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Q. Please provide a copy of the report "2003 Corporate Distribution Reliability Review"

A. Attachment A is a copy of the report *"2003 Corporate Distribution Reliability Review"*.

Newfoundland Power

2003 Corporate Distribution Reliability Review

June 2003

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1.0 INTRODUCTION

Customers have advised the company through satisfaction polls that service reliability is one of the most important issues in providing electrical power to them. Through the years Newfoundland Power has held reliability of service as a cornerstone of its commitment to its customers.

One of the primary means used by the Company to measure reliability is through the use of outage statistics. Outage statistics are used to identify and prioritize projects and initiatives.

Through the use of outage information the Company has identified and delivered many initiatives focused on improving service reliability. Recent highlights include the replacement of defective insulators on transmission lines, substations and distribution feeders, and the upgrading of distribution lines to the Bay de Verde area, the Burin Peninsula and the Cape Shore.

To ensure that customers receive maximum value from the power system, the Company has undertaken a comprehensive review of the reliability of its distribution system in order to identify distribution upgrade projects for the upcoming 2004 five year capital forecast.

This report documents the findings of the Company's review.

2.0 BACKGROUND

Newfoundland Power maintains and improves the reliability of its distribution system using a wide range of tactics. The five main areas of focus are noted below:

1. Investigate feeder reliability statistics to assist in identifying feeders that are exhibiting poor reliability. The worst feeders are then targeted for detailed engineering review and subsequent upgrading. This process is the driver for large feeder upgrading projects that are included in the capital budget program.

2. Through reports from operations and reliability statistics, defective components are identified, investigated and major replacement programs are initiated. Recent initiatives include insulator, conductor and transformer replacement programs.

3. Routine inspection of distribution lines gives rise to general maintenance on distribution lines and, depending on the number of deficiencies found, targeted detailed inspections and subsequent major upgrading may occur. An example of this is a recent concern over the general age of distribution poles. Through targeted inspections and pole testing in St. John's, a general replacement program has begun.

4. Regional staff, as part of their regular activities, identify locations where the general deterioration of the system needs to be addressed. This gives rise to a large number of small upgrading projects.

5. Technology and changes in work processes are used to minimize the impact a fault on a distribution line has on customers. Recent examples include the on-going upgrading of the SCADA system to increase the number of substations tied to SCADA as well as individual feeder control, enhanced outage management by associating individual customers to feeders within the customer service system and managing trouble call response to meet response time targets.

This report focuses on the identification of upgrading requirements through outage statistics.

3.0 GOAL

The goal of the review is to develop an inventory of projects that the Company should pursue over the next five years to ensure the continuous improvement of reliability of the distribution system.

4.0 METHODOLOGY

To complete the identification of projects, the following process was followed.

- Rank the worst 25 feeders according to the customer interruption statistics for unplanned distribution related outages[1]. The statistics used were the average annual total number of customer minutes of interruption[2], System Average Interruption Frequency Index (SAIFI) and the System Average Interruption Duration Statistic (SAIDI). The statistics were based on an average of the period from January 1998 to December 31 2002 (Five years).

- Review the worst feeders in detail for the following:
    - Is the feeder a constantly poor performer or is the feeder's performance associated with an unusually poor year. When necessary the statistics prior to 1997 were investigated.
    - Has the feeder experienced any upgrading during the past five years and has it solved the apparent reliability problem.
    - Have regional personnel reviewed the list and identified potential upgrading requirements for the feeders that should improve the reliability of distribution feeder.

[1] - The 25 feeders exclude those feeders that were subject to major upgrades within the past five years.
[2] - The number of customer minutes for an outage is the duration of the outage times the number of customers affected. A 5-minute power interruption affecting 100 customers would have a customer minute total of 500. This statistic recognizes the duration of the power interruptions experienced and the number of customers affected.

- Compile a list of projects for the five-year forecast.

5.0 RESULTS

Appendix A lists the 25 worst feeders according to customer minute interruption statistics, SAIFI and SAIDI.

Appendix B provides commentary on the condition of each feeder listed in Appendix A, any recent upgrading on the feeder, and proposed upgrading projects for the feeder.

A significant portion of the feeders reviewed experienced one poor year in the past five years, indicating no consistent problems. Upgrading on these feeders in general would not necessarily result in significant improvement on their historic performance. There are also a number of feeders which have recently experienced some small upgrading and as a result may not require further upgrading. The performance of these feeders over the next couple of years will determine if a further review of their condition is required.

Appendix C sets out the projects that should be included in the five year forecast and a list of those feeders that should be reviewed prior to development of the 2005 five year forecast.

This study focused on identifying projects that would address the reliability concerns on the feeders exhibiting the poorest reliability. The use of outage statistics did not allow identification of pockets of poor reliability within a given feeder. While conducting this study, projects were proposed that impact small pockets of customers. The poor reliability of these feeders is often hardly noticeable when the overall statistics for the feeder are examined. While these projects should still be put forward for inclusion in the capital program as reliability rebuilds, their priority could not be set through the methodology followed in this report. As a result these projects are not identified in Appendix C.

6.0 CONCLUSIONS AND RECOMMENDATIONS

Many of the distribution feeders that have exhibited poor reliability have either been recently upgraded or the poor performance can be attributed to a single incident and major upgrading is not required.

There are a total of ten projects that should be pursued in the coming years to address the feeders exhibiting poor reliability performance. There are seven other feeders that should be reviewed prior to the development of the 2005 budget to identify potential projects to improve their performance.

The company should continue to monitor the performance of its feeders through the customer interruption statistics. This monitoring should confirm that over time the upgrading has improved reliability and identify feeders that exhibit poor reliability which in turn require further review.

The Company should pursue upgrading projects that impact small pockets of poor reliability. However, their priority can not be determined through the current customer interruption statistics.

APPENDIX “A”

Results of Ranking Feeders

by Customer Minutes of Outage, SAIFI and SAIDI

Five Year Average Unscheduled Distribution Related Outages
1998-2002

Sorted By Customer Minutes of Interruption

Feeder	Annual Customer Interruptions (Cust Int per year)	Annual Customer Minutes of Interruption (Cust Min per year)	RANK Customer Minutes	Annual SAIFI (int per year per cust)	RANK SAIFI	Annual SAIDI (hours per year per cust)	RANK SAIDI	Appendix B Reference
BOT1	6,084	687,411	1	3.87	11	7.29	7	Page 2
BCV2	5,632	618,516	2	3.57	14	6.41	9	Page 1
PEP1	4,428	494,182	3	3.20	19	5.86	15	Page 15
CHA2	3,720	480,828	4	2.16	41	4.67	30	Page 5
BRB2	838	473,643	5	1.16	140	8.26	4	Page 3
KEL2	2,339	471,024	6	1.61	90	5.40	20	Page 12
PUL1	3,481	444,325	7	1.77	71	3.79	43	Page 16
PUL2	3,982	433,719	8	2.75	27	5.00	22	Page 16
LEW2	5,023	428,093	9	3.35	17	4.74	27	Page 14
SUM1	2,284	416,074	10	1.60	92	4.85	25	Page 20
HWD7	5,967	404,861	11	3.64	13	4.12	36	Page 12
SCV1	3,268	374,822	12	2.29	37	4.49	32	Page 18
LAU1	1,099	364,919	13	1.55	97	8.63	3	Page 13
LET1	4,633	364,142	14	2.59	32	3.42	52	Page 13
CHA1	2,107	363,382	15	0.74	214	2.13	110	Page 4
DLK3	4,506	359,104	16	4.40	6	5.97	13	Page 6
RRD9	2,104	333,728	17	1.96	54	5.28	21	Page 17
GBY2	2,958	327,201	18	3.36	16	6.18	11	Page 8
BRB4	1,518	327,000	19	1.52	103	5.51	17	Page 3
HOL2	523	323,027	20	1.11	151	10.89	2	Page 11
SMV1	3,148	304,478	21	3.04	21	4.95	23	Page 18
WES2	2,813	287,454	22	3.70	12	6.31	10	Page 23
GOU3	2,708	270,095	23	1.83	64	3.05	66	Page 9
GFS6	4,792	264,187	24	3.03	22	2.77	84	Page 8
SUM2	2,201	258,673	25	2.83	25	5.51	18	Page 21
Company Average		116,144		1.81		2.85		

