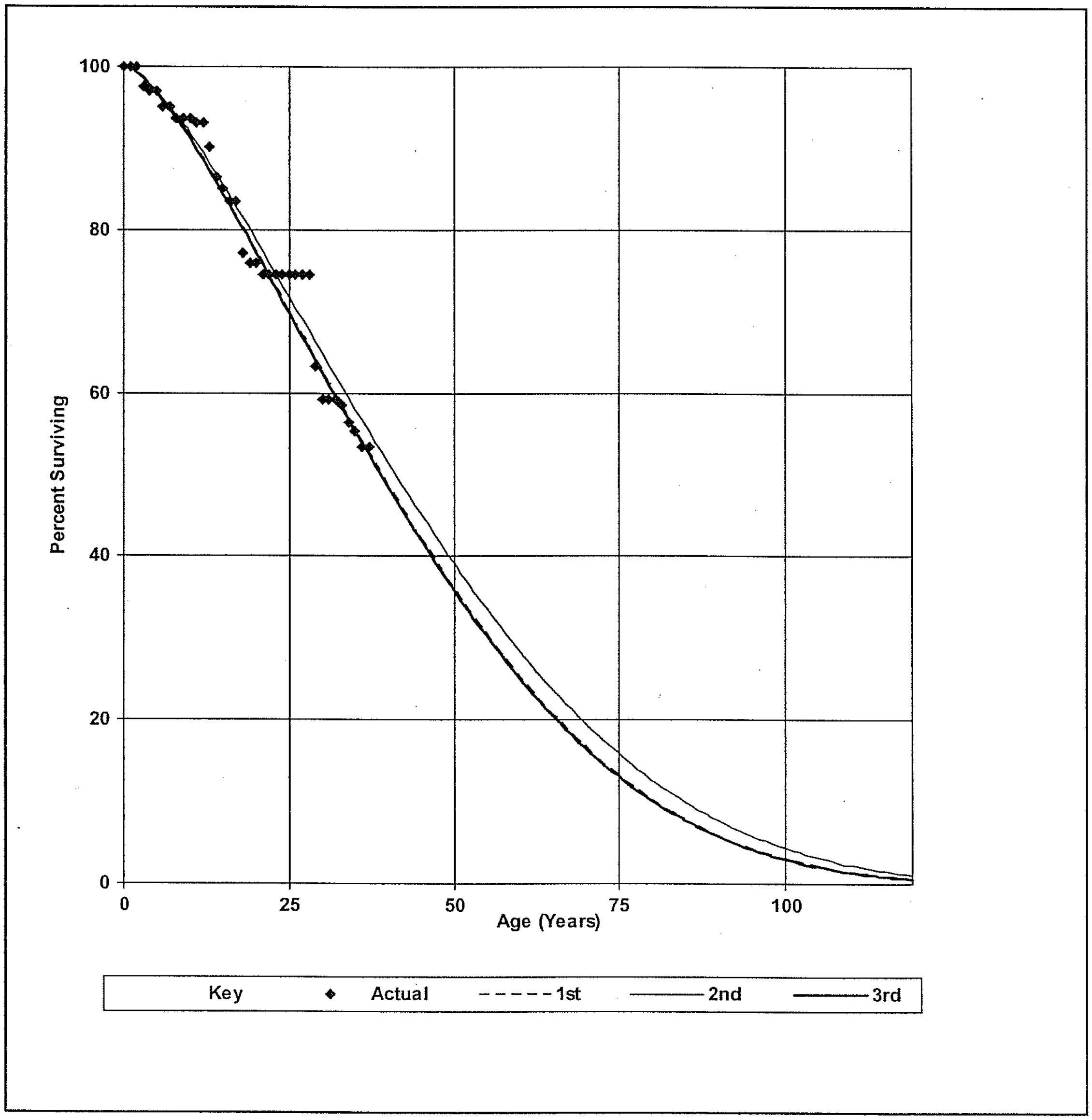
Placement Band: 1977-2013 Observation Band: 1979-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Graphics Analysis

1st: 42.3-L0 2nd: 44.7-L0 3rd: 42.2-L0



Schedule D

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 230CONS 230kV Conventional and GIS SF6 Breakers

T-Cut: None

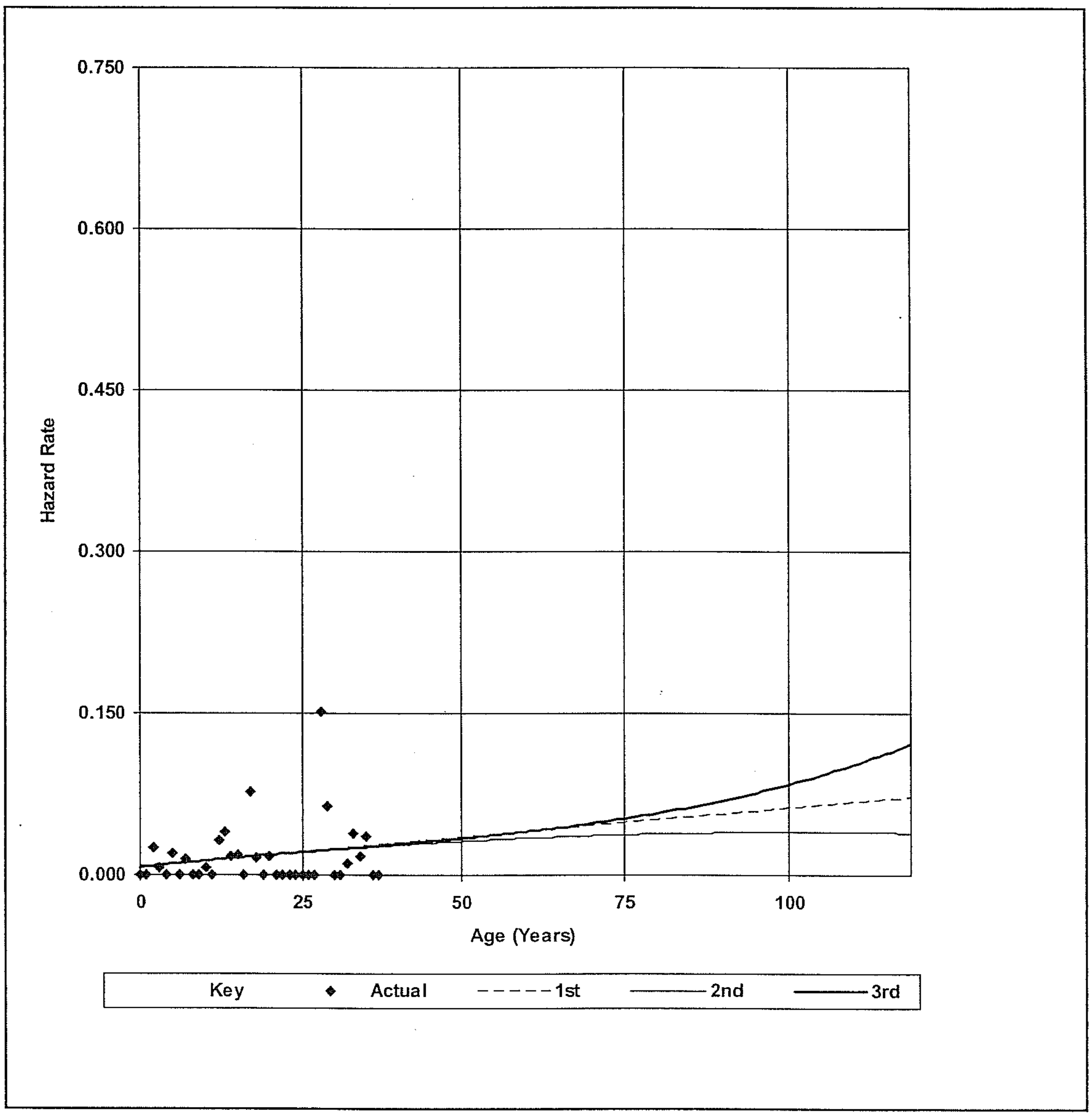
Placement Band: 1977-2013 Observation Band: 1979-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Polynomial Hazard Function

1st: 42.3-L0 2nd: 44.7-L0 3rd: 42.2-L0



Schedule E

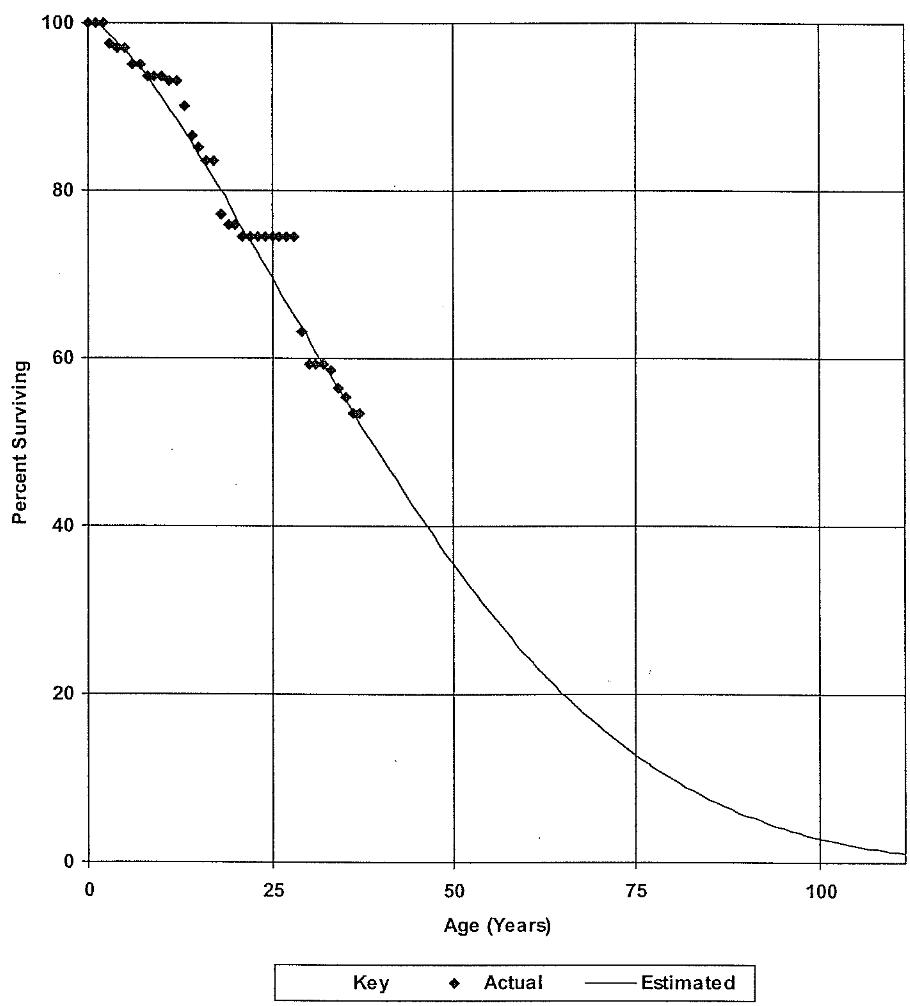
HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 230CONS 230kV Conventional and GIS SF6 Breakers

T-Cut: None
Placement Band: 1977-2013
Observation Band: 1979-2013
42.0-L0

Estimated Projection Life Curve



HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 500BRKX 500kV Breakers

Placement Band: 1968 - 2012
Observation Band: 1987 - 2013

Observed Life Table

Age at Beginning of Interval	Exposures	Retirements	Conditional Proportion Retired	Conditional Proportion Surviving	Cumulative Proportion Surviving
A	B	C	D=C/B	E=1-D	F
0.0	75	0	0.00000	1.00000	1.00000
0.5	90	1	0.01111	0.98889	1.00000
1.5	88	0	0.00000	1.00000	0.98889
2.5	88	1	0.01136	0.98864	0.98889
3.5	96	0	0.00000	1.00000	0.97765
4.5	58	1	0.01724	0.98276	0.97765
5.5	41	0	0.00000	1.00000	0.96080
6.5	49	1	0.02041	0.97959	0.96080
7.5	73	0	0.00000	1.00000	0.94119
8.5	93	2	0.02151	0.97849	0.94119
9.5	100	1	0.01000	0.99000	0.92095
10.5	99	2	0.02020	0.97980	0.91174
11.5	97	0	0.00000	1.00000	0.89332
12.5	97	0	0.00000	1.00000	0.89332
13.5	158	7	0.04430	0.95570	0.89332
14.5	161	1	0.00621	0.99379	0.85374
15.5	176	6	0.03409	0.96591	0.84844
16.5	224	13	0.05804	0.94196	0.81951
17.5	208	0	0.00000	1.00000	0.77195
18.5	211	0	0.00000	1.00000	0.77195
19.5	211	0	0.00000	1.00000	0.77195
20.5	193	0	0.00000	1.00000	0.77195
21.5	191	0	0.00000	1.00000	0.77195
22.5	190	4	0.02105	0.97895	0.77195
23.5	184	0	0.00000	1.00000	0.75570
24.5	184	0	0.00000	1.00000	0.75570
25.5	174	0	0.00000	1.00000	0.75570
26.5	174	0	0.00000	1.00000	0.75570
27.5	174	0	0.00000	1.00000	0.75570
28.5	153	0	0.00000	1.00000	0.75570
29.5	153	13	0.08497	0.91503	0.75570
30.5	140	0	0.00000	1.00000	0.69149
31.5	140	9	0.06429	0.93571	0.69149
32.5	131	4	0.03053	0.96947	0.64704
33.5	105	0	0.00000	1.00000	0.62728
34.5	89	0	0.00000	1.00000	0.62728
35.5	81	1	0.01235	0.98765	0.62728

Schedule A

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 500BRKX 500kV Breakers

Placement Band: 1968 - 2012
Observation Band: 1987 - 2013

Observed Life Table

Age at Beginning of Interval	Exposures	Retirements	Conditional Proportion Retired	Conditional Proportion Surviving	Cumulative Proportion Surviving
A	B	C	D=C/B	E=1-D	F
36.5	38	0	0.00000	1.00000	0.61954
37.5	38	2	0.05263	0.94737	0.61954
38.5	36	3	0.08333	0.91667	0.58693
39.5	33	0	0.00000	1.00000	0.53802
40.5	10	3	0.30000	0.70000	0.53802
41.5	0	0	0.00000	1.00000	0.37661

Schedule B1

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 500BRKX 500kV Breakers

T-Cut: None
Placement Band: 1968-2012
Hazard Function: Proportion Retired
Weighting: Exposures

Rolling Band Life Analysis

Observation Band	Censoring	First Degree Average Life	First Degree Disper-sion	First Degree Conf. Index	Second Degree Average Life	Second Degree Disper-sion	Second Degree Conf. Index	Third Degree Average Life	Third Degree Disper-sion	Third Degree Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1987-1991	90.1	143.9	SC*	16.71	172.3	R2 *	3.03	26.9	R4 *	1.95
1988-1992	64.0	139.5	SC*	7.77	148.8	SC *	8.76	28.0	R2 *	11.36
1989-1993	62.5	123.4	SC*	7.51	127.8	SC *	6.31	23.3	R0.5 *	4.97
1990-1994	34.9	18.2	O3	11.22	74.3	O4 *	4.55	78.2	O4 *	5.65
1991-1995	52.6	23.7	O3	15.10	89.0	O4 *	9.60	92.1	O4 *	7.94
1992-1996	53.8	24.6	O2	11.10	96.3	O4 *	7.08	58.0	O4 *	7.57
1993-1997	61.8	28.6	O3	14.38	105.4	O4 *	10.23	78.5	O4 *	10.67
1994-1998	60.2	33.1	O3	12.74	113.5	O3 *	7.51	55.3	SC *	8.37
1995-1999	92.1	70.9	L2*	1.58	49.6	S2 *	1.68	180.7	R3 *	1.81
1996-2000	96.2	76.3	L1.5*	1.68	59.4	S1.5 *	1.70	184.5	R4 *	2.61
1997-2001	100.0				No Retirements					
1998-2002	100.0				No Retirements					
1999-2003	97.0	189.5	R5*	2.10	192.4	SQ *	0.71	51.1	R4 *	1.12
2000-2004	97.0	188.0	R5*	2.70	191.0	R5 *	1.17	51.0	R4 *	1.27
2001-2005	92.9	186.4	R4*	2.20	189.2	R5 *	2.15	53.2	R4 *	2.22
2002-2006	31.1	77.7	L2*	10.08	35.3	R1 *	19.91	37.1	R4 *	8.86
2003-2007	0.0	67.4	S1.5*	16.52	30.5	SC *	28.65	36.0	R4 *	12.56
2004-2008	0.0	66.2	L3*	16.61	34.0	R0.5 *	27.27	38.4	R4 *	13.81
2005-2009	0.0	51.9	L2*	13.74	32.7	R0.5 *	20.13	32.1	R1 *	19.35
2006-2010	0.0	41.6	L2*	13.27	38.8	R3 *	10.29	77.7	O4 *	10.45
2007-2011	65.6	41.0	L1.5*	14.16	40.3	L1.5	13.78	125.6	SC *	8.00
2008-2012	60.5	37.4	L0.5	16.88	40.3	L0.5 *	17.49	114.5	O3 *	7.73
2009-2013	36.9	34.9	L0.5	14.14	35.4	L0.5	14.63	98.0	O4 *	5.65

Schedule B2

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 500BRKX 500kV Breakers

T-Cut: None

Placement Band: 1968-2012

Hazard Function: Proportion Retired

Weighting: Exposures

Shrinking Band Life Analysis

		First Degree			Second Degree			Third Degree		
Observation Band	Censoring	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1987-2013	37.7	48.2	L0	3.46	38.6	R0.5	3.77	34.8	R1 *	3.01
1989-2013	37.1	48.0	L0	3.58	38.5	R0.5	3.64	34.4	R1 *	3.05
1991-2013	37.1	47.8	L0	3.59	38.7	R0.5	3.70	34.3	R1 *	3.51
1993-2013	38.0	47.6	L0.5	3.54	39.0	R0.5	4.27	34.3	R1 *	4.91
1995-2013	46.6	52.1	L2 *	3.96	43.1	R3 *	2.83	42.0	R3	2.76
1997-2013	46.7	52.5	L2 *	4.12	42.9	R3 *	2.86	41.9	R3	2.73
1999-2013	46.3	51.7	L2 *	4.12	42.6	R3 *	2.92	41.5	R3	2.89
2001-2013	45.6	50.4	L2 *	4.19	42.4	R3 *	2.90	40.9	R3	3.05
2003-2013	44.6	48.3	L2 *	4.62	42.0	R2.5	2.94	40.3	R2.5	3.50
2005-2013	43.8	45.5	L1.5 *	6.69	41.4	R2.5	3.34	41.1	R2.5	3.50
2007-2013	44.4	41.6	L1 *	10.85	39.4	R1.5	8.21	89.9	O4 *	4.81
2009-2013	36.9	34.9	L0.5	14.14	35.4	L0.5	14.63	98.0	O4 *	5.65
2011-2013	41.0	48.0	L1	7.34	44.7	R2.5 *	15.12	32.4	R0.5 *	10.27
2013-2013	51.3	43.7	L2 *	9.30	42.0	R3 *	11.91	24.0	L0 *	32.11

Schedule B3

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 500BRKX 500kV Breakers

T-Cut: None

Placement Band: 1968-2012

Hazard Function: Proportion Retired

Weighting: Exposures

Progressing Band Life Analysis

Observation Band	Censoring	First Degree Average Life	First Degree Disper-sion	First Degree Conf. Index	Second Degree Average Life	Second Degree Disper-sion	Second Degree Conf. Index	Third Degree Average Life	Third Degree Disper-sion	Third Degree Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1987-1988	90.9	165.9	R1 *	8.33	184.5	R4 *	2.03	24.0	R4 *	1.56
1987-1990	91.9	145.3	SC *	17.30	173.3	R2 *	3.85	25.3	R4 *	2.96
1987-1992	78.8	140.9	SC *	9.90	151.9	SC *	4.58	28.5	R2.5 *	2.34
1987-1994	53.2	23.1	O2	9.42	104.2	O4 *	3.93	107.6	O4 *	4.58
1987-1996	60.5	29.7	O2	8.11	117.9	SC *	3.02	118.3	SC *	2.96
1987-1998	65.0	49.9	O3	8.40	132.2	SC *	2.01	53.6	SC *	2.36
1987-2000	70.8	108.5	O4 *	9.41	139.8	SC *	2.34	41.4	R1 *	2.93
1987-2002	73.9	125.8	SC *	9.79	144.2	SC *	2.60	39.3	R1 *	3.04
1987-2004	74.8	130.8	SC *	9.99	145.0	SC *	3.00	38.7	R1 *	2.92
1987-2006	25.1	132.9	SC *	10.28	140.7	SC *	8.72	33.1	R1.5 *	7.16
1987-2008	0.0	135.6	SC *	14.26	138.9	SC *	13.99	33.9	R1.5 *	10.50
1987-2010	0.0	49.4	L0	9.21	37.2	R0.5	9.41	33.4	R1.5 *	8.05
1987-2012	53.9	49.7	L0	2.41	39.4	R0.5	3.21	35.0	R1	2.82
1987-2013	37.7	48.2	L0	3.46	38.6	R0.5	3.77	34.8	R1 *	3.01

Schedule C

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 500BRKX 500kV Breakers

T-Cut: None

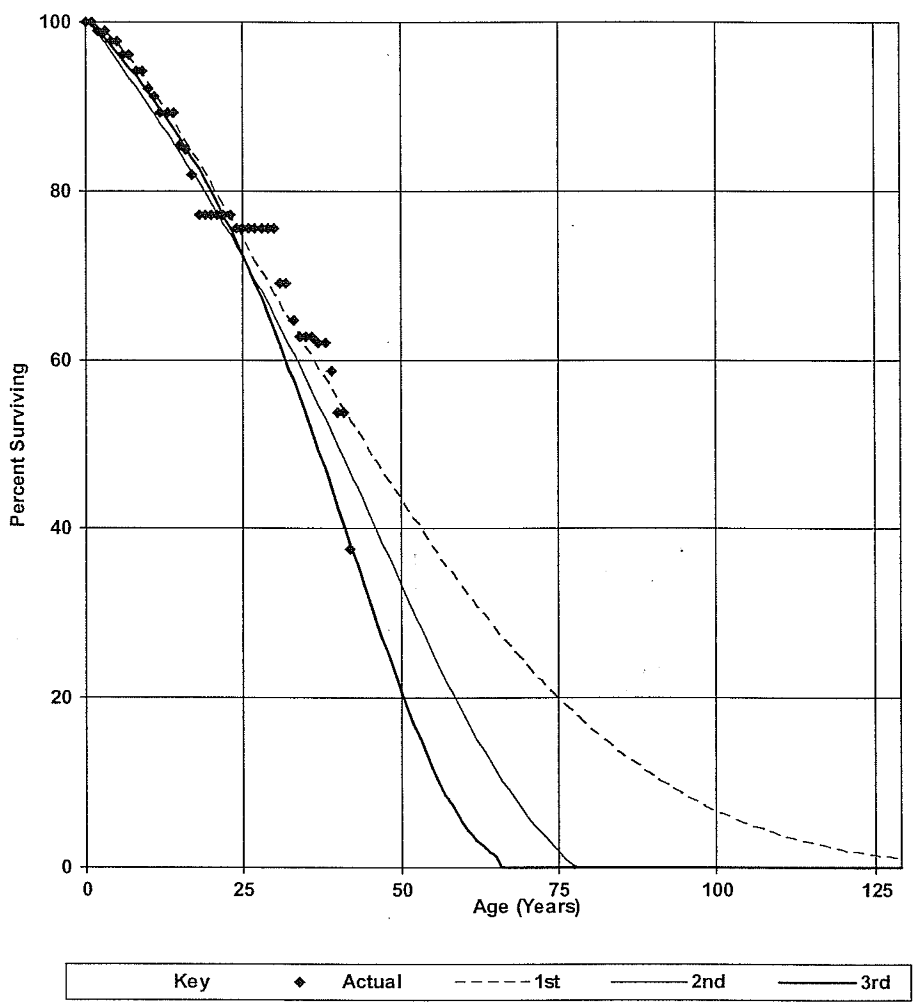
Placement Band: 1968-2012 Observation Band: 1987-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Graphics Analysis

1st: 48.2-L0 2nd: 38.6-R0.5 3rd: 34.8-R1



Schedule D

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 500BRKX 500kV Breakers

T-Cut: None

Placement Band: 1968-2012 Observation Band: 1987-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Polynomial Hazard Function

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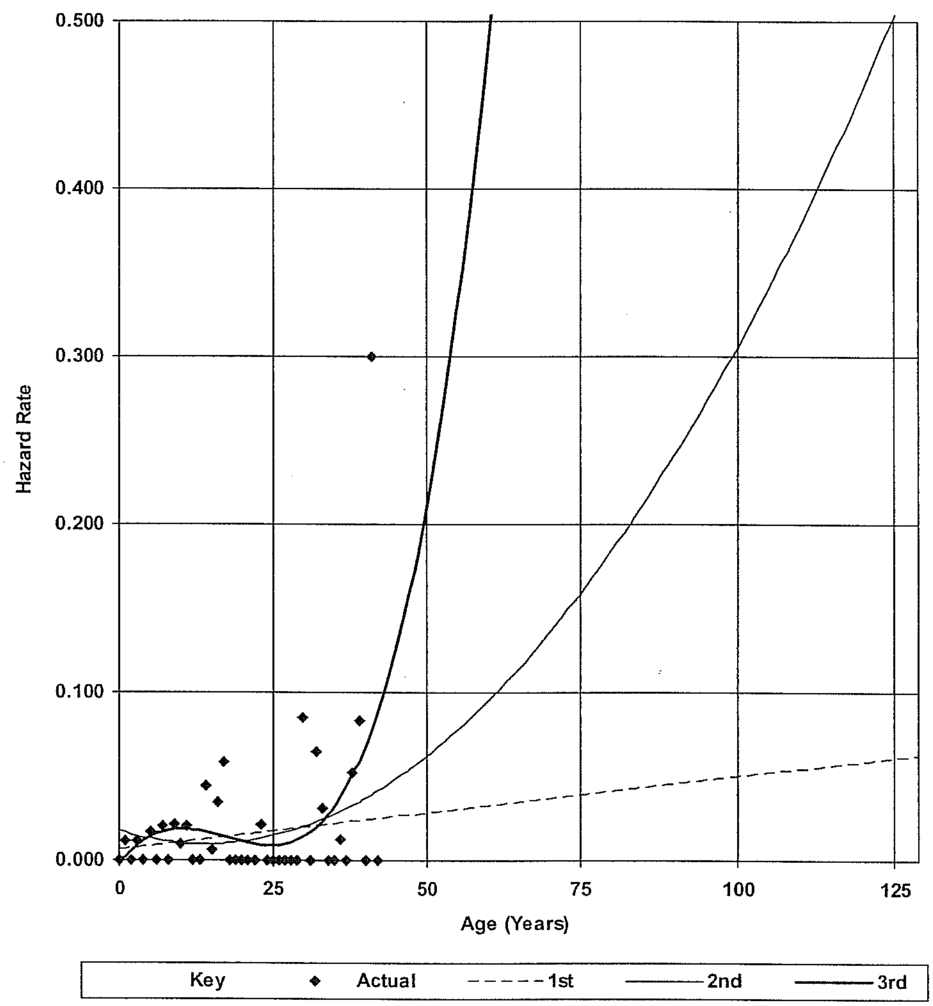


Schedule E

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 500BRKX 500kV Breakers

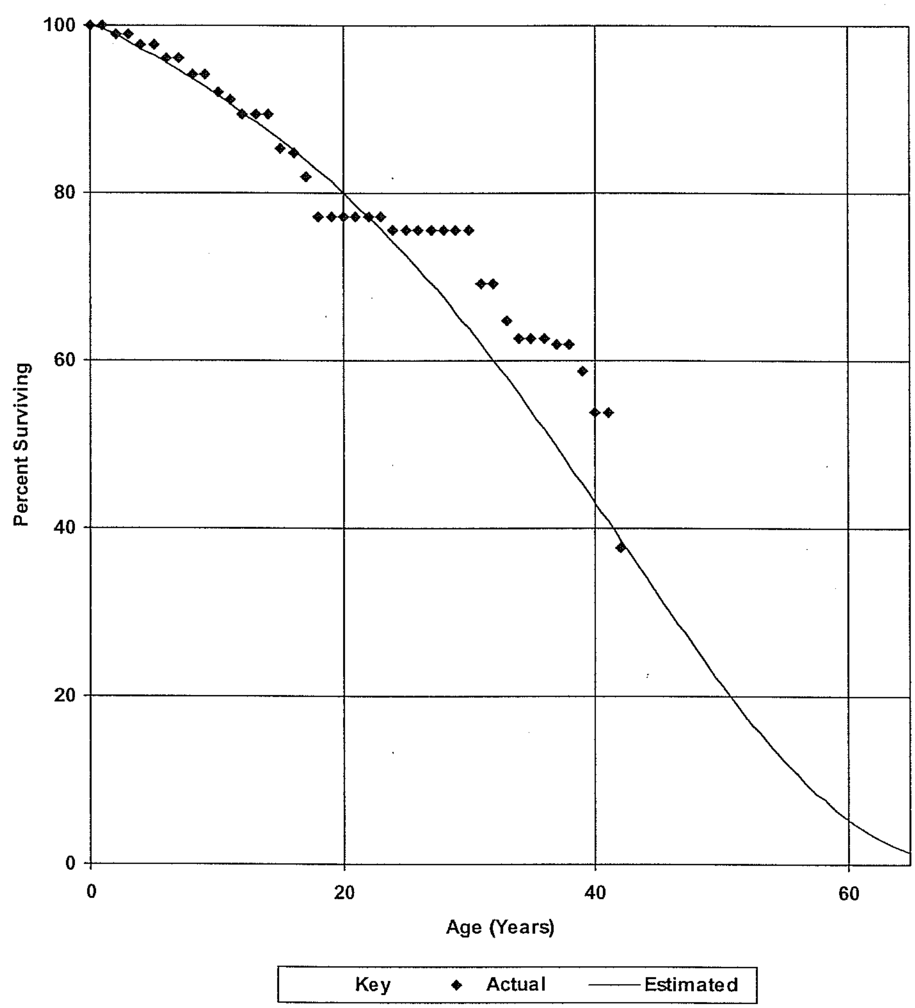
T-Cut: None

Placement Band: 1968-2012

Observation Band: 1987-2013

Estimated Projection Life Curve

35.0-R1



Schedule A

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 500CONA 500kV Conventional Air Breakers

Placement Band: 1968 - 1979
Observation Band: 1987 - 2013

Observed Life Table

Age at Beginning of Interval	Exposures	Retirements	Conditional Proportion Retired	Conditional Proportion Surviving	Cumulative Proportion Surviving
A	B	C	D=C/B	E=1-D	F
0.0	0	0	0.00000	1.00000	1.00000
0.5	0	0	0.00000	1.00000	1.00000
1.5	0	0	0.00000	1.00000	1.00000
2.5	0	0	0.00000	1.00000	1.00000
3.5	0	0	0.00000	1.00000	1.00000
4.5	0	0	0.00000	1.00000	1.00000
5.5	0	0	0.00000	1.00000	1.00000
6.5	0	0	0.00000	1.00000	1.00000
7.5	25	0	0.00000	1.00000	1.00000
8.5	25	0	0.00000	1.00000	1.00000
9.5	36	1	0.02778	0.97222	1.00000
10.5	35	2	0.05714	0.94286	0.97222
11.5	33	0	0.00000	1.00000	0.91667
12.5	33	0	0.00000	1.00000	0.91667
13.5	61	1	0.01639	0.98361	0.91667
14.5	70	0	0.00000	1.00000	0.90164
15.5	70	0	0.00000	1.00000	0.90164
16.5	70	0	0.00000	1.00000	0.90164
17.5	70	0	0.00000	1.00000	0.90164
18.5	73	0	0.00000	1.00000	0.90164
19.5	73	0	0.00000	1.00000	0.90164
20.5	73	0	0.00000	1.00000	0.90164
21.5	73	0	0.00000	1.00000	0.90164
22.5	73	3	0.04110	0.95890	0.90164
23.5	70	0	0.00000	1.00000	0.86459
24.5	70	0	0.00000	1.00000	0.86459
25.5	70	0	0.00000	1.00000	0.86459
26.5	70	0	0.00000	1.00000	0.86459
27.5	70	0	0.00000	1.00000	0.86459
28.5	70	0	0.00000	1.00000	0.86459
29.5	70	4	0.05714	0.94286	0.86459
30.5	66	0	0.00000	1.00000	0.81518
31.5	66	1	0.01515	0.98485	0.81518
32.5	65	4	0.06154	0.93846	0.80283
33.5	61	0	0.00000	1.00000	0.75342
34.5	45	0	0.00000	1.00000	0.75342
35.5	45	1	0.02222	0.97778	0.75342

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 500CONA 500kV Conventional Air Breakers

Placement Band: 1968 - 1979
Observation Band: 1987 - 2013

Observed Life Table

Age at Beginning of Interval	Exposures	Retirements	Conditional Proportion Retired	Conditional Proportion Surviving	Cumulative Proportion Surviving
A	B	C	D=C/B	E=1-D	F
36.5	38	0	0.00000	1.00000	0.73668
37.5	38	2	0.05263	0.94737	0.73668
38.5	36	3	0.08333	0.91667	0.69791
39.5	33	0	0.00000	1.00000	0.63975
40.5	10	3	0.30000	0.70000	0.63975
41.5	0	0	0.00000	1.00000	0.44783

Schedule B1

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 500CONA 500kV Conventional Air Breakers

T-Cut: None
Placement Band: 1968-1979
Hazard Function: Proportion Retired
Weighting: Exposures

Rolling Band Life Analysis

Observation Band	Censoring	First Degree Average Life	First Degree Disper-sion	First Degree Conf. Index	Second Degree Average Life	Second Degree Disper-sion	Second Degree Conf. Index	Third Degree Average Life	Third Degree Disper-sion	Third Degree Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1987-1991	89.3	136.8	SC*	19.38	165.5	R1 *	5.41	26.4	R4 *	1.92
1988-1992	84.9	140.5	SC*	16.59	153.6	R0.5 *	10.29	28.6	R4 *	3.11
1989-1993	89.2	124.1	SC*	25.15	22.4	O3 *	38.24	25.3	R0.5 *	20.61
1990-1994	89.2	106.2	O4*	32.96	9.4	O4 *	65.25	2.2	O4 *	88.88
1991-1995	97.0	163.3	R1*	13.17	46.1	R0.5 *	19.31	36.1	R5 *	1.19
1992-1996	92.1	39.7	L3*	3.31	33.7	R3 *	6.16	1.7	O4 *	93.99
1993-1997	92.1	43.1	L3*	2.69	160.6	R1 *	2.50	2.2	O4 *	93.47
1994-1998	92.1	47.9	L3*	2.29	179.1	R3 *	1.83	20.4	O4 *	82.19
1995-1999	92.1	55.9	L2*	2.49	180.5	R3 *	1.62	180.5	R3 *	1.60
1996-2000	91.9	80.8	O2	10.02	180.6	R3 *	1.46	41.0	R5 *	1.76
1997-2001	100.0				No Retirements					
1998-2002	100.0				No Retirements					
1999-2003	100.0				No Retirements					
2000-2004	100.0				No Retirements					
2001-2005	100.0				No Retirements					
2002-2006	33.3	46.6	L4*	8.52	0.4	S3 *	97.09	37.2	S6 *	9.08
2003-2007	0.0	44.2	S4*	13.52	0.3	SC *	96.41	36.9	S6 *	9.66
2004-2008	0.0	45.5	S4*	14.10	0.3	SC *	96.41	37.3	S6 *	8.06
2005-2009	0.0	46.7	L4*	13.58	0.3	S1 *	93.69	36.9	R5 *	6.62
2006-2010	0.0	46.9	L3*	10.92	0.7	O2	92.78	37.6	R5 *	7.75
2007-2011	59.7	15.8	O4*	74.50	126.3	SC *	10.20	39.2	R5 *	4.09
2008-2012	64.0	5.0	O4*	83.36	1.3	O3	89.67	39.3	R5 *	1.64
2009-2013	43.4	5.2	O4*	81.59	0.3	SC	91.03	36.0	S3 *	10.81

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 500CONA 500kV Conventional Air Breakers

T-Cut: None

Placement Band: 1968-1979

Hazard Function: Proportion Retired

Weighting: Exposures

Shrinking Band Life Analysis

Observation Band	Censoring	First Degree Average Life	First Degree Disper-sion	First Degree Conf. Index	Second Degree Average Life	Second Degree Disper-sion	Second Degree Conf. Index	Third Degree Average Life	Third Degree Disper-sion	Third Degree Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1987-2013	44.8	49.8	L2*	5.24	29.9	SC	23.55	37.5	R2	5.42
1989-2013	44.3	49.4	S1.5*	6.22	26.1	SC	30.87	34.4	R1	11.45
1991-2013	48.2	48.5	L3*	3.26	28.3	SC	31.68	41.6	R4 *	2.31
1993-2013	49.6	48.0	L3*	3.12	28.5	SC	33.10	41.7	R4 *	2.44
1995-2013	49.6	47.7	L3*	3.00	22.6	O3	45.51	41.3	R4 *	2.49
1997-2013	51.8	47.3	S3*	3.10	20.7	O4 *	50.95	42.3	R5 *	2.45
1999-2013	51.7	46.9	L4*	2.87	16.8	O4	59.32	41.9	R5 *	2.50
2001-2013	51.6	46.6	L4*	2.76	12.2	O4	68.94	41.3	R5 *	2.72
2003-2013	50.9	46.2	L4*	2.66	6.8	O4	80.19	40.6	R5 *	2.90
2005-2013	47.7	45.7	L4*	2.93	2.2	O3	88.60	39.9	R5 *	2.05
2007-2013	45.0	38.7	L1*	18.43	0.6	O3	91.04	39.3	R5 *	1.81
2009-2013	43.4	5.2	O4*	81.59	0.3	SC	91.03	36.0	S3 *	10.81
2011-2013	47.6	38.9	S1.5*	16.88	0.3	SC *	93.69	40.4	S6 *	2.80
2013-2013	60.0	43.1	S5*	3.76	0.3	SC *	96.49	39.9	S6 *	6.15

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 500CONA 500kV Conventional Air Breakers

T-Cut: None
Placement Band: 1968-1979
Hazard Function: Proportion Retired
Weighting: Exposures

Progressing Band Life Analysis

Observation Band	Censoring	First Degree Average Life	First Degree Disper-sion	First Degree Conf. Index	Second Degree Average Life	Second Degree Disper-sion	Second Degree Conf. Index	Third Degree Average Life	Third Degree Disper-sion	Third Degree Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1987-1988	90.9	161.0	R1 *	10.35	182.3	R4 *	1.68	23.4	R4 *	1.96
1987-1990	91.7	138.1	SC *	20.31	164.5	R1 *	7.50	25.0	R4 *	3.17
1987-1992	89.3	140.2	SC *	18.09	154.5	R0.5 *	11.02	27.9	R4 *	1.33
1987-1994	90.2	145.1	SC *	16.44	60.4	R0.5 *	17.63	30.5	R4 *	1.81
1987-1996	83.6	80.8	O2	5.52	23.1	SC	27.63	25.8	R1	16.12
1987-1998	83.6	151.8	SC *	7.10	30.3	SC	19.70	104.5	O4 *	27.03
1987-2000	84.8	155.4	R0.5 *	8.12	37.6	SC	15.85	115.6	SC *	27.50
1987-2002	86.5	155.9	R0.5 *	8.87	44.8	R0.5	14.27	121.5	SC *	25.56
1987-2004	86.5	156.2	R0.5 *	8.85	50.9	R0.5	13.19	127.5	SC *	22.79
1987-2006	28.8	112.7	SC	8.61	28.7	SC *	28.49	36.6	R4 *	7.04
1987-2008	0.0	88.9	L0	14.81	28.6	SC *	29.72	37.4	R4 *	10.75
1987-2010	0.0	60.4	L1.5 *	11.93	32.5	SC	22.05	37.4	R2	11.53
1987-2012	65.4	54.0	L2 *	4.01	33.6	SC	18.43	33.8	SC	17.85
1987-2013	44.8	49.8	L2 *	5.24	29.9	SC	23.55	37.5	R2	5.42

Schedule C

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 500CONA 500kV Conventional Air Breakers

T-Cut: None

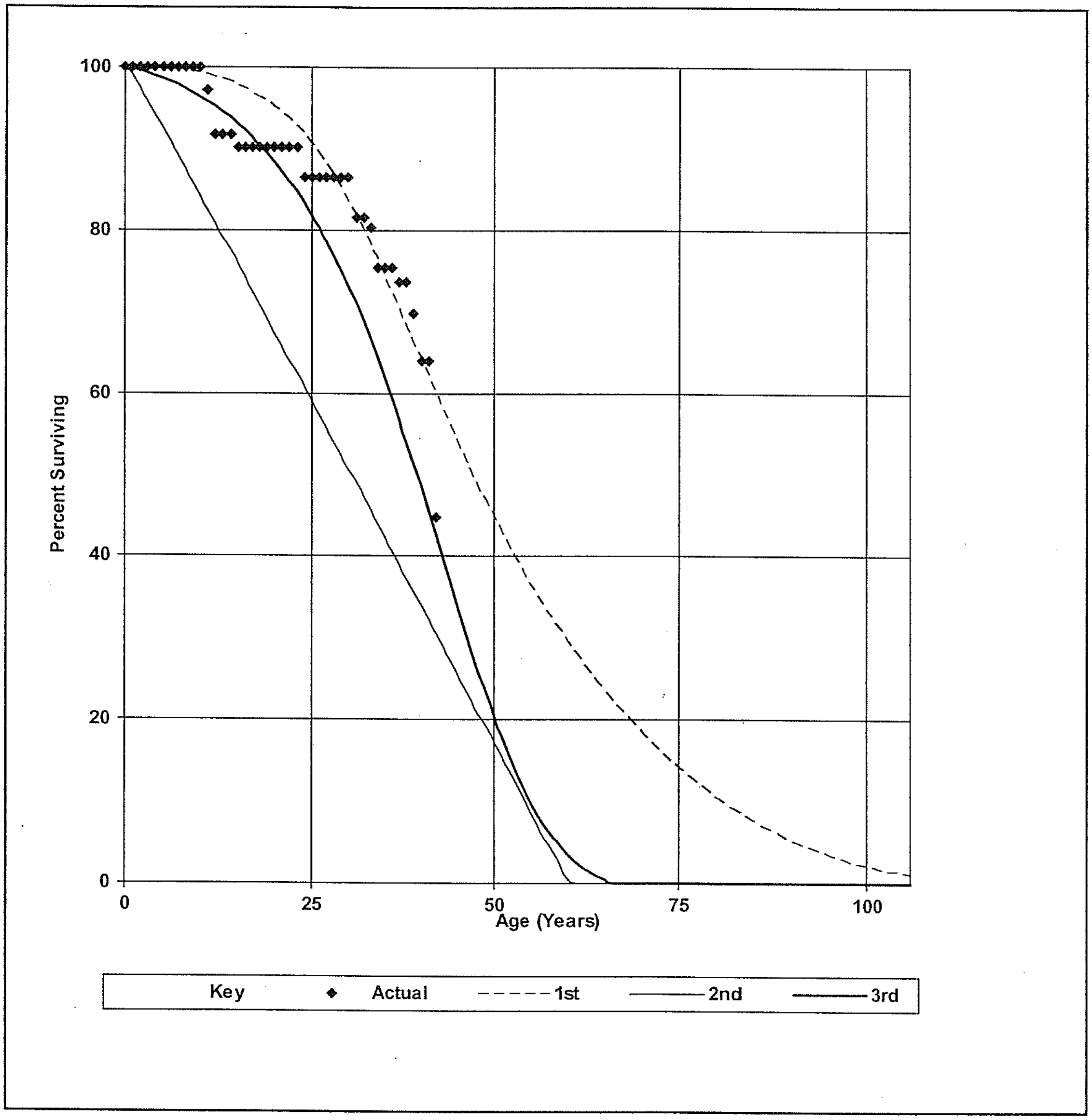
Placement Band: 1968-1979 Observation Band: 1987-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Graphics Analysis

1st: 49.8-L2 2nd: 29.9-SC 3rd: 37.5-R2



Schedule D

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 500CONA 500kV Conventional Air Breakers

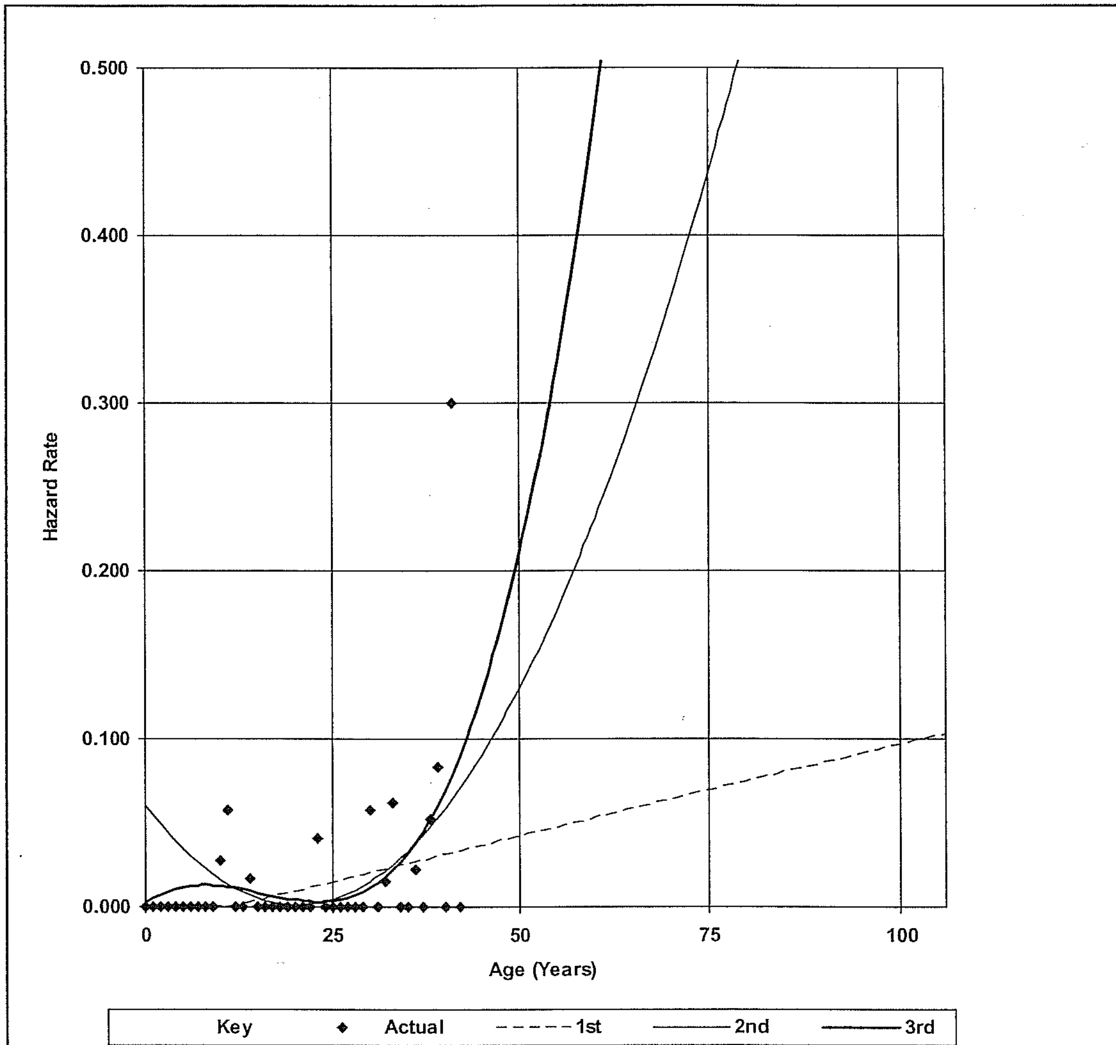
T-Cut: None

Placement Band: 1968-1979 Observation Band: 1987-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Polynomial Hazard Function 1st: 49.8-L2 2nd: 29.9-SC 3rd: 37.5-R2



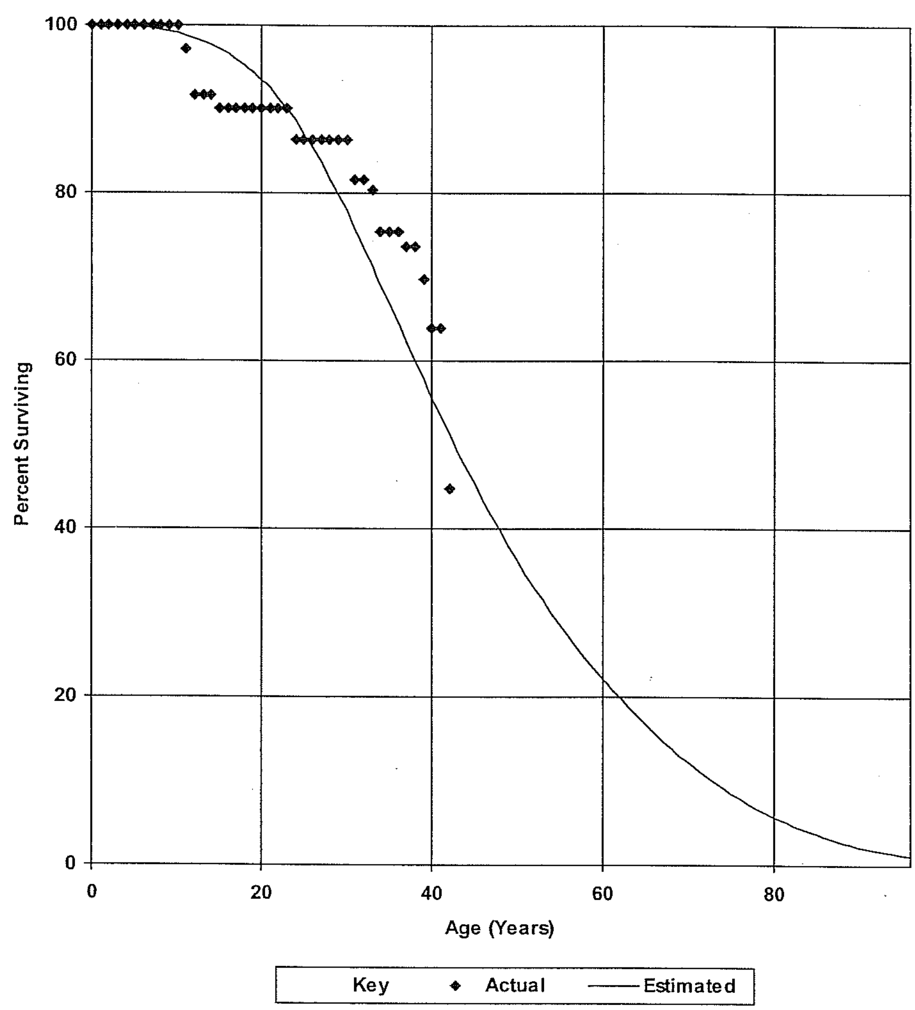
HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 500CONA 500kV Conventional Air Breakers

T-Cut: None
Placement Band: 1968-1979
Observation Band: 1987-2013
45.0-L2

Estimated Projection Life Curve



HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 500CONS 500kV Conventional and GIS SF6 Breakers

Placement Band: 1977 - 2012
Observation Band: 1992 - 2013

Observed Life Table

Age at Beginning of Interval	Exposures	Retirements	Conditional Proportion Retired	Conditional Proportion Surviving	Cumulative Proportion Surviving
A	B	C	D=C/B	E=1-D	F
0.0	75	0	0.00000	1.00000	1.00000
0.5	90	1	0.01111	0.98889	1.00000
1.5	88	0	0.00000	1.00000	0.98889
2.5	88	1	0.01136	0.98864	0.98889
3.5	96	0	0.00000	1.00000	0.97765
4.5	58	1	0.01724	0.98276	0.97765
5.5	41	0	0.00000	1.00000	0.96080
6.5	45	1	0.02222	0.97778	0.96080
7.5	44	0	0.00000	1.00000	0.93944
8.5	64	2	0.03125	0.96875	0.93944
9.5	60	0	0.00000	1.00000	0.91009
10.5	60	0	0.00000	1.00000	0.91009
11.5	60	0	0.00000	1.00000	0.91009
12.5	60	0	0.00000	1.00000	0.91009
13.5	93	6	0.06452	0.93548	0.91009
14.5	87	1	0.01149	0.98851	0.85137
15.5	102	6	0.05882	0.94118	0.84159
16.5	150	13	0.08667	0.91333	0.79208
17.5	134	0	0.00000	1.00000	0.72343
18.5	134	0	0.00000	1.00000	0.72343
19.5	134	0	0.00000	1.00000	0.72343
20.5	116	0	0.00000	1.00000	0.72343
21.5	114	0	0.00000	1.00000	0.72343
22.5	113	1	0.00885	0.99115	0.72343
23.5	110	0	0.00000	1.00000	0.71703
24.5	110	0	0.00000	1.00000	0.71703
25.5	100	0	0.00000	1.00000	0.71703
26.5	100	0	0.00000	1.00000	0.71703
27.5	100	0	0.00000	1.00000	0.71703
28.5	79	0	0.00000	1.00000	0.71703
29.5	79	9	0.11392	0.88608	0.71703
30.5	70	0	0.00000	1.00000	0.63534
31.5	70	8	0.11429	0.88571	0.63534
32.5	62	0	0.00000	1.00000	0.56273
33.5	44	0	0.00000	1.00000	0.56273
34.5	44	0	0.00000	1.00000	0.56273
35.5	36	0	0.00000	1.00000	0.56273

Schedule A

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 500CONS 500kV Conventional and GIS SF6 Breakers

Placement Band: 1977 - 2012
Observation Band: 1992 - 2013

Observed Life Table

Age at Beginning of Interval	Exposures	Retirements	Conditional Proportion Retired	Conditional Proportion Surviving	Cumulative Proportion Surviving
A	B	C	D=C/B	E=1-D	F
36.5	0	0	0.00000	1.00000	0.56273

Schedule B1

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 500CONS 500kV Conventional and GIS SF6 Breakers

T-Cut: None
Placement Band: 1977-2012
Hazard Function: Proportion Retired
Weighting: Exposures

Rolling Band Life Analysis

Observation Band	Censoring	First Degree Average Life	First Degree Disper-sion	First Degree Conf. Index	Second Degree Average Life	Second Degree Disper-sion	Second Degree Conf. Index	Third Degree Average Life	Third Degree Disper-sion	Third Degree Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1992-1996	45.9	17.3	L1	7.31	61.8	O4 *	12.55	72.0	O4 *	11.06
1993-1997	54.4	20.2	L0.5	8.83	82.4	O4 *	13.60	88.9	O4 *	10.01
1994-1998	57.6	23.3	L0.5	9.52	96.4	O4 *	12.97	103.1	O4 *	7.71
1995-1999	100.0				No Retirements					
1996-2000	100.0				No Retirements					
1997-2001	100.0				No Retirements					
1998-2002	100.0				No Retirements					
1999-2003	97.0	188.8	R5 *	2.23	190.7	R5 *	0.95	53.2	R4 *	1.14
2000-2004	97.0	187.3	R4 *	2.89	190.5	R5 *	0.97	46.5	R4 *	1.26
2001-2005	92.9	185.6	R4 *	2.61	190.2	R5 *	2.26	50.0	R4 *	2.08
2002-2006	93.3	183.7	R4 *	2.99	189.4	R5 *	1.80	51.3	R4 *	1.69
2003-2007	94.1	181.7	R4 *	3.78	187.7	R4 *	1.29	51.2	R4 *	1.16
2004-2008	100.0				No Retirements					
2005-2009	81.2	55.7	L2 *	4.82	30.2	R0.5 *	20.24	26.5	R0.5 *	24.36
2006-2010	73.6	38.7	L2 *	12.13	34.9	R3 *	7.09	31.9	R3 *	11.27
2007-2011	71.4	38.1	L2 *	13.50	37.1	S3 *	4.93	88.0	O4 *	6.12
2008-2012	62.7	37.1	L1 *	14.52	36.1	R2	8.41	118.1	SC *	7.35
2009-2013	50.5	36.3	L1	12.09	35.9	L1	11.55	110.5	O4 *	6.30

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 500CONS 500kV Conventional and GIS SF6 Breakers

T-Cut: None
Placement Band: 1977-2012
Hazard Function: Proportion Retired
Weighting: Exposures

Shrinking Band Life Analysis

Observation Band	Censoring	First Degree			Second Degree			Third Degree		
		Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1992-2013	56.3	46.7	O2	4.02	96.4	O4 *	3.60	33.1	R1 *	4.09
1994-2013	58.5	46.3	O2	4.96	99.4	O4 *	4.41	34.0	R1 *	5.19
1996-2013	73.6	55.5	L1.5 *	3.44	43.0	R3 *	2.50	91.0	O4 *	2.60
1998-2013	72.9	54.8	L1.5 *	3.46	42.8	R2.5 *	2.51	97.2	O4 *	2.56
2000-2013	72.8	53.7	L1.5 *	3.74	42.5	R2.5	2.57	104.7	O4 *	2.60
2002-2013	71.6	51.9	L1.5 *	4.03	42.1	R2.5	2.67	117.5	O3 *	2.53
2004-2013	71.8	49.7	L1.5 *	5.36	41.9	R2.5	2.91	135.1	SC *	2.53
2006-2013	71.0	45.6	L1	7.98	40.7	R2	5.03	136.0	SC *	3.57
2008-2013	60.4	39.8	L1	11.21	38.1	S0.5	9.35	123.3	SC *	5.77
2010-2013	53.6	40.1	L0.5	10.56	91.0	O4 *	15.22	113.4	O3 *	7.32
2012-2013	73.3	159.7	R1 *	7.77	152.1	SC *	6.18	39.9	R1 *	7.57

Schedule B3

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 500CONS 500kV Conventional and GIS SF6 Breakers

T-Cut: None

Placement Band: 1977-2012

Hazard Function: Proportion Retired

Weighting: Exposures

Progressing Band Life Analysis

Observation Band	Censoring	First Degree Average Life	First Degree Disper-sion	First Degree Conf. Index	Second Degree Average Life	Second Degree Disper-sion	Second Degree Conf. Index	Third Degree Average Life	Third Degree Disper-sion	Third Degree Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1992-1993	69.2	10.2	L2 *	4.47	10.2	L2 *	4.47	113.8	SC *	9.75
1992-1995	33.2	14.7	L1.5 *	11.45	24.2	O4 *	14.83	53.5	O4 *	13.88
1992-1997	51.4	19.8	L0.5	7.02	80.5	O4 *	11.65	86.5	O4 *	8.77
1992-1999	58.2	25.7	O2	8.03	101.8	O4 *	9.56	107.4	O4 *	5.76
1992-2001	63.1	35.4	O3	8.93	115.7	SC *	7.12	120.1	SC *	4.30
1992-2003	66.5	80.5	O4 *	10.16	123.6	SC *	5.91	125.1	SC *	4.91
1992-2005	68.7	112.3	O3 *	10.23	130.7	SC *	4.38	78.2	SC *	4.70
1992-2007	70.6	122.3	SC *	10.36	135.3	SC *	3.85	38.8	R0.5 *	4.82
1992-2009	60.6	97.0	O4 *	7.14	121.4	SC *	5.71	28.9	R1 *	6.40
1992-2011	54.1	41.5	L0	4.28	37.2	S-.5	4.37	29.5	R1 *	5.82
1992-2013	56.3	46.7	O2	4.02	96.4	O4 *	3.60	33.1	R1 *	4.09

Schedule C

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 500CONS 500kV Conventional and GIS SF6 Breakers

T-Cut: None

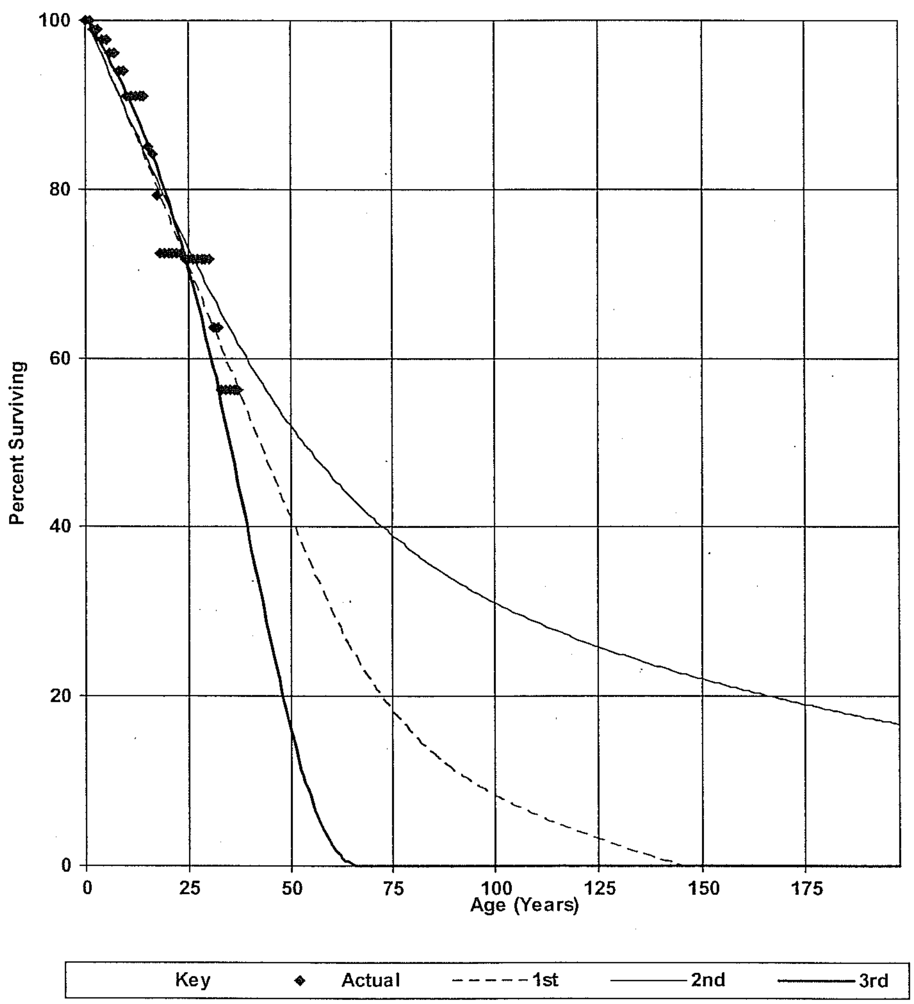
Placement Band: 1977-2012 Observation Band: 1992-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Graphics Analysis

1st: 46.7-O2 2nd: 96.4-O4 3rd: 33.1-R1



Schedule D

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 500CONS 500kV Conventional and GIS SF6 Breakers

T-Cut: None

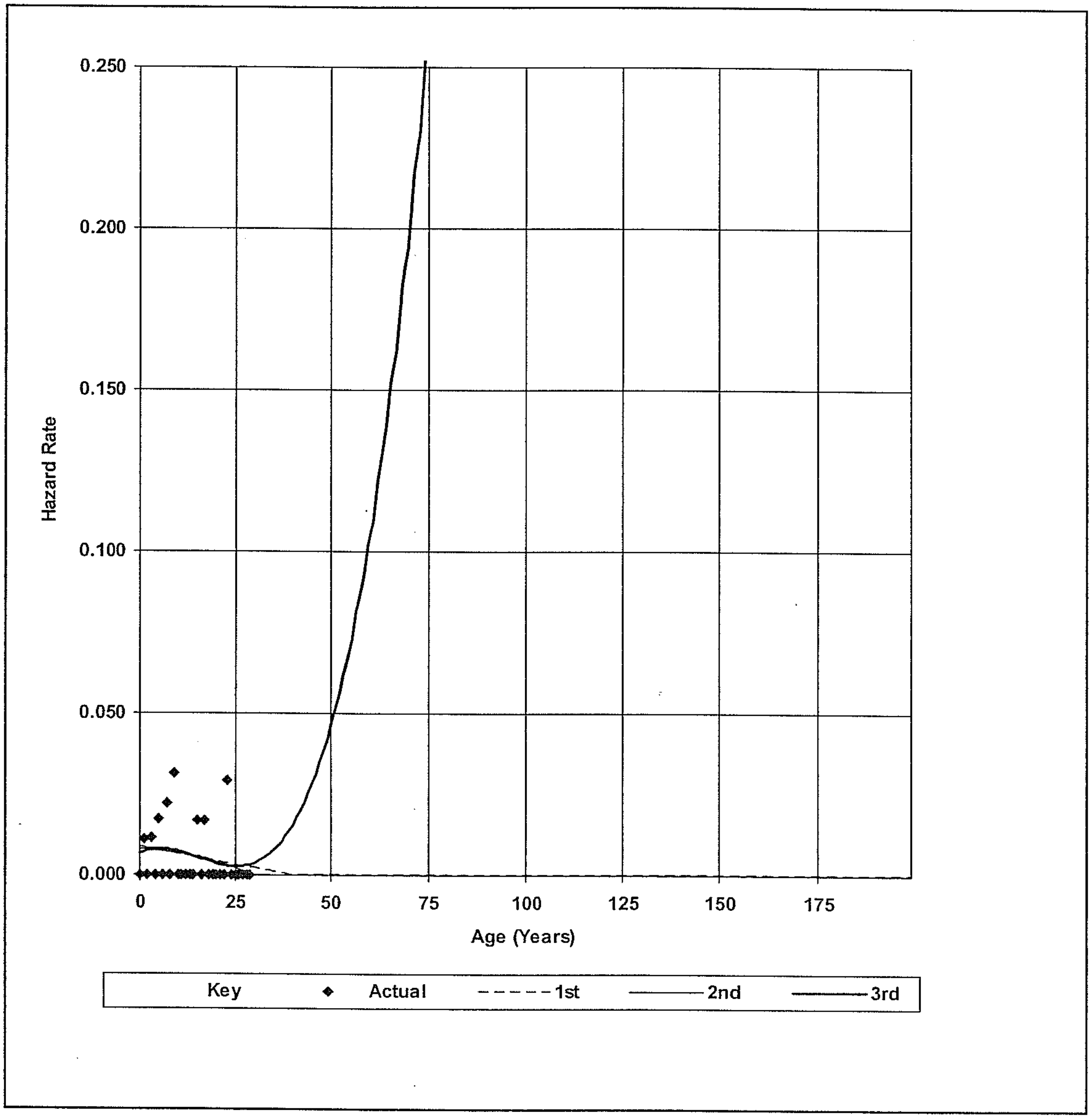
Placement Band: 1985-2012 Observation Band: 1992-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Polynomial Hazard Function

1st: 168.8-R1.5 2nd: 171.7-R2 3rd: 48.7-R2.5



Schedule E

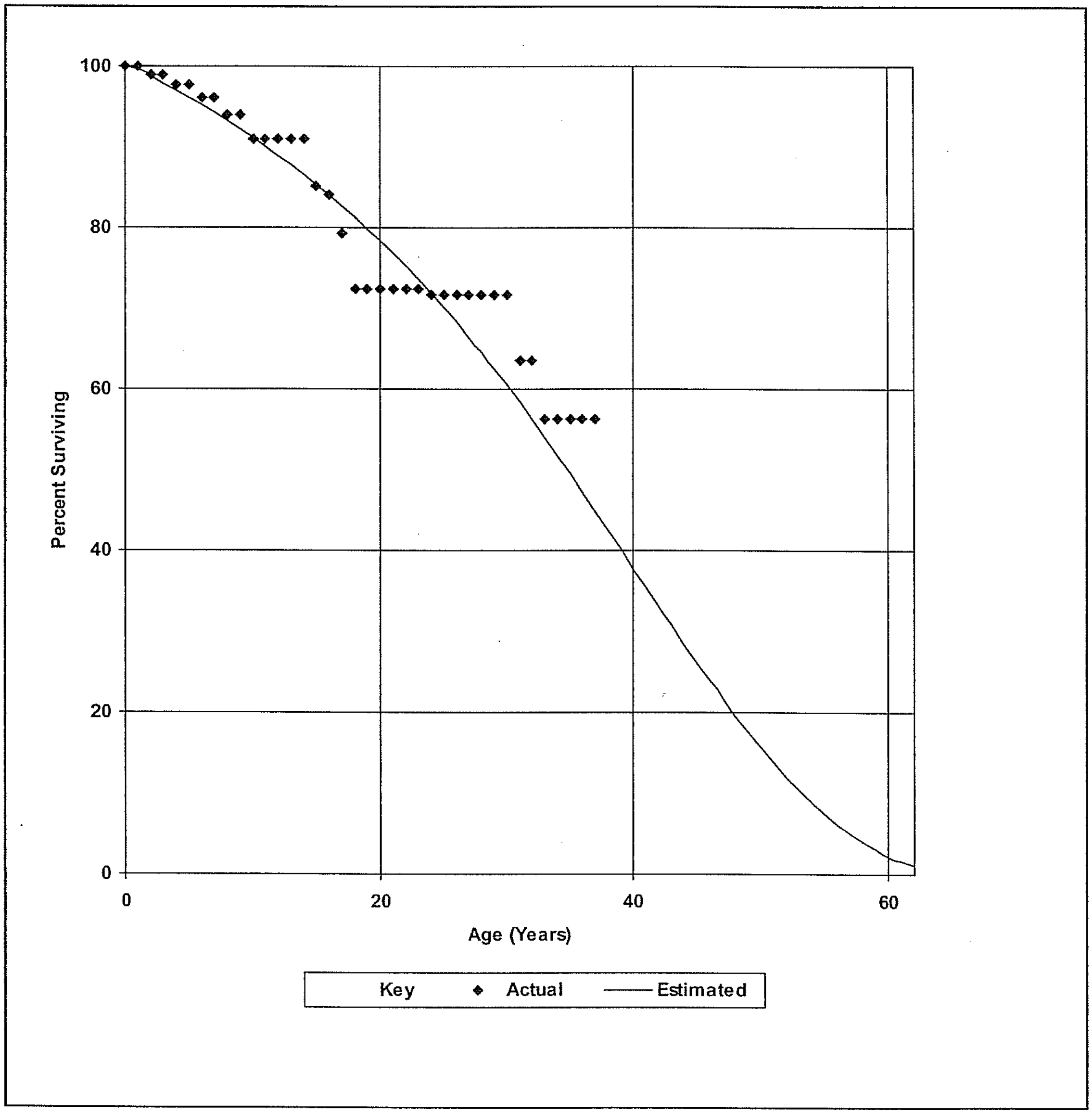
HYDRO ONE NETWORKS INC.

