Q. For each of the past five years, identify the fifteen worst performing circuits on Newfoundland Power's system, including the number of customers and demand served by each circuit, factors underlying the performance of these circuits, and any measures implemented to improve the reliability of these circuits.

A. As part of its annual Capital Budget Application (CBA), Newfoundland Power files a report on distribution reliability (the "Distribution Reliability Initiative Reports"). The Distribution Reliability Initiative Reports provide, for the Company's 15 worst performing feeders, reliability data, factors underlying feeder performance and actions to be taken to improve the reliability of the feeders.

Attachments A through E provide the Distribution Reliability Initiative Reports filed with Newfoundland Power's CBA for the years 2009 through 2013.

Attachment F provides expanded versions of the Unscheduled Distribution Related Outage tables (sorted by customer minutes of interruption) provided in the Distribution Reliability Initiative Reports, which include the number of customers and the most recent winter peak demand (2011-2012 winter season).

Distribution Reliability Initiative
(June 2008)

Distribution Reliability Initiative

June 2008

Prepared by:

Ralph Mugford P. Eng.

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1.0 Distribution Reliability Initiative

The Distribution Reliability Initiative is a capital project that focuses on the reconstruction of the worst performing distribution feeders. Customers on these feeders experience more frequent and longer duration outages than the majority of customers.

Newfoundland Power manages system reliability through capital investment, maintenance practices and operational deployment. Newfoundland Power examines its actual distribution reliability performance to assess whether targeted capital investment is warranted to improve service reliability. Through this process the Company identifies the worst performing feeders in the power system based upon reliability measures. Engineering assessments are completed for each of the worst performing feeders and, where appropriate, the Company makes capital investment to improve the reliability of these feeders.

Appendix A contains the five-year average distribution reliability data of the 15 worst performing feeders.

Appendix B contains a summary of the assessment carried out on each of the feeders listed in Appendix A.

2.0 Distribution Reliability Initiative Projects: 2006-2007

The 2006 Capital Budget Application proposed Reliability Rebuild Projects for BOT-01, GLV-02 and LEW-02 feeders. The BOT-01 and GLV-02 rebuilds proposed work over three years to be completed in 2006, 2007 and 2008 while the LEW-02 rebuild proposed work over two years to be completed in 2006 and 2007.

The 2007 Capital Budget Application included significant expenditure for the Rattling Brook Refurbishment project. As a result the Distribution Reliability Initiative was suspended for 2007.

3.0 Distribution Reliability Initiative Projects: 2008

In the 2008 Capital Budget Application, the Company resumed the Distribution Reliability Initiative project with the work initially planned for 2007 on BOT-01, GLV-02 and LEW-02 feeders to be completed. However recent reliability issues in the Salvage area on the Eastport Peninsula requires additional work to be carried out on the GLV-02 feeder in 2008 and work scheduled for LEW-02 be deferred until 2009. Table 1 shows the revised forecast for the Distribution Reliability Initiative project for 2008.

Table 1

Distribution Reliability Initiative
2008 (Revised)
($000s)

Feeder	2008
BOT–01	789
GLV–02	497
Total	**1,286**[1]

4.0 Distribution Reliability Initiative Projects: 2009

In 2009, the Company plans to continue the Distribution Reliability Initiative. It is planned to complete work on the GLV-02 and LEW-02 feeders as proposed in the 2006 Capital Budget Application and detailed in the *GLV-02 and LEW-02 Feeder Studies* filed with the 2006 Capital Budget Application. Work is also being proposed for the NWB-02 feeder. A detailed analysis is provided in the *NWB-02 Feeder Study* filed with the 2009 Capital Budget Application. Appendix B contains maps of the feeder sections that are proposed to be rebuilt in 2009.

Table 2

Distribution Reliability Initiative
2009
($000s)

Feeder	2009
LEW-02	313
GLV–02	457
NWB–02	496
Total	**1,266**

4.1 LEW-02

The LEW-02 feeder is located in the Grand Falls-Windsor operating area of the Western Region. The 25 kV feeder originates at the Lewisporte Substation located in the community of Lewisporte and serves approximately 1,390 customers.

[1] The 2008 estimates for GLV-02 and BOT-01 have been revised from original estimates due to upgrades which have or will be carried out on the feeders to accommodate third party attachments and due to a review of recent reliability data.

The report *LEW-02 Feeder Study* filed with the 2006 Capital Budget Application recommended work be carried out over a 2-year period. The report recommended upgrades to the following sections of line that will now be completed in 2009:

- End of three phase line to Baytona Tap
- Baytona Tap to Birchy Bay Tap
- Birchy Bay Tap

Table 3 is a summary of the current outage statistics for the LEW-02 feeder.

Table 3

Unscheduled Distribution Related Outages [1]

	Customer Interruptions	Customer Minutes of Interruption	Distribution SAIFI	Distribution SAIDI
LEW-02	4,712	713,417	3.39	8.55
Company Average	1,207	92,119	1.68	2.13

[1] Outages are the five-year averages from 2003 through 2007.

4.2 GLV-02

The GLV-02 feeder is located in the Gander operating area of the Western Region. The 25kV feeder originates at the Glovertown Substation in the community of Glovertown and serves approximately 1,259 customers.

The report *GLV-02 Feeder Study* filed with the 2006 Capital Budget Application recommended work be carried out over a 3-year period. The report recommended upgrades to the following sections of line that will now be completed in 2009:

- Tap to Happy Adventure
- Sandy Cove
- Tap to Burnside
- End of three phase line to St. Chad's
- St. Chad's
- Tap St. Chad's to Burnside
- Tap to Trans Canada Highway

Table 4 is a summary of the current outage statistics for the GLV-02 feeder.

Table 4

Unscheduled Distribution Related Outages[1]

	Customer Interruptions	Customer Minutes of Interruption	Distribution SAIFI	Distribution SAIDI
GLV-02	4,855	685,055	3.85	9.07
Company Average	1,207	92,119	1.68	2.13

[1] Outages are the five-year averages from 2003 through 2007.

4.3 NWB-02

The NWB-02 feeder is located in the Bonavista operating area of the Eastern Region. The 25 kV originates at the Northwest Brook Substation west of the community of Goobies and serves approximately 1,050 customers.

The report *NWB-02 Feeder Study* recommends work be carried out in 2009 on the following sections of line:

- Northwest Brook substation along the TCH to boat basin in Long Beach
- Boat basin in Long Beach to end of Hodge's Cove
- Northwest Brook to the TCH near Ivany's Cove
- Community of Hillview
- Community of St. Jones Within

Table 5 is a summary of the current outage statistics for the NWB-02 feeder.

Table 5

Unscheduled Distribution Related Outages[1]

	Customer Interruptions	Customer Minutes of Interruption	Distribution SAIFI	Distribution SAIDI
NWB-02	3,155	414,821	3.04	6.58
Company Average	1,207	92,119	1.68	2.13

[1] Outages are the five-year averages from 2003 through 2007.

Appendix A

Distribution Reliability Data

Unscheduled Distribution Related Outages

Five-Year Average
2003-2007
Sorted By Customer Minutes of Interruption

Feeder	Annual Customer Interruptions	Annual Customer Minutes of Interruption	Annual Distribution SAIFI	Annual Distribution SAIDI
LEW - 02	4,712	713,417	3.39	8.55
GLV – 02	4,855	685,055	3.85	9.07
BOT - 01	4,858	646,003	2.99	6.59
BCV – 02	3,932	460,113	2.58	5.04
ROB - 01	3,671	458,645	3.42	7.12
PUL - 01	3,511	441,638	2.10	4.42
DUN - 01	3,046	431,874	3.23	7.62
NWB - 02	3,155	414,821	3.04	6.58
DOY - 01	4,248	404,597	2.75	4.34
GFS - 06	2,409	357,363	1.48	3.60
MIL - 02	4,190	335,103	3.07	4.11
CHA-01	5,818	324,566	2.79	2.57
MOB-01	3,749	323,911	3.35	4.83
PUL-02	3,371	323,352	2.46	3.94
HWD-02	2,665	289,735	1.95	3.54
Company Average	**1,207**	**92,119**	**1.68**	**2.13**

