

1 **Q. [Life] – Please provide a detailed narrative for each account, identifying what steps**
2 **were undertaken to arrive at the proposed average service life and corresponding**
3 **dispersion curve. The response should identify specifically what information was**
4 **relied upon, what life analysis procedure was utilized, including clear identification**
5 **of the experience band, placement band, and intervals, and if the best fitting curve**
6 **and life combination were not chosen, what other information was specifically relied**
7 **upon to make modifications in order to establish the actual proposed life**
8 **parameters. Further, provide all workpapers, assumptions, considerations and**
9 **material reviewed and relied upon in sufficient detail to permit replication of the**
10 **Company’s proposed average service life and dispersion curve combination by**
11 **account.**

12
13 **A.** Attachment A includes a detailed narrative for each account, identifying what steps were
14 undertaken to arrive at the proposed average service life and corresponding dispersion
15 curve.
16

17 Also, refer to *Volume 3, Expert Evidence and Studies, Tab 4* pages II-19 through II-29 for
18 the section titled “Service Life Considerations” and Appendix A “Service Life Statistics”
19 for additional information. In addition, please refer to the response to Request for
20 Information CA-NP-088 which includes the management meeting notes and the 2010
21 Property Inspection reports prepared by Newfoundland Power’s engineering staff.

Life and Net Salvage Workpapers

NEWFOUNDLAND POWER

LIFE AND NET SALVAGE WORKPAPERS

LIFE ANALYSIS

HYDRO PRODUCTION

DISCUSSION

The company has undertaken a modernization project for the majority of its hydro facilities. The modernizations include upgrading electronic and communication equipment, as well as upgrades to penstocks, turbines and other structural components when necessary. The modernization effort is approximately 75-85% complete.

The company has no immediate plans to retire any hydro facilities, although for certain small plants - Fall Pond, Victoria and Pt Union – the MW output of these facilities may not justify refurbishment. However, the cost of decommissioning these sites is unknown and could be significant enough to outweigh any refurbishment cost. The proposed development of the lower portion of the Churchill River, located at Muskrat Falls hydro facility (824 MW) may change the economics of the decisions needed to be made with respect to current hydro facilities. However, Muskrat Falls is not expected to be in operation before 2017. Additionally, its effect will primarily be on Hydro's thermal facility at Holyrood and most likely will not adversely affect NP's 23 small hydro plants.

Additionally, there is the potential of selling the Mobile and Morris Hydro Facility to the City of St. John's, although this outcome is uncertain pending litigation regarding their fair value.

ACCOUNT 320.00 LAND AND LAND CLEARING

Previous Estimate: 75-R2.5; 0 net salvage

DISCUSSION

There has been minimal activity for this account. The approved 75-R2.5 survivor curve is still appropriate.

RECOMMENDATION

Use approved 75-R2.5 survivor curve.

ACCOUNT 321 ROADS, TRAILS AND BRIDGES

Previous Estimate: 55-R3

DISCUSSION

Bands analyzed for this account include the overall band, as well as the most recent 10, 20 and 30 year bands. Indications from the overall band are for a life of 50 to 65 years. More recent bands indicate a somewhat shorter life. The best fit curves through the significant data points tend to have a higher mode. The existing 55-R3 survivor curve is still a good fit of the data.

RECOMMENDATION

Continue to use the 55-R3.

ACCOUNT 322 BUILDINGS AND STRUCTURES

Previous Estimate: 75-R2.5

DISCUSSION

Additions and retirements have been higher since 2000, primarily due to the modernization program.

Bands analyzed include the overall band, as well as more recent 10, 20 and 30 year bands. The service life indications based on the data are for a fairly long life for this account; survivor curves fit through the significant data points indicate a life of 75 to 85 years.

RECOMMENDATION

Continue to use the 75-R2.5 curve.

ACCOUNT 323 CANALS, PENSTOCKS, SURGE TANKS, TAILRACES
Previous Estimate: 60-L2.5

DISCUSSION

Additions and retirements have increased since 2000. Retirements in particular have been at much higher levels, as the company has replaced penstocks and surge tanks as a part of its modernization program. The NFP 2010 Hydro Plant Inspection Report indicates lives ranging from 50 to 70 years for penstocks.

Bands analyzed for this account include the overall experience, as well as the most recent 10, 20 and 30 year bands. The life indications based on the overall experience are for a 55 to 65 year average service life. Higher mode R type curves are the best fit through age 50, although L type curves are better fits through age 65. The existing 60-L2.5 survivor curve is still a good fit of the data.

RECOMMENDATION

Continue to use the existing 60-L2.5 estimate.

ACCOUNT 324 DAMS AND RESERVOIRS

Previous Estimate: 70-S0.5

DISCUSSION

Bands analyzed for this account include the overall experience band, as well as the most recent 10, 20 and 30 year bands. Service life indications are 70-75 years with low mode curves. The NFP 2010 Hydro Plant Inspection Report indicates lives ranging from 40 to 70 years for storage structures (i.e., dams).

RECOMMENDATION

The approved 70-S0.5 is still a good fit of the data, especially through age 50. Maintain the current estimate.

ACCOUNT 325 – PRIME MOVERS, GENERATORS AND AUXILIARIES

Previous Estimate: 70-R2

DISCUSSION

Additions and retirements have been higher in recent years, due in part to the modernization program. The Company has replaced turbine runners and rewind generators at a number of sites. The NFP 2010 Hydro Plant Inspection Report indicates lives ranging from 40 to 75 years for the turbine, generator and auxiliaries.

Bands analyzed for this account include the overall experience, as well as the most recent 10, 20 and 30 year bands. Service life indications based on the historical data are 65 to 75 years. More recent bands indicate a shorter service life.