Transmission Stations

Account: 500CONS 500kV Conventional and GIS SF6 Breakers

T-Cut: None
Placement Band: 1977-2012
Observation Band: 1992-2013
33.0-R1

Estimated Projection Life Curve



Schedule A

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: AUTOTRN Auto Transformers

Placement Band: 1948 - 2012
Observation Band: 1983 - 2013

Observed Life Table

Age at Beginning of Interval	Exposures	Retirements	Conditional Proportion Retired	Conditional Proportion Surviving	Cumulative Proportion Surviving
A	B	C	D=C/B	E=1-D	F
0.0	51	0	0.00000	1.00000	1.00000
0.5	54	0	0.00000	1.00000	1.00000
1.5	55	1	0.01818	0.98182	1.00000
2.5	56	0	0.00000	1.00000	0.98182
3.5	54	1	0.01852	0.98148	0.98182
4.5	53	0	0.00000	1.00000	0.96364
5.5	56	0	0.00000	1.00000	0.96364
6.5	60	0	0.00000	1.00000	0.96364
7.5	59	0	0.00000	1.00000	0.96364
8.5	67	0	0.00000	1.00000	0.96364
9.5	64	0	0.00000	1.00000	0.96364
10.5	75	0	0.00000	1.00000	0.96364
11.5	79	0	0.00000	1.00000	0.96364
12.5	78	1	0.01282	0.98718	0.96364
13.5	88	0	0.00000	1.00000	0.95128
14.5	98	1	0.01020	0.98980	0.95128
15.5	102	2	0.01961	0.98039	0.94158
16.5	102	1	0.00980	0.99020	0.92311
17.5	104	1	0.00962	0.99038	0.91406
18.5	103	1	0.00971	0.99029	0.90527
19.5	105	0	0.00000	1.00000	0.89648
20.5	104	0	0.00000	1.00000	0.89648
21.5	101	0	0.00000	1.00000	0.89648
22.5	104	1	0.00962	0.99038	0.89648
23.5	96	0	0.00000	1.00000	0.88786
24.5	99	1	0.01010	0.98990	0.88786
25.5	99	0	0.00000	1.00000	0.87890
26.5	105	0	0.00000	1.00000	0.87890
27.5	105	3	0.02857	0.97143	0.87890
28.5	102	0	0.00000	1.00000	0.85378
29.5	105	1	0.00952	0.99048	0.85378
30.5	102	0	0.00000	1.00000	0.84565
31.5	109	1	0.00917	0.99083	0.84565
32.5	107	1	0.00935	0.99065	0.83790
33.5	104	4	0.03846	0.96154	0.83006
34.5	109	2	0.01835	0.98165	0.79814
35.5	107	0	0.00000	1.00000	0.78349

Schedule A

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: AUTOTRN Auto Transformers

Placement Band: 1948 - 2012
Observation Band: 1983 - 2013

Observed Life Table

Age at Beginning of Interval	Exposures	Retirements	Conditional Proportion Retired	Conditional Proportion Surviving	Cumulative Proportion Surviving
A	B	C	D=C/B	E=1-D	F
36.5	103	3	0.02913	0.97087	0.78349
37.5	94	1	0.01064	0.98936	0.76067
38.5	93	1	0.01075	0.98925	0.75258
39.5	85	4	0.04706	0.95294	0.74449
40.5	79	1	0.01266	0.98734	0.70945
41.5	70	1	0.01429	0.98571	0.70047
42.5	65	0	0.00000	1.00000	0.69047
43.5	65	1	0.01538	0.98462	0.69047
44.5	55	0	0.00000	1.00000	0.67984
45.5	46	0	0.00000	1.00000	0.67984
46.5	41	0	0.00000	1.00000	0.67984
47.5	39	0	0.00000	1.00000	0.67984
48.5	36	0	0.00000	1.00000	0.67984
49.5	36	1	0.02778	0.97222	0.67984
50.5	33	0	0.00000	1.00000	0.66096
51.5	33	1	0.03030	0.96970	0.66096
52.5	32	1	0.03125	0.96875	0.64093
53.5	28	0	0.00000	1.00000	0.62090
54.5	26	0	0.00000	1.00000	0.62090
55.5	21	0	0.00000	1.00000	0.62090
56.5	21	0	0.00000	1.00000	0.62090
57.5	18	0	0.00000	1.00000	0.62090
58.5	17	0	0.00000	1.00000	0.62090
59.5	17	0	0.00000	1.00000	0.62090
60.5	14	0	0.00000	1.00000	0.62090
61.5	14	0	0.00000	1.00000	0.62090
62.5	8	1	0.12500	0.87500	0.62090
63.5	5	0	0.00000	1.00000	0.54329
64.5	5	0	0.00000	1.00000	0.54329
65.5	0	0	0.00000	1.00000	0.54329

Schedule B1

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: AUTOTRN Auto Transformers

T-Cut: None

Placement Band: 1948-2012

Hazard Function: Proportion Retired

Weighting: Exposures

Rolling Band Life Analysis

		First Degree			Second Degree			Third Degree		
Observation Band	Censoring	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1983-1987	65.4	59.5	L0	2.67	56.2	L0.5	2.66	132.5	SC *	3.35
1984-1988	69.0	60.4	O2	4.61	107.5	O3 *	4.20	124.5	SC *	6.94
1985-1989	77.8	68.1	L1	3.17	150.7	SC *	2.64	154.5	SC *	2.65
1986-1990	70.3	67.5	L1	3.15	118.1	SC *	2.87	48.9	R2.5 *	3.18
1987-1991	47.2	44.4	L2 *	3.13	42.2	S1.5	3.14	40.6	R2.5 *	3.54
1988-1992	38.9	41.9	L2 *	3.20	40.2	S1.5	2.81	38.8	R2 *	3.65
1989-1993	40.2	41.8	L2 *	7.60	41.6	S2 *	4.44	42.5	L3 *	4.71
1990-1994	42.2	42.4	L2 *	7.71	42.1	S2 *	5.11	75.4	O4 *	5.85
1991-1995	46.3	45.7	L2 *	6.87	44.9	S1.5 *	5.66	98.4	O4 *	6.58
1992-1996	69.2	64.5	L2 *	3.66	62.4	L2 *	3.61	142.5	SC *	3.47
1993-1997	72.9	82.3	L1.5 *	7.23	144.7	SC *	6.88	155.2	R0.5 *	5.06
1994-1998	83.3	134.9	S0.5 *	6.81	185.9	R4 *	6.46	183.1	R4 *	5.21
1995-1999	41.7	172.5	R2 *	41.15	71.9	R2	38.94	145.6	SC *	30.86
1996-2000	0.0	170.8	R1.5 *	85.99	70.2	R1.5 *	82.76	134.0	SC *	71.05
1997-2001	0.0	169.0	R1.5 *	85.21	68.7	R1.5 *	81.00	124.7	SC *	66.47
1998-2002	50.0	173.1	R2 *	37.68	64.9	R1 *	30.07	127.0	SC *	17.51
1999-2003	59.1	156.1	R0.5 *	19.06	48.5	SC *	6.62	106.4	O4 *	6.50
2000-2004	88.7	139.5	R0.5	3.51	69.4	R2 *	9.12	63.9	R3 *	5.65
2001-2005	84.4	131.1	SC	5.93	77.0	R1.5	8.33	65.2	R2.5	6.50
2002-2006	72.2	89.1	L0.5	6.29	71.0	R1	7.74	64.0	R1.5	7.29
2003-2007	66.8	96.7	O3	8.82	74.6	SC	9.25	57.4	R1	8.99
2004-2008	76.2	108.9	SC	8.76	147.7	SC *	6.15	88.3	R1 *	6.67
2005-2009	62.5	77.1	L0	6.90	127.5	SC *	5.34	130.9	SC *	4.96
2006-2010	69.1	84.2	L0	7.26	131.7	SC *	6.36	138.8	SC *	5.83
2007-2011	63.0	81.5	L1	5.69	72.8	S0.5	6.08	61.6	R1.5 *	8.24
2008-2012	59.8	71.0	L1 *	8.13	109.7	O3 *	8.81	122.4	SC *	7.76
2009-2013	63.2	71.6	L1 *	8.67	114.5	O3 *	9.52	126.4	SC *	7.71

Schedule B2

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: AUTOTRN Auto Transformers

T-Cut: None
Placement Band: 1948-2012
Hazard Function: Proportion Retired
Weighting: Exposures

Shrinking Band Life Analysis

		First Degree			Second Degree			Third Degree		
Observation Band	Censoring	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1983-2013	54.3	73.4	L0	2.46	113.2	O3 *	1.91	127.2	SC *	1.94
1985-2013	56.2	74.0	L0.5	2.76	116.8	SC *	2.09	130.8	SC *	2.13
1987-2013	56.0	74.5	L0.5	2.62	117.5	SC *	1.98	131.3	SC *	1.95
1989-2013	56.7	75.4	L0.5	2.59	112.6	O3 *	2.21	133.0	SC *	2.08
1991-2013	56.7	75.9	L0.5	2.63	115.9	O3 *	2.27	133.7	SC *	2.10
1993-2013	62.0	89.9	L0.5	2.15	87.7	L1	2.14	142.3	SC *	1.97
1995-2013	61.9	93.0	L0.5	2.33	82.3	S0	2.04	139.6	SC *	1.87
1997-2013	60.9	90.4	L0	2.03	81.7	S-.5	1.95	136.1	SC *	1.88
1999-2013	60.3	89.6	L0	2.14	78.0	R0.5	2.27	132.0	SC *	2.32
2001-2013	60.9	83.3	L0.5	2.90	117.9	SC *	2.31	104.4	O2 *	2.33
2003-2013	57.5	77.5	L0	3.96	117.8	SC *	2.99	101.3	O3 *	3.04
2005-2013	58.4	75.5	L0.5	6.11	125.4	SC *	4.88	125.9	SC *	4.83
2007-2013	61.9	76.7	L0.5	7.40	125.0	SC *	6.55	121.9	SC *	6.76
2009-2013	63.2	71.6	L1 *	8.67	114.5	O3 *	9.52	126.4	SC *	7.71
2011-2013	59.1	63.9	L0.5	12.38	107.7	O3 *	12.06	89.1	O3 *	12.73
2013-2013	0.0	103.3	O2	47.21	141.3	SC *	45.06	144.1	SC *	46.04

Schedule B3

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: AUTOTRN Auto Transformers

T-Cut: None
Placement Band: 1948-2012
Hazard Function: Proportion Retired
Weighting: Exposures

Progressing Band Life Analysis

Observation Band	Censoring	First Degree Average Life	First Degree Disper-sion	First Degree Conf. Index	Second Degree Average Life	Second Degree Disper-sion	Second Degree Conf. Index	Third Degree Average Life	Third Degree Disper-sion	Third Degree Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1983-1984	50.6	62.3	O3	13.58	114.2	O3 *	14.79	109.6	O4 *	10.74
1983-1986	63.9	59.1	L0	3.01	47.3	R0.5	2.65	122.3	SC *	2.87
1983-1988	66.6	58.8	L0	2.79	126.1	SC *	3.37	130.2	SC *	3.68
1983-1990	59.2	60.4	L0	2.88	57.2	L0.5	2.87	49.2	R1	3.14
1983-1992	40.5	45.6	L1.5 *	4.05	40.8	R1.5	2.21	39.7	R2 *	2.99
1983-1994	47.1	48.0	L1.5 *	2.28	44.1	S1	1.80	44.5	S1	1.83
1983-1996	55.2	52.8	L1.5 *	1.95	49.4	S0.5	1.78	105.4	O4 *	1.99
1983-1998	57.8	56.6	L1.5 *	2.14	56.0	L1.5 *	2.13	123.4	SC *	1.86
1983-2000	60.1	62.2	L0.5	2.52	61.0	L1	2.51	127.8	SC *	1.76
1983-2002	63.3	68.7	L0.5	2.37	93.4	O3 *	2.55	133.5	SC *	1.59
1983-2004	60.4	71.6	L0.5	1.94	72.1	L0.5	2.01	131.7	SC *	1.42
1983-2006	60.1	71.5	L0.5	1.55	85.8	O2 *	1.62	130.7	SC *	1.26
1983-2008	62.6	76.0	L0	2.04	123.1	SC *	1.47	133.5	SC *	1.40
1983-2010	61.8	76.5	L0	1.99	118.4	SC *	1.45	132.5	SC *	1.47
1983-2012	51.5	72.2	L0.5	2.43	101.4	O3 *	2.06	124.9	SC *	2.12
1983-2013	54.3	73.4	L0	2.46	113.2	O3 *	1.91	127.2	SC *	1.94

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: AUTOTRN Auto Transformers

T-Cut: None

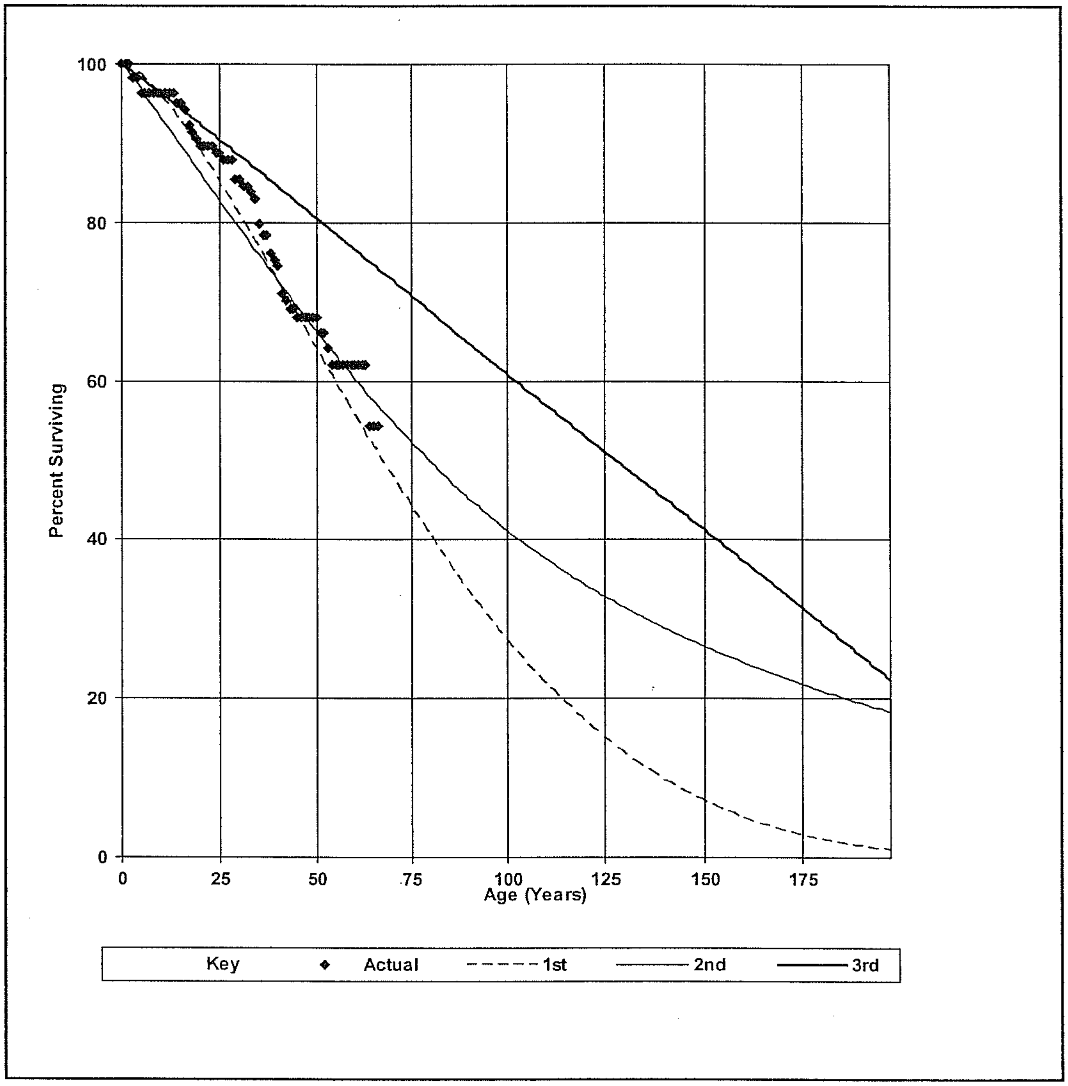
Placement Band: 1948-2012 Observation Band: 1983-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Graphics Analysis

1st: 73.4-L0 2nd: 113.2-O3 3rd: 127.2-SC



HYDRO ONE NETWORKS INC.

Transmission Stations

Account: AUTOTRN Auto Transformers

T-Cut: None

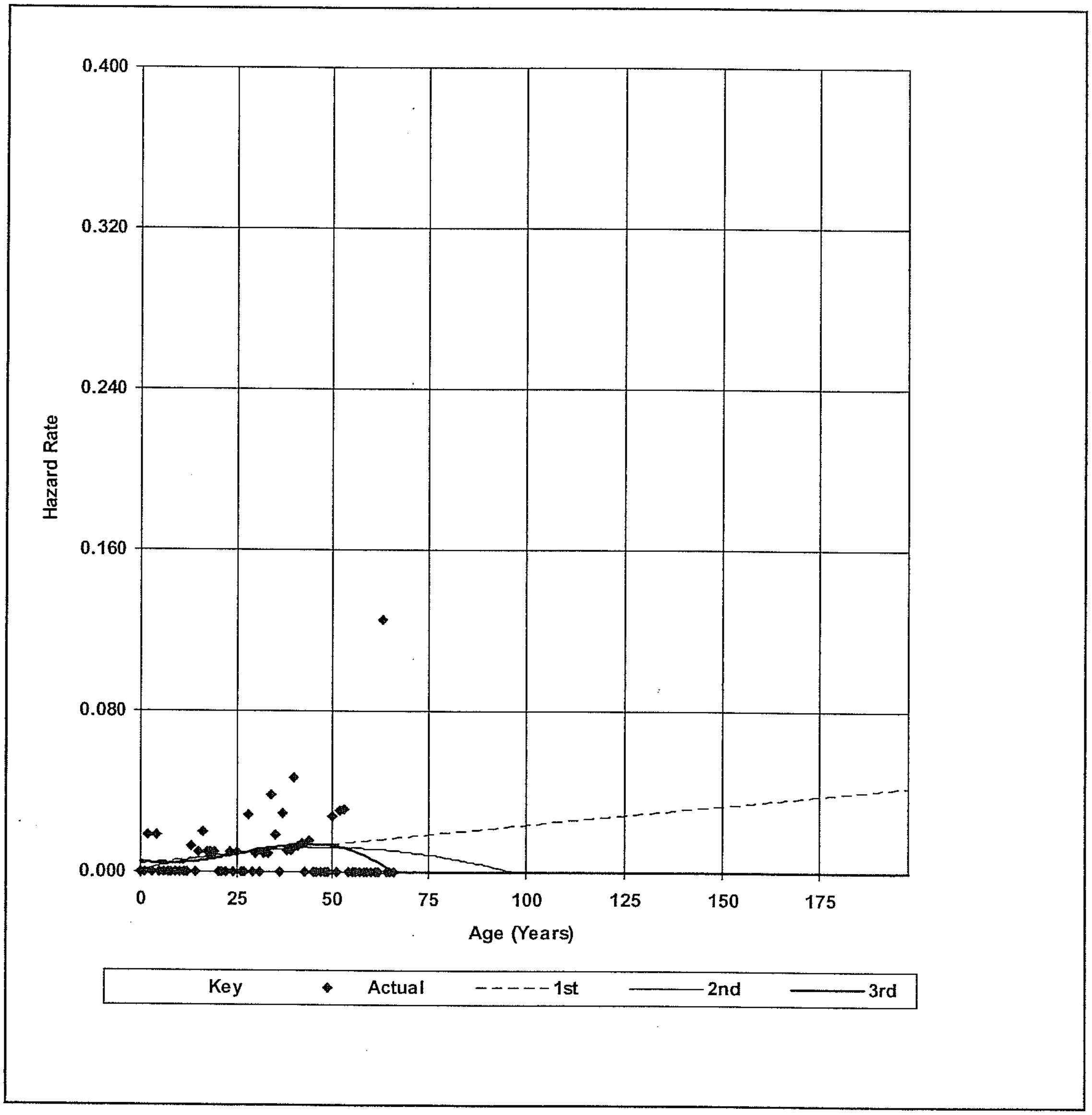
Placement Band: 1948-2013 Observation Band: 1983-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Polynomial Hazard Function

1st: 73.4-L0 2nd: 113.2-O3 3rd: 127.2-SC



Schedule E

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: AUTOTRN Auto Transformers

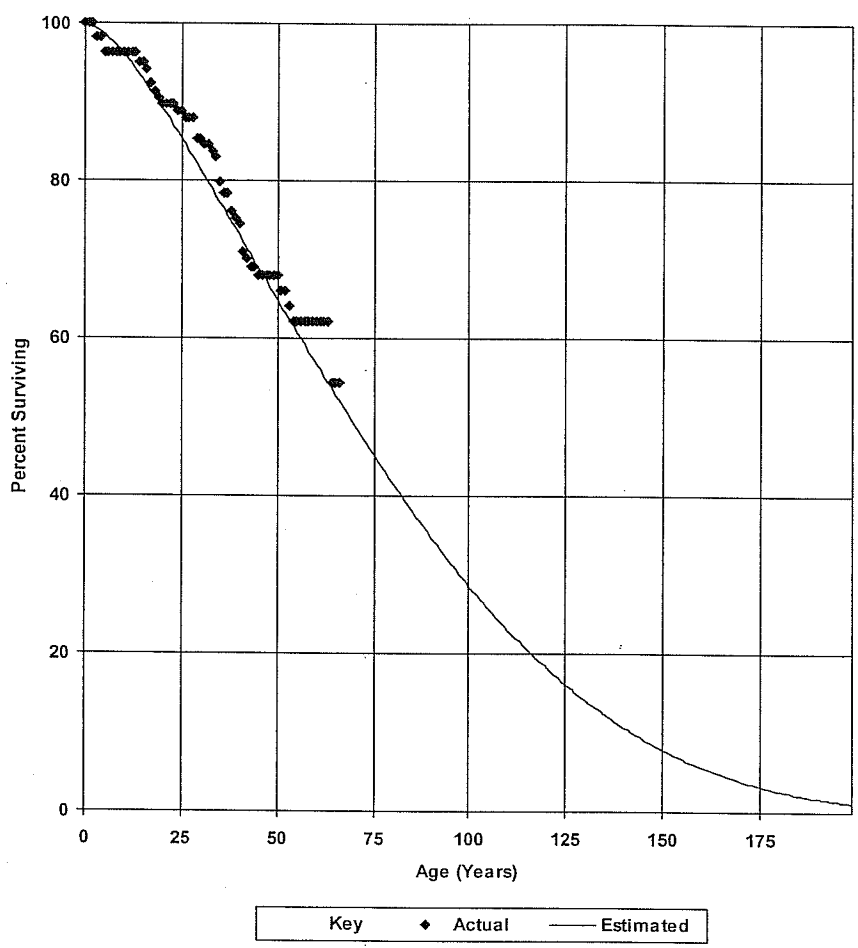
T-Cut: None

Placement Band: 1948-2012

Observation Band: 1983-2013

75.0-L0

Estimated Projection Life Curve



Schedule A

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: CAPACIT Capacitors

Placement Band: 1960 - 2012
Observation Band: 1988 - 2013

Observed Life Table

Age at Beginning of Interval	Exposures	Retirements	Conditional Proportion Retired	Conditional Proportion Surviving	Cumulative Proportion Surviving
A	B	C	D=C/B	E=1-D	F
0.0	358	0	0.00000	1.00000	1.00000
0.5	374	1	0.00267	0.99733	1.00000
1.5	365	1	0.00274	0.99726	0.99733
2.5	357	4	0.01120	0.98880	0.99459
3.5	353	0	0.00000	1.00000	0.98345
4.5	349	3	0.00860	0.99140	0.98345
5.5	336	4	0.01190	0.98810	0.97500
6.5	319	1	0.00313	0.99687	0.96339
7.5	312	2	0.00641	0.99359	0.96037
8.5	313	3	0.00958	0.99042	0.95421
9.5	304	3	0.00987	0.99013	0.94507
10.5	296	4	0.01351	0.98649	0.93574
11.5	281	1	0.00356	0.99644	0.92310
12.5	271	3	0.01107	0.98893	0.91981
13.5	264	1	0.00379	0.99621	0.90963
14.5	259	4	0.01544	0.98456	0.90618
15.5	246	4	0.01626	0.98374	0.89219
16.5	213	4	0.01878	0.98122	0.87768
17.5	193	2	0.01036	0.98964	0.86120
18.5	196	1	0.00510	0.99490	0.85227
19.5	187	0	0.00000	1.00000	0.84793
20.5	162	0	0.00000	1.00000	0.84793
21.5	128	1	0.00781	0.99219	0.84793
22.5	102	6	0.05882	0.94118	0.84130
23.5	76	2	0.02632	0.97368	0.79181
24.5	70	1	0.01429	0.98571	0.77098
25.5	59	4	0.06780	0.93220	0.75996
26.5	44	1	0.02273	0.97727	0.70844
27.5	45	3	0.06667	0.93333	0.69234
28.5	42	2	0.04762	0.95238	0.64618
29.5	40	1	0.02500	0.97500	0.61541
30.5	38	0	0.00000	1.00000	0.60003
31.5	36	1	0.02778	0.97222	0.60003
32.5	33	0	0.00000	1.00000	0.58336
33.5	32	1	0.03125	0.96875	0.58336
34.5	28	0	0.00000	1.00000	0.56513
35.5	27	1	0.03704	0.96296	0.56513

Schedule A

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: CAPACIT Capacitors

Placement Band: 1960 - 2012
Observation Band: 1988 - 2013

Observed Life Table

Age at Beginning of Interval	Exposures	Retirements	Conditional Proportion Retired	Conditional Proportion Surviving	Cumulative Proportion Surviving
A	B	C	D=C/B	E=1-D	F
36.5	25	0	0.00000	1.00000	0.54420
37.5	25	0	0.00000	1.00000	0.54420
38.5	25	0	0.00000	1.00000	0.54420
39.5	25	0	0.00000	1.00000	0.54420
40.5	25	2	0.08000	0.92000	0.54420
41.5	23	1	0.04348	0.95652	0.50066
42.5	22	2	0.09091	0.90909	0.47889
43.5	20	0	0.00000	1.00000	0.43536
44.5	13	1	0.07692	0.92308	0.43536
45.5	10	0	0.00000	1.00000	0.40187
46.5	5	1	0.20000	0.80000	0.40187
47.5	4	0	0.00000	1.00000	0.32150
48.5	1	0	0.00000	1.00000	0.32150
49.5	1	0	0.00000	1.00000	0.32150
50.5	1	0	0.00000	1.00000	0.32150
51.5	1	0	0.00000	1.00000	0.32150
52.5	1	0	0.00000	1.00000	0.32150
53.5	0	0	0.00000	1.00000	0.32150

Schedule B1

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: CAPACIT Capacitors

T-Cut: None

Placement Band: 1960-2012

Hazard Function: Proportion Retired

Weighting: Exposures

Rolling Band Life Analysis

		First Degree			Second Degree			Third Degree		
Observation Band	Censoring	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1988-1992	50.0	61.7	L1.5*	14.36	38.8	S3 *	12.20	34.0	S4 *	10.30
1989-1993	100.0				No Retirements					
1990-1994	90.2	187.6	R4*	4.31	184.4	R4 *	3.00	49.3	R4 *	2.78
1991-1995	79.5	189.2	R5*	14.03	186.7	R4 *	12.84	54.5	R4 *	12.91
1992-1996	85.5	113.9	SC	4.66	175.4	R2.5 *	2.33	174.3	R2 *	2.17
1993-1997	87.5	123.2	SC	3.74	178.3	R3 *	1.99	176.4	R2.5 *	1.75
1994-1998	83.5	75.6	L1	2.20	166.9	R1 *	1.54	163.0	R1 *	2.53
1995-1999	75.0	77.6	L1.5*	8.51	172.8	R2 *	7.52	168.6	R1.5 *	5.62
1996-2000	29.1	50.1	L1.5*	25.83	137.4	SC *	23.93	130.7	SC *	20.88
1997-2001	0.0	53.6	L1	44.65	141.7	SC *	43.29	135.1	SC *	40.59
1998-2002	0.0	49.0	L1	42.03	131.4	SC *	40.53	121.4	SC *	36.78
1999-2003	57.0	58.2	L0.5	10.97	144.4	SC *	9.99	137.0	SC *	7.82
2000-2004	62.3	66.0	O2	5.70	138.3	SC *	5.23	131.8	SC *	4.49
2001-2005	39.2	68.5	O2	16.25	133.7	SC *	16.76	122.3	SC *	12.94
2002-2006	48.3	57.1	O2	8.12	126.1	SC *	8.56	111.7	O4 *	4.44
2003-2007	58.8	119.9	SC*	3.97	128.3	SC *	4.18	114.2	O3 *	4.33
2004-2008	55.8	114.5	O3*	2.93	119.2	SC *	2.78	110.8	O4 *	3.26
2005-2009	65.0	124.6	SC*	3.33	127.7	SC *	2.70	120.2	SC *	5.03
2006-2010	37.1	52.9	O3	3.45	39.9	SC	3.12	42.7	O2 *	3.15
2007-2011	29.6	42.3	O2	7.11	35.1	SC	6.05	69.1	O4 *	4.46
2008-2012	22.6	38.0	L1	9.33	34.6	R0.5	7.97	56.7	O4 *	5.67
2009-2013	6.4	36.3	L2*	15.52	34.7	S0.5	15.03	50.0	O4 *	9.44

Schedule B2

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: CAPACIT Capacitors

T-Cut: None

Placement Band: 1960-2012

Hazard Function: Proportion Retired

Weighting: Exposures

Shrinking Band Life Analysis

		First Degree			Second Degree			Third Degree		
Observation Band	Censoring	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1988-2013	32.1	43.7	L1	2.98	41.8	S0	2.93	46.1	L1 *	2.84
1990-2013	32.6	43.9	L1	2.76	41.9	L1	2.73	42.5	L1 *	2.69
1992-2013	31.9	43.4	L1	2.92	41.6	L1	2.91	46.3	L0.5 *	2.83
1994-2013	30.5	42.8	L0.5	3.59	41.0	L1	3.58	58.8	O3 *	3.34
1996-2013	28.5	42.2	L1	4.85	40.6	L1	4.80	67.9	O4 *	4.31
1998-2013	25.6	41.4	L0.5	6.78	39.5	L1	6.66	71.4	O4 *	5.77
2000-2013	23.0	40.5	L0.5	7.97	38.1	S-.5	7.73	70.1	O4 *	6.48
2002-2013	22.1	40.4	L0.5	8.21	37.3	R0.5	7.68	69.9	O4 *	5.83
2004-2013	18.9	38.6	L0.5	8.95	35.3	R0.5	8.13	64.8	O4 *	5.71
2006-2013	15.8	38.5	L1	10.49	35.5	R0.5	9.35	62.6	O4 *	6.22
2008-2013	8.5	37.0	L1.5 *	13.97	34.6	S0	12.75	55.1	O4 *	8.91
2010-2013	3.5	33.8	L2 *	16.94	33.5	S1 *	17.49	41.1	O3 *	11.23
2012-2013	12.4	35.6	S1.5 *	7.40	35.7	S1.5 *	7.30	42.0	O3 *	8.53

Schedule B3

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: CAPACIT Capacitors

T-Cut: None
Placement Band: 1960-2012
Hazard Function: Proportion Retired
Weighting: Exposures

Progressing Band Life Analysis

Observation Band	Censoring	First Degree Average Life	First Degree Disper-sion	First Degree Conf. Index	Second Degree Average Life	Second Degree Disper-sion	Second Degree Conf. Index	Third Degree Average Life	Third Degree Disper-sion	Third Degree Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1988-1989	50.0	37.4	L2 *	12.69	28.7	R4 *	11.84	26.1	R4 *	14.99
1988-1991	50.0	53.7	L1.5 *	12.55	35.4	S3 *	9.72	31.3	R5 *	7.66
1988-1993	83.3	69.7	L1.5 *	4.02	42.3	S3 *	2.77	36.8	S4 *	3.38
1988-1995	85.8	88.1	L1	2.23	53.2	S2	2.88	41.6	R4	2.93
1988-1997	86.9	85.2	L1	1.97	133.9	SC *	1.87	168.4	R1.5 *	1.83
1988-1999	87.2	79.0	L1	1.62	96.3	L0 *	1.56	174.1	R2 *	0.99
1988-2001	77.2	61.4	L1	2.97	154.5	R0.5 *	2.03	156.7	R0.5 *	1.91
1988-2003	77.0	63.6	L1	3.23	156.6	R0.5 *	1.82	156.1	R0.5 *	1.58
1988-2005	70.8	58.0	L0.5	3.90	144.7	SC *	2.18	142.8	SC *	2.33
1988-2007	70.5	60.9	L0	4.19	144.1	SC *	1.68	140.6	SC *	2.13
1988-2009	71.9	69.7	O2	4.07	146.1	SC *	1.41	144.4	SC *	1.64
1988-2011	45.5	48.6	L0.5	2.75	62.4	O3 *	2.63	48.3	L0.5	2.66
1988-2013	32.1	43.7	L1	2.98	41.8	S0	2.93	46.1	L1 *	2.84

Schedule C

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: CAPACIT Capacitors

T-Cut: None

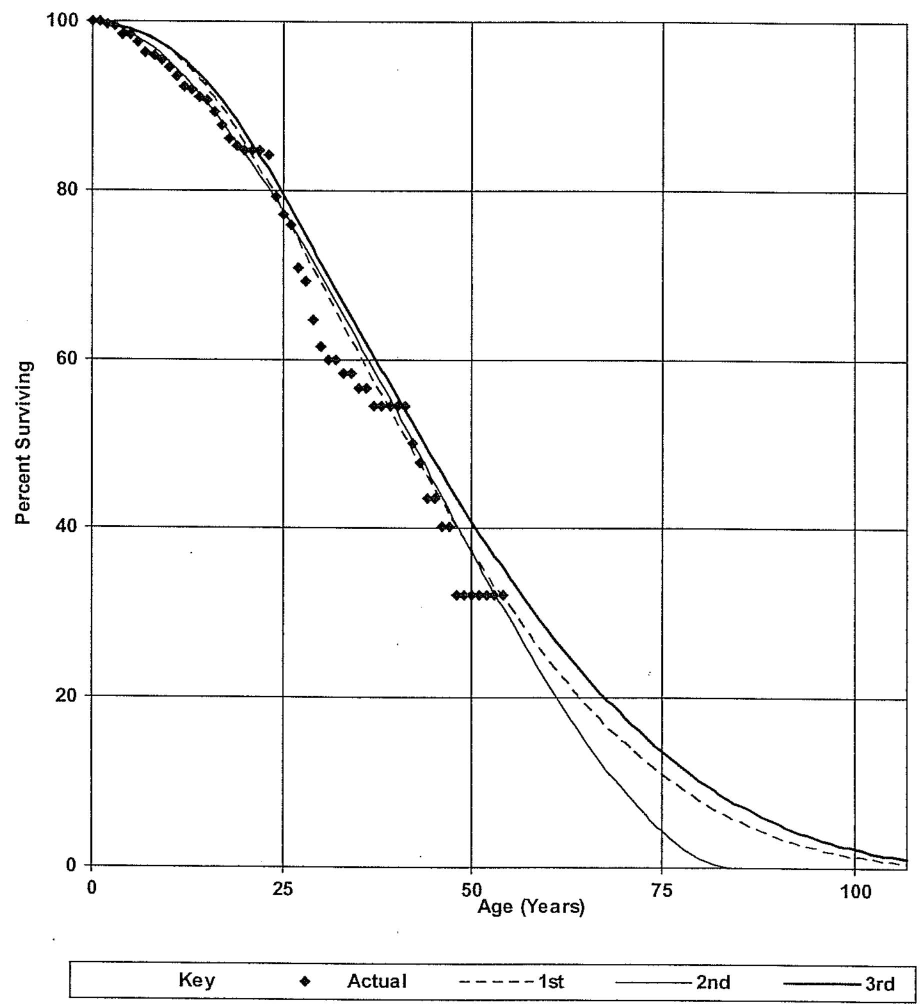
Placement Band: 1960-2012 Observation Band: 1988-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Graphics Analysis

1st: 43.7-L1 2nd: 41.8-S0 3rd: 46.1-L1



Schedule D

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: CAPACIT Capacitors

T-Cut: None

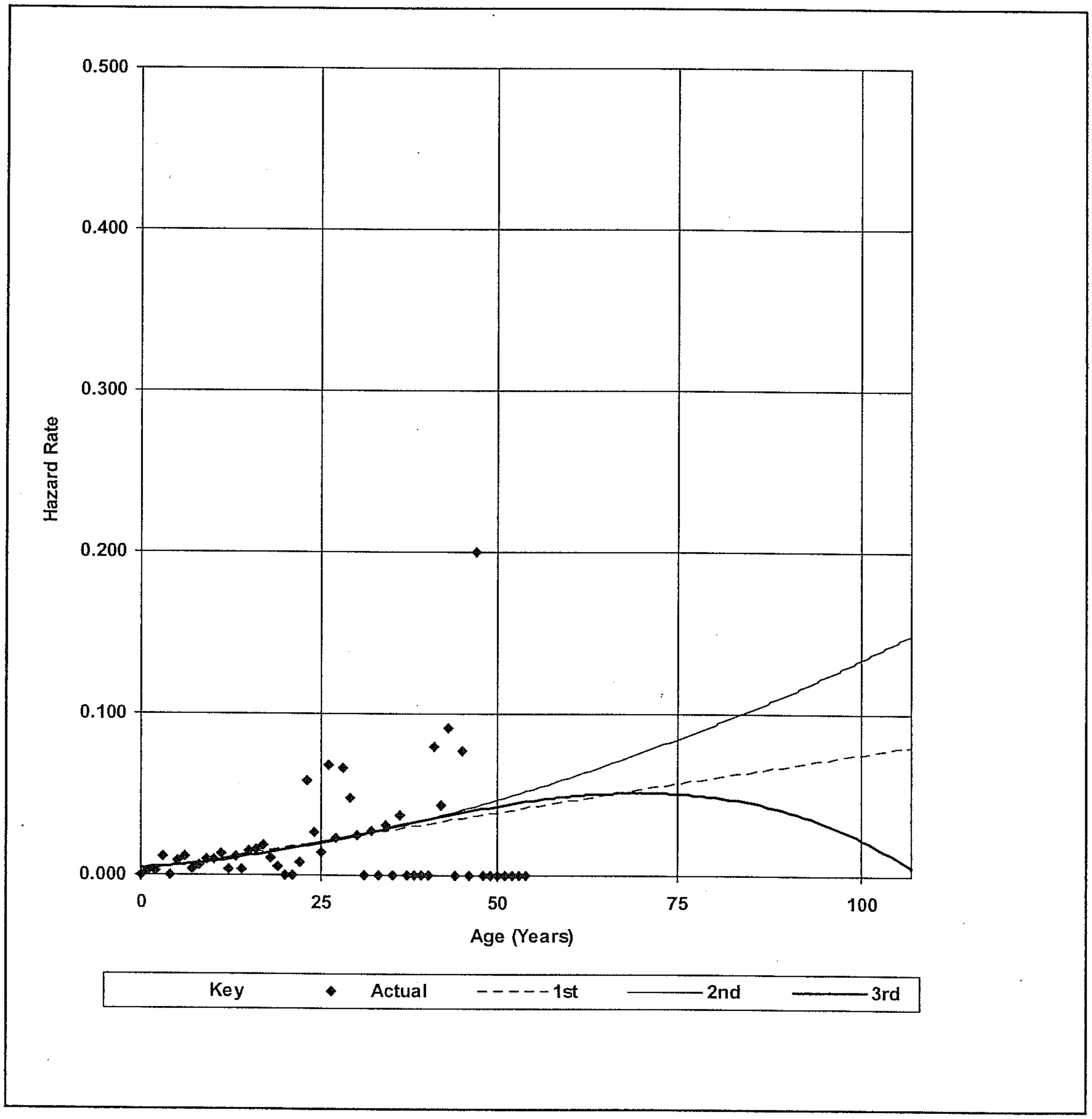
Placement Band: 1960-2012 Observation Band: 1988-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Polynomial Hazard Function

1st: 43.7-L1 2nd: 41.8-S0 3rd: 46.1-L1



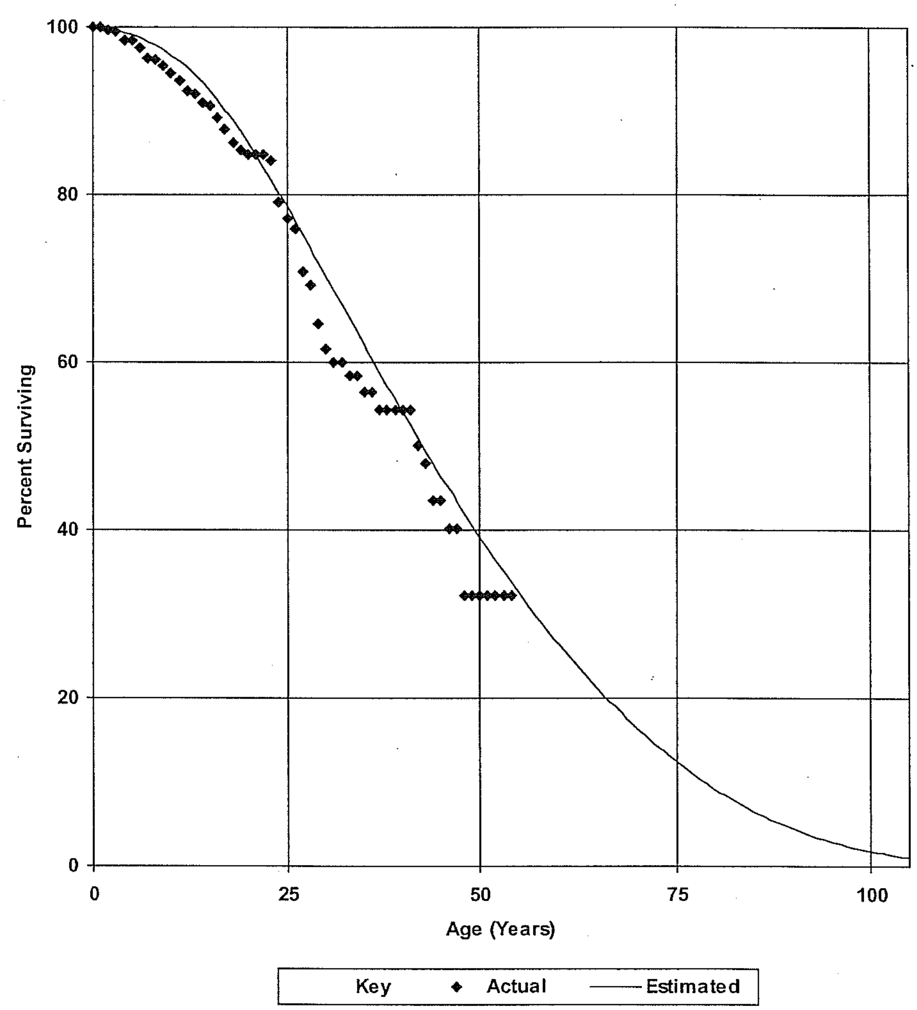
HYDRO ONE NETWORKS INC.

Transmission Stations

Account: CAPACIT Capacitors

T-Cut: None
Placement Band: 1960-2012
Observation Band: 1988-2013
45.0-L1

Estimated Projection Life Curve



Schedule A

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: TSHVSDTR HV Stepdown Transformers

Placement Band: 1917 - 2013
Observation Band: 1981 - 2013

Observed Life Table

Age at Beginning of Interval	Exposures	Retirements	Conditional Proportion Retired	Conditional Proportion Surviving	Cumulative Proportion Surviving
A	B	C	D=C/B	E=1-D	F
0.0	267	0	0.00000	1.00000	1.00000
0.5	253	1	0.00395	0.99605	1.00000
1.5	262	0	0.00000	1.00000	0.99605
2.5	263	1	0.00380	0.99620	0.99605
3.5	243	2	0.00823	0.99177	0.99226
4.5	232	0	0.00000	1.00000	0.98409
5.5	260	0	0.00000	1.00000	0.98409
6.5	275	4	0.01455	0.98545	0.98409
7.5	273	0	0.00000	1.00000	0.96978
8.5	297	1	0.00337	0.99663	0.96978
9.5	296	1	0.00338	0.99662	0.96651
10.5	305	0	0.00000	1.00000	0.96325
11.5	332	5	0.01506	0.98494	0.96325
12.5	356	3	0.00843	0.99157	0.94874
13.5	366	2	0.00546	0.99454	0.94075
14.5	375	1	0.00267	0.99733	0.93561
15.5	383	5	0.01305	0.98695	0.93311
16.5	393	1	0.00254	0.99746	0.92093
17.5	395	3	0.00759	0.99241	0.91859
18.5	405	5	0.01235	0.98765	0.91161
19.5	409	4	0.00978	0.99022	0.90036
20.5	412	2	0.00485	0.99515	0.89155
21.5	425	2	0.00471	0.99529	0.88722
22.5	413	1	0.00242	0.99758	0.88305
23.5	405	4	0.00988	0.99012	0.88091
24.5	412	3	0.00728	0.99272	0.87221
25.5	396	3	0.00758	0.99242	0.86586
26.5	402	5	0.01244	0.98756	0.85930
27.5	407	6	0.01474	0.98526	0.84861
28.5	417	4	0.00959	0.99041	0.83610
29.5	466	6	0.01288	0.98712	0.82808
30.5	468	3	0.00641	0.99359	0.81742
31.5	468	4	0.00855	0.99145	0.81218
32.5	495	7	0.01414	0.98586	0.80524
33.5	493	10	0.02028	0.97972	0.79385
34.5	479	8	0.01670	0.98330	0.77775
35.5	471	17	0.03609	0.96391	0.76476

Schedule A

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: TSHVSDTR HV Stepdown Transformers

Placement Band: 1917 - 2013
Observation Band: 1981 - 2013

Observed Life Table

Age at Beginning of Interval	Exposures	Retirements	Conditional Proportion Retired	Conditional Proportion Surviving	Cumulative Proportion Surviving
A	B	C	D=C/B	E=1-D	F
36.5	449	5	0.01114	0.98886	0.73715
37.5	439	9	0.02050	0.97950	0.72895
38.5	412	3	0.00728	0.99272	0.71400
39.5	391	4	0.01023	0.98977	0.70880
40.5	391	6	0.01535	0.98465	0.70155
41.5	369	9	0.02439	0.97561	0.69079
42.5	349	8	0.02292	0.97708	0.67394
43.5	324	3	0.00926	0.99074	0.65849
44.5	298	2	0.00671	0.99329	0.65239
45.5	282	4	0.01418	0.98582	0.64801
46.5	268	5	0.01866	0.98134	0.63882
47.5	256	4	0.01563	0.98438	0.62690
48.5	243	7	0.02881	0.97119	0.61711
49.5	226	5	0.02212	0.97788	0.59933
50.5	220	2	0.00909	0.99091	0.58607
51.5	209	11	0.05263	0.94737	0.58074
52.5	194	2	0.01031	0.98969	0.55018
53.5	184	3	0.01630	0.98370	0.54451
54.5	166	12	0.07229	0.92771	0.53563
55.5	150	4	0.02667	0.97333	0.49691
56.5	142	4	0.02817	0.97183	0.48366
57.5	127	5	0.03937	0.96063	0.47003
58.5	120	6	0.05000	0.95000	0.45153
59.5	113	1	0.00885	0.99115	0.42895
60.5	108	3	0.02778	0.97222	0.42516
61.5	95	3	0.03158	0.96842	0.41335
62.5	59	4	0.06780	0.93220	0.40029
63.5	50	2	0.04000	0.96000	0.37315
64.5	43	2	0.04651	0.95349	0.35823
65.5	26	4	0.15385	0.84615	0.34157
66.5	22	5	0.22727	0.77273	0.28902
67.5	16	0	0.00000	1.00000	0.22333
68.5	14	3	0.21429	0.78571	0.22333
69.5	11	0	0.00000	1.00000	0.17547
70.5	11	0	0.00000	1.00000	0.17547
71.5	8	1	0.12500	0.87500	0.17547
72.5	7	0	0.00000	1.00000	0.15354

Schedule A

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: TSHVSDTR HV Stepdown Transformers

Placement Band: 1917 - 2013
Observation Band: 1981 - 2013

Observed Life Table

Age at Beginning of Interval	Exposures	Retirements	Conditional Proportion Retired	Conditional Proportion Surviving	Cumulative Proportion Surviving
A	B	C	D=C/B	E=1-D	F
73.5	6	0	0.00000	1.00000	0.15354
74.5	6	1	0.16667	0.83333	0.15354
75.5	5	0	0.00000	1.00000	0.12795
76.5	5	0	0.00000	1.00000	0.12795
77.5	5	0	0.00000	1.00000	0.12795
78.5	4	1	0.25000	0.75000	0.12795
79.5	3	0	0.00000	1.00000	0.09596
80.5	3	0	0.00000	1.00000	0.09596
81.5	2	0	0.00000	1.00000	0.09596
82.5	2	0	0.00000	1.00000	0.09596
83.5	2	0	0.00000	1.00000	0.09596
84.5	2	0	0.00000	1.00000	0.09596
85.5	2	0	0.00000	1.00000	0.09596
86.5	1	0	0.00000	1.00000	0.09596
87.5	1	0	0.00000	1.00000	0.09596
88.5	1	0	0.00000	1.00000	0.09596
89.5	1	0	0.00000	1.00000	0.09596
90.5	1	0	0.00000	1.00000	0.09596
91.5	1	0	0.00000	1.00000	0.09596
92.5	0	0	0.00000	1.00000	0.09596

Schedule B1

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: TSHVSDTR HV Stepdown Transformers

T-Cut: None
Placement Band: 1917-2013
Hazard Function: Proportion Retired
Weighting: Exposures

Rolling Band Life Analysis

		First Degree			Second Degree			Third Degree		
Observation Band	Censoring	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1981-1985	58.3	70.1	O3	6.02	103.8	O4 *	4.94	108.6	O4 *	5.41
1982-1986	56.9	63.1	O2	6.66	114.9	O3 *	4.19	111.8	O3 *	4.22
1983-1987	62.3	80.2	O2	4.47	136.0	SC *	3.67	133.7	SC *	2.81
1984-1988	65.6	83.7	O2	5.98	133.5	SC *	2.69	130.9	SC *	3.03
1985-1989	35.6	59.0	L1	3.55	61.9	L1 *	3.31	57.7	S0 *	3.45
1986-1990	31.7	49.7	L0.5	5.00	62.2	O3 *	4.14	73.6	O4 *	3.99
1987-1991	29.8	49.1	L0.5	6.39	64.7	O3 *	4.73	75.6	O4 *	4.89
1988-1992	0.0	42.6	L1	5.29	42.7	L1	5.30	42.3	L1 *	5.28
1989-1993	0.0	46.7	L1	6.80	45.7	L1	6.62	45.0	S0 *	6.53
1990-1994	0.0	48.9	L1.5 *	5.03	46.7	S0	4.79	45.9	S0 *	4.53
1991-1995	4.8	54.8	L1.5 *	6.18	49.9	R1.5	5.76	48.5	R1.5 *	5.25
1992-1996	13.0	57.8	L1.5 *	4.83	51.9	R1.5	6.24	50.3	R1.5 *	6.86
1993-1997	5.8	65.4	L2 *	12.63	57.0	R2.5 *	10.39	56.6	R3 *	9.24
1994-1998	0.0	62.2	L2 *	11.69	55.5	R2.5 *	7.58	56.0	R3 *	5.96
1995-1999	0.0	69.6	L2 *	12.82	57.0	R2.5 *	9.48	58.1	R3 *	6.94
1996-2000	7.7	71.9	L2 *	12.57	61.5	R3 *	8.53	61.8	R4 *	6.64
1997-2001	7.0	69.7	S1.5 *	12.29	59.8	R3 *	8.48	61.7	R4 *	5.92
1998-2002	9.8	73.3	L2 *	14.51	62.7	R2.5 *	9.79	63.3	R4 *	8.61
1999-2003	18.3	67.5	L3 *	6.23	58.8	R2.5 *	8.23	61.5	R4 *	7.17
2000-2004	28.4	66.3	L3 *	7.16	61.5	R3 *	6.62	61.3	R3 *	6.69
2001-2005	32.9	67.5	S1.5 *	6.12	63.6	R3 *	6.36	63.4	S2 *	6.28
2002-2006	33.2	64.5	L2 *	5.59	62.7	S2 *	6.50	63.8	L3 *	5.94
2003-2007	33.5	67.1	L2 *	5.17	64.9	S2 *	5.83	70.0	L3 *	4.97
2004-2008	39.8	69.2	L2 *	6.20	66.9	S2 *	6.53	84.3	L0.5 *	5.03
2005-2009	11.6	66.3	L2 *	10.22	64.8	S2 *	7.71	66.5	L3 *	8.11
2006-2010	8.5	59.3	L2 *	7.59	59.3	S2 *	5.86	65.4	L3 *	6.22
2007-2011	13.1	55.0	L2 *	5.39	55.4	S1.5 *	4.25	59.6	L3 *	3.53
2008-2012	11.2	53.2	L2 *	5.51	53.2	L2 *	5.31	63.6	L2 *	4.20
2009-2013	8.6	50.2	L2 *	4.61	50.2	L2 *	4.61	62.1	L1.5 *	3.99

Schedule B2

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: TSHVSDTR HV Stepdown Transformers

T-Cut: None
Placement Band: 1917-2013
Hazard Function: Proportion Retired
Weighting: Exposures

Shrinking Band Life Analysis

		First Degree			Second Degree			Third Degree		
Observation Band	Censoring	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1981-2013	9.6	57.8	L1.5*	5.20	53.8	S0.5	2.91	53.6	R1.5	2.82
1983-2013	9.8	58.3	L1.5*	4.84	55.1	R1.5	2.98	54.9	R1.5	2.89
1985-2013	9.8	59.0	L2*	4.99	56.0	S1	3.13	55.9	S1	3.03
1987-2013	9.2	58.3	L2*	4.96	55.4	S1	3.16	55.2	S1	3.07
1989-2013	8.9	58.5	L2*	5.11	56.0	S1	3.29	55.9	S1	3.24
1991-2013	8.9	60.1	L2*	5.78	58.0	S1.5	3.70	58.0	S1.5	3.66
1993-2013	10.7	61.8	L2*	6.32	60.2	S2	4.06	60.4	S2	4.13
1995-2013	11.0	61.8	L2*	6.05	60.4	S2	3.90	60.7	S2	3.99
1997-2013	12.6	60.7	L2*	5.41	60.2	S2*	3.73	61.0	L3*	3.70
1999-2013	14.6	60.9	L2*	4.73	60.3	S2*	3.46	62.3	L3*	3.26
2001-2013	17.8	58.9	L2*	4.85	58.6	S1.5*	4.34	68.0	L2*	3.43
2003-2013	16.3	57.6	L2*	4.77	57.5	S1.5*	4.19	69.9	L2*	3.39
2005-2013	14.8	56.9	L2*	5.17	56.7	S1*	4.68	71.4	L1.5*	3.78
2007-2013	12.0	53.9	L2*	4.81	53.9	L2*	4.50	66.1	L1.5*	3.66
2009-2013	8.6	50.2	L2*	4.61	50.2	L2*	4.61	62.1	L1.5*	3.99
2011-2013	8.3	46.6	L1.5*	9.11	48.2	L1.5*	7.86	60.4	O3*	9.52
2013-2013	13.9	44.3	L1.5*	14.70	44.4	L1.5*	15.78	58.2	O2*	10.38

Schedule B3

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: TSHVSDTR HV Stepdown Transformers

T-Cut: None

Placement Band: 1917-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Progressing Band Life Analysis

		First Degree			Second Degree			Third Degree		
Observation Band	Censoring	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1981-1982	59.3	102.2	O4 *	7.10	105.7	O4 *	6.42	106.8	O4 *	6.91
1981-1984	52.9	56.3	O2	7.58	87.4	O4 *	6.31	94.2	O4 *	7.02
1981-1986	59.4	73.4	O3	5.58	115.6	O3 *	3.84	114.9	O3 *	4.19
1981-1988	59.3	69.1	O2	7.08	117.6	SC *	3.58	115.2	O3 *	4.25
1981-1990	36.9	53.8	L0	4.31	61.5	O2 *	3.70	88.8	O4 *	3.45
1981-1992	0.0	49.8	L0.5	3.08	49.1	L0.5	3.16	48.8	L0.5	3.18
1981-1994	0.0	51.7	L0.5	3.09	49.1	S-.5	2.98	48.4	S-.5	2.89
1981-1996	15.5	55.1	L0.5	2.99	51.5	S-.5	3.44	50.1	R0.5	3.29
1981-1998	10.1	55.5	L1	4.88	50.2	R0.5	3.68	49.7	R1	2.91
1981-2000	6.2	58.5	L1	5.51	51.9	R1	3.81	51.3	R1 *	2.85
1981-2002	6.2	59.4	L1	6.85	52.3	R1	3.74	52.0	R1 *	2.24
1981-2004	5.8	59.3	L1 *	7.52	52.0	R1	3.60	52.0	R1.5	2.22
1981-2006	9.2	60.5	L1 *	6.80	53.6	R1	3.12	53.2	R1.5	2.04
1981-2008	10.8	60.9	L1 *	6.21	54.4	R1	2.80	54.0	R1.5	2.10
1981-2010	8.4	59.8	L1.5 *	6.79	54.0	R1	3.33	53.7	R1.5	2.72
1981-2012	10.1	58.6	L1.5 *	5.45	54.1	R1	2.96	53.8	R1.5	2.77
1981-2013	9.6	57.8	L1.5 *	5.20	53.8	S0.5	2.91	53.6	R1.5	2.82

Schedule C

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: TSHVSDTR HV Stepdown Transformers

T-Cut: None

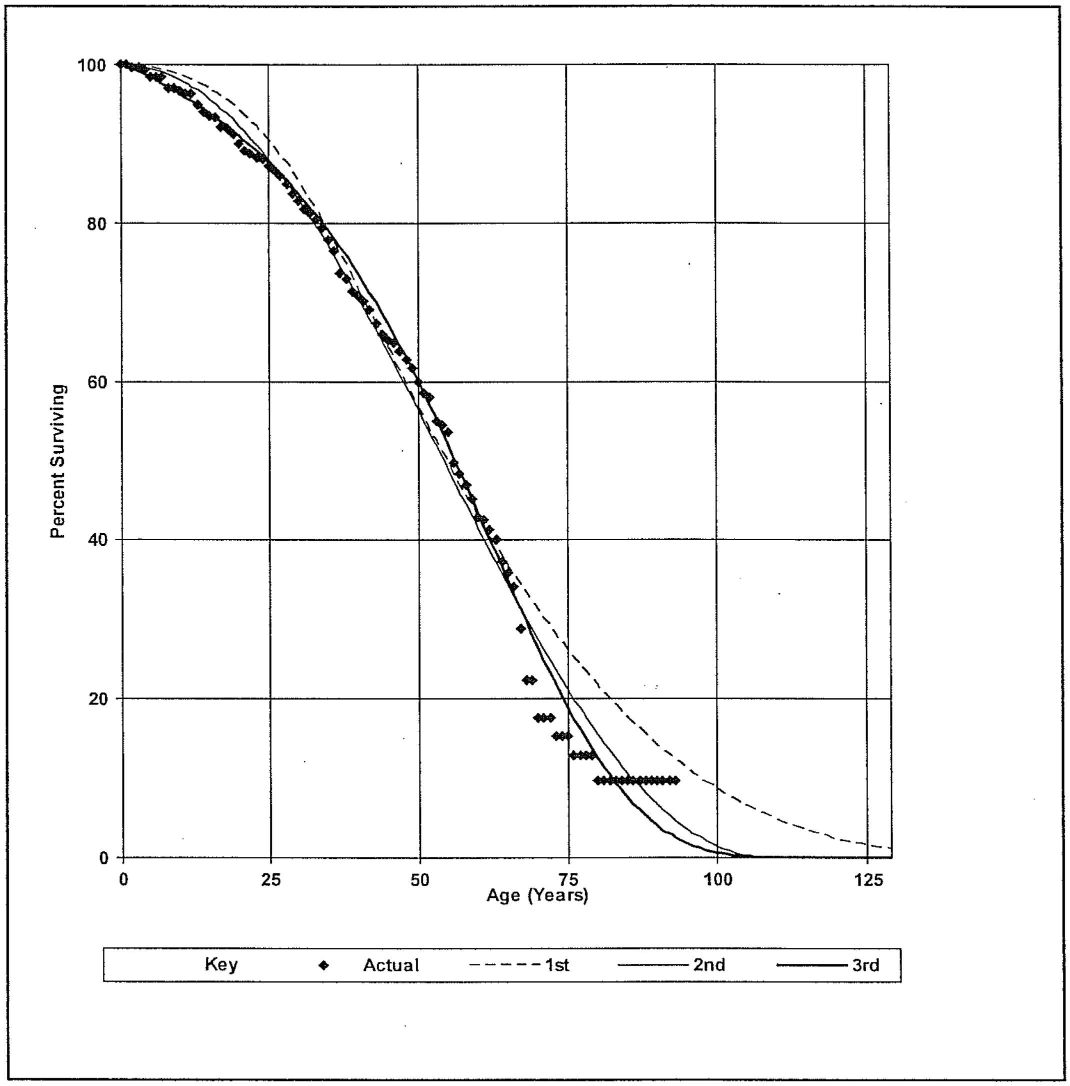
Placement Band: 1917-2013 Observation Band: 1981-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Graphics Analysis

1st: 57.8-L1.5 2nd: 53.8-S0.5 3rd: 53.6-R1.5



Schedule D

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: TSHVSDTR HV Stepdown Transformers

T-Cut: None

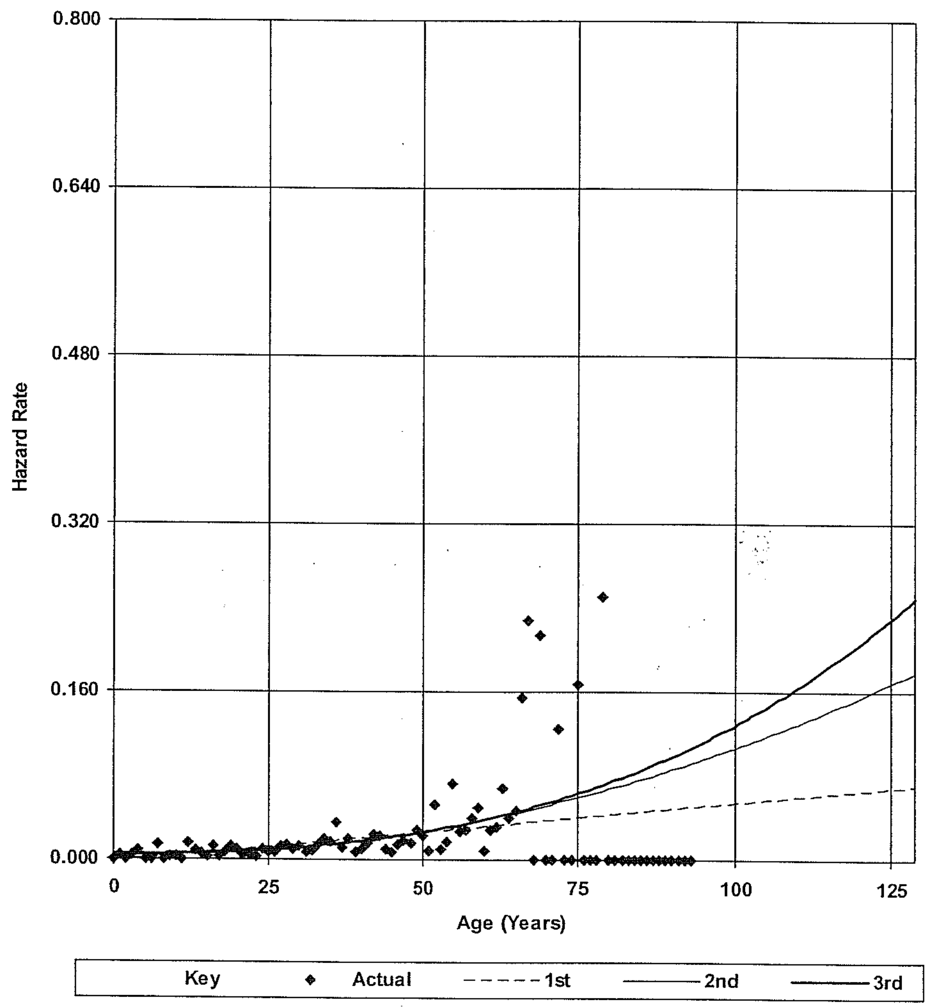
Placement Band: 1917-2013 Observation Band: 1981-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Polynomial Hazard Function

1st: 57.8-L1.5 2nd: 53.8-S0.5 3rd: 53.6-R1.5



Schedule E

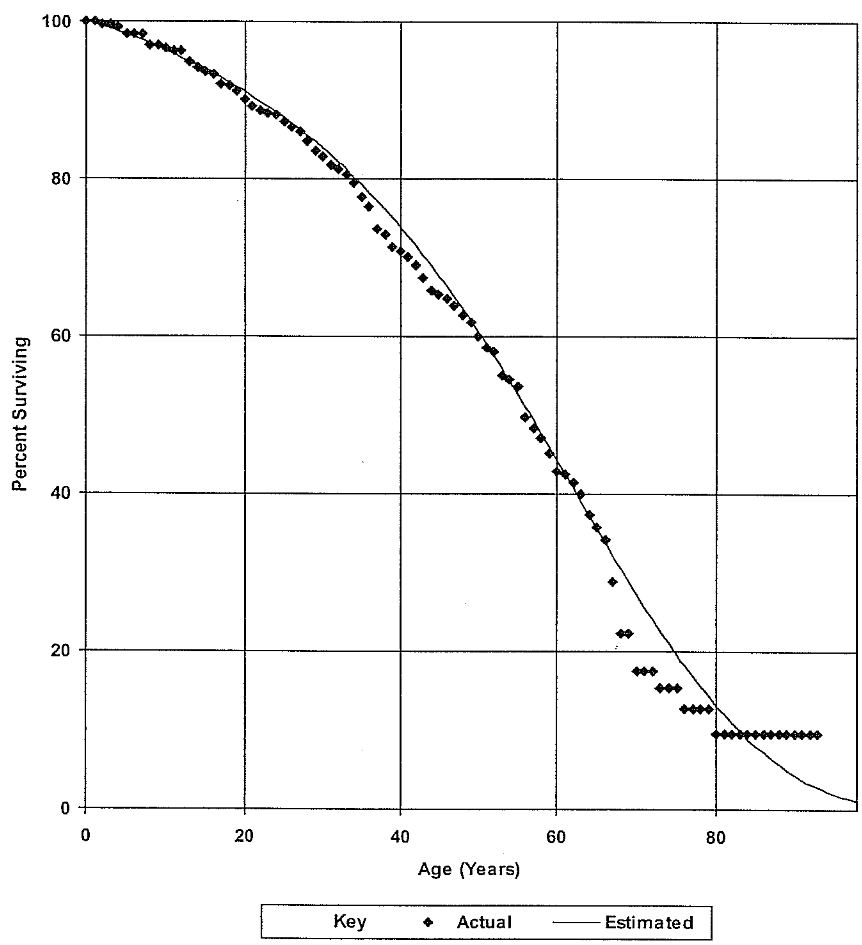
HYDRO ONE NETWORKS INC.