Unscheduled Distribution Related Outages

Five-Year Average
2003-2007
Sorted By Distribution SAIFI

Feeder	Annual Customer Interruptions	Annual Customer Minutes of Interruption	Annual Distribution SAIFI	Annual Distribution SAIDI
GLV-02	4,855	685,055	3.85	9.07
FER-01	2,258	108,213	3.57	2.88
ROB-01	3,671	458,645	3.42	7.12
LEW-02	4,712	713,417	3.39	8.55
MOB-01	3,749	323,911	3.35	4.83
DUN-01	3,046	431,874	3.23	7.62
GBS-02	1,403	103,714	3.18	3.87
CAB-01	3,658	247,645	3.13	3.50
NWB-02	3,155	414,821	3.04	6.58
BOT-01	4,858	646,003	2.99	6.59
GRH-02	2,366	190,942	2.99	4.03
LOK-01	2,933	179,753	2.87	2.93
CHA-01	5,818	324,566	2.79	2.57
KEL-02	2,817	161,108	2.77	2.55
DOY-01	4,248	404,597	2.75	4.34
Company Average	**1,207**	**92,119**	**1.68**	**2.13**

Unscheduled Distribution Related Outages

Five-Year Average
2003-2007
Sorted By Distribution SAIDI

Feeder	Annual Customer Interruptions	Annual Customer Minutes of Interruption	Annual Distribution SAIFI	Annual Distribution SAIDI
GPD-01	379	157,275	1.61	11.25
GLV-02	4,855	685,055	3.85	9.07
LEW-02	4,712	713,417	3.39	8.55
DUN-01	3,046	431,874	3.23	7.62
ROB-01	3,671	458,645	3.42	7.12
BOT-01	4,858	646,003	2.99	6.59
NWB-02	3,155	414,821	3.04	6.58
WES-02	1,939	238,818	2.59	5.31
BCV-02	3,932	460,113	2.58	5.04
MOB-01	3,749	323,911	3.35	4.83
SUM-02	943	168,605	1.59	4.73
SMV-01	1,755	287,522	1.70	4.66
PUL-01	3,511	441,638	2.10	4.42
GBY-03	1,259	202,585	1.65	4.42
DOY-01	4,248	404,597	2.75	4.34
Company Average	**1,207**	**92,119**	**1.68**	**2.13**

Appendix B

Worst Performing Feeders
Summary of Data Analysis

Worst Performing Feeders Summary of Data Analysis	
Feeder	**Comments**
GPD-01	Reliability statistics were poor in 2003 & 2004. Work was carried out under the Rebuild Distribution Lines program in 2005 and there have been no reliability issues since that time. No work is required at this time.
GLV-02	Work is in progress on this feeder under a project initiated in 2006.
LEW-02	Work is in progress on this feeder under a project initiated in 2006.
DUN-01	Reliability statistics were poor in both 2006 and 2007 however the statistics were driven by a sleet storm in 2006 and a broken recloser bushing in 2007. No work is required at this time.
ROB-01	The ROB-01 feeder has displayed consistently poor reliability however the issues have been primarily related to trees and lightning. Trees have been cut under the vegetation management program and lightning arrestors have been installed on distribution equipment. No work is required at this time.
BOT-01	Work is in progress on this feeder under a project initiated in 2006.
NWB-02	The NWB-02 feeder has displayed consistently poor reliability over the past five years. The issues experienced have been due to a variety of issues related to the age and condition of the line. This feeder should be considered for work under the Distribution Reliability Initiative.
WES-02	Reliability statistics were poor in 2003 & 2004. Work was carried out under the Rebuild Distribution Lines program in 2005 and there have been no reliability issues since 2005. No work is required at this time.
BCV-02	Problems in 2003, 2004 & 2005. This feeder was rebuilt under the Distribution Reliability Initiative in 2006. There have been no reliability issues since 2006. No work is required at this time.
MOB-01	Reliability statistics were poor in 2003 & 2004. Work was carried out under the Rebuild Distribution Lines program in 2005 and there have been no reliability issues since 2005. No work is required at this time.

FER-01	Reliability statistics were poor in 2003 & 2005. Work was carried out under the Rebuild Distribution Lines program in 2005 and there have been no reliability issues since 2005. No work is required at this time.
GBS-02	Reliability statistics were poor in 2004. Work was carried out under the Rebuild Distribution Lines program in 2004 and there have been no reliability issues since 2005. No work is required at this time.
CAB-01	Reliability statistics were poor in 2003 & 2004. Work was carried out under the Rebuild Distribution Lines program in 2005 and there have been no reliability issues since 2005. No work is required at this time.
PUL-01	Reliability statistics were poor in 2003 & 2004. Work was carried out under the Rebuild Distribution Lines program in 2006 and there have been no reliability issues since 2006. No work is required at this time.
DOY-01	Overall reliability statistics on this feeder have been good. The poor average statistics are driven by a single weather related issue in 2006. No work is required at this time.
GFS-06	Reliability statistics were poor in 2005. Work was carried out under the Rebuild Distribution Lines program in 2006 and there have been no reliability issues since 2006. No work is required at this time.
MIL-02	The MIL-02 feeder has displayed consistently poor reliability from 2002 to 2006. Significant work was carried out under the Rebuild Distribution Lines program in 2006 and there were no reliability issues in 2007. No work is required at this time.
CHA-01	Reliability statistics were poor in 2004 & 2005. Work was carried out under the Rebuild Distribution Lines program in 2005 and there have been no reliability issues since 2005. No work is required at this time.
PUL-02	Reliability statistics were poor in 2003, 2004 & 2005. Work was carried out under the Rebuild Distribution Lines program in 2006 and there have been no reliability issues since 2005. No work is required at this time.
HWD-02	Overall reliability statistics on this feeder have been good. The poor average statistics are driven by a single weather related issue in 2004. No work is required at this time.
GRH-02	Reliability statistics were poor in 2004 & 2005. Work was carried out under the Rebuild Distribution Lines program in 2005 and there have been no reliability issues since 2005. No work is required at this time.

LOK-01	Reliability statistics were poor in 2004. Work was carried out under the Rebuild Distribution Lines program in 2006 and there have been no reliability issues since 2006. No work is required at this time.
KEL-02	Overall reliability statistics on this feeder have been good. The poor average statistics are driven by a single weather related issue in 2003. No work is required at this time.
SUM-02	Reliability statistics were poor in 2003, 2004 and 2005. Work was carried out under the Rebuild Distribution Lines program in 2005 and there have been no reliability issues since 2005. No work is required at this time.
SMV-01	Reliability statistics were poor in 2003 & 2004. Work was carried out under the Rebuild Distribution Lines program in 2004 and there have been no reliability issues since 2004. No work is required at this time.
GBY-03	Reliability statistics were poor in 2003 & 2004. Work was carried out under the Rebuild Distribution Lines program in 2004 and there have been no reliability issues since that time. No work is required at this time.

Distribution Reliability Initiative
(June 2009)

Distribution Reliability Initiative

June 2009

Prepared by:

Ralph Mugford P. Eng.

NEWFOUNDLAND POWER
A FORTIS COMPANY

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1.0 Distribution Reliability Initiative

The Distribution Reliability Initiative is a capital project that focuses on the reconstruction of the worst performing distribution feeders. Customers on these feeders experience more frequent and longer duration outages than the majority of customers.

Newfoundland Power manages system reliability through capital investment, maintenance practices and operational deployment. On an ongoing basis Newfoundland Power examines its actual distribution reliability performance to assess where targeted capital investment is warranted to improve service reliability. Through this process the Company identifies the worst performing feeders in the power system based upon reliability measures. Engineering assessments are completed for each of the worst performing feeders and, where appropriate, the Company makes capital investment to improve the reliability of these feeders.

Appendix A contains the five-year average distribution reliability data of the 15 worst performing feeders based on data for 2004 - 2008.

Appendix B contains a summary of the assessment carried out on each of the feeders listed in Appendix A.

2.0 Distribution Reliability Initiative Projects: 2008

In 2008, the Company completed Distribution Reliability Initiative projects on sections of BOT-01 and GLV-02 feeders. Table 1 shows the cost of the work completed in 2008.