RECOMMENDATION

The 65-R2 represents a better fit R2 curve of the significant data for the overall experience band. A shorter average service life also recognizes the increased retirement activity for this account. Use the 65-R2 survivor curve.

ACCOUNT 326 SWITCHING, METERING AND CONTROL EQUIPMENT
Previous Estimate: 45-S0.5

DISCUSSION

There has been significant activity in this account in recent years. Since 2003 the plant balance has more than doubled and retirements have increased as well. During this time the company has upgraded control equipment at a number of its hydro facilities. The NFP 2010 Hydro Plant Inspection Report indicates lives ranging from 20 to 50 years for the switchgear, instrumentation and control equipment.

The life expectations for the newer control equipment are likely to be shorter than older equipment, as the newer electronic equipment is less durable and subject to technological obsolescence. This is borne out in the data. Bands analyzed include the overall band; the most 30, 20 and 10 year experience bands; as well as the most recent 30, 20 and 10 year placement bands. Bands with more recent experience and placements have significantly shorter lives than the overall band – indications are 35 to 40 years for the overall band, but only 15 to 20 years for 1990-2009 placements and 9 to 11 years for 2000-2009 placements. 82% of the account is vintage 1990 or newer and 75% is vintage 2000 or newer.

RECOMMENDATION

The historical data indicates a significant decrease in the average service life for this account, particularly more recent bands. The 40-S0 is a good fit of the overall experience, and is a more gradual approach

than relying solely on more recent experience. However, it is possible that further decreases to the average service life could be warranted in future studies.

ACCOUNT 327 MISCELLANEOUS POWER PLANT EQUIPMENT

Previous Estimate: 50-R2

DISCUSSION

Bands analyzed include the overall experience as well as the most recent 10, 20 and 30 year bands. Life indications are 50 to 55 years.

RECOMMENDATION

Continue to use the 50-R2 survivor curve.

OTHER PRODUCTION

DISCUSSION

The life span method is used for other production. Based on discussions with management, the probable retirement dates for each of the Company's plants can be found below.

Plant	Original Cost	Probable Retirement Date
Port Au Basques Diesel	\$935,784	6/2016
Port Union Diesel	\$80,286	12/2010
Green Hill Gas Turbine	\$7,416,071	6/2021
Mobile Diesel #3	\$2,017,648	6/2036
Wesleyville Gas Turbine	\$8,154,637	6/2021
Portable Gas Turbine	\$2,471,772	6/2016

The life analysis for interim survivor curves is as follows.

ACCOUNT 331 BUILDINGS AND STRUCTURES

Previous Estimate: 60-S0

DISCUSSION/RECOMMENDATION

Based on the historical data, the existing estimate still remains a good fit of the data. The recommendation is to leave the interim survivor curve estimate unchanged. Continue to use the 60-S0.

ACCOUNT 332 ELECTRICAL PLANT

Previous Estimate: 70-L0

DISCUSSION/RECOMMENDATION

Based on the historical data, the existing estimate still remains a good fit of the data. The recommendation is to leave the interim survivor curve estimate unchanged. Continue to use the 70-L0.

ACCOUNT 333 PRIME MOVERS, GENERATORS AND AUXILIARIES

Previous Estimate: 50-L1

DISCUSSION/RECOMMENDATION

Based on the historical data, the existing estimate still remains a good fit of the data. The recommendation is to leave the interim survivor curve estimate unchanged. Continue to use the 50-L1

ACCOUNT 334 FUEL HOLDERS

Previous Estimate: Square

DISCUSSION/RECOMMENDATION

The previous estimate was for a square curve – indicating no interim retirements. Based on the historical data, interim retirements do occur for this account, with service life indications of 25-30 years and a low mode curve for interim retirements. Continue to use a square curve, but will consider using a low moded curve in the next study if interim retirements continue.

ACCOUNT 335 MISCELLANEOUS POWER PLANT EQUIPMENT

Previous Estimate: Square

DISCUSSION/RECOMMENDATION

There is minimal activity for this account. Continuing to use a square curve for interim retirements is appropriate at this time.

SUBSTATION

ACCOUNT 341, BUILDINGS AND STRUCTURES

Previous Estimate: 50-R2.5

DISCUSSION

This account contains the buildings that house equipment such as circuit breakers and reclosers, as well as SCADA and electronic equipment. The account also contains improvements to substation yards such as fences and gates.

The life tables analyzed for this account included the overall band, as well as the most recent 10, 20 and 30 year bands. The previous estimate of the 50-R2.5 is a good fit through age 32.5. Through age 53.5 the best fit is a 65-R2.5. However, exposures are below \$1 million for these later ages. Additions and retirements have increased over the past 10 years, as the company has changed the design to some of its substations in order to separate certain equipment for safety reasons, as well as to add improved communication and electronic equipment. As a result, the most recent 10 year band indicates a slightly shorter life than the overall band.

RECOMMENDATION

While retirement activity has increased in recent years, it has been more the result of targeted projects as opposed to a significant change in life expectations. The overall experience band supports an increase to the average service life, although a more gradual increase is most appropriate given that the most recent band indicates a decreasing average service life. Continue to use the 50-R2.5 survivor curve.

ACCOUNT 342, SUBSTATION EQUIPMENT

Previous Estimate: 46-R2

DISCUSSION

This account contains the equipment such as transformers, circuit breakers and relays located at the Company's substations, as well as at generating plants. The life tables analyzed for this account include the overall experience, as well as the most recent 10, 20 and 30 year bands. A band with more recent placements (since 1976) was also analyzed.

Transformers generally have the longest lives of the property in this account. The company expects 50 years for transformers. Modern testing practices have improved the lives for this account; however, this is partially offset by the fact that newer transformers are generally less robust pieces of property. Newfoundland Power's peak load is in the winter, which has a favorable impact on the life of

this property due to the fact that the transformers' peak hours of operation are not on hot days (with the exception of transformers at hydro facilities, which run heavily in the summer).