Transmission Stations

Account: TSHVSDTR HV Stepdown Transformers

T-Cut: None
Placement Band: 1917-2013
Observation Band: 1981-2013
54.0-R1.5

Estimated Projection Life Curve



HYDRO ONE NETWORKS INC.

Transmission Stations

Account: TSLVSDTR LV Stepdown Transformers

Placement Band: 1947 - 1973
Observation Band: 1987 - 2013

Observed Life Table

Age at Beginning of Interval	Exposures	Retirements	Conditional Proportion Retired	Conditional Proportion Surviving	Cumulative Proportion Surviving
A	B	C	D=C/B	E=1-D	F
0.0	0	0	0.00000	1.00000	1.00000
0.5	0	0	0.00000	1.00000	1.00000
1.5	0	0	0.00000	1.00000	1.00000
2.5	0	0	0.00000	1.00000	1.00000
3.5	0	0	0.00000	1.00000	1.00000
4.5	0	0	0.00000	1.00000	1.00000
5.5	0	0	0.00000	1.00000	1.00000
6.5	0	0	0.00000	1.00000	1.00000
7.5	0	0	0.00000	1.00000	1.00000
8.5	0	0	0.00000	1.00000	1.00000
9.5	0	0	0.00000	1.00000	1.00000
10.5	0	0	0.00000	1.00000	1.00000
11.5	0	0	0.00000	1.00000	1.00000
12.5	0	0	0.00000	1.00000	1.00000
13.5	2	0	0.00000	1.00000	1.00000
14.5	2	0	0.00000	1.00000	1.00000
15.5	2	0	0.00000	1.00000	1.00000
16.5	2	0	0.00000	1.00000	1.00000
17.5	2	0	0.00000	1.00000	1.00000
18.5	2	0	0.00000	1.00000	1.00000
19.5	2	0	0.00000	1.00000	1.00000
20.5	2	0	0.00000	1.00000	1.00000
21.5	2	0	0.00000	1.00000	1.00000
22.5	2	0	0.00000	1.00000	1.00000
23.5	2	0	0.00000	1.00000	1.00000
24.5	2	0	0.00000	1.00000	1.00000
25.5	5	1	0.20000	0.80000	1.00000
26.5	4	0	0.00000	1.00000	0.80000
27.5	4	0	0.00000	1.00000	0.80000
28.5	4	0	0.00000	1.00000	0.80000
29.5	4	0	0.00000	1.00000	0.80000
30.5	4	0	0.00000	1.00000	0.80000
31.5	4	1	0.25000	0.75000	0.80000
32.5	3	0	0.00000	1.00000	0.60000
33.5	3	1	0.33333	0.66667	0.60000
34.5	2	0	0.00000	1.00000	0.40000
35.5	4	0	0.00000	1.00000	0.40000

Schedule A

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: TSLVSDTR LV Stepdown Transformers

Placement Band: 1947 - 1973
Observation Band: 1987 - 2013

Observed Life Table

Age at Beginning of Interval	Exposures	Retirements	Conditional Proportion Retired	Conditional Proportion Surviving	Cumulative Proportion Surviving
A	B	C	D=C/B	E=1-D	F
36.5	4	0	0.00000	1.00000	0.40000
37.5	4	0	0.00000	1.00000	0.40000
38.5	4	0	0.00000	1.00000	0.40000
39.5	8	0	0.00000	1.00000	0.40000
40.5	7	0	0.00000	1.00000	0.40000
41.5	7	0	0.00000	1.00000	0.40000
42.5	7	1	0.14286	0.85714	0.40000
43.5	6	0	0.00000	1.00000	0.34286
44.5	6	0	0.00000	1.00000	0.34286
45.5	6	0	0.00000	1.00000	0.34286
46.5	6	0	0.00000	1.00000	0.34286
47.5	6	0	0.00000	1.00000	0.34286
48.5	6	1	0.16667	0.83333	0.34286
49.5	5	0	0.00000	1.00000	0.28571
50.5	5	0	0.00000	1.00000	0.28571
51.5	5	0	0.00000	1.00000	0.28571
52.5	4	0	0.00000	1.00000	0.28571
53.5	4	0	0.00000	1.00000	0.28571
54.5	4	0	0.00000	1.00000	0.28571
55.5	4	0	0.00000	1.00000	0.28571
56.5	4	0	0.00000	1.00000	0.28571
57.5	4	0	0.00000	1.00000	0.28571
58.5	4	0	0.00000	1.00000	0.28571
59.5	4	0	0.00000	1.00000	0.28571
60.5	4	0	0.00000	1.00000	0.28571
61.5	4	0	0.00000	1.00000	0.28571
62.5	3	0	0.00000	1.00000	0.28571
63.5	3	0	0.00000	1.00000	0.28571
64.5	3	0	0.00000	1.00000	0.28571
65.5	3	0	0.00000	1.00000	0.28571
66.5	0	0	0.00000	1.00000	0.28571

Schedule B1

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: TSLVSDTR LV Stepdown Transformers

T-Cut: None
Placement Band: 1947-1973
Hazard Function: Proportion Retired
Weighting: Exposures

Rolling Band Life Analysis

		First Degree			Second Degree			Third Degree		
Observation Band	Censoring	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1987-1991	66.7	48.5	O4*	48.66	76.2	O4*	22.13	29.4	L2*	30.91
1988-1992	100.0				No Retirements					
1989-1993	50.0	58.7	O4*	39.20	76.0	O4*	18.18	50.6	O3*	19.53
1990-1994	41.7	28.2	O2	34.22	55.2	O4*	21.35	57.9	O4*	18.73
1991-1995	25.0	23.5	O3	41.87	47.6	O3*	21.71	49.3	O3*	19.84
1992-1996	18.8	31.4	L1.5*	22.98	44.6	L2*	17.95	30.2	L4*	27.18
1993-1997	18.8	24.5	L0	35.36	38.0	L3*	21.72	30.2	L4*	27.07
1994-1998	37.5	44.5	S3*	16.16	57.6	O3*	26.41	0.3	S0*	92.01
1995-1999	75.0	54.7	S3*	13.39	54.1	S3*	10.93	0.6	O2*	96.75
1996-2000	80.0	55.0	L3*	14.53	87.4	O3*	19.87	0.3	SC*	97.42
1997-2001	100.0				No Retirements					
1998-2002	100.0				No Retirements					
1999-2003	100.0				No Retirements					
2000-2004	100.0				No Retirements					
2001-2005	100.0				No Retirements					
2002-2006	100.0				No Retirements					
2003-2007	50.0	5.7	O4*	72.58	14.4	O3*	62.12	40.4	L4*	20.18
2004-2008	50.0	4.4	O4*	73.92	2.6	O3*	76.78	41.3	L3*	19.15
2005-2009	50.0	3.4	O4*	74.99	1.0	O3*	78.90	35.1	L3*	29.27
2006-2010	50.0	2.6	O4*	75.87	0.6	O3*	79.27	0.3	SC*	79.90
2007-2011	50.0	2.0	O4*	76.58	0.3	R1*	79.42	0.3	SC*	79.53
2008-2012	100.0				No Retirements					
2009-2013	100.0				No Retirements					

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: TSLVSDTR LV Stepdown Transformers

T-Cut: None
Placement Band: 1947-1973
Hazard Function: Proportion Retired
Weighting: Exposures

Shrinking Band Life Analysis

		First Degree			Second Degree			Third Degree		
Observation Band	Censoring	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1987-2013	28.6	35.7	O4 *	38.32	76.0	O4 *	8.74	45.4	L1 *	6.40
1989-2013	35.7	44.2	O4 *	37.59	91.4	O4 *	7.23	51.3	L1 *	7.14
1991-2013	27.8	32.6	O4 *	43.81	82.1	O4 *	7.76	46.8	L1.5 *	7.37
1993-2013	27.8	21.5	O4 *	51.27	71.2	O4 *	8.95	43.1	L2 *	9.21
1995-2013	55.6	51.2	O4 *	43.70	107.8	O3 *	8.18	56.2	L1.5 *	9.83
1997-2013	50.0	53.0	O4 *	41.74	74.9	O4 *	28.67	56.1	S1 *	7.64
1999-2013	50.0	37.3	O4 *	49.55	39.9	O4 *	47.82	54.5	S1 *	7.31
2001-2013	50.0	23.3	O4 *	57.35	11.1	O4 *	64.91	52.6	L2 *	7.77
2003-2013	50.0	12.6	O4 *	64.46	3.3	O3 *	74.00	43.5	L1.5 *	18.88
2005-2013	50.0	6.1	O4 *	70.28	1.2	O3 *	77.26	0.5	L5 *	78.36
2007-2013	50.0	2.9	O4 *	74.55	0.4	S3 *	78.44	0.3	SC *	78.82
2009-2013	100.0				No Retirements					
2011-2013	100.0				No Retirements					
2013-2013	100.0				No Retirements					

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: TSLVSDTR LV Stepdown Transformers

T-Cut: None
Placement Band: 1947-1973
Hazard Function: Proportion Retired
Weighting: Exposures

Progressing Band Life Analysis

Observation Band	Censoring	First Degree Average Life	First Degree Disper-sion	First Degree Conf. Index	Second Degree Average Life	Second Degree Disper-sion	Second Degree Conf. Index	Third Degree Average Life	Third Degree Disper-sion	Third Degree Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1987-1988	66.7	13.0	O4*	69.69	30.5	L2 *	41.86	20.6	L5 *	49.95
1987-1990	66.7	37.9	O4*	54.05	61.4	O4 *	27.62	26.4	L3 *	36.77
1987-1992	66.7	57.4	O4*	44.37	89.3	O4 *	17.64	32.2	L2 *	25.73
1987-1994	27.8	25.1	O4*	38.61	60.2	O4 *	11.51	32.0	L2 *	15.31
1987-1996	20.8	30.5	O2	21.12	58.8	O4 *	9.52	32.2	L2 *	13.29
1987-1998	20.8	30.9	O2	22.69	70.9	O4 *	8.82	35.6	L2 *	8.70
1987-2000	26.7	31.6	O3	26.28	77.9	O4 *	8.00	39.0	L2 *	8.50
1987-2002	26.7	33.3	O3	27.38	83.0	O4 *	8.05	42.9	L1.5 *	7.59
1987-2004	27.4	37.3	O4*	28.26	86.9	O4 *	8.51	47.5	L1 *	7.82
1987-2006	41.1	43.6	O4*	33.03	90.0	O4 *	7.28	51.6	L0.5 *	7.53
1987-2008	27.4	34.2	O4*	38.21	76.5	O4 *	7.10	44.0	L1 *	6.91
1987-2010	28.6	35.0	O4*	38.47	76.9	O4 *	7.53	44.6	L1 *	6.67
1987-2012	28.6	35.5	O4*	38.41	76.5	O4 *	8.26	45.1	L1 *	6.48
1987-2013	28.6	35.7	O4*	38.32	76.0	O4 *	8.74	45.4	L1 *	6.40

Schedule C

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: TSLVSDTR LV Stepdown Transformers

T-Cut: None

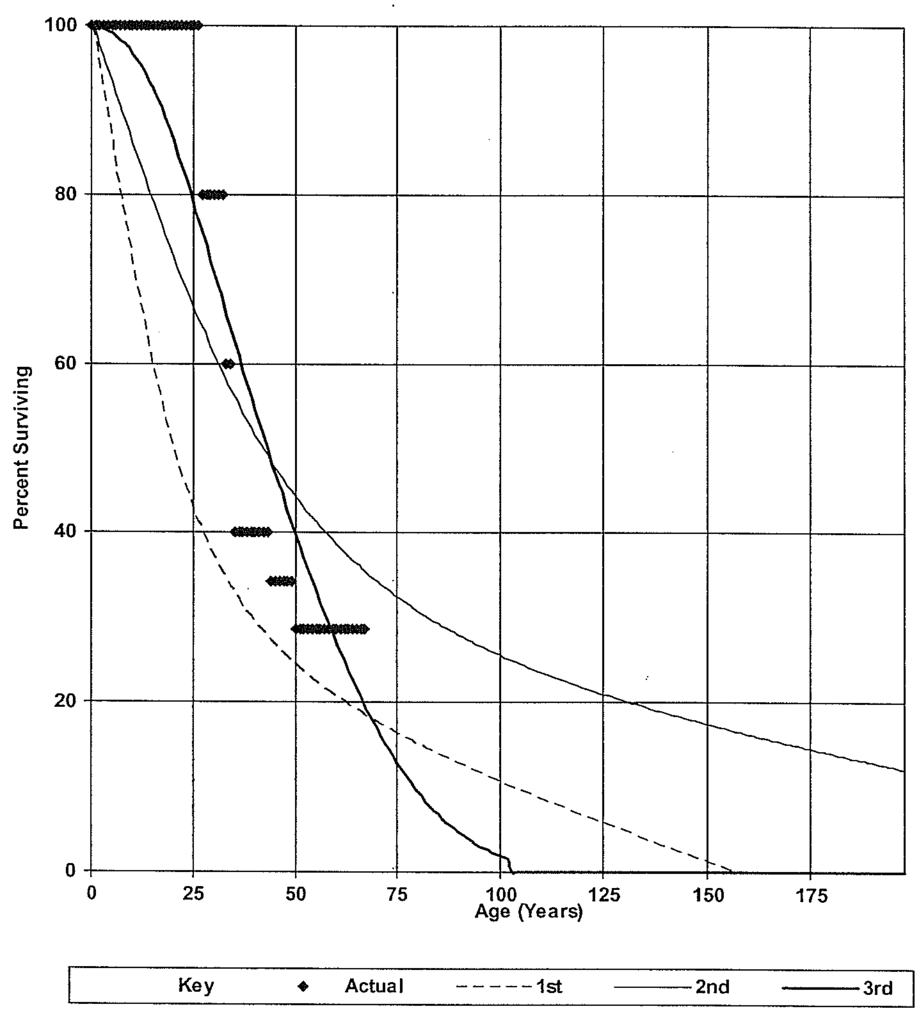
Placement Band: 1947-1973 Observation Band: 1987-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Graphics Analysis

1st: 35.7-O4 2nd: 76.0-O4 3rd: 45.4-L1



Schedule D

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: TSLVSDTR LV Stepdown Transformers

T-Cut: None

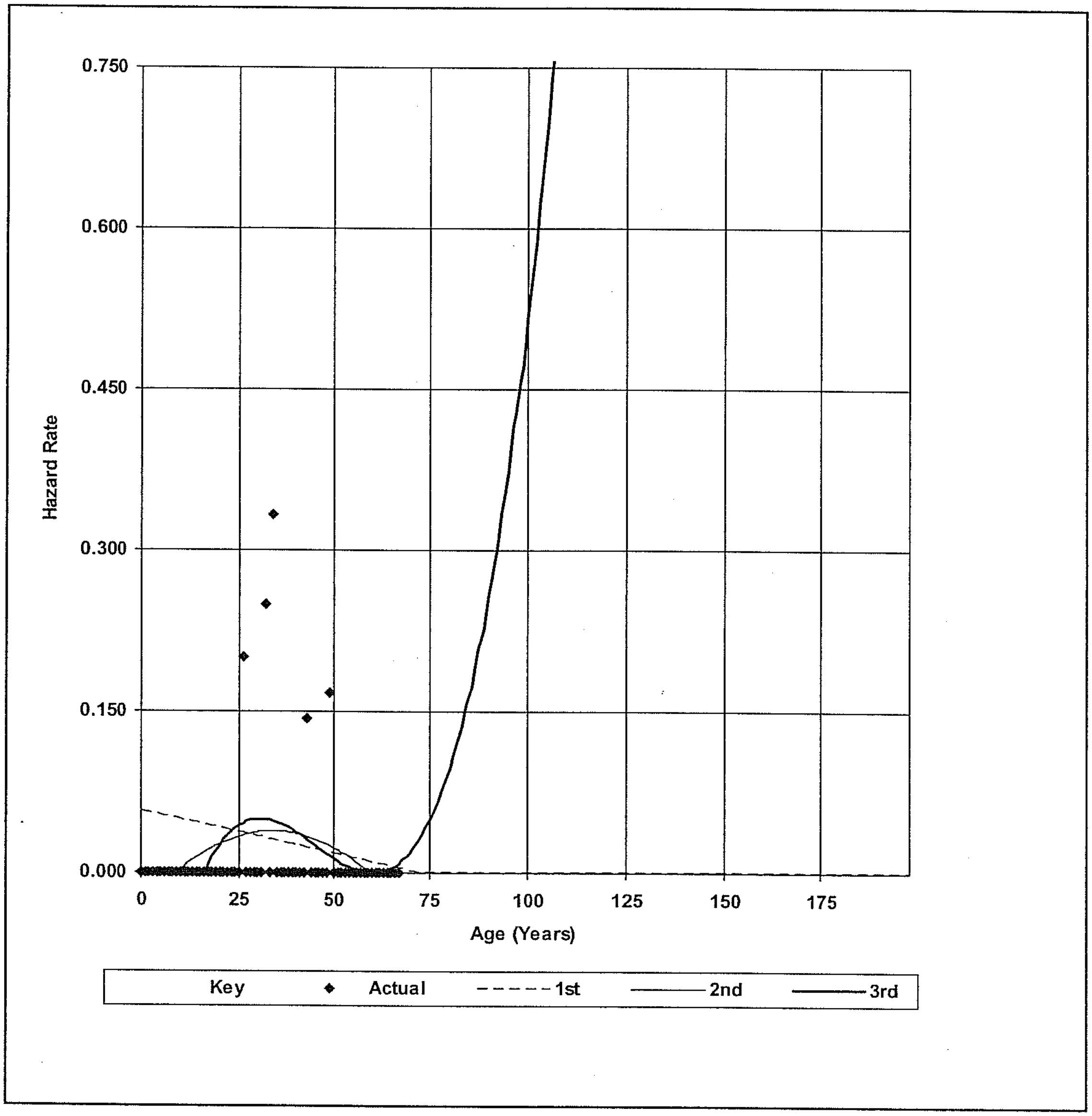
Placement Band: 1947-1973 Observation Band: 1987-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Polynomial Hazard Function

1st: 35.7-O4 2nd: 76.0-O4 3rd: 45.4-L1



Schedule E

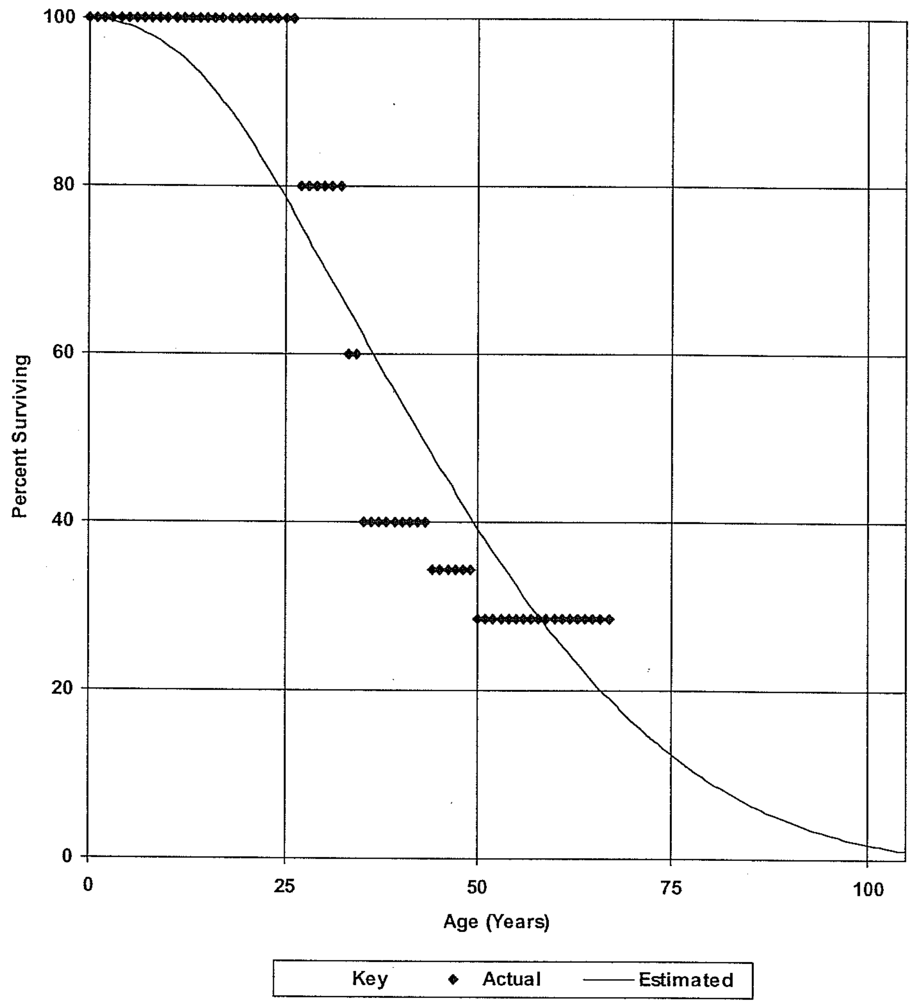
HYDRO ONE NETWORKS INC.

Transmission Stations

Account: TSLVSDTR LV Stepdown Transformers

T-Cut: None
Placement Band: 1947-1973
Observation Band: 1987-2013
45.0-L1

Estimated Projection Life Curve



HYDRO ONE NETWORKS INC.

Transmission Stations

Account: REACTOR Reactors

Placement Band: 1966 - 2013
Observation Band: 2000 - 2013

Observed Life Table

Age at Beginning of Interval	Exposures	Retirements	Conditional Proportion Retired	Conditional Proportion Surviving	Cumulative Proportion Surviving
A	B	C	D=C/B	E=1-D	F
0.0	411	2	0.00487	0.99513	1.00000
0.5	403	0	0.00000	1.00000	0.99513
1.5	335	2	0.00597	0.99403	0.99513
2.5	291	0	0.00000	1.00000	0.98919
3.5	282	0	0.00000	1.00000	0.98919
4.5	246	6	0.02439	0.97561	0.98919
5.5	191	4	0.02094	0.97906	0.96507
6.5	184	0	0.00000	1.00000	0.94486
7.5	200	0	0.00000	1.00000	0.94486
8.5	182	0	0.00000	1.00000	0.94486
9.5	142	10	0.07042	0.92958	0.94486
10.5	125	1	0.00800	0.99200	0.87832
11.5	95	0	0.00000	1.00000	0.87129
12.5	91	0	0.00000	1.00000	0.87129
13.5	87	1	0.01149	0.98851	0.87129
14.5	89	0	0.00000	1.00000	0.86127
15.5	90	3	0.03333	0.96667	0.86127
16.5	81	3	0.03704	0.96296	0.83257
17.5	69	0	0.00000	1.00000	0.80173
18.5	69	0	0.00000	1.00000	0.80173
19.5	69	0	0.00000	1.00000	0.80173
20.5	60	3	0.05000	0.95000	0.80173
21.5	44	0	0.00000	1.00000	0.76164
22.5	41	0	0.00000	1.00000	0.76164
23.5	42	0	0.00000	1.00000	0.76164
24.5	37	3	0.08108	0.91892	0.76164
25.5	28	0	0.00000	1.00000	0.69989
26.5	28	0	0.00000	1.00000	0.69989
27.5	28	0	0.00000	1.00000	0.69989
28.5	28	6	0.21429	0.78571	0.69989
29.5	24	0	0.00000	1.00000	0.54991
30.5	18	0	0.00000	1.00000	0.54991
31.5	18	0	0.00000	1.00000	0.54991
32.5	18	0	0.00000	1.00000	0.54991
33.5	20	3	0.15000	0.85000	0.54991
34.5	14	0	0.00000	1.00000	0.46743
35.5	14	0	0.00000	1.00000	0.46743

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: REACTOR Reactors

Placement Band: 1966 - 2013
Observation Band: 2000 - 2013

Observed Life Table

Age at Beginning of Interval	Exposures	Retirements	Conditional Proportion Retired	Conditional Proportion Surviving	Cumulative Proportion Surviving
A	B	C	D=C/B	E=1-D	F
36.5	14	0	0.00000	1.00000	0.46743
37.5	8	0	0.00000	1.00000	0.46743
38.5	8	0	0.00000	1.00000	0.46743
39.5	8	0	0.00000	1.00000	0.46743
40.5	8	0	0.00000	1.00000	0.46743
41.5	8	0	0.00000	1.00000	0.46743
42.5	8	0	0.00000	1.00000	0.46743
43.5	2	1	0.50000	0.50000	0.46743
44.5	1	1	1.00000	0.00000	0.23371
45.5	0	0	0.00000	1.00000	0.00000

Schedule B1

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: REACTOR Reactors

T-Cut: None

Placement Band: 1966-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Rolling Band Life Analysis

Observation Band	Censoring	First Degree Average Life	First Degree Disper-sion	First Degree Conf. Index	Second Degree Average Life	Second Degree Disper-sion	Second Degree Conf. Index	Third Degree Average Life	Third Degree Disper-sion	Third Degree Conf. Index
A	B	C	D	E	F	G	H	I	J	K
2000-2004	75.8	144.3	SC *	3.59	144.3	SC *	3.67	36.4	R1 *	2.99
2001-2005	76.7	149.5	SC *	3.13	147.9	SC *	3.54	37.3	R1 *	3.00
2002-2006	66.3	116.3	SC *	4.76	132.9	SC *	3.22	37.9	R1 *	2.51
2003-2007	72.6	63.4	L0	6.20	146.3	SC *	3.92	67.7	R1 *	3.80
2004-2008	51.3	37.2	L1	5.78	98.4	O4 *	4.45	99.2	O4 *	4.62
2005-2009	53.6	39.0	L1	5.92	102.8	O4 *	5.15	102.3	O4 *	5.12
2006-2010	18.2	32.8	L1	6.23	52.0	O4 *	5.98	62.1	O4 *	5.82
2007-2011	0.0	34.0	L1 *	6.87	33.3	S0	7.16	32.4	R1 *	8.20
2008-2012	0.0	29.3	L1.5 *	5.76	29.3	S0.5	5.46	29.3	S0.5	5.48
2009-2013	0.0	34.8	L1.5 *	6.55	33.8	S1	6.22	33.6	R1.5	6.84

Schedule B2

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: REACTOR Reactors

T-Cut: None

Placement Band: 1966-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Shrinking Band Life Analysis

Observation Band	Censoring	First Degree Average Life	First Degree Disper-sion	First Degree Conf. Index	Second Degree Average Life	Second Degree Disper-sion	Second Degree Conf. Index	Third Degree Average Life	Third Degree Disper-sion	Third Degree Conf. Index
A	B	C	D	E	F	G	H	I	J	K
2000-2013	0.0	37.6	L1	6.21	36.6	L1	6.10	34.6	R1	5.94
2002-2013	0.0	36.0	L1	5.84	35.6	L1	5.79	33.7	R1	5.64
2004-2013	0.0	35.7	L1 *	6.03	35.0	L1.5	5.92	34.1	S0.5	5.79
2006-2013	0.0	33.5	L1.5 *	5.12	33.3	L1.5	5.07	33.0	L1.5 *	5.10
2008-2013	0.0	32.4	L1.5 *	6.50	32.1	S0.5	5.79	32.1	S0.5	5.79
2010-2013	0.0	32.3	L1.5 *	7.01	32.2	S1	6.87	32.2	S1 *	7.37
2012-2013	26.7	31.5	L1.5 *	7.63	31.5	L2 *	7.70	54.6	O4 *	9.67

Schedule B3

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: REACTOR Reactors

T-Cut: None

Placement Band: 1966-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Progressing Band Life Analysis

Observation Band	Censoring	First Degree Average Life	First Degree Disper-sion	First Degree Conf. Index	Second Degree Average Life	Second Degree Disper-sion	Second Degree Conf. Index	Third Degree Average Life	Third Degree Disper-sion	Third Degree Conf. Index
A	B	C	D	E	F	G	H	I	J	K
2000-2001	93.3	199.0	SQ	6.58	199.0	SQ	6.58	199.0	SQ	6.58
2000-2003	78.0	144.5	SC *	4.66	144.4	SC *	5.05	37.9	R1 *	3.92
2000-2005	77.6	155.4	R0.5 *	2.93	154.3	R0.5 *	3.14	39.3	R1.5 *	2.46
2000-2007	72.6	87.4	O3	4.38	141.5	SC *	3.00	45.2	R1 *	2.05
2000-2009	56.1	47.3	L0	3.70	122.3	SC *	2.82	122.3	SC *	2.78
2000-2011	0.0	40.8	L0.5	7.28	39.7	L0.5	7.31	35.0	R1 *	7.48
2000-2013	0.0	37.6	L1	6.21	36.6	L1	6.10	34.6	R1	5.94

Schedule C

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: REACTOR Reactors

T-Cut: None

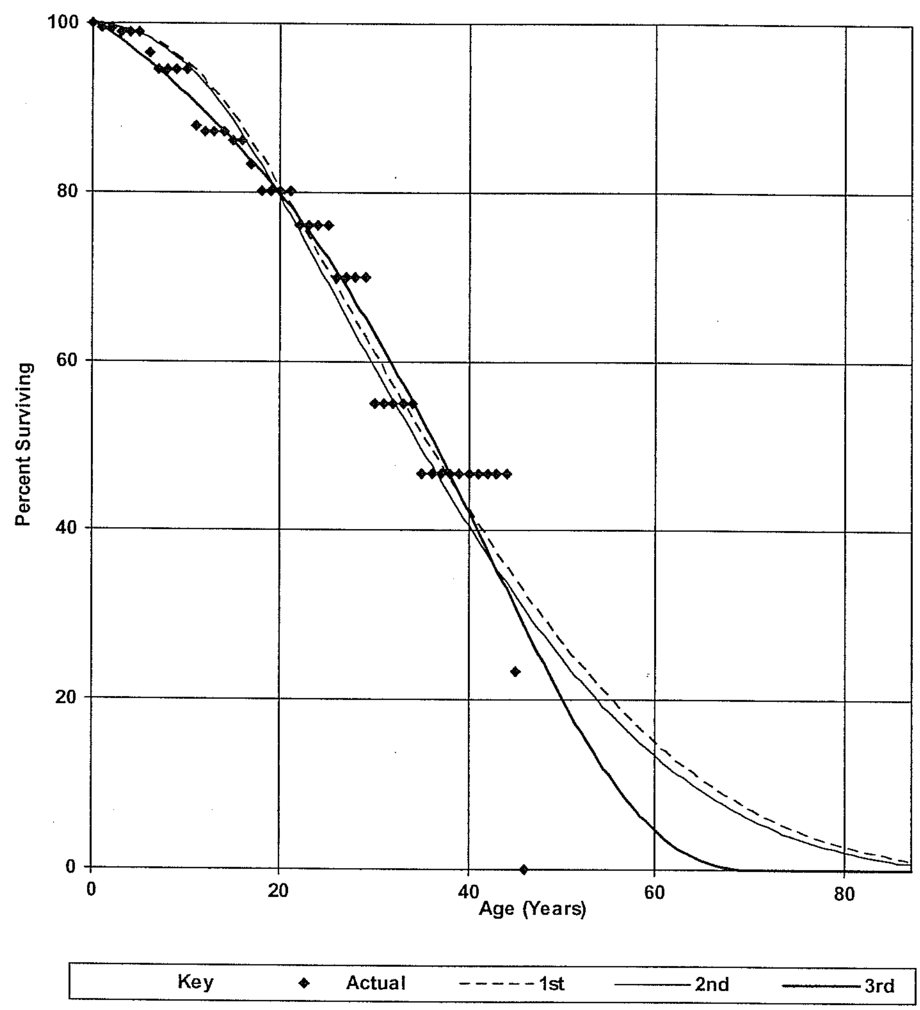
Placement Band: 1966-2013 Observation Band: 2000-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Graphics Analysis

1st: 37.6-L1 2nd: 36.6-L1 3rd: 34.6-R1



Schedule D

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: REACTOR Reactors

T-Cut: None

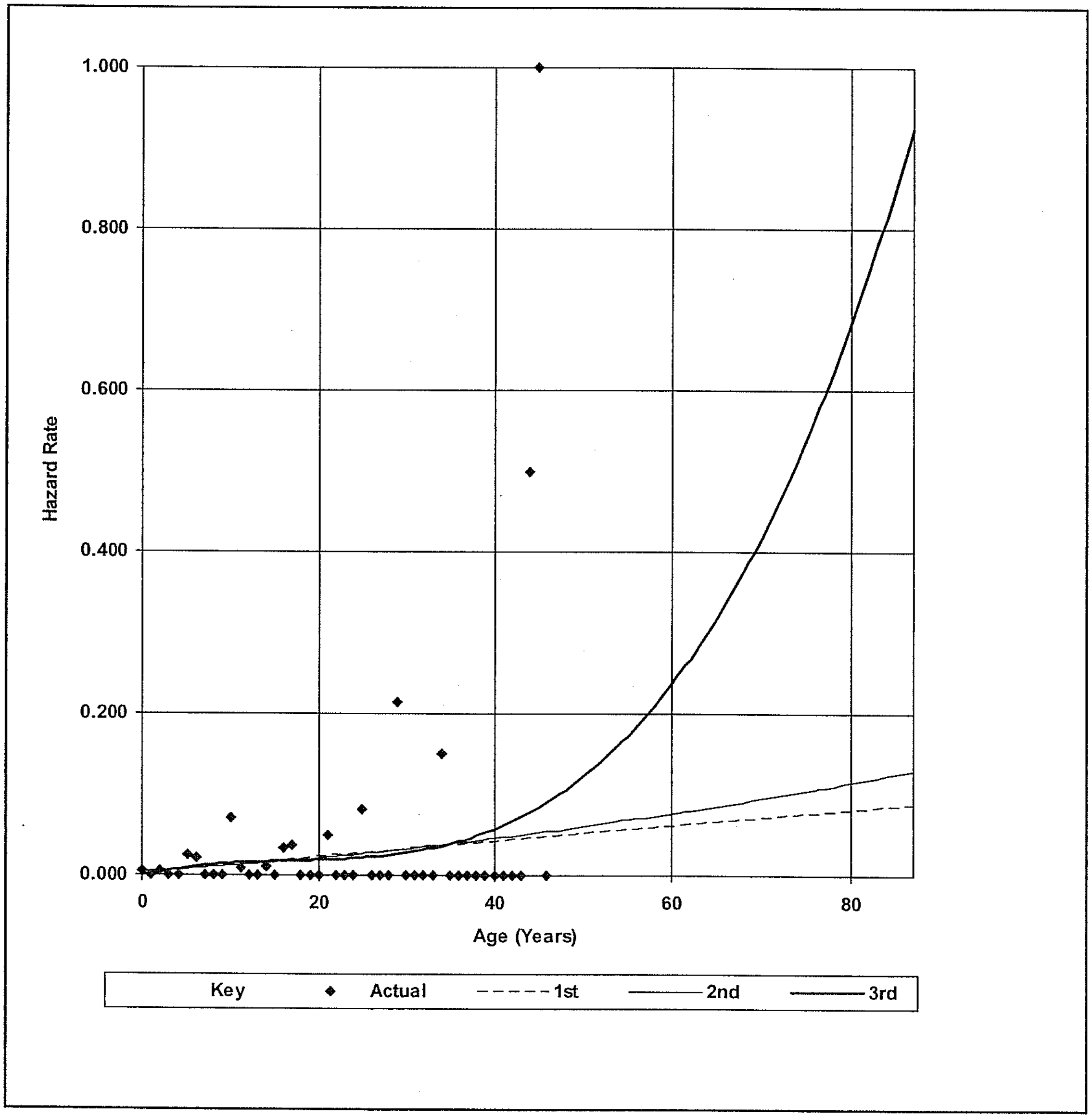
Placement Band: 1966-2013 Observation Band: 2000-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Polynomial Hazard Function

1st: 37.6-L1 2nd: 36.6-L1 3rd: 34.6-R1



Schedule E

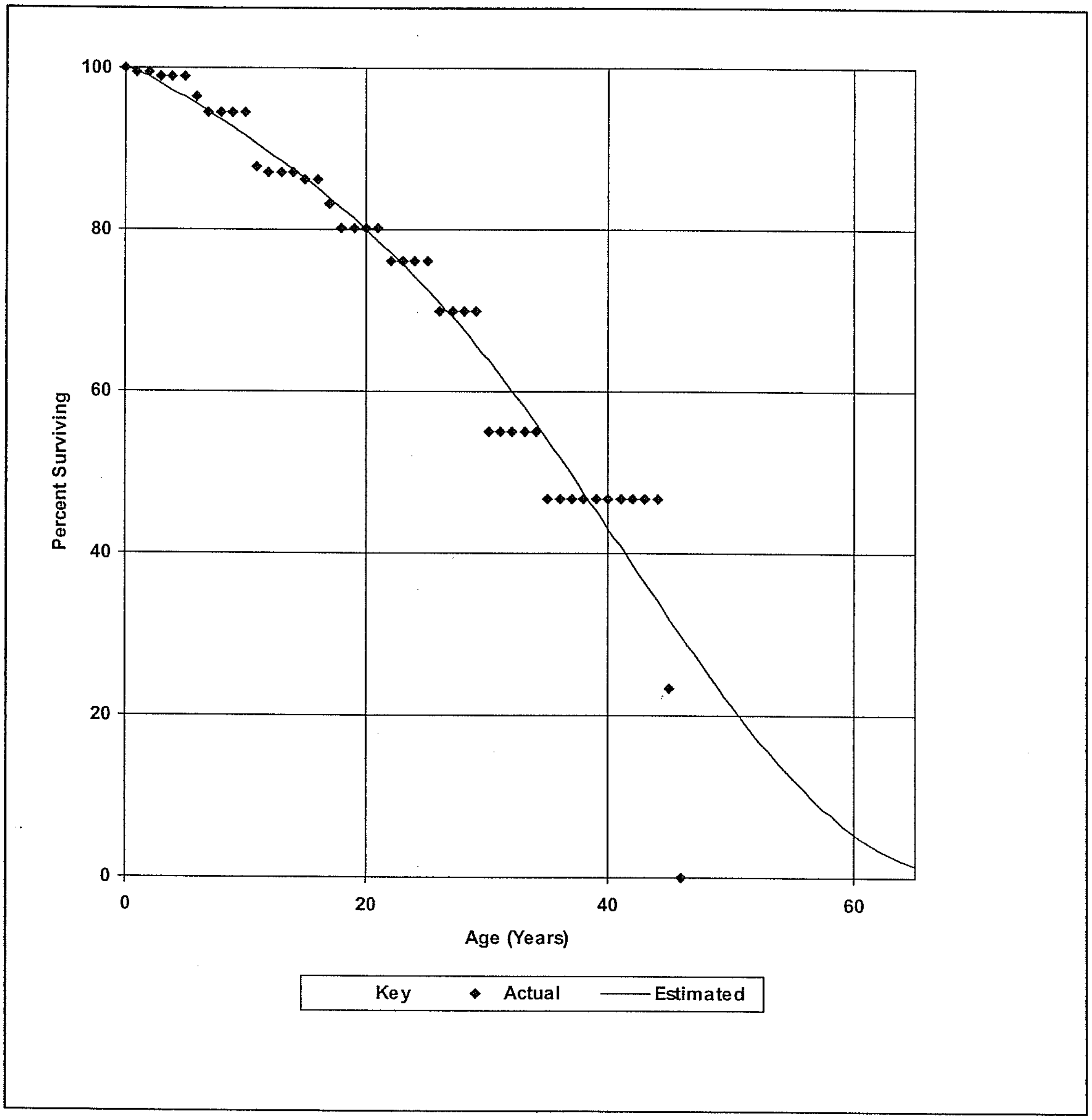
HYDRO ONE NETWORKS INC.

Transmission Stations

Account: REACTOR Reactors

T-Cut: None
Placement Band: 1966-2013
Observation Band: 2000-2013
35.0-R1

Estimated Projection Life Curve



HYDRO ONE NETWORKS INC.

Transmission Stations

Account: REGLTRN Regulating Transformers

Placement Band: 1934 - 2012
Observation Band: 1984 - 2013

Observed Life Table

Age at Beginning of Interval	Exposures	Retirements	Conditional Proportion Retired	Conditional Proportion Surviving	Cumulative Proportion Surviving
A	B	C	D=C/B	E=1-D	F
0.0	1	0	0.00000	1.00000	1.00000
0.5	1	0	0.00000	1.00000	1.00000
1.5	0	0	0.00000	1.00000	1.00000
2.5	0	0	0.00000	1.00000	1.00000
3.5	0	0	0.00000	1.00000	1.00000
4.5	0	0	0.00000	1.00000	1.00000
5.5	0	0	0.00000	1.00000	1.00000
6.5	0	0	0.00000	1.00000	1.00000
7.5	0	0	0.00000	1.00000	1.00000
8.5	0	0	0.00000	1.00000	1.00000
9.5	0	0	0.00000	1.00000	1.00000
10.5	0	0	0.00000	1.00000	1.00000
11.5	0	0	0.00000	1.00000	1.00000
12.5	0	0	0.00000	1.00000	1.00000
13.5	0	0	0.00000	1.00000	1.00000
14.5	0	0	0.00000	1.00000	1.00000
15.5	0	0	0.00000	1.00000	1.00000
16.5	4	0	0.00000	1.00000	1.00000
17.5	4	0	0.00000	1.00000	1.00000
18.5	4	0	0.00000	1.00000	1.00000
19.5	4	0	0.00000	1.00000	1.00000
20.5	4	0	0.00000	1.00000	1.00000
21.5	4	0	0.00000	1.00000	1.00000
22.5	5	0	0.00000	1.00000	1.00000
23.5	7	0	0.00000	1.00000	1.00000
24.5	13	1	0.07692	0.92308	1.00000
25.5	13	1	0.07692	0.92308	0.92308
26.5	12	0	0.00000	1.00000	0.85207
27.5	14	0	0.00000	1.00000	0.85207
28.5	16	0	0.00000	1.00000	0.85207
29.5	16	0	0.00000	1.00000	0.85207
30.5	21	3	0.14286	0.85714	0.85207
31.5	20	0	0.00000	1.00000	0.73035
32.5	21	0	0.00000	1.00000	0.73035
33.5	24	0	0.00000	1.00000	0.73035
34.5	30	3	0.10000	0.90000	0.73035
35.5	36	1	0.02778	0.97222	0.65731

Schedule A

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: REGLTRN Regulating Transformers

Placement Band: 1934 - 2012
Observation Band: 1984 - 2013

Observed Life Table

Age at Beginning of Interval	Exposures	Retirements	Conditional Proportion Retired	Conditional Proportion Surviving	Cumulative Proportion Surviving
A	B	C	D=C/B	E=1-D	F
36.5	38	0	0.00000	1.00000	0.63905
37.5	41	0	0.00000	1.00000	0.63905
38.5	45	1	0.02222	0.97778	0.63905
39.5	44	0	0.00000	1.00000	0.62485
40.5	44	1	0.02273	0.97727	0.62485
41.5	44	3	0.06818	0.93182	0.61065
42.5	42	1	0.02381	0.97619	0.56902
43.5	41	1	0.02439	0.97561	0.55547
44.5	40	1	0.02500	0.97500	0.54192
45.5	40	0	0.00000	1.00000	0.52837
46.5	39	0	0.00000	1.00000	0.52837
47.5	39	2	0.05128	0.94872	0.52837
48.5	37	3	0.08108	0.91892	0.50128
49.5	35	3	0.08571	0.91429	0.46063
50.5	32	3	0.09375	0.90625	0.42115
51.5	29	2	0.06897	0.93103	0.38167
52.5	26	0	0.00000	1.00000	0.35534
53.5	26	0	0.00000	1.00000	0.35534
54.5	26	2	0.07692	0.92308	0.35534
55.5	23	3	0.13043	0.86957	0.32801
56.5	20	0	0.00000	1.00000	0.28523
57.5	20	1	0.05000	0.95000	0.28523
58.5	19	0	0.00000	1.00000	0.27097
59.5	19	0	0.00000	1.00000	0.27097
60.5	17	0	0.00000	1.00000	0.27097
61.5	16	1	0.06250	0.93750	0.27097
62.5	14	1	0.07143	0.92857	0.25403
63.5	12	0	0.00000	1.00000	0.23588
64.5	10	0	0.00000	1.00000	0.23588
65.5	7	1	0.14286	0.85714	0.23588
66.5	5	0	0.00000	1.00000	0.20219
67.5	3	0	0.00000	1.00000	0.20219
68.5	2	0	0.00000	1.00000	0.20219
69.5	2	0	0.00000	1.00000	0.20219
70.5	2	0	0.00000	1.00000	0.20219
71.5	1	0	0.00000	1.00000	0.20219
72.5	0	0	0.00000	1.00000	0.20219

Schedule B1

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: REGLTRN Regulating Transformers

T-Cut: None

Placement Band: 1934-2012

Hazard Function: Proportion Retired

Weighting: Exposures

Rolling Band Life Analysis

Observation Band	Censoring	First Degree Average Life	First Degree Disper-sion	First Degree Conf. Index	Second Degree Average Life	Second Degree Disper-sion	Second Degree Conf. Index	Third Degree Average Life	Third Degree Disper-sion	Third Degree Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1984-1988	96.0	92.6	L2 *	3.23	174.2	R2 *	2.97	102.0	O4 *	42.54
1985-1989	94.1	129.0	R0.5	5.73	185.3	R4 *	1.64	185.3	R4 *	1.67
1986-1990	66.1	58.4	O4 *	46.65	134.0	SC *	6.74	50.6	R2 *	6.16
1987-1991	56.1	54.2	O4 *	44.63	117.8	SC *	9.77	49.7	R2 *	5.64
1988-1992	40.7	22.1	O4 *	53.35	26.2	O4 *	50.09	42.8	L1.5 *	4.81
1989-1993	26.9	8.5	O4 *	56.79	4.2	O4	61.71	26.6	L1.5 *	23.53
1990-1994	18.2	3.6	O4 *	60.74	2.4	O3 *	63.12	27.0	L3 *	17.96
1991-1995	25.4	5.2	O4 *	59.94	2.9	O3 *	63.65	1.9	O3 *	65.55
1992-1996	0.0	11.5	O4 *	48.69	0.6	O3	66.60	15.9	L3 *	40.80
1993-1997	0.0	16.5	O3	41.17	0.6	L0	69.56	31.6	L3 *	14.96
1994-1998	0.0	28.4	O2	31.19	0.7	O2	76.37	39.8	L4 *	10.54
1995-1999	0.0	51.8	L5 *	5.82	1.4	O3	83.32	47.0	S3 *	10.65
1996-2000	0.0	52.8	L5 *	7.61	1.2	O3	83.58	47.3	S3 *	10.77
1997-2001	40.9	44.5	L2 *	20.29	97.9	O3 *	5.45	0.8	O3 *	85.88
1998-2002	77.1	65.0	S3 *	8.06	135.8	SC *	8.54	0.3	SC *	95.56
1999-2003	64.2	58.9	S3 *	11.26	114.0	O3 *	11.10	0.3	SC *	93.72
2000-2004	60.6	61.5	S3 *	8.27	120.8	SC *	6.63	0.3	S0.5 *	92.55
2001-2005	55.0	53.4	L2 *	20.50	119.3	SC *	6.01	0.6	O2 *	90.52
2002-2006	32.9	38.3	L0.5	34.25	97.5	O3 *	5.95	0.5	O3 *	86.99
2003-2007	27.7	16.3	O3	63.86	90.8	O3 *	6.47	92.0	O3 *	6.21
2004-2008	10.1	2.9	O4	74.87	64.3	O3 *	6.21	50.1	L4 *	5.97
2005-2009	12.8	2.6	O4 *	75.08	59.2	O3 *	11.12	50.5	L4 *	5.59
2006-2010	7.1	1.3	O4 *	76.21	41.0	L4 *	23.42	46.9	L5 *	6.22
2007-2011	11.1	2.2	O4 *	74.75	0.5	O3	77.27	38.3	L5 *	23.53
2008-2012	10.8	1.3	O4 *	75.49	0.3	S0.5	77.12	0.3	SC	77.21
2009-2013	36.0	28.2	O4	53.47	48.5	O4 *	41.06	24.8	O2 *	56.22

Schedule B2

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: REGLTRN Regulating Transformers

T-Cut: None

Placement Band: 1934-2012

Hazard Function: Proportion Retired

Weighting: Exposures

Shrinking Band Life Analysis

Observation Band	Censoring	First Degree Average Life	First Degree Disper-sion	First Degree Conf. Index	Second Degree Average Life	Second Degree Disper-sion	Second Degree Conf. Index	Third Degree Average Life	Third Degree Disper-sion	Third Degree Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1984-2013	20.2	39.8	L0	15.94	57.7	L1.5 *	3.34	39.1	O4 *	31.94
1986-2013	14.2	31.8	O3	20.10	42.6	O2 *	10.83	27.1	O4 *	35.59
1988-2013	9.3	21.6	O3	29.72	21.9	O3	29.26	17.3	O4 *	39.44
1990-2013	8.4	14.6	O4 *	39.77	10.2	O4	45.10	9.3	O4 *	47.24
1992-2013	8.9	13.5	O4 *	42.02	11.7	O4	43.90	10.0	O4 *	47.69
1994-2013	16.6	14.4	O4 *	53.63	48.2	O3 *	19.88	45.1	O3 *	23.58
1996-2013	23.7	19.6	O3	53.86	68.8	O3 *	12.29	80.4	O3 *	4.99
1998-2013	32.4	21.0	O3	56.39	77.9	O3 *	14.50	93.6	O3 *	5.15
2000-2013	29.7	16.6	O4 *	61.78	67.2	O3 *	20.65	85.2	O3 *	8.74
2002-2013	17.6	8.8	O4 *	66.90	44.9	O3 *	30.63	57.6	O3 *	20.09
2004-2013	9.5	5.3	O4 *	69.10	26.1	L1.5 *	44.17	25.4	L1.5 *	45.02
2006-2013	8.8	3.6	O4	71.42	16.0	L0.5 *	55.34	13.8	L1.5 *	58.95
2008-2013	12.7	3.0	O4 *	72.57	9.5	O2 *	63.79	7.5	L1.5	67.87
2010-2013	35.0	18.6	O4 *	63.34	33.1	O3 *	51.46	19.6	L0.5 *	62.80
2012-2013	100.0				No Retirements					

Schedule B3

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: REGLTRN Regulating Transformers

T-Cut: None

Placement Band: 1934-2012

Hazard Function: Proportion Retired

Weighting: Exposures

Progressing Band Life Analysis

Observation Band	Censoring	First Degree Average Life	First Degree Disper- sion	First Degree Conf. Index	Second Degree Average Life	Second Degree Disper- sion	Second Degree Conf. Index	Third Degree Average Life	Third Degree Disper- sion	Third Degree Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1984-1985	85.7	62.4	L3 *	5.35	60.6	S2 *	5.42	21.0	O4 *	80.63
1984-1987	94.7	82.6	S1.5 *	3.81	149.4	SC *	3.64	76.7	O4 *	54.32
1984-1989	92.7	86.9	L2 *	4.90	175.4	R2 *	3.64	138.3	SC *	22.09
1984-1991	68.0	75.2	O4	22.58	147.6	SC *	3.36	58.9	R2 *	3.71
1984-1993	59.3	63.4	O4 *	35.87	92.9	O4 *	20.34	51.8	S0.5 *	5.62
1984-1995	52.6	46.9	O4 *	42.43	103.6	O4 *	9.10	52.1	S0 *	3.94
1984-1997	0.0	48.1	L2 *	5.11	10.3	O4	59.94	43.1	S1.5 *	5.49
1984-1999	0.0	49.3	L2 *	4.50	10.7	O4	59.59	43.6	S1.5 *	5.37
1984-2001	0.0	48.7	L2 *	4.93	14.3	O4	54.31	44.6	S1.5 *	4.79
1984-2003	14.9	48.6	L1.5 *	4.52	17.8	O4	49.12	45.3	S1 *	4.16
1984-2005	20.3	47.3	L1.5 *	6.30	24.3	O4	38.58	45.0	S0.5 *	5.86
1984-2007	22.7	47.6	L1.5 *	5.25	30.8	O3	28.34	24.6	O4 *	39.12
1984-2009	23.7	42.5	L0.5	11.94	49.0	L1.5 *	5.11	17.6	O4 *	54.82
1984-2011	17.0	44.6	L1 *	8.19	43.9	L1	9.11	25.3	O4 *	43.41
1984-2013	20.2	39.8	L0	15.94	57.7	L1.5 *	3.34	39.1	O4 *	31.94

Schedule C

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: REGLTRN Regulating Transformers

T-Cut: None

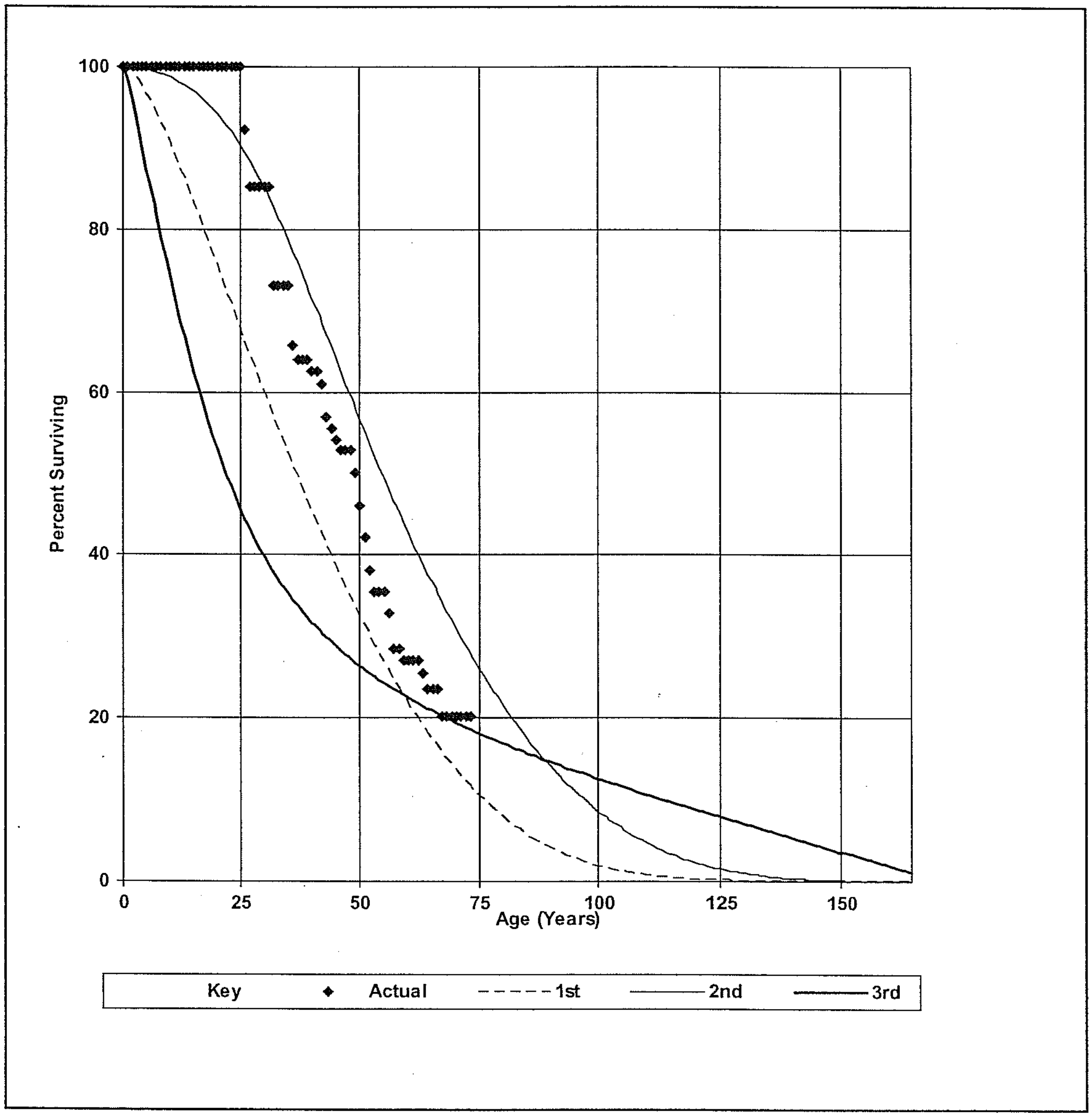
Placement Band: 1934-2012 Observation Band: 1984-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Graphics Analysis

1st: 39.8-L0 2nd: 57.7-L1.5 3rd: 39.1-O4



Schedule D

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: REGLTRN Regulating Transformers

T-Cut: None

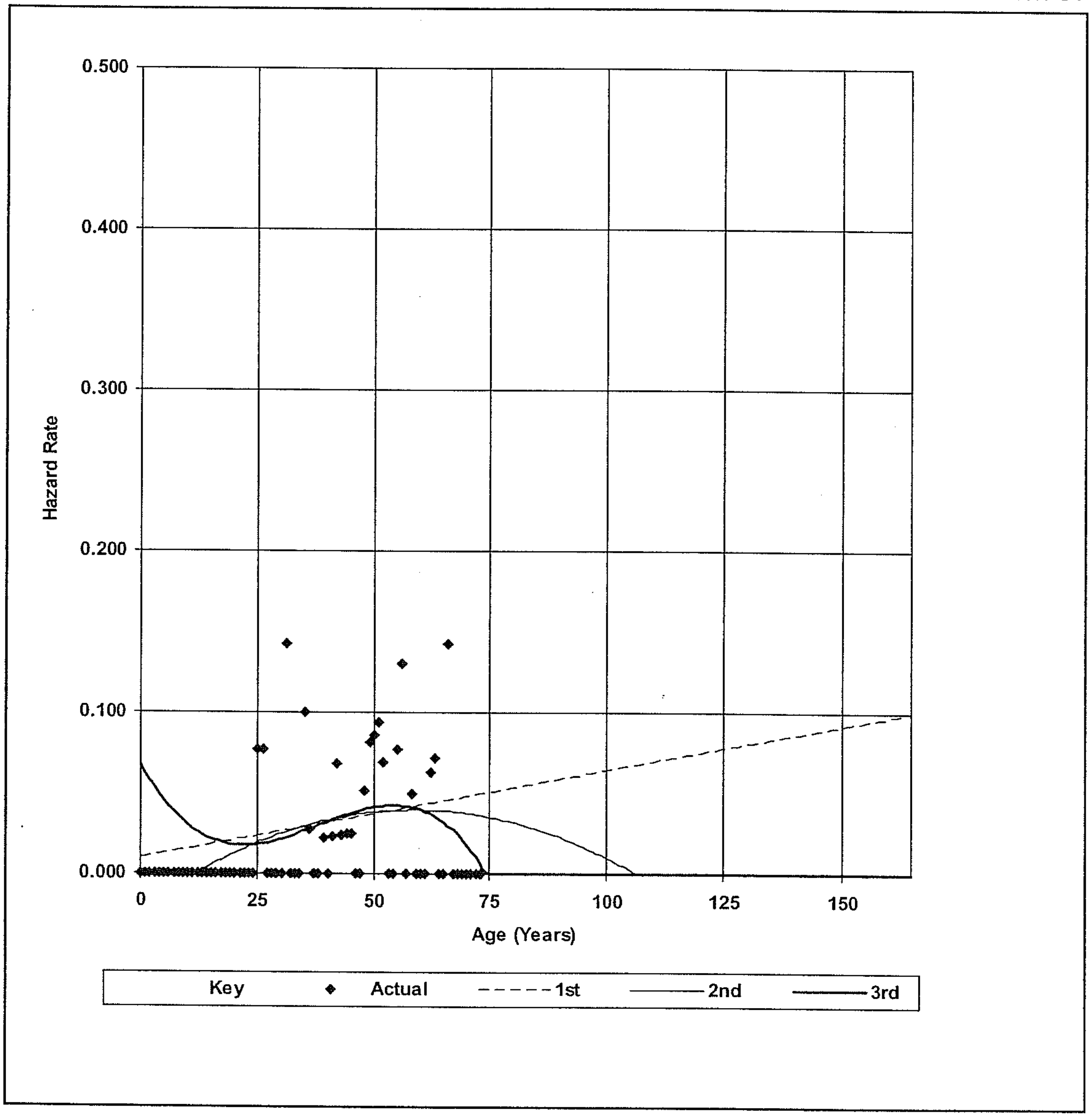
Placement Band: 1934-2012 Observation Band: 1984-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Polynomial Hazard Function

1st: 39.8-L0 2nd: 57.7-L1.5 3rd: 39.1-O4



Schedule E

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: REGLTRN Regulating Transformers

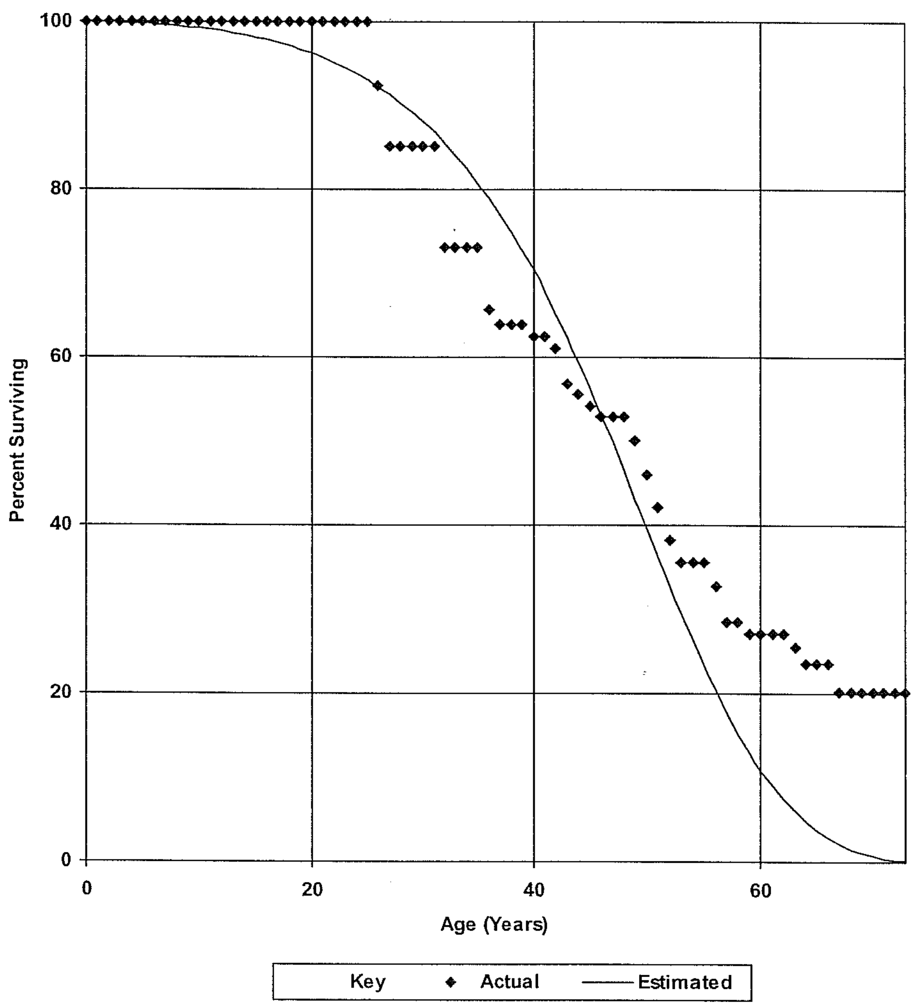
T-Cut: None

Placement Band: 1934-2012

Observation Band: 1984-2013

45.0-R3

Estimated Projection Life Curve



HYDRO ONE NETWORKS INC.