Table 1

Distribution Reliability Initiative
2008
($000s)

Feeder	2008
BOT–01	630
GLV–02	781
Total	**$1,411**

3.0 Distribution Reliability Initiative Projects: 2009

In 2009, the Company will continue the Distribution Reliability Initiative. The 2009 Capital Budget Application proposed work on the GLV-02 and LEW-02 feeders. The work is a continuation of projects initially proposed in the 2006 Capital Budget Application and detailed in *4.2.2 Lewisporte-02 Feeder Study* and *2.1.3 Glovertown-02 Feeders Study* filed with that application. Work was also proposed for the NWB-02 feeder. A detailed analysis was provided

in 4.*2.1 Northwest Brook NWB-02 Feeder Study* filed with the 2009 Capital Budget Application. The budgeted expenditure in 2009 is detailed in Table 2.

Table 2

Distribution Reliability Initiative
2009
($000s)

Feeder	2009
LEW-02	313
GLV–02	457
NWB–02	496
Total	**1,266**

The 2009 Budget was prepared in early 2008. The five year reliability data available at the time covered the period from 2003 to 2007.

A revised analysis for each of the proposed 2009 projects has been completed to include 2008 data. The analysis is detailed in Tables 3, 4 and 5.

LEW-02

The LEW-02 project was intended to have been a two year project commencing in 2006. Upgrades started in 2006 where a substantial amount of the work was completed. Work was postponed in 2007 to accommodate the rebuild required at the Rattling Brook Hydro Plant. Work was again postponed in 2008 due to improving overall reliability statistics on the feeder and to accommodate priority work on the BOT-01 and GLV-02 feeders. Reliability has improved substantially since 2005. There have been no feeder level outages in the past 3 years. Reliability data for the most recent five year period 2004 – 2008 is shown in Table 3.

Table 3

LEW-02 – Reliability Analysis

	2004	2005	2006	2007	2008
SAIDI	12.54	19.68	0.73	1.04	3.54
SAIFI	7.55	4.36	1.02	0.41	1.22

In 2008 SAIDI did increase slightly however the increase was due to a single insulator failure caused by a lightning strike. Excluding this event the 2008 SAIDI was 1.23.

Based on the latest reliability data no further work on LEW-02 under the Distribution Reliability Initiative is required at this time.

GLV-02

The GLV-02 project was intended to be a 3 year project commencing in 2006. Upgrades started in 2006. Work was postponed in 2007 to accommodate the rebuild required at the Rattling Brook Hydro Plant and resumed in 2008. 2008 reliability shows a substantial improvement.

Table 4

GLV-02 – Reliability Analysis

	2004	2005	2006	2007	2008
SAIDI	5.87	8.46	10.44	8.77	3.22
SAIFI	4.24	3.88	3.55	3.56	3.18

While both SAIDI and SAIFI were above the company average, the larger 2008 outages were due to damages by an outside party and an unbalance during switching. Excluding these events which were not due to the age or condition of the feeder, SAIDI and SAIFI for 2008 on GLV-02 were 1.59 and 1.15 respectively.

Based on the latest reliability data no further work on GLV-02 under the distribution Reliability Initiative is required at this time.

NWB-02

The NWB-02 project is expected to be completed over 3 years commencing in 2009. The 2008 reliability numbers show continued poor overall reliability on the feeder.

Table 5

NWB-02 – Reliability Analysis

	2004	2005	2006	2007	2008
SAIDI	12.17	4.60	8.98	4.82	9.51
SAIFI	4.85	2.63	5.33	1.25	3.10

Work will proceed on this feeder as planned.

The work proposed for the LEW-02 and GLV-02 feeders under the Distribution Reliability Initiative for 2009 is cancelled. Work proposed for NWB-02 will continue as planned. A revised expenditure estimate is detailed in Table 6.

Table 6

Distribution Reliability Initiative
2009 (Revised)
($000s)

Feeder	2009
LEW-02	0
GLV–02	0
NWB–02	541
Total	**541**

4.0 Distribution Reliability Initiative Projects: 2010

The 2010 Capital Budget Application includes the continuation of the proposed work on NWB-02 as described in Section 3.0 of this study.

The examination of the worst performing feeders as listed in Appendix A and B has determined that other than the proposed work on NWB-02, no work is required on other feeders under the Distribution Reliability Initiative at this time.

Table 7 shows the proposed capital expenditures for the Distribution Reliability Initiative for 2010.

Table 7

Distribution Reliability Initiative
2010
($000s)

Feeder	2010
NWB–02	447

Appendix A

Distribution Reliability Data

Unscheduled Distribution Related Outages

Five-Year Average
2004-2008
Sorted By Customer Minutes of Interruption

Feeder	Annual Customer Interruptions	Annual Customer Minutes of Interruption	Annual Distribution SAIFI	Annual Distribution SAIDI
LEW-02	4,051	626,948	2.91	7.51
BOT-01	4,906	620,881	3.01	6.34
GLV-02	4,699	563,465	3.68	7.35
NWB-02	3,574	500,623	3.43	8.02
HOL-01	2,991	438,427	1.50	3.66
DUN-01	3,323	414,391	3.52	7.32
DOY-01	4,119	401,180	2.62	4.25
GFS-06	2,453	374,083	1.46	3.71
KEL-01	2,772	361,704	1.54	3.34
MIL-02	3,696	358,874	2.69	4.35
BCV-02	3,233	349,994	2.12	3.83
HWD-07	6,068	341,262	2.26	2.11
ROB-01	2,313	315,399	2.12	4.83
CAB-01	3,985	309.023	3.34	4.32
CHA-01	6,042	305,422	2.81	2.36
Company Average	**956**	**84,530**	**1.25**	**1.74**

Unscheduled Distribution Related Outages

Five-Year Average
2004-2008
Sorted By Distribution SAIFI

Feeder	Annual Customer Interruptions	Annual Customer Minutes of Interruption	Annual Distribution SAIFI	Annual Distribution SAIDI
GLV-02	4,699	563,465	3.68	7.35
NWB-02	3,574	500,623	3.43	8.02
GBS-02	1,538	113,420	3.41	4.19
CAB-01	3,985	309.023	3.34	4.32
BOT-01	4,906	620,881	3.01	6.34
LEW-02	4,051	626,948	2.91	7.51
GRH-02	2,267	195,926	2.87	4.13
CHA-01	6,042	305,422	2.81	2.36
MIL-02	3,696	358,874	2.69	4.35
DOY-01	4,119	401,180	2.62	4.25
FER-01	1,644	69,481	2.61	1.84
MMT-01	1,187	69,999	2.58	2.54
ROB-02	498	44,416	2.48	3.68
WES-01	958	52,884	2.47	2.27
Company Average	**956**	**84,530**	**1.25**	**1.74**

Unscheduled Distribution Related Outages

Five-Year Average
2004-2008
Sorted By Distribution SAIDI

Feeder	Annual Customer Interruptions	Annual Customer Minutes of Interruption	Annual Distribution SAIFI	Annual Distribution SAIDI
GPD-01	277	130,642	1.17	9.23
NWB-02	3,574	500,623	3.43	8.02
LEW-02	4,051	626,948	2.91	7.51
GLV-02	4,699	563,465	3.68	7.35
DUN-01	3,323	414,391	3.52	7.32
BOT-01	4,906	620,881	3.01	6.34
ROB-01	2,313	315,399	2.12	4.83
PJN-01	186	38,603	1.34	4.63
BUC-02	295	43,048	1.88	4.57
MIL-02	3,696	358,874	2.69	4.35
CAB-01	3,985	309.023	3.34	4.32
SCT-02	420	62,504	1.72	4.27
DOY-01	4,119	401,180	2.62	4.25
HOL-02	881	121,145	1.84	4.22
GBS-02	1,538	113,420	3.41	4.19
Company Average	**956**	**84,530**	**1.25**	**1.74**

Appendix B

Worst Performing Feeders
Summary of Data Analysis

Worst Performing Feeders Summary of Data Analysis	
Feeder	**Comments**
GPD-01	Reliability statistics were poor in 2003 & 2004. Work was carried out under the Rebuild Distribution Lines program in 2005 and there have been no reliability issues since that time. No work is required at this time.
GLV-02	A substantial amount of work was completed on this feeder since 2006. Reliability has improved considerably. No further work is required at this time.
LEW-02	A substantial amount of work was completed on this feeder since 2006. Reliability has improved considerably. No further work is required at this time.
DUN-01	Reliability statistics were poor in both 2006 and 2007 however the statistics were driven by a sleet storm in 2006 and a broken recloser bushing in 2007 and a broken pole in 2008. No work is required at this time.
ROB-01	The ROB-01 feeder has displayed consistently poor reliability from 2004 – 2006 however the issues have been primarily related to trees and lightning. Trees have been cut under the vegetation management program and lightning arrestors have been installed on distribution equipment. Reliability improved in 2008. No work is required at this time.
BOT-01	A substantial amount of work was completed on this feeder since 2006. Reliability has improved considerably. No further work is required at this time.
NWB-02	The NWB-02 feeder has displayed consistently poor reliability over the past five years. The issues experienced have been due to a variety of issues related to the age and condition of the line. This feeder should be scheduled for work under the Distribution Reliability Initiative.
WES-01	Reliability statistics were poor in 2007. Work was carried out under the Rebuild Distribution Lines program in 2008 and there have been no reliability issues since that time. No work is required at this time.