Older style relays were electromechanical devices, and had longer life expectations than newer, electronic relays. The life expectations for electromechanical relays were 40 to 50 years, while the expectations for newer electronic relays are only 15 to 20 years.

The company owns several different types of circuit breakers – bulk oil breakers, SF6 gas breakers, as well as some vacuum breakers and air circuit breakers. Bulk oil breakers have the longest life expectations, but for environmental and regulatory reasons the company will have to retire a significant portion over the next years (likely 50%) due to PCBs. SF6 breakers are not as robust and have life expectations of roughly 30 years. The NFP 2010 Substation Inspection Report identifies certain SF6 breakers, reclosers and relays as obsolete equipment that will be replaced in connection with the Substation Refurbishment and Modernization project.

RECOMMENDATION

The recommendation for this account is for an increase in service life to the 50-R1.5 survivor curve. The life indications based on the historical data are for 45 to 50 years. The 50-R1.5 represents a very good fit of the data through the significant data points.

TRANSMISSION PLANT

ACCOUNT 350, LAND AND LAND RIGHTS

Previous Estimate: 65-S2.5

DISCUSSION

The life analysis for this account is for a combination of two subaccounts, 350.01 ROW Clearing/Easement Survey and 350.02 Roads/Trails/Bridges. The historical data indicates a life of 60-70 years, with higher mode curves.

RECOMMENDATION

The R4 curve is a better fit of the historical data. The recommendation is a change to 65-R4 survivor curve.

ACCOUNT 353.1 OVERHEAD CONDUCTORS

Previous Estimate: 53-R3

DISCUSSION

The Company's transmission system consists primarily of 66 kV and 33kV lines. ACSR is the dominant type of conductor used, and comprises 68% of transmission lines. AASC and ASC make up 18% and 13% respectively, and the rest is copper and cable. ACSR has experienced some isolated corrosion problems and has been replaced in high corrosion areas. AASC is currently used for line rebuilds and new transmission lines. In 2005 the Company initiated a Transmission Line Rebuild strategy, which has increased replacements since 2006.

Overhead conductor is generally retired for line rebuilds and line relocations. Ice storms can also cause significant retirements. The installation of newer, stronger poles on transmission lines has actually increased the damage to conductor during ice storms, as the structures are able to resist damage more readily than the conductor.

Bands analyzed for this account include the overall experience, as well as the most recent 30, 20 and 10 year bands and a band with placements since 1967. The statistics indicate an average service life of 53 to 55 years. More recent experience bands indicate a slightly higher mode curve, while more recent placements give indication of a slightly longer average service life.

RECOMMENDATION

There is the potential that the newly installed lines due to the Transmission Line Rebuild strategy and increased use of AASC conductor will eventually lead to somewhat longer average service lives. At this time, an increase to the 55-R3 survivor curve is appropriate, which represents a good fit of the historical data.

ACCOUNT 353.2 UNDERGROUND CABLE

Previous Estimate: 50-SQ

DISCUSSION

The Company has 4 underground transmission lines – 12L, 14L, 4L and 13L. All are 66kV. There is limited historical data for this account.

RECOMMENDATION

The recommendation is to change the curve type to an R4, and use the 50-R4 survivor curve.

ACCOUNT 355.1 & 355.2 POLES & FIXTURES

Previous Estimate: 44-R2.5

DISCUSSION

Newfoundland Power primarily uses wood poles for its transmission system. There is limited use of steel poles in certain environmentally sensitive areas (i.e. watersheds). The primary retirements for wood poles are due deterioration and line replacements and relocations. Poles can also be damaged in high wind and ice storms. The province officially has the most severe weather (high wind, snow and ice) in all of the populated areas of Canada.

Transmission lines are inspected annually, using a combination of visual and acoustic inspections. Core tests are also performed on poles that appear to be deteriorated. The testing program has allowed the Company to better target replacements and maintenance.

Bands analyzed for this account include the overall experience, as well as the most recent 30, 20 and 10 year bands. The statistics indicate a life around 45 years.

RECOMMENDATION

The 47-R2 is a good fit of the data through the significant data points. A moderate increase in life is consistent with management's expectations. The recommendation is to use the 47-R2 curve.

ACCOUNT 355.3, INSULATORS

Previous Estimate: 31-S0.5

DISCUSSION

The company's primary types of insulators are porcelain and toughened glass. The Company also installs composite insulators in high-vandalism areas. Toughened glass is used for new installations, and has a better performance record than porcelain.

Bands analyzed for this account include the overall experience, as well as the most recent 30, 20 and 10 year bands. A band with placements since 1980 was also analyzed. The life indications for all bands were for an average service life of 27 to 28 years. Retirements have trended up over the past decade, both in dollar and percentage terms.

RECOMMENDATION

The historical data indicates that a decrease in the average service life from the currently approved 31-S0.5. However, while the best fit curves are in the 27-28 year range, the recommendation is to use the 31-S1, which takes into account the better performance of toughened glass insulators.

DISTRIBUTION

ACCOUNTS 361.1 – BARE COPPER AND ACCOUNTS 362.1 & 362.2 – POLES

Previous Estimate: 45-R1.5; (10) net salvage (Poles only)

DISCUSSION

Bare copper conductor is combined with the poles accounts for life analysis purposes. The vast majority of dollars are for poles (only \$775k of bare copper conductor remains as of 2009).

Newfoundland Power primarily uses wood poles in its system. 35, 40 and 45 foot poles are standard. 30 foot poles are occasionally used as service poles (when there are specific size requirements, etc.). The primary causes of retirement for poles are decay. Poles are also retired for relocations and damage due to ice storms, woodpeckers, cribbing, etc. Poles are treated primary with CCA; some poles are penta treated. Distribution poles are inspected every seven years. The inspection program started in 1997.