Transmission Stations

Account: SWITCHX Switches

Placement Band: 1926 - 2013
Observation Band: 1991 - 2013

Observed Life Table

Age at Beginning of Interval	Exposures	Retirements	Conditional Proportion Retired	Conditional Proportion Surviving	Cumulative Proportion Surviving
A	B	C	D=C/B	E=1-D	F
0.0	7,740	53	0.00685	0.99315	1.00000
0.5	7,081	90	0.01271	0.98729	0.99315
1.5	6,196	72	0.01162	0.98838	0.98053
2.5	5,628	68	0.01208	0.98792	0.96914
3.5	4,672	172	0.03682	0.96318	0.95743
4.5	3,830	112	0.02924	0.97076	0.92218
5.5	3,306	74	0.02238	0.97762	0.89521
6.5	2,620	32	0.01221	0.98779	0.87517
7.5	2,375	108	0.04547	0.95453	0.86448
8.5	1,978	29	0.01466	0.98534	0.82517
9.5	1,689	21	0.01243	0.98757	0.81307
10.5	1,432	12	0.00838	0.99162	0.80297
11.5	1,314	37	0.02816	0.97184	0.79624
12.5	1,208	13	0.01076	0.98924	0.77382
13.5	1,173	9	0.00767	0.99233	0.76549
14.5	1,151	10	0.00869	0.99131	0.75961
15.5	1,123	6	0.00534	0.99466	0.75302
16.5	1,086	2	0.00184	0.99816	0.74899
17.5	1,083	0	0.00000	1.00000	0.74761
18.5	1,087	3	0.00276	0.99724	0.74761
19.5	1,048	4	0.00382	0.99618	0.74555
20.5	1,044	11	0.01054	0.98946	0.74270
21.5	887	21	0.02368	0.97632	0.73488
22.5	802	4	0.00499	0.99501	0.71748
23.5	449	0	0.00000	1.00000	0.71390
24.5	404	0	0.00000	1.00000	0.71390
25.5	314	0	0.00000	1.00000	0.71390
26.5	311	1	0.00322	0.99678	0.71390
27.5	254	4	0.01575	0.98425	0.71161
28.5	71	0	0.00000	1.00000	0.70040
29.5	71	0	0.00000	1.00000	0.70040
30.5	22	0	0.00000	1.00000	0.70040
31.5	18	0	0.00000	1.00000	0.70040
32.5	18	0	0.00000	1.00000	0.70040
33.5	18	0	0.00000	1.00000	0.70040
34.5	18	2	0.11111	0.88889	0.70040
35.5	16	0	0.00000	1.00000	0.62258

Schedule A

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: SWITCHX Switches

Placement Band: 1926 - 2013
Observation Band: 1991 - 2013

Observed Life Table

Age at Beginning of Interval	Exposures	Retirements	Conditional Proportion Retired	Conditional Proportion Surviving	Cumulative Proportion Surviving
A	B	C	D=C/B	E=1-D	F
36.5	45	2	0.04444	0.95556	0.62258
37.5	50	0	0.00000	1.00000	0.59491
38.5	50	0	0.00000	1.00000	0.59491
39.5	50	4	0.08000	0.92000	0.59491
40.5	48	2	0.04167	0.95833	0.54731
41.5	42	0	0.00000	1.00000	0.52451
42.5	42	29	0.69048	0.30952	0.52451
43.5	13	2	0.15385	0.84615	0.16235
44.5	11	2	0.18182	0.81818	0.13737
45.5	9	0	0.00000	1.00000	0.11239
46.5	9	0	0.00000	1.00000	0.11239
47.5	9	0	0.00000	1.00000	0.11239
48.5	9	0	0.00000	1.00000	0.11239
49.5	9	0	0.00000	1.00000	0.11239
50.5	9	0	0.00000	1.00000	0.11239
51.5	9	0	0.00000	1.00000	0.11239
52.5	9	0	0.00000	1.00000	0.11239
53.5	9	0	0.00000	1.00000	0.11239
54.5	9	0	0.00000	1.00000	0.11239
55.5	9	0	0.00000	1.00000	0.11239
56.5	9	0	0.00000	1.00000	0.11239
57.5	9	0	0.00000	1.00000	0.11239
58.5	9	0	0.00000	1.00000	0.11239
59.5	9	0	0.00000	1.00000	0.11239
60.5	0	0	0.00000	1.00000	0.11239
61.5	0	0	0.00000	1.00000	0.11239
62.5	0	0	0.00000	1.00000	0.11239
63.5	0	0	0.00000	1.00000	0.11239
64.5	14	14	1.00000	0.00000	0.11239
65.5	0	0	0.00000	1.00000	0.00000

Schedule B1

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: SWITCHX Switches

T-Cut: None

Placement Band: 1926-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Rolling Band Life Analysis

		First Degree			Second Degree			Third Degree		
Observation Band	Censoring	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index	Average Life	Disper-sion	Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1991-1995	0.0	29.4	L2 *	38.66	38.9	R4 *	19.99	46.3	S5 *	14.58
1992-1996	0.0	89.7	L1	13.95	61.3	S3 *	12.86	50.9	S5 *	12.27
1993-1997	0.0	26.1	L2 *	28.88	31.8	S3 *	20.60	40.1	R5 *	18.33
1994-1998	10.9	26.0	L2 *	23.81	30.9	R3 *	18.90	38.3	R5 *	21.70
1995-1999	5.8	25.7	S1.5 *	14.70	29.7	S3 *	18.99	32.0	S3 *	22.34
1996-2000	4.7	26.1	L3 *	14.94	29.1	S3 *	20.88	27.9	R3 *	18.97
1997-2001	0.0	26.5	L3 *	14.92	27.7	R2.5 *	20.26	24.2	R2.5 *	15.33
1998-2002	45.7	185.7	R4 *	35.13	61.5	R3 *	33.07	124.7	SC *	19.42
1999-2003	0.0	181.2	R4 *	67.82	60.8	R2.5 *	66.11	132.0	SC *	54.68
2000-2004	91.9	179.0	R3 *	2.06	67.2	R2.5 *	2.51	159.9	R1 *	7.29
2001-2005	60.1	155.9	R0.5 *	16.77	137.3	R1 *	17.63	48.4	R1.5 *	16.10
2002-2006	59.5	157.7	R0.5 *	18.46	158.9	R1 *	18.98	48.4	R1.5 *	16.48
2003-2007	31.0	147.3	SC *	28.37	149.3	SC *	29.12	46.6	R1 *	27.69
2004-2008	27.1	125.7	SC *	26.13	134.0	SC *	28.34	40.8	SC *	24.38
2005-2009	29.2	116.8	SC *	20.95	119.3	SC *	21.63	35.1	SC *	15.04
2006-2010	19.2	124.2	SC *	23.71	127.1	SC *	24.72	39.9	SC *	21.36
2007-2011	17.7	117.7	SC *	22.76	125.3	SC *	25.23	41.4	SC *	23.16
2008-2012	23.5	120.9	SC *	21.57	124.6	SC *	22.71	42.9	SC *	20.71
2009-2013	0.0	93.7	O4 *	23.79	104.3	O4 *	26.96	37.7	SC *	26.20

Schedule B2

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: SWITCHX Switches

T-Cut: None

Placement Band: 1926-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Shrinking Band Life Analysis

Observation Band	Censoring	First Degree Average Life	First Degree Disper-sion	First Degree Conf. Index	Second Degree Average Life	Second Degree Disper-sion	Second Degree Conf. Index	Third Degree Average Life	Third Degree Disper-sion	Third Degree Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1991-2013	0.0	47.5	O3	15.52	32.9	R0.5	8.51	35.4	R0.5	9.25
1993-2013	10.2	83.5	O4 *	19.49	36.3	SC	10.54	36.4	R0.5	11.44
1995-2013	6.2	86.1	O4 *	21.72	35.4	SC	11.82	35.7	SC	13.02
1997-2013	1.4	89.2	O4 *	24.35	34.9	SC	14.14	35.3	SC	15.71
1999-2013	0.0	123.1	SC *	32.32	124.9	SC *	32.84	43.7	SC *	31.95
2001-2013	0.0	119.0	SC *	31.12	122.2	SC *	32.17	42.2	SC *	30.92
2003-2013	0.0	111.4	O4 *	28.85	117.6	SC *	30.99	40.4	SC *	29.48
2005-2013	0.0	101.4	O4 *	26.40	111.3	O4 *	29.63	38.3	SC *	27.92
2007-2013	0.0	95.4	O4 *	25.25	107.1	O4 *	28.77	37.9	SC *	27.75
2009-2013	0.0	93.7	O4 *	23.79	104.3	O4 *	26.96	37.7	SC *	26.20
2011-2013	0.0	65.6	O4 *	19.27	95.1	O4 *	24.24	36.9	SC *	24.91
2013-2013	0.0	25.1	O3	10.48	54.7	O4 *	14.34	24.3	O4 *	15.41

Schedule B3

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: SWITCHX Switches

T-Cut: None

Placement Band: 1926-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Progressing Band Life Analysis

Observation Band	Censoring	First Degree Average Life	First Degree Disper-sion	First Degree Conf. Index	Second Degree Average Life	Second Degree Disper-sion	Second Degree Conf. Index	Third Degree Average Life	Third Degree Disper-sion	Third Degree Conf. Index
A	B	C	D	E	F	G	H	I	J	K
1991-1992	0.0	21.4	L2*	74.72	38.2	R4*	56.78	45.8	S5*	47.74
1991-1994	0.0	27.5	L2*	66.75	38.9	R4*	55.24	46.3	R5*	46.86
1991-1996	0.0	32.1	L2*	34.77	39.4	R4*	19.22	46.7	S5*	15.45
1991-1998	0.0	25.7	L2*	29.02	33.5	R4*	19.40	40.5	R5*	14.79
1991-2000	0.0	28.0	L2*	21.53	33.3	R3*	17.20	41.0	R5*	16.63
1991-2002	0.0	31.0	L2*	15.98	33.7	R3*	15.86	41.2	R5*	17.10
1991-2004	0.0	34.6	L2*	19.79	34.4	R3*	19.84	41.5	R4*	11.89
1991-2006	0.0	37.4	L1.5*	18.69	34.3	R2.5*	20.76	40.7	R4*	11.23
1991-2008	0.0	39.2	L1	13.41	33.8	R2	14.38	39.3	R2.5*	9.40
1991-2010	0.0	44.3	O2	14.53	33.7	R1.5	10.97	37.9	R1.5*	9.69
1991-2012	0.0	50.4	O2	15.55	34.6	R1.5	8.83	37.5	R1.5	9.42
1991-2013	0.0	47.5	O3	15.52	32.9	R0.5	8.51	35.4	R0.5	9.25

Schedule C

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: SWITCHX Switches

T-Cut: None

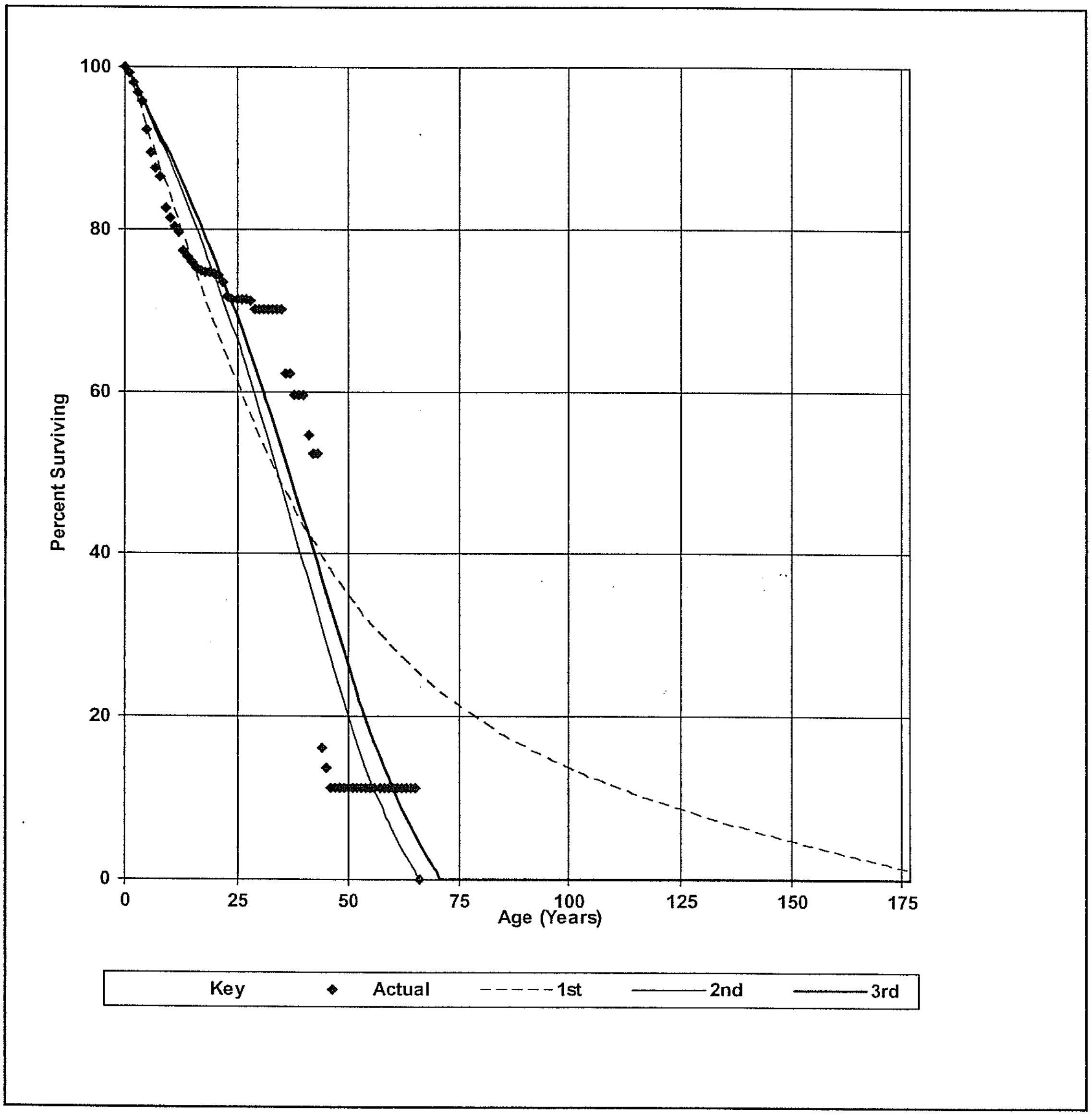
Placement Band: 1926-2013 Observation Band: 1991-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Graphics Analysis

1st: 47.5-O3 2nd: 32.9-R0.5 3rd: 35.4-R0.5



Schedule D

HYDRO ONE NETWORKS INC.

Transmission Stations

Account: SWITCHX Switches

T-Cut: None

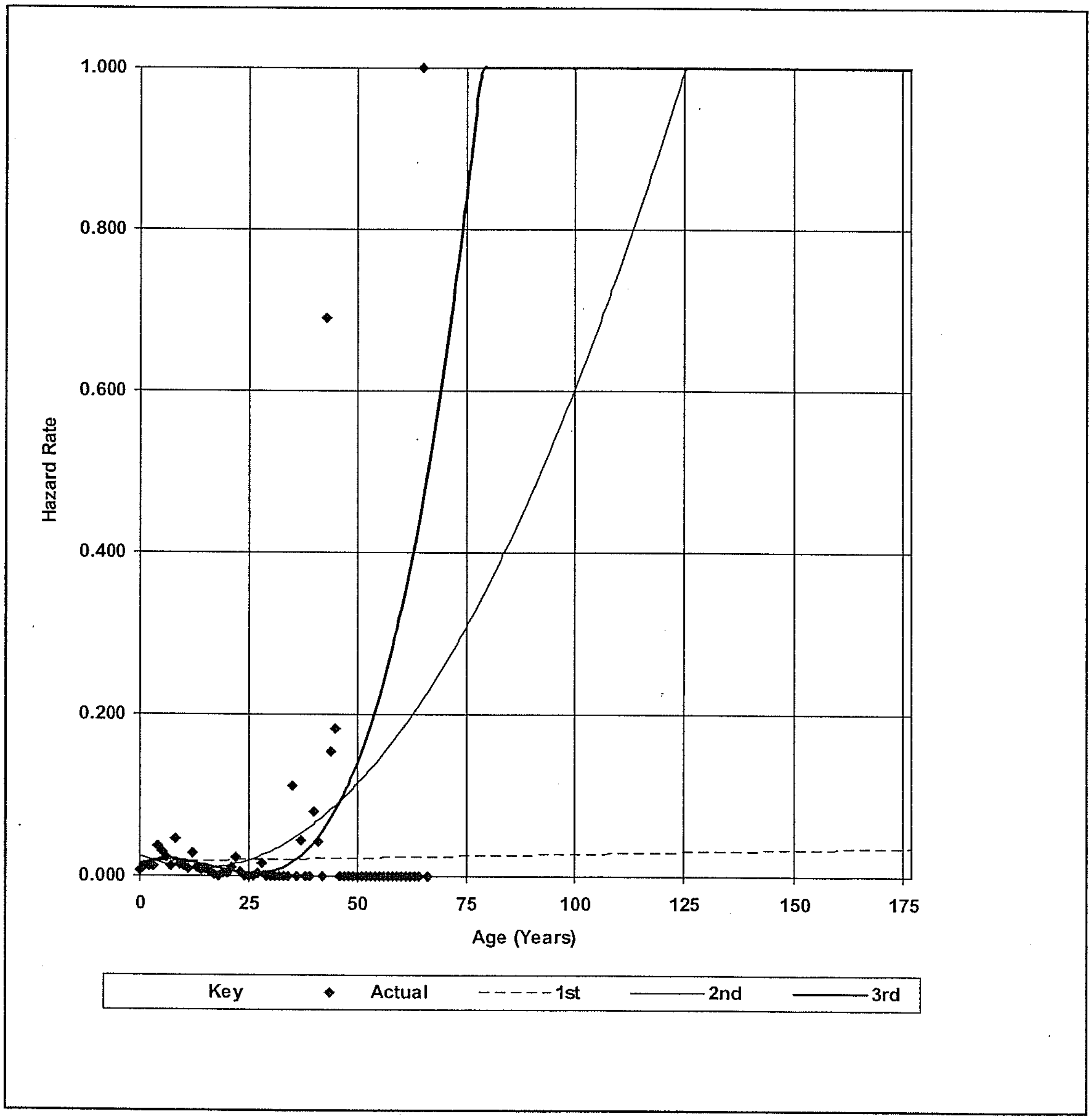
Placement Band: 1926-2013 Observation Band: 1991-2013

Hazard Function: Proportion Retired

Weighting: Exposures

Polynomial Hazard Function

1st: 47.5-O3 2nd: 32.9-R0.5 3rd: 35.4-R0.5



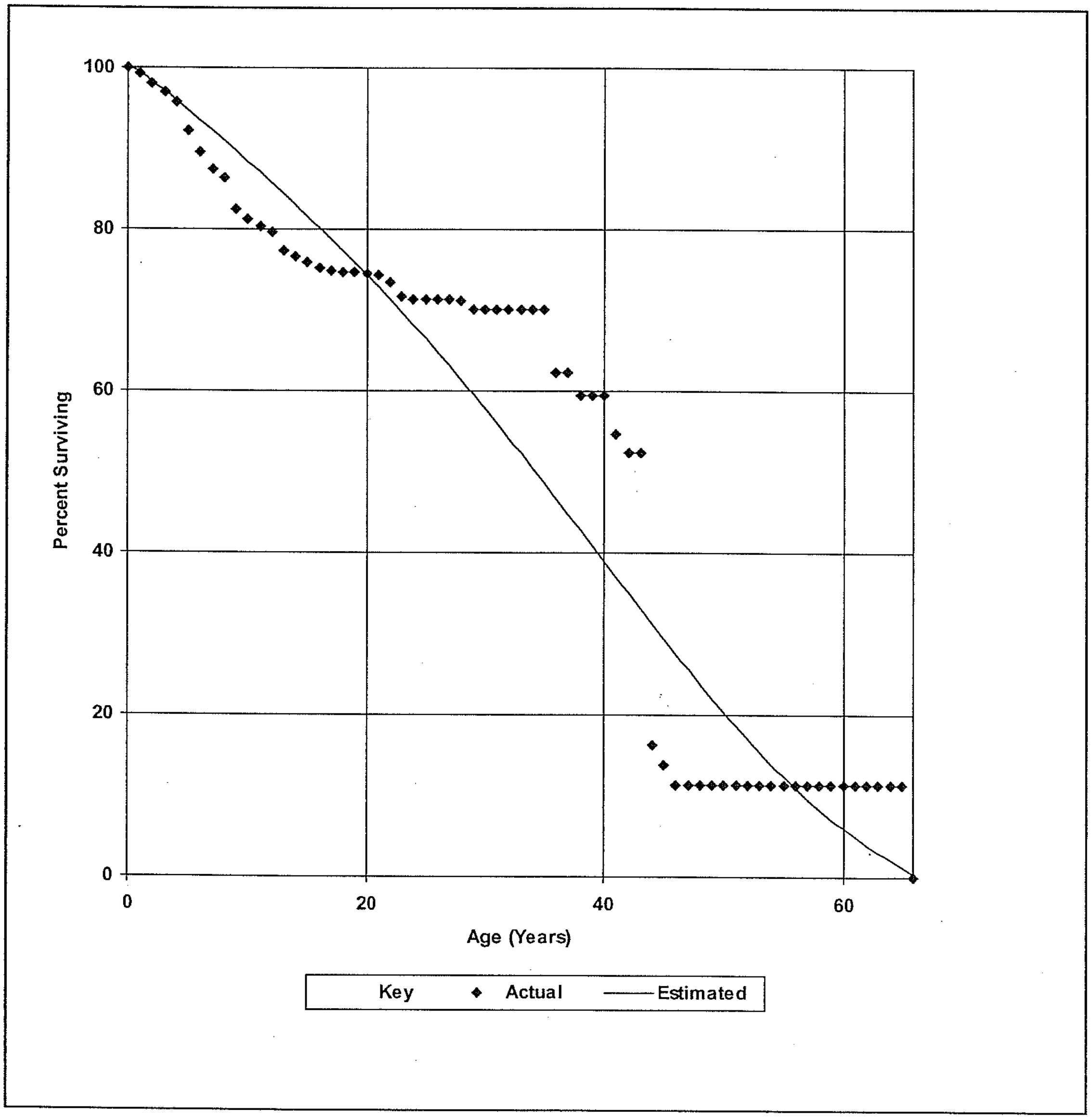
HYDRO ONE NETWORKS INC.

Transmission Stations

Account: SWITCHX Switches

T-Cut: None
Placement Band: 1926-2013
Observation Band: 1991-2013
33.0-R0.5

Estimated Projection Life Curve



Ontario Energy Board (Board Staff) INTERROGATORY #118

Reference:

Exhibit C1/Tab 3/Sch2, p. 3

Hydro One discusses Performance Indicators (PIs), how they are regularly measured and how they are adjusted upwards annually to drive continuous improvement. In addition Hydro One indicates that the Inergi contract life-to-date as of February 2016 met or exceeded 94% for all SOWs with regard to the PIs.

Interrogatory:

Please provide a report of actual performance for the PIs, the monthly, quarterly and yearly measures, and an indication of the actual upward adjustments initiated.

Response:

The table below includes a report of actual results for Inergi's Performance Indicators (PIs), which include the monthly, quarterly and yearly measures, for the period from March 2015 to February 2016.

Inergi LP – Performance Indicators for the Period March 2015 to February 2016

		A	B	C	D	E = B / A
	Statement of Work	**Performance Indicators Measured for period March 2015 through February 2016**	**Performance MET**	**Target Performance NOT MET**	**Minimum Performance NOT MET**	**% Met**
1	**Information Technology Services**	423	**401**	**17**	**5**	**95%**
2	**Finance and Accounting Services**	207	**189**	**16**	**2**	**91%**
3	**Payroll Services**	166	**152**	**7**	**7**	**92%**
4	**Supply Chain Services**	342	**319**	**15**	**8**	**93%**
5	**Settlement Services**	145	**145**	0	0	**100%**
6	**Total**	**1283**	**1206**	**55**	**22**	**94%**

Witness: Gary Schneider

As indicated in cell E6, Inergi met or exceeded 94% of all PIs for all statements of work during the period. This is calculated by taking the total number of PIs that were met during the period in Column B, divided by the total number of PIs measured during the period in Column A.

Effective January 1, 2016, 96% of PIs were adjusted upward to achieve continuous improvement as per the Inergi Agreement, with the exception of PIs already at the highest possible service level.

Hydro One Limited/ Hydro One Inc.
Submission to the Board of Directors

Date: May 6, 2016

Re: Application for Cost of Service Transmission Rates for 2017 and 2018

On May 31, 2016, Hydro One Networks Transmission plans to file an application with the Ontario Energy Board ("OEB") on May 31, 2016, seeking the OEB's approval of Cost of Service Transmission Revenue Requirement for 2017 and 2018. The attached submission, for information, sets out the form of the Transmission application, and outlines its key components.

Yours sincerely,

Oded Hubert
Vice President - Regulatory Affairs

Date: May 6, 2016

Re: Application for Cost of Service Transmission Rates for 2017 and 2018

On May 31, 2016, Hydro One Networks Transmission ("HONI Tx") plans to file an application with the Ontario Energy Board ("OEB") seeking approval of Cost of Service Transmission Revenue Requirement for 2017 and 2018.

A. Form of Application – Cost of Service

In Ontario, the OEB is required by its governing statute, the *Ontario Energy Board Act, 1998* (the OEB Act), to give rate-regulated utilities the opportunity to recover their reasonably incurred costs of providing utility service. The OEB Act gives the regulator wide latitude in the tools that it uses to fulfill this requirement, allowing it to use "any method or device" to set utility rates. In the case of Ontario-based electricity transmission utilities, the OEB has traditionally relied a on a cost of service approach to rate making, considering applications from transmitters every two years to set rates for two consecutive one-year future periods.

<u>**Characteristics of a Cost of Service Application**</u>

In Ontario, a cost of service application, such as the application that will be filed by HONI Tx at the end of May, has a number of distinguishing characteristics:

- **Revenue Requirement is the Sum of All Costs – Including Cost of Capital:** In a cost of service application, the regulator examines all of the utility's cost categories: cost of capital (equity and debt), taxation, depreciation, Operations, Maintenance and Administration ("OM&A"), and other non-rate related revenue. The cost of capital is determined by the quantum of assets that the regulator allows the utility to include in rate base, as noted below. The revenue requirement approved by the regulator is the sum of all of these costs.

- **Flow through of OM&A, Capital Costs and Taxation:** Although the onus is on the rate-regulated applicant to demonstrate that costs are reasonable and that the resulting customer rates would be just and reasonable, OM&A, depreciation, cost of equity and cost of debt, and taxes are generally fully reflected in rates, provided they are adequately supported by evidence and found by the regulator to be reasonable.

- **Rate Base is Driver of Net Income:** In a cost of service model where costs are reflected in rates on an annual basis, the driver of utility earnings is largely dependent on: (i) the dollar value of rate base; (ii) the portion of rate base funded by equity; and (iii) the return on equity that the regulator allows to be reflected in rates.

- **Forward Test Year Approach:** The rate-setting approach makes use of a forward test year, where estimated future costs over a defined future period (such as fiscal 2017 and 2018) are subject to review in a single regulatory process. Utility rates are, in turn, set based on these forecast costs.

- **Two Year Rate Cycle:** The OEB typically examines and tests estimated utility costs for two consecutive fiscal periods in a single proceeding held every two years.

- **Cost Performance:** In general, should actual costs turn out to be lower than what is reflected in rates, the utility is able to retain this difference, increasing its regulatory return on equity ("ROE"). Should actual costs turn out to be higher than what is reflected in rates, the utility must absorb this difference, which will reduce its actual ROE. When costs and rates are trued-up at the beginning of the next rate-setting period, the variance between actual costs and the costs reflected in rates disappears. At this point, gains arising from productivity initiatives that lower costs effectively benefit customers on a prospective basis in the form of lower future rates.

- **Electricity Commodity and Wholesale Market Costs are Flow-Through:** In Ontario, the electricity value-chain is segregated into four parts: transmission, distribution, generation, and wholesale market operations. The OEB is responsible for setting the rates to be charged to customers by transmitters and distributors. It also establishes the payment amounts for Ontario Power Generation. The OEB has limited authority with respect to wholesale market costs and no authority with respect to the determination of electricity commodity costs paid to generators (other than Ontario Power Generation). Transmission rates are set solely on the basis of the costs incurred to provide transmission service to customers. Cost relating to generation, wholesale market operations, and conservation are a pass-through to customers by statute.

Drawbacks of Cost of Service

The cost of service approach has a number of well-recognized drawbacks, including: limited incentives to control costs, the potential tendency of the utility to ramp up costs and asset growth in the year immediately preceding and in the year(s) for which rates are sought, and an incentive for a utility to "gold plate" the utility assets in rate base, given that rate base is the driver of utility net income.

Regulatory Response - Amended Tx Filing Requirements

As a result of these drawbacks, the OEB initiated a regulatory policy review of its transmission filing guidelines in 2015. After consulting with transmission utilities and other relevant stakeholders, the OEB issued Amended Filing Requirements for Transmission Applications (the "Amended Tx Filing Requirements") on February 11, 2016.

The Amended Filing Requirements draw heavily from the OEB's multi-period, output- and customer-focused policy for setting distribution rates, called the *Renewed Regulatory Framework for Electricity Distributors: A Performance Based Approach* ("RRFE") that was issued in October 2012.

Renewed Regulatory Framework for Electricity Distributors

The OEB's RRFE intends to provide alignment between a sustainable, financially viable electricity sector with customers' expectations for reliable service at a reasonable price. The OEB believes that emphasizing results, as opposed to activities, will result in better responsiveness to customer preferences, enhance distributor productivity, and promote innovation.

The RRFE is focused on driving four performance outcomes:

1. Customer Focus: services are provided in a manner that responds to identified customer preferences;
2. Operational Effectiveness: continuous improvement in productivity and cost performance is achieved. Utilities deliver on system reliability and quality objectives;
3. Public Policy Responsiveness: Utilities deliver on obligations mandated by government; and
4. Financial Performance: Financial viability is maintained and savings from operational effectiveness are sustainable.

The RRFE performance outcomes are to be achieved by three regulatory approaches:

- Three incentive-based rate setting options designed to incent continuous productivity improvement;
- Five-year, consolidated asset plans to support rate applications; and
- Performance measurement.

Amended Transmission Filing Requirements that Apply to 2017 and 2018 Application

The Amended Transmission Filing Requirements:

- **Provide For a Transition Cost of Service Application:** The OEB recognized that transmitters may need some time to transition to the rate-setting methodology embodied in the RRFE. As such, the OEB has indicated that it will accept a one- or two-year cost of service application from a transmitter as its first application following the issuance of the Amended Filing Requirements. In accordance with the Amended Filing Requirements, HONI Transmission application for 2017 and 2018 will reflect a cost of service approach. Applications for Transmission rates commencing January 1, 2019 and beyond will be expected to fully conform with the RRFE Principles embodied in the Amended Transmission Filing Requirements; and

- **Include Mandatory Requirements for Transitional Cost of Service Applications:** A number of filing requirements were made mandatory, regardless of the rate-setting approach adopted by the transmitter. There are three mandatory requirements:

  1. Consolidated Transmission System Plan (a 5-year capital plan) contained within a dedicated exhibit;
  2. Proposed scorecard to monitor transmitter performance; and
  3. Enhanced reporting of existing or planned customer engagement or communication activities, and details on how the application and transmission system plans were adapted in response to identified customer needs.

  A fourth item is optional, but HONI Tx proactively committed to conducting this work in the settlement process relating to its previous 2015 and 2016 transmission rates application.

  4. Benchmarking evidence is required to support cost forecasts and system planning proposals given the assistance it can provide in establishing the reasonableness of costs.

B. 2017 and 2018 Cost of Service Application for Rates: Key Elements

Financial Metrics of 2017 and 2018 HONI Tx Cost of Service Application

HONI Tx's application for 2017 and 2018 cost of service rates reflects the following key elements, the resulting financial metrics of which are set out in Table 1.

Table 1. Financial Metrics of 2017 and 2018 HONI Tx Application

	2016	2017	2018	2019	2020	2021	2022
	OEB						
Capital Expenditures[1]	866	1,081	1,122	1,208	1,269	1,475	1,469
In-Service Additions[2]	673	893	1,219				
Rate Base	**10,040**	**10,535**	**11,193**				
OM&A	437	432	429				
Depreciation	397	435	470				
Return on Debt	287	283	297				
Return on Equity	369	387	411				
AFUDC	5	5	5				
Income Tax	72	83	93				
	1,568	1,626	1,704				
Deferral and Variance Accounts	(36)	(47)	(47)				
Other revenue impacts	(51)	(54)	(54)				
	1,481	**1,525**	**1,603**				
Rate Increase Required exc. Load		**3.0%**	**5.1%**				
Estimated Load Impact		2.1%	0.0%				
Rate Increase Required		**5.1%**	**5.1%**				
Estimated Total Bill Impact (R1 Customer)		**0.3%**	**0.3%**				

Notes:
(1) Estimated 2016 Capital Expenditures $1,001 million.
(2) Estimated 2016 In-Service Additions $911 million.

Assumptions:
Transmission 2016 rate base and revenue requirement per OEB approval
Approved ROE Rate of 9.19% used for Tx 2017 and 2018

May 31, 2016 Planned Filing Date

The application will be filed on May 31, 2016. The decision to file the application on this date reflects the following considerations:

- The OEB requires seven to nine months to consider a cost of service application. Absent a settlement on the issues raised by the application, the application must be filed by the end of May to help ensure that the effective date for approved rates is January 1, 2017; and

- The OEB does not have an unlimited capacity to consider applications – constraints are created by other applications, by the availability of its Members, and the competing demands on the time of OEB staff. Other major applications, such as the application planned for May 31, 2016 by Ontario Power Generation, and the consideration by the

OEB of the merger between Horizon, PowerStream and Enersource, could result in a bottleneck at the OEB, extending the timeline required to consider HONI Tx's application for rates. Such a bottleneck may also be in evidence with the parties registered to intervene in HONI Tx's hearing process.

<u>Vision and Values, Business Objectives</u>

The application illustrates how the company's business objectives and values align with the OEB's RRFE. The application also associates business objectives with the choices inherent in the Transmission System Plan.

In particular, the application includes the following key messages:

- Hydro One has recently become a "newly commercial" corporation and has embarked on a journey to become a best-in-class, customer-centric commercial utility.

- Although the company is in the process of redefining its strategic aspirations and how it wants to manage its business, Hydro One is maintaining a strong focus on its existing core values:

    - ✓ Safe workplace
    - ✓ Customer caring
    - ✓ One company
    - ✓ People-powered
    - ✓ Execution excellence

- Hydro One is committed to being an organization that is responsive to the needs of its customers, dedicated to continuous improvement, and a vital partner in the continued economic success of the province.

- The principles of the OEB's RRFE are consistent and directly aligned with Hydro One's aspirations to become a best-in-class, consumer-centric commercial utility. Hydro One has articulated a number of business objectives that are consistent with the RRFE and will guide the management of the transmission business. Key areas of focus for Hydro One include ensuring that transmission services, capital program execution, and customer operations are more efficient and effective, enhancing the internal performance management culture, and strengthening relationships with key stakeholders.

- HONI Tx's Transmission System Plan, as described in the following section, reflects the alignment between Hydro One's values and business objectives with the OEB's RRFE, as set out in Table 2.

Table 2. Hydro One Business Objectives for Transmission System Plan

Customer Focus	Customer satisfaction	• Improve current levels of customer satisfaction
	Customer Focus	• Engage with our customers consistently and proactively • Ensure our investment plan reflects our customers needs and desired outcomes
Operational effectiveness	Cost Control	• Actively control and lower costs through OM&A and capital efficiencies
	Safety	• Drive towards achieving an injury-free workplace
	Employee Engagement	• Achieve and maintain employee engagement
	System Reliability	• Maintain top quartile reliability for transmission peers
Public Policy responsiveness	Public Policy Responsiveness	• Ensure compliance with all codes, standards, and regulations • Partner in the economic success of Ontario
	Environment	• Sustainably manage our environmental footprint
Financial performance	Financial performance	• Achieve the ROE allowed by the OEB

- These business objectives have been reflected in the tactical steps that HONI Tx has taken to develop the Transmission System Plan that will be filed with the OEB on May 31. These business objectives will continue to guide how the Company manages its Transmission business.

<u>Transmission System Plan</u>

Hydro One's transmission system covers more than 600,000 km^2 and some of the most challenging and diverse geography in Canada. HONI Tx's customers include 47 local distribution companies (LDCs), Hydro One's own distribution system (HONI Dx), and 90 large industrial customers that are directly connected to the transmission system. The system consists of 292 transmission stations and 29,000 circuit km of high-voltage lines, and represents approximately $12 billion in assets.

In recent years, HONI Tx has consistently achieved top quartile reliability relative to its Canadian peers. However, the underlying reliability risk of the transmission system is increasing as system assets age and deteriorate. At this point, HONI Tx believes that increased sustainment capital spending is necessary to continue to meet the reliability expectations of its customers. This assessment is based on several factors:

- HONI Tx has developed a system reliability risk model, based on asset demographics and historical data on the failure of assets on Hydro One's system, which has highlighted that reliability risk is increasing, particularly as it relates to lines assets, and that reliability risk will continue to increase if sustainment capital spending is not increased above historical levels;

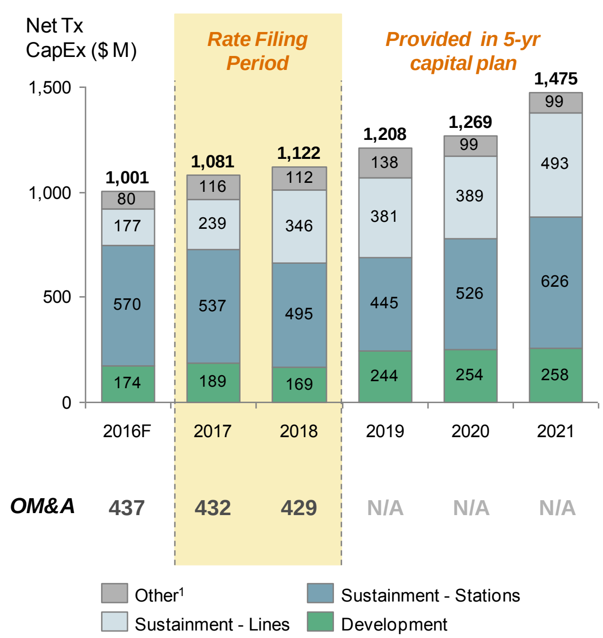
- The Navigant Total Transmission Cost Benchmarking Study, which was a voluntary commitment made by HONI Tx in conjunction with the 2015 and 2016 Transmission Application, suggests that HONI Tx is under-investing in sustainment capital relative to its asset base when compared to its peers;

- Through HONI Tx's customer consultation process, customers expressed the general view that increased sustainment capital spending, at the magnitudes discussed would be reasonable if it would, in fact, limit increases in reliability risk; and

- The ability to secure required outages to complete necessary sustainment work will likely be constrained post-2021 as large nuclear plants are taken offline for refurbishment, increasing the importance of completing required sustainment work in the next 5 years.

This increase in sustainment capital spending is a key factor in HONI Tx's Transmission System Plan (illustrated below), which is an integral part of the 2017-2018 Transmission rate filing, as shown in Figure 1.

Figure 1. Overview of Hydro One Transmission System Plan



1. Other includes "Common" and "Operating" items
Note: Net capital is net of customer-funded work and is aligned with level of capital investment that will impact rate base

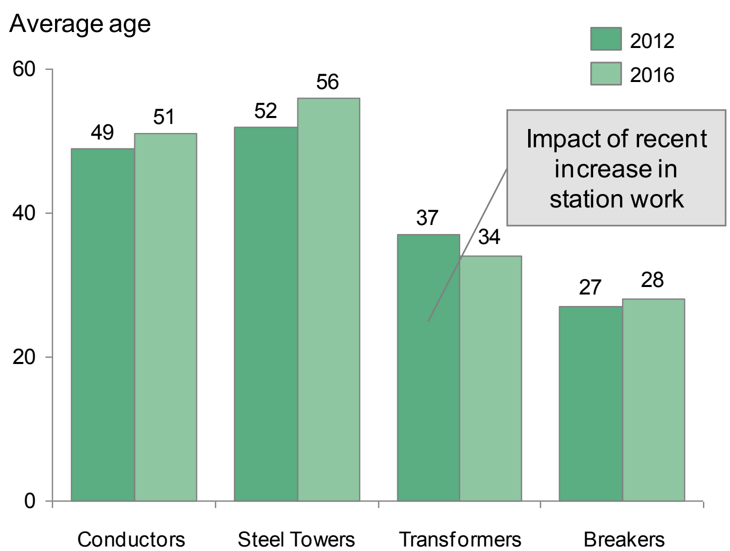
Current Status of Critical Transmission Assets

In prior years, sustainment capital investment was constrained by the amount of required development capital spending, which was largely related to facilitating the connection and integration of renewable energy generation, consistent with the policy goals of the Government of Ontario.

With the majority of this development capital spending now complete, sustainment capital investment has increased and has been focused on HONI Tx's stations assets (e.g., breakers and transformers), where asset failure has a very high potential to result in the interruption of service to customers.

As can be seen below in Figure 2, the age of critical asset classes has increased since HONI Tx's last rate filing, and a high proportion of HONI Tx's assets are currently beyond their expected service life.

Figure 2. Average age of critical Transmission system assets



	Conductors	Steel Towers	Transformers	Breakers
% beyond service life	**20%**	**22%**	**28%**	9%
# beyond service life	5,800 km	12,000	200	420

While age is a reasonable proxy for asset failure probability and can be useful for identifying asset classes in which to focus investments, specific investment decisions are informed by data on asset condition. As set out in Table 3, condition assessments also support HONI Tx's conclusions relating to asset degradation.

Table 3: Description of Transmission Asset Condition

Asset	Condition
Conductors	• Based on actual conductor sample testing, 2,300 circuit-km of transmission lines known to be at or approaching end of useful life
Steel Towers	• 9,100 steel structures located in known high-corrosion areas (based on inventory assessment)
Insulators	• ~25% of insulators at greater risk of failure due to known manufacturer defect • Ongoing testing will determine remaining insulator strength
Transformers	• 31 transformers (4.3%) rated poor or very poor based on dissolved gas analysis, furans, power factor and Doble testing
Breakers	• ~470 breakers in poor or very poor condition based on ongoing testing

Customer Engagement Approach

In February and March of 2016, Hydro One undertook a multi-faceted customer engagement program. The Company held 12 one-on-one sessions with customers, facilitated five group sessions which were attended by an additional 22 customers, and arranged for an on-line forum to gather additional customer input. These customers represented a mix of HONI Tx's customer segments, including local distribution companies, large industrial businesses, and electricity generators.

In all of these sessions, customers were provided with information on the historical performance of HONI Tx's system and shown a series of three illustrative 5-year investment scenarios. The purpose of the scenarios was to facilitate conversation around the trade-offs between cost and reliability risk. The scenarios showed the 5-year impact to system reliability risk (relative to today) at three capital expenditure levels:

- Baseline spending (Tx capital budget as of November 2015) results in 9% ***worsening*** of reliability risk
- ~$500M of incremental capital spending over 5 years results in 2% ***worsening*** of reliability risk
- ~$1.1B of incremental capital spending over 5 years results in 10% ***improvement*** of reliability risk

The three illustrative scenarios were based on incremental work programs that had been specified to address the key areas of emerging system risk, as well as one targeted opportunity to cost-effectively extend asset life. This work fell into four programs, outlined in Table 4.

Table 4: Incremental Transmission work considered during customer engagements

	Description	Rationale
Station work	Additional replacement of air-blast circuit breakers (ABCB) with new sulfur hexaflouride (SF6) breakers	• Air blast circuit breakers known to have 5-7x higher likelihood of unplanned outage than new SF6breakers • ABCB is an obsolete technology and manufacturers will cease to support by 2020.
Line refurbishment	Accelerated refurbishment of lines that have deteriorated to point of high failure probability	• 20% of conductors beyond expected service life (70 years); will reach ~40% by 2024 under historic replacement rates • Historic avg. replacement rate of 60 cct-km lags rate required to maintain system age • Condition assessments of conductor fleet identified 2,300 cct-km conductors are either at or near end of useful life based on actual conductor sample testing
Steel tower life extension	Coating of select steel tower structures to extend useful life	• 25% of towers located in high corrosion regions • Corrosion rate for high-corrosion regions is ~10x higher than in lower corrosion regions • 20% of towers in high corrosion regions are >80-year-old • Coating extends tower life by 25 to 30 years; avoiding additional capital in near-term
Insulator replacement	Replacement of insulators manufactured with known increased risk of failure	• Insulators installed between 1965 and 1982 have a known manufacturing defect that causes more rapid deterioration • Prominent failure in March 2015 near Richview station prompted renewed effort to remove insulators for safety and reliability reasons • Condition testing underway to better quantify increased risk

HONI Tx's customer engagement process was executed in collaboration with an independent third party facilitator, who moderated the group sessions, recorded and gathered customer feedback in the individual customer one-on-ones, and synthesized customer input from the on-line survey. The report prepared by the third party facilitator will be filed with the OEB consistent with regulatory requirements. The customer engagement report has informed the Transmission System Plan that HONI Tx plans to file with the OEB.

The report contains the following customer comments:

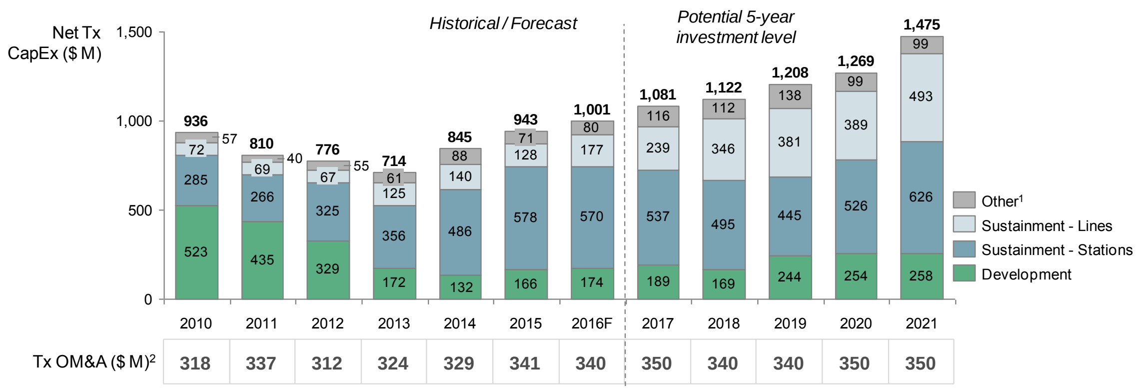
- Interruptions and rates (specifically rate increases greater than 5%) were mentioned as the top two concerns by the largest share of customers, with adequate asset management and replacement coming in close to the top. Other concerns were acknowledged as being important but interruptions have the biggest impact on productivity and revenue loss. Many customers provided examples of the financial and health and safety impacts of even short interruptions in service. Given these impacts, customers wanted to see Hydro One strike the right balance between reliability and rates; and

- Customers believe that Hydro One needs to be more proactive in addressing current and emerging reliability risk now. The majority of customers who participated indicated that 9% worsening of reliability risk is unacceptable and they support the investment required to at least maintain the current level of reliability risk.

Development of Transmission System PlanHONI Tx has incorporated the feedback it has received from customers into the Transmission System Plan, consistent with the OEB's

Amended Tx Filing Requirements. Consideration was also given to managing reliability risk and ensuring that HONI Tx has the ability to execute the plan on time and on budget.

Figure 3. HONI Tx Transmission System Plan (with historical from 2010 - 2015)



1. Other includes "Common" and "Operating" budget items
2. Does not include allocation of shared services expense

The proposed Transmission System Plan is expected to result in the following benefits for HONI Tx and its customers:

- *Mitigates* risk arising from asset aging and asset deterioration: the plan is expected to *reduce* system reliability risk (relative to today) by ~2% by 2019 and ~6% by 2022;
- *Supports* HONI Tx’s ability to continue to provide first quartile reliability in a safe manner; and
- *Avoids* larger capital replacement costs by extending asset life where feasible.

Consistent with all 5-year plans, the Transmission System Plan includes a number of risks and uncertainties that may impair HONI Tx’s ability to fully implement the plan or complete the portfolio of asset investments as contemplated. These risks and uncertainties include:

- Real-time asset performance and asset condition information or assessments;
- Flexibility around outage planning due to planned generator refurbishments; and
- Labour agreement and other contractual constraints.

<u>Productivity Improvements</u>

Hydro One has made efforts to improve the efficiency of the organization and the productivity of its work programs in recent years, and has begun to see the results of these efforts in its work programs and budgets. The company has been able to maintain transmission OM&A at steady levels over recent years, in an environment in which a number of factors put upward pressure on OM&A. Forces contributing to these upwards pressures include:

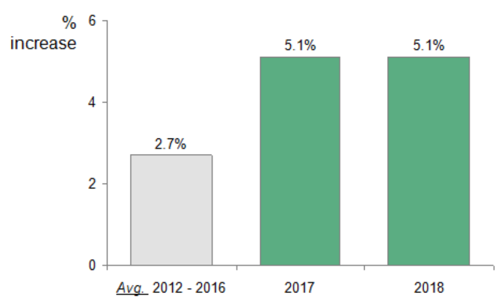
- Inflation of approximately 2% per year;
- Higher operating and maintenance requirements of a growing asset base; and
- Compliance costs arising from new regulatory standards (e.g., NERC Cyber security).

Hydro One expects to continue to face many of the same upward pressures on OM&A in the coming years. However, through efforts to increase efficiency throughout its programs, the company plans to reduce OM&A in both 2017 and 2018 as its productivity initiatives yield results. Total transmission OM&A spend will decrease from $437M in 2016 to $432M in 2017 and $429M in 2018, driven by processes and execution both in place and to be incorporated as a result of the recent strategic review. The Company is in the process of implementing an enhanced performance management system, one that will focus on tracking both top-level metrics (reported annually to the OEB on a Transmitter Scorecard), as well as the underlying Key Performance Indicators that focus on actionable metrics across the lines of business.

Impact of 2017 and 2018 Application on Customer Rates

The expected average impact of the 2017 and 2018 Application for Rates on Transmission Rates, including the rate impact of the capital spending in the Transmission System Plan is set out in Figure 4. The corresponding impacts on the Customer's bill, by customer types, are shown below the histogram.

Figure 4. Customer rate and bill impacts from proposed Transmission Investment Plan



	Avg. 2012 - 2016	2017	2018
Bill impact[1] (Tx cust)	0.3%	0.5%	0.5%
Bill impact[1] (Residential)	0.2%	0.3%	0.3%

Note: (1) Based on total Tx tariff representing ~10% of average transmission-connected customer bill and ~6% of average residential bill (for customer consuming 750 kWh /month)

The impact on customer rates is driven by a number of factors, which are broken out in detail below for both 2017 and 2018 in Table 5. It is essential to note that approximately 60% of the rate base growth that drives the proposed rate increases is associated with capital programs that were submitted to the OEB in conjunction with prior rates applications.

Table 5. Drivers of proposed Transmission rate increases in 2017 and 2018

2017 Transmission rate drivers		2018 Transmission rate drivers	
Rate base	3.5%	Rate base	4.7%
Load forecast	2.1%	Load forecast	0.0%
Income tax	0.8%	Income tax	0.6%
OM&A	-0.3%	OM&A	-0.2%
Other	-1.0%	Other	0.0%
Total	5.1%	Total	5.1%

It is also important to note that a new actuarial report to relating to the 2016 pension contribution is expected to be forthcoming earlier than otherwise planned. It is anticipated that the new report will result in lower Tx OM&A costs over the 2016 actual, and 2017 and 2018 test years versus the costs currently reflected in 2016 rates and the application. The anticipated reduction in Tx OM&A will inform the application for 2017 and 2018 by way of a mid-process update and is expected to reduce the requested percentage rate increase for 2017 and be neutral for 2018. Any difference between the OM&A portion of pension costs currently reflected in 2016 Tx rates and the cost resulting from the new actuarial report will be returned to customers in a future period.

Application Evidence, Regulatory Tools, and Technical Filing Positions

The application also includes the following evidence and regulatory tools that align with the Amended Transmission Filing Requirements and technical filing positions that are independent of the rate-setting methodology.

Table 6. Application Evidence, Regulatory Tools, Technical Filing Position

Item	Evidence/Regulatory Tool/Technical Filing Position	Description
Deferred Tax Asset	**Technical Filing Position**	Based on regulatory principles (“stand-alone” and “benefits follow costs”) and guidance from previous OEB determinations, the shareholder alone should own the benefit associated with the deferred tax asset.
Compensation	**Technical Filing Position**	LTIP, STIP, stock-based compensation costs and costs related to the Employee Share Ownership Plan should be recoverable in rates and are a component of normal total compensation. Cost recovery is subject to HONI Tx’s OEB-approved Regulatory Cost Allocation Methodology.
Cost of Capital	**Technical Filing Position**	Apply to adopt the OEB’s cost of capital policy set out in the OEB’s 2009 Policy Document. ROE will be updated in each of the two cost of service years based on the OEB’s formula. The ROE in the application is a placeholder only, and is shown for 2017 and 2018 as 9.19%, the ROE currently approved by the

		OEB for 2016 rates. Similar approach for short term debt which represents 4% of deemed capitalization. Long Term Debt costs will be updated and reflected in rates in a manner consistent with HONI Tx's past practices that have been accepted by the OEB.
Load Forecast	**Evidence**	Based on HONI Tx's OEB-approved methodology. Forecast reflects a 31-year trended approach, adjusted for conservation and demand management, embedded (or behind the meter) generation, and the usage trend in the past 4 years.
Response to Studies and Reports	**Evidence**	Mapping of evidence to demonstrate that prior Directions of the OEB, Report of the Auditor General of Ontario, and KPMG Efficiency Study have been fully addressed.
Consolidated Transmission System Plan	**Evidence**	As per discussion above. The Consolidated Transmission System Plan is aligned with regional planning requirements. Supported by Navigant Total Transmission Cost Benchmarking Study and Transmission Customer Engagement, both of which directionally support higher levels of sustainment capital expenditures over the term of the Transmission System Plan.
Transmission Customer Engagement	**Evidence**	Documentation of comprehensive customer engagement process designed to identify transmission customer needs and preferences, delineate identified needs and preferences, and demonstrate that Consolidated Transmission System Plan has considered and been adapted to respond to customer needs.
Navigant Total Transmission Cost Benchmarking Study	**Evidence**	Filed to support cost forecasts and system planning proposals. Designed to assist the OEB establish that applied-for costs are reasonable. Accompanied by evidence demonstrating that the report was reviewed with parties that usually participate in HONI Tx rate proceedings, and that recommendations were sought and addressed.
Scorecard and Key Performance Indicators	**Evidence**	Scorecard filed in conjunction with Consolidated Transmission System Plan. Designed to allow the OEB to monitor transmitter performance. Includes Key Performance Indicators that align OEB and corporate performance management.
Stakeholder Engagement	**Evidence**	Evidence that the proposed HONI Tx Scorecard, Customer Engagement Process and Navigant Total Transmission Cost Benchmarking Study were reviewed by parties that usually participate in HONI Tx rate proceedings
Cost Efficiencies	**Evidence**	Incremental cost efficiencies arising from various strategic initiatives are reflected in the application, as discussed in the following section.
Capital In-Service Variance Account	**Regulatory Tool**	Renew commitment to a net cumulative capital in-service variance account for in-service additions in 2017 and 2018 to track the impact on revenue requirement of any In-Service Additions shortfall versus OEB-approved amounts, with sufficient flexibility for operational adjustments over the cumulative 2017 and 2018 period.

Key Strategic Choices

The key strategic choices reflected in the 2017 and 2018 cost of service application are largely related to the extent to which HONI Tx either demonstrates that the corporation's strategic goals and objectives are aligned with the principles of the OEB's RRFE or directly incorporates the principles of the OEB's RRFE into the HONI Tx 2017 and 2018 cost of service application for rates.

Table 7. Strategic Choices – RRFE Performance Commitments

RRFE Outcome	HONI Tx Filing Element	Discussion
Customer Focus	**Transmission System Plan**	See discussion above.
	Transmission Customer Engagement	Exceeded OEB Amended Tx Filing Requirements by actually undertaking a comprehensive consultation, not merely documenting customer engagement activities. Evidence includes how the customer feedback was incorporated into the Transmission System Plan filed for approval.
	Capital In-Service Variance Account	Innovative tool that resulted from the Settlement Process for HONI Tx rates for 2015 and 2016. Creates alignment between HONI Tx financial incentives and customers by ensuring that customers do not pay for capital assets in rates that are not placed in service when promised.
	Scorecard and Key Performance Indicators	Requires HONI Tx to identify and measure, in an objective and transparent manner, outcomes that are valued by customers. HONI Tx is then held accountable for its performance in relation to identified customer outcomes. HONI Tx is developing a comprehensive performance management system for tracking outcomes and productivity that likely exceeds what is needed to support a regulatory scorecard. Some of these additional key performance indicators may be included as part of the Application for 2017 and 2018 Cost of Service Tx Rates.
Operational Effectiveness	**Navigant Total Transmission Cost Benchmarking Study**	Voluntary commitment made during the settlement process relating to HONI Tx's 2015 and 2016 rates. Provides evidence relating to HONI Tx productivity and performance metrics – O&M and capital. Aligned directly with RRFE. Scope expanded at HONI Tx's initiative to include best practices and recommendations.
	Scorecard and Key Performance Indicators	Aligned directly with RRFE principles and outcomes. Demonstrates commitment to objective, measurable and concrete performance management. See discussion above.

	Corporate Vision and New Corporate Objectives	Articulation of Hydro One's new corporate objectives is included in the pre-filed evidence. They also tie directly to the business values used by HONI Tx to prioritize the investments that comprise the capital plan to be approved by the OEB for 2017 and 2018 and inform the consolidated 5-year Transmission System Plan, which is a mandatory filing requirement of the OEB. The Corporation's new goals and objectives also align with the OEB's RRFE principles and are further embedded in HONI Tx's Scorecard and Key Performance Indicators.
	Cost Efficiencies	Two types of cost efficiencies reflected in the application: (i) normal course activities and pre-existing initiatives that have resulted in a stable or "flat" OM&A trend, effectively offsetting the growth of the OM&A envelope arising from inflation; and (ii) as a result of being a "new commercial organization" HONI Tx has launched a program to identify additional efficiency and productivity opportunities. HONI Tx presently has a preliminary line-of-sight to the savings reflected in the application and is continuing to work to identify further sustainable efficiency and productivity opportunities over the longer term.
	Capital In-Service Variance Account	See discussion above.
Public Policy Responsiveness	**Corporate Vision and New Corporate Objectives**	See discussion above.
Financial Performance	**Corporate Vision and New Corporate Objectives**	See discussion above.
	Cost Efficiencies	See discussion above.

