

NERC

NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION

Vegetation–Related Transmission Outage Report

First Quarter 2012

RELIABILITY | ACCOUNTABILITY



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The NERC Board of Trustees Compliance Committee has reviewed and accepted this Vegetation-Related Transmission Outage First Quarter 2012 Report.

Vegetation-related transmission outages that occurred in the first quarter of 2012 are being reported in accordance with standard FAC-003-1.

The standard requires each outage to be categorized as one of the following:

- Category 1 — Grow-ins: Outages caused by vegetation growing into lines from vegetation inside and/or outside of the Right -of -Way (ROW).
- Category 2 — Fall-ins: Outages caused by vegetation falling into lines from inside the Right -of -Way (ROW).
- Category 3 — Fall-ins: Outages caused by vegetation falling into lines from outside the Right-of-Way (ROW).

Table 1 is a summary of the vegetation outages that occurred in the first quarter by voltage class and category.

**Table 1: First Quarter 2012 Summary of Vegetation-Related Outages
by Voltage Class and Outage Category**

Category	RE Designated Critical Lines <200 kV	230 kV	345 kV	500 kV	765 kV	Total
Category 1 — Grow-ins	0	0	0	0	0	0
Category 2 — Fall-ins	0	0	0	0	0	0
Category 3 — Fall-ins	2	6	1	0	0	9
Total	2	6	1	0	0	9

In comparison, during the first quarter of 2011, there were three, Category 3 vegetation-related transmission outages reported.

Category 1 — Grow-ins

No outages caused by vegetation growing into lines from vegetation inside and/or outside of the ROW were reported during the first quarter 2012.

Category 2 — Fall-ins

No outages caused by vegetation falling into lines from inside the ROW were reported during the first quarter 2012.

Category 3 — Fall-ins

Nine outages caused by vegetation falling into lines from outside the right-of-way were reported during the first quarter 2012.

Northeast Power Coordinating Council

Reported one 345 kV vegetation-related transmission outage caused by vegetation falling from outside the right-of-way:

1. The transmission owner reported one 345 kV vegetation-related transmission outage from outside the right-of-way (ROW) on February 25, 2012 with a duration of 6 hours and 1 minute. During a high wind event, a healthy approximately 95-foot tall, 14-inch DBH, White Pine located 22 feet outside the edge of the ROW, broke near its base and fell across a distribution line and made contact with the closest phase of the 345 kV transmission line. The base of the tree was 78 feet from the closest phase of the line. Subsequent to the outage, aerial patrols were performed.

SERC Reliability Corporation

Reported two 230 kV vegetation-related transmission outages caused by vegetation falling from outside the right-of-way:

1. The transmission owner reported one 230 kV vegetation-related transmission outage from outside the ROW on March 12, 2012 with a duration of 5 hours and 27 minutes. A 70-foot pine tree located 20 feet off the ROW had internal decay at ground line where the tree broke during a strong storm. The tree hung on the line causing it to lock out. There was no damage to the line, and it was re-energized as soon as the crew cut it off the line. The ROW will be side trimmed in 2012 and any trees presenting a risk will be cut during the side trimming process.
2. The transmission owner reported one 230 kV vegetation-related transmission outage from outside the ROW on March 4, 2012 with a duration of 2 hours and 36 minutes. An 80 foot tall, green water oak tree located 3 feet off the ROW fell into the 230 kV line during a wind storm. The tree was completely uprooted due to high winds and rising water from weekend storm. The transmission owner conducted an aerial patrol of the line and since there was work in progress in the substation at the time of the outage, the TO double-checked all the work prior to reenergizing the line.

Western Electricity Coordinating Council, Inc.

Reported four 230 kV vegetation-related transmission outages caused by vegetation falling into lines from outside the right-of-way:

1. The transmission owner reported one 230 kV vegetation-related transmission outage from outside the ROW on March 29, 2012 with a duration of 5 hours and 58 minutes. The tree was located 9 feet outside of the ROW; however, it appeared healthy and not endangering the line. High winds (gusts over 35 mph) caused the 20-foot top of a 75-foot fir tree to break free and contact C-phase of the 230 kV transmission line. The treetop showed no decay, but remaining trees in stand showed evidence of a significant wind event.
2. The transmission owner reported one 230 kV vegetation-related transmission outage from outside the ROW on January 25, 2012 with a duration of 1 hour and 27 minutes. A 15-foot long limb broke free from a very large, mature fir tree. The branch showed burn marks although the tree was well off the ROW. The branch appeared to sail east in high winds and likely cross-phased the transmission line.
3. The transmission owner reported one 230 kV vegetation-related transmission outage from outside the ROW on February 6, 2012 with a duration of 20 hours and 54 minutes. One top of a double-top fir tree broke off 23 feet up the tree, fell and became hung up in the southernmost phase of the 230 kV line. The tree crew removed the tree top that fell on the transmission line, as well as the remainder of the tree outside of the ROW. Several other trees (not imminent threats) were also removed in same area due to storm damage.
4. The transmission owner reported one 230 kV vegetation-related transmission outage from outside the ROW on March 16, 2012 with a duration of 16 hours and 1 minute. A healthy, 106-foot-tall, 25-inch-DBH white fir uprooted during a winter storm with strong winds. The tree was 74 feet from the outer phase of the 230 kV line. No remedial action was required..