BCV-02	Problems in 2003, 2004 & 2005. This feeder was rebuilt under the Distribution Reliability Initiative in 2006. There have been no reliability issues since 2006. No work is required at this time.
HOL-02	Poor overall reliability is due to a storm in March 2008. No work is required at this time.
FER-01	Reliability statistics were poor in 2005. Work was carried out under the Rebuild Distribution Lines program in 2005 and there have been no reliability issues since 2005. No work is required at this time.
GBS-02	Reliability statistics were poor in 2004. Work was carried out under the Rebuild Distribution Lines program in 2004 and there have been no reliability issues since 2005. No work is required at this time.
CAB-01	Reliability statistics were poor in 2004. Work was carried out under the Rebuild Distribution Lines program in 2005 and there have been no reliability issues since 2005. Poor statistics in 2008 were due to a broken cutout and a broken insulator. No work is required at this time.
DOY-01	Overall reliability statistics on this feeder have been good. The poor average statistics are driven by a single weather related issue in 2006. No work is required at this time.
GFS-06	Reliability statistics were poor in 2005. Work was carried out under the Rebuild Distribution Lines program in 2006 and there have been no reliability issues since 2006. No work is required at this time.
MIL-02	The MIL-02 feeder has displayed consistently poor reliability from 2002 to 2006. Significant work was carried out under the Rebuild Distribution Lines program in 2006 and there were no reliability issues in 2007 or 2008. No work is required at this time.
CHA-01	Reliability statistics were poor in 2004 & 2005. Work was carried out under the Rebuild Distribution Lines program in 2005 and there have been no reliability issues since 2005. No work is required at this time.
KEL-01	Reliability statistics were poor in 2006. Work was carried out under the Rebuild Distribution Lines program in 2006 and there have been no reliability issues since then. No work is required at this time.
HWD-07	HWD-07 overall reliability statistics are good but due to the large number of customer on the feeder ranks high on the list sorted by customer minutes. No reliability work is required at this time.

GRH-02	Reliability statistics were poor in 2004 & 2005. Work was carried out under the Rebuild Distribution Lines program in 2005 and there have been no reliability issues since 2005. No work is required at this time.
MMT-01	Reliability statistics were poor in 2006. Work was carried out under the Rebuild Distribution Lines program in 2006 and there have been no reliability issues since then. No work is required at this time.
ROB-02	Reliability statistics were poor in 2004. Work was carried out under the Rebuild Distribution Lines program in 2005 and there have been no reliability issues since then. No work is required at this time.
BUC-02	Reliability problems in 2008 were due to three insulator failures in 2008. No work is required at this time but the feeder will be inspected in 2009.
PJN-01	Reliability statistics were poor in 2005 & 2006. Work was carried out under the Rebuild Distribution Lines program in 2007 and there have been no reliability issues since then. No work is required at this time.
SCT-02	Reliability problems in 2008 were due to a storm in March. No work is required at this time.

Distribution Reliability Initiative
(June 2010)

Distribution Reliability Initiative

June 2010

Prepared by:

Ralph Mugford, P. Eng.

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1.0 Distribution Reliability Initiative

The Distribution Reliability Initiative is a capital project focusing on the reconstruction of the worst performing distribution feeders. Customers on these feeders experience more frequent and longer duration outages than the majority of customers.

Newfoundland Power manages system reliability through capital investment, maintenance practices and operational deployment. On an ongoing basis, Newfoundland Power examines its actual distribution reliability performance to assess where targeted capital investment is warranted to improve service reliability. Through this process, the Company identifies the worst performing feeders in the power system based upon reliability measures. Engineering assessments are completed for each of the worst performing feeders and, where appropriate, the Company makes capital investment to improve the reliability of these feeders.

Appendix A contains the five-year average distribution reliability data of the 15 worst performing feeders based on data for 2005 - 2009.

Appendix B contains a summary of the assessment carried out on each of the feeders listed in Appendix A.

2.0 Distribution Reliability Initiative Projects: 2009

In 2009, the Company completed work under the Distribution Reliability Initiative project on sections of the NWB-02 feeder at a cost of $455,000. The work was detailed in 4*.1.1 Northwest Brook NWB-02 Planning Study* filed with the 2009 Capital Budget Application. This is a three year project with additional work planned for 2010 and 2011.

3.0 Distribution Reliability Initiative Projects: 2010

In 2010, the Company will continue the Distribution Reliability Initiative. The 2010 Capital Budget Application proposed work on the NWB-02 feeder. The work is a continuation of projects initially proposed in the 2009 Capital Budget Application. The forecasted expenditure in 2010 is $496,000.

4.0 Distribution Reliability Initiative Projects: 2011

The 2011 Capital Budget Application includes the third phase of the proposed work on NWB-02 as outlined in 4*.1.1 Northwest Brook NWB-02 Planning Study* filed with the 2009 Capital Budget Application.

Two significant pieces of work remain for 2011.

Hillview to the Hatchet Cove Tap

This 8.9 km section of single phase line consists of poles installed in the early 1960's with #2 ACSR conductor. The line is remote from the road right of way ("ROW") with long spans. In 2011, 7 km of single phase line will be relocated to the road ROW. The estimate for planned work in this section is approximately $350,000.

Hatchet Cove Tap to St. Jones Within

This 3.4 km section of single phase line consists of poles installed in the early 1960's with #2 ACSR conductor. The line is remote from the road ROW and includes long span lengths. There have been no upgrades on this section of line since the initial construction. In 2011, 3.4 km of single phase line will be relocated to the road ROW. The estimate for planned work in this section is approximately $171,000.

Table 1 details reliability statistics for the past five years.

Table 1

NWB-02 – Reliability Analysis

	2005	**2006**	**2007**	**2008**	**2009**
SAIDI	4.60	8.98	4.82	9.51	0.48
SAIFI	2.63	5.33	1.25	3.10	0.26

The 2009 reliability numbers show vastly improved reliability on the NWB-02 feeder. Efforts to date have contributed to this improvement. Work will continue as planned in the original study as condition assessments have confirmed that sections of the feeder still require work to ensure reliability continues at an acceptable level. The estimated expenditure in 2011 is $521,000.

The examination of the worst performing feeders as listed in Appendix A and B has determined, other than the proposed work on NWB-02, no work is required on other feeders under the Distribution Reliability Initiative at this time.