Hydro One

Updated Discussion Notes
- Preliminary CEO/CFO Pay Benchmarking

Table of Contents

Introduction & Context

Hydro One is pursuing an IPO in Fall 2015, privatizing its transmission and distribution business lines

- Anticipate that the new entity will be ~$13-16B in Market Cap, and ~$21-24B in total enterprise value (source: Goldman Sachs' Jan 2015 estimates) – by far the largest player in the industry in Canada, and unique in that it is a "pure play" transmission and distribution company (i.e. no generation)

Our Understanding of the "New" Hydro One:

- Large challenge will be to make the business more efficient, especially the distribution unit
- Expects to be a consolidator in the industry (starting by acquiring relatively smaller players, but eventually moving to more sizable targets)
- Anticipates being a yield play, with some growth as well
- Fully independent professional board
- Will be 100% regulated by the OEB initially, but no other government regulation
- Will not be under legislative compensation constraints

Introduction & Context (cont'd)

Talent Requirement:

- Will require professional managers with proven public company leadership experience
- Significant experience with unions
- Strong focus on financial performance and capital market activities
- Expected to be paid in line with market
- Board will be exposed to public scrutiny

The following slides outline:

- Our initial thoughts on the pay benchmarking peer groups for the "New" Hydro One
- Key findings from our preliminary market pay review of the CEO / CFO roles
- Straw model illustrations of alternative CEO / CFO Total Direct Compensation* ("TDC") packages for discussion purposes only
- Illustrative sample of key terms and conditions

**salary + target short term incentive + target long term incentive = TDC*

Compensation Philosophy

Philosophy in respect of market reference and target positioning:

- Primary reference is a group of comparably-sized TSX utility issuers and other companies that have business models of a similar complexity (i.e. pipeline and storage business)
- Given the limitation of direct industry peers, and for broader context only, considered TSX60 pay levels as additional market reference – Hydro One is expected to be just below the mid-point of TSX60 as measured by estimated market capitalization (i.e. pro forma ranking 34th among TSX60 issuers, based on the market capitalization as of April 27, 2015)
- Compensation programs will be designed to be competitive in order to attract, retain, and motivate the high-calibre talent required to ensure the future success of Hydro One, without targeting a specific market positioning against the primary reference group (e.g. P50)

See following pages detailing the primary pay benchmarking peer group and other market reference points

Primary Peer Group and Other Reference Groups

Preliminary Peer Groups

In our view, Hydro One will be a relatively unique entity in the Canadian capital markets:

- It will be a large issuer by most common sizing standards (i.e. revenue, assets, enterprise value), and we anticipate it will be just below the mid-point of TSX60 as measured by estimated market capitalization
    - This poses inherent challenge in identifying peersof similar size within the same industry
    - Hydro One's presence on TSX60 will lead to increased visibility of its pay practices (in addition to its high profile in Ontario politics)
- It will also be different from many of its industry peers in that initially virtually 100% of its activities will be regulated

Our approach to deal with these inherent challenges is the use of a number of market reference points as a "**triangulation exercise**" in order to set overall context for executive pay for these two top roles

We have identified a combined "primary reference" group, including the four largest TSX utilities, against which to benchmark CEOs and CFOs of the "New" Hydro One, and other groups intended for use as additional market context. Please refer to the next two pages for a summary of these groups

Preliminary Peer Groups (cont'd)

High

Market Pay Levels

Reference Groups

TSX60[1]
Med Mkt Cap = $17,511
Med TDC = $8,324

TSX60 – Bottom 30[1]
Med Mkt Cap = $9,551
Med TDC = $6,737

US Utility Distributors[2] – CEO
Med TEV = $15,755
Med TDC = $7,229

Primary Group:
a) TSX Large Utilities, and
b) TSX Pipeline/Storage Companies

P75 TEV = $15,918 P75 TDC = $3,911
P50 TEV = $12,980 P50 TDC = $3,364
P25 TEV = $9,175 P25 TDC = $2,722

Large Utilities – CEO TDC:

Fortis ($24B TEV) - $5.1M

ATCO ($15B TEV) - $4.0M

Emera ($11B TEV) - $3.6M

TransAlta ($9B TEV) - $3.9M

Hydro One – IPO
Market cap ~$15B
(Ranks 34th among the TSX60 issuers)

Reference Groups

Government owned utilities[3]
Med Rev = $4,543
Med TDC = $1,201

US Utility Distributors[2] – Top Operating Role
Med TEV = $15,755
Med TDC = $2,165

Low

Source: S&P Capital IQ; All financial figures are in CAD $M; all pay figures are in CAD $000s
1. 2013 Target TDC as per Hugessen TSX60 proxy analysis
2. Approximated target values using most recent actuals - converted to CAD
3. Latest proxy data and Annual Information reports

Preliminary Peer Groups (cont'd)

Market Reference Points			Reasons for relevance	Points of differentiation (Ref. Groups vs. Hydro One)
Primary Peer Group *(a & b combined)*		**a) TSX Utilities Companies**	• Similar business, at least in part (distribution and transmission) • Larger players – similar scale	• More complex (including integrated utilities with generating capacities) • Relatively less regulated • Includes some smaller players as well
		b) TSX Pipeline / Storage Companies	• Similar size • Similar complexity • Some regulations apply	• Different business models • Mostly Western Canada
Other Reference Groups	**Of Interest**	TSX60 Constituents a) TSX60 b) Bottom 30	• Hydro One will likely become a TSX60 constituent • We estimate that Hydro One will fall just under the median of constituents (on a market cap basis)	• Large variation of business models, pay levels, etc.
	Other Context	US Utility Distributors (CEO / CFO roles)	• Similar size • Similar business model (selected "pure play" distribution companies)	• US pay practices (i.e. high "water mark") • Including US comparators in peer group could lead to public scrutiny
		US Utility Distributors – Top Ops / Business Division Heads (for the CEO role only)	• Similar size • Similar business model (selected "pure play" distribution companies) • Possible talent pool	• Including US comparators in peer group could lead to public scrutiny • The particular roles studied may not be directly applicable
		Government-owned utilities	• Similar business model • Similar regulatory environment	• Compensation constraints by ongoing legislation (Ontario) • Limited / unusual compensation practices and disclosure • Different talent pool

See next page for details of the primary peer group

Primary Peer Group

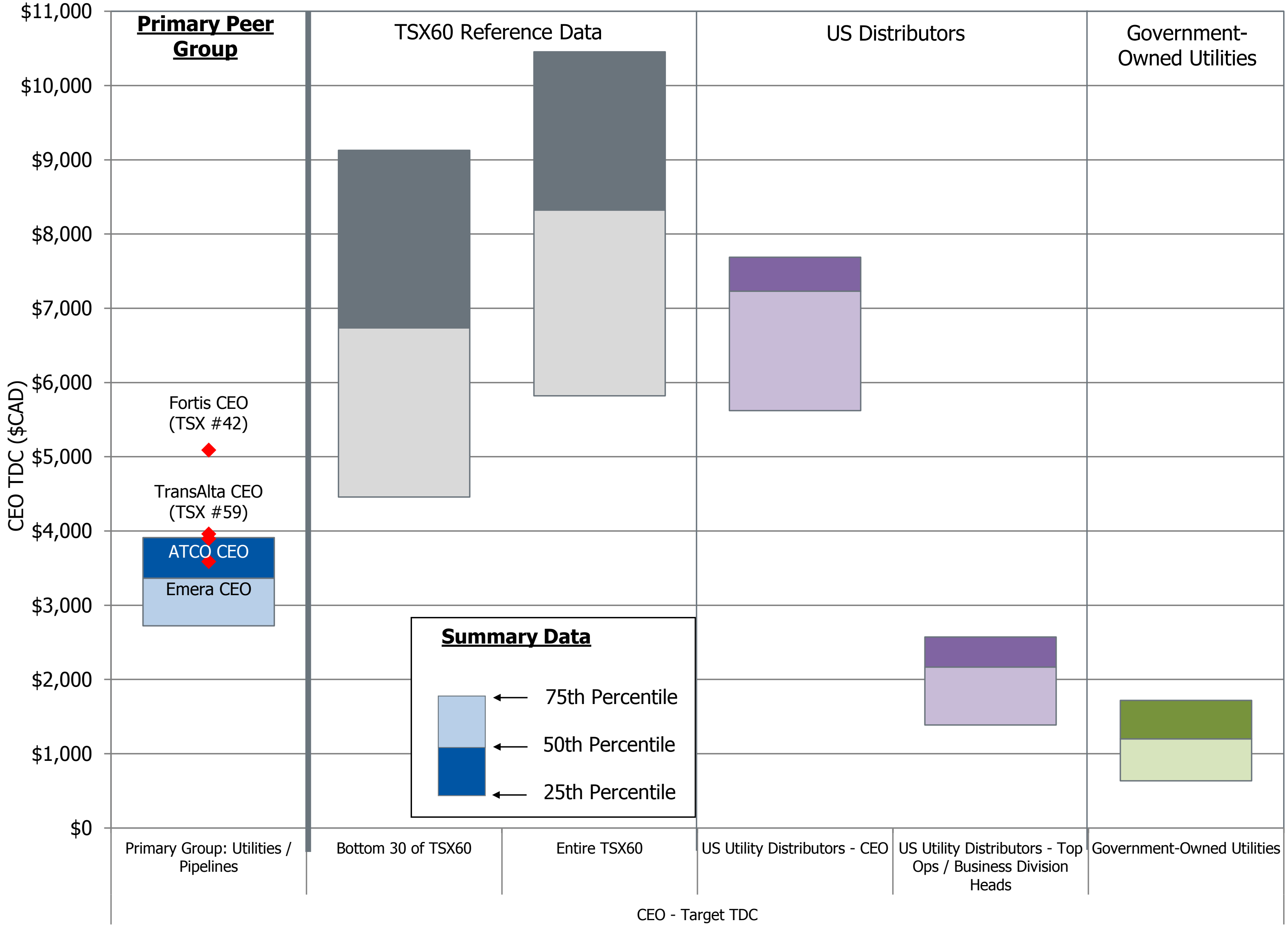
- Given the uniqueness of Hydro One, there are limited comparably sized direct industry peers (i.e. 4 large utilities) and other companies that have a similar complexity of business (i.e. 4 pipeline/storage companies) – see below a summary of the primary pay benchmarking peer group (n = 8)

Company	Industry Sector	Primary Industry	TEV	Market Cap	Revenues	Assets	EBITDA
Fortis Inc.	Utilities	Electric Utilities	$24,461	$10,863	$5,401	$26,628	$1,711
ATCO Ltd.	Utilities	Multi-Utilities	$15,229	$5,323	$4,554	$17,689	$1,664
Emera Incorporated	Utilities	Electric Utilities	$10,759	$5,950	$2,972	$9,844	$987
TransAlta Corp.	Utilities	Independent Power Producers and Energy Traders	$8,859	$3,310	$2,441	$10,050	$969
Pembina Pipeline Corporation	Energy	Oil and Gas Storage and Transportation	$17,988	$14,292	$6,069	$11,262	$932
Keyera Corp.	Energy	Oil and Gas Refining and Marketing	$8,858	$7,576	$3,624	$3,851	$599
AltaGas Ltd.	Energy	Oil and Gas Storage and Transportation	$9,281	$5,544	$2,401	$8,413	$502
Inter Pipeline Ltd.	Energy	Oil and Gas Storage and Transportation	$15,201	$10,364	$1,556	$8,647	$698
Summary Statistics							
75th Percentile			$15,918	$10,489	$4,766	$12,869	$1,156
Median			**$12,980**	**$6,763**	**$3,298**	**$9,947**	**$951**
25th Percentile			$9,175	$5,489	$2,431	$8,589	$673
Hydro One Inc.	**Utilities**	**Electric Utilities**	***$22,000***	***$15,000***	**$6,548**	**$22,550**	**$1,833**
			95%	*MAX*	*MAX*	*93%*	*MAX*

Source: S&P CapIQ; Goldman, Sachs & Co: Discussion Materials Regarding Hydro One
Note that Hydro One scoping numbers are TBC – we have used our best estimates from S&P CapIQ and Goldman Sachs, but have not taken into account any further restructuring that may take place
All data in CAD $MM as of April 15, 2015

Benchmarking Results

CEO Benchmarking Results



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hydro one

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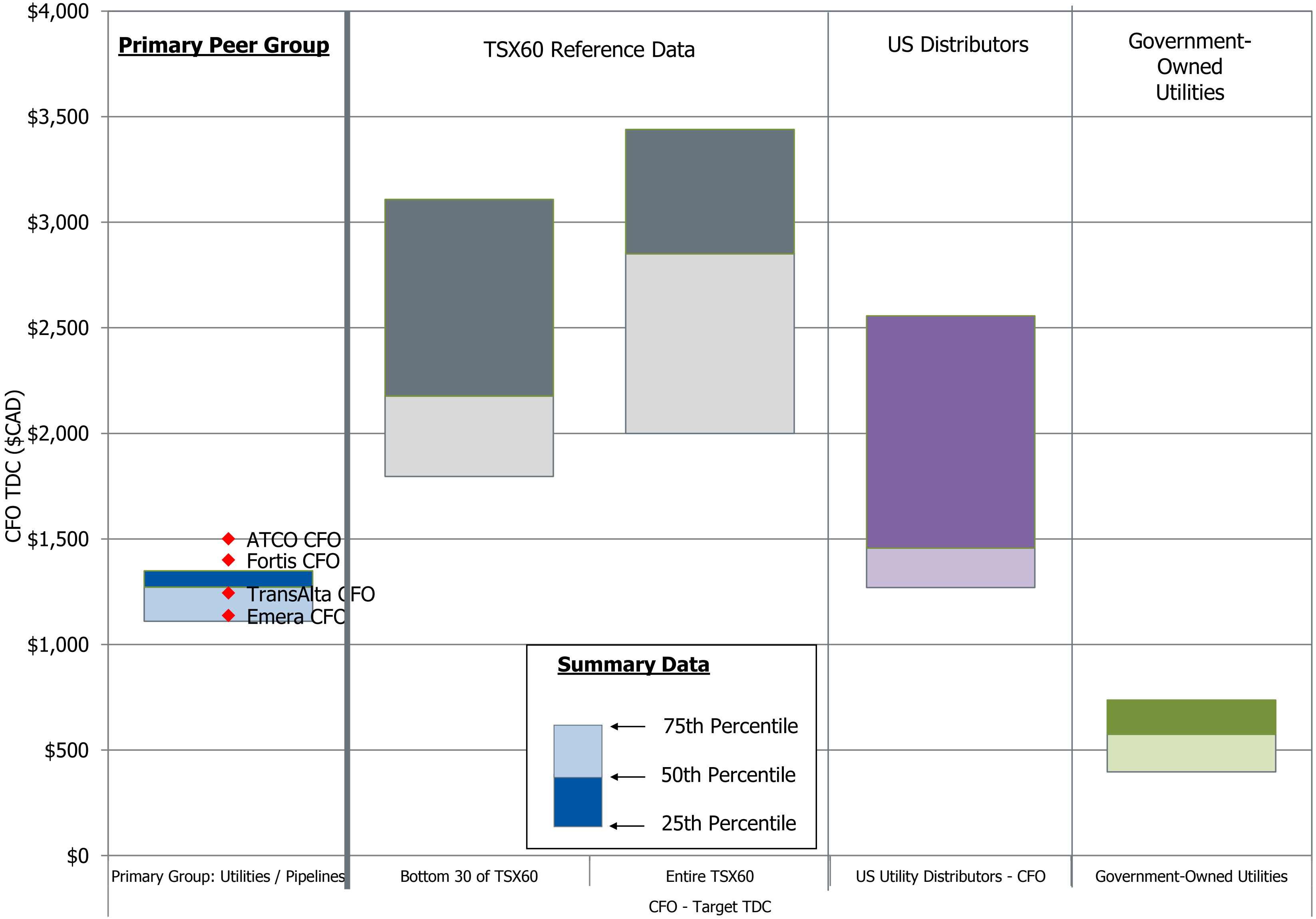
CFO Benchmarking Results



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Straw Model CEO and CFO Target Total Direct Pay

- Our focus is on “total” pay at this point (i.e. more focus on pay mix in future iterations)
- Having said this, total cash is relatively light, favouring larger LTIP

Straw Model CEO & CFO Alternatives

We outline in the following pages preliminary alternatives for CEO and CFO target pay –these are developed with reference to:

1. About P50 Target TDC of the primary peer group,
2. Pay levels of the large utilities, and
3. Low end (i.e. P25) of the bottom half of TSX60

In developing the **mid-case** alternative (i.e. "desired" positioning), we have considered the following:

- The positioning is "in the zone", albeit near or below the top end of the large utilities (ATCO, Fortis, etc.)
- Reflects what may be initial positioning for a fully qualified and experienced candidate
- Leaves room for potential growth in TDC as performance is proven out
- Ideally less of a "lightning rod" at the time of IPO (i.e. ideal CEO candidate should have some sensitivity to his / her own positioning)

Straw Model CEO & CFO Alternatives (cont'd)

Having said this, we recognize that the current search will be a true test of attracting the right "talent", and the price point may have to be higher (e.g. closer to the **high-case** alternative)

Some of these considerations may include:

- "Risk premium" to the candidate for taking on the CEO role at an organization that will be in the public spotlight, with likely persistent attention from a wide range of critical stakeholders
- The degree of significant operational and institutionalized challenges that need to be addressed (i.e. scarcity of senior talent able and willing to take on such a big task)
- Aside from the "typical" qualifications expected, the desirable candidate should also be well recognized and respected in the market place (i.e. "visibility")

See the following page for straw model of illustrative alternatives

Straw Model CEO & CFO Alternatives (cont'd)

Straw Model CEO Alternatives

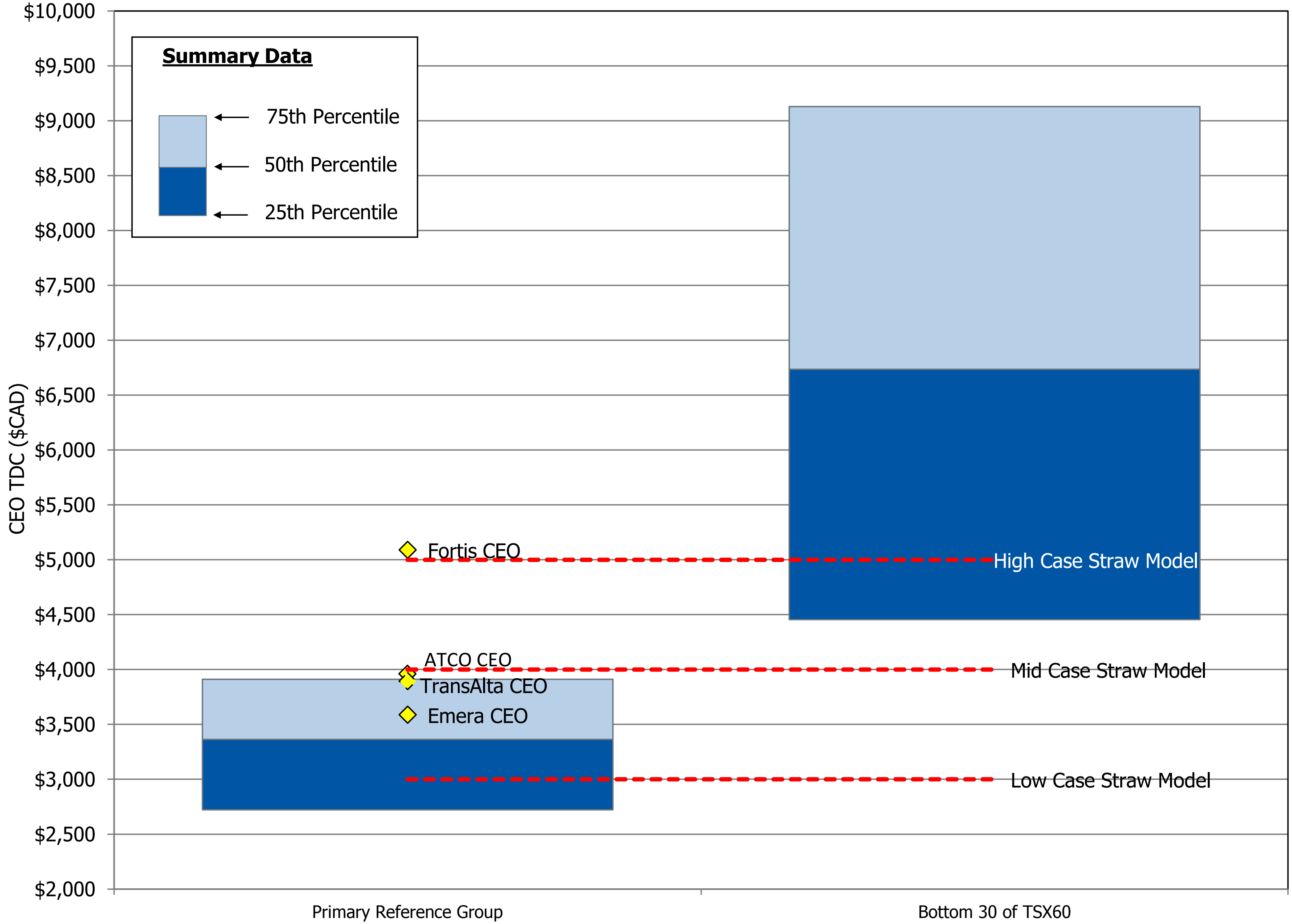
Target Pay	Low Case	Mid Case	High Case
Positioning	Between P25 and P50 of peer group, below large utilities	P75 of peer group, close to median of large utilities	High end of large utilities (i.e. Fortis CEO is ~$5M), low end of Bottom Half TSX60
Salary	$800,000	$850,000	$850,000
STIP (% of Salary)	$720,000 90%	$765,000 90%	$765,000 90%
LTIP (% of Salary)	$1,480,000 185%	$2,385,000 281%	$3,385,000 398%
TDC	**$3,000,000**	**$4,000,000**	**$5,000,000**
Pension	DC SERP	DC SERP	DC SERP

Straw Model CEO & CFO Alternatives (cont'd)

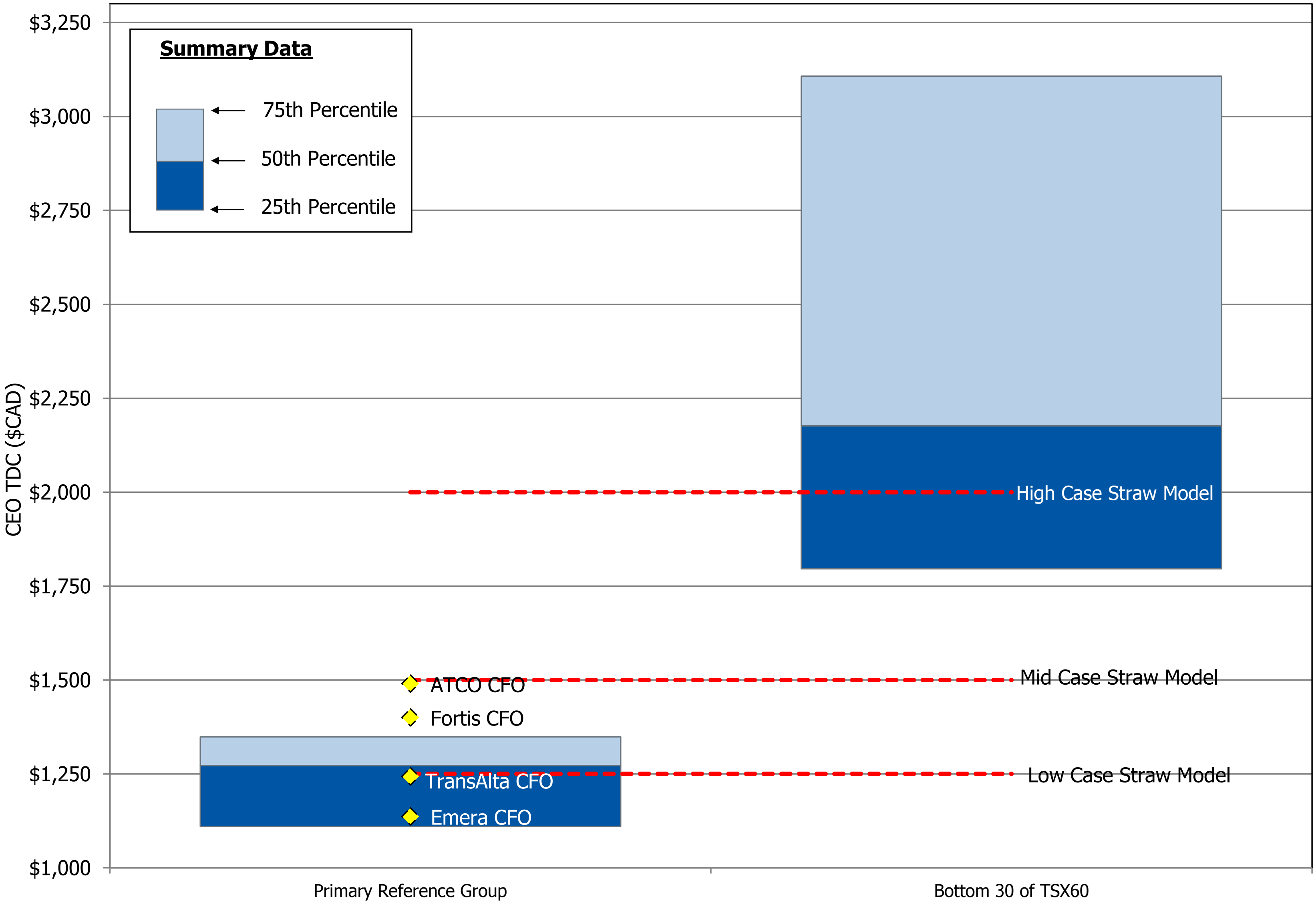
Straw Model CFO Alternatives

Target Pay	Low Case	Mid Case	High Case
Positioning	P50 of peer group, low end of large utilities	Above P75 of peer group, high end of large utilities (i.e. ATCO CFO ~$1.5M)	Above P75 of peer group and large utilities, but low end of bottom half TSX60; this could be warranted if size of role is beyond that of a "typical" CFO
Salary	$400,000	$500,000	$550,000
STIP (% of Salary)	$240,000 60%	$300,000 60%	$330,000 60%
LTIP (% of Salary)	$610,000 153%	$700,000 140%	$1,120,000 204%
TDC	**$1,250,000**	**$1,500,000**	**$2,000,000**
Pension	DC SERP	DC SERP	DC SERP

Straw Model CEO Alternatives vs. Market Context



Straw Model CFO Alternatives vs. Market Context



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Illustrative Term Sheet

- Sample of Key Terms and Conditions

Sample Term Sheet: Illustrative Terms & Conditions

Element	Illustrative Terms and Conditions
Term	Indefinite term
Make whole (if any)	TBD
Transition pay (e.g. stub 2015)	TBD
Exit Provisions	**Termination with Cause / Resignation**: No entitlement to annual incentive bonus; unvested LTIP awards will expire and terminate simultaneously **Termination without Cause**: Severance equal to [2x] annual salary and bonus; also may be eligible for pro-rated STIP; LTIP [may / may not] vest on a pro-rated basis **Retirement:** full vesting of existing LTIP – e.g. see "good leaver" provision below **Disability**: awards are pro-rated for the portion of the performance period worked; continue to vest and are paid out per original schedule **Death**: pro rata [TBC] LTIP immediately vest and are settled with the estate as soon as possible **Change of Control**: there will be no automatic acceleration of vesting of existing LTIP upon a Change of Control **Termination without Cause following Change of Control**: Same as termination without cause. May include "Good Reason" clause (constructive dismissal), and be "double triggered" May wish to include a **"good leaver"** provision (including for retirement) that determines the treatment of unvested LTIP on the participant's exit from the company, based on the assessment of the Board (i.e. the idea here is to avoid both severance and generous treatment of LTIP): • It is expected that the executive facilitate their exit per an agreement between the executive and the Board (actions include, but not limited to: giving reasonable notice, carrying out their transition responsibilities, adhering to restrictive covenants, etc.) • If executive is considered a "good leaver" the Board may assess that all or a portion of unvested LTIP continue to vest per the established schedule • If the executive is not considered a "good leaver" unvested LTIP will be cancelled

Sample Term Sheet: Illustrative Terms & Conditions

Element	Illustrative Terms and Conditions
Share Ownership Guidelines ("SOG")	• Typically [3 – 5x] salary for the CEO to be achieved in [5] years • May consider a [1] year post-retirement hold
Clawback Policy	All incentive payments (annual incentive bonus and LTIP) will be subject to clawback in the following circumstances – for example (TBD): • The amount of the incentive compensation was calculated based upon, or contingent on, the achievement of certain financial results that were subsequently the subject of or affected by a restatement of all or a portion of the Company's financial statements ; and • The incentive compensation payment received would have been lower had the financial results been properly reported
Non-Compete Restrictions	The CEO shall not engage in any practice or business in competition with the Company in Canada, for a period of [1 year] following termination
Non-Solicit Restrictions (employees, clients)	For a period of one year following termination, for any reason including resignation or termination without cause
Non-Disparagement	Applies indefinitely
Anti-Hedging Policy	No hedging of company shares

Appendix I: Additional Reference Group Constituents

Reference Group: US Utility Distributors

Reference Group: US Utility Distributors

Company	Industry Sector	Primary Industry	TEV	Market Cap	Revenues	Assets	EBITDA
Consolidated Edison, Inc.	Utilities	Multi-Utilities	$37,285	$22,046	$14,961	$51,312	$3,746
Eversource Energy	Utilities	Electric Utilities	$32,051	$19,755	$8,966	$34,485	$2,620
Pepco Holdings, Inc.	Utilities	Electric Utilities	$15,755	$8,378	$5,649	$18,143	$1,458
ITC Holdings Corp.	Utilities	Electric Utilities	$11,882	$6,833	$1,185	$8,076	$828
UIL Holdings Corporation	Utilities	Electric Utilities	$5,654	$3,559	$1,890	$5,920	$447
Hydro One Inc.	**Utilities**	**Electric Utilities**	***$22,000***	***$15,000***	**$6,548**	**$22,550**	**$1,833**
			60%	*65%*	*57%*	*57%*	*58%*

Source: S&P CapIQ; Goldman, Sachs & Co: Discussion Materials Regarding Hydro One
Note that Hydro One scoping numbers are TBC – we have used our best estimates from S&P CapIQ and Goldman Sachs, but have not taken into account any further restructuring that may take place
All data in CAD $MM, converted from USD

Reference Group: Government-Owned Utilities

Government-Owned Utilities

Company	Industry Sector	Primary Industry	TEV	Market Cap	Revenues	Assets	EBITDA
Hydro-Quebec	Utilities	Renewable Electricity	N/A	N/A	$13,638	$74,890	$8,323
Ontario Power Generation Inc.	Utilities	Electric Utilities	N/A	N/A	$4,963	$41,653	$1,385
British Columbia Hydro and Power Authority	Utilities	Electric Utilities	N/A	N/A	$5,737	$26,799	$1,766
ENMAX Corp.	Utilities	Electric Utilities	N/A	N/A	$3,348	$4,842	$414
Toronto Hydro Corp.	Utilities	Electric Utilities	N/A	N/A	$3,316	$4,276	$341
EPCOR Utilities, Inc.	Utilities	Electric Utilities	N/A	N/A	$1,904	$5,738	$400
Hydro One Inc.	**Utilities**	**Electric Utilities**	***$22,000***	***$15,000***	**$6,548**	**$22,550**	**$1,833**
			-	*-*	*82%*	*56%*	*80%*

Source: S&P CapIQ; Goldman, Sachs & Co: Discussion Materials Regarding Hydro One
Note that Hydro One scoping numbers are TBC – we have used our best estimates from S&P CapIQ and Goldman Sachs, but have not taken into account any further restructuring that may take place
All data in CAD $MM

Appendix II: Detailed CEO Benchmarking Results

CEO Benchmarking – Primary Group

Company	Annual Base Salary	STIP Target* $	STIP Target* %	Total Cash Compensation Target	LTIP Target* $	LTIP Target* %	Total Direct Compensation Target	Multiple of CFO Target Total Direct Compensation
Fortis Inc.	$1,200	$1,020	85%	$2,220	$2,870	239%	$5,090	3.63x
ATCO Ltd.	$1,000	$1,000	100%	$2,000	$1,960	196%	$3,960	2.64x
Emera Incorporated	$875	$788	90%	$1,663	$1,925	220%	$3,588	3.15x
TransAlta Corp.	$950	$855	90%	$1,805	$2,090	220%	$3,895	3.13x
Pembina Pipeline Corporation	$570	$485	85%	$1,055	$1,568	275%	$2,622	1.97x
Keyera Corp.	$572	$400	70%	$972	$1,144	200%	$2,116	2.05x
AltaGas Ltd.	$806	$605	75%	$1,411	$1,344	167%	$2,755	3.25x
Inter Pipeline Ltd.	$550	$550	100%	$1,100	$2,040	371%	$3,140	2.41x
75th Percentile	$963	$891	93%	$1,854	$2,053	248%	$3,911	3.18x
Median	**$841**	**$696**	**88%**	**$1,537**	**$1,943**	**220%**	**$3,364**	2.89x
25th Percentile	$572	$534	83%	$1,089	$1,512	199%	$2,722	2.32x
Hydro One: Pro-forma (mid case)	$850	$765	90%	$1,615	$2,385	281%	$4,000	2.67x
Percent Rank	*52%*	*55%*	*57%*	*54%*	*91%*	*87%*	*86%*	*44%*

Sources: latest company proxy data & insider filings
All pay data in $000s CDN
**** Target values if disclosed; if not disclosed, have shown 3-yr actual average***

CEO Benchmarking – Government-Owned Utilities

Company	Annual Base Salary	STIP Target* $	STIP Target* %	Total Cash Compensation Target	LTIP Target* $	LTIP Target* %	Total Direct Compensation Target
Hydro-Quebec	$469	$108	23%	$577	$0	0%	$577
Ontario Power Generation Inc.	$800	$800	100%	$1,600	$0	0%	$1,600
British Columbia Hydro and Power Authority	$359	$77	21%	$436	$0	0%	$436
ENMAX Corp.	$639	$479	75%	$1,118	$639	100%	$1,756
Toronto Hydro Corp.	$485	$316	65%	$801	$0	0%	$801
EPCOR Utilities, Inc.	$650	$488	75%	$1,138	$650	100%	$1,788
2014 Summary Statitics							
75th Percentile	$647	$485	75%	$1,133	$479	75%	$1,717
Median	**$562**	**$397**	**70%**	**$959**	**$0**	**0%**	**$1,201**
25th Percentile	$473	$160	33%	$633	$0	0%	$633

Sources: latest company proxy data & insider filings; if fiscal 2014 results have not yet been released, figures have been aged by 3% (ENMAX)
All pay data in $000s CDN
**** Target values if disclosed; if not disclosed, have shown 3-yr actual average***

CEO Benchmarking – US Group – Top Ops

Company	Title	Annual Base Salary	STIP Target* $	STIP Target* %	Total Cash Compensation Target	LTIP Target* $	LTIP Target* %	Total Direct Compensation Target
Consolidated Edison, Inc.	President of Shared Services - Consolidated Edison Company of New York	$584	$714	122%	$1,299	$1,057	181%	$2,356
Consolidated Edison, Inc.	President of Consolidated Edison Company of New York Inc	$826	$895	108%	$1,721	$1,740	211%	$3,461
Eversource Energy	COO and EVP	$595	$663	111%	$1,258	$907	152%	$2,165
Eversource Energy	EVP of Enterprise Energy Strategy & Business Development	$682	$887	130%	$1,568	$1,122	165%	$2,690
Pepco Holdings, Inc.	CEO of Pepco Energy Services Inc and President of Pepco Energy Services Inc	$406	$315	77%	$721	$550	135%	$1,271
Pepco Holdings, Inc.	EVP - Power Delivery	$550	$310	56%	$860	$642	117%	$1,502
ITC Holdings Corp.	EVP, Chief Business Unit Officer and President of ITC Michigan	$693	$866	125%	$1,559	$1,142	165%	$2,701
ITC Holdings Corp.	COO and EVP	$571	$868	152%	$1,439	$1,016	178%	$2,455
ITC Holdings Corp.	EVP of US Regulated Grid Development	$475	$742	156%	$1,217	$780	164%	$1,997
UIL Holdings Corporation	SVP of Electric Operations	$350	$267	76%	$617	$330	94%	$947
UIL Holdings Corporation	SVP of Customer and Business Services	$326	$159	49%	$485	$189	58%	$675
75th Percentile		$638	$867	128%	$1,499	$1,089	171%	$2,573
Median		**$571**	**$714**	**111%**	**$1,258**	**$907**	**164%**	**$2,165**
25th Percentile		$441	$313	77%	$790	$596	126%	$1,387

Source: S&P Capital IQ; if fiscal 2014 results have not yet been released, figures have been aged by 3% (Pepco)
All pay data in $000s CDN; converted at 1.1045 for 2014 data, 1.03 for 2013 data, 0.999 for 2012 data, and 0.9891 for 2011 data (i.e. the average US:CAD Bank of Canada Rate for the given year)
**** We have approximated target values by using the average STIP and LTIP values of the 3 most recently disclosed fiscal years***

CEO Benchmarking – US Group - CEOs

Company	Annual Base Salary	STIP Target* $	STIP Target* %	Total Cash Compensation Target	LTIP Target* $	LTIP Target* %	Total Direct Compensation Target
Consolidated Edison, Inc.	$1,259	$1,730	137%	$2,989	$4,240	337%	$7,229
Eversource Energy	$1,321	$2,456	186%	$3,778	$4,898	371%	$8,676
Pepco Holdings, Inc.	$1,077	$856	80%	$1,933	$3,688	343%	$5,621
ITC Holdings Corp.	$1,118	$3,604	322%	$4,722	$2,966	265%	$7,688
UIL Holdings Corporation	$867	$975	112%	$1,841	$1,719	198%	$3,560
75th Percentile	$1,259	$2,456	186%	$3,778	$4,240	343%	$7,688
Median	**$1,118**	**$1,730**	**137%**	**$2,989**	**$3,688**	**337%**	**$7,229**
25th Percentile	$1,077	$975	112%	$1,933	$2,966	265%	$5,621

Source: S&P Capital IQ

All pay data in $000s CDN; converted at 1.1045 for 2014 data, 1.03 for 2013 data, 0.999 for 2012 data, and 0.9891 for 2011 data (i.e. the average US:CAD Bank of Canada Rate for the given year)

**** We have approximated target values by using the average STIP and LTIP values of the 3 most recently disclosed fiscal years***

DRAFT – for discussion

Appendix III: Detailed CFO Benchmarking Results

CFO Benchmarking – Primary Group

Company	Annual Base Salary	STIP Target* $	STIP Target* %	Total Cash Compensation Target	LTIP Target* $	LTIP Target* %	Total Direct Compensation Target
Fortis Inc.	$550	$385	70%	$935	$466	85%	$1,401
ATCO Ltd.	$563	$536	95%	$1,099	$402	72%	$1,501
Emera Incorporated	$474	$284	60%	$758	$379	80%	$1,137
TransAlta Corp.	$452	$226	50%	$678	$565	125%	$1,244
Pembina Pipeline Corporation	$375	$206	55%	$581	$750	200%	$1,331
Keyera Corp.	$338	$186	55%	$523	$507	150%	$1,030
AltaGas Ltd.	$339	$170	50%	$509	$339	100%	$848
Inter Pipeline Ltd.	$350	$280	80%	$630	$671	192%	$1,301
75th Percentile	$493	$309	73%	$802	$592	160%	$1,349
Median	**$414**	**$253**	**58%**	**$654**	**$486**	**113%**	**$1,272**
25th Percentile	$347	$201	54%	$567	$396	84%	$1,110
Hydro One: Pro-forma (mid case)	$500	$300	60%	$800	$700	140%	$1,500
Percent Rank	*76%*	*74%*	*57%*	*75%*	*91%*	*66%*	*99.8%*

Sources: latest company proxy data & insider filings
All pay data in $000s CDN
**** Target values if disclosed; if not disclosed, have shown 3-yr actual average***

hydro one

DRAFT – for discussion

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CFO Benchmarking – Government Owned Utilities

Company	Title	Annual Base Salary	STIP Target* $	STIP Target* %	Total Cash Compensation Target	LTIP Target* $	LTIP Target* %	Total Direct Compensation Target
Hydro-Quebec	---	---	---	---	---	---	---	---
Ontario Power Generation Inc.	SVP & CFO	$397	$179	45%	$575	$0	0%	$575
British Columbia Hydro and Power Authority	EVP, Finance & CFO	$269	$55	20%	$324	$0	0%	$324
ENMAX Corp.	EVP, Finance & CFO	$414	$186	45%	$600	$315	76%	$915
Toronto Hydro Corp.	EVP and CFO	$283	$113	40%	$397	$0	0%	$397
EPCOR Utilities, Inc.	SVP & CFO	$335	$151	45%	$486	$250	75%	$736
2014 Summary Statitics								
75th Percentile		$397	$179	45%	$575	$250	75%	$736
Median		**$335**	**$151**	**45%**	**$486**	**$0**	**0%**	**$575**
25th Percentile		$283	$113	40%	$397	$0	0%	$397

Sources: latest company proxy data & insider filings; if fiscal 2014 results have not yet been released, figures have been aged by 3% (ENMAX)
All pay data in $000s CDN
**** Target values if disclosed; if not disclosed, have shown 3-yr actual average***
Note that Hydro-Quebec does not have a CFO

CFO Benchmarking – US Distributors

Company	Annual Base Salary	STIP Target* $	STIP Target* %	Total Cash Compensation Target	LTIP Target* $	LTIP Target* %	Total Direct Compensation Target
Consolidated Edison, Inc.	$751	$511	68%	$1,262	$1,340	178%	$2,602
Eversource Energy	$649	$748	115%	$1,398	$1,159	178%	$2,556
Pepco Holdings, Inc.	$499	$294	59%	$793	$663	133%	$1,456
ITC Holdings Corp.	$319	$319	100%	$639	$208	65%	$846
UIL Holdings Corporation	$470	$296	63%	$766	$504	107%	$1,270
75th Percentile	$649	$511	100%	$1,262	$1,159	178%	$2,556
Median	**$499**	**$319**	**68%**	**$793**	**$663**	**133%**	**$1,456**
25th Percentile	$470	$296	63%	$766	$504	107%	$1,270

Source: S&P Capital IQ; if fiscal 2014 results have not yet been released, figures have been aged by 3% (Pepco)

All pay data in $000s CDN; converted at 1.1045 for 2014 data, 1.03 for 2013 data, 0.999 for 2012 data, and 0.9891 for 2011 data (i.e. the average US:CAD Bank of Canada Rate for the given year)

**** We have approximated target values by using the average STIP and LTIP values of the 3 most recently disclosed fiscal years***

Appendix IV: Segmentation Data

Segmentation Data: Primary Peer Group

	Location	% of Revenue Regulated (best estimate from disclosure)	% of Revenue from Generation (best estimate from disclosure)
Primary Peer Group			
Fortis Inc.	Arizona, New York State, BC, Alberta, Newfounland, PEI, Ontario, Grand Cayman, Turks and Caicos, and Belize	93%	4%
ATCO Ltd.	Alberta, Yukon, Northwest territories, Mexico and Australia	~49%	n/d
Emera Incorporated	Maine, Nova Scotia, New Brunswick, and Barbados	67%	45%
TransAlta Corp.	Canada, US and Western Australia	n/d	96%
Pembina Pipeline Corporation	Alberta, BC, North Dakota and saskatchewan	n/d	n/d
Keyera Corp.	Canada and US	n/d	n/d
AltaGas Ltd.	Alberta, BC, California, Colorado, Michigan, and North Carolina	45%	n/d
Inter Pipeline Ltd.	Western Canada, UK, Denmark, Germany, and Ireland	n/d	35%

Appendix V: Pensions

Pension Practices – Peer Group

The following illustration reflects peer companies who have a Supplemental Employee Retire Program (SERP) for the CEO and how they are determined:

Company	SERP	Type of SERP (DB / DC)	Formula
Fortis	Yes	DC	13% x (Salary + STIP)
ATCO Ltd.	Yes	DB	% of avg. cash compensation (Salary + STIP) of highest 5 years during last 10 years of employment. Percentage depends on age (58 = 76%, 59=78%, 60 and older = 80%)
Emera Incorporated	Yes	DB	2% x (Salary + 50% STIP) x years of credited service
TransAlta Corp	Yes	DB	2% x final avg. of (Salary + STIP)
Pembina Pipeline	Yes	DB	1.4% x highest 3 yr. avg. base salary in final 120 months x DB pensionable service
Keyera	Yes	DC	6%-10% (based on credited service) x base earnings
AltaGas	Yes	DB	2% x highest 3 year avg. earnings x years of pensionable service
Inter Pipeline	No	N/A	N/A

Hydro One Incumbent CEO	Yes	DB	2% x average (Salary + 50% STI) x years of credited service

Hydro One

Executive Compensation Benchmarking

Draft for Discussion

OCTOBER 16, 2015

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1) Introduction

- Hydro One engaged Towers Watson to complete a competitive market assessment of its total rewards package for management compensation plan (MCP) employees. This benchmark review focuses on executive roles (Bands 1-4)
  - Our analysis is based on Hydro One's current organizational structure and role responsibilities, and will need to be refreshed as it transitions to an autonomous publicly-traded company. As such, use of this data and any program changes it informs should be paced with the evolution of the organization
- In the prospectus, Hydro One outlined the use of a primary reference group of eight utility/energy companies ("**Utility Peer Group**") along with a secondary reference group of the 30 smallest members of the S&P/TSX 60 index
- While the primary reference group likely provides sufficient market data for the CEO and CFO, a larger sample will be needed for the rest of the executive team (approximately 25 incumbents in total). This is to account for different executive roles that may exist within each company and to capture the broader labour market for Hydro One's executives
- An expanded peer group of 21 companies was developed and approved by the HR Committee at the August 24, 2015 meeting ("**Executive Peer Group**"). The criteria used to establish this "asset intensive" group of companies includes:
  - Inclusion of 8 companies in the primary reference group (Utility Peers)
  - Canadian publicly-traded (excluding mining and oil & gas)
  - Revenue between 1/3x to 3x Hydro One
  - Assets between $10 billion and 3x Hydro One
- The chart on the following page provides further details on Hydro One's positioning relative to the two peer groups. Further scope details (including market capitalization, net income, geographic complexity, # of employees) are outlined in **Appendix I**

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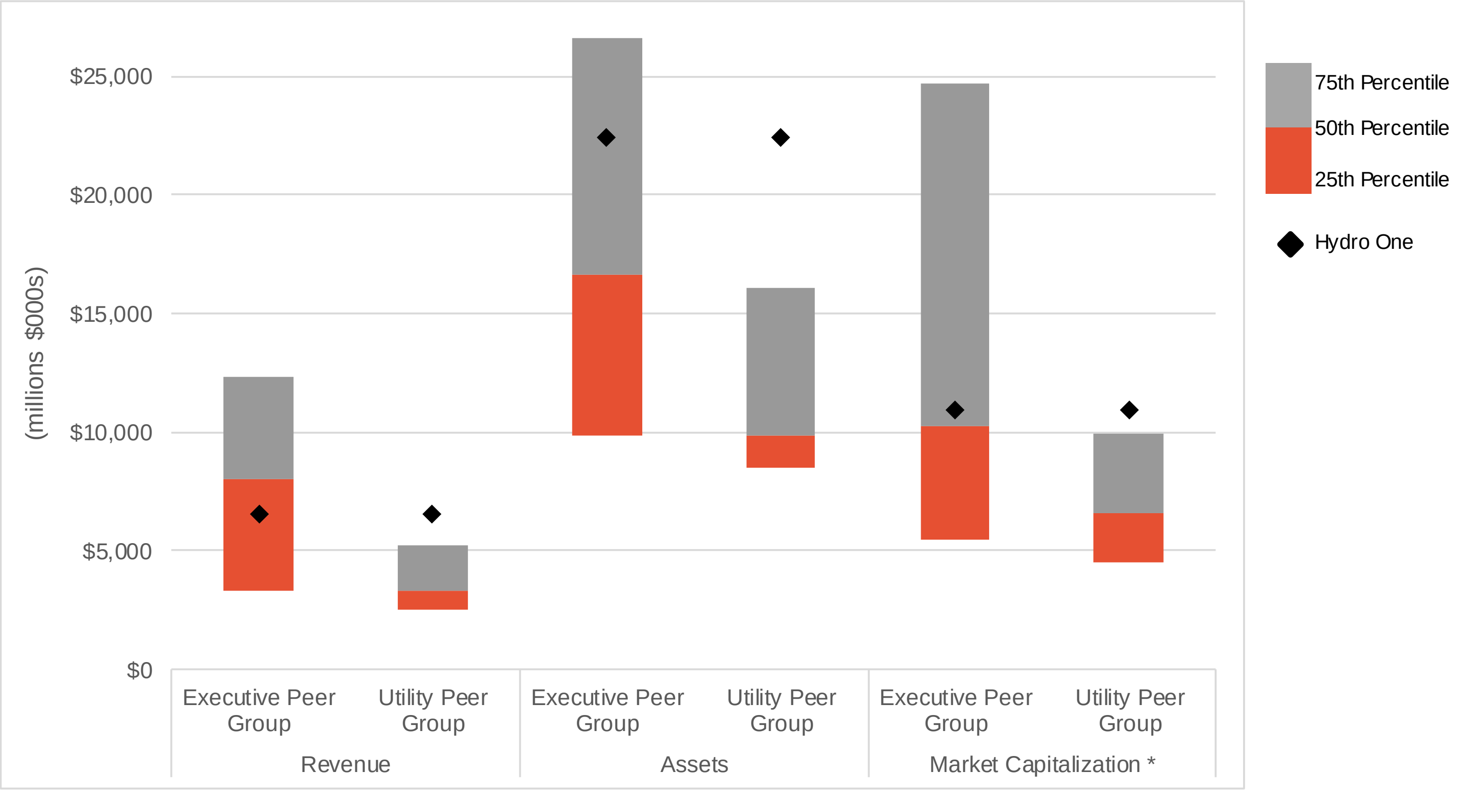
2) Comparing Peer Group Organization Profiles

- The companies in the Utility Peer Group tends to be smaller than the full Executive Peer Group with Hydro One positioned as one of the largest companies in the sample
- Hydro One is positioned around the 50th percentile relative to the full Executive Peer Group for all measures excluding assets, which are positioned between the 50th and 75th percentiles



* Hydro One market capitalization is based on an estimate of $11 billion

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2) Comparing against Fortis' Peer Group

- As requested and since Fortis is similar in size and profile to Hydro One, the following compares the full Executive Peer Group with Fortis' disclosed peer group. Eight Hydro One peers are in Fortis' peer group, which also includes US utilities (given their US presence) and other Canadian mining/oil & gas companies (given their BC/Alberta presence)
- In terms of assets, the size of companies in both peer groups are fairly comparable

Fortis - Comparator Group (n=36)				
AGL Resources	CMS Energy	MDU Resources Group	PPL	**TransAlta**
Alliant Energy	**Emera**	Methanex	Public Services Enterprise Group	**TransCanada**
Ameren	**Enbridge**	New Jersey Resources	SCANA	UGI
ATCO	Encana	NiSources	Sempra Energy	Wisconsin Energy
Atmos Energy	Finning International	Northeast Utilities	**SNC-Lavalin**	
Canadian National Railway	First Quantum Minerals	**Pembina Pipeline**	Talisman Energy *	
Canadian Pacific Railway	Gibson Energy	Pinnacle West Capital	Teck Resources	
CenterPoint Energy	Goldcorp	Potash Corp of Saskatchewan	TECO Energy	

		Revenue	Assets	Market Cap	Net Income
	25th Percentile	$3,942	$9,886	$5,405	$343
	50th Percentile	$6,471	$17,271	$6,707	$506
	75th Percentile	$8,499	$27,116	$15,340	$1,290
Fortis Inc.	Electric Utilities	$5,401 41P	$26,628 75P	$10,203 65P	$379 29P

Hydro One Peers - Executive Peer Group (n=21)				
Agrium	**Canadian Pacific Railway**	**Enbridge**	**Pembina Pipeline**	**TransCanada**
AltaGas	Canadian Tire	Fortis	Rogers Communications	
ATCO	Capital Power	Intact Financial	**SNC Lavalin**	
Bombardier	CGI Group	Inter Pipeline	TELUS	
Canadian National Railway	**Emera**	Keyera	**TransAlta**	

		Revenue	Assets	Market Cap	Net Income
	25th Percentile	$3,298	$9,839	$5,419	$282
	50th Percentile	$7,980	$16,640	$10,203	$604
	75th Percentile	$12,298	$26,575	$24,706	$1,373
Hydro One	Gas and Energy Utilities	$6,548 45P	$22,500 67P	$11,000 52P	$749 57P

Hydro One's peer group tends to include more eastern Canadian companies

Data has been sourced from S&P's Capital IQ. Revenue, Assets and Net Income are reflective of the most recent fiscal year-end. Market capitalization reflects a 3 month average beginning July 1, 2015. All data is in millions.
* The acquisition of Talisman by Repsol was finalized on May 8, 2015
Companies in blue are U.S. Utility organizations. **Bolded Companies are used by both Hydro One and Fortis**

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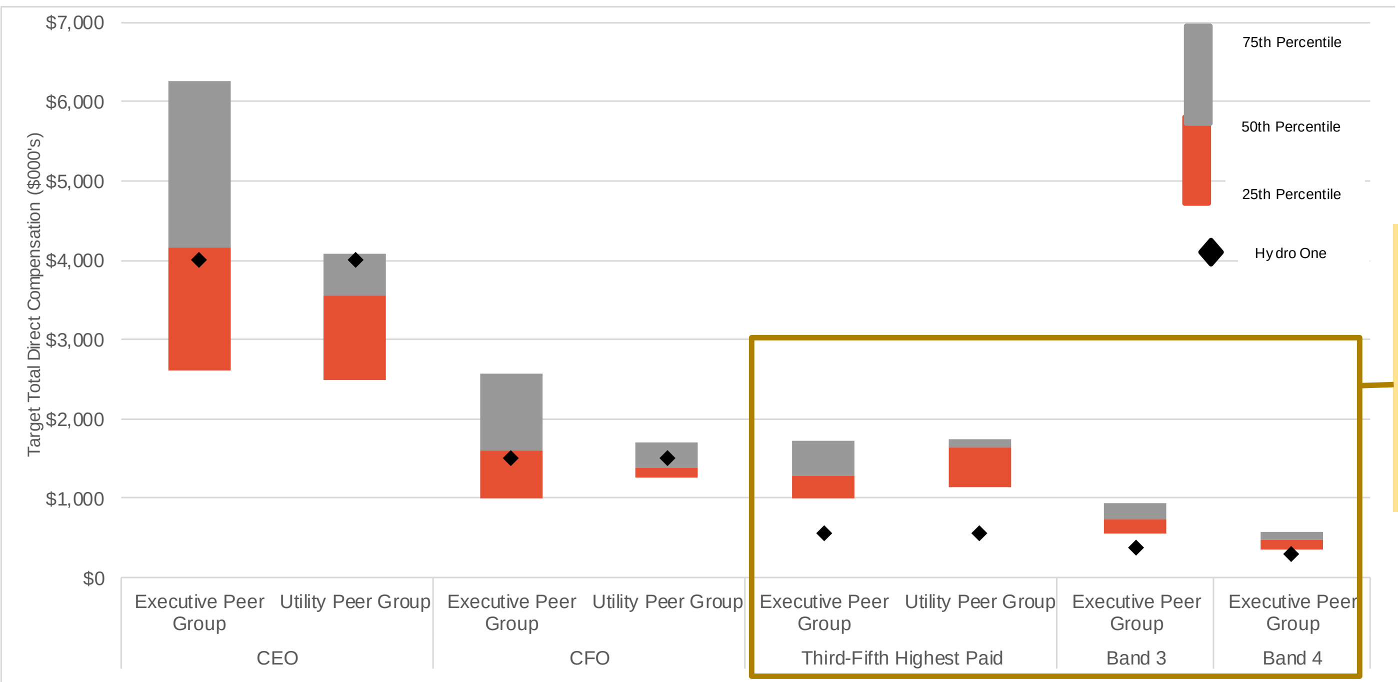
3) Comparing Peer Group Compensation Levels

- The market compensation data for the Utility Peer Group tends to be positioned lower than the Executive Peer Group (i.e., the 75th percentile of the Utility Peer Group is aligned with the 50th percentile of the Current Peer Group), except for the 3rd-5th highest paid executives where the 50th percentile for the Utility Peer Group is higher
  - The difference for the CEO/CFO appears to be correlated with the smaller size of the Utility Peer Group relative to the Executive Peer Group



The below market positioning (<25th percentile) of the roles below CEO/CFO is primarily due to the absence of long-term incentives

	CEO		CFO		Third-Fifth Highest Paid		Band 3	Band 4
Market 50th	$4,160	$3,568	$1,600	$1,372	$1,285	$1,649	$735	$463
Hydro One	$4,000		$1,500		$548		$365	$285

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3) Market Compensation Data – Bands 3 and 4

- On average, Hydro One is positioned around the 25th percentile in terms of salary and target total cash (TTC = salary + short-term incentives). The absence of long-term incentives reduces Hydro One's positioning to below the 25th percentile on a TDC basis (TDC = TTC + long-term incentives)

($000's)		Base Salary				Target Total Compensation				Total Direct Compensation (TDC)			
Band	# Hydro One Incs	Avg. Hydro One	Avg. P25	Avg. P50	% +- P50	Avg. Hydro One	Avg. P25	Avg. P50	% +- P50	Avg. Hydro One	Avg. P25	Avg. P50	% +- P50
Band 3 *(SVP)*	6	**$252**	$272	**$311**	*-19%*	**$365**	$392	**$464**	*-21%*	**$365**	$561	**$735**	*-50%*
Band 4 *(VP)*	14	**$219**	$209	**$246**	*-11%*	**$285**	$269	**$334**	*-15%*	**$285**	$358	**$463**	*-38%*
Weighted Average	**20**	**$229**	**$227**	**$266**	-12%	**$309**	**$313**	**$374**	-15%	**$309**	**$429**	**$545**	-39%

- On average, Hydro One's incentives are positioned at the 25th percentile of the market
  - Target bonuses are positioned between the 25th and 50th percentiles for Band 3 but below the 25th percentile for Band 4, and Hydro One does not currently have a long-term incentive plan

(as a % of salary)		Target Bonus			Long-term Incentives		
Band	# Hydro One Incs	Avg. Hydro One *	Avg. P25	Avg. P50	Avg. Hydro One	Avg. P25	Avg. P50
Band 3 *(SVP)*	6	**45%**	43%	**49%**	**-**	57%	**86%**
Band 4 *(VP)*	14	**30%**	33%	**36%**	**-**	46%	**62%**
Weighted Average	**20**	**38%**	**38%**	**42%**	**-**	**51%**	**74%**

* Represents 75% of maximum

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4) Interpretation / Next Steps

- In reviewing the market data, we offer the following comments:
  - **Disclosure** - the current prospectus outlines the use of a primary and secondary reference. While the primary reference has not changed (i.e., the Utility Peer Group), depending on the named executive officers (NEOs) in next year's proxy circular, the use of the revised secondary reference may need to be disclosed (i.e., a custom group of 21 companies – the Executive Peer Group - rather than the 30 smallest companies of the S&P/TSX 60)
  - **Pay positioning** – Hydro One's compensation tends to be positioned at the high end of the Utility Peer Group and – for the CEO/CFO - at the 50th percentile of the Executive Peer Group, commensurate with Hydro One's size relative to the peers
    - This can also be addressed / highlighted within next year's proxy circular
  - **Transition / implementation** – the Executive Peer Group can be considered somewhat aspirational, representing the future growth of the organization and its requisite talent needs. Compensation levels for current incumbents do not immediately need to be aligned with the market 50th percentile and can be transitioned over time (e.g., 1 to 3 years) depending on the incumbent and the pace of organizational change. Experienced new hires may need to be positioned closer to the market 50th percentile upon hire
  - **Peer group review process** – the selection criteria, underlying peer companies, and the use of the Utility Peer Group (for select NEOs as the primary reference group) will need to be reviewed regularly for appropriateness on a go-forward basis
    - Potential future additions: some balance of US companies, PotashCorp, Bunge, Mosiac
    - Potential future deletions (due to size and/or financial challenges): CN Rail, Capital Power, AltaGas, Keyera, TransAlta, Bombardier

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Appendices

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Peer Group Summary

Utility and Executive Peer Groups

Company	Industry	Revenue	Assets	Market Cap	Net Income	Total # of Employees	Geographic Scope	# of Business Units
	Scope Information (millions $000s)							
Utility Peer Group								
AltaGas	Energy Services & Utilities	$2,401	$8,413	$4,765	$130	1,700	North America	3
ATCO Group	Energy Services & Utilities	$4,554	$17,689	$4,449	$420	9,170	International	4
Emera Inc.	Energy Services & Utilities	$2,972	$9,844	$6,234	$433	3,530	Canada, U.S. Carribean	6
Fortis Inc.	Energy Services & Utilities	$5,401	$26,628	$10,203	$379	10,000	Canada, U.S. Carribean	8
Inter Pipeline Ltd.	Energy Services & Utilities	$1,556	$8,647	$9,041	$335	875	Canada, Europe	4
Keyera Corp.	Energy Services & Utilities	$3,624	$3,851	$6,868	$230	900	Canada & U.S.	2
Pembina Pipeline Corporation	Energy Services & Utilities	$6,069	$11,262	$12,505	$383	1,111	Canada	4
TransAlta Corporation	Energy Services & Utilities	$2,623	$9,833	$2,080	$182	2,786	Canada, U.S., Australia	2
Other Asset Intensive Companies								
Agrium Inc.	Fertilizers and Agricultural Chemicals	$16,042	$17,108	$18,919	$714	15,500	International	2
Bombardier Inc.	Aerospace and Defense	$20,111	$27,614	$3,630	-$1,260	65,050	International	4
Canadian National Railway	Railroads	$12,134	$31,792	$60,843	$3,167	25,530	North America	1
Canadian Pacific Railway Ltd.	Railroads	$6,620	$16,640	$31,861	$1,476	14,698	Canada & U.S.	4
Canadian Tire Corporation	General Merchandise Stores	$12,463	$14,553	$9,978	$604	19,754	Canada	3
Capital Power Corporation	Energy Services & Utilities	$1,228	$5,420	$2,080	$46	730	Canada & U.S.	1
CGI Group Inc.	IT Consulting and Other Services	$10,500	$11,234	$15,238	$859	68,000	International	12
Enbridge Inc.	Energy Services & Utilities	$37,641	$72,857	$46,884	$1,405	11,000	Canada & U.S.	3
Intact Financial Corporation	Property and Casualty Insurance	$7,980	$20,580	$12,064	$782	11,326	Canada	1
Rogers Communications Inc.	Wireless Telecommunication Services	$12,850	$26,522	$23,213	$1,341	27,000	Canada	3
SNC Lavalin Group Inc.	Construction and Engineering	$8,239	$10,011	$6,072	$1,333	42,003	International	4
TELUS Corporation	Integrated Telecommunication Services	$11,927	$23,217	$26,199	$1,425	42,700	Canada	2
TransCanada Corporation	Energy Services & Utilities	$10,185	$58,947	$33,253	$1,840	6,059	North America	3

Utility Peer Group Percentile Statistics (n=8)

		Revenue	Assets	Market Cap	Net Income	Total # of Employees	Geographic Scope	# of Business Units
	25th Percentile	**$2,457**	**$8,472**	**$4,528**	**$194**	**953**		**2**
	50th Percentile	**$3,298**	**$9,839**	**$6,551**	**$357**	**2,243**	**-**	**4**
	75th Percentile	**$5,189**	**$16,082**	**$9,913**	**$411**	**7,760**		**6**
Hydro One	**Gas and Energy Utilities**	**$6,548** **Highest**	**$22,500** **84P**	**$11,000** **82P**	**$749** **Highest**	**7,856** **75P**	**Canada**	**3** **33P**

Executive Peer Group Percentile Statistics (n=21)

		Revenue	Assets	Market Cap	Net Income	Total # of Employees	Geographic Scope	# of Business Units
	25th Percentile	**$3,298**	**$9,839**	**$5,419**	**$282**	**2,243**		**2**
	50th Percentile	**$7,980**	**$16,640**	**$10,203**	**$604**	**11,000**	**-**	**3**
	75th Percentile	**$12,298**	**$26,575**	**$24,706**	**$1,373**	**26,265**		**4**
Hydro One	**Gas and Energy Utilities**	**$6,548** **45P**	**$22,500** **67P**	**$11,000** **52P**	**$749** **57P**	**7,856** **39P**	**Canada**	**3** **50P**

Data has been sourced from S&P's Capital IQ. Revenue, Assets and Net Income are reflective of the most recent fiscal year-end. Market capitalization reflects a 3 month average beginning July 1, 2015

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Hydro One

Competitive Compensation Review

Management Compensation Plan
Non-Executive Bands
October 16, 2015

Draft for Discussion

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Executive Summary

- Hydro One engaged Towers Watson to complete a competitive market assessment of its total rewards package for management compensation plan (MCP) employees (588 incumbents)
- Our analysis is based on Hydro One's current organizational structure and role responsibilities, and will need to be refreshed as it transitions to an autonomous publicly-traded company. As such, use of this data and any program changes it informs should be paced with the evolution of the organization
- This benchmark review focuses on non-executive roles (Bands 5-10). A review of executive roles is underway and will be provided separately. The market research was conducted on a segmented basis (refer to **Appendix II** for the peer groups used in the analysis). Consistent with Hydro One's compensation philosophy, roles are benchmarked against comparator organizations best representing the underlying skill sets required. The two segments identified for benchmarking purposes include: Core Operational and Support segments, each representing 50% of the Band 5 – 10 population
- Seventy seven percent of Hydro One's incumbents are in roles covered by this benchmark review. In our experience, this is a strong representative sample
- ***On an aggregate basis, Hydro One's position to market is aligned "at" or slightly above market median; with above market variances more attributable to the support segment***

		Base Salary			Total Target Cash (TTC)			Total Direct Compensation (TDC)		
Band	# Hydro One Benchmarked Incumbents	Avg. Hydro One	Avg. P50	% +- P50 Base Salary	Avg. Hydro One	Avg. P50	% +- P50 TTC	Avg. Hydro One	Avg. P50	% +- P50 TDC
Band 5 *(Director)*	49	$167	$150	***11%***	$204	$183	***12%***	$204	$191	***7%***
Band 6 *(Mgr/Prof)*	118	$135	$129	***5%***	$155	$142	***9%***	$155	$142	***9%***
Band 7 *(Mgr/Prof)*	229	$117	$107	***10%***	$130	$116	***12%***	$130	$116	***12%***
Band 8 *(Admin)*	19	$74	$68	***9%***	$80	$73	***9%***	$80	$73	***9%***
Band 9 *(Admin)*	35	$64	$61	***6%***	$69	$65	***7%***	$69	$65	***7%***
Band 10 *(Admin)*	3	$55	$50	***10%***	$57	$52	***8%***	$57	$52	***8%***
Weighted Average	**453**	**$121**	**$112**	**8%**	**$137**	**$124**	**11%**	**$137**	**$125**	**10%**

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Results by Hydro One Band

by Segment – Core Operational

Core Operational Roles - Definition

Requires specific education, skills and knowledge in a professional area that is directly related to concepts and methods associated with the transmission, distribution and regulation of power. Examples include: Operations, Engineering, Skilled Trades

Core Operational

		Base Salary					Total Target Cash (TTC)					Total Direct Compensation (TDC)				
Band	# Hydro One Benchmarked Incumbents	Avg. Hydro One	Avg. P25	Avg. P50	Avg. P75	% +- P50	Avg. Hydro One	Avg. P25	Avg. P50	Avg. P75	% +- P50	Avg. Hydro One	Avg. P25	Avg. P50	Avg. P75	% +- P50
Band 5 *(Director)*	14	$169	$153	$173	$184	***-2%***	$207	$174	$207	$231	***0%***	$207	$174	$222	$267	***-7%***
Band 6 *(Mgr/Prof)*	64	$137	$128	$145	$159	***-6%***	$158	$136	$164	$183	***-4%***	$158	$136	$164	$200	***-4%***
Band 7 *(Mgr/Prof)*	125	$122	$108	$120	$131	***2%***	$136	$117	$131	$148	***4%***	$136	$117	$131	$151	***4%***
Weighted Average	**203**	**$130**	**$118**	**$132**	**$144**	**-1%**	**$148**	**$127**	**$146**	**$165**	**1%**	**$148**	**$127**	**$147**	**$174**	**0%**

- In aggregate, the core operational segment of Hydro One is aligned with the market median of Base Salary and Target Total Cash (TTC)
- Market positioning is also aligned with market median on a Total Direct Compensation (TDC) basis, although relative positioning drops somewhat at Band 5 due to some market comparators providing long-term incentives at this level (Director).
- *Implications – development of a segmented salary structure aligned with market 50th percentile, that is also aligned with current pay levels, will minimize compression concerns relative to bargaining unit "feeder roles". Any adjustment to target bonuses needed would be limited although consideration for implementation of long-term incentive eligibility at Band 5 may be warranted as these plans are finalized*

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Results by Hydro One Band
by Segment – Support

Support Roles - Definition
Roles that require education, skills and knowledge that are <u>not specific</u> to the transmission, distribution and regulation of power. Examples of such functions include Finance, Human Resources and Information Technology.