Five Year Average Unscheduled Distribution Related Outages
1998-2002

Sorted By SAIFI

Feeder	Annual Customer Interruptions (Cust Int per year)	Annual Customer Minutes of Interruption (Cust Min per year)	RANK Customer Minutes	Annual SAIFI (int per year per cust)	RANK SAIFI	Annual SAIDI (hours per year per cust)	RANK SAIDI	Appendix B Reference
STX1	5,442	153,288	59	5.87	1	2.72	85	Page 20
STG2	2,305	104,835	90	5.10	2	3.87	42	Page 19
STG1	1,413	55,774	140	4.69	3	3.07	64	Page 19
LGL2	3,303	255,771	26	4.67	4	6.04	12	Page 15
BHD1	5,051	120,673	81	4.60	5	1.96	120	Page 2
DLK3	4,506	359,104	16	4.40	6	5.97	13	Page 6
HUM9	1,854	102,515	93	4.30	7	3.97	40	Page 11
LGL1	2,149	182,189	46	4.29	8	5.74	16	Page 14
ABC1	2,949	128,408	74	4.14	9	2.97	74	Page 1
GBS2	1,764	78,456	111	4.07	10	3.11	62	Page 7
BOT1	6,084	687,411	1	3.87	11	7.29	7	Page 2
WES2	2,813	287,454	22	3.70	12	6.31	10	Page 23
HWD7	5,967	404,861	11	3.64	13	4.12	36	Page 12
BCV2	5,632	618,516	2	3.57	14	6.41	9	Page 1
DLK1	3,074	61,541	129	3.40	15	1.11	175	Page 5
GBY2	2,958	327,201	18	3.36	16	6.18	11	Page 8
LEW2	5,023	428,093	9	3.35	17	4.74	27	Page 14
CAB1	3,198	235,469	30	3.27	18	4.05	39	Page 4
PEP1	4,428	494,182	3	3.20	19	5.86	15	Page 15
GRH3	2,493	148,278	63	3.07	20	3.05	65	Page 10
SMV1	3,148	304,478	21	3.04	21	4.95	23	Page 18
GFS6	4,792	264,187	24	3.03	22	2.77	84	Page 8
TRP1	2,092	116,311	85	3.00	23	2.84	81	Page 21
GBS1	1,798	93,875	98	2.93	24	2.69	87	Page 7
SUM2	2,201	258,673	25	2.83	25	5.51	18	Page 21
Company Average		116,144		1.81		2.85		

Five Year Average Unscheduled Distribution Related Outages
1998-2002

Sorted By SAIDI

Feeder	Annual Customer Interruptions (Cust Int per year)	Annual Customer Minutes of Interruption (Cust Min per year)	RANK Customer Minutes	Annual SAIFI (int per year per cust)	RANK SAIFI	Annual SAIDI (hours per year per cust)	RANK SAIDI	Appendix B Reference
TRP2	16	9,688	235	2.64	31	32.64	1	Page 22
HOL2	523	323,027	20	1.11	151	10.89	2	Page 11
LAU1	1,099	364,919	13	1.55	97	8.63	3	Page 13
BRB2	838	473,643	5	1.16	140	8.26	4	Page 3
WES1	934	185,031	44	2.36	36	7.78	5	Page 22
WES3	725	233,015	31	1.38	114	7.43	6	Page 23
BOT1	6,084	687,411	1	3.87	11	7.29	7	Page 2
QTZ1	0	1,298	272	0.13	281	7.21	8	Page 17
BCV2	5,632	618,516	2	3.57	14	6.41	9	Page 1
WES2	2,813	287,454	22	3.70	12	6.31	10	Page 23
GBY2	2,958	327,201	18	3.36	16	6.18	11	Page 8
LGL2	3,303	255,771	26	4.67	4	6.04	12	Page 15
DLK3	4,506	359,104	16	4.40	6	5.97	13	Page 6
GPD1	396	80,481	108	1.74	76	5.91	14	Page 9
PEP1	4,428	494,182	3	3.20	19	5.86	15	Page 15
LGL1	2,149	182,189	46	4.29	8	5.74	16	Page 14
BRB4	1,518	327,000	19	1.52	103	5.51	17	Page 3
SUM2	2,201	258,673	25	2.83	25	5.51	18	Page 21
FER1	1,455	211,204	37	2.29	38	5.49	19	Page 6
KEL2	2,339	471,024	6	1.61	90	5.40	20	Page 12
RRD9	2,104	333,728	17	1.96	54	5.28	21	Page 17
PUL2	3,982	433,719	8	2.75	27	5.00	22	Page 16
SMV1	3,148	304,478	21	3.04	21	4.95	23	Page 18
HBS1	7	1,078	274	1.83	61	4.92	24	Page 10
SUM1	2,284	416,074	10	1.60	92	4.85	25	Page 20
Company Average		116,144		1.81		2.85		

APPENDIX “B”

Detailed Review of Feeders

Detailed Review of Distribution Feeders

The following is a detailed listing of the feeders that exhibited the poorest reliability from 1998 to 2002. The list contains all the feeders shown in Appendix A, sorted alphabetically.

ABC-01

Location: Supplies the Port au Port Peninsula from Abraham's Cove to Cape St. George.

Feeder Statistics:

Number of Customers:	770			
Approximate Feeder Length	47.32	km (2000-2001 Survey)		
Average Annual Customer Minutes:	128,408	minutes	Ranking	74
Average Annual SAIFI:	4.14	interruptions	Ranking	9
Average Annual SAIDI:	2.97	hours	Ranking	74

Comments:

In 1999 there were 12 short interruptions due to salt contamination during a windstorm. This represents about 58% of the SAIFI statistic for the feeder. During 2000 and 2001 the defective insulators on the feeder were replaced. No need for a major upgrade of this feeder has been identified to address historic reliability performance. During 2002, the unscheduled distribution outage statistics were 7,177 customer minutes, a SAIFI of 0.09 and a SAIDI of 0.16 hours

BCV-02

Location: Supplies Bell Island, Conception Bay, through a Submarine Cable.