Bands analyzed include the overall experience as well as the most recent 10, 20 and 30 year bands. Additionally, bands including data before and after the 2004 accounting change were examined, as well bands with placements 1967 and subsequent and one with placements 1980 and subsequent. The 1967-2009 band represents the data since the merger of Newfoundland Power's predecessor utilities, and is considered the most representative of future life expectations for this account. The indications from the overall band are for an average service life of 45 to 50 years. The band with 1967-2009 placements indicates a somewhat longer life, and other more recent bands indicate longer lives. However, this appears to be related in part to the accounting change referenced above. Conversely, the experience band through 2003 indicates an average service life of less than 40 years. Due to the fact that the company will be changing back to retiring specific poles in 2011, this is reason to consider only a modest increase in service life.

RECOMMENDATION

The life recommendation is to increase the service life to the 48-R1.5 survivor curve.

ACCOUNT 361.11 – W/P COPPER & 361.15 – DUPLEX & 365.1 – OH SERVICES
Previous Estimates: 39-S1.5

DISCUSSION

These three accounts are combined for life analysis. The majority of dollars in these three accounts is in overhead services. The primary causes of retirements for services are similar to those of conductor, and

include damage, ice storms, load growth and reliability reasons. Services are also retired when customers require a higher load.

Bands analyzed for this account include the overall experience, as well as the most recent 30, 20 and 10 year bands. A band with placements since 1967 was also analyzed. The life indications for the overall band are 42-47 years. More recent bands indicate longer average service lives.

RECOMMENDATION

The data indicates longer lives for this account. The 44-R2 survivor curve represents a very good fit of the significant data points.

ACCOUNT 361.12 – OVERHEAD CONDUCTORS – BARE ALUMINUM

Previous Estimate: 50-R2.5

DISCUSSION

Bare aluminum comprises the majority of the company's overhead conductor. Overhead conductor is retired due to damage, ice storms, load growth and for reliability reasons. Retirements have increased since 2000. The company expects this trend to continue due to its reliability program.

Bands analyzed for this account include the overall experience, as well as the most recent 30, 20 and 10 year bands. A band with placements since 1967 was also analyzed. The life indications are 50-55 years. More recent bands do not indicate significantly longer lives than the overall band.

RECOMMENDATION

The statistics support a longer life than the approved. The recommendation is to use the 55-R2.5 survivor curve.

ACCOUNT 361.13 – OVERHEAD CONDUCTORS – W/P ALUMINUM

Previous Estimate: 31-R1.5

DISCUSSION

Bare aluminum comprises the majority of the company's overhead conductor. Overhead conductor is retired due to damage, ice storms, load growth and for reliability reasons. Some years since 1999 have seen higher levels of retirements than in the past. The company expects higher retirements in the future due to its reliability program.

Bands analyzed for this account include the overall experience, as well as the most recent 30, 20 and 10 year bands. A band with placements since 1967 was also analyzed. The life indications are close to 30 years. More recent bands indicate a shorter life.

RECOMMENDATION

The recommendation is for a slight increase to the 32-R1.5, which represents a very good fit of the significant data points.

ACCOUNT 361.14 AERIAL CABLE/361.30 SPECIAL INSULATED COPPER

Previous Estimate: 25-R1

DISCUSSION

Bands analyzed for this account include the overall experience, as well as the most recent 30, 20 and 10 year bands. The average service life indications for the overall band are approximately 25-27 years. More recent bands indicate lives of 28-35 years.

RECOMMENDATION

Increase the life to the 26-R1 curve, which represents a good fit of the data.

ACCOUNT 361.20 AND 367.20 UNDERGROUND CABLE AND SWITCHES

Previous Estimate: 40-R3

DISCUSSION

There have been few retirements since the mid-1990s. As a result, the historical data as a result indicates a longer life than the proposed 40-R3. An increase is warranted at this time, however, it is expected that at some point retirements will return to closer levels to the period of time before the 1990s.

RECOMMENDATION

A gradual increase is recommended at this time. Use the 45-R3, which is the same life as underground services.

ACCOUNT 361.4 – SUBMARINE CABLE

Previous Estimate: 40-R3

DISCUSSION/RECOMMENDATION

There has been minimal activity for this account, as the majority has been installed in the past 20 years. The approved 40-R3 survivor curve still is a good fit of available data. Use the 40-R3 survivor curve.

ACCOUNT 362.3 CONCRETE AND STEEL POLES

Previous Estimate: 37-R2.5

DISCUSSION

The company uses steel poles in environmentally sensitive areas (i.e. around water supplies) and has not installed any new concrete poles in recent years.

Bands analyzed include the overall experience, as well as the most recent 10, 20 and 30 year bands. A band with placements since 1967 was also analyzed. Life indications range from 35-45 years. More recent bands indicate a somewhat longer life.

RECOMMENDATION

Increase to a 40-R2.5 curve, which is a better fit of the overall band.

ACCOUNT 362.4 STEEL TOWERS

Previous Estimate: 45-R3

DISCUSSION

There is minimal activity for this account. The approved 45-R3 estimate is still appropriate for this account.

RECOMMENDATION

Continue to use the 45-R3 curve.

ACCOUNT 363 STREET LIGHTS

Previous Estimate: 16-O1

DISCUSSION

Bands analyzed for this account include the overall experience, as well as the most recent 30, 20 and 10 year bands. Life expectations based on the data are for an average service life of approximately 15 to 20 years. The previous estimate is still a good fit of the data, especially through age 17.5. The most recent 10 year band gives indications of an even shorter life.

However, based on discussions with management retirements in recent years represent a higher level than expected going forward, due in part to the targeted replacement of 7,000 Mercury Vapor lights. The Company has also installed lamps with a longer expected life, and expects more maintenance and

less replacements going forward. These considerations indicate a longer life than reflected in the historical data.