Support

		Base Salary					Total Target Cash (TTC)					Total Direct Compensation (TDC)				
Band	# Hydro One Benchmarked Incumbents	Avg. Hydro One	Avg. P25	Avg. P50	Avg. P75	% +- P50	Avg. Hydro One	Avg. P25	Avg. P50	Avg. P75	% +- P50	Avg. Hydro One	Avg. P25	Avg. P50	Avg. P75	% +- P50
Band 5 *(Director)*	35	$166	$129	$141	$160	***18%***	$203	$156	$173	$197	***17%***	$203	$156	$179	$213	***14%***
Band 6 *(Mgr/Professional)*	54	$132	$100	$109	$121	***22%***	$152	$107	$116	$132	***31%***	$152	$107	$116	$136	***31%***
Band 7 *(Mgr/Professional)*	104	$111	$82	$91	$102	***22%***	$124	$89	$100	$115	***24%***	$124	$89	$100	$115	***24%***
Band 8 *(Admin)*	19	$74	$61	$68	$76	***9%***	$80	$65	$73	$85	***9%***	$80	$65	$73	$85	***9%***
Band 9 *(Admin)*	35	$64	$56	$61	$67	***6%***	$69	$59	$65	$70	***7%***	$69	$59	$65	$70	***7%***
Band 10 *(Admin)*	3	$55	$44	$50	$54	***10%***	$57	$46	$52	$56	***8%***	$57	$46	$52	$56	***8%***
Weighted Average	**250**	**$113**	**$87**	**$95**	**$107**	**19%**	**$129**	**$96**	**$106**	**$121**	**22%**	**$129**	**$96**	**$107**	**$124**	**21%**

- In aggregate, the support segment of Hydro One is at or above the market 75th percentile of Base Salary and TTC for management level roles and closer to the 50th percentile for administrative levels
- Similar findings with respect to TDC as per the core operational segment
- *Implications – development of a segmented salary structure that is lower than the core operational structure, but slightly higher than the market 50th percentile to address compression with bargaining unit "feeder roles", particularly in Bands 6/7. This would enable management of actual salaries against lower range midpoints over time. Any adjustment to target bonuses needed would be limited although consideration for implementation of long-term incentive eligibility at Band 5 may be warranted as these plans are finalized*

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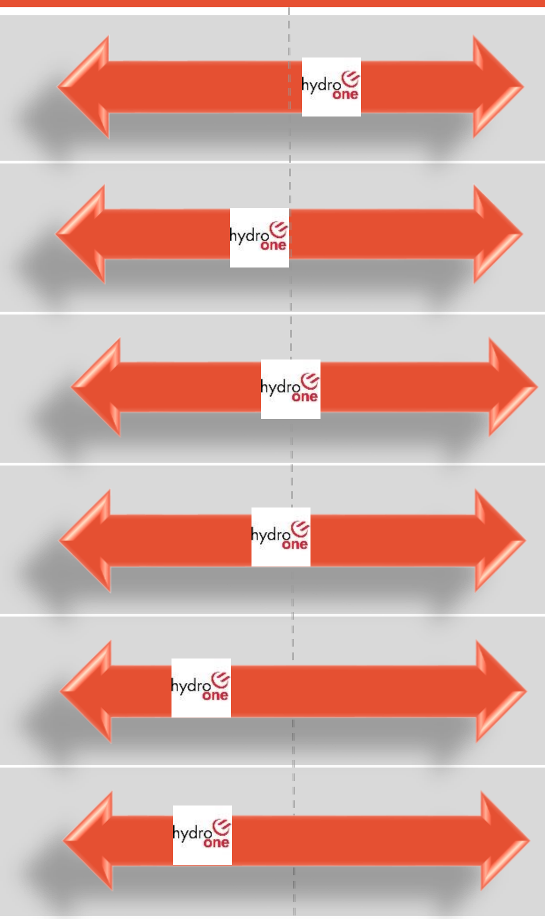
Role of Pension & Benefits in Total Reward Positioning

Benefit Component	Market Positioning *25th percentile* · *Market median* · *75th percentile*
Pension & Savings (Current)	
Pension & Savings (Proposed)	
Disability	
Death	
Medical	
Dental	



Hydro One and market comparators reflect pension and benefit plans available to new hires, the impact of grandfathered or legacy benefits are not reflected

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Next Steps Based on Benchmarking Results

- Develop recommendations (including transition planning considerations):
  - Before the end of 2015:
    - Salary structures and related administrative guidelines
    - 2016 merit increase budget and implementation guidelines
    - STI / LTI target recommendations for 2016
    - Integration with executive benchmarking and resulting STI & LTI design recommendations to ensure appropriate cascade
  - Q1 2016:
    - Actual 2016 LTI awards (if applicable)
    - Any identified benefit considerations

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Appendices

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Compensation Benchmark Methodology

- The following outlines the various data elements summarized in this report:

Element	Hydro One	Market	Peer Group
Salary	Average salary for all incumbents in specific benchmark job codes (as of April 2015)	2015 actual salaries	Segmented peer groups: • Core Operational • Support
Target bonus *(as a % of salary)*	Target bonus by band (target bonus is adjusted to 75% of potential bonus)	Short-term incentive target	
Target total cash (TTC)	Salary + target bonus	Salary + target bonus	
Long-term incentives *(as a % of salary)*	Target long-term incentive by band	Expected value of long-term incentives	
Total direct compensation (TDC)	TTC + long-term incentives	TTC + long-term incentives	

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Appendix II

Peer Group
Core Operational

Company n=28							
Core Utility Peers		**Other Utility Peers**					
1	ATCO Group	8	Alberta Electric System Operator	15	GDF SUEZ	22	Northland Power Inc.
2	Capital Power Corporation	9	AltaLink	16	Horizon Utilities Corporation*	23	Nova Scotia Power Inc.
3	Emera Inc*	10	BC Hydro Power & Authority	17	Hydro Ottawa Limited*	24	Ontario Power Generation
4	Enbridge Inc.	11	Bruce Power LP	18	Hydro-Quebec	25	Powerstream Inc.*
5	Fortis Inc.*	12	Enersource Hydro Mississauga Inc.*	19	Independent Electricity System Operator	26	SaskEnergy Incorporation*
6	TransAlta Corporation	13	ENMAX Corporation	20	NB Power Holding Corporation*	27	SaskPower
7	TransCanada Corporation	14	EPCOR Utilities Inc.	21	Newfoundland and Labrador Hydro Electric Corporation	28	Toronto Hydro Electric

*Not currently included in 2015 analysis database

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Peer Group
Support

Company n=76							
1	AGCS North America	20	Compass Group Canada	39	Loblaw Companies Limited	58	Samuel, Son & Co., Ltd
2	AIG Insurance Company of Canada	21	CPP Investment Board	40	Magna International Inc.	59	Scotia Bank
3	Allstate Insurance Company of Canada	22	Deloitte	41	Manulife Financial Corporation	60	Shoppers Drug Mart
4	Amex Canada, Inc.	23	Delta Hotels and Resorts	42	Maple Leaf Foods Inc.	61	Siemens Canada Limited
5	Bank of America (BANA)	24	Economical Mutual Insurance Company	43	McCain Foods Limited	62	Sun Life Financial
6	Bank of Montreal	25	Export Development Canada	44	Molson Coors Canada	63	Tech Data Canada
7	Barrick Gold Corporation	26	Ford Motor Company of Canada, Limited	45	NAV CANADA	64	The Coca-Cola Company - Canada
8	Bruce Power	27	GDF SUEZ	46	Nissan Canada, Inc	65	The Co-operators General
9	Cadillac Fairview Corporation Limited	28	GE Energy	47	Northbridge Financial Corporation	66	The Law Society of Upper Canada
10	Canada Post	29	General Dynamics Land Systems - Canada	48	Northland Power Inc.	67	TMX Group Limited
11	Canadian Broadcasting Corporation/Radio Canada	30	General Electric Canada	49	Ontario Power Generation	68	Toronto Hydro Electric
12	Canadian Imperial Bank of Commerce	31	Gerdau Long Steel North America	50	OPSEU Pension Trust	69	Toronto-Dominion Bank
13	Canadian Nuclear Safety Commission	32	Healthcare of Ontario Pension Plan	51	Parmalat Canada	70	Toyota Motor Manufacturing Canada
14	Capital One Canada	33	Honda of Canada Manufacturing	52	Procter & Gamble Inc.	71	Treasury Board of Canada Secretariat
15	Celestica Inc.	34	Hospital for Sick Children	53	Purolator Inc.	72	Unilever Canada
16	Chartwell Retirement Residences	35	Hyundai Auto Canada Corp.	54	RBC Financial	73	United States Steel Canada
17	Chrysler Canada Inc.	36	Independent Electricity System Operator	55	Revera Inc	74	University Health Network
18	Cineplex Entertainment	37	Intact Financial Corporation	56	Rogers Communications Inc.	75	Whirlpool Canada LP.
19	Coca-Cola Refreshments	38	Kinross Gold Corporation	57	Royal & SunAlliance Canada	76	Ontario Workplace Safety & Insurance Board

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Peer Group

Pension & Benefits

Company n=21			
1	ATCO Group	12	EPCOR Utilities
2	Bombardier Inc.	13	Fortis Inc.
3	British Columbia Hydro and Power Authority	14	Hydro Quebec
4	Bruce Power	15	Intact Financial Corporation
5	Canadian National Railway Company	16	Ontario Power Generation
6	Canadian Tire Corporation, Limited	17	Rogers Communications Inc.
7	Capital Power Corporation	18	SNC Lavalin Inc.
8	CGI Group Inc.	19	Toronto Hydro-Electric System Limited
9	Emera Inc.	20	TransAlta Corporation
10	Enbridge Gas Distribution Inc.	21	TransCanada Pipelines Limited
11	ENMAX Corporation.		

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Results and Analysis of Phase 1 Insulator Tests Performed in Support of HydroOne Insulator Replacement Program

August 19, 2016

Project 108294

ELECTRIC POWER RESEARCH INSTITUTE

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EXECUTIVE SUMMARY

HydroOne has concerns regarding the condition of in-service porcelain insulators manufactured by Canadian Ohio Brass (COB) and Canadian Porcelain (CP) installed between 1965 and 1982. These insulators are installed on 22,000 structures (33,600 circuit structures). Approximately 10,000 of these structures (15,600 circuit structures) are situated in locations such as road crossings, railway crossings, public spaces, etc. which HydroOne has assessed as critical locations where public safety is at risk. A decision has been made to replace the insulators on these critical structures over the coming few years. Following completion of the critical structure insulator replacement, a decision on replacement of the insulators on the remaining 18,000 non-critical circuit structures will be made.

To assess the risk associated with the pace of replacement for both the critical and non-critical insulators, and to assist in structuring the replacement program, the tests described in this document were performed on insulators removed from service. The full test program is made up of two phases. This report details the findings of phase 1 which comprises testing of insulators removed from service safety critical locations. Phase 1 testing was intended to provide an expedient assessment of the condition of the in-service insulators in question. As such, the testing was performed on a limited sample of approximately 300 insulators to provide fast track results.

The condition of the HydroOne insulators was assessed through benchmarking to EPRI and public domain test data. This benchmarking data was obtained through testing of similar vintage insulators which had been in service for a comparable duration under similar field conditions. The performance of the HydroOne and the benchmarking insulators was also compared to current and historic requirements for new insulators.

The test results represent an initial snapshot of the condition of the population of defective insulators in-service on HydroOne's transmission system. Although the sample of insulators tested was not sufficient to perform a rigorous statistical analysis upon which to base recommendations, the results strongly suggest that the installed insulator population comprising CP and COB insulators manufactured between 1965 and 1982 has reached or is at least approaching the end of useful life. As such the test data supports the urgent replacement of COB and CP insulators manufactured between 1965 and 1982 that are installed on critical structures where public safety is at risk

To assess the urgency of insulator replacement for non-critical locations where public safety risk is not a significant factor, it is recommended that HydroOne perform the tests described in phase 2 of the original test program. This will comprise removal and testing of several hundred insulators which are truly representative of HydroOne's in-service insulator population. The data can then be used to perform a statistically significant condition assessment and remaining useful life projection.

A sample of 1963 COB insulators were also tested. The poor test results indicated that the 1965 cut-off year may be inaccurate. Testing additional insulators from the early 1960s is recommended.

CONTENTS

1 INTRODUCTION

Transmission line insulators are required to perform two basic functions. They must provide mechanical support for overhead conductors and they must provide electrical isolation between the energized conductors they support and the grounded towers to which they are attached. It is recognized throughout the industry, that both the electrical and mechanical characteristics of line insulators manufactured between the late 1960's and early 1980's by Canadian Porcelain (CP) and Canadian Ohio Brass (COB) deteriorate significantly faster than other comparable insulators due to cement expansion as described in References [1] and [2].

Porcelain line insulators are specified in terms of their combined mechanical and electrical (M&E) strengths. For example, an insulator with an M&E rating of 36 kips (1 kip = 1,000 lbs.) is designed to withstand an applied tensile load in excess of 36 kips without mechanical or electrical failure. Mechanical failure is defined as a physical breakage of the insulator while electrical failure is defined as cracking of the insulator's porcelain body in the area between the cap and the pin which results in a significant reduction of the insulator's dielectric strength. Both international and Canadian standards specify test procedures and minimum acceptable performance requirements for M&E testing of new insulators.

HydroOne has concerns regarding the condition of in-service CP and COB porcelain insulators installed between 1965 and 1982. These insulators are installed on 22,000 structures (33,600 Circuit structures). Approximately 10,000 of these structures (15,600 Circuit structures) are situated in locations such as road crossings, railway crossings, public spaces, etc. which HydroOne has assessed as safety critical locations. A decision has been made to replace the insulators on these critical structures over the next several years. Following completion of the critical structure string replacement, a decision on replacement of the insulators on the remaining 18,000 non-critical circuit structures will be made.

In order to assess the risk associated with the pace of replacement for both the critical and non-critical strings, and to assist in structuring the replacement program, the tests described in this document were performed on insulator strings removed from service. The full test program is made up of two phases. This report details the findings of phase 1 which comprises testing of approximately 300 insulators removed from a combination of dead-end, suspension, and idler strings installed in safety critical locations. The results of the phase 1 tests are intended to characterize the degree of urgency with which the insulator replacement should be carried out based upon a snapshot in time of the condition of this sample of insulators. Phase two of the testing will be performed at a later date, and is intended to provide data on the rate of deterioration of the insulator population, which can be used to infer an estimate of their remaining -life. This information will be used to optimize the overall replacement program with respect to the risk of in-service failure.

The project utilized the Kinectrics facility in Toronto for the performance of the testing under the direction of EPRI. Analysis of the results was performed by EPRI.

2 TEST PROGRAM

The goal of the Phase 1 tests described in this report was to provide a snapshot of the "as-removed" electrical and mechanical condition of the insulators. Each of the insulators removed from service were subjected to the following tests:

1. Each insulator was checked using a 10-kV Megger.
2. Each insulator was subjected to an applied ac voltage of approximately 60% of its rated flashover voltage for a period of 1 minute.
3. Each insulator was subjected to a destructive M&E (Mechanical and Electrical) test to determine its ultimate electrical and mechanical failing load.

Test 1 was used to identify units which were fully punctured and virtually short circuited internally. Test 2 was used to identify those insulators which were partially punctured and would fully puncture under an applied voltage which is lower than the unit's external flashover voltage. Test 3 was used to generate data describing the insulators' ultimate mechanical and electrical strength under tensile load. Detailed descriptions of tests 1 through 3 are provided in Appendix A.

The test data were analyzed to obtain an indication of:

- the proportion of the tested insulators that met the required electrical withstand levels
- the proportion of the tested insulators that met the required mechanical tensile load levels
- the proportion of the tested insulators that met their M&E rating
- the statistical distribution of the electrical and mechanical failing loads of the tested insulators.

Test Samples

28 strings of insulators (318 individual insulator units) were removed from service and sent to the testing laboratory in early 2016. Table I gives the details of the insulators delivered for testing.

Table I: Details of Insulator Sample

	OB/CP Insulators removed from service for testing								
String ID	Manufacturer	Year	M&E Rating	CCT	STR	Phase	Position	Location	# of bells in String
a	CP	1974	15KIP	B11		BOT	SUS	Zone 8	6
b	CP	1974	15KIP	B11		MID	SUS	Zone 8	7
c	OB	1978	15KIP	V43	965	MID	IDLER	Zone 8	14
d	OB	1978	36KIP	V43	965	BOT	DE	Zone 8	14
e	OB	1978	36KIP	V43	967	BOT	DE	Zone 8	14
f	OB	1977	36KIP	V43	BRIDGE		DE	Zone 8	14
g	OB	1975	50KIP	V79R	50E	TOP	DE	Zone 8	11
h	OB	1979	36KIP	V73R	BRIDGE	RED	DE	Zone 8	14
i	OB	1973	25KIP	B15C	24	TOP	DE	Zone 8	11
j	OB	1973	15KIP	D6V	267A		DE	Zone 8	1
k	OB	1978	36KIP	V74R	49E	MID	DE	Zone 8	5
l	OB	1978	36KIP	V74R	49E	BOT	DE	Zone 8	7
m	OB	1978	36KIP	V73R	49E	BOT	DE	Zone 8	14
n	OB	1978	15KIP	V74R	50E	MID	IDLER	Zone 8	14
o	OB	1978	15KIP	V74R	50E	MID	DE	Zone 8	14
p	OB	1950 (cct I/S)	11KIP	L5H	223	LEFT	SUS	Zone 6	7
q	OB	1950 (cct I/S)	11KIP	L5H	223	RIGHT	SUS	Zone 6	7
r	OB	1950 (cct I/S)	11KIP	L5H	223	MID	SUS	Zone 6	7
s	OB	1963	15KIP	P21R	2	MID	SUS	Zone 8	14
t	OB	1963	15KIP	P21R	4	BOT	SUS	Zone 8	14
u	OB	1963	15KIP	P21R	3	TOP	SUS	Zone 8	14
v	OB	1963	15KIP	P21R	5	TOP	SUS	Zone 8	14
w	OB	1963	15KIP	P21R	10	MID	SUS	Zone 8	14
x	OB	1975	50KIP	V77R	84	MID	DE	Zone 8	14
y	OB	1975	50KIP	V77R	84	BOT	DE	Zone 8	14
z	OB	1977	15KIP	V73R	50E	BOT	IDLER	Zone 8	14
aa	OB	1975	50KIP	V77R	84	TOP	DE	Zone 8	7
ab	CP	1972	15KIP	W36	1B	Right	DE	Zone 8	18

As can be seen in Table 1, the insulators removed from service and supplied for testing consisted of several M&E rating classes. The sample contained insulators removed from lines operating at 115 kV and 230 kV and the insulators were a mix of dead-end, suspension, and idler strings. Of the 318 insulators supplied for testing, 19 had significant portions of the porcelain sheds damaged. This damage was severe enough that they could not withstand the voltage applied during the ac withstand test. Those insulators were discounted from the analysis altogether as they were not considered representative of a random sample of in-service units. Therefore, the full suite of tests was performed on 299 insulators. Appendix B shows the position of each insulator in each of the strings removed from service as well as the circuit identification, voltage level, insulator M&E rating, and circuit in-service date. Examples of broken insulators discounted from the test sample are identified in that appendix.

Test Results and Analysis

As indicated earlier in this report, the intent of the phase 1 tests was to provide a snapshot of the overall current condition of the COB and CP insulators in service on the HydroOne system based on a limited sample of approximately 300 insulators. The insulators were grouped into the following lots based upon M&E rating, age and manufacturer:

- Lot 1: OB-15 kip manufactured between 1973 and 1978 (strings c, j, n, o, z as shown in Table I)
- Lot 2: OB-36 kip manufactured between 1977 and 1979 (strings d, e, f, h, k, l, m as shown in Table I)
- Lot 3: OB-50 kip manufactured in 1975 (strings g, x, y, aa as shown in Table I)
- Lot 4: CP-15 kip manufactured in 1972 (strings a, b, ab as shown in Table I)
- Lot 5: OB-15 kip manufactured in 1963 (strings s, t, u, v, w as shown in Table I)
- Lot 6: OB-11 kip manufactured in 1950 (strings p, q, r as shown in Table I)
- Lot 7: OB-25 kip manufactured in 1973 (string i as shown in Table 1)

Due to the limited number of samples, an overall analysis was performed by combining lots 1, 2, 3, 4 and 7 as they represent insulators manufactured during the time period that is associated with poor quality insulators. Lots 5 and 6 are not included in this overall analysis as they were manufactured in 1963 and 1950 respectively which is prior to the time at which manufacturing quality problems were present. In other words, each of the lots identified above were analyzed individually, but the overall analysis combined test data from lots 1, 2, 3, 4, and 7 as those lots represent insulators known to have quality problems.

Megger and ac Withstand Testing

The Megger and ac withstand tests (tests 1 and 2) were used to identify the units that were unable to support an applied voltage of 60 kV (approximately 70% of the rated withstand voltage) prior to the application of any tensile load. These insulators are referred to as punctured units because their inability to support voltage is due to a crack or puncture in the porcelain dielectric between the insulator cap and pin. Table II shows the number and percentage of units that fell into this category. The top row of the table shows the data combined for insulator lots 1, 2, 3, 4 and 7, and subsequent rows show a breakdown according to individual insulator lot groupings. As can be seen from Table II, the percentage of punctured bells varies among the different lots. Although it may have been useful to check for a relation between years in service and puncture rate, this was not possible because almost all of the insulators found to be punctured were placed in service within a 5-year period, which is quite short when compared to the 40-year period for which the insulators have been in service.

Table II: Number of punctured units

Lot #	Data Set	Kinectrics String ID	# of bells	# of punctured bells	% of punctured bells
1,2,3,4,7 combined	All units excluding OB 15 kip units manufactured in 1963 and OB 11 kip units manufactured in 1950	c,j,n,o,z,d,e,f,h,i,l,k,l,m,g,x,y,aa,a,b,ab	209	33	15.8
1	All OB 15 kip units not including those manufactured in 1963	c,j,n,o,z	51	2	3.9
2	All OB 36 kip units	d,e,f,h,k,l,m	78	9	11.5
3	All OB 50 kip units	g,x,y,aa	39	15	38.5
4	All CP 15 kip units	a,b,ab	30	1	3.3
5	All OB 15 kip units manufactured in 1963	s,t,u,v,w	69	1	1.4
6	All OB 11 kip units (manufactured in 1950)	p,q,r	21	0	0.0
7	All OB 25 kip units	i	11	6	54.5

Note: Lots 5 and 6 are insulators which were tested but were manufactured outside the window of interest

M&E Testing

While the methodology of the M&E testing procedure is described in Appendix A, it is important to note the definition of an insulator's M&E strength. During M&E testing, the insulator is subjected to a steady continuous electrical stress and a steadily increasing mechanical tensile stress. The insulator can undergo two failing modes. It can fail electrically due to the formation of a crack in the porcelain body due to mechanical loading, or it can fail mechanically due to the applied tensile load. The M&E failing load of an individual insulator is defined as the lowest mechanical load at which either electrical failure or mechanical separation of the insulator takes place. Analysis of M&E tests typically comprises fitting a normal distribution to the measured failing load data and comparing the distribution's mean and standard deviation to the insulators' M&E rating and or the maximum anticipated design load under which the insulators operate. In a healthy insulator population, the mean measured M&E strength should exceed the rated load by a given margin related to the measured standard deviation. In the analyses carried out in this report, in addition to above defined M&E failing load, the electrical and mechanical failing loads are examined individually. The results of the M&E tests combined for insulator lots 1, 2, 3, 4, and 7 are shown in Figure 1. In order to combine the results obtained for insulators with differing

M&E ratings, the data was normalized to reflect percentage values based on the particular M&E ratings.

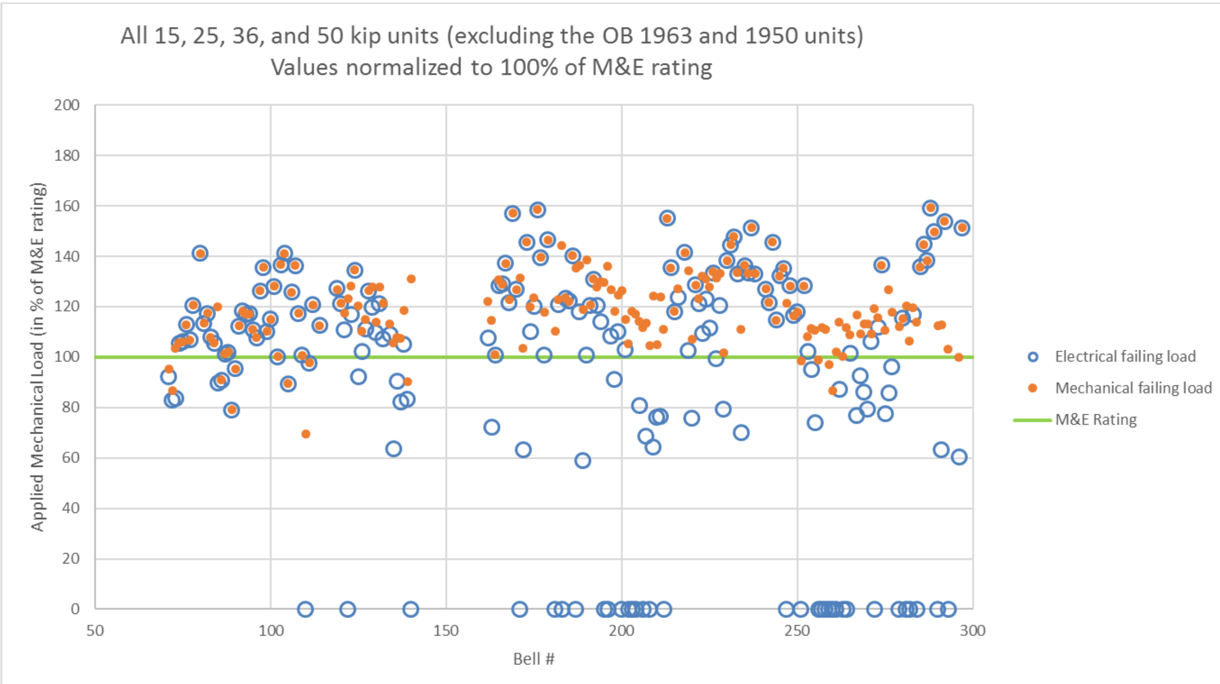

Figure 1: Normalized M&E test results for insulator lots 1, 2, 3, 4, and 7 combined

As can be seen from the data in Figure 1, a large proportion of the insulators tested (37%) failed electrically or mechanically at loads below their rated M&E strength. There is a significant number of punctured insulators (electrical failing load of zero), and the test data showed a large variation in failing loads which would not be expected for a healthy insulator population.

Figures 2 through 6 show the results of the M&E tests for the individual lots of insulators tested.

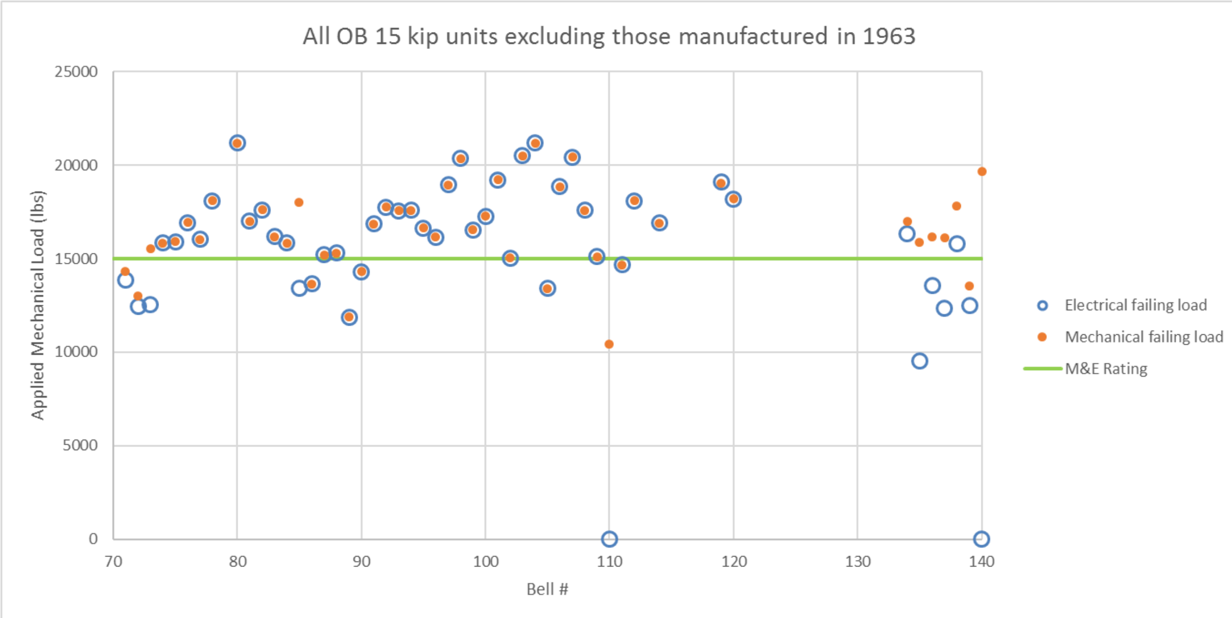

Figure 2: M&E test results for insulator lot 1

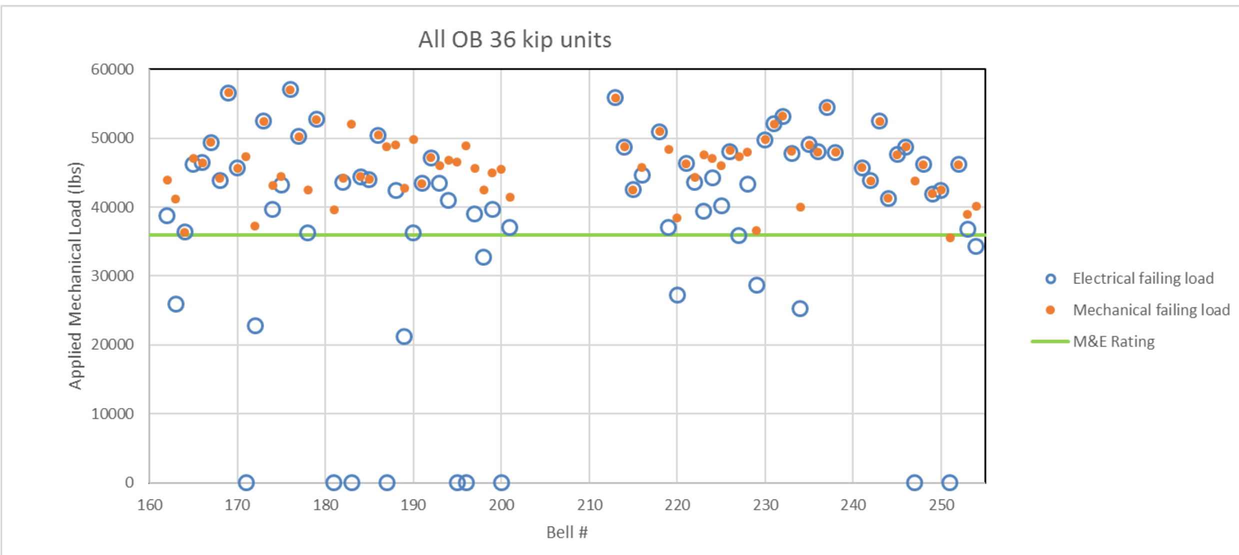

Figure 3: M&E test results for insulator lot 2

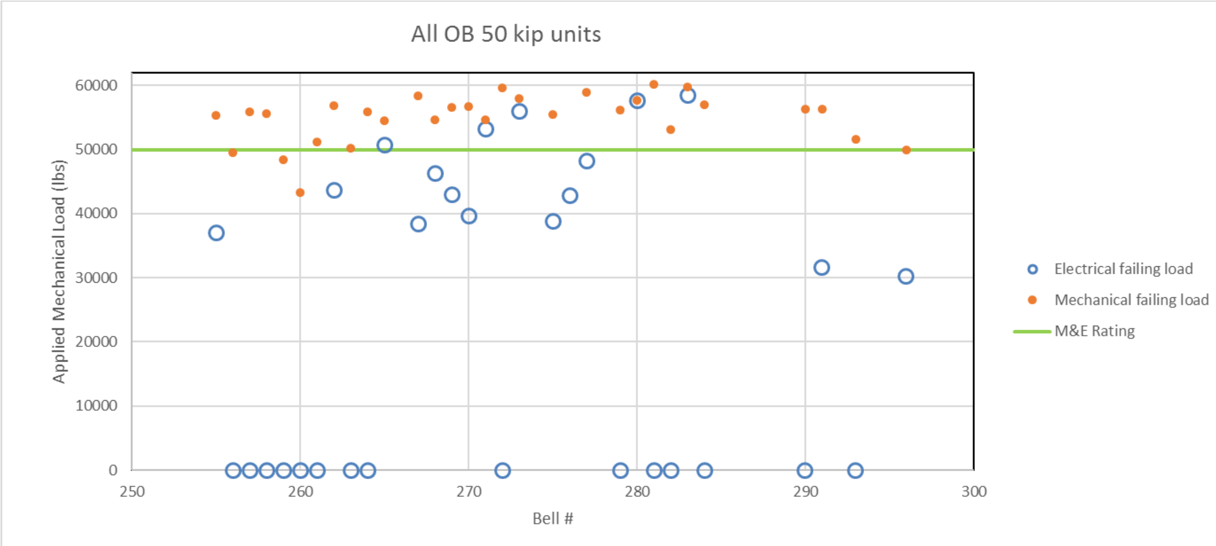

Figure 4: M&E test results for insulator lot 3

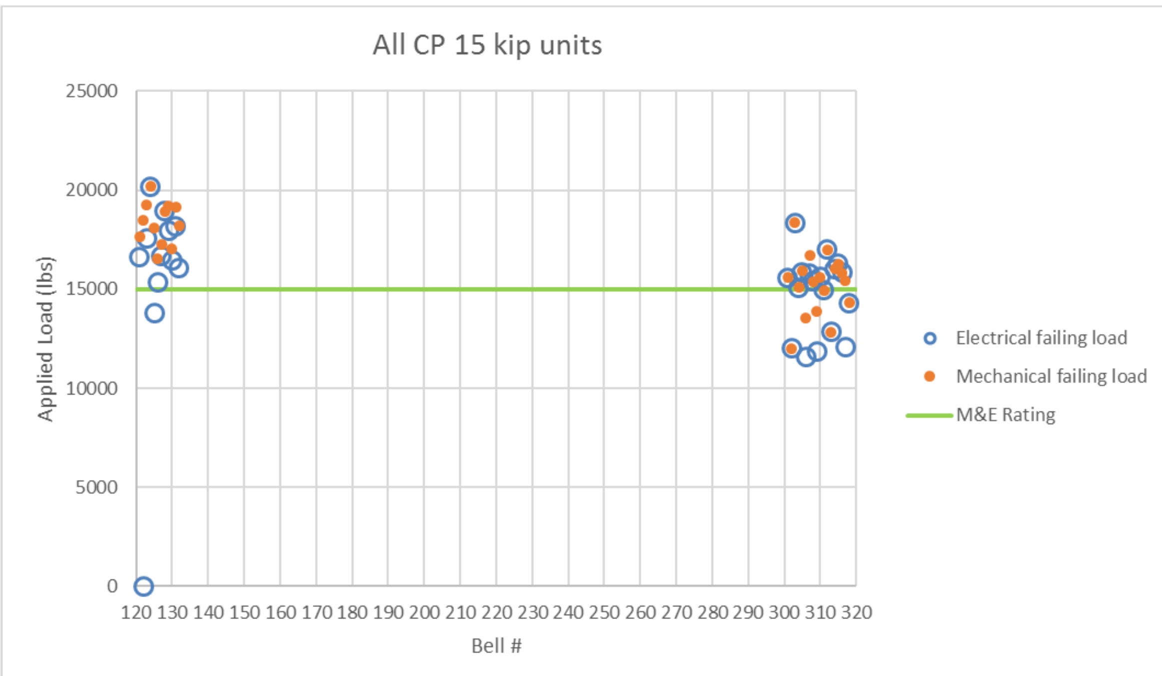

Figure 5: M&E test results for insulator lot 4

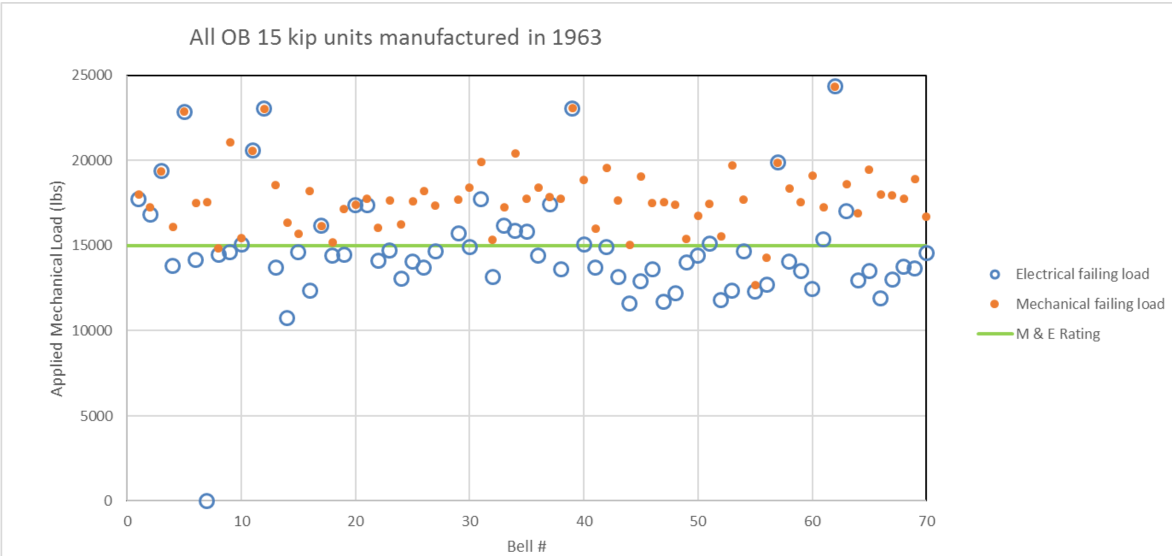

Figure 6: M&E test results for insulator lot 5

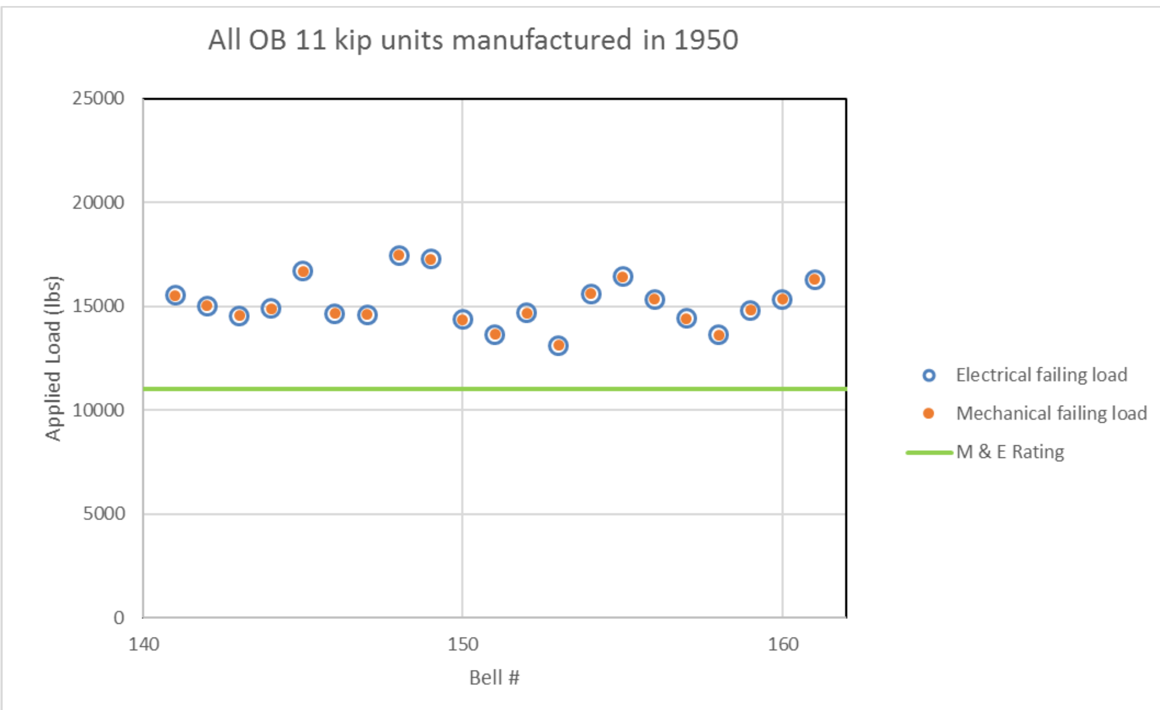

Figure 7: M&E test results for insulator lot 6

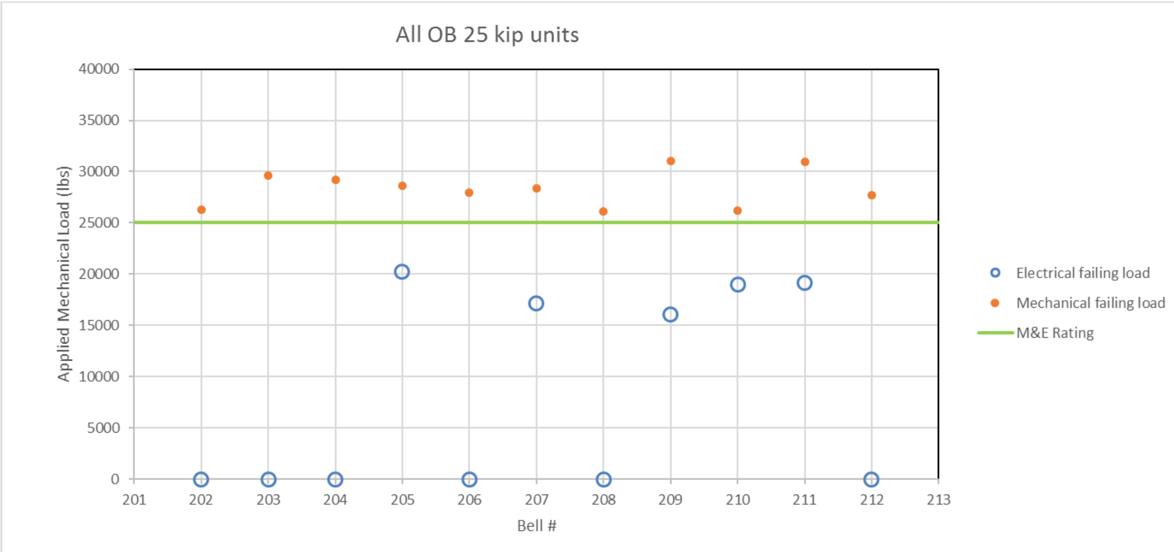

Figure 8: M&E test results for insulator lot 7

Examination of Figures 2 through 8 shows the differences in the performance of the insulators based upon insulator lot. These differences are summarized numerically in Table III.

Table III: Percentage of insulators failing to meet their assigned M&E ratings

Lot #	Data Set	Kinectrics String ID	# of bells	% failing to meet M&E rating		
		-	-	Electric	Mech	M&E
1,2,3,4,7 combined	All units excluding OB 15 kip units manufactured in 1963 and OB 11 kip units manufactured in 1950	c,j,n,o,z,d,e,f, h,i,k,l,m,g,x,y ,aa,a,b,ab	209	37	13	37
1	All OB 15 kip units not including those manufactured in 1963	c,j,n,o,z	51	27	16	27
2	All OB 36 kip units	d,e,f,h,k,l,m	78	23	12	23
3	All OB 50 kip units	g,x,y,aa	39	67	10	67
4	All CP 15 kip units	a,b,ab	30	30	20	30
5	All OB 15 kip units manufactured in 1963	s,t,u,v,w	69	67	10	67
6	All OB 11 kip units (manufactured in 1950)	p,q,r	21	0	0	0
7	All OB 25 kip units	i	11	100	0	100

As can be seen from Figures 1 through 8 and Table III, the only insulators which still fully meet their M&E ratings are those in lot 6. These are the 11 kip insulators manufactured in the 1950's. All of the other insulator lots show significantly reduced M&E performance. Depending on the lot, between 23% and 100% of the tested insulators fail to meet their M&E rating. The poor performance of all the tested OB and CP insulators manufactured between 1972 and 1979 was anticipated based on prior tests and system performance, the reduction in the electrical and mechanical failing loads of the 15 kip OB insulators manufactured in 1963 was somewhat surprising. As shown in Figure 6 and Table III, 67 % of those units failed to meet the rated M&E strength. While some reduction in M&E strength can be expected due to their being in service for 53 years, the degree of reduction in both electrical and mechanical strength observed in the tested samples suggests that phase 2 of the testing should include insulators manufactured prior to 1965.

Although the number of insulators tested is quite small in comparison to the population present on the system, it is still useful to analyze the results on a statistical basis. Typically, this is done through fitting a normal distribution to the experimental M&E data. Table IV shows the means and standard deviations of the normal distributions which best fit the measured electrical, the measured mechanical, and the measured overall M&E failing load data. The calculation of the best fit electrical failing load distributions excluded the punctured insulators. This was necessary because a punctured insulator is unable to support the voltage applied across it during the test. During M&E testing, the voltage is applied before the mechanical loading begins, therefore by definition, the electrical failing or M&E failing load of a punctured insulator is zero. If punctured insulators were included in the calculation, the recorded electrical and M&E failing loads would not follow a normal distribution. Statistical analysis of the mechanical failing loads included the punctured insulators because in spite of being electrically punctured, the units usually maintain significant mechanical strength. In order to affect a true comparison between the data sets generated for insulators of differing M&E ratings, the analysis was done by normalizing the measured data to 100% of the insulator's M&E rating.

Table IV: Best fit normal distributions of M&E data normalized to M&E rating

Lot #	Data Set	M&E Statistics normailzed to 100% of M&E rating					
-	-	Electrical Failing Load		Mechanical Failing Load		M&E Failing Load	
-	-	mean (% of rated strength)	sigma (% of mean)	mean (% of rated strength)	sigma (% of mean)	mean (% of rated strength)	sigma (% of mean)
1,2,3,4,7 combined	All units excluding OB 15 kip units manufactured in 1963 and OB 11 kip units manufactured in 1950	111	20.3	119	13.5	111	20.3
1	All OB 15 kip units not including those manufactured in 1963	108	16.0	111	14	108	16.0
2	All OB 36 kip units	120	18.2	128	10	120	18.2
3	All OB 50 kip units	109	28.7	117	14	108	28.7
4	All CP 15 kip units	104	13.8	110	12	104	13.8
5	All OB 15 kip units manufactured in 1963	100	19.0	119	12	100	19.0
6	All OB 11 kip units (manufactured in 1950)	138	7.6	138	8	138	7.6
7	All OB 25 kip units	73	9.1	113	6	73	9.1

The data in Table IV indicates that in all cases but that of lot 6 (the 11 kip insulators manufactured in the 1950s), the recorded mean M&E failing load is only slightly above the M&E rating. With a mean M&E failing load equal to the M&E rating and the large standard deviations shown in the table, it can be expected that significant numbers of installed insulators will fail electrically or mechanically under in-service loads considerably below their M&E rating. Furthermore, it must also be emphasized that the above discussed statistics purposefully exclude those insulators which were punctured prior to removal from service. As indicated in section 2.2.1, analysis of lots 1, 2, 3, 4 and 7 combined showed an in-service puncture rate of 15.8%.

Benchmarking

The deterioration in the M&E strength of the lot 1 through 5 and lot 7 insulators is most effectively illustrated through benchmarking the test results against the results of the same tests performed on insulators of a similar vintage and service exposure but of different manufacture. Data suitable for this comparison is available in published literature and in the EPRI insulator data base. Figures 8 and 9 present the results of M&E tests on two such sets of insulators.

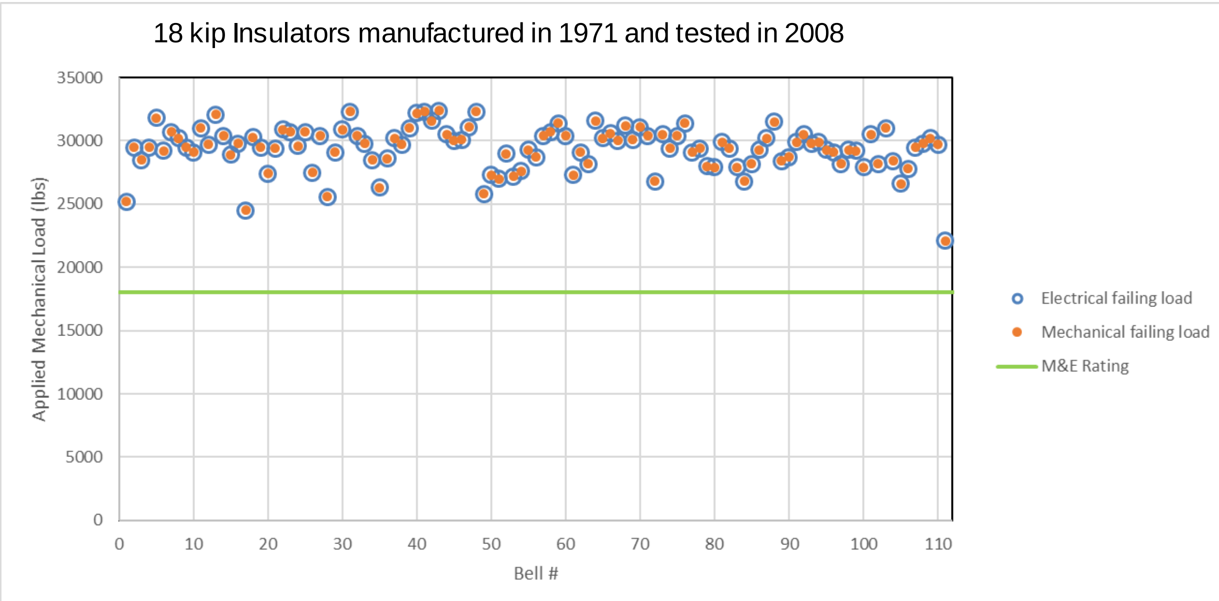

Figure 8: M&E test results for 18 kip insulators on Manitoba Hydro's transmission system

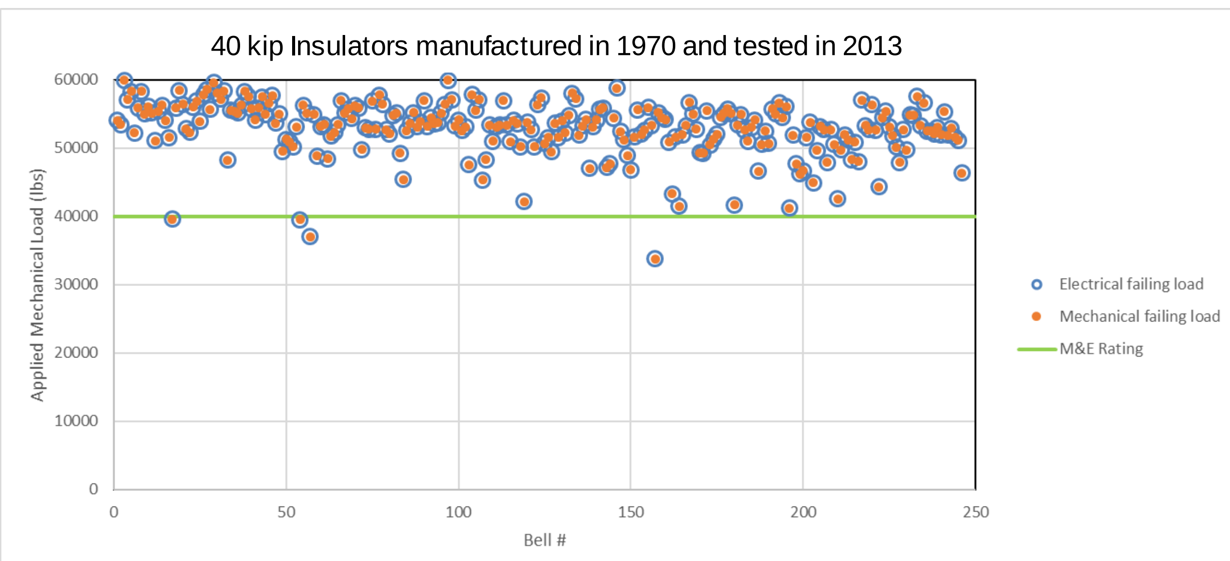

Figure 9: M&E test results for 40 kip insulators from EPRI's data base

Figure 8 shows the results of M&E tests performed on 111, 18 kip insulators manufactured in 1971 and removed from service on Manitoba Hydro's transmission system in 2008 for testing. Figure 9 shows results of M&E testing on 246, 40 kip insulators manufactured in 1970 and removed from service in 2013 for testing. These results were used for benchmarking because their age is comparable to that of the HydroOne insulators being tested.

Figures 8 and 9 illustrate three significant facts. Firstly, almost all of the insulators tested meet or exceed their M&E rating. Secondly, there are no electrically punctured insulators in the insulator sample taken from Manitoba Hydro (Fig 8) or from the EPRI database (Fig 9). Finally, the standard deviation in the results shown in Figures 8 and 9 is lower than that shown for the HydroOne insulators, and the average failing loads are significantly higher than the M&E rating for both these data sets. This is illustrated numerically in Table V which shows the observed puncture rate and proportion of units failing to meet their assigned M&E rating in the two benchmark insulator samples. For reference, the results of the same analysis for the insulators in lots 1,2,3,4, and 7 combined are also included in the table.

Table V: Percentage of benchmark insulators failing to meet their M&E ratings

Data Set	# of bells	# of punctured bells	% of punctured bells	% failing to meet M&E rating		
-	-	-	-	Electric	Mech	M&E
18 kip units (Fig 8)	111	0	0.0	0	0	0
40 kip units (Fig 9)	246	0	0.0	2	2	2
Lots 1,2,3,4,7 combined. All units excluding OB 15 kip units manufactured in 1963 and OB 11 kip units manufactured in 1950	209	33	15.8	37	13	37

Table VI gives the parameters of the normal distributions which best fit the test results obtained from the Manitoba Hydro and the EPRI data. The data are normalized to 100% of the insulators' M&E rating in order to facilitate comparison with the results shown in Table IV for the HydroOne insulators. For direct comparison of the benchmarking results to the HydroOne insulators, the M&E statistics for the analysis of lots 1,2,3,4, and 7 combined is also included in the table.

Table VI: Best fit normal distributions of M&E data for benchmark insulators normalized to 100% of M&E rating

Data Set	M&E Statistics normailzed to 100% of M&E rating					
-	Electrical Failing Load		Mechanical Failing Load		M&E Failing Load	
-	mean (% of rated strength)	sigma (% of mean)	mean (% of rated strength)	sigma (% of mean)	mean (% of rated strength)	sigma (% of mean)
18 kip units manufactured in 1971 and tested at Kinetrics in 2008	163	5.9	163	5.9	163	5.9
40 kip units manufactured in 1970 and tested at EPRI in 2013	132	7.6	132	7.6	132	7.6
Lots 1,2,3,4,7 combined. All units excluding OB 15 kip units manufactured in 1963 and OB 11 kip units manufactured in 1950	111	20.3	119	13.5	111	20.3

To facilitate direct visual comparison, the M&E test results from the lot 1,2,3,4, and 7 HydroOne insulators and the benchmark insulators were plotted on the same graph and are shown in Figure 10.

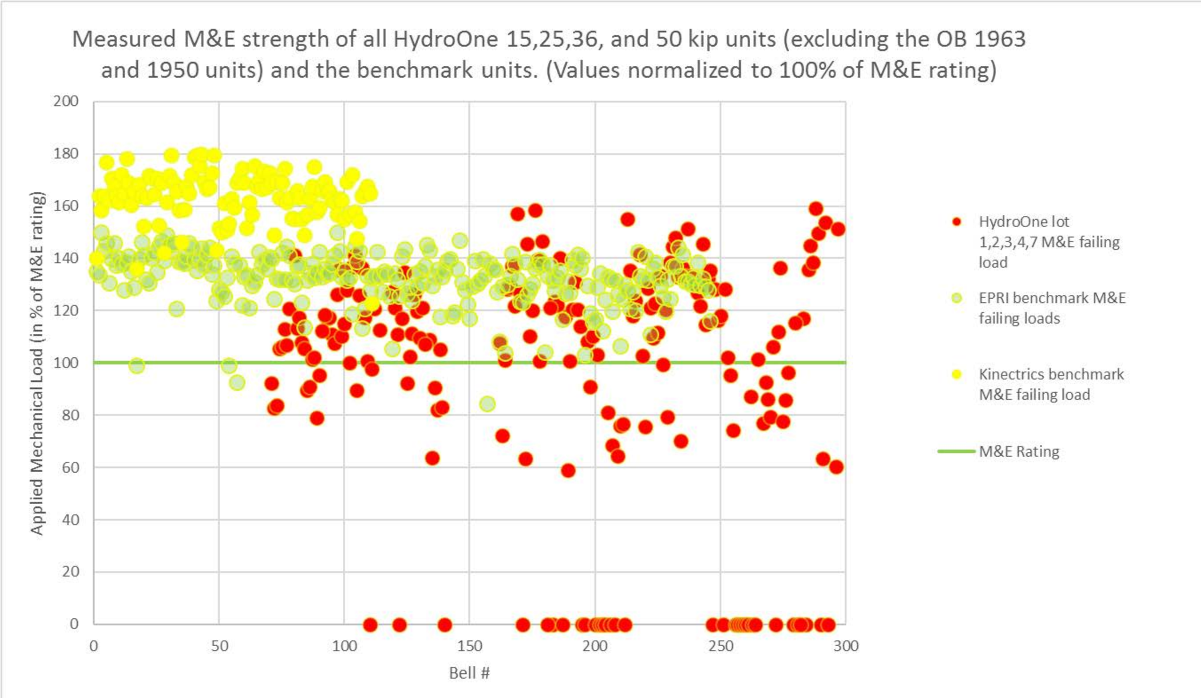

Figure 10: M&E test results normalized to 100% of rating for HydroOne combined lot 1,2,3,4 and 7 insulators plotted together with the results from the benchmark insulators

Examination of the data presented in Table VI and Figure 10 clearly shows that the performance of the HydroOne insulators in lots 1,2,3,4, and 7 is significantly below that of the benchmark samples. When making this comparison based on the tabulated mean and standard deviation data, it critical to remember that the punctured insulators were not included in the calculation of the best fit normal electrical failing and M&E failing load distributions. In spite of this, the mean value of the HydroOne insulators is 16% and 32% percent below the EPRI and the Kinectrics benchmark insulators respectively. In addition, the standard deviation of the HydroOne insulator results is some 3 times larger than those of the benchmark insulators.

The contrast between the mean M&E value and the standard deviation (spread) observed with the HydroOne insulators and that observed with the two sets of benchmark units is clearly illustrated through the data shown in Figure 10. The figure also shows the prevalence of punctured units among the HydroOne insulators and the absence of any punctured units in the benchmark insulator groups.

Comparison to Standards

As mentioned at the onset of this report, M&E testing is a requirement in practically all standards prescribing the performance of new insulators. The current applicable CSA standard, CSA 411.1-10: AC Suspension Insulators [3], requires that porcelain suspension insulators undergo M&E testing and that the results of the tests meet defined criteria. CSA 411.1-10 requires that M&E tests be carried out on 10 insulators. The passing criteria for acceptance of the insulators is twofold. Firstly, the mean M&E failing load calculated for the ten insulators must equal or exceed the M&E rating plus 4 standard deviations, and secondly, each individual failing load must exceed the M&E rating. Other national standards have differing requirements but the lowest historic conformance criterion known to the author of this report is that the mean M&E failing load calculated from the test data must exceed the rated M&E strength plus 1.2 standard deviations.

While insulators that have been in service may undergo ageing that reduces their M&E strength to below that demanded of new insulators, it is important that their M&E strength remain high enough to ensure that catastrophic insulator failures resulting in line drops do not occur. Table VII shows a comparison of the values of electrical, mechanical, and M&E failing loads obtained for the HydroOne insulators and for the benchmarking data sets from Manitoba Hydro and EPRI in light of the historic and current M&E test requirements for new insulators.

Table VII: Analysis of M&E data for all insulators in accordance with historic and current requirements for new insulators.

Lot #	Data Set	M&E Statistics normailzed to 100% of M&E rating					
-	-	Elect mean less 1.2 sigma	Mech mean less 1.2 sigma	M&E mean less 1.2 sigma	Elect mean less 4 sigma	Mech mean less 4 sigma	M&E mean less 4 sigma
1,2,3,4,7 combined	All units excluding OB 15 kip units manufactured in 1963 and OB 11 kip units manufactured in 1950	84	100	84	21	55	21
1	All OB 15 kip units not including those manufactured in 1963	88	93	88	39	50	39
2	All OB 36 kip units	94	113	94	33	77	33
3	All OB 50 kip units	71	98	71	-16	51	-16
4	All CP 15 kip units	87	94	87	47	56	47
5	All OB 15 kip units manufactured in 1963	77	103	77	24	64	24
6	All OB 11 kip units (manufactured in 1950)	125	125	125	96	96	96
7	All OB 25 kip units	65	105	65	47	85	47
18 kip Benchmark units		152	152	152	125	125	125
40 kip benchmark units		120	120	120	92	92	92

With the exception of lot 6 (the OB 11 kip units manufactured in 1950), the HydroOne insulators fail to meet even the obsolete historic new insulator requirement of the mean M&E failing load being above the M&E rating plus 1.2 standard deviations. When lots 1, 2, 3, 4, and 7 are analyzed as a single lot, their mean M&E failing load, less 1.2 standard deviations, is only 84% of their M&E rating. Conversely, the Manitoba Hydro and the EPRI data sets show those insulators to have mean M&E failing loads less 1.2 sigma which correspond to 152% and 120% respectively of their M&E rated load. If the HydroOne insulators are treated as individual lots, their mean M&E failing loads less 1.2 standard deviations range from 65% to 94% of their M&E

rating for all lots other than lot 6 (the OB 11 kip units manufactured in 1950) which shows a mean M&E failing load less 1.2 sigma of 125% of their 11-kip M&E rating.

The contrast between the HydroOne units and the benchmarking units becomes far more pronounced when examined under today's requirements for new insulators. Analysis based on today's CSA requirement shows all of the HydroOne insulators falling far short of the requirement that the mean M&E failing load is greater than the M&E rating plus 4 standard deviations. In fact, the results for the lot 3 insulators show that the recorded mean M&E strength less 4 standard deviations falls below 0. This result is clearly physically impossible and is likely attributable to the too small sample size, but nonetheless, it suggests that the performance of the 50 kip insulators making up lot 3 is significantly below what would be expected for a healthy population. It must also be kept in mind that the data in Table VII do not take into account the insulators which were electrically punctured prior to removal from service. The Manitoba Hydro and EPRI benchmarking samples had no punctured units while the HydroOne insulators (again neglecting lots 5 and 6) showed puncture rates of between 3% and 54%.

Finally, when comparing the test data to standard requirements, it should be remembered that in addition to the requirements for the calculated mean and standard deviation, most standards require that none of the tested insulators show an M&E failing load below the specified M&E rating. Table V shows that:

- the benchmarking units from Kinectrics fully meet this requirement (18 kip)
- the benchmarking units from EPRI fail to meet it with 2% of the tested insulators having an M&E failing load below their M&E rating (40 kip)
- the HydroOne units included in lots 1,2,3,4, and 7 fail to meet it with anywhere from 23% to 100% of the insulators in the individual lots failing under a load below their M&E rating.

3 DISCUSSION

The data from tests 1 and 2 show that when HydroOne insulator lots 1, 2, 3, 4, and 7 are combined, electrically punctured insulators make up 15.8% of the sample. In contrast, the Manitoba Hydro and EPRI benchmarking insulators had no punctured units. Similarly, the OB 11 kip insulators manufactured in 1950 showed no evidence of puncture.

The data from test 3 show that all tested sample lots of HydroOne insulators manufactured in the time window of interest are showing significant deterioration. This is best illustrated in Figure 1. In addition to indicating the high rate of punctured units, the figure reveals the following 3 other important factors:

1. a large number of the tested insulators exhibited porcelain cracking (which in essence makes the insulator a punctured unit) at loads significantly below the insulators' M&E rating
2. a smaller but significant number of units underwent mechanical failure under loads below their rated M&E level
3. there is a large dispersion in the recorded M&E strengths, the recorded electrical failing loads and the recorded mechanical failing loads. In addition, there is a very low margin between the recorded mean M&E strength and the M&E rating.

Item 1 above suggests that the number of in-service punctured units will increase as the insulators experience significant mechanical loading events. Item 2 suggests that the mechanical strength of the insulators is decreasing with time. This is generally accepted as being true for most insulators, but it appears more pronounced with the HydroOne units. The mechanical strength deterioration is normally attributed to in-service thermal cycling experienced by the insulators. As the insulators see further seasonal temperature swings with time, their mechanical strength will likely be further reduced. As explained in the previous section, the quality of insulators is often judged by the standard deviation of the M&E, the electrical, and the mechanical failing loads and by the margin between the recorded mean M&E strength and the M&E rating. Item 3 above shows that not only is the margin between the mean recorded M&E strength and the M&E rating precariously low, but this fact is combined with a large standard deviation. This combination results in an increased probability of insulator failure. All three of the above observations are atypical for a healthy insulator population.

Benchmarking the condition of the HydroOne insulators against insulators of similar vintage, service life, and service exposure clearly shows that the performance of the HydroOne insulators is sub-standard. Since it is reasonable to assume that the HydroOne insulators successfully passed M&E testing when they were new, the current data shows a marked deterioration in both mechanical and electrical performance. This same deterioration is not present in the Manitoba Hydro or EPRI units used for benchmarking. This fact is reinforced through the comparison of the performance of the HydroOne units in lots 1, 2, 3, 4, and 7 with that of the HydroOne OB 11 kip insulators manufactured in the 1950's (lot 6). Here the data shows that insulators which have been in service for over 60 years exhibit less reduction in M&E strength and have a puncture rate, that based on the lot 6 sample, is zero.

4 APPLICATION OF THE EXPERIMENTAL FINDINGS

The state of the compromised in-service insulators can result in line drops due to two distinct mechanisms. When a string containing electrically punctured insulators undergoes a flashover due to lightning, contamination, or snow and ice bridging, there is a high likelihood that the ensuing power arc will pass through the punctured unit internally going from cap to pin [4]. This results in significant heating and pressure buildup which can cause the cap and pin to separate and the conductor to drop. Insulators which are not punctured, but have suffered a deterioration in ultimate mechanical strength do not exhibit this behavior. If a string contains mechanically compromised units, the insulators will fail if the maximum applied load exceeds the units remaining mechanical strength.

For the case of non-punctured but mechanically weakened insulators, the statistical information can be combined with practical loading requirements to structure the replacement program so as to minimize the likelihood of a line-drop. The approach is illustrated in Figure 11. The normal probability distributions of the insulators M&E strength can be used to formulate a probability density function such as the one illustrated by the blue curve in the figure. The anticipated in-service mechanical loading illustrated by the red vertical line can be plotted on the same figure. Through this type of analysis, the urgency of insulator replacement is indicated by the size of the shaded area which is indicative of the proportion of the insulator population whose remaining mechanical strength will be below the anticipated load.