Feeder Statistics:

Number of Customers:	1555			
Approximate Feeder Length	62.02	km (2000-2001 Survey)		
Average Annual Customer Minutes:	618,516	minutes	Ranking	2
Average Annual SAIFI:	3.57	interruptions	Ranking	14
Average Annual SAIDI:	6.41	hours	Ranking	9

Comments:

Statistics need to be combined with FRT-01 and FRT-02 in order to compare with other feeders. Combined average annual customer minutes - 829,028, SAIFI – 4.3, SAIDI – 8.5 hours.

During 2000 all the defective insulators along the feeders trunk were replaced. The condition and any potential upgrading of this feeder will be reviewed in advance of developing the 2005 Capital Budget. During 2002, the unscheduled distribution outage statistics were 469,259 customer minutes, a SAIFI of 5.17 and a SAIDI of 5.03 hours.

BHD-01

Location: Supplies customers west of Stephenville from Romaines to Campbell's Creek to Boswarlos and Fox Island River.

Feeder Statistics:

Number of Customers:	869			
Approximate Feeder Length	58.45	km (2000-2001 Survey)		
Average Annual Customer Minutes:	120,673	minutes	Ranking	81
Average Annual SAIFI:	4.60	interruptions	Ranking	5
Average Annual SAIDI:	1.96	hours	Ranking	120

Comments:

In 1999 there were 13 short interruptions due to salt contamination during a windstorm. This represents about 57% of the SAIFI statistic for the feeder. A deteriorated section of the feeder that supplies a communication site at Pine Tree has experienced significant outage problems and needs to be upgraded. Upgrading this section of line is estimated to cost $170,000. This section of line does not supply many customers on the feeder and its upgrade would not significantly affect the reliability statistics. This is a potential project for the five year forecast. No need for a major upgrade of this feeder has been identified to address historic reliability performance. During 2002, the unscheduled distribution outage statistics were 123,203 customer minutes, a SAIFI of 1.92 and a SAIDI of 2.36 hours.

BOT-01

Location: West side of the Bay of Exploits supplying 10 communities in the area from Botwood, Leading Tickles and Cottrell's Cove.

Feeder Statistics:

Number of Customers:	1596			
Approximate Feeder Length	199.15	km (2000-2001 Survey)		
Average Annual Customer Minutes:	687,411	minutes	Ranking	1
Average Annual SAIFI:	3.87	interruptions	Ranking	11
Average Annual SAIDI:	7.29	hours	Ranking	7

Comments:

As a result of a detailed inspection, upgrading in 1999 focused on insulators replacement and brush clearing. In 2001 there was a focus on tree trimming. During 2002, a recloser was replaced which improved the coordination between it and down-line reclosers. This will reduce the customers' exposure to power interruptions. Also during 2002 there was some upgrading conducted to deal with concerns over clearances. The company has identified a section of line that is fairly old that could be transferred to a new line recently constructed to support Aliant cables. The priority for the relocation will be re-examined once the feeder inspection in 2004 is completed. Also identified is the potential for a new feeder to reduce customer exposure to problems on the distribution system. The potential benefits of a new feeder will be received prior to developing the 2005 Capital Budget.

During 2002, the unscheduled distribution outage statistics were 386,855 customer minutes, a SAIFI of 1.81 and a SAIDI of 4.04 hours.

BRB-02

Location: Supplies a portion of Bay Roberts along the east side of the Conception Bay Highway from the Bay Roberts substation to Shearstown Road, Spaniard's Bay. It is back to back with ILC-02 near the Anglican Church, Rectory Avenue.

Feeder Statistics:

Number of Customers:	447			
Approximate Feeder Length	12.48	km (2000-2001 Survey)		
Average Annual Customer Minutes:	473,643	minutes	Ranking	5
Average Annual SAIFI:	1.16	interruptions	Ranking	140
Average Annual SAIDI:	8.26	hours	Ranking	4

Comments:

The performance of this feeder is poor due to the April 1999 snowstorm that accounted for 2,239,265 or 95% of the customer minutes above. A small section was upgraded in 2001. No need for a major upgrade of this feeder has been identified to address historic reliability performance. During 2002, the unscheduled distribution outage statistics were 33,772 customer minutes, a SAIFI of 1.99 and a SAIDI of 1.26 hours.

BRB-04

Location: Supplies the Southern part of Bay Roberts, around Country Road, and along Bare Need Road through Port de Grave to Hibb's Cove.

Feeder Statistics:

Number of Customers:	1013			
Approximate Feeder Length	28.59	km (2000-2001 Survey)		
Average Annual Customer Minutes:	327,000	minutes	Ranking	19
Average Annual SAIFI:	1.52	interruptions	Ranking	103
Average Annual SAIDI:	5.51	hours	Ranking	17

Comments:

An April 1999 storm resulted in 1,166,220 customer minutes of outage, representing 71% of the average for the past five years. Outages during 2002 brought attention to two sections of the feeder that have experienced problems in the past and need to be upgraded. Upgrading these sections of the feeder is required and while being completed defective insulators and some conductor sag problems will be addressed.

During 2002, the unscheduled distribution outage statistics were 268,456 customer minutes, a SAIFI of 3.13 and a SAIDI of 4.42 hours.

CAB-01

Location: Supplies the Southern Shore of the Avalon Peninsula from La Manche to Quarry Road, Ferryland

Feeder Statistics:

Number of Customers:	1087			
Approximate Feeder Length	62.82	km (2000-2001 Survey)		
Average Annual Customer Minutes:	235,469	minutes	Ranking	30
Average Annual SAIFI:	3.27	interruptions	Ranking	18
Average Annual SAIDI:	4.05	hours	Ranking	39

Comments:

During 2000 all the defective insulators were replaced along the trunk feeder. A number of small projects have been identified to address concerns over deteriorated conductor and the ability to transfer load between CAB-01 and FER-01. This work will tend to improve the reliability of this feeder. No need for a major upgrade of this feeder has been identified to address historic reliability performance.

During 2002, the unscheduled distribution outage statistics were 33,500 customer minutes, a SAIFI of 1.05 and a SAIDI of 0.51 hours.

CHA-01

Location: Supplies a section of Conception Bay South in the Topsail / Manuels / Long Pond Area from Fowler's Road and Neil's Pond to Dunn's Hill Road.

Feeder Statistics:

Number of Customers:	3181			
Approximate Feeder Length	55.57	km (2000-2001 Survey)		
Average Annual Customer Minutes:	363,382	minutes	Ranking	15
Average Annual SAIFI:	0.74	interruptions	Ranking	214
Average Annual SAIDI:	2.13	hours	Ranking	110

Comments:

Customer Minutes are ranked high due to large number of customers that are exposed to a fault on the feeder trunk. This is a candidate for off loading or sectionalizing. One outage during the April 1999 storm accounts for 1,132,954 customer minutes, or 62% of the total above. During 2002, the unscheduled distribution outage statistics were 134,884 customer minutes, a SAIFI of 0.40 and a SAIDI of 0.71 hours.

A study entitled "Conception Bay South Planning Study" suggests a new feeder out of CHA substation should be constructed to reduce the number of customers on CHA-01 and to address load growth in the CBS Area.