RECOMMENDATION

Based on the considerations discussed above, the recommendation is for a slight increase to the 20-R.5 survivor curve.

ACCOUNT 364.10, 364.11, 364.2, 364.3, 364.4 – LINE TRANSFORMERS

Previous Estimate – 36-S0

DISCUSSION

The average cost of a new line transformer is \$3000. Stainless steel transformers are approximately 25% more expensive than non-stainless steel transformers. The company has used stainless for all new line transformers since 2001, which should mitigate the effects of corrosion. At this point over half of the Company's transformers are stainless steel. Typical transformers are 75-100kV.

The company started a reliability program in the mid to late 1990s (Distribution Reliability Initiative). Retirements have increased since the inception of the program, and the company expects retirements to continue at this level in the near future. Additionally, there was a retirement adjustment in 2006 to reconcile the books with the field inventory of line transformers. These retirements had not been reflected in the data in any previous study.

Bands analyzed for this account include the overall experience, as well as the most recent 30, 20 and 10 year bands. A band with placements since 1967 was also studied. The life indications for the overall band are for an average service life of 29 years. The most recent 10 year band indicates an even shorter life.

RECOMMENDATION

While the historical data shows a decrease in the average service life for this account, discussions with Company personnel indicate that future retirement activity is likely to be lower than in recent years, due to the reliability program. Further, stainless steel transformers are expected to have a longer average service life than the non-stainless steel transformers. For these reasons, the recommended survivor curve is the 40-S1, which represents a gradual increase in service life.

ACCOUNT 365.2 UNDERGROUND SERVICES

Previous Estimate: 45-R3

DISCUSSION

Underground services are expected to have a somewhat longer life than those overhead due to less exposure to the elements. However, ground frost and other factors can shorten the life for property in this account. Retirement data is limited for this account. The approved estimate still fits most of the earlier data points, and is a reasonable estimate when compared to overhead services.

RECOMMENDATION

Continue to use the approved 45-R3 survivor curve.

ACCOUNT 366.10 WATT-HOUR METERS

Previous Estimate: 32-S0.5

DISCUSSION

The Company currently has both electromechanical meters and digital meters, both of which have different life expectations. Of the current population of 230,000, a little more than half of the meters are electromechanical. Of the remaining digital meters, roughly 18,000 are AMR meters. The Company filed a Meter Strategy in 2006 detailing its plans for new installations. All new meters are digital, and roughly 5-6 thousand of a total 15 to 20 thousand new installations are AMR. AMR meters are generally installed

where there is a business case for them or where there are safety/logistical concerns for meter reading. A new meter costs \$30, with an additional \$16 for an AMR meter.

While electromechanical meters have life expectations of 30 years or more, electronic meters have shorter life expectations as they are less durable and subject to a higher degree of technological obsolescence. Additionally, government regulations mandating stricter meter testing has led to an increase in retirements, a trend that will continue. There is also the potential for more stringent regulations that could lead to even shorter meter lives.

Bands analyzed for this account include the overall experience, as well as the most recent 30, 20 and 10 year bands. Bands with more recent placements (30, 20 and 10 year placement band) were also analyzed to better capture the impact of electronic meters. The life indications for the overall band are for a 25-26 year average service life. Bands with more recent experience and/or placements indicate shorter average service lives – as short as 13 years.

RECOMMENDATION

The average life of meters is clearly trending lower, and this trend will continue as the composition of the meter population shifts to more electronic meters. To keep the change as gradual as possible, use the 25-S1 survivor curve based on the overall band. The expectation is that the average service life could continue to decrease in future studies.

ACCOUNT 366.2 DEMAND METERS

Previous Estimate: 25-S0.5

DISCUSSION

Demand meters are used primarily for commercial and industrial customers. Newer meters are digital, which has the potential to lead to a shorter life due to obsolescence and the complexity of digital meters.

Bands analyzed include the overall band, as well as the most recent 10, 20 and 30 year experience bands and the most recent 10, 20 and 30 year placement bands. The indications for the

overall bands are approximately 24 or 25 years. More recent experience and placement bands indicate a shorter average service life – as low as 15-16 years.

RECOMMENDATION

Decrease to the 22-S0.5 curve, which falls in between the overall band and the most recent 10 year experience band, and also into account the expectation of a shorter life for digital meters.

ACCOUNT 366.30 INSTRUMENT TRANSFORMERS & ACCOUNT 366.40 METERING TANKS
Previous Estimate: 35-R3

DISCUSSION

Bands analyzed include the overall band, as well as the most recent 10, 20 and 30 year experience bands and the most recent 10, 20 and 30 year placement bands. Service life indications for all bands were 33 to 40 years. The most recent 10 year band indicated a somewhat shorter life than the overall band.

RECOMMENDATION

The recommendation is a slight increase to the 36-R2.5 curve, which is a very good fit of the data through the significant points.

ACCOUNT 367.1 UNDERGROUND DUCTS AND MANHOLES
Previous Estimate: 60-R4, 0 net salvage

DISCUSSION

There is minimal retirement activity for this account.

RECOMMENDATION

Continue to use the approved 60-R4.

GENERAL PROPERTY

ACCOUNT 371.1 BUILDINGS AND STRUCTURES – SMALL

Previous Estimate: 35-S0

DISCUSSION

Bands analyzed include the overall band, as well as the most recent 10, 20 and 30 year bands. Service life indications are for an average service life of 35-40 years.

RECOMMENDATION

Continue to use the approved 35-S0 curve.

ACCOUNT 371.2 BUILDINGS AND STRUCTURES – LARGE

Previous Estimate: Life Span, 70-R1 Interim Survivor Curve

DISCUSSION

The life span method is used for the company's large structures. Based on discussion with management, the following probable retirement dates are appropriate for the buildings in this account.