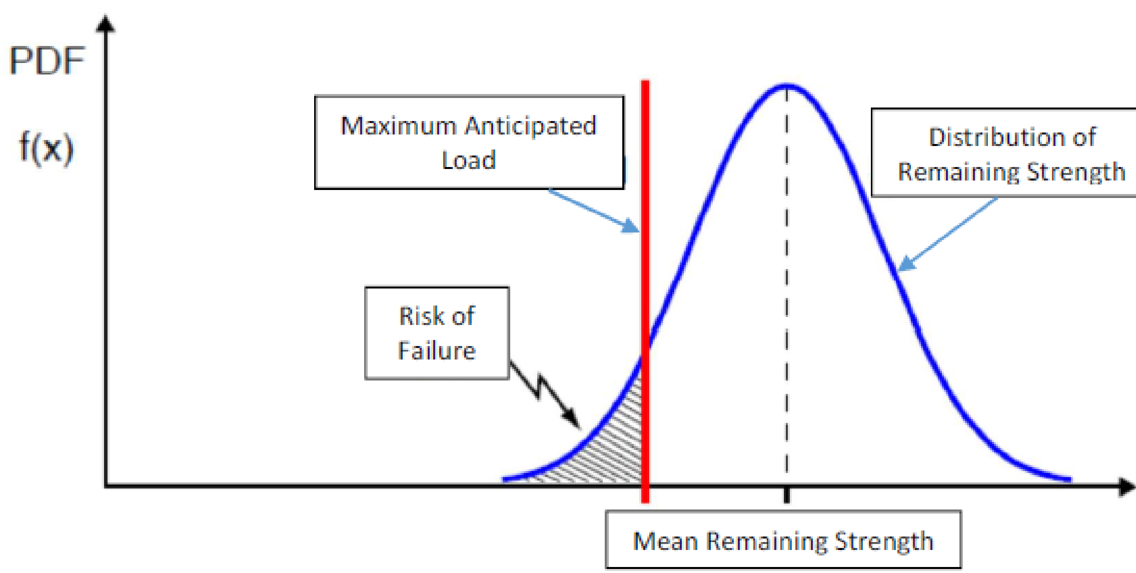

Figure 11: Maximum applied load vs ultimate mechanical strength

A similar means of using M&E test data was proposed by CIGRE WG B2.03 [5] in October of 2006. They issued a report titled “Guide for the Assessment of Old Cap and Pin and Long-Rod Transmission Insulators Made of Porcelain or Glass: What to Check and When to Replace”. That guide uses virtually the same approach as shown in Figure 11 but rather than using the normal distribution describing the measured M&E failing load to construct the blue line, it recommends that the analysis (or the blue line) be based upon the normal distribution representing the measured mechanical failing load. Rather than using the maximum anticipated load to construct the red line, they recommend the red line be based upon a parameter termed the safe failing load (SFL). The SFL is defined as the maximum anticipated load adjusted to include a safety factor. In their analysis, if the intersection between the red and blue lines is located within two standard deviations of the mean mechanical failing load, then the insulators have reached their end of life and should be replaced. If the intersection of the red line is exactly two standard deviations to the left of the mean recorded mechanical failing load, then the probability of mechanical failure is 5%. As the intersection between the red and blue lines moves to the right, the probability of a line drop increases and as the intersection between the red and blue lines moves to the left, the probability of failure is decreased. It is worth noting that application of this methodology does not take into account the possibility of a line drop caused by a power arc flowing through a punctured insulator. The high incidence of puncture in the insulator population examined in this work will therefore make the CIGRE approach less conservative as potential line drops due to power arc induced separation of punctured insulators will increase the risk of mechanical failure. This fact should be taken into consideration if this approach is considered.

5 RECOMMENDATIONS

The test data presented in this report provides an initial snapshot of the condition of the population of defective insulators in-service on HydroOne's transmission system. Although the sample of insulators tested was not sufficient to perform a rigorous statistical analysis upon which to base recommendations, the results strongly suggest that the installed insulator population comprising CP and COB insulators manufactured between 1965 and 1982 has reached or is at least approaching the end of useful life. As such the test data supports the urgent replacement of COB and CP insulators manufactured between 1965 and 1982 that are installed on critical structures where public safety is at risk

In order to assess the urgency with which insulators installed in non-critical locations where the risk to public safety not a significant factor require replacement, HydroOne should perform the tests described in phase 2 of the original test program. This will require testing of several hundred insulators which are truly representative of the insulator population and that contain appropriate numbers of samples with various M&E ratings taken from idler, dead-end or suspension locations. The sample should also be chosen so as to represent different geographic (climatic) regions within Ontario so as to address the on-going effects of thermal cycling. Performance of these tests will give an indication of the urgency with which suspect insulators installed in non-critical locations should be replaced based upon their as-removed condition and their anticipated end of useful life.

Finally based on the performance of the OB 1963 insulators, the question as to whether 1965 is the correct cut-off year for defective insulator production should be addressed. This can be done through including insulators from the early 1960s in the phase 2 testing.

6 REFERENCES

[1] E. A. Cherney and R. D. Hooton, "Cement Growth Failure Mechanism in Porcelain Suspension Insulators," *IEEE Transactions on Power Delivery,* vol. 2, no. 1, pp. 249-255, 1 January 1987.

[2] E. Cherney, A. Baker, B. Freimark, R. Gorur, Z. Lodi, M. Marzinotto, I. Ramirez-Vasquez and G. Stewart, "Evaluation of and Replacement Strategies for Aged High-Voltage Toughened Glass-Suspension Insulators," *IEEE Transactions on Power Delivery,* vol. 30, no. 3, pp. 1145-1152, 3 June 2015.

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[4] "Ceramic Insulator Assessment: Approach to Assessing a Population of Porcelain Disc," EPRI, Palo Alto, CA, 2007.1015277.

[5] CIGRE WG B2.03, "Guide for the Assessment of Old Cap and Pin and Long Rod Transmission Insulators Made of Porcelain or Glass: What to Check and When to Replace," 2006.

A DETAILED DESCRIPTION OF THE TEST PROTOCOLS

A1. MEGGER TEST

Each of the insulators was tested using a 10 kV megger. Figure A1 shows the test setup used. The intent of the test is to determine the insulators resistance under a 10 kV dc voltage. The megger was connected between the cap and pin of the insulator under test, and the measured resistance was recorded for each unit. The voltage was maintained for 1 minute. Any insulators showing electrical failure under the applied 10 kV dc voltage were identified as being fully punctured.

Figure A1: Insulators undergoing the Megger test (test 1)

A2. AC WITHSTAND TEST

The ac withstand test is intended to assess the electrical condition of the insulators. The procedure comprised energizing several insulators at a time with a 60 Hz supply. The voltage was raised to approximately 60% of the insulators' power frequency flashover voltage and maintained for a period of 1 minute. Any of the units which showed internal breakdown during the test were identified as being fully or partially punctured.

Figure A2 shows the test setup used.

Figure A2: Insulators undergoing the ac withstand test (test 2)

A3. M&E TEST

The M&E test was performed on each of the insulators. The insulator was mounted in a tensile testing machine. The test comprised applying approximately 60% of the insulator flashover voltage to the unit under test and gradually increasing the tensile load until failure occurs. Failure is defined as the load at which the insulator ceases to support either the mechanical load or the applied voltage. If the insulator ceases to withstand the applied voltage before mechanical failure, the load at electrical failure is recorded and the loading is increased until mechanical failure occurs. The failure mode was found to vary between insulators. Typical mechanical failure modes of included pin breakage, cap breakage, pin pull-out, porcelain breakage, etc. They were recorded for each insulator. Figure A3 shows the test setup and Figure A4 shows several examples of different modes of failure.

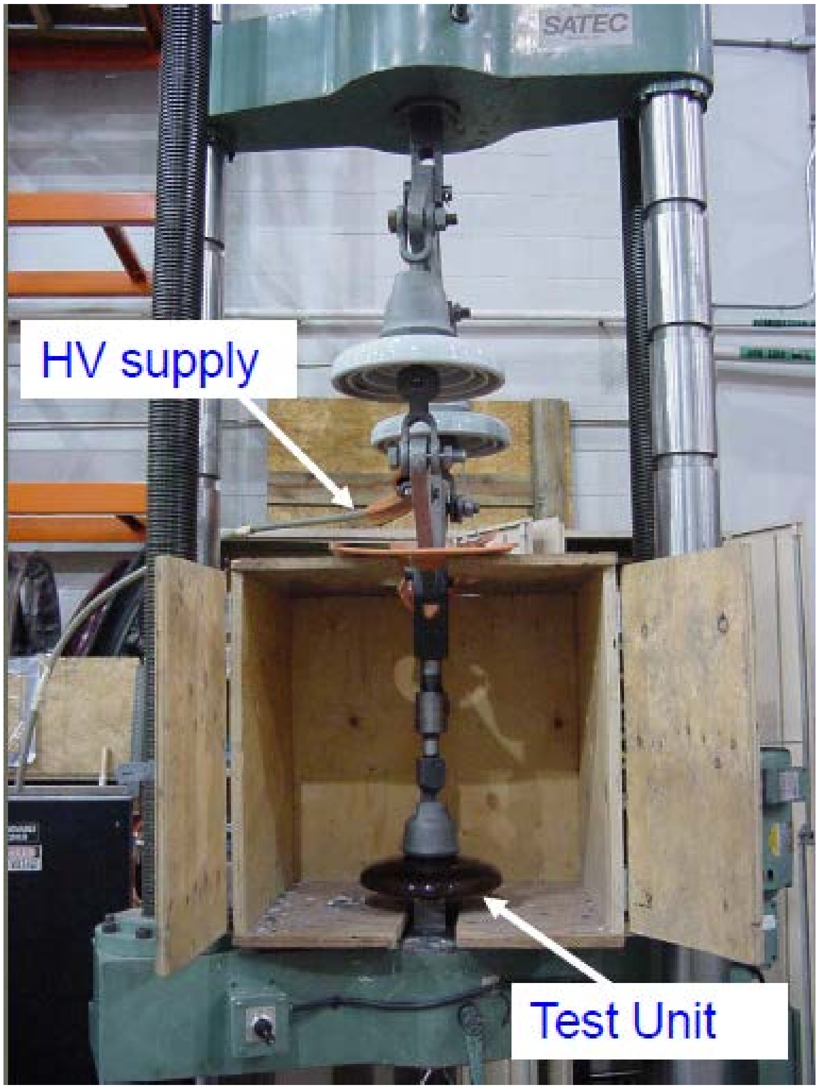


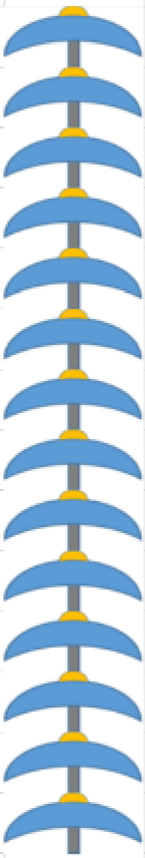
Figure A3: Insulator undergoing the M&E Test (test 3)



Figure A4: Typical modes of failure observed during M&E testing

B DETAILED DESCRIPTION OF THE INSULATOR STRINGS DELIVERED FOR TESTING

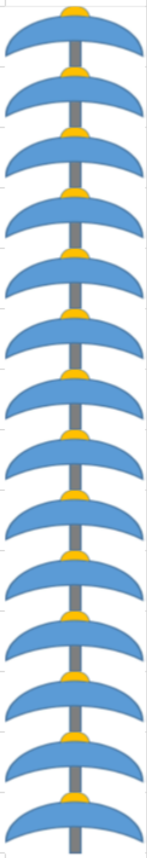
String ID	Manufacturer	Year	Mechanical Rating	CCT	STR	Phase	Position	Location	# of Skirts in String being Shipped
W	OB	1963	15KIP	P21R	10	MID	SUS	Zone 8	14



	Insulator Number	Ground	Received Condition	10 kV Megger (GΩ)	ac Withstand (56 kV - 1 min)	Electrical Failure (kips)	Mechanical Failure (kips)	Failure Mode: Pin broke	Failure Mode: Cap broke	Failure Mode: Pin pulled out	Failure Mode: Cap came off	Failure Mode: Porcelain broke
	36			260	pass	14396	18395				X	
	37			239	pass	17430	17878				X	
	38			227	pass	13620	17769				X	
	39			219	pass	23075	23075				X	X
	40			222	pass	15075	18865				X	X
	41			224	pass	13696	15986				X	
	42			207	pass	14898	19590				X	X
	1			316	pass	17753	18012				X	
	2			279	pass	16852	17257				X	
	3			245	pass	19390	19390				X	
	4			246	pass	13805	16088				X	
	5			210	pass	22863	22863				X	X
	6			211	pass	14166	17530				X	
	7		Internal puncture	4.55	fail	0	17551				X	
		Line										

Figure B.1: Insulators 1-7 and 36-42

String ID	Manufacturer	Year	Mechanical Rating	CCT	STR	Phase	Position	Location	# of Skirts in String being Shipped
v	OB	1963	15KIP	P21R	5	TOP	SUS	Zone 8	14



Insulator Number	Ground	Received Condition	10 kV Megger (GΩ)	ac Withstand (56 kV - 1 min)	Electrical Failure (kips)	Mechanical Failure (kips)	Failure Mode				
							Pin broke	Cap broke	Pin pulled out	Cap came off	Porcelain broke
8			277	pass	14447	14826				X	
9			272	pass	14609	21093				X	
10			255	pass	15074	15459				X	
11			249	pass	20597	20597				X	
12			255	pass	23039	23039					
13			253	pass	13692	18580				X	
14			239	pass	10769	16334				X	
64			209	pass	12939	16915				X	
65			190	pass	13520	19455				X	X
66			197	pass	11927	18032				X	
67			199	pass	13016	17949				X	
68			172	pass	13749	17764					
69			180	pass	13675	18928				X	
70			147	pass	14547	16711				X	X
	Line										

Figure B.2: Insulators 8-14 and 64-70

String ID	Manufacturer	Year	Mechanical Rating	CCT	STR	Phase	Position	Location	# of Skirts in String being Shipped
t	OB	1963	15KIP	P21R	4	BOT	SUS	Zone 8	14

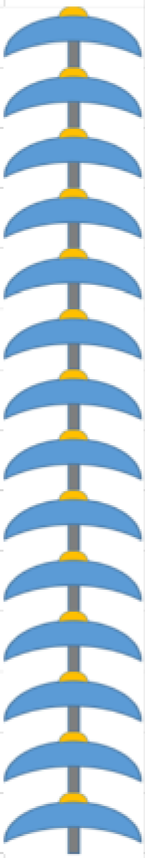
		Received Condition	10 kV Megger (GΩ)	ac Withstand (56 kV - 1 min)	Electrical Failure (kips)	Mechanical Failure (kips)	Failure Mode				
Insulator Number	Ground						Pin broke	Cap broke	Pin pulled out	Cap came off	Porcelain broke
15			246	pass	14610	15690				X	
16			214	pass	12348	18187				X	X
17			196	pass	16169	16176				X	
18			207	pass	14439	15204				X	
19			210	pass	14492	17164				X	X
20			200	pass	17384	17384				X	X
21			217	pass	17387	17764				X	
43			208	pass	13182	17672				X	
44			174	pass	11628	15050				X	
45			176	pass	12919	19085				X	X
46			187	pass	13604	17514				X	
47			164	pass	11693	17541				X	
48			140	pass	12229	17411				X	X
49			114	pass	14020	15413				X	
	Line										

Figure B.3: Insulators 15-21 and 43-49

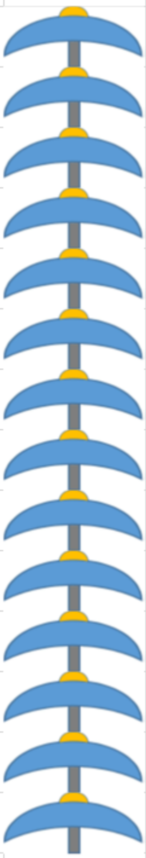
	String ID	Manufacturer	Year	Mechanical Rating	CCT	STR	Phase	Position	Location	# of Skirts in String being Shipped		
	s	OB	1963	15KIP	P21R	2	MID	SUS	Zone 8	14		
			Received Condition	10 kV Megger (GΩ)	ac Withstand (56 kV - 1 min)	Electrical Failure (kips)	Mechanical Failure (kips)	Failure Mode				
	Insulator Number	Ground						Pin broke	Cap broke	Pin pulled out	Cap came off	Porcelain broke
	29			231	pass	15738	17705				X	
	30			196	pass	14913	18418				X	
	31			206	pass	17723	19932				X	
	32			208	pass	13144	15323				X	
	33			221	pass	16174	17279				X	X
	34			201	pass	15900	20405				X	X
	35			196	pass	15811	17774				X	
	22			188	pass	14101	16063				X	
	23			181	pass	14701	17636				X	X
	24			183	pass	13073	16264				X	
	25			176	pass	14072	17589				X	X
	26			162	pass	13731	18230				X	X
	27			148	pass	14646	17353				X	X
	28		Badly broken shed	127	fail	0	16205				X	X
		Line										

Figure B.4: Insulators 22-35

String ID	Manufacturer	Year	Mechanical Rating	CCT	STR	Phase	Position	Location	# of Skirts in String being Shipped
u	OB	1963	15KIP	P21R	3	TOP	SUS	Zone 8	14

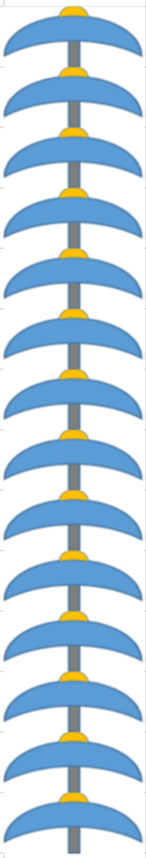
Insulator Number	Ground	Received Condition	10 kV Megger (GΩ)	ac Withstand (56 kV - 1 min)	Electrical Failure (kips)	Mechanical Failure (kips)	Failure Mode				
							Pin broke	Cap broke	Pin pulled out	Cap came off	Porcelain broke
57			127	pass	19881	19894				X	X
58			196	pass	14048	18375				X	
59			187	pass	13500	17570				X	
60			198	pass	12481	19130				X	X
61			200	pass	15373	17275				X	X
62			194	pass	24362	24362		X			
63			199	pass	17042	18589				X	
50			179	pass	14428	16753				X	X
51			175	pass	15122	17480				X	
52			162	pass	11816	15539				X	
53			148	pass	12383	19694				X	X
54			142	pass	14685	17689				X	
55			127	pass	12304	12682				X	
56			112	pass	12723	14300				X	
	Line										

Figure B.5: Insulators 50-63

String ID	Manufacturer	Year	Mechanical Rating	CCT	STR	Phase	Position	Location	# of Skirts in String being Shipped
c	OB	1978	15KIP	V43	965	MID	IDLER	Zone 8	14

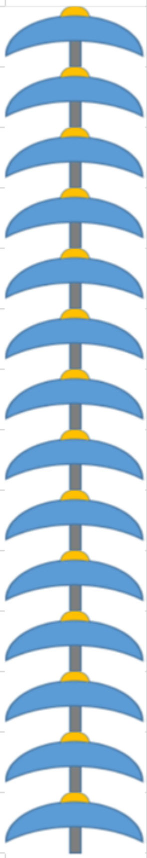
Insulator Number	Ground	Received Condition	10 kV Megger (GΩ)	ac Withstand (56 kV - 1 min)	Electrical Failure (kips)	Mechanical Failure (kips)	Failure Mode: Pin broke	Cap broke	Pin pulled out	Cap came off	Porcelain broke
71			237	pass	13834	14297				X	
72			256	pass	12426	12981				X	
73			218	pass	12544	15545				X	
74			192	pass	15840	15840				X	
75			254	pass	15907	15907				X	
76			210	pass	16939	16939				X	
77			130	pass	16020	16020				X	
78			281	pass	18099	18099				X	
79			233	pass	No data	No data					
80			289	pass	21179	21179				X	
81			268	pass	17012	17012				X	
82			245	pass	17608	17608				X	
83			226	pass	16185	16185				X	
84			220	pass	15847	15847				X	
	Line										

Figure B.6: Insulators 71-84

	String ID	Manufacturer	Year	Mechanical Rating	CCT	STR	Phase	Position	Location	# of Skirts in String being Shipped		
	j	OB	1973	15KIP	D6V	267A		DE	Zone 8	1		
			Received Condition	10 kV Megger (GΩ)	ac Withstand (56 kV - 1 min)	Electrical Failure (kips)	Mechanical Failure (kips)	Failure Mode				
	Insulator Number	Ground						Pin broke	Cap broke	Pin pulled out	Cap came off	Porcelain broke
	85			516	pass	13440	17993				X	
		Line										

Figure B.7: Insulator 85

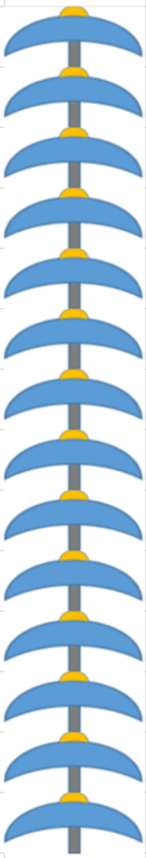
	String ID	Manufacturer	Year	Mechanical Rating	CCT	STR	Phase	Position	Location	# of Skirts in String being Shipped		
	z	OB	1977	15KIP	V73R	50E	BOT	IDLER	Zone 8	14		
			Received Condition	10 kV Megger (GΩ)	ac Withstand (56 kV - 1 min)	Electrical Failure (kips)	Mechanical Failure (kips)	Failure Mode				
	Insulator Number	Ground						Pin broke	Cap broke	Pin pulled out	Cap came off	Porcelain broke
	86			194	pass	13643	13643				X	
	87			175	pass	15203	15203				X	
	88			182	pass	15299	15299				X	
	89			173	pass	11868	11868				X	
	90			185	pass	14314	14314				X	
	91			194	pass	16865	16865		X			
	92			182	pass	17752	17752				X	
	134			378	pass	16333	16977				X	
	135			357	pass	9541	15875				X	
	136			329	pass	13582	16151				X	
	137			335	pass	12333	16119				X	
	138			333	pass	15784	17803				X	
	139			252	pass	12472	13551				X	
	140		Radial cracks	N/A	fail	0	19658				X	X
		Line										

Figure B.8: Insulators 86-92 and 134-140

String ID	Manufacturer	Year	Mechanical Rating	CCT	STR	Phase	Position	Location	# of Skirts in String being Shipped
o	OB	1978	15KIP	V74R	50E	MID	DE	Zone 8	14

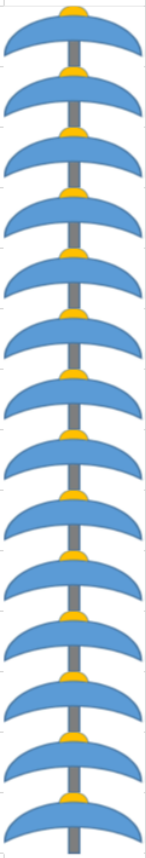
Insulator Number	Ground	Received Condition	10 kV Megger (GΩ)	ac Withstand (56 kV - 1 min)	Electrical Failure (kips)	Mechanical Failure (kips)	Failure Mode: Pin broke	Cap broke	Pin pulled out	Cap came off	Porcelain broke
93			150	pass	17552	17552		X		X	X
94			177	pass	17585	17585				X	X
95			159	pass	16647	16647				X	
96			168	pass	16154	16154				X	
97			269	pass	18938	18938				X	
98			258	pass	20345	20345				X	
99			262	pass	16531	16531				X	
100			259	pass	17267	17267				X	
101			248	pass	19204	19204				X	
102			183	pass	15024	15024				X	
103			198	pass	20492	20492				X	X
104			185	pass	21178	21178				X	
105			191	pass	13413	13413				X	
106			257	pass	18861	18861				X	
	Line										

Figure B.9: Insulators 93-106

String ID	Manufacturer	Year	Mechanical Rating	CCT	STR	Phase	Position	Location	# of Skirts in String being Shipped
n	OB	1978	15KIP	V74R	50E	MID	IDLER	Zone 8	14

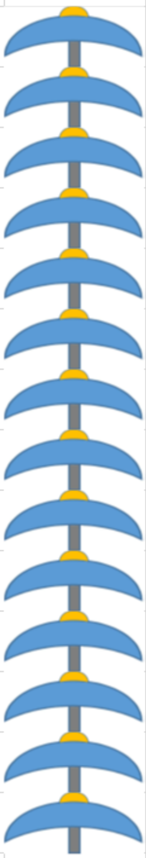
	Insulator Number	Ground	Received Condition	10 kV Megger (GΩ)	ac Withstand (56 kV - 1 min)	Electrical Failure (kips)	Mechanical Failure (kips)	Failure Mode				
								Pin broke	Cap broke	Pin pulled out	Cap came off	Porcelain broke
	107			314	pass	20440	20440				X	
	108			305	pass	17593	17593				X	
	109			248	pass	15117	15117				X	X
	110		Radial crack	Brd	fail	0	10439				X	
	111			276	pass	14659	14659				X	
	112			320	pass	18102	18102				X	
	113		Badly broken shed	Brd	fail	0	10206				X	
	114			315	pass	16894	16894				X	
	115		Badly broken shed	Brd	fail	0	12735				X	
	116		Badly broken shed	295	fail	11932	13561				X	
	117		Badly broken shed	0.00153	fail	0	10206				X	
	118		Badly broken shed	3.85E-07	fail	0	13448				X	
	119			262	pass	19093	19031				X	
	120			238	pass	18188	18188				X	X
		Line										

Figure B.10: Insulators 107-120

String ID	Manufacturer	Year	Mechanical Rating	CCT	STR	Phase	Position	Location	# of Skirts in String being Shipped
a	CP	1974	15KIP	B11		BOT	SUS	Zone 8	6

	Insulator Number	Ground	Received Condition	10 kV Megger (GΩ)	ac Withstand (56 kV - 1 min)	Electrical Failure (kips)	Mechanical Failure (kips)	Failure Mode: Pin broke	Cap broke	Pin pulled out	Cap came off	Porcelain broke
	121			291	pass	16636	17638				X	
	122		Donut	0.0014	fail	0	18459			X		
	123			228	pass	17558	19238				X	
	124			237	pass	20192	20192				X	
	125			224	pass	13819	18072				X	
	126			247	pass	15354	16561				X	
		Line										

Figure B.11: Insulators 121-126

	Insulator Number	Ground	Received Condition	10 kV Megger (GΩ)	ac Withstand (56 kV - 1 min)	Electrical Failure (kips)	Mechanical Failure (kips)	Failure Mode: Pin broke	Cap broke	Pin pulled out	Cap came off	Porcelain broke
	127			246	Pass	16703	17255				X	
	128			223	Pass	18942	18942				X	
	129			238	Pass	17976	19195				X	
	130			235	Pass	16458	17060				X	
	131			203	Pass	18177	19170				X	
	132			210	Pass	16073	18203				X	
	133		Pin too bent to fit in M&E test machine	278	Pass	-	-					
		Line										

Figure B.12: Insulators 127-133

String ID	Manufacturer	Year	Mechanical Rating	CCT	STR	Phase	Position	Location	# of Skirts in String being Shipped
p	OB	1950 (cct I/S)	11KIP	L5H	223	LEFT	SUS	Zone 6	7

Insulator Number	Ground	Received Condition	10 kV Megger (GΩ)	ac Withstand (56 kV - 1 min)	Electrical Failure (kips)	Mechanical Failure (kips)	Failure Mode: Pin broke	Cap broke	Pin pulled out	Cap came off	Porcelain broke
141			670	pass	15514	15514				X	X
142			759	pass	15017	15017				X	X
143			788	pass	14542	14542				X	
144			729	pass	14876	14876				X	
145			731	pass	16698	16698				X	X
146			707	pass	14652	14652				X	
147			679	pass	14598	14598				X	X
	Line										

Figure B.13: Insulators 141-147

String ID	Manufacturer	Year	Mechanical Rating	CCT	STR	Phase	Position	Location	# of Skirts in String being Shipped
q	OB	1950 (cct I/S)	11KIP	L5H	223	RIGHT	SUS	Zone 6	7

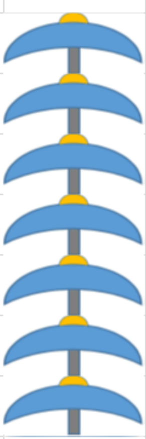
Insulator Number	Ground	Received Condition	10 kV Megger (GΩ)	ac Withstand (56 kV - 1 min)	Electrical Failure (kips)	Mechanical Failure (kips)	Failure Mode: Pin broke	Cap broke	Pin pulled out	Cap came off	Porcelain broke
148			721	pass	17447	17447				X	
149			759	pass	17260	17260				X	X
150			789	pass	14355	14355				X	X
151			849	pass	13646	13646				X	
152			827	pass	14676	14676				X	X
153			769	pass	13107	13107				X	X
154			717	pass	15612	15612				X	
	Line										

Figure B.14: Insulators 148-154

	String ID	Manufacturer	Year	Mechanical Rating	CCT	STR	Phase	Position	Location	# of Skirts in String being Shipped		
	r	OB	1950 (cct I/S)	11KIP	L5H	223	MID	SUS	Zone 6	7		
			Received Condition	10 kV Megger (GΩ)	ac Withstand (56 kV - 1 min)	Electrical Failure (kips)	Mechanical Failure (kips)	Failure Mode				
	Insulator Number	Ground						Pin broke	Cap broke	Pin pulled out	Cap came off	Porcelain broke
	155		Badly broken shed	674	Pass	16408	16408				X	
	156			600	pass	15342	15342				X	X
	157			762	pass	14416	14416				X	
	158			771	pass	13628	13628				X	
	159			818	pass	14814	14814				X	
	160			737	pass	15347	15347				X	
	161			752	pass	16294	16294				X	X
		Line										

Figure B.15: Insulators 155-161

String ID	Manufacturer	Year	Mechanical Rating	CCT	STR	Phase	Position	Location	# of Skirts in String being Shipped
m	OB	1978	36KIP	V73R	49E	BOT	DE	Zone 8	14

	Insulator Number	Ground	Received Condition	10 kV Megger (GΩ)	ac Withstand (56 kV - 1 min)	Electrical Failure (kips)	Mechanical Failure (kips)	Failure Mode: Pin broke	Cap broke	Pin pulled out	Cap came off	Porcelain broke
	162			234	pass	38764	43973				X	X
	163			295	pass	25960	41220				X	
	164			215	pass	36347	36347				X	X
	165			204	pass	46192	47040				X	X
	166			193	pass	46431	46431				X	X
	167			185	pass	49412	49412				X	X
	168			190	pass	43799	44250				X	
	169			265	pass	56561	56561		X			
	170			282	pass	45652	45667				X	X
	171		Internal puncture	8.32E-05	fail	0	47366				X	X
	172			258	pass	22828	37232				X	
	173			171	pass	52443	52443				X	
	174			249	pass	39708	43126				X	X
	175			244	pass	43232	44429				X	X
		Line										

Figure B.16: Insulators 162-175

String ID	Manufacturer	Year	Mechanical Rating	CCT	STR	Phase	Position	Location	# of Skirts in String being Shipped
l	OB	1978	36KIP	V74R	49E	BOT	DE	Zone 8	7

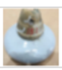
	Insulator Number	Ground	Received Condition	10 kV Megger (GΩ)	ac Withstand (56 kV - 1 min)	Electrical Failure (kips)	Mechanical Failure (kips)	Failure Mode: Pin broke	Cap broke	Pin pulled out	Cap came off	Porcelain broke
	176			320	pass	57032	57032				X	
	177			192	pass	50248	50248				X	
	178			222	pass	36241	42458				X	
	179			203	pass	52738	52738				X	X
	180			222	pass	47000	47000					X
	181		Radial crack	4.81E-05	fail	0	39652			X		X
	182			211	pass	43559	44250				X	
		Line										

Figure B.17: Insulators 176-182

String ID	Manufacturer	Year	Mechanical Rating	CCT	STR	Phase	Position	Location	# of Skirts in String being Shipped
k	OB	1978	36KIP	V74R	49E	MID	DE	Zone 8	5

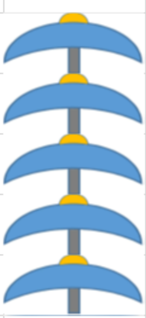
	Insulator Number	Ground	Received Condition	10 kV Megger (GΩ)	ac Withstand (56 kV - 1 min)	Electrical Failure (kips)	Mechanical Failure (kips)	Failure Mode: Pin broke	Cap broke	Pin pulled out	Cap came off	Porcelain broke
	183		Internal puncture	8.96E-05	fail	0	52004				X	X
	184			164	pass	44439	44439				X	X
	185			191	pass	43997	43997				X	
	186			203	pass	50462	50462				X	
	187		Radial crack	0.000154	fail	0	48777				X	X
		Line										

Figure B.18: Insulators 183-187

String ID	Manufacturer	Year	Mechanical Rating	CCT	STR	Phase	Position	Location	# of Skirts in String being Shipped
f	OB	1977	36KIP	V43	BRIDGE		DE	Zone 8	14

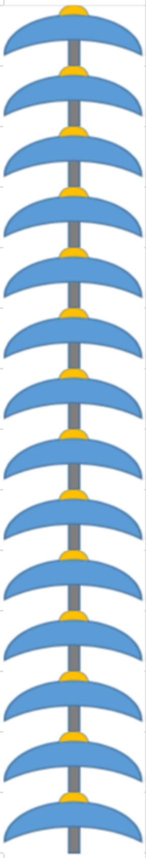
			Received Condition	10 kV Megger (GΩ)	ac Withstand (56 kV - 1 min)	Electrical Failure (kips)	Mechanical Failure (kips)	Failure Mode				
	Insulator Number	Ground						Pin broke	Cap broke	Pin pulled out	Cap came off	Porcelain broke
	188			263	pass	42434	49059				X	X
	189			253	pass	21270	42804				X	X
	190			296	pass	36308	49853				X	
	191			212	pass	43414	43414				X	
	192			234	pass	47163	47163				X	X
	193			165	pass	43423	45998				X	
	194			202	pass	41003	46793				X	X
	195		Radial crack	3.07E-07	fail	0	46599					
	196		Internal puncture	1.03E-07	fail	0	48930				X	X
	197			202	pass	38955	45600				X	
	198			174	pass	32782	42548				X	
	199			204	pass	39700	44922				X	X
	200		Internal puncture	6.5E-08	fail	0	45475				X	X
	201			142	pass	37073	41377				X	X
		Line										

Figure B.19: Insulators 188-201

String ID	Manufacturer	Year	Mechanical Rating	CCT	STR	Phase	Position	Location	# of Skirts in String being Shipped
i	OB	1973	25KIP	B15C	24	TOP	DE	Zone 8	11

			Received Condition	10 kV Megger (GΩ)	ac Withstand (56 kV - 1 min)	Electrical Failure (kips)	Mechanical Failure (kips)	Failure Mode				
	Insulator Number	Ground						Pin broke	Cap broke	Pin pulled out	Cap came off	Porcelain broke
	202		Radial crack	6.9E-08	fail	0	26284				X	X
	203		Radial crack	6.9E-08	fail	0	29586	X				
	204		Radial crack	2.5E-08	fail	0	29236				X	X
	205			360	pass	20229	28586				X	
	206		Radial crack	1.54E-07	fail	0	27934			X	X	X
	207			494	pass	17142	28385				X	
	208		Radial crack	4.5E-08	fail	0	26122					
	209			472	pass	16109	31043				X	
	210			435	pass	19028	26225				X	
	211			396	pass	19128	30961				X	
	212		Radial crack	5.3E-08	fail	0	27745				X	
		Line										

Figure B.20: Insulators 202-212

String ID	Manufacturer	Year	Mechanical Rating	CCT	STR	Phase	Position	Location	# of Skirts in String being Shipped
e	OB	1978	36KIP	V43	967	BOT	DE	Zone 8	14

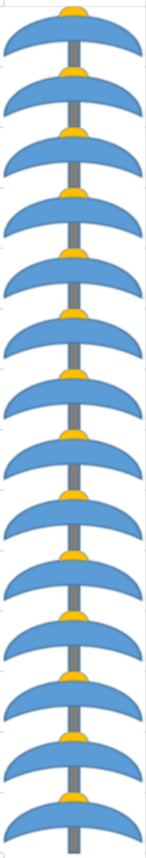
Insulator Number	Ground	Received Condition	10 kV Megger (GΩ)	ac Withstand (56 kV - 1 min)	Electrical Failure (kips)	Mechanical Failure (kips)	Failure Mode: Pin broke	Cap broke	Pin pulled out	Cap came off	Porcelain broke
213			125	pass	55838	55838				X	X
214			163	pass	48755	48755		X			
215			152	pass	42534	42534				X	X
216			170	pass	44589	45805				X	
217			142	pass	No data	No data					
218			147	pass	50953	50953				X	X
219			146	pass	36994	48389				X	X
220			187	pass	27223	38489				X	X
221			186	pass	46306	46306				X	
222			197	pass	43639	44349				X	X
223			186	pass	39425	47557			X	X	X
224			156	pass	44254	47120				X	X
225			197	pass	40133	46081					
226			179	pass	48031	48223				X	X
	Line										

Figure B.21: Insulators 213-226

String ID	Manufacturer	Year	Mechanical Rating	CCT	STR	Phase	Position	Location	# of Skirts in String being Shipped
d	OB	1978	36KIP	V43	965	BOT	DE	Zone 8	14

			Received Condition	10 kV Megger (GΩ)	ac Withstand (56 kV - 1 min)	Electrical Failure (kips)	Mechanical Failure (kips)	Failure Mode				
	Insulator Number	Ground						Pin broke	Cap broke	Pin pulled out	Cap came off	Porcelain broke
	227			191	pass	35841	47355			X	X	X
	228			171	pass	43378	47924				X	X
	229			160	pass	28622	36614				X	
	230			159	pass	49792	49792				X	X
	231			176	pass	52051	52051			X	X	X
	232			170	pass	53212	53212				X	X
	233			175	pass	47848	48079				X	X
	234			161	pass	25219	39970				X	
	235			165	pass	49078	49078				X	
	236			174	pass	48004	48004				X	X
	237			170	pass	54486	54486				X	X
	238			163	pass	47926	47926				X	
	239			167	pass	No data	No data					
	240		Broken shed	169	fail	0	39695				X	
		Line										

Figure B.22: Insulators 227-240

String ID	Manufacturer	Year	Mechanical Rating	CCT	STR	Phase	Position	Location	# of Skirts in String being Shipped
h	OB	1979	36KIP	V73R	BRIDGE	RED	DE	Zone 8	14

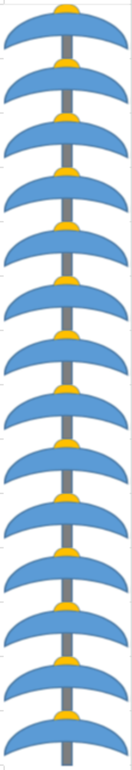
		Insulator Number	Ground	Received Condition	10 kV Megger (GΩ)	ac Withstand (56 kV - 1 min)	Electrical Failure (kips)	Mechanical Failure (kips)	Failure Mode: Pin broke	Failure Mode: Cap broke	Failure Mode: Pin pulled out	Failure Mode: Cap came off	Failure Mode: Porcelain broke
		241			299	pass	45726	45726				X	
		242			287	pass	43802	43802				X	
		243			274	pass	52452	52452				X	X
		244			280	pass	41288	41288				X	
		245			269	pass	47597	47597				X	X
		246			271	pass	48710	48710				X	X
		247		Internal puncture	135	fail	0	43757				X	
		248			281	pass	46163	46163				X	
		249			252	pass	41947	41947				X	X
		250			257	pass	42455	42455				X	X
		251		Radial crack, lots of local cracking, some shed damage	6.9E-07	fail	0	35500					
		252			206	pass	46183	46183				X	X
		253			221	pass	36823	38914				X	
		254			225	pass	34303	40129				X	X
			Line										

Figure B.23: Insulators 241-254

String ID	Manufacturer	Year	Mechanical Rating	CCT	STR	Phase	Position	Location	# of Skirts in String being Shipped
x	OB	1975	50KIP	V77R	84	MID	DE	Zone 8	14

Notes: String saw a power arc as evidenced by the photos

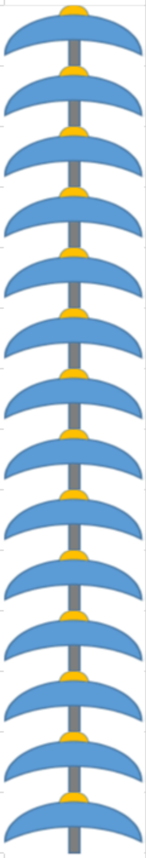
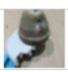
	Insulator Number	Ground	Received Condition	10 kV Megger (GΩ)	ac Withstand (56 kV - 1 min)	Electrical Failure (kips)	Mechanical Failure (kips)	Failure Mode: Pin broke	Cap broke	Pin pulled out	Cap came off	Porcelain broke
	255			224	pass	37079	55397				X	X
	256		Internal puncture	<10kΩ	fail	0	49502					
	257		Internal puncture	<10kΩ	fail	0	55841				X	
	258		Radial crack	<10kΩ	fail	0	55581			X	X	
	259		Internal puncture	<10kΩ	fail	0	48451				X	
	260		Internal puncture	<10kΩ	fail	0	43371				X	
	261		Internal puncture	<10kΩ	fail	0	51126				X	
	262			199	pass	43610	56918				X	
	263		Internal puncture	<10kΩ	fail	0	50183				X	
	264		Radial crack	<10kΩ	fail	0	55840				X	X
	265			209	pass	50729	54518				X	
	266		Badly broken shed	1.6E-08	fail	0	62218			X		X
	267			202	pass	38431	58386				X	X
	268			235	pass	46283	54674				X	
		Line										

Figure B.24: Insulators 255-268

String ID	Manufacturer	Year	Mechanical Rating	CCT	STR	Phase	Position	Location	# of Skirts in String being Shipped
y	OB	1975	50KIP	V77R	84	BOT	DE	Zone 8	14

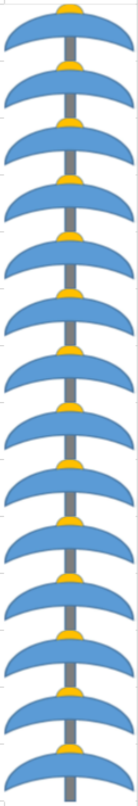
		Insulator Number	Ground	Received Condition	10 kV Megger (GΩ)	ac Withstand (56 kV - 1 min)	Electrical Failure (kips)	Mechanical Failure (kips)	Failure Mode: Pin broke	Cap broke	Pin pulled out	Cap came off	Porcelain broke
		269			216	pass	43009	56616			X	X	X
		270			214	pass	39668	56666			X		X
		271			224	pass	53144	54588				X	X
		272		Radial crack and hole in cap	<10kΩ	fail	0	59626				X	X
		273			291	pass	55902	57909			X	X	X
		274			281	pass	68283	68283			X	X	X
		275			250	pass	38804	55420			X	X	X
		276			268	pass	42845	63387			X	X	X
		277			288	pass	48161	58890				X	X
		278		Badly broken shed	327	fail	0	56006			X	X	X
		279		Radial crack	<10kΩ	fail	0	56136			X	X	X
		280			260	pass	57681	57681			X	X	X
		281		Internal puncture	<10kΩ	fail	0	60209					
		282		Radial crack	3.09E-08	fail	0	53129					
			Line										

Figure B.25: Insulators 269-282

String ID	Manufacturer	Year	Mechanical Rating	CCT	STR	Phase	Position	Location	# of Skirts in String being Shipped
8	OB	1975	50KIP	V79R	50E	TOP	DE	Zone 8	11

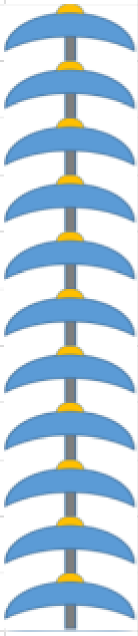
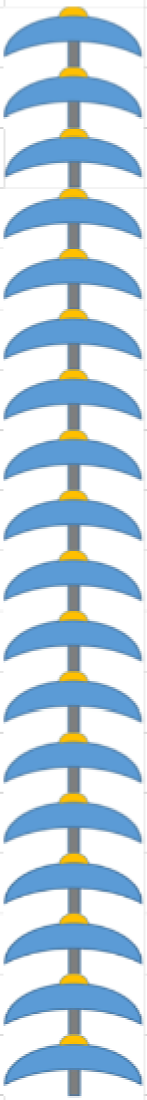
		Insulator Number	Ground	Received Condition	10 kV Megger (GΩ)	ac Withstand (56 kV - 1 min)	Electrical Failure (kips)	Mechanical Failure (kips)	Failure Mode: Pin broke	Cap broke	Pin pulled out	Cap came off	Porcelain broke
		283			236	pass	58487	59737			X	X	X
		284		Radial crack	<10kΩ	fail	0	56938			X	X	X
		285			193	pass	67912	67912			X	X	X
		286			304	pass	72370	72370			X	X	X
		287			247	pass	69140	69140				X	X
		288			276	pass	79594	79594			X	X	X
		289			236	pass	74903	74903		X			X
		290		Radial crack	<10kΩ	fail	0	56260				X	X
		291			217	pass	31664	56362				X	X
		292			255	pass	76904	76904				X	X
		293		Radial crack	<10kΩ	fail	0	51557			X		X
			Line										

Figure B.26: Insulators 283-293

Note:	This string must have failed during a power arc	String ID	Manufacturer	Year	Mechanical Rating	CCT	STR	Phase	Position	Location	# of Skirts in String being Shipped		
		aa	OB	1975	50KIP	V77R	84	TOP	DE	Zone 8	7		
				Received Condition	10 kV Megger (GΩ)	ac Withstand (56 kV - 1 min)	Electrical Failure (kips)	Mechanical Failure (kips)	Failure Mode				
		Insulator Number	Ground						Pin broke	Cap broke	Pin pulled out	Cap came off	Porcelain broke
		294		Badly broken shed due to Power arc damage	10.9	fail	0	60933			X		
		295		Badly broken shed due to Power arc damage	<10kΩ	fail	0	59727			X		
		296			229	pass	30251	49995			X	X	X
		297			pass	pass	75629	75629			X	X	X
		298		Badly broken shed due to Power arc damage	<10kΩ	fail	0	49267			X		
		299		Badly broken shed due to Power arc damage	<10kΩ	fail	0	53216			X		
		300		Power arc damage. Just an empty cap	Not done	fail	0	0					
			Line										

Figure B.27: Insulators 294-300

String ID	Manufacturer	Year	Mechanical Rating	CCT	STR	Phase	Position	Location	# of Skirts in String being Shipped
ab	CP	1972	15KIP	W36	18	Right	Dead-end	Zone 8	18



Insulator Number	Ground	Received Condition	10 kV Megger (GΩ)	ac Withstand (56 kV - 1 min)	Electrical Failure (kips)	Mechanical Failure (kips)	Failure Mode: Pin broke	Cap broke	Pin pulled out	Cap came off	Porcelain broke
301			7.9	Pass	15590	15590				X	
302			10.8	Pass	12017	12017				X	
303			13.1	Pass	18346	18346				X	
304			12.9	Pass	15079	15098				X	
305			21.5	Pass	15868	15926				X	
306			31	Pass	11559	13527				X	
307			18.4	Pass	15786	16683				X	
308			19.6	Pass	15388	15388				X	
309			22	Pass	11834	13903				X	
310			28	Pass	15600	15600				X	
311			19.9	Pass	14958	14958				X	
312			25.6	Pass	16985	16985				X	
313			31.8	Pass	12826	12838				X	
314			23.3	Pass	16038	16038				X	
315			29.2	Pass	16273	16279				X	
316			31.9	Pass	15821	15821				X	
317			25.1	Pass	12100	15444				X	
318			32.1	Pass	14308	14308				X	
	Line										

Figure B.28: Insulators 301-318

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Galvatech Coating System Assessment

Aging Performance, Service Life and Evaluation of Field Applications

Galvatech Coating System Assessment

Aging Performance, Service Life and Evaluation of Field Applications

Technical Update, May 2016

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1 INTRODUCTION AND BACKGROUND

Introduction

Corrosion control on transmission structures requires an understanding of three aspects of a coating system. The first aspect is how the coating system ages with exposure to the environment and how the performance changes. The second aspect of the coating system is the degradation rate and how long the system will provide protection from the environment. The last aspect is how that coating system will be applied to the structure and what the operational limitations of that system are.

The scope of this document is to provide aging performance criteria, service life estimates and an evaluation of the application methods of the Galvatech coating system within the HydroOne service territory.

Service Environment Impact

Applications may be delineated by the substrate type or geometry of construction but each utility must ultimately understand how the geometry effects the coating system performance. In many cases the geometry dictates the initiation mechanisms which are termed coating stresses. Most of these stresses are coupled together resulting in certain types of exposure or service environments that are harsher than others. Service environments highlight the factors most likely to cause premature failures of the coating system in the form of thermal, mechanical or electrical stresses and are as follows:

- Mechanical stresses result from soil movement, structure settlement, excavation operations or formation of corrosion products
- Thermal stresses result from uneven thermal expansion or contraction of the substrates and coating systems
- Electrical stresses result from stray currents with the source being static or dynamic and direct or alternating current. Examples may be welding operations, pipelines in the same Rights of Way (ROW) that have cathodic protection or subways near the circuits.

The service environment may be understood better by studying the types of exposure at the structure site. These may be one or more of the following:

- Immersion or marine exposure – Fresh, Brackish or Seawater
- Sub-Grade (Soil) exposure - Temperature (hot/cold), Moisture, Contaminants
- Atmospheric exposure - Ultraviolet radiation, Temperature (hot/cold), Time of Wetness, Contaminant deposits
- Splash zones or tidal areas – Time of Wetness, Contaminants
- Transitional zone (organic matter, extremes from both atmospheric and sub-grade)

Research Approach

The EPRI Coating Test Protocol referred to as "Tier Testing" provides a standard test method to assess various coating systems from different suppliers under the same criteria and conditions. The protocol relies upon performance-based testing and scientific principles to evaluate compare and then rank a coating system's overall performance. The Tier Testing protocol is comprised of three levels (tiers). Each of the Tiers is designed to test a specific aspect of a coating system's attributes using repeatable, standardized ASTM, NACE and SSPC test methods.

Tier 1 consists of small scale laboratory testing on representative metal samples that are specially prepared and cleaned. This level of testing focuses upon material performance in general and the report deals specifically with Tier 1 testing of the coating system materials attributes before and after aging. Those attributes are as follows:

Table 1
Coating System Attribute Test Matrix

Attribute	Test Name	Governing Standard
Discontinuity	Discontinuity	RPO 188-99
Thickness, Filler Material, Test Sample Flaws	Metallography	ASTM E3-01
Electron Endosmosis, Adherence	Adhesion	ASTM D 4541-02
Cathodic Disbondment	Cathodic Disbondment	ASTM G8 (modified)
Resistance to Soil Stress	Impact	ASTM D 2794
	Bend	ASTM D 522
	Chipping	ASTM D3170/D3170M-14
Undercutting	Scribe Creep	ASTM D1654-05
Inhibition, Adherence, Moisture Vapor Transfer, Ionic Passage, Biological Damage	EIS	ASTM G106-89
Appearance	Color	ASTM D 2244-05
	Gloss	ASTM D 523 (modified)

Tier 2 is full scale laboratory testing on sub-systems, e.g. a section of a mono-pole. This level of testing includes how that coating performance may change due to the coating application to a finished component or structure. This is primarily a function of geometry and how the initiation mechanisms are affected by construction standards.

Tier 3 is a field demonstration of these coating systems for a period of time and how the application procedures, quality control processes and finished product may change with location and structure type.

Performance Altering Factors

There are a few factors that can alter the optimal service life of a coating system. These may include the profile which provides a mechanical anchor, cleanliness of the substrate before application, handling of the painting supplies and the compatibility of the substrate with the coating system. In each instance precautions are taken to ensure continuity in testing each coating system in the Tier 1 protocol and manufacturers' recommendations are followed to the letter.

Factors that Govern Type of Exposure

One of the most important aspects of a successful coating assessment program is a clear understanding and communication of the specific conditions and service environment where a coating system will be used. Since these variables will significantly affect a coating system, they will dictate objectives, requirements, and performance parameters. Listed below are factors (see Figure 1-1) to consider in the selection and application of any coating system:

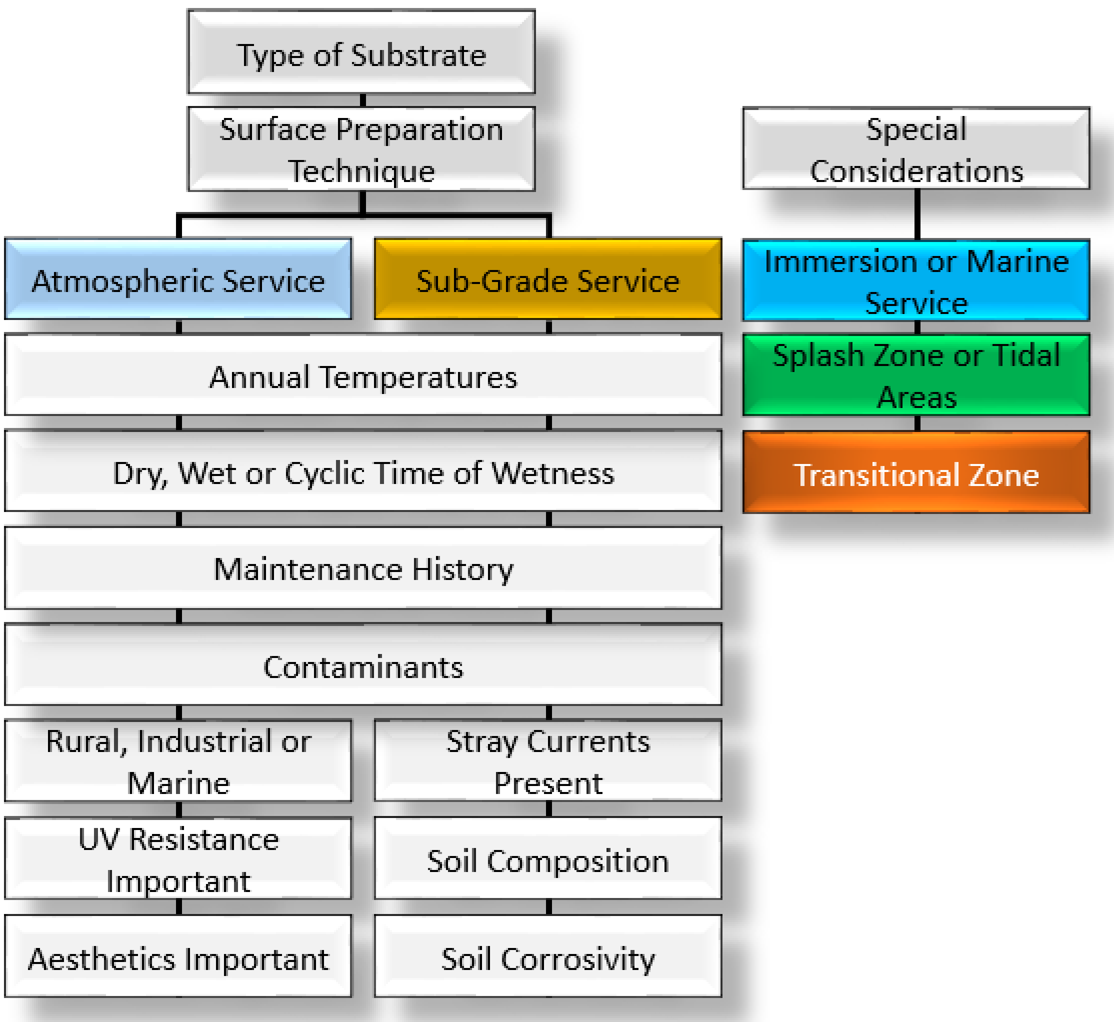


Figure 1-1
Consideration Factors in Coating System Selection and Application

Coating Systems Evaluations

Galvotech Coating System

Please see Table 2 for technical data for the Galvotech 2000

Table 2
Galvotech 2000 Technical Data

May be used as a primer or finishing paint (on previous coats of Rust-Anode Primer)

May be used to renew the cathodic protection of a previous hot galvanization coat or previous coats of Rust-Anode Primer

Duplex system	Rust-Anode Primer,, may be covered with paint.
Applications	As a primer: 40 to 80 µm (1.6 to 3.2 mils) (dry) DFT or two coats up to 160 µm (6.4 mils) DFT
Resistance	High resistance to corrosion, abrasion and impact
Resistance to cold/heat	From -80ºC to +200/250ºC
Application temperature	From -10ºC to +40ºC (different setting times)
Theoretical coverage	7.05m^2/kg at 40µm (1.6 mil) DFT
Practical coverage	6.20m^2/kg (with spray gun) at 40µm (1.6 mil) DFT
Resistance to saltwater	Exceptionally good; duplex system is recommended
Resistance to acids/bases	May be applied in an atmosphere of 5.5 to 12.5 pH
High plasticity	No cracking: permits expansion of metal medium
Weldability	A coat up to 40 µm (1.6 mil) may be welded without affecting the weld (x-ray).
Estimated life expectancy	Similar to hot galvanization (depends on DFT)
Duplex estimated life	Similar to duplex hot galvanization
Conductivity	Dry film has very good conductivity.
Salt mist	ISO 7253 (4,200 hours)

Mandrel bend test	ASTM D-522
Flexibility	CGSB, 1-GP-71, Method 119.5
Organic zinc-rich coating	CAN/CGSB-1.181-99
Resistance to hydrocarbons	Fuel, hydraulic and brake fluids, acetone and urea
Recommended Service	Atmospheric

2 PERFORMANCE EVALUATION

This report summarizes the approach and results for Rust-Anode Primer and is manufactured by Bio-Protect SA and marketed as Galvatech 2000. This coating system is a single component zinc rich primer that is also marketed as a top coat application. This coating is also marketed as a cathodic protection system for atmospheric applications when the structure surface is wet. It may be applied by brush, roller or spray application and is claimed to provide equivalent performance to hot dipped galvanization.

Performance tests consist of the following:

- Gloss Test
- Color Measurement Test
- Metallographic Cross-Section Analysis & Coating Thickness Measurements Test
- Adhesion: Pull-Off Test
- Adhesion: Tape Test
- Bend Test
- Scribe/Creep Test
- Impact Test
- Cathodic Disbondment Test

Coating Validation

All coating systems were applied and shipped to EPRI for evaluation, the Galvotech coating systems were applied to EPRI supplied coupons averaging a 3 mil profile. Measuring the dry film thickness is the only metric available to determine how closely the samples resemble manufacturers' specifications.

Metallographic Cross-Section Analysis & Coating Thickness Measurements

Test Overview

The Metallographic Cross-Section and Coating Thickness Measurements determine the thickness of the applied coating. These methods may provide validation on how the applied coating conforms to the coating specification. This measurement may also be tied to coating performance as a function of thickness (see Table 3).

Table 3
Coating Thickness Test Overview

Test Type and Attribute Tested	Thickness
Guiding Standard	ASTM E3-11 Standard Guide for Preparation of Metallographic Specimens ASTM E376-11 Standard Practice for Measuring Coating Thickness by Magnetic-Field or Eddy-Current (Electromagnetic) Testing Methods
Substrate Type	Ferrous and Non-Ferrous Metals
Coating Type	Any type of coating

Aging Protocol	Performed	In-Test	Not Used	Aging Protocol
	☒	☐	☐	Cyclic Salt Spray Test
	☒	☐	☐	UV Exposure Test
	☐	☒	☐	Hot Water Immersion
	☐	☐	☒	Accelerate Exposure by Hot, Acidic Chloride
	☐	☐	☒	Soil Corrosivity Exposure for Below Grade Coating Systems

Test Procedure

Metallographic cross-section analysis is used to characterize coating systems and the substrates to which they are applied. Various morphological features including surface profile, defects within a coating system and individual coating characteristics within the coating system are examined and evaluated. As an option, scanning electron microscopy (SEM) can also be used to identify and characterize coating defects.

Galvanized samples that exhibit a cracked zinc layer (often due to excessive blasting techniques or bending) are considered defective as corrosive ions have a direct pathway to the metal substrate and result in the formation of zinc oxide corrosion products, see Figure 2-1.

Figure 2-1
Metallographic Cross Section Micrograph

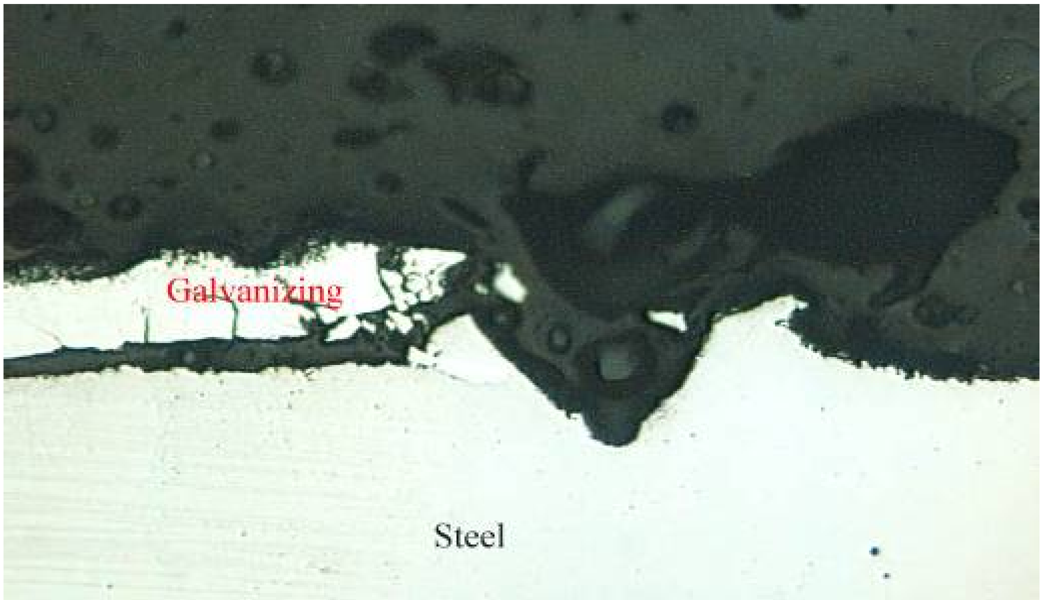


Figure 2-1
Metallographic Cross Section Micrograph

Coating systems that possess a high degree of porosity, bubbling, gas entrapment, or internal defects are also considered suspect as they can result in moisture penetration, coating permeation, and coating degradation that can result in a lack of corrosion protection to the substrate, see Figure 2-2.

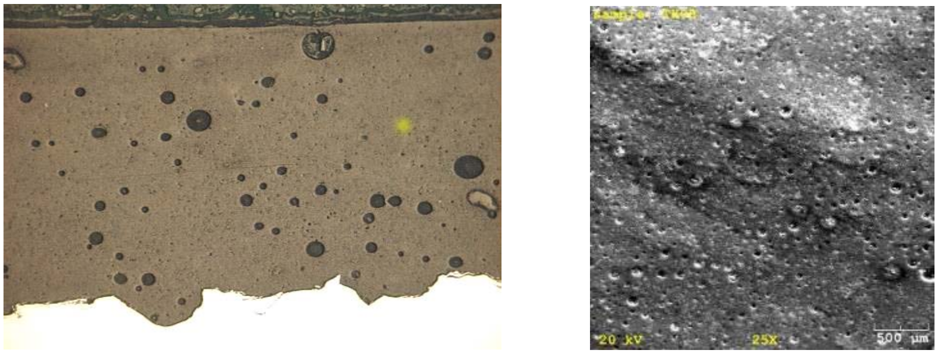


Figure 2-2.
Metallographic Cross Section and Scanning Electron Micrograph Exhibiting Porosity.

Individual coating thicknesses can also be measured to confirm specification conformance. This method involves examination and measurement of the layers with a calibrated filar eyepiece micrometer. Figure 2-3 shows that coating thicknesses can vary within a coating system.

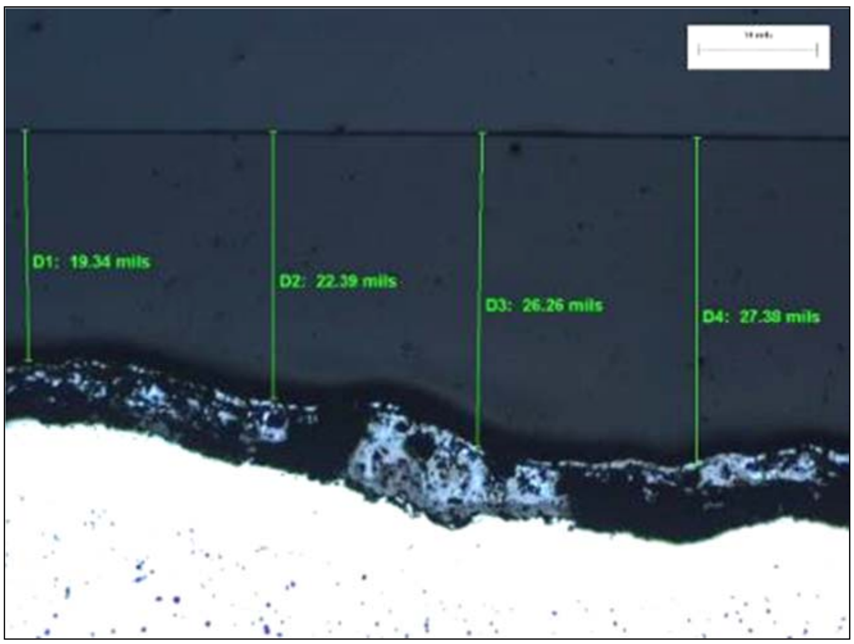


Figure 2-3.
Cross section micrograph showing coating thickness measurement.

Performance Criteria

- Galvanized Surfaces
    - Free of defects and extensive cracking
    - Exhibit continuous, uninterrupted profile of at least 2.5 mils (65 microns) thick
    - Shading and/or coloring variations are permissible
    - Coating thickness should conform to test objectives and specifications

- General Coating System
  - Free of defects, porosity, pinholes, bubbling and cracks
  - Shading and/or coloring variations are permissible
  - Coating thickness should conform to test objectives and specifications

Results

The Galvotech coating system as recommended by the manufacturer is a very thin system, with a much deeper anchor profile. This may lead to portions of the substrate to extrude above the coating (see Table 4) when a heavy profile is used.