CHA-02

Location: Supplies a section of Conception Bay South in the Manuels / Topsail Areas from Neil's Line to Frog Marsh Road.

Feeder Statistics:

Number of Customers:	1046	(1350 prior to transfer in 2001)		
Approximate Feeder Length	46.89	km (2000-2001 Survey)		
Average Annual Customer Minutes:	480,828	minutes	Ranking	4
Average Annual SAIFI:	2.16	interruptions	Ranking	41
Average Annual SAIDI:	4.67	hours	Ranking	30

Comments:

The performance of this feeder is poor due to the April 1999 snowstorm during which a single outage accounted for 1,078,106 or 45% of the customer minutes above. No need for a major upgrade of this feeder has been identified to address historic reliability performance.

During 2002, the unscheduled distribution outage statistics were 69,272 customer minutes, a SAIFI of 0.81 and a SAIDI of 1.10 hours.

DLK-01

Location: A portion of the community of Deer Lake

Feeder Statistics:

Number of Customers:	835			
Approximate Feeder Length	12.74	km (2000-2001 Survey)		
Average Annual Customer Minutes:	61,541	minutes	Ranking	129
Average Annual SAIFI:	3.40	interruptions	Ranking	15
Average Annual SAIDI:	1.11	hours	Ranking	175

Comments:

During 2000, a Slow Gas Alarm on portable 135 caused 10 trips, 59% of the five-year average. No need for a major upgrade of this feeder has been identified to address historic reliability performance.

During 2002, the unscheduled distribution outage statistics were 43,503 customer minutes, a SAIFI of 3.02 and a SAIDI of 0.87 hours.

DLK-03

Location: This feeder feeds a commercial area of the Town of Deer Lake, Deer Lake Airport, the communities of Reidville, Cormack and the Bonne Bay Big Pond Cabin area.

Feeder Statistics:

Number of Customers:	1029			
Approximate Feeder Length	126.72	km (2000-2001 Survey)		
Average Annual Customer Minutes:	359,104	minutes	Ranking	16
Average Annual SAIFI:	4.40	interruptions	Ranking	6
Average Annual SAIDI:	5.97	hours	Ranking	13

Comments:

A storm in April 1999 resulted in 612,555 Customer Minutes of outage due to trees in the line. Major work in the last few years has focused on Tree Trimming / Brush Clearing in the Cormack / Bonne Bay Big Pond (BBBP) areas. Due to clearing regulations with respect to farms and BBBP being a new development, both areas have been a source of extended outages in the past. During 2003, there will be additional tree trimming / removal in the BBBP area and at the VOR communications site along the TCH.

During 2002, the unscheduled distribution outage statistics were 219,385 customer minutes, a SAIFI of 1.60 and a SAIDI of 3.55 hours.

FER-01

Location: Supplies Southern Shore of the Avalon from Cappahaden to Quarry Road Ferryland.

Feeder Statistics:

Number of Customers:	637			
Approximate Feeder Length	48.45	km (2000-2001 Survey)		
Average Annual Customer Minutes:	211,204	minutes	Ranking	37
Average Annual SAIFI:	2.29	interruptions	Ranking	38
Average Annual SAIDI:	5.49	hours	Ranking	19

Comments:

The storm on December 1st and 2nd of 2000 resulted in 602,514 customer minutes of outages, representing 57% of the average annual customer minutes. This feeder is subject to an ongoing reconstruction program focused on deteriorated poles. The reconstruction was substantially completed during 2002. Also a number of conductor related projects have been identified to improve the ability to transfer load between CAB-01 and FER-01. This work will tend to improve the reliability of the feeder.

During 2002, the unscheduled distribution outage statistics were 42,961 customer minutes, a SAIFI of 0.35 and a SAIDI of 1.12 hours.

GBS-01

Location: Supplies a portion of the Town of Channel - Port Aux Basques including the Grand Bay area of the Town.

Feeder Statistics:

Number of Customers:	678			
Approximate Feeder Length	14.66	km (2000-2001 Survey)		
Average Annual Customer Minutes:	93,875	minutes	Ranking	98
Average Annual SAIFI:	2.93	interruptions	Ranking	24
Average Annual SAIDI:	2.69	hours	Ranking	87

Comments:

During 2002, a section of the line was upgraded to address problems identified during a storm early in the year. A feeder inspection was completed in 2003 and all deficiencies will be corrected by 2004. No need for a major upgrading of the feeder has been identified to address historic reliability performance.

During 2002, the unscheduled distribution outage statistics were 75,371 customer minutes, a SAIFI of 5.20 and a SAIDI of 1.85 hours.

GBS-02

Location: Supplied an area from the substation at Grand Bay, northeast to Red Rocks, and an area from the Grand Bay substation southeast to Margaree, including a portion of the Town of Channel - Port Aux Basques.

Feeder Statistics:

Number of Customers:	453			
Approximate Feeder Length	49.45	km (2000-2001 Survey)		
Average Annual Customer Minutes:	78,456	minutes	Ranking	111
Average Annual SAIFI:	4.07	interruptions	Ranking	10
Average Annual SAIDI:	3.11	hours	Ranking	62

Comments:

During 2003, approximately $75,000 was spent on replacing defective insulators and upgrading structures along a section of the feeder. This addressed certain high priority reliability and clearance issues. Also, as a result of inspections during 2003, a feeder improvement program is planned for 2004 that will address deterioration along the line to Cape Ray. This should have a positive impact on the reliability of the feeder.

During 2002, the unscheduled distribution outage statistics were 197,097 customer minutes, a SAIFI of 9.69 and a SAIDI of 7.25 hours.

GBY-02

Location: Supplies Carmanville, Frederickton & 3 other small communities in the Gander Bay Area

Feeder Statistics:

Number of Customers:	902			
Approximate Feeder Length	53.51	km (2000-2001 Survey)		
Average Annual Customer Minutes:	327,201	minutes	Ranking	18
Average Annual SAIFI:	3.36	interruptions	Ranking	16
Average Annual SAIDI:	6.18	hours	Ranking	11

Comments:

There are concerns about deterioration along this feeder. A detailed inspection is planned for 2004 to fully determine the extent of the deterioration and refine the scope of the work required. A preliminary estimate of $425,000 has been built into the budget forecast for 2005 to upgrade this feeder.

During 2002, the unscheduled distribution outage statistics were 481,559 customer minutes, a SAIFI of 3.27 and a SAIDI of 8.90 hours.

GFS-06

Location: Supplies a portion of the Town of Grand Falls-Windsor & TCH West to Badger. Within Grand Falls it supplies the area around Lincoln Road and a substantial portion of Windsor in from Main Street West to King Street on the East

Feeder Statistics:

Number of Customers:	1605			
Approximate Feeder Length	92.76	km (2000-2001 Survey)		
Average Annual Customer Minutes:	264,187	minutes	Ranking	24
Average Annual SAIFI:	3.03	interruptions	Ranking	22
Average Annual SAIDI:	2.77	hours	Ranking	84

Comments:

An ongoing upgrade of old plant between Grand Falls and Badger is addressing concerns over construction standards and plant age. This upgrading is approximately 25% complete and will continue into the 5 year forecast. Also during 2003, there will be approximately $50,000 spent upgrading the feeder within the town of Badger. The reliability of the supply provided by this feeder has been negatively impacted by coordination problems between the substation breaker and a down line recloser. Recent efforts to correct this problem appear to have been successful. Overall this feeder requires no major upgrade beyond the on-going upgrade of the line to Badger.