Building	Probable Retirement Date
Topsail Road - Transformer Storage	6-2026
Topsail Road - System Control Center	6-2054
Kenmount Road	6-2046
Duffy Place	6-2060
Carbonear - Office/Warehouse	6-2030
Whitbourne	6-2023
Salt Pond	6-2023
Clareville Regional Building	6-2042
Gander	6-2037
Grand Falls Service Building	6-2056
Corner Brook - Maple Valley Service Buildings	6-2057
Stephenville Office and Service Build	6-2028
Port Aux Basques	6-2026

Interim retirement activity indicates a higher level of retirements than the existing interim survivor curve. However, the expectation is that the existing estimate is still appropriate for this account.

RECOMMENDATION

Continue to use the 70-R1 interim curve based on judgment.

TRANSPORTATION EQUIPMENT LIFE AND NET SALVAGE

ACCOUNT 378.10 – TRANSPORTATION – SEDANS AND STATION WAGONS

Previous Estimate: 5-R1.5, 16 percent salvage

DISCUSSION

The balance for this account has declined since the 1990s; only \$171k remains in the account.

Life indications for most bands are a 4-5 year life. The previous estimate of 5-R1.5 is an excellent fit of the 1990-2009 experience and placement bands.

Salvage has increased in recent years. The overall average is 17 percent, and the five year average is 29 percent.

RECOMMENDATION

Continue to use the 5-R1.5 curve and 16 percent net salvage estimate.

ACCOUNT 378.20 – TRANSPORTATION – PICK-UP TRUCKS, WINDOW VANS

Previous Estimate: 6-S2.5, 17 net salvage

DISCUSSION

Life indications for this account are for an average service life of approximately 5-6 years. More recent bands indicate a slightly higher mode curve (S3 compared to an S2.5).

Salvage has been fairly consistent throughout the years; three year averages have ranged from 13 to 22 percent and the overall average is 16 percent. There has been a mild downward trend in recent years, and the five year average is 13 percent.

RECOMMENDATION

Continue to use the 6-S2.5 curve. Use 16 percent for net salvage.

ACCOUNT 378.30 & 378.40 CAB & CHASSIS/TRUCKS W/ STAKE BODIES

Previous Estimate: 10-S1.5; 10 percent salvage

DISCUSSION

Life indications for this account range from 11 to 12 years. More recent bands indicate a longer life and a higher mode curve.

Net salvage has trended downward since the early 2001. The overall average is 9 percent; however, the average for the years 1976-2001 is 12 percent, and the average since is only 4 percent. The most recent five year average is 3 percent.

RECOMMENDATION

Increase the life to the 11-R2.5 curve. Use 8 percent net salvage.

ACCOUNT 378.50 TRANSPORTATION – MISCELLANEOUS

Previous Estimate: 18-L1, 20 percent

DISCUSSION

Life indications for this account are for an 11 to 15 year average service life. More recent bands indicate shorter lives than the overall band.

Net salvage has averaged 16 percent over the period 1976-2009. It has trended down somewhat in recent years. The most recent five year average is 12 percent.

RECOMMENDATION

Decrease the life to the 15-L1.5 curve. Use 8 percent salvage.

TELECOMMUNICATIONS LIFE AND NET SALVAGE

ACCOUNT 382 RADIO SITES

Previous Estimate: 30-R4, 0 net salvage; (5) net salvage for 382.2

DISCUSSION

Life indications are for a 30-35 year life. More recent bands indicate a slightly longer life.

For salvage analysis, retirements are sporadic in the total history, although there is slight negative net salvage.

RECOMMENDATION

Continue to use the currently approved 30-R4 survivor curve. Continue to use (5) for 382.2 and 0 for the other subaccounts.

ACCOUNT 384 COMMUNICATIONS – CABLES AND PROTECTION

Previous Estimate: 25-R3, (10) Salvage

DISCUSSION

The life indications for this account are for an average service life of 15 to 20 years. The more recent 10 year band indicates a shorter life than the overall band.

Cost of removal has averaged 6 percent since 1990. There is minimal gross salvage. The five year average cost of removal is 4 percent.

RECOMMENDATION

Continue to use the 25-R3 survivor curve. Decrease the negative net salvage to (5) percent.

ACCOUNT 386 SCADA EQUIPMENT

Previous Estimate: 14-L2, 0 net salvage

DISCUSSION

Life indications for this account range from 10 to 14 years. More recent experience bands indicate a shorter life than the overall band.

Cost of removal has been relatively small; the overall average is 1 percent and there has been no removal cost since 2003. There has been no gross salvage.

RECOMMENDATION

Continue to use the approved 14-L2 survivor curve and zero net salvage.

ACCOUNT 389.10 TELEPHONE DATA EQUIPMENT

Previous Estimate: 10-L2.5, 0 net salvage

DISCUSSION/RECOMMENDATION

The previous estimates of a 10-L2.5 survivor curve and 0 net salvage are still supported by the data.

Continue to use these estimates.

ACCOUNT 391 COMMUNICATION TEST EQUIPMENT

Previous Estimate: 15-R3, 0 net salvage

DISCUSSION/RECOMMENDATION

Continue to use the 15-R3 curve and zero net salvage based on judgment.

NET SALVAGE ANALYSIS

HYDRO PRODUCTION NET SALVAGE (ALL ACCOUNTS)

Existing Estimate: (20), except Acct 321, which is (10), and Acct 320, which is 0

DISCUSSION

The net salvage is based on the results of the historical analyses. The net salvage data for hydro plants are related to interim retirements. That is, to date, none of the company's hydro plants have been retired and decommissioned. The company owns 23 relatively small hydro facilities.