Appendix A

Distribution Reliability Data

Unscheduled Distribution Related Outages Five-Year Average 2005-2009 Sorted By Customer Minutes of Interruption				
Feeder	**Annual Customer Interruptions**	**Annual Customer Minutes of Interruption**	**Annual Distribution SAIFI**	**Annual Distribution SAIDI**
DUN-01	2,904	401,689	3.06	7.05
DOY-01	4,720	380,267	2.96	3.97
GLV-02	4,172	371,498	3.22	4.78
RRD-09	2,622	328,010	1.84	3.83
CHA-03	3,828	324,421	1.82	2.56
NWB-02	2,844	300,740	2.72	4.80
BOT-01	3,257	290,314	1.99	2.95
CAB-01	3,712	283,127	3.08	3.92
GFS-02	3,198	270,391	2.23	3.14
BCV-02	2,478	260,706	1.63	2.85
HOL-01	7,258	258,487	3.57	6.14
MIL-02	4,570	252,864	3.30	3.04
CHA-02	2,262	250,136	1.32	2.43
HWD-08	2,695	245,683	1.62	2.47
DLK-03	1,770	236,932	1.53	3.42
Company Average	**899**	**99,319**	**1.18**	**2.18**

Unscheduled Distribution Related Outages **Five-Year Average** **2005-2009** **Sorted By Distribution SAIFI**				
Feeder	**Annual Customer Interruptions**	**Annual Customer Minutes of Interruption**	**Annual Distribution SAIFI**	**Annual Distribution SAIDI**
GDL-01	1,980	174,131	3.59	5.26
HOL-01	7,258	258,487	3.57	6.14
VIR-02	1,228	48,354	3.36	2.20
MIL-02	4,570	252,864	3.30	3.04
GLV-02	4,172	371,498	3.22	4.78
HWD-04	2,641	199,431	3.18	3.48
CAB-01	3,712	283,127	3.08	3.92
DUN-01	2,904	401,689	3.06	7.05
FER-01	1,889	142,100	2.99	3.75
DOY-01	4,720	380,267	2.96	3.97
NWB-02	2,844	300,740	2.72	4.80
SLA-13	1,797	71,557	2.67	1.77
SCT-02	643	80,934	2.63	5.51
HOL-02	1,269	181,520	2.57	2.12
GLV-01	2,692	201.952	2.56	3.20
Company Average	**899**	**99,319**	**1.18**	**2.18**

Unscheduled Distribution Related Outages Five-Year Average 2005-2009 Sorted By Distribution SAIDI				
Feeder	**Annual Customer Interruptions**	**Annual Customer Minutes of Interruption**	**Annual Distribution SAIFI**	**Annual Distribution SAIDI**
DUN-01	2,904	401,689	3.06	7.05
HOL-02	7,258	258,487	3.57	6.14
SCT-02	643	80,934	2.63	5.51
GDL-01	1,980	174,131	3.59	5.26
BUC-02	230	47,262	1.45	4.99
GRH-02	1,855	235,819	2.34	4.96
NWB-02	2,844	300,740	2.72	4.80
GLV-02	4,172	371,498	3.22	4.78
SCT-01	1,094	165,374	1.66	4.17
COL-02	508	79,924	1.55	4.07
MKS-01	484	111,220	1.04	3.99
DOY-01	4,720	380,267	2.96	3.97
CAB-01	3,712	283,127	3.08	3.92
RRD-09	2,622	328,010	1.84	3.83
GIL-01	1,157	221,757	1.18	3.76
Company Average	**899**	**99,319**	**1.18**	**2.18**

Appendix B

Worst Performing Feeders
Summary of Data Analysis

Worst Performing Feeders Summary of Data Analysis	
Feeder	**Comments**
GLV-02	A substantial amount of work was completed on this feeder since 2006. Reliability has improved considerably. No further work is required at this time.
DUN-01	Reliability statistics were poor in both 2006 and 2007; however, the statistics were driven by a sleet storm in 2006, a broken recloser bushing in 2007 and a broken pole in 2008. Reliability performance was below average again in 2009. No work is proposed for 2011, however the feeder's performance will be monitored closely in 2010.
BOT-01	A substantial amount of work was completed on this feeder since 2006. Reliability has improved considerably. No further work is required at this time.
NWB-02	Work has been carried out in 2009 and 2010 on this feeder. Additional work is proposed for 2011.
BCV-02	Problems in 2003, 2004 & 2005. This feeder was rebuilt under the Distribution Reliability Initiative in 2006. There have been no reliability issues since 2006. No work is required at this time.
HOL-02	Poor overall reliability is due to a storm in March 2008. No work is required at this time.
FER-01	Reliability statistics were poor in 2005. Work was carried out under the Rebuild Distribution Lines program in 2005; and with the exception of some sleet related outages in 2009, there have been no reliability issues since 2005. No work is required at this time.
CAB-01	Reliability statistics were poor in 2004. Work was carried out under the Rebuild Distribution Lines program in 2005 and there have been no reliability issues since 2005. Poor statistics in 2008 were due to a broken cutout and a broken insulator. No work is required at this time.
DOY-01	Overall reliability statistics on this feeder have been good. The poor average statistics are driven by a single weather related issue in 2006. No work is required at this time.

Worst Performing Feeders Summary of Data Analysis	
Feeder	**Comments**
MIL-02	The MIL-02 feeder has displayed consistently poor reliability from 2002 to 2006. Significant work was carried out under the Rebuild Distribution Lines program in 2006 and there were no reliability issues since. No work is required at this time.
GRH-02	Reliability statistics were poor in 2004 & 2005. Work was carried out under the Rebuild Distribution Lines program in 2005; and with the exception of a weather related outage in 2009, there have been no reliability issues since 2005. No work is required at this time.
BUC-02	Reliability problems in 2008 were due to three insulator failures in 2008. Insulators were replaced in 2009. No work is required at this time.
SCT-02	Reliability problems in 2008 were due to a storm in March. No work is required at this time.
CHA-02	Reliability statistics were driven by a single event, a broken insulator in June 2009. No work is required at this time.
CHA-03	Reliability problems were due to a single event caused by broken conductor in 2006. No work is required at this time.
COL-02	Reliability statistics were driven by a single sleet related event in May 2006. No work is required at this time.
DLK-03	Reliability statistics were driven by a single event, broken conductor in November 2009. No work is required at this time.
GDL-01	Reliability statistics were driven by a single lightning related event in May 2005. No work is required at this time.
GFS-02	Reliability statistics were driven by a single tree related event in October 2009. No work is required at this time.
GLV-01	Reliability statistics were driven by two events in 2007. One involved a broken pole and the other, a broken conductor. No work is required at this time.

Worst Performing Feeders Summary of Data Analysis	
Feeder	**Comments**
HOL-01	Reliability problems were due to a single event, a broken cutout in January 2007. No work is required at this time.
HWD-04	Reliability statistics were driven by a single weather related event in December 2007. No work is required at this time.
HWD-08	Reliability on HWD-08 has dramatically improved since 2007 principally due to work done under the Rebuild Distribution Line program. No work is required at this time.
MKS-01	Reliability statistics were driven by a single event, a broken cutout in March 2008. No work is required at this time.
RRD-09	Reliability problems were due to a single event, broken conductor in 2008. No work is required at this time.
GIL-01	Reliability statistics were driven by a single sleet related event in March 2009. No work is required at this time.
SCT-01	Reliability problems were due to two tree related events, one in 2008 and the other in 2009. No work is required at this time.
SLA-13	Reliability problems were due to two sleet related events, one in 2005 and the other in 2006. No work is required at this time.
VIR-02	Reliability problems were due to two conductor related events in 2008. No work is required at this time.

Distribution Reliability Initiative
(June 2011)

Distribution Reliability Initiative

June 2011

Prepared by:

Ralph Mugford, P.Eng.

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A FORTIS COMPANY

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1.0 Distribution Reliability Initiative

The Distribution Reliability Initiative is a capital project focusing on the reconstruction of the worst performing distribution feeders. Customers on these feeders experience more frequent and longer duration outages than the majority of customers.

Newfoundland Power manages system reliability through capital investment, maintenance practices and operational deployment. On an ongoing basis, Newfoundland Power examines its actual distribution reliability performance to assess where targeted capital investment is warranted to improve service reliability. Through this process, the Company identifies the worst performing feeders in the power system based upon reliability measures. Engineering assessments are completed for each of the worst performing feeders and, where appropriate, the Company makes capital investment to improve the reliability of these feeders.

Appendix A contains the five-year average distribution reliability data of the 15 worst performing feeders based on data for 2006 - 2010.

Appendix B contains a summary of the assessment carried out on each of the feeders listed in Appendix A.

2.0 Distribution Reliability Initiative Projects: 2010

The 2009 Capital Budget Application proposed a three year project to improve reliability on the NWB-02 feeder.The work was detailed in 4*.1.1 Northwest Brook NWB-02 Feeder Study* filed with the 2009 Capital Budget Application. The project was presented as a three year project starting in 2009 with additional work planned for 2010 and 2011. In 2009 and 2010, the Company completed work project cost's of $455,000 and $334,000 respectively.

3.0 Distribution Reliability Initiative Projects: 2011

The 2011 Capital Budget Application included the third phase of the proposed work on NWB-02 as outlined in 4*.1.1 Northwest Brook NWB-02 Feeder Study* filed with the 2009 Capital Budget Application. The estimate for planned work is approximately $521,000.