During 2002, the unscheduled distribution outage statistics were 665,588 customer minutes, a SAIFI of 5.14 and a SAIDI of 6.91 hours.

GOU-03

Location: Supplies the majority of the customers in the Goulds

Feeder Statistics:

Number of Customers:	1464			
Approximate Feeder Length	25.77	km (2000-2001 Survey)		
Average Annual Customer Minutes:	270,095	minutes	Ranking	23
Average Annual SAIFI:	1.83	interruptions	Ranking	64
Average Annual SAIDI:	3.05	hours	Ranking	66

Comments:

The outage performance during 1999 and 2000 was not good due to a problem on one particular section of the feeder. That section was upgraded in 2000 and the feeder's performance over the past two years has been much better. During 2002, the unscheduled distribution outage statistics were 67,254 customer minutes, a SAIFI of 1.17 and a SAIDI of 0.77 hours.

GPD-01

Location: Supplies the area around Greenspond, Bonavista Bay

Feeder Statistics:

Number of Customers:	234			
Approximate Feeder Length	18.25	km (2000-2001 Survey)		
Average Annual Customer Minutes:	80,481	minutes	Ranking	108
Average Annual SAIFI:	1.74	interruptions	Ranking	76
Average Annual SAIDI:	5.91	hours	Ranking	14

Comments:

During 2002, all two-piece insulators were replaced on the feeder and a remotely operated recloser installed. This project will tend to improve the reliability of supply provided by this feeder.

The length of the power interruptions appears to be the main reason for the high SAIDI for this feeder. During 2002, the unscheduled distribution outage statistics were 43,326 customer minutes, a SAIFI of 0.98 and a SAIDI of 3.09 hours.

GRH-03

Location: Supplies the Community of Fortune

Feeder Statistics:

Number of Customers:	804			
Approximate Feeder Length	27.91	km (2000-2001 Survey)		
Average Annual Customer Minutes:	148,278	minutes	Ranking	63
Average Annual SAIFI:	3.07	interruptions	Ranking	20
Average Annual SAIDI:	3.05	hours	Ranking	65

Comments:

A section of the main feeder containing approximately 35 structures is deteriorated and needs to be upgraded. A project totaling approximately $110,000 has been identified for this feeder.

During 2002, the unscheduled distribution outage statistics were 108,218 customer minutes, a SAIFI of 5.07 and a SAIDI of 2.24 hours.

HBS-01

Location: Gambo Road (Hare Bay Substation towards Gambo)

Feeder Statistics:

Number of Customers:	3			
Approximate Feeder Length	12.32	km (2000-2001 Survey)		
Average Annual Customer Minutes:	1,078	minutes	Ranking	274
Average Annual SAIFI:	1.83	interruptions	Ranking	61
Average Annual SAIDI:	4.92	hours	Ranking	24

Comments:
During 2002, a remotely controlled recloser was installed. This will tend to decrease the response times to trouble on the feeder, improving the reliability of supply.

During 2002, the unscheduled distribution outage statistics were 1,293 customer minutes, a SAIFI of 2.00 and a SAIDI of 7.18 hours.

HOL-02

Location: Supplies a substantial portion of the Town of Holyrood, Conception Bay and the load along the Holyrood Access Road.

Feeder Statistics:

Number of Customers:	386			
Approximate Feeder Length	20.39	km (2000-2001 Survey)		
Average Annual Customer Minutes:	323,027	minutes	Ranking	20
Average Annual SAIFI:	1.11	interruptions	Ranking	151
Average Annual SAIDI:	10.89	hours	Ranking	2

Comments:

The storm during April 1999 accounts for 1,414,080 customer minutes of outage, or 88% of the total above. No need for a major upgrade of this feeder has been identified to address historic reliability performance. During 2002, the unscheduled distribution outage statistics were 3,416 customer minutes, a SAIFI of 0.11 and a SAIDI of 0.15 hours.

HUM-09

Location: Supplies an area of central Corner Brook near Cobb Lane and West Valley Road

Feeder Statistics:

Number of Customers:	471			
Approximate Feeder Length	11.89	km (2000-2001 Survey)		
Average Annual Customer Minutes:	102,515	minutes	Ranking	93
Average Annual SAIFI:	4.30	interruptions	Ranking	7
Average Annual SAIDI:	3.97	hours	Ranking	40

Comments:

Tree contact has been a major source of problems on this feeder. During 2002 and early 2003, extensive tree trimming was completed on this feeder.

A wind and snowstorm in Corner Brook during October 1999 caused 7 feeder interruptions, 32% of the interruptions recorded above. No need for a major upgrade of this feeder has been identified to address historic reliability performance.

During 2002, the unscheduled distribution outage statistics were 121,038 customer minutes, a SAIFI of 4.06 and a SAIDI of 4.28 hours. 70% of SAIFI and 95% of SAIDI for 2001 was caused by tree contact with the distribution lines.

HWD-07

Location: Supplies a large portion of Paradise and St. Thomas's on the Avalon Peninsula.

Feeder Statistics:

Number of Customers:	1859			
Approximate Feeder Length	42.49	km (2000-2001 Survey)		
Average Annual Customer Minutes:	404,861	minutes	Ranking	11
Average Annual SAIFI:	3.64	interruptions	Ranking	13
Average Annual SAIDI:	4.12	hours	Ranking	36

Comments:

During 2002, the unscheduled distribution outage statistics were 582,206 customer minutes, a SAIFI of 5.98 and a SAIDI of 6.31 hours. This feeder has been performing poorly since 2000 with an average of 572,027 customer minutes, a SAFI of 5.2 and SAIDI of 6.0. The condition and any potential upgrading of this feeder will be reviewed in advance of developing the 2005 Capital Budget.

KEL-02

Location: Supplies a section of Conception Bay South from Middle Bight Road to Dunn's Hill Road.

Feeder Statistics:

Number of Customers:	1411			
Approximate Feeder Length	39.58	km (2000-2001 Survey)		
Average Annual Customer Minutes:	471,024	minutes	Ranking	6
Average Annual SAIFI:	1.61	interruptions	Ranking	90
Average Annual SAIDI:	5.40	hours	Ranking	20

Comments:

The performance of this feeder is poor due to the April 1999 snowstorm that accounted for 1,838,378 or 78% of the customer minutes above. Some small sections of the feeder were upgraded in 1999 along with some additional fusing to address the concerns identified during the 1999 storm. To deal with load growth in the Conception Bay South Area, the need to offload a section of this feeder onto CHA-01 has been identified. No need for a major upgrade of this feeder has been identified to address historic reliability performance.

During 2002, the unscheduled distribution outage statistics were 38,753 customer minutes, a SAIFI of 1.25 and a SAIDI of 0.46 hours.