Table 4
Results for Galvotech coating thickness

Sample Substrate	Aging Protocol	Specified Thickness (mils/µm)	Avg. Thickness (mils/µm)	Std. Thickness (mils/ µm)	Pass/Fail
Steel	Baseline	Not Provided	1.48/35.88	0.31/7.87	Pass

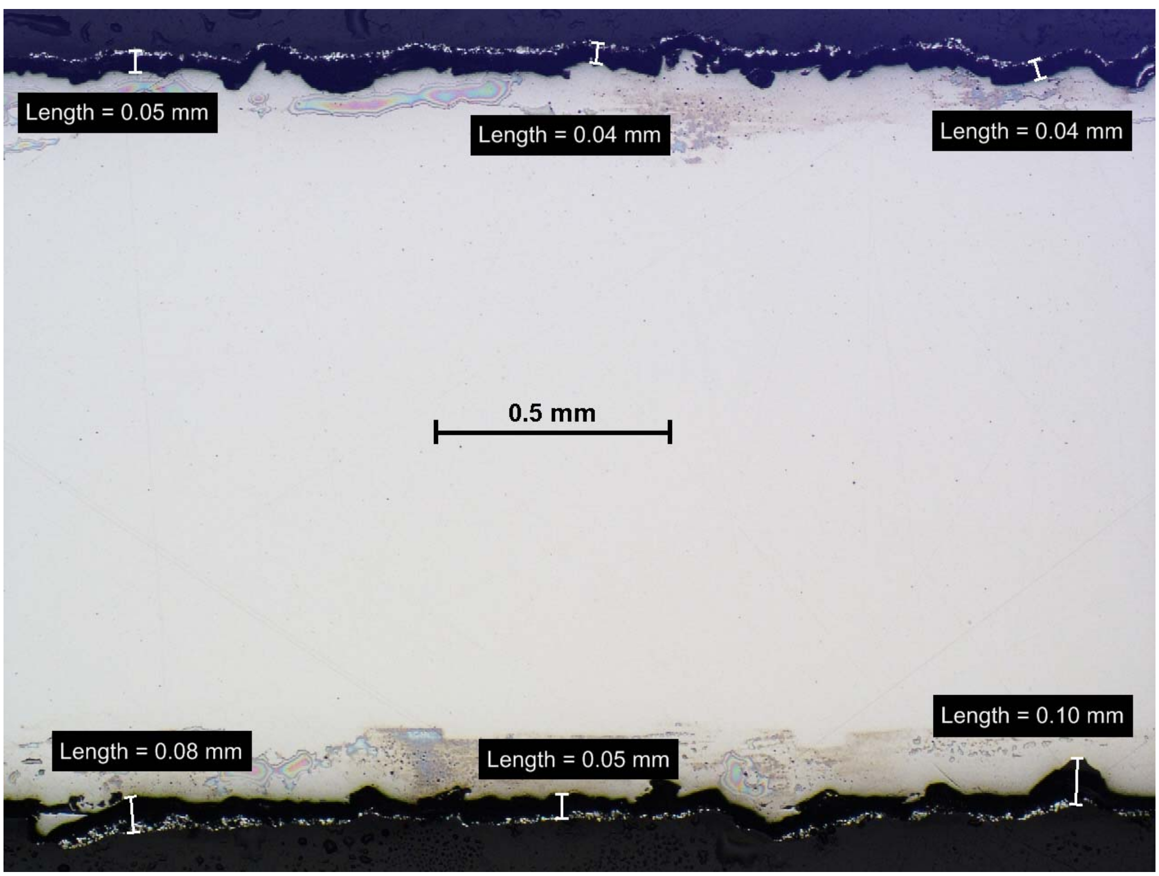


Figure 2-4
Cross section of Galvotech sample with coating thickness.

Coating Characteristics

These characteristics show how the coating can change due to the differing aging protocols.

Gloss Measurement Test

Testing Overview

The Gloss Measurement Test is used to determine how the coatings appearance changes over the course of different aging protocols. A change of appearance can indicate of how the coating will perform (see Table 5).

Table 5
Gloss Testing Overview

Test Type and Attribute Tested	Gloss – Appearance, UV Resistance			
Guiding Standard	ASTM D523-14 Standard Test Method for Specular Gloss			
Substrate Type	Any Substrate			
Coating Type	Any Coating			
Aging Protocol	Performed	In-Test	Not Used	Aging Protocol
	☒	☐	☐	Cyclic Salt Spray Test
	☒	☐	☐	UV Exposure Test
	☐	☒	☐	Hot Water Immersion
	☐	☐	☒	Accelerate Exposure by Hot, Acidic Chloride
	☐	☐	☒	Soil Corrosivity Exposure for Below Grade Coating Systems

Test Procedure

Gloss measurements are performed using a glossmeter at a 60-degree angle of measurement. Gloss is measured by shining a light at the painted surface at a specific angle and effectively measuring the intensity of light reflected. The angle of the gloss measurement is dictated by the overall gloss.

Gloss is measured before and after weathering tests since changes in the surface conditions of a coating can affect gloss (and aesthetic appearance) before other failures occur. The magnitude of measured reflectance over the entire visible light spectrum (380nm – 750nm) is averaged.

Performance Criteria

The average from the different weathering tests are compared to the baseline sample. A change less than 5% is considered a pass (see Table 6).

Table 6
Performance Criteria for Gloss Measurements

Environment	State of Coating	Performance Criteria

Below-Grade	dry and before/after exposure	> 5% change
Above-Grade, Rural	dry and before/after exposure	> 5% change

Results

Galvotech did not perform favorably in the gloss measurement test where the losses exceeded the 5% Performance criteria for both atmospheric and sub-grade service (see Table 7).

Table 7
Galvotech Gloss Test Results

Sample Substrate	Aging Protocol	Avg. Magnitude	Δ	Pass/Fail
Steel	Baseline	14.97	-	-
Steel	Cyclic Salt Spray	12.90	14%	Fail
Steel	UV Exposure	18.27	22%	Fail

Color Measurement Test

Test Overview

The Color Measurement Test is used to determine how the coatings appearance changes over the course of different aging protocols. A change of appearance can indicate how the coating how the coating will perform (see Table 8).

Table 8
Color Test Overview

Test Type and Attribute Tested	Color – Appearance, UV Resistance			
Guiding Standard	ASTM D2244-14 Standard Practice for Calculation of Color Tolerances and Color Differences from Instrumentally Measured Color Coordinates			
Substrate Type	Any Substrate			
Coating Type	Any Coating			
Aging Protocol	Performed	In-Test	Not Used	Aging Protocol
	☒	☐	☐	Cyclic Salt Spray Test
	☒	☐	☐	UV Exposure Test
	☐	☒	☐	Hot Water Immersion
	☐	☐	☒	Accelerate Exposure by Hot, Acidic Chloride
	☐	☐	☒	Soil Corrosivity Exposure for Below Grade Coating Systems

Test Procedure

Color measurements are obtained prior to and after UV exposure. This test method calculates small color differences between coated panels from instrumentally measured color coordinates based on daylight illumination. The difference in color between the before and after UV exposed coated panels are determined from measurements made by use of a spectrophotometer or a colorimeter.

In this method, color is measured along three axes. The L* axis is a black axis measured from 0 (pure black) to 100 (pure white). The a* axis is green (negative) to red (positive) and the b* axis is blue (negative) to yellow (positive). For example, a positive change in the b* axis indicates that the sample has become more yellow and less blue, while a higher L* number indicates a lighter, more white color.

Performance Criteria

The total color change or difference for a sample from baseline to post aging process, designated as ΔE, see Equation 1.

Equation 1
Definition of ΔE

$$\Delta \mathrm{E} = \sqrt{(\Delta L^{*})^{2} + (\Delta a^{*})^{2} + (\Delta b^{*})^{2}}$$

Table 9
Performance Criteria for Color Measurement

Environment	State of Coating	Performance Criteria
Below-Grade	dry and before/after exposure	$\Delta E < 5$
Above-Grade, Rural	dry and before/after exposure	$\Delta E < 5$

Results

Table 10
Results for Galvotech Color Measurement

Sample Substrate	Aging Protocol	L*	a*	b*	ΔE	Pass/Fail
Steel	Baseline	47.00	-3.30	-0.40	-	n/a
Steel	Cyclic Salt Spray	41.80	-2.70	-4.20	6.47	Fail
Steel	UV Exposure	49.60	-1.70	-2.40	3.65	Pass

Mechanical Testing

These tests are designed to benchmark the mechanical efficiency of the coating after different aging protocols have been performed.

Adhesion: Pull-Off Test

Test Overview

The Adhesion: Pull-Off test measures the adhesive and cohesive properties of the coating system. This indicates how tightly adhered the coating is to the substrate, itself (cohesive) and between layers of coating (see Table 11).

Table 11
Adhesion: Pull-Off Test Overview

Test Type and Attribute Tested	Adhesion – Electron Endosmosis, Adherence
Guiding Standard	ASTM D4541 – 09e1 Standard Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers
Substrate Type	Any Substrate
Coating Type	Any Coating

Aging Protocol

Performed	In-Test	Not Used	Aging Protocol
☒	☐	☐	Cyclic Salt Spray Test
☒	☐	☐	UV Exposure Test
☐	☒	☐	Hot Water Immersion
☐	☐	☒	Accelerate Exposure by Hot, Acidic Chloride
☐	☐	☒	Soil Corrosivity Exposure for Below Grade Coating Systems

Test Procedure

With direct tensile testing, a hydraulic pump device is used to lift a dolly or plug glued to the coating surface. The applied force that is required to remove the coating is measured at the point of disbondment. Failure, or disbondment, will occur at the weakest point within the system (glue, substrate/coating interface, or coating layers). The force required for disbondment is measured in pounds per square inch or kilopascals. This test method maximizes tensile stress of a coating system rather than the shear stress, which is measured by other forms of adhesion testing.

The location where disbondment occurs is an important aspect of adhesion testing that should be considered in coating system performance. If disbondment occurs at the substrate/coating interface or between coating layers, it is referred to as an *adhesion* failure. If disbondment occurs within a coating layer itself, it is referred to as a *cohesion* failure.

Performance Criteria

In terms of corrosion protection to the substrate, it is preferable that a coating system disbond within the coating system itself or at the glue site rather than at the substrate/coating interface and at high pressure values (see Table 12). Figure 2-5, shows differences of where the failure occurred. Where the greater percentage of failure occurred in each test is considered to be the failure mode for that specific test (i.e. 90% adhesive failure 10% cohesive, the sample is classified as an adhesive failure).

Table 12
Performance Criteria for Adhesion Test

Environment	State of Coating	Performance Criteria	
Below-Grade	dry and before/after exposure	6.90 MPa (1000 PSI) and above; Adhesive/Cohesive Failure	Glue Failure Inconclusive

Above-Grade	dry and before/after exposure	5.52 MPA (800 PSI) and above; Adhesive/Cohesive Failure	Glue Failure Inconclusive

Figure 2-5
Examples of adhesive failure in different parts of the coating system.

Results

These tests are inconclusive because the majority of them failed at the glue/dolly interface (see Table 13)

Table 13
Results for Galvotech Adhesion: Pull-Off Test

Test ID	Sample Substrate	Aging Protocol	Adhesive	Pressure (PSI/kPa)	Adhesion (A/B) (%)	Cohesion (B) (%)	Glue (B/Y) (%)	Pass/Fail
4	Steel	Baseline	3M CA100	121/834.3	-	100	-	Fail
9	Steel	Cyclic Salt Spray	LOCTITE HD 2PT EPOXY	282/1944	-	-	100	Pass
9	Steel	Cyclic Salt Spray	LOCTITE HD 2PT EPOXY	232/1600	-	5	95	Pass
9	Steel	Cyclic Salt Spray	3M SCOTCH-WELD CA100	192/1324	-	50	50	Fail
13	Steel	UV Exposure	LOCTITE HD 2PT EPOXY	136/937.7	-	-	100	Pass
13	Steel	UV Exposure	LOCTITE HD 2PT EPOXY	129/889.4	-	-	100	Pass
13	Steel	UV Exposure	3M SCOTCH-WELD CA100	150/1034	-	95	5	Fail

A: Substrate, B: Adhesive, Y: Dolly

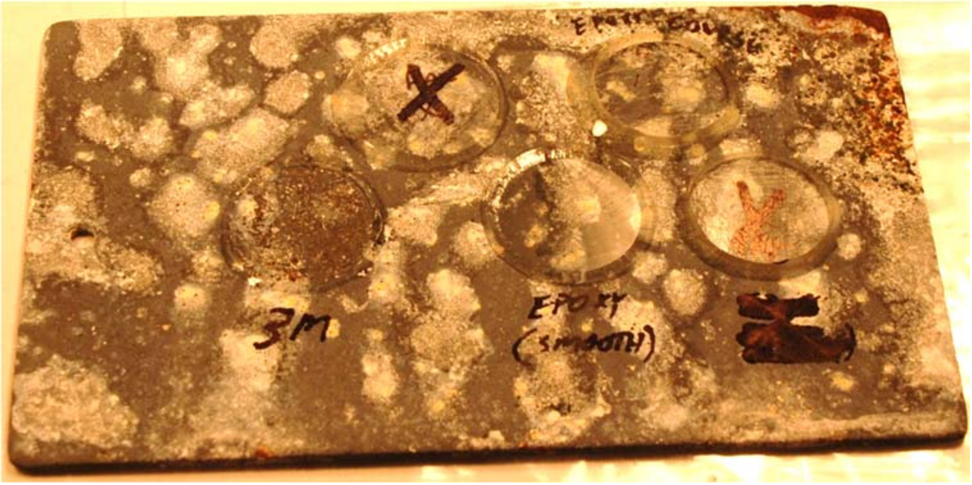


Figure 2-6
Galvotech Adhesion: Pull-Off on Cyclic Salt Spray sample

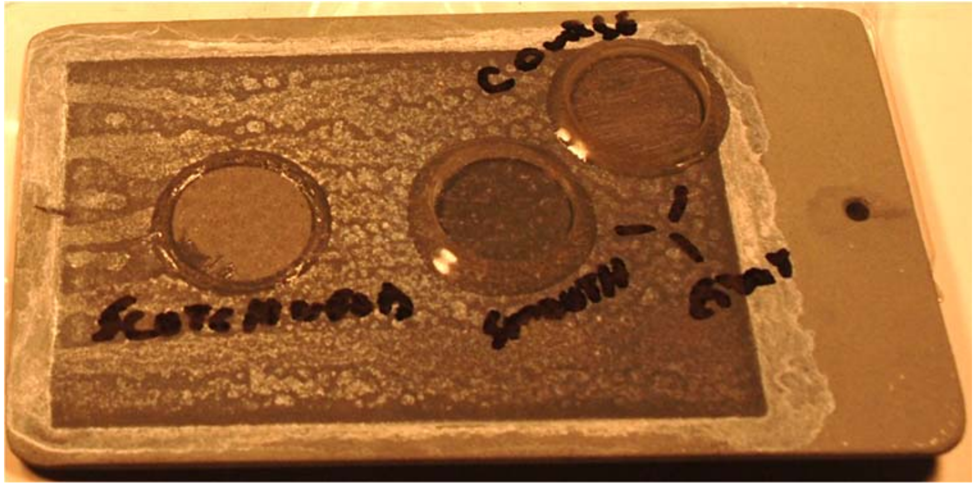


Figure 2-7
Galvotech Adhesion: Pull-Off on UV Exposure sample

Adhesion: Tape Test

Test Overview

The Adhesion: Tape test specifically looks at the coatings adhesive properties of the coating to the substrate (see Table 14).

Table 14
Adhesion: Tape Test Overview

Test Type and Attribute Tested	Adhesion – Electron Endosmosis, Adherence			
Guiding Standard	ASTM D3359-09e2 Standard Test Methods for Measuring Adhesion by Tape Test			
Substrate Type	Any Substrate			
Coating Type	Any Coating			
Aging Protocol	Performed	In-Test	Not Used	Aging Protocol
	☒	☐	☐	Cyclic Salt Spray Test
	☒	☐	☐	UV Exposure Test
	☐	☒	☐	Hot Water Immersion
	☐	☐	☒	Accelerate Exposure by Hot, Acidic Chloride
	☐	☐	☒	Soil Corrosivity Exposure for Below Grade Coating Systems

Test Procedure

Tape adhesion per ASTM D3359 method B is used in laboratory settings generally on coatings thinner than 5 mils (125µm). In this test, a crosshatch cutter with multiple preset blades is used to cut a cross-hatch pattern in the coating film to the substrate. A pressure-sensitive tape is applied over the cut pattern and removed. Adhesion is evaluated by the amount of coating removed. Figure 2-8 shows the cut made by the crosshatch cutter (left image) and the coating after the pressure tape has been removed (right image).

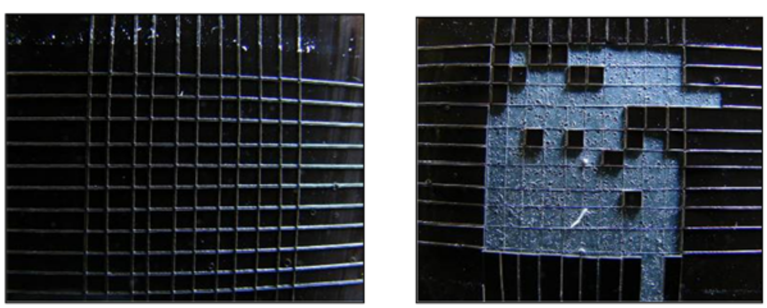


Figure 2-8
Adhesion Test Using Cross Hatch Cutting.

Performance Criteria

As the tape is lifted off from the coating surface, a certain amount of coating may be removed for the substrate. The amount removed is then quantified by amount of coating area removed.

- 5B → 0%, None
- 4B → Less than 5%
- 3B → 5 – 15%
- 2B → 15 – 35%
- 1B → 35 – 65%
- 0B → Greater than 65%

Table 15
Performance Criteria for Test

Environment	State of Coating	Performance Criteria
Below Grade	Dry and before/after exposure	5B Rating (0% coating removal)
Above-Grade	Dry and before/after exposure	4B Rating (5% or less coating removal)

Results

Both coating systems received a "5B" rating for all tests conducted meaning that they meet EPRI's established performance criteria (see Table 16).

Table 16
Results for Galvotech Adhesion: Tape Test

Test ID	Sample Substrate	Aging Protocol	Rating	Pass/Fail
5	Steel	Baseline	5B	Pass
10	Steel	Cyclic Salt Spray	5B	Pass
14	Steel	UV Exposure	5B	Pass

Figure 2-9
Galvotech Adhesion: Tape Test on Baseline sample

Figure 2-10
Galvotech Adhesion: Tape Test on Cyclic Salt Spray sample

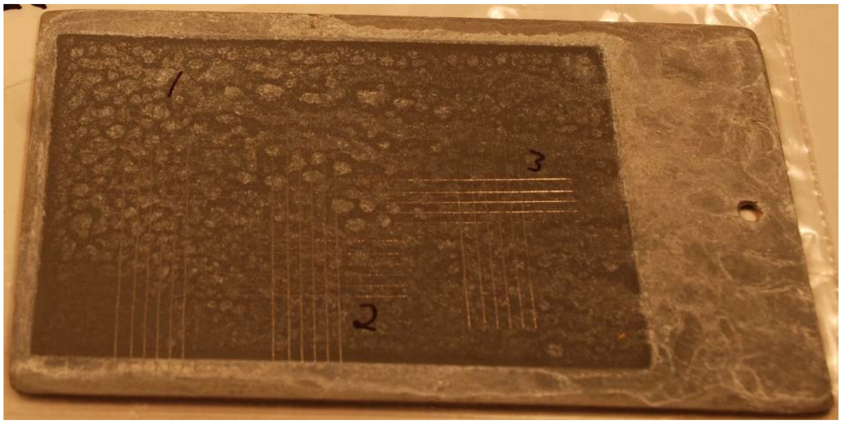


Figure 2-11
Galvotech Adhesion: Tape Test on UV Exposure sample

Bend Test

Test Overview

The bend test measures the effectiveness of the coating during deformation of the substrate (see Table 17).

Table 17
Bend Test Overview

Test Type and Attribute Tested	Bend – Resistance to Soil Stress			
Guiding Standard	ASTM D522/D522M-13 Standard Test Methods for Mandrel Bend Test of Attached Organic Coatings			
Substrate Type	Any malleable, thin substrate			
Coating Type	Any Coating			
Aging Protocol	Performed	In-Test	Not Used	Aging Protocol
	☒	☐	☐	Cyclic Salt Spray Test
	☒	☐	☐	UV Exposure Test
	☐	☒	☐	Hot Water Immersion
	☐	☐	☒	Accelerate Exposure by Hot, Acidic Chloride
	☐	☐	☒	Soil Corrosivity Exposure for Below Grade Coating Systems

Test Procedure

The Bend Test is performed to determine a coating system's ability to resist cracking (flexibility), as shown in Figure 2-12. In this test, coated panels are subjected to a bend test with the coating at the outside of the bend. Bend testing is performed on a pristine sample to establish performance parameters prior to accelerated weathering exposure.

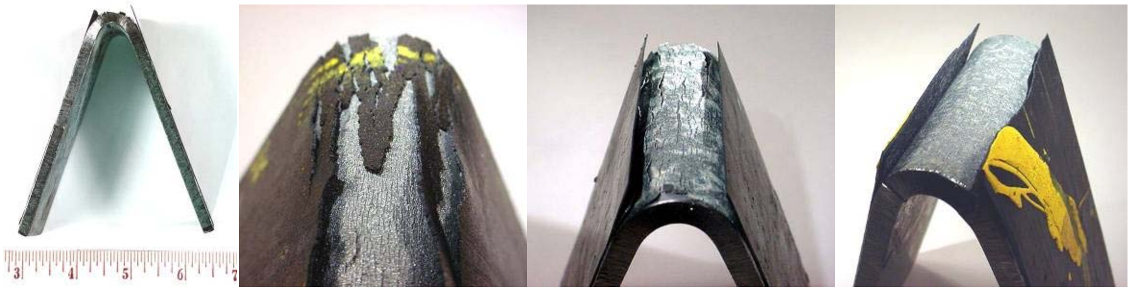


Figure 2-12
Test Panels Subjected to Bending Testing.

Performance Criteria

- Coating subjected to a Pass/Fail criteria
- Cracked coating is considered a fail criteria
- Failed sample does not preclude the coating from additional testing

Results

The Galvotech passed the bend test because upon visual inspection no cracking or flaking was observed (see Table 18).

Table 18
Results from Testing

Test ID	Sample Substrate	Aging Protocol	Pass/Fail
7	Steel	Baseline	Pass; No cracking/flaking
12	Steel	Cyclic Salt Spray	Pass; No cracking/flaking
16	Steel	UV Exposure	Pass; No cracking/flaking

Figure 2-13
Galvotech Bend test on Baseline sample

Figure 2-14
Galvotech Bend test on Cyclic Salt Spray sample

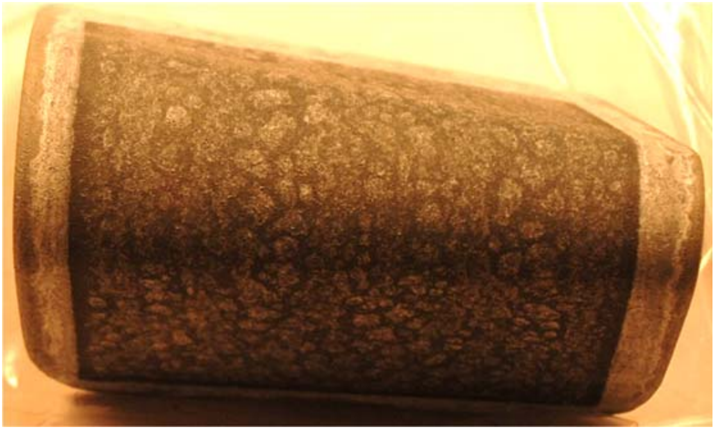


Figure 2-15
Galvotech Bend test on UV Exposure Sample

Scribe/Creep Test

Test Overview

The Scribe/Creep test quantifies filiform corrosion during different aging protocols and can lead to bulk coating failures (see Table 19).

Table 19
Scribe/Creep Test Overview

Test Type and Attribute Tested	Scribe – Undercutting, Filiform Corrosion

Guiding Standard	ASTM D1654-08 Standard Test Method for Evaluation of Painted or Coated Specimens Subjected to Corrosive Environments
Substrate Type	Any Substrate
Coating Type	Any Coating

Aging Protocol

Performed	In-Test	Not Used	Aging Protocol
☒	☐	☐	Cyclic Salt Spray Test
☒	☐	☐	UV Exposure Test
☐	☒	☐	Hot Water Immersion
☐	☐	☒	Accelerate Exposure by Hot, Acidic Chloride
☐	☐	☒	Soil Corrosivity Exposure for Below Grade Coating Systems

Test Procedure

The scribe test is performed to evaluate and compare the basic corrosion performance of a coating system subjected to corrosive environments. In this test method, coated panels are scribed with an “x” prior to cyclic salt fog exposure and hot water immersion testing. After exposure, the amount of paint removed is evaluated by measuring the distance from the scribe line. This distance is called “scribe creep.” Three quantities are recorded: the minimum distance from the scribe to intact paint, the maximum distance, and a qualitative mean, as shown in Figure 2-16.

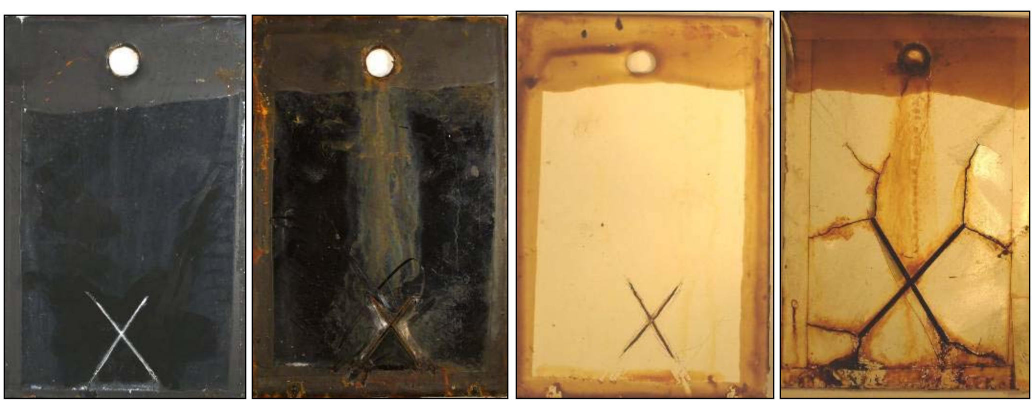


Figure 2-16
Scribed Panels Showing Degradation.

Performance Criteria

Table 20
Performance Criteria for Discontinuities

Environment	State of Coating	Performance Criteria
Above-Grade	dry and before/after exposure	< 1 mm
Below-Grade	dry and before/after exposure	< 1 mm

Results

The Galvotech samples did not experience creep after performing the scribe test (see Table 21).

Table 21
Results for Galvotech Scribe/Creep Test

Test ID	Sample Substrate	Aging Protocol	Disbonded Distance (in/mm)	Pass/Fail
9	Steel	Cyclic Salt Spray	0/0	Pass
10	Steel	Cyclic Salt Spray	0/0	Pass
11	Steel	Cyclic Salt Spray	0/0	Pass
12	Steel	Cyclic Salt Spray	0/0	Pass

Impact Test

Test Overview

The impact test shows the durability of the coating during a rapid deformation of the substrate (see Table 22).

Table 22
Impact Test Overview

Test Type and Attribute Tested	Impact – Resistance to Soil Stress			
Guiding Standard	ASTM D2794-93(2010) Standard Test Method for Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact)			
Substrate Type	Sheet Metal Substrate			
Coating Type	Any Coating			
Aging Protocol	Performed	In-Test	Not Used	Aging Protocol
	☒	☐	☐	Cyclic Salt Spray Test
	☒	☐	☐	UV Exposure Test
	☐	☒	☐	Hot Water Immersion
	☐	☐	☒	Accelerate Exposure by Hot, Acidic Chloride
	☐	☐	☒	Soil Corrosivity Exposure for Below Grade Coating Systems

Test Procedure

This test method rapidly deforms a sample by impacting a coated substrate and then quantifies the effect of the impact, as shown in Figure 2-17. A standard weight is dropped so as to make an indentation that deforms the coating and the substrate. The distance the weight is dropped is gradually increased until the point at which failure occurs is determined and measured. Failure is considered a coating that has cracked or in some way exposed the substrate. This test method has been found to be useful in predicting the ability of coatings to resist cracking caused by impacts (i.e. agricultural activities, motor vehicle impact and storm damage)

Figure 2-17
Test Panels Subjected to Impact Testing.

Performance Criteria

This test does not have a specific pass/fail criteria. It is to be used as a discriminator when selecting coating systems. The higher the impact force the more resistive the coating is to rapid deformation.

Results

Table 23
Results for Galvotech Impact Testing

Test ID	Sample Substrate	Aging Protocol	Diameter of Punch (in/m)	Drop Weight (lb/kg)	Drop Height (in/m)	Impact force (in-lbs/kg-m)	Front Panel	Back Panel
6	Steel	Baseline	0.625/0.016	2/0.91	24/60.96	48/55.47	Fail; 100% coating loss	Fail; some loss
6	Steel	Baseline	0.625/0.016	2/0.91	48/121.9	96/110.93	Fail; 100% coating loss	Fail; some loss
11	Steel	Cyclic Salt Spray	0.625/0.016	2/0.91	24/60.96	48/55.47	Fail; 80% coating loss	Pass; no loss
11	Steel	Cyclic Salt Spray	0.625/0.016	2/0.91	48/121.9	96/110.93	Fail; 80% coating loss	Pass; no loss
15	Steel	UV Exposure	0.625/0.016	2/0.91	24/60.96	48/55.47	Fail; 100% coating loss	Fail; 75% cracking
15	Steel	UV Exposure	0.625/0.016	2/0.91	48/121.9	96/110.93	Fail; 100% coating loss	Fail; 75% cracking

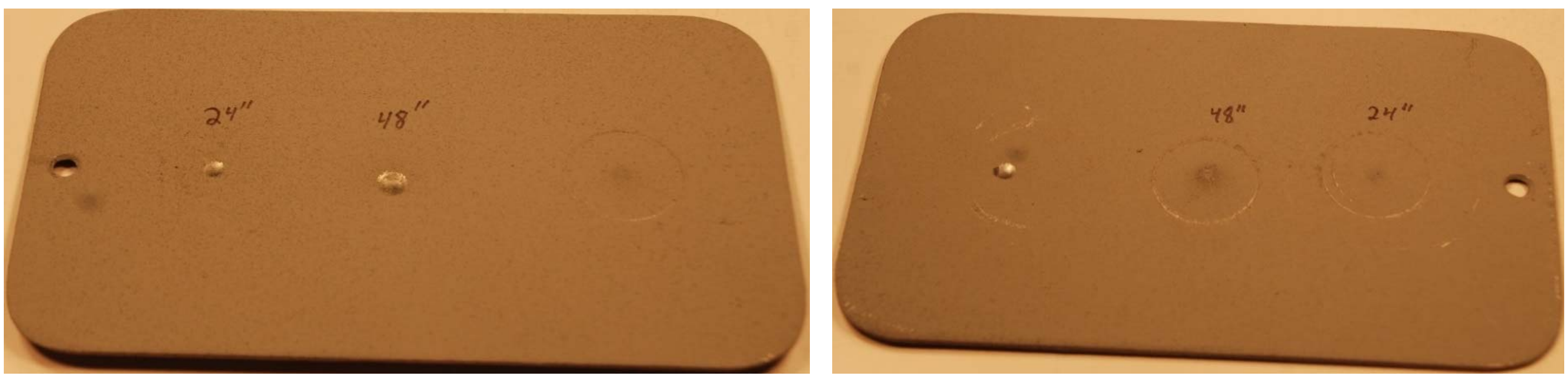


Figure 2-18

Galvotech Impact test on Baseline sample (front and back)

Figure 2-19
Galvotech Impact test on Cyclic Salt Spray sample (front and back)

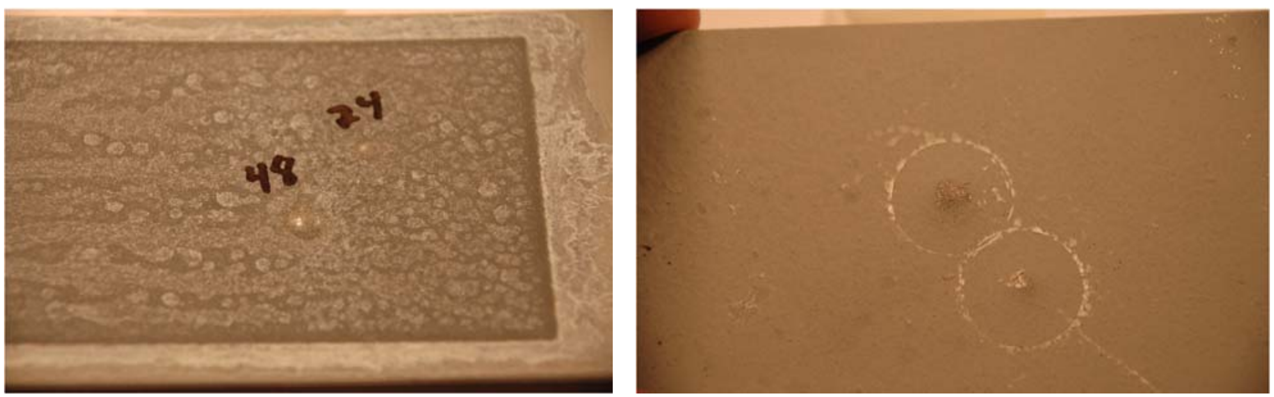


Figure 2-20
Galvotech Impact test on UV Exposure sample (front and back)

Table 24

Electrical Testing

Cathodic Disbondment Test

Test Overview

The Cathodic Disbondment Test measures how tolerant the coating may be to withstand electrical stresses that compromise the polar bond between the substrate and the coating system. Coating disbondment due to cathodic protection, whether impressed current or sacrificial anode, is often the result of this test (see Table 25).

Table 25
Cathodic Disbondment Test Overview

Test Type and Attribute Tested	Disbondment – Electrical Stresses, Cathodic Disbondment			
Guiding Standard	ASTM G8 – 96(2010) Standard Test Methods for Cathodic Disbonding of Pipeline Coatings			
Substrate Type	Electrically Conductive Substrates			
Coating Type	Electrically Non-conductive Coatings			
Aging Protocol	Performed	In-Test	Not Used	Aging Protocol
	☒	☐	☐	Cyclic Salt Spray Test
	☒	☐	☐	UV Exposure Test
	☐	☒	☐	Hot Water Immersion
	☐	☐	☒	Accelerate Exposure by Hot, Acidic Chloride
	☐	☐	☒	Soil Corrosivity Exposure for Below Grade Coating Systems

Test Procedure

This test determines how susceptible the coating is to disbondment around existing holidays while under cathodic protection. A holiday is formed by drilling a hole through the coating using a 1/8" (3.175 mm) drill bit. Then a container is sealed around the holiday and filled with a 3.5% NaCl solution. A saturated calomel electrode (SCE) and a graphite rod are placed in the solution. A voltage is applied between the sample and the graphite rod until there is voltage reading of 1.5 V between the SCE and the sample, see Figure 2-21.

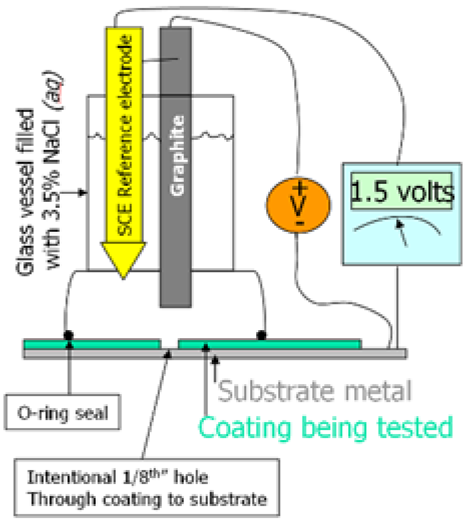


Figure 2-21
Test setup for cathodic disbondment test

After a period of exposure (typically 24-48 hours), the coating is scribed and then pried up to the extent possible. A new reference holiday in the coating is drilled in an area that was not immersed in order to determine the actual cathodic disbonded area. Radial cuts with a sharp, thin-bladed knife are made through the coating that intersect at the center of both the initial holiday and the reference holiday. The coating at both the reference holiday and intentional holiday are then "lifted" with the knifepoint. An equivalent circle diameter can be calculated by subtracting the initial holiday area from the total area of disbondment.

Performance Criteria

Figure 2-22
Test Panels Subjected to Cathodic Disbondment (Passing Criteria)

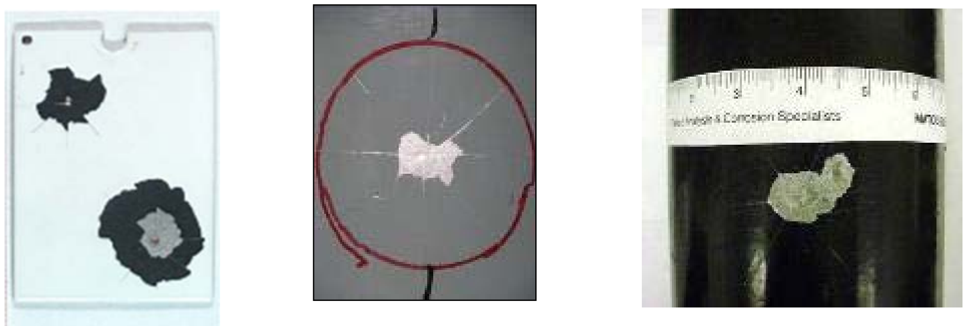


Figure 2-23.
Test Panels Subjected to Cathodic Disbondment (Reject Criteria)

Table 26
Performance Criteria for Discontinuities

Environment	State of Coating	Performance Criteria
Below-Grade	(dry and before/after exposure)	Shall not exceed 0.5-inch (1.27 cm) disbondment

Results

Table 27
Results for Galvotech Testing

Test ID	Sample Substrate	Aging Protocol	Amount of Disbondment
2	Steel	Baseline	None; Hydrogen generation immediately

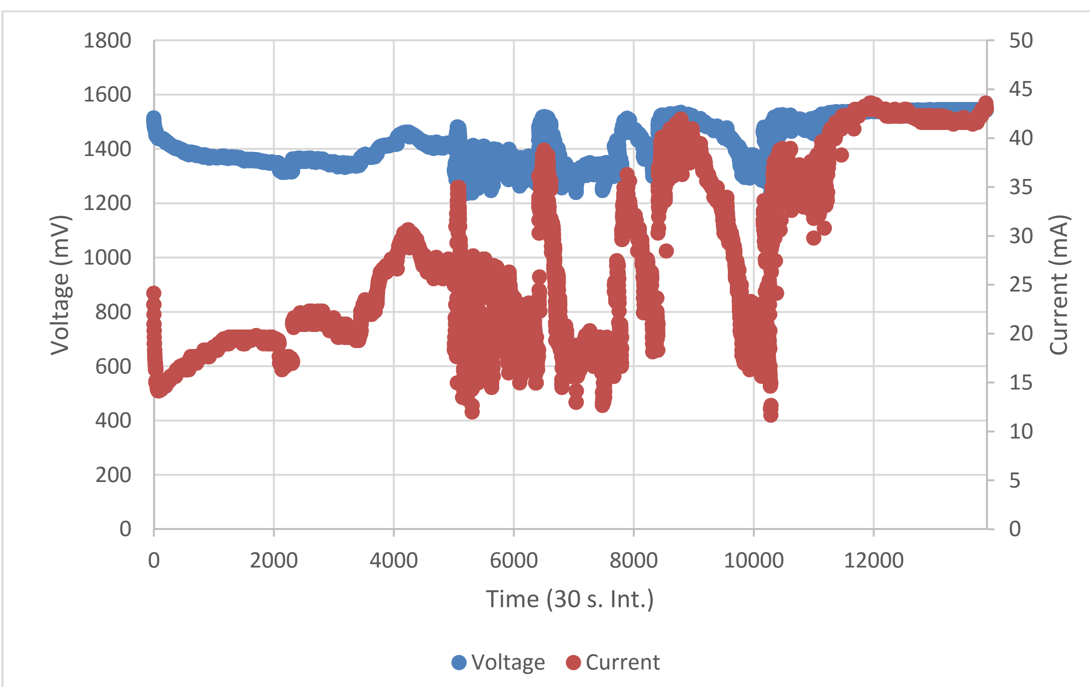


Figure 2-24
Current and Voltage readings during Cathodic Disbondment test

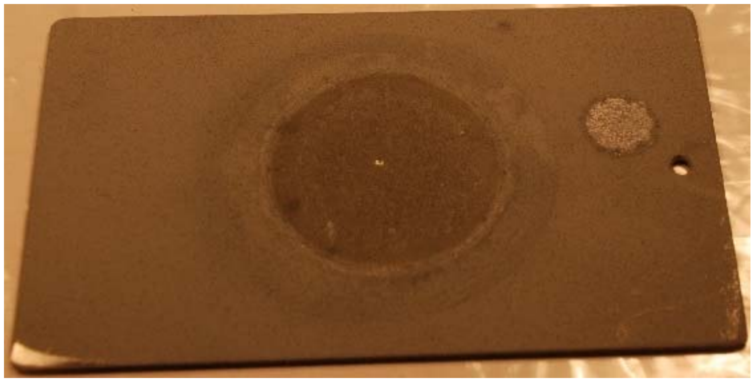


Figure 2-25
Galvotech Cathodic Disbondment test on Baseline sample

Aging Performance Summary

Table 28
Galvotech Summary Table

Aging Protocol	Thickness	Gloss	Color	Pull-Off	Tape	Bend	Scribe/Creep	Impact	Cathodic Disbondment
Baseline	Pass	n/a	n/a	Pass	Pass	Pass	n/a	Fail	n/a
Cyclic Salt Spray	n/a	Fail	Fail	Pass	Pass	Pass	Pass	Fail	n/a
Immersion Testing	n/a	In Test	In Test	In Test	In Test	In Test	In Test	Fail	n/a
UV Exposure	n/a	Fail	Pass	Pass	Pass	Pass	n/a	Fail	n/a

3 SERVICE LIFE DETERMINATION

Galvatech 2000 Rust-Anode Primer (also called Galvatech for short) is a high-load zinc paint used to repaint galvanized structure that have aged and need maintenance. While Galvatech contains 88% zinc and 12% filler, it is unknown how Galvatech performs when compared to hot dipped galvanizing (HDG). The goal of this study is to evaluate the coating performance of Galvatech coating against the performance of HDG. The performance will be measured by artificially accelerating the aging of coated coupons and monitoring their degradation rates. The coupons will also be visually inspected for steel rust appearance.

Aging procedure

Galvatech coated coupons and HDG coupons were aged using a combination of two standardized protocols: ASTM G154 (Q-UV exposure) and CCT-IV (Q-Fog - cyclical salt spray exposure). A combination of the two aging protocols were chosen as 100 hours exposure in the Q-UV and 400 hours exposure in the Q-FOG. The CCT-4 cyclic corrosion protocol (Table 29) was selected due to a good correlation with atmospheric corrosion initiation mechanisms and very high corrosion rates may be achieved.

Table 29: CCT-4 cyclic corrosion protocol

Step	Salt fog application (5% NaCl)	Dry Off at 60C	Humidity at 60C, 95% RH
1	10 minutes		
2		155 minutes	
3			75 minutes
4		160 minutes	
5			80 minutes
6		160 minutes	
7			80 minutes
8		160 minutes	
9			80 minutes
10		160 minutes	
11			80 minutes
12		160 minutes	
13			80 minutes

Coatings evaluation procedure

Four coupons (3” by 5”) for each coating were used in the experimentation. The performance of both coatings was judged by measuring the coating thickness at regular interval as well as taking pictures of the coupons to evaluate the apparition of rust bloom which is a consequence of the thinning of galvanizing. Thickness measurements and pictures were taken following the schedule showed in Table 30.

Table 30: Measurements Schedule

Experimental Time	Aging chamber	hours	Sample 1	Sample 2	Sample 3	Sample 4
T0		0	T,Pic	T,Pic	T,Pic	T,Pic
T1	UV	100				
	Salt	400	T,Pic			
T2	UV	100				
	Salt	400		T,Pic		
T3	UV	100				
	Salt	400			T,Pic	
T4	UV	100				
	Salt	400				T,Pic

At time T0, the initial thickness were measured for each samples of each coating. Pictures of the unaged coupons were also taken. After each cycle (100 hours of Q-UV, and 400 hours of Q-FOG), one of the coupons for each coating was taken out of the aging process to be evaluated for coating thickness and rust bloom appearance. Because of the cleaning process required to have an accurate coating measurement, the coupons were not placed back into the aging chamber. As a result, a different coupon was used at each interval.

Coating thickness measurement

The coating thickness was measured using an Elcometer. Prior to making the measurement, the Elcometer was calibrated using the 1.99 mils standard provided. The surface of the coupons was cleaned before proceeding with the Elcometer to reduce any false measurement. The cleaning procedure follows the NACE Corrosion Engineer's Reference Book, chemical cleaning procedures for removal of corrosion products. For each coupons, two areas were selected to make thickness measurements: area A and area B. Five measurements in each area were made and averaged to provide an overall coating thickness. Area A and B for each coupons are shown in the following pictures (Figure 26 & Figure 27):

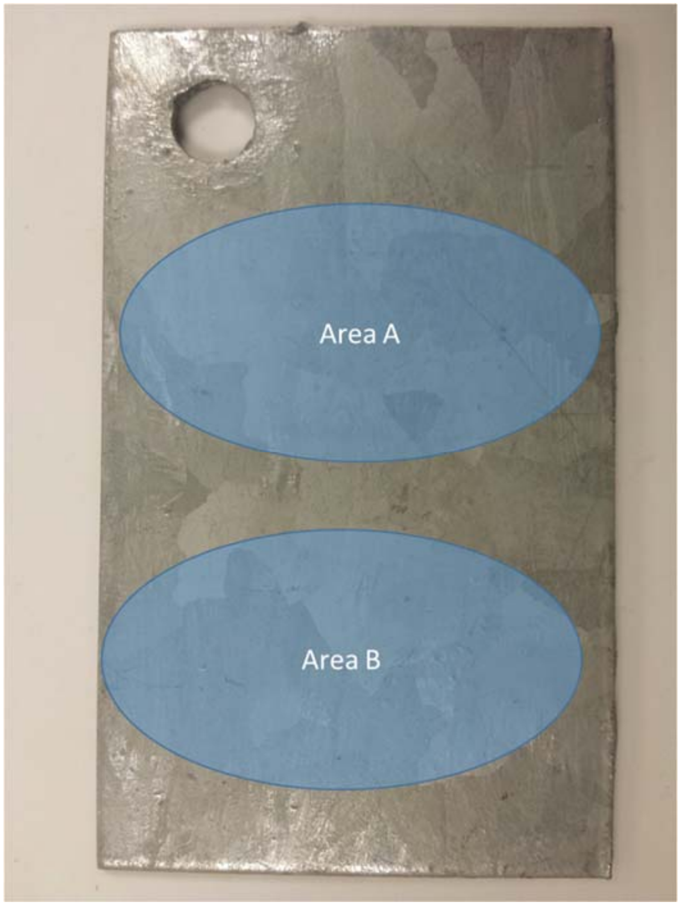
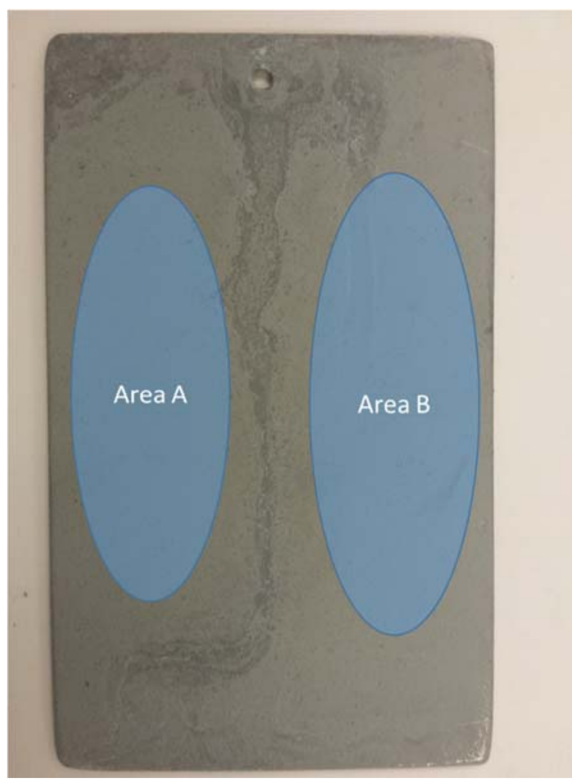


Figure 26: Coating thickness measurements areas for all galvanized coupons.

Measurements areas for Galvatech #1

Measurements areas for Galvatech #2

Measurements areas for Galvatech #3



Measurements areas for Galvatech #4

Figure 27: Coating thickness measurements areas for all galvanized coupons.

Rust bloom

Rust blooms are evaluated visually by taking high definition pictures. Rust bloom apparition is due to the thinning of galvanizing coating. Galvanizing steel has several layers of Zinc/Iron alloys (Figure 28). As the coating thickness decreases, alloy layers with various degrees of iron contents become exposed. The exposed iron in this layer oxidizes into iron oxide creating the typical color of the rust bloom, orange. Even though rust is showing on the sample, the base metal is still intact.

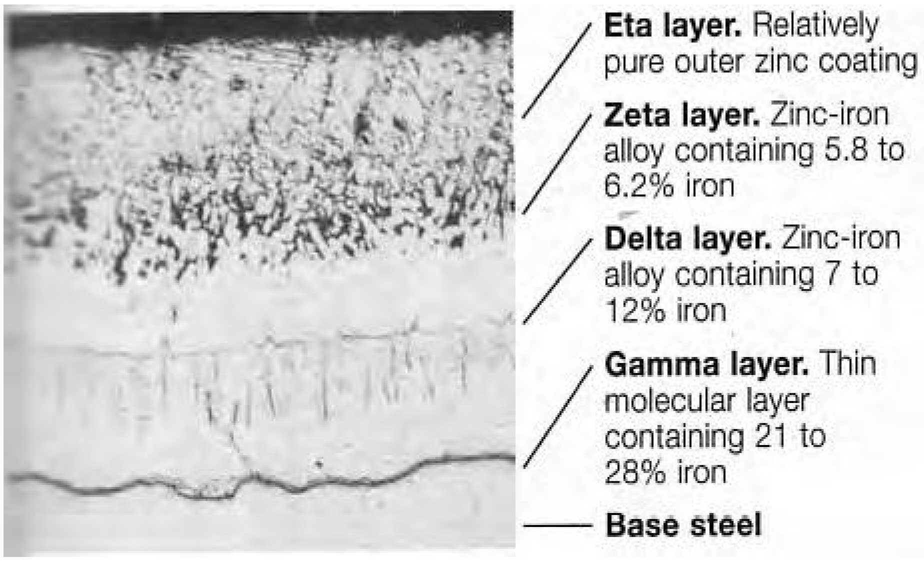


Figure 28: Zinc/Iron layers of galvanized steel

This rust bloom effect is due to the zinc/iron layers created during the hot galvanizing dipping process. Galvatech is an epoxy resin with zinc in suspension and as a result, rust blooms do not appear on coupons coated with Galvatech. Any rust showing on Galvatech coupons will be due to base metal corrosion where the coating pores have opened due to the zinc consumption.

Results

Coating Initial thickness

The initial coating thickness of each coupon was measured prior to aging them. The initial average thicknesses (average of area A and B) and the overall average for Galvatech coating and galvanizing coating are shown in Table 31. The initial thickness measurements revealed that the thickness of the Galvatech coating is less than half the thickness of the galvanizing coating. It is important to note that the Galvatech coating was applied by the manufacturer.

Table 31: Coatings Thicknesses

	Zinc #1	Zinc #2	Zinc #3	Zinc #4	Galva #1	Galva #2	Galva #3	Galva #4
Thickness (mils)	3.18	3.13	3.07	3.34	1.40	1.36	1.30	1.55
Average		3.18				1.40		

Coating consumption rate

The amount of coating thickness mils loss per hours spend in the Q-FOG is graphed in Figure 29. The graph shows that both the galvanizing coating and the Galvatech coating have a similar consumption rate with our aging protocol. It took about 1200 hours of aging to consume about 1.3 mils of galvanizing and Galvatech.

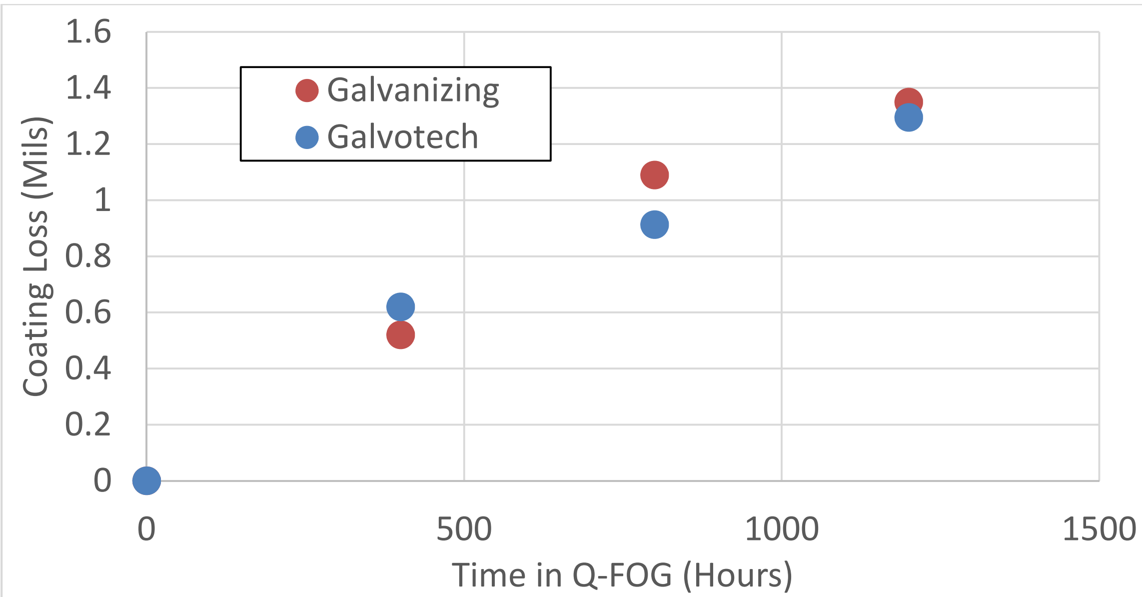


Figure 29: Coatings Degradation Rate

Because the initial thickness of the Galvatech was only 1.3 mils, the coupons were completely corroded by the 3rd sampling interval. This can be seen in Figure 30, where HDG coupons and Galvatech coupons at the same aging time are shown side by side. Rust blooms appear on galvanized steel after 800 hours of Q-FOG (T2) but do not significantly change at 1200 hours (T3). However, the Galvatech coupons suddenly "rust" between 800 and 1200 hours of Q-FOG exposure. This mean that the Galvatech has been completely consumed and there was no "warning signs" of corrosion like rust blooms experienced with HDG.

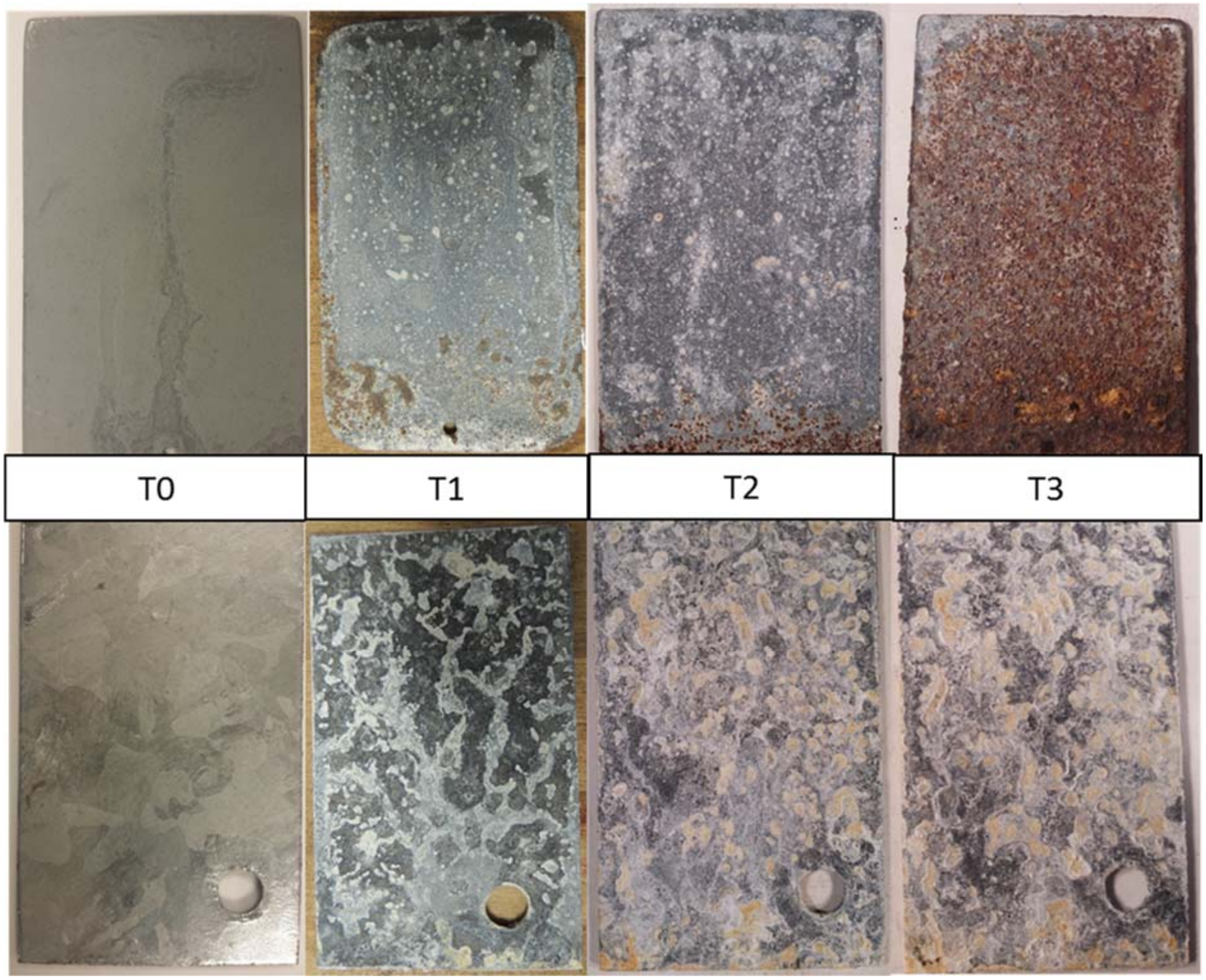


Figure 30: Top: Galvatech coupon #4 as it is aged. Bottom: galvanized coupon #4 as it is aged

Conclusion

This evaluation of Galvatech coating performance illustrates that the consumption rate is similar to HDG and may be correlated to corrosivity levels of specific locations through findings in ISOCORRAG. For utilities that want to repaint their older galvanized steel structures it is important to note that the thickness of the Galvatech coating should as thick as the original galvanized thickness if not thicker.

Corrosion Rate Ranges	Carbon Steel		Galvanize (zinc)	
	Min (mils/yr)	Max (mils/yr)	Min (mils/yr)	Max (mils/yr)
C1	0	0.012	0	0.002
C2	0.012	0.193	0.002	0.016
C3	0.193	0.394	0.016	0.043
C4	0.394	0.63	0.043	0.087
C5	0.63	1.535	0.087	0.173
CX	1.535	5.433	0.173	0.512

Figure 31 ISO Classification System for Atmospheric Corrosivity [1]

[1] ISBN 978-0-8031-7011-7 ISOCORRAG International Atmospheric Exposure Program : summary of results / Sheldon W. Dean, Dagmar Knotkova,

Katerina Kreislova.

4 FIELD TESTING

Tier 2 is typically a full scale laboratory test on a component or a section of a structure. This is primarily a function of geometry and how the initiation mechanisms are affected by construction standards. Tier 3 is typically a field demonstration of these coating systems and is an operational study on the application procedures, quality control processes and finished product.

For this evaluation Tier 2 and Tier 3 were combined through the application of the coating system on two lattice structures using three different application methods. The testing consisted of the application on vertical surfaces and the methods were a roller, a brush and the traditional tower painting mitt or glove. The applicator replicated an actual tower painting procedure by applying the coating system directly over aged galvanizing on one tower and surfaces with heavy scale or rust on the other. The applicator did not complete any surface preparation such as cleaning, degreasing or profiling of the surfaces.

The evaluation included a modified tape adhesion test per ASTM D3359 and a pull off adhesion test per ASTM D4541. The tape adhesion test was completed on both structures with scribe marks in an “X” formation down to the substrate. The tape was adhered to the surface and removed without any noticeable loss of coating adhesion along the scribe marks.

The dollies were adhered to the surface of the structure and taped in place while the glue dried. The glue was a cyanoacrylate formulation that is in a gel form for better adhesion to rough surfaces without excessive runs (see Figure 32).

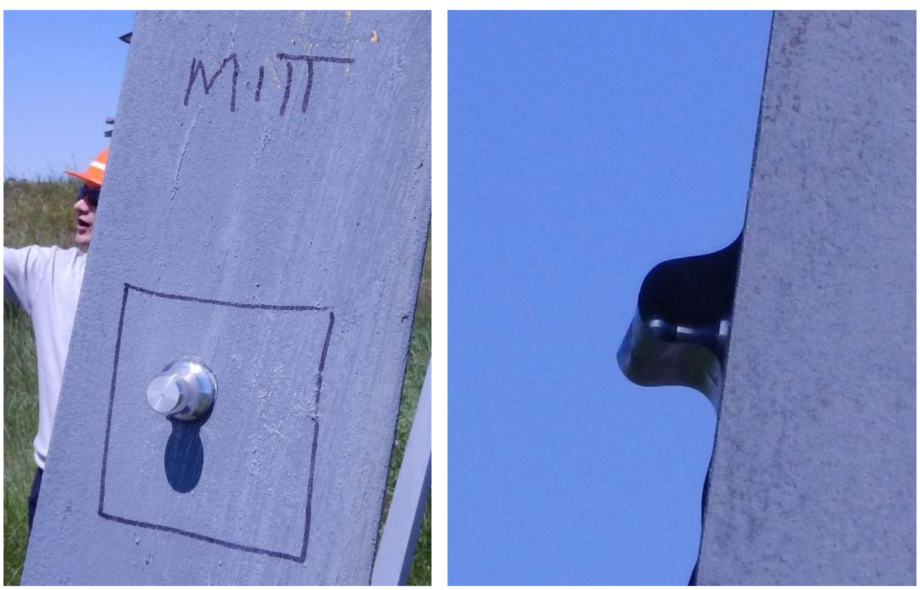


Figure 32 Dollie Adhered to Lattice Surface (L); Tape Securing Dolly during Dry Time (R)

The hydraulic ram is connected to the dollie and then the digital readout is zeroed once the ram is flush with the surface. The pressure is increased until the glue fails and registered the maximum pressure reading in pounds per square inch (PSI).

Figure 33 Pull Off Adhesion Test using an Hydraulic Ram with Digital Readout

A better understanding of the failure is then gained by determining the failure type and the percentage of material remaining on the dolly face. Adhesive failures indicate the level of compatibility and surface preparation while cohesive values show the true strength of the coating system. Occasionally there will be a glue failure resulting in a new test with better surface preparation or a different glue type.

Table 32 Pull Off Adhesion Test Values

Structure Number	Application Method	Ram Pressure at Failure	Failure Type	Substrate
1	Brush	1101	Adhesive	Galvanize
1	Roller	857	Cohesive	Galvanize
1	Mitt	1168	Adhesive	Galvanize
2	Brush	571		Rust
2	Roller	631	Cohesive	Rust
2	Mitt	480		Rust

The field applications over the aged galvanizing met all of the thresholds for atmospheric corrosion mitigation while the applications over the corroded surfaces did not meet the recommended thresholds. The surface preparation dominated the quality of the coating while the importance of the application method varied from structure to structure. Based upon the pull off adhesion values it is then recommended that thickness is critical to meet the expectations for service life and surface preparation in the form of removing loose scale is a secondary consideration.

5 COATING PROGRAM RECOMMENDATIONS

Each chapter in this report contributes to the overall learning about the Galvatech coating system performance. These findings transfer to the coating program through process improvements and help establish the time interval between recoating operations. The following is a summary of the findings from each chapter:

The second chapter illustrates that the coating system will not retain the original gloss but will maintain an acceptable color level (but not in chloride rich environments) throughout the service life. The coating system is sensitive to impact from landscape operations and agricultural activities so particular attention should be provided to ground line activities and coating system maintenance.

The third chapter provides an understanding of the anticipated service life of the coating system. Testing of the Galvatech coating system against hot dipped galvanizing (HDG) in the aging chamber revealed that the consumption rates are almost identical. We may then expect nearly the same performance when applied at the same coating thicknesses. The caveat to the use of Galvatech is that it does not provide an early warning of coating system failure while HDG does display more intense rust blooms as the alloy layers are consumed. The impact is that the surfaces of the structure must be monitored during inspections to note the formation of rust.

The fourth chapter does not indicate which application method is optimal however it does illustrate the benefit of minimal surface preparation in the form of removing friable oxides. This loose rust inhibits good adhesion of the coating system which in turn reduces the service life of the coating system.

A quality assurance program should be implemented by adding three quality control steps. The first step in quality control should be the applicator measuring wet film thickness to ensure an even coating that meets the desired dry thickness. The second step in quality control should be an independent utility representative making dry film thickness measurements on each tower face with an average of three measurements on each leg, brace and diagonal member. The third step in quality control is to ensure the pot life or the environmental limitations (temperature, humidity) are not exceeded during the application process.

In summary we may expect the benefits of an organic coating system but the performance of hot dip galvanizing if we adhere to good application and quality control procedures.

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