Cost of removal has trended higher since 1998. The overall average removal cost is 28 percent, but the five year average is 47 percent. Gross salvage has not been significant. The overall average is 3 percent, almost of which comes from a single entry in 1994. There has only been \$2,058 of gross salvage since 1995, and none since 2003. The overall average net salvage is (25); the average over the past 10 years is (38) percent; over the past five years it is (47) percent.

RECOMMENDATION

At this time a gradual increase in negative net salvage is recommend, from (20) to (25) for accounts 322 through 327. Continue to use 0 percent for Account 320 and (10) for Account 321.

OTHER PRODUCTION

The net salvage estimates are based on primarily on the decommissioning cost estimates. However, the company does experience interim retirements and interim net salvage. Therefore, the total net salvage will be comprised of interim net salvage (primarily costs associated with retiring existing equipment) and final net salvage (i.e., costs associated with decommissioning and dismantlement). Site specific

decommissioning estimates have been made for each location. These have been escalated to the cost expected at the time of retirement and expressed as a percentage of original cost. A schedule indicating these costs has been included in the depreciation study. The company owns 3 small diesel units and 3 gas turbines.

No interim net salvage has been included at this time. However, the Company's historical data does show interim net salvage costs. For this reason, interim net salvage should be considered in future studies.

SUBSTATION, TRANSMISSION AND DISTRIBUTION

GENERAL DISCUSSION

Cost of removal for many transmission and distribution accounts has increased significantly in recent years. Based on discussions with management, there are a number of drivers of this trend. While some will continue in the future (contractor costs, permitting, regulations, etc.), one driver of increased cost of removal has been the accounting policy for allocating replacement costs between cost of removal of the replaced asset and the addition amount for the new asset. Starting in 2011, the Company has instituted new guidelines regarding the maximum percentage of replacement costs that could be allocated to cost of removal. The maximum amount of costs allocated to cost of removal based on the old (pre-2011) and new (post-2011) guidelines are shown below:

Account/Function	Previous	Effective 1/1/2011
Substations	50%	25%
Transmission	50%	25%
Services	50%	50%
Street Lights	50%	50%
All Other Distribution	50%	25%

Based on this information, in addition to the standard net salvage analysis performed for Depreciation Studies, an analysis was also performed on pro forma data in which the cost of removal for prior years was restated to reflect the new allocation guidelines. This analysis was included in the depreciation study and is referred to as the “adjusted net salvage data.”

SUBSTATION

Previous Estimate: (10)

DISCUSSION

Accounts 341 and 342 have been combined for the salvage analysis. For the adjusted net salvage data, the overall average is (21), but cost of removal has increased significantly since 2004. The most recent five year average net salvage is (55). Cost of removal is expected to remain high due to the removal of PCBs, bushings and instrument transformers, as well as an increase in contractor costs.

RECOMMENDATION

There is a clear trend for increasing cost of removal and negative net salvage in recent years. A gradual increase in negative net salvage to (15) is a very conservative estimate based on recent data.

TRANSMISSION

Previous Estimates: (35)

DISCUSSION

Prior to 1989, removal costs tended to be close to or were exceeded by net salvage. Since 1989, however, cost of removal has increased significantly while gross salvage has decreased to close to zero. While the overall average net salvage average based on the adjusted net salvage data is (37), the

average since 1989 is (50). More recent years have been even more negative. The most recent five year average is (74).

Contractors are used for transmission line replacements. Wood poles can be reused on transmission lines if they are under the age of 10. Conductor is reused for some relocation projects. The removal cost amount is determined per the contractor with the party rebuilding/removing the transmission line. A typical removal cost is \$17,700 per km.

RECOMMENDATION

The recommendation is to use (35) for all transmission accounts with the exception of Account 350.1 Land Rights and 353.2 Underground Cable. This estimate approximates the overall average net salvage for the period 1976-2009. Given the trend towards increasing cost of removal, this represents a very conservative estimate. For Accounts 350.01 and 350.02 the recommendation is to use an estimate of 0, and for Account 353.2 the recommendation is to use (25).

DISTRIBUTION

ACCOUNT 361.10/361.11/361.14/361.30 – O/H CONDUCTOR – COPPER
Previous Estimate: (45)

DISCUSSION

Both cost of removal and gross salvage have historically been significant. Cost of removal has averaged 52 percent since 1976 (similar to Accounts 361.12, 361.13 and 361.15). Gross salvage has averaged 36 percent over this time and averaged 56 percent during the past 5 years as the price for copper has increased. Removal costs and gross salvage have been somewhat volatile over this period.

RECOMMENDATION

Based on the data, net salvage should be less negative than the prior estimate. Change to use (25) percent for these accounts.

ACCOUNT 361.12, 361.13 & 361.15 – O/H CONDUCTOR – ALUMINUM
Previous Estimate: (30)

DISCUSSION

Cost of removal has trended significantly higher in recent years, while gross salvage has trended lower. For the adjusted net salvage data, the overall average cost of removal is 47 percent, and the overall average gross salvage is 10 percent. However, the most recent five year averages are 87 percent and 6 percent respectively.

RECOMMENDATION

While an increase could be justified based on more recent activity, at this time continue to use (30) percent.

ACCOUNT 361.20 AND 361.40 UNDERGROUND CABLES
Previous Estimate 40-R3; net salvage 0 percent

DISCUSSION

There is minimal retirement activity in recent years. There is little net salvage data, but the data does indicate some removal cost. This is consistent with expectations that there will be costs to retire underground cable.

RECOMMENDATION

Use (5) percent for Account 361.20 and 0 percent for Account 361.40.