LAU-01

Location: Supplies an area of the Burin Peninsula from St. Lawrence to Little St. Lawrence

Feeder Statistics:

Number of Customers:	709			
Approximate Feeder Length	28.54	km (2000-2001 Survey)		
Average Annual Customer Minutes:	364,919	minutes	Ranking	13
Average Annual SAIFI:	1.55	interruptions	Ranking	97
Average Annual SAIDI:	8.63	hours	Ranking	3

Comments:

An interruption coding error resulted in 1,464,320 customer minutes coded as distribution related as opposed to transmission related. This accounts for 80% of the total above. No need for a major upgrade of this feeder has been identified to address historic reliability performance. However, a single phase line to a lighthouse on the feeder is deteriorated and has experienced a number of outages. While it will not have a significant impact on reliability statistics, upgrading of this section should be completed over the next few years. During 2002, the unscheduled distribution outage statistics were 13,288 customer minutes, a SAIFI of 0.37 and a SAIDI of 0.31 hours.

LET-01

Location: Supplies the Area Lethbridge to Winterbrook and from Lethbridge to Cannings Cove, including the area from Bunyan's Cove to and Charlottetown.

Feeder Statistics:

Number of Customers:	1864			
Approximate Feeder Length	102.46	km (2000-2001 Survey)		
Average Annual Customer Minutes:	364,142	minutes	Ranking	14
Average Annual SAIFI:	2.59	interruptions	Ranking	32
Average Annual SAIDI:	3.42	hours	Ranking	52

Comments:

During 2001 deteriorated insulators were replaced along with deteriorated conductor along a 3 km section of the line. During 2002 the two piece insulators along the three phase main trunk of the feeder were replaced. For 2003 there are plans to replace a large quantity of two-piece insulators on the two phase line between Musgravetown and Bunyan's Cove. Also in 2004, the customers in Charlottetown will be transferred onto a Glovertown feeder, reducing the number of customers impacted by problems on LET-01.

During 2002, the unscheduled distribution outage statistics were 302,247 customer minutes, a SAIFI of 2.45 and a SAIDI of 2.70 hours.

LEW-02

Location: From the Town of Lewisporte to the TCH at Lewisporte Junction and from the Town of Lewisporte along the Road to the Isles as far as Birchy Bay (A total of 8 communities)

Feeder Statistics:

Number of Customers:	1521			
Approximate Feeder Length	109.55	km (2000-2001 Survey)		
Average Annual Customer Minutes:	428,093	minutes	Ranking	9
Average Annual SAIFI:	3.35	interruptions	Ranking	17
Average Annual SAIDI:	4.74	minutes	Ranking	27

Comments:

In the past couple of years, all the defective insulators on the feeder were replaced. An inspection is scheduled for 2004 that will focus on identifying deteriorated plant. In the future, consideration should be given to installing remotely operated switches along the feeder to minimize the impact of the failure of a component on the feeder.

This feeder experienced a poor year in 2002 with 578,781 customer minutes of outage, a SAIFI of 2.25 and a SAIDI of 6.34.

LGL-01

Location: Supplies the Southwest coast of Newfoundland in the area of Margaree and Isle Aux Morts

Feeder Statistics:

Number of Customers:	355			
Approximate Feeder Length	14.19	km (2000-2001 Survey)		
Average Annual Customer Minutes:	182,189	minutes	Ranking	46
Average Annual SAIFI:	4.29	interruptions	Ranking	8
Average Annual SAIDI:	5.74	hours	Ranking	16

Comments:

Upgrading in 1999 totaled $103,000. No need for a major upgrade of this feeder has been identified to address historic reliability performance. During 2002, the unscheduled distribution outage statistics were 60,310 customer minutes, a SAIFI of 4.29 and SAIDI of 2.83 hours. Miscoding of what appears to be 3 system related outages has caused the SAIFI for 2002 to be higher than it otherwise should be.

LGL-02

Location: Supplies the customers from Burnt Islands to Rose Blanche.

Feeder Statistics:

Number of Customers:	693			
Approximate Feeder Length	32.76	km (2000-2001 Survey)		
Average Annual Customer Minutes:	255,771	minutes	Ranking	26
Average Annual SAIFI:	4.67	interruptions	Ranking	4
Average Annual SAIDI:	6.04	hours	Ranking	12

Comments:

During the summer of 1999 a number of lightning storms resulted in 351,000 customer minutes of interruptions or 27% of the average customer minutes. The high SAIFI is due to defective insulators and lightning during 1997 and 1998. In 2002 a two-year program began to address deterioration along this feeder. The estimate of the work planned for 2003 totals $200,000.

During 2002, the unscheduled distribution outage statistics were 195,401 customer minutes, a SAIFI of 5.39 and a SAIDI of 4.70 hours.

PEP-01

Location: Supplies a section of St. John's in the area of Pleasantville and Logy Bay Road.

Feeder Statistics:

Number of Customers:	1164			
Approximate Feeder Length	14.35	km (2000-2001 Survey)		
Average Annual Customer Minutes:	494,182	minutes	Ranking	3
Average Annual SAIFI:	3.20	interruptions	Ranking	19
Average Annual SAIDI:	5.86	hours	Ranking	15

Comments:

The performance of this feeder is poor due to the April 1999 snowstorm that accounted for 967,076 or 40% of the customer minutes above. In 2000 one section, approximately 20 spans, was rebuilt. This feeder requires no major work. During 2002, the unscheduled distribution outage statistics were 72,715 customer minutes, a SAIFI of 0.50 and a SAIDI of 1.04 hours.

PUL-01

Location: Supplies the Torbay and Bauline Areas

Feeder Statistics:

Number of Customers:	1929			
Approximate Feeder Length	48.73	km (2000-2001 Survey)		
Average Annual Customer Minutes:	444,325	minutes	Ranking	7
Average Annual SAIFI:	1.77	interruptions	Ranking	71
Average Annual SAIDI:	3.79	hours	Ranking	43

Comments:

Recent outages appear to be the result of conductor related problems. Some small upgrades are being completed on this feeder to deal with growth in certain areas. Also, a new feeder is being proposed to address reliability, customer growth and load growth on PUL-01 and PUL-02. This new feeder will supply a portion of the customers on PUL-01 and PUL-02. This will reduce customer exposure to trouble on the distribution system. This should improve the reliability of the feeder.

During 2002, the unscheduled distribution outage statistics were 71,427 customer minutes, a SAIFI of 1.31 and a SAIDI of 0.62 hours.

PUL-02

Location: Supplies an area north of St. John's from Torbay to Pouch Cove

Feeder Statistics:

Number of Customers:	1439			
Approximate Feeder Length	60.42	km (2000-2001 Survey)		
Average Annual Customer Minutes:	433,719	minutes	Ranking	8
Average Annual SAIFI:	2.75	interruptions	Ranking	27
Average Annual SAIDI:	5.00	hours	Ranking	22

Comments:

Of the past 10 years there were significant reliability problems only during 1999 and 2000. The problems were partially due to one location that was fixed during 2000. Also, a new feeder is being proposed to address reliability, customer growth and load growth on PUL-01 and PUL-02. This new feeder will supply a portion of the customers on PUL-01 and PUL-02. This will reduce customer exposure to trouble on the distribution system. This should improve the reliability of the feeder.

During 2002, the unscheduled distribution outage statistics were 291,222 customer minutes, a SAIFI of 2.98 and a SAIDI of 3.37 hours.

