

Report on Reliability of ComEd Electrical Service within Downers Grove
Prepared September 12, 2012

Executive Summary

The severe weather of 2011 caused power outages throughout Downers Grove. The power outages, and resulting resident and business owner concerns, prompted the Village to examine the overall reliability of electricity service within the Village. Using outage reports provided by ComEd, the Village identified the areas within Downers Grove experiencing the most outages for the period from 2007 to 2010. The Village found that equipment related issues caused most of the outages; however, the most severe outages (those of 4 hours or more) were primarily weather or tree related. In response to these conclusions, the Village requested an improvement plan from ComEd based on the following recommended actions:

- Make improvements to the electrical distribution system to reduce the number of outage caused by equipment related issues.
- Improve/increase tree trimming and vegetation control efforts.
- Make improvements to the 10 circuits that experienced the highest number of outages between 2007 and 2010.
- Improve and enhance communication to customers.
- Submit a plan to the Village and provide regular reports on the status and results of each action.

Based on outage data and staff interaction with ComEd since the Town Hall meeting, the Village has updated the 2011 reliability report. This report provides a summary of the 2011 report and the resulting actions by ComEd. It also updates the information on the cause, frequency and location of outages based on data provided by ComEd for 2011 and the first seven months of 2012.

Key Findings:

- ComEd completed equipment upgrades in four circuits, completed tree trimming in 11 circuits and has one equipment upgrade project in progress.
- There were 468 outages in 2011. Through the first seven months of 2012, there have been 211 outages.
- Weather/tree-related outages caused 45% of all of the outages in 2011, but just 15% of all of the outages in 2012 (through 7/31/12).
- In 2011, 53% of all outages had a duration of four hours or longer; in 2012, 26% of all outages were four hours or longer.
- Through the first seven months of 2012, there has been only one outage that lasted more than 24 hours, compared to 107 in 2011.
- The five circuits with the most outages in 2012 were also among the worst-performing circuits in 2011.

Conclusions

- ComEd completed most of the planned equipment upgrades and tree trimming by the established deadlines.

- ComEd has restored power more promptly in the case of outages, resulting in fewer outages of extended duration.
- It is too early to determine if the work completed by ComEd in Downers Grove will have a measurable impact on electrical reliability.
- There may be additional work necessary in circuits that continue to experience a higher-than-normal number of outages.
- ComEd has made system-wide outage communication improvements.

Recommended Actions for ComEd

- ComEd should finish the cable upgrade project that is behind schedule.
- ComEd should review the worst-performing circuits to determine if additional work is necessary and provide a status report by June 30, 2013.
- ComEd should provide more comprehensive information on planned improvements, including the upgrade to the Smart Grid.

Section 2: Summary of 2011 Town Hall Meeting

The Village published the report on the reliability of ComEd’s electricity service on September 2, 2011. On September 15, 2011, the Village held a Town Hall meeting to present the report, receive ComEd’s action plan and provide residents with an opportunity to voice their concerns to ComEd officials. More than 70 residents attended; 28 residents spoke in the public forum section of the meeting. Following the meeting, the Village requested that ComEd contact those residents with specific concerns.

Section 3: List of ComEd Commitments from 2011

ComEd provided an action plan consisting of equipment upgrades (both overhead and underground) and enhanced tree trimming for 8 of the 10 circuits identified. (ComEd reviewed the other two and determined that no additional major work was necessary.) In addition to the eight circuits that the Village prioritized, ComEd identified three additional circuits for reliability improvements. Work has been completed on all but one of the planned projects; according to ComEd, the project is behind schedule due to difficulties accessing the easement through private property. The list of ComEd commitments is below:

Table 1: Planned Improvements in Priority Circuits Identified by the Village

Circuit Number	Circuit Location	Reliability Work Planned	Target Completion Date	Actual Completion Date
W8017	West of Main Street on the north and south side of Maple	- Enhanced Tree Trimming - Overhead Cable Installation	Equipment Upgrades by June 2012, Tree Trimming by end of first quarter 2012	Tree trimming: February 2012 Cable: June 2012
W4572	Near intersection of	- Enhanced Tree	Equipment Upgrades by June	Tree trimming:

	Fairview and Ogden	Trimming - Underground cable replacement	2012, Tree Trimming by end of first quarter 2012	February 2012 Cable: December 2011
W031	Located between Ogden and Maple from I-355 to Main Street	- Enhanced Tree Trimming	Tree Trimming by end of first quarter 2012	February 2012
W039	Area to the northwest of Downers Grove South High School	- Enhanced Tree Trimming	Tree Trimming by end of first quarter 2012	February 2012
W455Y	Northern end of Village, west of Highland to I-88	- Enhanced Tree Trimming - Overhead Cable Installation	Equipment Upgrades by June 2012, Tree Trimming by end of first quarter 2012	Tree Trimming: February 2012 Cable: In progress
W036	Area south of Burlington to 59th Street, between I-355 and Fairview	- Enhanced Tree Trimming	Tree Trimming by end of first quarter 2012	February 2012
W0325	Area between Chicago and Ogden, as well as northern part of Downtown	- Enhanced Tree Trimming	Tree Trimming by end of first quarter 2012	February 2012
W8011	Area near intersection of 63rd and Main Street	- Enhanced Tree Trimming - Underground cable replacement -Overhead cable replacement	Tree Trimming by end of first quarter 2012 Equipment Upgrades by June 2012	Underground cable: December 2011 Tree Trimming: February 2012 Overhead Cable: May 2012

Table 2: ComEd-Identified Circuit Improvements

Circuit Number	Circuit Location	Reliability Work Planned	Target Completion Date	Actual Completion Date
W458X	North of Ogden between Washington and Fairview	- Enhanced Tree Trimming	Tree Trimming by end of first quarter 2012	February 2012
W8013	Far south side, east of Main Street	- Enhanced Tree Trimming - Overhead cable replacement (Added by ComEd as part of Energy Infrastructure Bill)	Tree Trimming by end of first quarter 2012	Tree trimming: February 2012 Cable: June 2012
W0318	Along Prairie Ave, west of Main Street	- Enhanced Tree Trimming	Tree Trimming by end of first quarter 2012	February 2012

Section 4: Updated Reliability Data

This section is based on outage data provided by ComEd. It now includes all outages from 2011 and outages through 7/31/12. Outage data for 2012 is broken out separately from previous years to show the impact of equipment upgrades and tree trimming performed by ComEd in late 2011 and 2012.

Frequency and Causes of Power Outages

In the 2011 reliability report, the Village concluded that equipment failure was the most common cause of power outages, while weather and tree-related issues caused most outages of extended duration. This conclusion continues to be true. Of the 1,657 outages between 2007 and 2011, 41% were related to equipment failure; however, in 2011, 45% of all outages were caused by weather or tree damage. In 2012, as a percentage of total outages, weather/tree-related issues have caused fewer outages (19% of total) in 2012 than in previous years.

Table 3: Total Outages from 2007 - 2011 Grouped by Major Cause Categories

Outage Category	2007	2008	2009	2010	2011	TOTAL
Weather/Tree Related	84	88	98	92	211	573 (35%)
Equipment Related	175	115	112	122	161	685 (41%)
Other	76	88	79	60	96	399 (24%)
TOTAL	335	291	289	274	468	1657

Table 4: Total Outages (2012 YTD)

Outage Category	2012 YTD
Weather/Tree Related	40 (19%)
Equipment Related	102 (48%)
Other	69 (33%)
TOTAL	211

Duration of Outages

Of the outages between 2007 and 2011, there were 636 of a duration greater than four hours, nearly 38% of all outages. In 2012, there have been 56 outages (26% of total outages) of greater than four hours; however, there has been only one outage of greater than 24 hours. If this trend for outages holds true for the remainder of 2012, the number of extended outages of greater than 24 hours will be significantly lower than in previous years. Additionally, based on the trend of fewer weather/tree-related outages, the Village may see fewer outages of four hours or longer in the future.

Table 5: Number and Causes of Outages of Duration of Four Hours or Longer (2007-2011)

Outage Category	2007	2008	2009	2010	2011	TOTAL
Weather/Tree Related	43	38	66	62	173	382 (60%)
Equipment Related	43	25	32	35	57	192 (30%)
Other	14	11	11	8	18	62 (10%)
TOTAL	100	74	109	105	248	636

Table 6: Outages of Four Hours or Longer (2012 YTD)

Outage Category	2012
Weather/Tree Related	25 (45%)
Equipment Related	19 (34%)
Other	12 (21%)
TOTAL	56

Table 7: Number and Causes of Outages of Duration of 24 Hours or Longer (2007-2011)