4.0 Distribution Reliability Initiative Projects: 2012

The examination of the worst performing feeders, as listed in Appendix A and B, has determined no work is required under the Distribution Reliability Initiative at this time.

Appendix A

Distribution Reliability Data

Unscheduled Distribution Related Outages **Five-Year Average** **2006-2010** **Sorted By Customer Minutes of Interruption**				
Feeder	**Annual Customer Interruptions**	**Annual Customer Minutes of Interruption**	**Annual Distribution SAIFI**	**Annual Distribution SAIDI**
DUN - 01	2,202	499,956	2.32	8.77
GLV - 02	3,451	464,311	2.66	5.98
DOY - 01	4,259	446,376	2.67	4.66
CHA - 03	4,662	395,174	2.21	3.12
NWB - 02	2,425	375,924	2.32	6.00
BOT - 01	3,406	338,281	2.08	3.44
CAB - 01	3,589	330,722	2.98	4.57
MIL - 02	4,242	312,464	3.06	3.76
RRD - 09	2,457	310,208	1.72	3.62
HOL - 01	6,868	309,121	3.38	2.54
DLK - 03	2,005	289,714	1.73	4.18
CHA - 02	3,770	285,024	2.20	2.77
ROB - 01	1,795	269,340	1.65	4.11
KEL - 01	2,378	269,226	1.27	2.40
SUM - 01	1,527	261,362	0.85	2.43
Company Average	**871**	**70,294**	**1.00**	**1.43**

Unscheduled Distribution Related Outages

Five-Year Average
2006-2010
Sorted By Distribution SAIFI

Feeder	Annual Customer Interruptions	Annual Customer Minutes of Interruption	Annual Distribution SAIFI	Annual Distribution SAIDI
HOL - 01	6,868	309,121	3.38	2.54
GDL - 01	1,725	98,250	3.13	2.97
MIL - 02	4,242	312,464	3.06	3.76
CAB - 01	3,589	330,722	2.98	4.57
GLV - 01	2,937	163,410	2.79	2.59
MMT - 01	1,283	84,033	2.79	3.04
GOU - 01	3,518	107,855	2.70	1.38
GIL - 01	2,622	225,934	2.67	3.83
DOY - 01	4,259	446,376	2.67	4.66
GLV - 02	3,451	464,311	2.66	5.98
VIR - 02	968	57,446	2.64	2.62
GFS - 02	3,516	234,843	2.45	2.73
HWD - 07	6,052	259,228	2.45	1.75
HOL - 02	1,174	201,603	2.38	6.82
NWB - 02	2,425	375,924	2.32	6.00
Company Average	**871**	**70,294**	**1.00**	**1.43**

Unscheduled Distribution Related Outages

Five-Year Average
2006-2010
Sorted By Distribution SAIDI

Feeder	Annual Customer Interruptions	Annual Customer Minutes of Interruption	Annual Distribution SAIFI	Annual Distribution SAIDI
DUN - 01	2,202	499,956	2.32	8.77
SCT - 02	525	100,754	2.14	6.85
HOL - 02	1,174	201,603	2.38	6.82
BUC - 02	232	58,454	1.47	6.17
NWB - 02	2,425	375,924	2.32	6.00
GLV - 02	3,451	464,311	2.66	5.98
SCT - 01	1,225	204,995	1.85	5.17
COL - 02	529	95,229	1.62	4.85
MKS - 01	715	133,260	1.54	4.79
DOY - 01	4,259	446,376	2.67	4.66
CAB - 01	3,589	330,722	2.98	4.57
GBY - 03	1,630	199,339	2.15	4.37
DLK - 03	2,005	289,714	1.73	4.18
SPO - 03	765	122,188	1.55	4.14
ROB - 01	1,795	269,340	1.65	4.11
Company Average	**871**	**70,294**	**1.00**	**1.43**

Appendix B

Worst Performing Feeders
Summary of Data Analysis

Worst Performing Feeders Summary of Data Analysis	
Feeder	**Comments**
GLV-02	A substantial amount of work was completed on this feeder since 2006. Reliability has improved considerably. High customer minutes in 2010 were due to problems accessing a line through Terra Nova Park. No further work is required at this time.
DUN-01	Reliability statistics were poor in both 2006 and 2007; however, the statistics were driven by a sleet storm in 2006, a broken recloser bushing in 2007 and a broken pole in 2008. Reliability performance was below average again in 2009 but improved greatly in 2010. No work is proposed for 2011 or 2012.
BOT-01	A substantial amount of work was completed on this feeder since 2006. Reliability has improved considerably. Reliability numbers in 2010 were poor due to damages caused by a vehicle accident. No further work is required at this time.
NWB-02	Work has been carried out in 2009 and 2010 on this feeder. Additional work is proposed for 2011. Reliability has improved and no further work is required at this time.
GLV-01	Poor overall reliability is due to several insulator failures in 2007. No work is required at this time.
HOL-02	Poor overall reliability is due to a storm in March 2008. No work is required at this time.
MMT-01	Poor overall reliability is due to tree related events in 2009 and 2010. No work is required at this time.
CAB-01	Poor statistics in 2008 were due to a broken cutout and a broken insulator. No work is required at this time.
DOY-01	Overall reliability statistics on this feeder have been good. The poor average statistics are driven by a single weather related issue in each of 2009 and 2010. No work is required at this time.
MIL-02	The MIL-02 feeder has displayed consistently poor reliability from 2002 to 2006. Significant work was carried out under the Rebuild Distribution Lines program in 2006 and there were no reliability issues since. No work is required at this time.

Worst Performing Feeders Summary of Data Analysis	
Feeder	**Comments**
GOU-01	Overall reliability statistics on this feeder have been good. The poor average statistics were caused by isolated events, a pothead failure in 2009 and a single incidence of a failed insulator in 2010.
BUC-02	Reliability problems in 2008 were due to three insulator failures in 2008. Insulators were replaced in 2009. No work is required at this time.
SCT-02	Reliability problems in 2008 were due to a storm in March. No work is required at this time.
CHA-03	Reliability problems were due to a single event caused by broken conductor in 2006. No work is required at this time.
COL-02	Reliability statistics were driven by a single sleet related event in May 2006. No work is required at this time.
GDL-01	Reliability statistics were driven by isolated weather related events in 2007 and 2008. No work is required at this time.
HOL-01	Reliability problems were due to a single event, a broken cutout in January 2007. No work is required at this time.
MKS-01	Reliability statistics were driven by a single event, a broken cutout in March 2008. No work is required at this time.
RRD-09	Reliability problems were due to a single event, broken conductor in 2008. No work is required at this time.
GIL-01	Reliability statistics were driven by a single sleet related event in March 2009. No work is required at this time.
SCT-01	Reliability problems were due to two tree related events, one in 2008 and the other in 2009. No work is required at this time.
GBY–03	Reliability statistics were driven by isolated weather related events in 2009 and 2010. No work is required at this time.
DLK-03	Reliability statistics were driven by a single event, broken conductor in November 2009. No work is required at this time.

Worst Performing Feeders Summary of Data Analysis	
Feeder	**Comments**
SPO-03	Reliability statistics were driven by a single weather related event in 2006 and a broken insulator in December 2008. No work is required at this time.
CHA-02	Reliability statistics were driven by a single event, a broken insulator in June 2009. No work is required at this time.
ROB-01	Reliability statistics were driven by trees and lightning in 2006 and 2007 . No work is required at this time.
KEL-01	Reliability statistics were driven by a single weather related event in 2006. No work is required at this time.
SUM-01	Reliability statistics were driven by a single lightning event in 2008. No work is required at this time.
VIR-02	Reliability problems were driven by two conductor related events in 2008. No work is required at this time.
GFS-02	Reliability statistics were driven by a single tree related event in October 2009. No work is required at this time.
HWD-07	Reliability statistics were driven by a sleet storm in 2008 and a faulty cutout in 2010. No work is required at this time.

Distribution Reliability Initiative
(June 2012)

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Appendix A contains the five-year average distribution reliability data of the 15 worst performing feeders based on data for 2007 - 2011.

Appendix B contains a summary of the assessment carried out on each of the feeders listed in Appendix A.