QTZ-01

Location: Former site of Quarry Mine off Argentia Access Road. Three customers remain on feeder.

Feeder Statistics:

Number of Customers:	3			
Approximate Feeder Length	0.71	km (2000-2001 Survey)		
Average Annual Customer Minutes:	1,298	minutes	Ranking	272
Average Annual SAIFI:	0.13	interruptions	Ranking	281
Average Annual SAIDI:	7.21	hours	Ranking	8

Comments:

Only one outage has been attributed to the distribution system. The outage occurred during the April 1999 storm. Other priorities resulted in repairs being completed 54 hours after the interruption occurred. No need for a major upgrade of this feeder has been identified to address historic reliability performance.

During 2002, there were no unscheduled distribution outages.

RRD-09

Location: Supplies the Airport Heights area of St. John's.

Feeder Statistics:

Number of Customers:	1204			
Approximate Feeder Length	26.68	km (2000-2001 Survey)		
Average Annual Customer Minutes:	333,728	minutes	Ranking	17
Average Annual SAIFI:	1.96	interruptions	Ranking	54
Average Annual SAIDI:	5.28	minutes	Ranking	21

Comments:

A storm in April 1999 caused 2 interruptions totaling 1,454,204 customer minutes of outages, 87% of the five year average above. No need for a major upgrade of this feeder has been identified to address historic reliability performance.

During 2002, the unscheduled distribution outage statistics were 618 customer minutes, a SAIFI of 0.02 and a SAIDI of 0.01 hours.

SCV-01

Location: Supplies a section of Conception Bay South from the Seal Cove Substation to Kelligrews

Feeder Statistics:

Number of Customers:	1575			
Approximate Feeder Length	41.92	km (2000-2001 Survey)		
Average Annual Customer Minutes:	374,822	minutes	Ranking	12
Average Annual SAIFI:	2.29	interruptions	Ranking	37
Average Annual SAIDI:	4.49	hours	Ranking	32

Comments:

During 1999, one storm caused 818,088 customer minutes of outage, 43% of the total for five years. Some minor work was completed in 2000 to address trouble experienced in 1999 and 2000. Most recently loading on the recloser resulted in some extended outages. Replacement of the recloser with one capable of remote monitoring and operation is currently planned for 2005. This should tend to improve the reliability on this feeder. To address load growth in Conception Bay South, the need to transfer a portion of this feeder onto KEL-01 has been identified.

During 2002, the unscheduled distribution outage statistics were 261,701 customer minutes, a SAIFI of 3.28 and a SAIDI of 2.77 hours.

SMV-01

Location: Supplies the Bonavista Bay side of the Bonavista Peninsula from Charleston to Hodderville

Feeder Statistics:

Number of Customers:	1023			
Approximate Feeder Length	97.79	km (2000-2001 Survey)		
Average Annual Customer Minutes:	304,478	minutes	Ranking	21
Average Annual SAIFI:	3.04	interruptions	Ranking	21
Average Annual SAIDI:	4.95	minutes	Ranking	23

Comments:

In 2003 lightning arrestors will be installed on all transformers on SMV-01 feeder. Feeder inspection during 2003 identified the need to replace 18 support structures along this feeder. Replacing the structures has been included as part of an extensive feeder improvement program scheduled for 2004.

This feeder experienced a poor year in 2002 with 272,345 customer minutes of outage, a SAIFI of 1.65 and a SAIDI of 4.44. 42% of the outage time during 2002 was due to lightning.

STG-01

Location: Area of St. George's north to Barachois Brook.

Feeder Statistics:

Number of Customers:	324			
Approximate Feeder Length	11.43	km (2000-2001 Survey)		
Average Annual Customer Minutes:	55,774	minutes	Ranking	140
Average Annual SAIFI:	4.69	interruptions	Ranking	3
Average Annual SAIDI:	3.07	hours	Ranking	64

Comments:

In 1999 there were 21 short interruptions due to salt contamination during two windstorms. This represents about 89% of the SAIFI statistic for the feeder. No need for a major upgrade of this feeder has been identified to address historic reliability performance. During 2002, the unscheduled distribution outage statistics were 33,970 customer minutes, a SAIFI of 1.06 and a SAIDI of 1.75 hours.

STG-02

Location: Supplies an Area around St. George's to Shallop Cove

Feeder Statistics:

Number of Customers:	446			
Approximate Feeder Length	24.09	km (2000-2001 Survey)		
Average Annual Customer Minutes:	104,835	minutes	Ranking	90
Average Annual SAIFI:	5.10	interruptions	Ranking	2
Average Annual SAIDI:	3.87	hours	Ranking	42

Comments:

In 1999 there were 20 short interruptions due to salt contamination during two windstorms. This represents about 78% of the SAIFI statistic for the feeder. No need for a major upgrade of this feeder has been identified to address historic reliability performance. During 2002, the unscheduled distribution outage statistics were 30,813 customer minutes, a SAIFI of 1.03 and a SAIDI of 1.15 hours.

STX-01

Location: Supplies Stephenville Crossing, to Mattis Point and Black Duck Siding.

Feeder Statistics:

Number of Customers:	1010			
Approximate Feeder Length	39.87	km (2000-2001 Survey)		
Average Annual Customer Minutes:	153,288	minutes	Ranking	59
Average Annual SAIFI:	5.87	interruptions	Ranking	1
Average Annual SAIDI:	2.72	hours	Ranking	85

Comments:

There were 24 feeder interruptions due to salt contamination from two windstorms during 1999. This accounts for 82% of the interruption frequency. No need for a major upgrade of this feeder has been identified to address historic reliability performance.

During 2002, the unscheduled distribution outage statistics were 35,159 customer minutes, a SAIFI of 1.15 and a SAIDI of 0.58 hours.

SUM-01

Location: Supplies Summerford to Tizzard's Harbour and Herring Neck on New World Island.

Feeder Statistics:

Number of Customers:	1436			
Approximate Feeder Length	91.67	km (2000-2001 Survey)		
Average Annual Customer Minutes:	416,074	minutes	Ranking	10
Average Annual SAIFI:	1.60	interruptions	Ranking	92
Average Annual SAIDI:	4.85	hours	Ranking	25

Comments:

One outage during 1999 accounts for 704,052 customer minutes or 34% of the total above. Recent upgrading included replacement of a large portion of the defective insulators along the main trunk of the feeder. A feeder inspection during 2003 has identified a large number of deficiencies that will be addressed. The potential for constructing a new feeder to reduce the number of customers exposed to distribution problems will be reviewed also, prior to developing the 2005 Capital Budget.

During 2002, the unscheduled distribution outage statistics were 467,184 customer minutes, a SAIFI of 1.13 and a SAIDI of 5.42 hours. During December 2002 there was a windstorm that accounted for 206,475 customer minutes, a SAIFI of 0.36 and SAIDI of 3.56 (65% of the total for 2002).

SUM-02

Location: Supplies the communities of Summerford, Boyd's Cove, Horwood, Stoneville & Port Albert.