Outage Category	2007	2008	2009	2010	2011	TOTAL
Weather/Tree Related	3	8	26	17	100	154 (93%)
Equipment Related	0	2	0	3	4	9 (5%)
Other	0	0	1	0	3	4 (2%)
TOTAL	3	10	27	20	107	167

Table 8: Outages of 24 Hours or Longer (2012 YTD)

Outage Category	2012
Weather/Tree Related	1 (100%)
Equipment Related	0 (0%)
Other	0 (0%)
TOTAL	1

Key Findings

- Weather and tree related issues caused an unprecedented number of outages in 2011
- Weather and tree related issues have caused fewer outages as percentage of total outages in

2012 than in previous years

- It is too early to determine whether the total number of outages in 2012 will be lower than in previous years
- There have been fewer outages of extended duration as a percentage of total outages in 2012 than in previous years

Circuits Experiencing Highest Frequency of Outages

In the 2011 report, staff identified 10 circuits that had experienced the highest number of power outages during the period from 2007 to 2010. Based on data for 2011 and 2012, the circuit located west of Main Street along Maple Ave. (W8017) continues to have the most frequent outages. Also ranking near the top is W031, located between Ogden and Maple from I-355 to Main Street; it ranked sixth in total outages in 2011 but is second in total outages in 2012. Staff also recommends reviewing these two and the other three circuits that have ranked in the top five in 2011 and 2012.

***Table 9: Circuits Ranked by Highest Frequency of Outages
(Number of Outages Shown in Parentheses, 2012 Top Five Circuits Highlighted)***

Circuit	2007-2010 Rank	2011 Rank	2012 Rank	Work Planned or Complete
W8017	1 (77)	1 (70)	1 (24)	Complete
W4572	2 (62)	4 (26)	T10 (8)	Complete
W031	3 (62)	6 (20)	2 (12)	Complete
W039	4 (60)	T10 (10)	9 (8)	Complete
W4101	5 (59)	N/A (15)	N/A (7)	Complete
W455Y	6 (55)	N/A (9)	T10 (8)	In progress
W036	7 (52)	5 (24)	5 (11)	Complete
W0325	8 (46)	3 (36)	3 (12)	Complete
W8011	9 (44)	2 (34)	4 (12)	Complete
W803	10 (43)	T10 (16)	T10 (8)	No work planned
W0318	N/A	7 (18)	N/A (2)	Complete
W8012	N/A	8 (17)	5 (11)	No work planned
W8013	N/A	9 (16)	N/A (6)	Complete
W808	N/A	N/A	5 (11)	No work planned
W0306	N/A	N/A	8 (10)	No work planned

Table 10: Number of Outages in 2012 in Five Circuits Needing Additional Review

Outage Category	W8017	W031	W0325	W8011	W036
Weather/Tree Related	8	0	4	2	3
Equipment Related	9	5	5	9	3
Other	7	7	3	1	5
Total	24	12	12	12	11
Tree Trimming Completed	Complete	Complete	Complete	Complete	Complete
Equipment Upgrades Completed	Complete	N/A	N/A	Complete	N/A

Notes:

- W031: Five of seven outages in 2012 listed as ‘Other’ in W031 were intentional for construction or scheduled maintenance
- W036: Four of five outages in 2012 listed as ‘Other’ in W036 were intentional for construction or scheduled maintenance

Key Findings

- **The five circuits that experienced the most outages in 2012 were also among the worst-performing circuits in 2011 and for the period of 2007-2010 and should be reviewed for additional reliability work.**
- **Other circuits that saw frequent outages from 2007-2010 have seen improvement in the total number of outages.**
- **Other circuits with frequent outages should be reviewed by 6/30/2013 to determine if additional work is needed.**

Section 5: ComEd Communications to Customers

In the 2011 reliability report, the Village stated that it expects ComEd to communicate with customers in a way that meets customer expectations without using the Village as an intermediary. In the past year, ComEd has made improvements to its communication system, including improved outage reporting and restoration estimates. As a result, the Village has been contacted less frequently by frustrated ComEd customers when outages do occur. Staff recommends that ComEd continue to improve other communication efforts, including response to problem conditions (leaning poles, overgrown vegetation, etc.) and proactive communication with residents when crews will be present. Additionally, the Village requests that ComEd begin to provide information on planned future upgrades to equipment, including the installation of smart meters.