2.0 Distribution Reliability Initiative Projects: 2011

The 2009 Capital Budget Application proposed a three year project to improve reliability on the NWB-02 feeder. The work was detailed in *4.1.1 Northwest Brook NWB-02 Feeder Study* filed with the 2009 Capital Budget Application. The project was presented as a three year project starting in 2009 with additional work planned for 2010 and 2011. In 2009 and 2010, the Company completed work project costs of $455,000 and $334,000 respectively. The project was completed in 2011 with $380,000 being spent.

3.0 Distribution Reliability Initiative Projects: 2012

There are no Distribution Reliability Initiative projects planned for 2012.

4.0 Distribution Reliability Initiative Projects: 2013

The examination of the worst performing feeders, as listed in Appendix A and B, has determined no work is required under the Distribution Reliability Initiative at this time.

Appendix A
Distribution Reliability Data

Unscheduled Distribution Related Outages **Five-Year Average** **2007-2011** **Sorted By Customer Minutes of Interruption**				
Feeder	**Annual Customer Interruptions**	**Annual Customer Minutes of Interruption**	**Annual Distribution SAIFI**	**Annual Distribution SAIDI**
DOY-01	3,968	449,872	2.42	4.57
DLK-03	2,379	424,122	1.93	5.73
RRD-09	3,585	412,167	2.36	4.53
GLV-02	2,651	403,396	2.02	5.13
BOT-01	2,488	376,868	1.50	3.79
DUN-01	2,092	365,749	2.18	6.34
GBY-03	2,436	338,521	3.16	7.32
CHA-02	4,397	318,688	2.13	2.58
SLA-09	3,189	317,686	2.24	3.72
GFS-06	3,130	303,334	1.81	2.93
GIL-01	2,510	297,595	2.52	4.98
HWD-07	5,906	287,310	2.53	2.05
CAB-01	3,692	284,177	2.97	3.82
HWD-08	3,184	269,213	1.30	1.84
LEW-02	1,758	268,604	1.22	3.10
Company Average	**862**	**73,885**	**1.10**	**1.58**

Unscheduled Distribution Related Outages **Five-Year Average** **2007-2011** **Sorted By Distribution SAIFI**				
Feeder	**Annual Customer Interruptions**	**Annual Customer Minutes of Interruption**	**Annual Distribution SAIFI**	**Annual Distribution SAIDI**
GDL-01	1,937	93,786	3.48	2.81
HOL-01	6,651	232,394	3.17	1.85
GBY-03	2,436	338,521	3.16	7.32
CAB-01	3,692	284,177	2.97	3.82
GLV-01	3,000	183,379	2.76	2.81
MOB-01	3,546	168,730	2.65	2.10
GFS-02	3,974	232,540	2.59	2.53
MMT-01	1,207	105,998	2.58	3.78
FER-01	1,619	154,662	2.57	4.09
MIL-02	3,577	249,923	2.55	2.97
GOU-01	3,771	127,398	2.54	1.43
HWD-07	5,906	287,310	2.53	2.05
GIL-01	2,510	297,595	2.52	4.98
DOY-01	3,968	449,872	2.42	4.57
RRD-09	3,585	412,167	2.36	4.53
Company Average	**862**	**73,885**	**1.10**	**1.58**

Unscheduled Distribution Related Outages

Five-Year Average
2007-2011
Sorted By Distribution SAIDI

Feeder	Annual Customer Interruptions	Annual Customer Minutes of Interruption	Annual Distribution SAIFI	Annual Distribution SAIDI
GBY-03	2,436	338,521	3.16	7.32
BUC-02	292	66,608	1.85	7.03
DUN-01	2,092	365,749	2.18	6.34
SCT-02	541	92,186	2.14	6.07
DLK-03	2,379	424,122	1.93	5.73
ABC-01	1,832	242,395	2.35	5.19
GLV-02	2,651	403,396	2.02	5.13
MKS-01	744	140,818	1.58	4.99
GIL-01	2,510	297,595	2.52	4.98
HOL-02	1,200	152,990	2.34	4.97
NCH-02	1,119	191,207	1.70	4.84
DOY-01	3,968	449,872	2.42	4.57
SUM-02	406	165,727	0.67	4.54
RRD-09	3,585	412,167	2.36	4.53
SCR-01	979	256,985	1.02	4.47
Company Average	**862**	**73,885**	**1.10**	**1.58**

Appendix B
Worst Performing Feeders
Summary of Data Analysis

Worst Performing Feeders Summary of Data Analysis	
Feeder	**Comments**
GLV-02	A substantial amount of work was completed on this feeder since 2006. Reliability has improved considerably. High customer minutes in 2010 were due to problems accessing a line through Terra Nova Park. No further work is required at this time.
DUN-01	Reliability statistics were poor in both 2007 and 2009. The statistics were driven by a broken recloser bushing in 2007 and a broken pole in 2009. Reliability improved greatly in 2010 and 2011. No work is proposed for 2013.
BOT-01	A substantial amount of work was completed on this feeder since 2006. Reliability has improved considerably. Reliability numbers in 2010 were poor due to damages caused by a vehicle accident. No further work is required at this time.
SLA-09	Poor overall reliability is due to an underground cable fault in 2011. No work is required at this time.
GLV-01	Poor overall reliability is due to several insulator failures in 2007. No work is required at this time.
HOL-02	Poor overall reliability is due to a storm in March 2008. No work is required at this time.
MMT-01	Poor overall reliability is due to tree related events in 2009 and 2010. No work is required at this time.
CAB-01	Poor statistics in 2008 were due to a broken cutout and a broken insulator. No work is required at this time.
DOY-01	Overall reliability statistics on this feeder have been good. The poor average statistics are driven by a single weather related issue in each of 2009 and 2010. No work is required at this time.
MIL-02	The MIL-02 feeder had displayed consistently poor reliability prior to significant work being carried out in 2006. In 2007 and 2008 there were several tree related outages contributing to poor reliability statistics. No work is required at this time.

Worst Performing Feeders Summary of Data Analysis	
Feeder	**Comments**
GOU-01	Overall reliability statistics on this feeder have been good. The poor average statistics were caused by isolated events, a pothead failure in 2009 and a single incidence of a failed insulator in 2010.
BUC-02	Reliability problems in 2008 were due to three insulator failures in 2008. Insulators were replaced in 2009. There were two incidents of broken conductor in 2011. No work is required at this time.
SCT-02	Reliability problems in 2008 were due to a storm in March. No work is required at this time.
GFS-06	Reliability problems relate to tree issues in 2009 and 2011. No work is required at this time.
HWD-08	Reliability problems relate to a pole fire and a broken insulator in 2007. No work is required at this time.
GDL-01	Reliability statistics were driven by isolated weather related events in 2007 and 2008. No work is required at this time.
HOL-01	Reliability problems were due to a single event, a broken cutout in January 2007. No work is required at this time.
MKS-01	Reliability statistics were driven by a single event, a broken cutout in March 2008. No work is required at this time.
RRD-09	Reliability problems were due to two events involving broken conductor in 2008 and 2011. No work is required at this time.
GIL-01	Reliability statistics were driven by a single sleet related event in March 2009. No work is required at this time.
LEW-02	Reliability statistics were driven by a single tree related event in October 2009. No work is required at this time.
GBY–03	Reliability statistics were driven by isolated weather related events in 2009 and 2010. No work is required at this time.

Worst Performing Feeders Summary of Data Analysis	
Feeder	**Comments**
DLK-03	Reliability statistics were driven by a broken conductor in November 2009 and a single weather related event in 2011. No work is required at this time.
SCR-01	Reliability statistics were driven by a single wind related event in November 2011. No work is required at this time.
CHA-02	Reliability statistics were driven by a single event, a broken insulator in June 2009. No work is required at this time.
MOB-01	Reliability statistics were driven by a single event, broken conductor in December 2011. No work is required at this time.
FER-01	Reliability statistics were driven by a single tree related event in January 2007. No work is required at this time.
ABC-01	Reliability statistics were driven by a broken conductor related event in February 2010 and a faulted lightning arrestor in 2010. There was also a sleet related incident in 2011. No work is required at this time.
GLV-02	Reliability statistics were driven by two broken primary incidents in 2007 and a tree related event in 2010. No work is required at this time.
GFS-02	Reliability statistics were driven by a single tree related event in October 2009. No work is required at this time.
HWD-07	Reliability statistics were driven by a sleet storm in 2008 and a faulty cutout in 2010. No work is required at this time.
NCH-02	Reliability statistics were driven by a single tree related event in September 2010. No work is required at this time.
SUM-02	Reliability statistics were driven by two tree related events in May and December 2011. No work is required at this time.