ACCOUNTS 362.1 & 362.2 – POLES

Previous Estimate: 45-R1.5; (10) net salvage

DISCUSSION

New installations and replacements for poles are performed by contractors. Prior to 2000, the company's crew installed and removed poles. The price charged to remove poles by contractors is approximately \$200 which has increased from approximately \$25- \$50 per pole in 2000. The installation cost of a new pole is approximately \$400-700. Removed poles can be reused by the contractor if in good condition; however, Newfoundland Power pays the contractor for the materials for all installed poles whether reused or new. Newfoundland Power's work crews are responsible for removing the pole fittings.

Due to significant changes in accounting and operating practices occurring since 2000, the experienced gross salvage was very different from current experience. Prior to 2000, the accounting policy for reused poles was to salvage the material value of poles at the current price of a new pole. This practice led to gross salvage, primarily in the form of reuse salvage, for Newfoundland Power to be very high with salvage often exceeding removal costs in those years preceding 2000. For this reason, the net salvage analysis was based on data since 2000 for poles. For the adjusted net salvage data, cost of removal has averaged 42 percent for this period. Gross salvage has averaged 1 percent, but is zero for the past three years. Cost of removal has trended higher in recent years. The overall average net salvage percent is (39) and the most recent five year average is (48).

RECOMMENDATION

The historical data clearly shows that the net salvage estimate should be more negative than the existing (10). The data supports an estimate of (50) or greater, but because representative data is only available since 2000 a more gradual approach is more appropriate. Use (25) percent.

ACCOUNT 363.00 STREET LIGHTS

Previous Estimate: (5) percent

DISCUSSION

Cost of removal has been relatively consistent for the available history, although it has trended up in recent years. Three-year moving averages have ranged from 5 to 19 percent. The overall average is 12 percent and the most recent five year average is 16 percent.

Similar to a number of other distribution plant accounts, the gross salvage data is skewed by a high level of reuse salvage in the 1990s (1991 to 2001). All other years have 0 reuse salvage, which will likely be the case going forward. The overall final salvage average is 8 percent, but has not exceeded 1 percent since 2000.

The overall average gross salvage is a positive 1 percent, but is (4) percent if reuse salvage is excluded. The most recent five year average is (15).

RECOMMENDATION

While a more negative net salvage estimate is justified based on recent data, a modest increase in negative net salvage to (10) is recommended.

ACCOUNT 364.10, 364.11, 364.2, 364.3, 364.4 – LINE TRANSFORMERS

Previous Estimate – 36-S0; 5 percent

DISCUSSION

The company started a reliability program in the mid to late 1990s (Distribution Reliability Initiative). Retirements have increased since this time, and the company expects retirements to continue at this level. Additionally, there was a retirement adjustment in 2006 to reconcile the books with the field

inventory of line transformers. These retirements had not been reflected in the data in any previous study.

Prior to 1995 cost of removal was negligible; since that time it has increased significantly. For the adjusted net salvage data, the most recent five year average is 11 percent, but even that is skewed by the retirement adjustment in 2006 (which includes retirements from earlier years). The most recent three year average is 18 percent.

In most years gross salvage has been less than 10 percent, although from 1992 to 2003 levels of gross salvage were higher (on average 21 percent). This increase was driven by reuse salvage through 2001, and by a large final salvage amount in 2003. Salvage has since reverted to its pre-1992 levels. The total average reuse salvage is 5 percent and the average final salvage is 5 percent. There has been no reuse salvage since 2001; this trend is likely to continue.

It is expected that the higher levels of cost of removal will continue, given that most line work is done by contractors with a negotiated removal cost per km. Based on the data, gross salvage is expected to be approximately 5 percent.

RECOMMENDATION

While a negative net salvage percentage of 5 to 10 percent would be justified based on the data, the recommendation is for a more gradual change to (2) percent.

ACCOUNT 365 SERVICES (SALVAGE)

Previous Estimate: (60) for overhead, (5) for underground

DISCUSSION

Overhead and underground services are combined for salvage analysis. Cost of removal has trended higher, while gross salvage has trended lower. The five year average removal cost is 76 percent, while the five year average gross salvage is 7 percent. The overall average net salvage is (53).

RECOMMENDATION

The recommendation is to retain the current estimates of (60) for overhead services and (10) for underground services.

ACCOUNT 366 METERS (SALVAGE, ALL METERS ACCOUNTS)

Previous Estimate: 0

DISCUSSION

There has been minimal gross salvage for meters based on available historical data. Cost of removal was zero until 1999. Since then cost of removal has averaged 6 percent, and has trended slightly higher. The five year average is 7 percent. The overall net salvage for this account is (4).

RECOMMENDATION

Meter retirements clearly have removal cost associated with them, as recent history indicates. Thus the existing estimate of zero percent is no longer valid. Use (5) based on recent history and the overall average.

ACCOUNT 367.1 UNDERGROUND DUCTS AND MANHOLES

Previous Estimate: 60-R4, 0 net salvage

DISCUSSION

There is minimal retirement activity for this account.

RECOMMENDATION

Increase negative net salvage to (5) percent.

GENERAL PROPERTY

ACCOUNT 371 BUILDINGS AND STRUCTURES (SALVAGE)

Previous Estimates: (5) for 371.1, 0 for 371.2

DISCUSSION

Accounts 371.1 and 371.2 are combined for salvage analysis. Cost of removal has averaged 11 percent over the period 1976-2009, and has also averaged 14 percent over the most recent five year period.

Gross salvage has averaged 7 percent over the 1976-2009 period and 1 percent over the most recent period. The following transactions have been recoded as sales and excluded from the analysis:

Location	Year	Retirement	Gross Salvage	Reason
Duffy Place	2000	496,525	475,180	Land sale
Clarendville Regional Building	2006	220,048	134,790	Land sale
Corner Brook – West Street Office	2006	762,112	253,615	Sale of building
Grand Falls Office Building	2006	400,702	260,481	Sale of building

RECOMMENDATION

Continue to use (5) percent for small structures and 0 percent for large structures.