Feeder Statistics:

Number of Customers:	588			
Approximate Feeder Length	65.57	km (2000-2001 Survey)		
Average Annual Customer Minutes:	258,673	minutes	Ranking	25
Average Annual SAIFI:	2.83	interruptions	Ranking	25
Average Annual SAIDI:	5.51	minutes	Ranking	18

Comments:

No need for a major upgrade of this feeder has been identified to address historic reliability performance.

During 2002, the unscheduled distribution outage statistics were 72,598 customer minutes, a SAIFI of 0.28 and a SAIDI of 2.06 hours.

TRP-01

Location: Town of Trepassey, east to Portugal Cove South and west to St. Shott's.

Feeder Statistics:

Number of Customers:	681			
Approximate Feeder Length	92.40	km (2000-2001 Survey)		
Average Annual Customer Minutes:	116,311	minutes	Ranking	85
Average Annual SAIFI:	3.00	interruptions	Ranking	23
Average Annual SAIDI:	2.84	minutes	Ranking	81

Comments:

In 2002, extensive upgrading of the feeder was completed on the line to St. Shotts. In 2003, a portion of the main line in Trepassey will be upgraded. Deterioration of the line supplying Portugal Cove South will be reviewed prior to the 2005 Budget in conjunction with reviewing the condition of TRP-02.

This feeder experienced a poor year in 2002 with 129,714 customer minutes of outage, a SAIFI of 5.61 and a SAIDI of 3.17

TRP-02

Location: Supplies four customers at Cape Race.

Feeder Statistics:

Number of Customers:	4			
Approximate Feeder Length	18.98	km (2000-2001 Survey)		
Average Annual Customer Minutes:	9,688	minutes	Ranking	235
Average Annual SAIFI:	2.64	interruptions	Ranking	31
Average Annual SAIDI:	32.64	hours	Ranking	1

Comments:

The customers along this feeder are all communications towers with generation backup. The generation comes on automatically so when there is an outage, repairs are often delayed to minimize repair costs. Prior to the development of the 2005 Budget, the condition of this feeder will be reviewed in conjunction with reviewing the condition of a portion of TRP-01 that supplied Portugal Cove South. During 2002, the unscheduled distribution outage statistics were 94 customer minutes, a SAIFI of 0.25 and a SAIDI of 0.39 hours.

WES-01

Location: Supplies the area of Wesleyville & Brookfield, Bonavista Bay.

Feeder Statistics:

Number of Customers:	399			
Approximate Feeder Length	11.55	km (2000-2001 Survey)		
Average Annual Customer Minutes:	185,031	minutes	Ranking	44
Average Annual SAIFI:	2.36	interruptions	Ranking	36
Average Annual SAIDI:	7.78	hours	Ranking	5

Comments:

By the end of 2003, the Company will have replaced all the defective insulators on this feeder. No need for a major upgrade of this feeder has been identified to address historic reliability performance.

During December 2002, one outage due to a burnt off phase conductor was 20 hours in duration. It represents 50% of the five-year average SAIDI statistic above and accounts for 76% of the 2002 SAIDI statistic. During 2002, the unscheduled distribution outage statistics were 617,572 customer minutes, a SAIFI of 6.17 and a SAIDI of 25.80 hours.

WES-02

Location: Area north of Wesleyville, from Pound Cove to Deadman's Bay

Feeder Statistics:

Number of Customers:	766			
Approximate Feeder Length	49.14	km (2000-2001 Survey)		
Average Annual Customer Minutes:	287,454	minutes	Ranking	22
Average Annual SAIFI:	3.70	interruptions	Ranking	12
Average Annual SAIDI:	6.31	hours	Ranking	10

Comments:

This feeder has been performing poorly over the past few years. An engineering review of the feeder has identified the need to upgrade the standard of construction along a number of sections of this line. The upgrading to a higher standard of construction should improve the reliability of this feeder.

During 2002, the unscheduled distribution outage statistics were 420,678 customer minutes, a SAIFI of 8.12 and a SAIDI of 9.15 hours.

WES-03

Location: Area south of Wesleyville from Valleyfield to Badgers Quay

Feeder Statistics:

Number of Customers:	519			
Approximate Feeder Length	17.83	km (2000-2001 Survey)		
Average Annual Customer Minutes:	233,015	minutes	Ranking	31
Average Annual SAIFI:	1.38	interruptions	Ranking	114
Average Annual SAIDI:	7.43	hours	Ranking	6

Comments:

During 2003, defective insulators and crossarms will be replaced on approximately 80 structures along the feeder. No other major upgrade of this feeder has been identified to address historic reliability performance.

On December 27, 2002, a burnt pole caused a 21-hour outage. This represents 57% of the five-year average SAIDI above and 75% of the 2002 SAIDI statistic. During 2002, the unscheduled distribution outage statistics were 887,158 customer minutes, a SAIFI of 4.00 and a SAIDI of 28.49 hours.

APPENDIX “C”

List of projects for inclusion in five year capital forecast

Through reviewing the power interruption statistics and discussions with field staff, the following projects have been identified for inclusion in the 2004 budget or five year forecast in order to improve the reliability performance of their respective feeders.

BRB-04 - Upgrade the feeder to deal with the sections of the feeder which have been experiencing reliability problems. This work is estimated to cost $120,000. (2004)

CAB-01 - Replace deteriorated conductor and improve ability to transfer load from FER-01. This work is estimated to cost $15,000. (2004)

CHA-01 - Construct a new feeder as recommended by the Conception Bay South Planning Study to reduce the number of customers exposed to a single problem on CHA-01. This work is estimated to cost $448,000. (2004)

FER-01 - Upgrade conductor to improve ability to transfer load from CAB-01. This work is estimated to cost $18,000. (2004)

GBS-02 - As identified through inspections, upgrade the main line to Cape Ray. This upgrade has been budgeted as part of the feeder improvement project for GBS-02 ($100,000). (2004)

GBY-02 - Upgrade the feeder to address deterioration and adequacy of line construction. Pending detailed engineering assessment, the work will cost approximately $425,000. (2005)

GRH-03 - Upgrade a section of the main feeder to deal with deterioration. This project is estimated to cost $110,000. (2006)

PUL-01 & PUL-02 - Construct a new feeder to reduce loading and the number of customers on PUL-01 & PUL-02. This project is estimated to cost $224,000. (2004)

WES-02 - Upgrade the feeder to address accessibility and adequacy of line construction standards. Overall project estimate is approximately $1.1 million. (700,000 – 2004) (400,000 – 2005)

Feeders identified as requiring further review.

BCV-02 - Review the condition of the feeder to determine if there are any projects required to improve reliability.

BOT-01 - Based on the results of an inspection in 2004, review the need and priority for relocating a section of the line to poles recently installed by Aliant. Also, review the potential for building a new feeder to reduce the number of customers impacted by a problem on the distribution system.

HWD-07 - Review the condition of the feeder to determine if there are any projects required to improve reliability.

LEW-02 - Review the potential benefits of installing remotely operated reclosers to improve response times for outages.

SUM-01 Review the potential benefits of constructing a new feeder to reduce the number of customers impacted by a problem on the distribution feeder.

TRP-01 - Review the condition of the line supplying Portugal Cove South in conjunction with reviewing the condition of TRP-02.

TRP-02 - Review the condition of the feeder in conjunction with reviewing the portion of TRP-01 that supplies Portugal Cove South.