Outage Tables: Number of Customers, Peak Demand

Distribution Reliability Initiative Report, June 2008
Unscheduled Distribution Related Outages
Five-Year Average
2003-2007
Including Number of Customers and 2011-2012 Peak Demand

Feeder	Annual Customer Interruptions	Annual Customer Minutes of Interruptions	Annual Distribution SAIFI	Annual Distribution SAIDI	Number of Customers	2011-2012 Winter Peak Demand (MVA)
LEW - 02	4,712	713,417	3.39	8.55	1391	2.6
GLV - 02	4,855	685,055	3.85	9.07	1259	4.3
BOT - 01	4,858	646,003	2.99	6.59	1634	4.4
BCV - 02	3,932	460,113	2.58	5.04	1522	7.8
ROB - 01	3,671	458,645	3.42	7.12	1074	3.4
PUL - 01	3,511	441,638	2.10	4.42	1665	11.9
DUN - 01	3,046	431,874	3.23	7.62	945	3.0
NWB - 02	3,155	414,821	3.04	6.58	1051	3.1
DOY - 01	4,248	404,597	2.75	4.34	1554	3.8
GFS - 06	2,409	357,363	1.48	3.60	1654	7.9
MIL - 02	4,190	335,103	3.07	4.11	1359	4.4
CHA - 01	5,818	324,566	2.79	2.57	2105	12.8
MOB - 01	3,749	323,911	3.35	4.83	1118	6.2
PUL - 02	3,371	323,352	2.46	3.94	1368	8.6
HWD - 02	2,665	289,735	1.95	3.54	1364	8.4
Company Average	**1,207**	**92,119**	**1.68**	**2.13**		

Distribution Reliability Initiative Report, June 2009
Unscheduled Distribution Related Outages
Five-Year Average
2004-2008
Including Number of Customers and 2011-2012 Peak Demand

Feeder	Annual Customer Interruptions	Annual Customer Minutes of Interruptions	Annual Distribution SAIFI	Annual Distribution SAIDI	Number of Customers	2011-2012 Winter Peak Demand (MVA)
LEW-02	4,051	626,948	2.91	7.51	1391	2.6
BOT-01	4,906	620,881	3.01	6.34	1632	4.4
GLV-02	4,699	563,465	3.68	7.35	1278	4.3
NWB-02	3,574	500,623	3.43	8.02	1040	3.1
HOL-01	2,991	438,427	1.50	3.66	1996	6.3
DUN-01	3,323	414,391	3.52	7.32	944	3.0
DOY-01	4,119	401,180	2.62	4.25	1573	3.8
GFS-06	2,453	374,083	1.46	3.71	1681	7.9
KEL-01	2,772	361,704	1.54	3.34	1805	11.7
MIL-02	3,696	358,874	2.69	4.35	1375	4.4
BCV-02	3,233	349,994	2.12	3.83	1523	7.8
HWD-07	6,068	341,262	2.26	2.11	2696	12.4
ROB-01	2,313	315,399	2.12	4.83	1088	3.4
CAB-01	3,985	309,023	3.34	4.32	1192	4.3
CHA-01	6,042	305,422	2.81	2.36	2157	12.8
Company Average	**956**	**84,530**	**1.25**	**1.74**		

Distribution Reliability Initiative Report, June 2010
Unscheduled Distribution Related Outages
Five-Year Average
2005-2009
Including Number of Customers and 2011-2012 Peak Demand

Feeder	Annual Customer Interruptions	Annual Customer Minutes of Interruptions	Annual Distribution SAIFI	Annual Distribution SAIDI	Number of Customers	2011-2012 Winter Peak Demand (MVA)
DUN-01	2,904	401,689	3.06	7.05	950	3.0
DOY-01	4,720	380,267	2.96	3.97	1596	3.8
GLV-02	4,172	371,498	3.22	4.78	1295	4.3
RRD-09	2,622	328,010	1.84	3.83	1427	6.6
CHA-03	3,828	324,421	1.82	2.56	2112	13.4
NWB-02	2,844	300,740	2.72	4.80	1044	3.1
BOT-01	3,257	290,314	1.99	2.95	1640	4.4
CAB-01	3,712	283,127	3.08	3.92	1204	4.3
GFS-02	3,198	270,391	2.23	3.14	1435	9.8
BCV-02	2,478	260,706	1.63	2.85	1525	7.8
HOL-01	7,258	258,487	3.57	6.14	702	6.3
MIL-02	4,570	252,864	3.30	3.04	1386	4.4
CHA-02	2,262	250,136	1.32	2.43	1716	16.4
HWD-08	2,695	245,683	1.62	2.47	1658	15.7
DLK-03	1,770	236,932	1.53	3.42	1155	5.6
Company Average	**899**	**99,319**	**1.18**	**2.18**		

Distribution Reliability Initiative Report, June 2011
Unscheduled Distribution Related Outages
Five-Year Average
2006-2010
Including Number of Customers and 2011-2012 Peak Demand

Feeder	Annual Customer Interruptions	Annual Customer Minutes of Interruptions	Annual Distribution SAIFI	Annual Distribution SAIDI	Number of Customers	2011-2012 Winter Peak Demand (MVA)
DUN - 01	2,202	499,956	2.32	8.77	950	3.0
GLV - 02	3,451	464,311	2.66	5.98	1294	4.3
DOY - 01	4,259	446,376	2.67	4.66	1596	3.8
CHA - 03	4,662	395,174	2.21	3.12	2111	13.4
NWB - 02	2,425	375,924	2.32	6.00	1044	3.1
BOT - 01	3,406	338,281	2.08	3.44	1639	4.4
CAB - 01	3,589	330,722	2.98	4.57	1206	4.3
MIL - 02	4,242	312,464	3.06	3.76	1385	4.4
RRD - 09	2,457	310,208	1.72	3.62	1428	6.6
HOL - 01	6,868	309,121	3.38	2.54	2028	6.3
DLK - 03	2,005	289,714	1.73	4.18	1155	5.6
CHA - 02	3,770	285,024	2.20	2.77	1715	16.4
ROB - 01	1,795	269,340	1.65	4.11	1092	3.4
KEL - 01	2,378	269,226	1.27	2.40	1870	11.7
SUM - 01	1,527	261,362	0.85	2.43	1793	5.3
Company Average	**871**	**70,294**	**1.00**	**1.43**		

Distribution Reliability Initiative Report, June 2012
Unscheduled Distribution Related Outages
Five-Year Average
2007-2011
Including Number of Customers and 2011-2012 Peak Demand

Feeder	Annual Customer Interruptions	Annual Customer Minutes of Interruptions	Annual Distribution SAIFI	Annual Distribution SAIDI	Number of Customers	2011-2012 Winter Peak Demand (MVA)
DOY-01	3,968	449,872	2.42	4.57	1641	3.8
DLK-03	2,379	424,122	1.93	5.73	1234	5.6
RRD-09	3,585	412,167	2.36	4.53	1516	6.6
GLV-02	2,651	403,396	2.02	5.13	1311	4.3
BOT-01	2,488	376,868	1.50	3.79	1657	4.4
DUN-01	2,092	365,749	2.18	6.34	961	3.0
GBY-03	2,436	338,521	3.16	7.32	771	3.2
CHA-02	4,397	318,688	2.13	2.58	2059	16.4
SLA-09	3,189	317,686	2.24	3.72	1423	4.9
GFS-06	3,130	303,334	1.81	2.93	1725	7.9
GIL-01	2,510	297,595	2.52	4.98	996	2.5
HWD-07	5,906	287,310	2.53	2.05	2336	12.4
CAB-01	3,692	284,177	2.97	3.82	1240	4.3
HWD-08	3,184	269,213	1.30	1.84	2439	15.7
LEW-02	1,758	268,604	1.22	3.10	1444	2.6
Company Average	**862**	**73,885**	**1.10**	**1.58**		