WECC also reported two <200 kV vegetation-related transmission outages from outside the right-of-way for RE designated Critical Lines:

1. The transmission owner reported one <200 kV vegetation-related transmission outage from outside the ROW on January 25, 2012 with a duration of 4 hours and 35 minutes. Entity will perform quarterly aerial patrols to find danger trees outside the ROW for removal.
2. The transmission owner reported one <200 kV vegetation-related transmission outage from outside the ROW on March 6, 2012 with a duration of 13 hours and 41 minutes. The trunk of a healthy 106-foot-tall, 24-inch-DBH lodge-pole pine broke free at 21 feet above ground level during a winter storm with strong winds. The tree was 47 feet from the outer phase of the 115 kV line and 21 feet off the ROW.

Table 2 summarizes the number of transmission outages by voltage level, region, and category.

Figure 1 illustrates the number of outages caused by vegetation growing into transmission lines from within the right-of-way that have been reported since 2004.

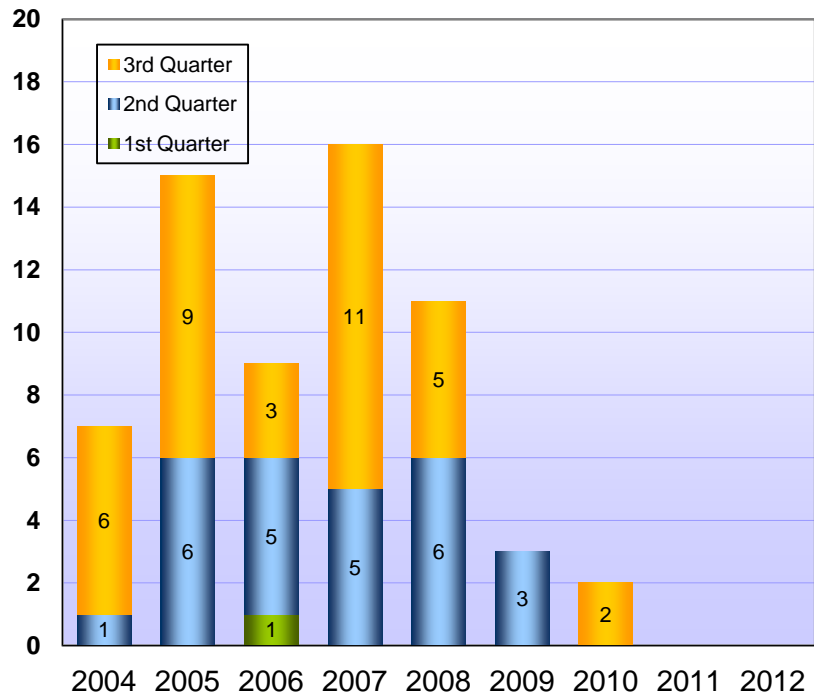
Figure 2 provides this information by voltage class for each year.

Table 2: Summary of Vegetation-Related Transmission Outages¹ by Region and by Outage Category for Each Quarter in 2012

Region	First Quarter			Second Quarter			Third Quarter			Fourth Quarter			TOTAL		
	Category 1	Category 2	Category 3	Category 1	Category 2	Category 3	Category 1	Category 2	Category 3	Category 1	Category 2	Category 3	Category 1	Category 2	Category 3
	GROW-INS (inside/outside ROW)	FALL-INS (inside ROW)	FALL-INS (outside ROW)	GROW-INS (inside/outside ROW)	FALL-INS (inside ROW)	FALL-INS (outside ROW)	GROW-INS (inside/outside ROW)	FALL-INS (inside ROW)	FALL-INS (outside ROW)	GROW-INS (inside/outside ROW)	FALL-INS (inside ROW)	FALL-INS (outside ROW)	GROW-INS (inside/outside ROW)	FALL-INS (inside ROW)	FALL-INS (outside ROW)
FRCC															
MRO															
NPCC			1-345kV												1-345kV
RFC															
SERC			2-230kV												2-230kV
SPP															
TRE															
WECC			2-<200kV 4-230kV												2-<200kV 4-230kV
TOTAL			2-<200kV 6-230kV 1-345kV												2-<200kV 6-230kV 1-345kV

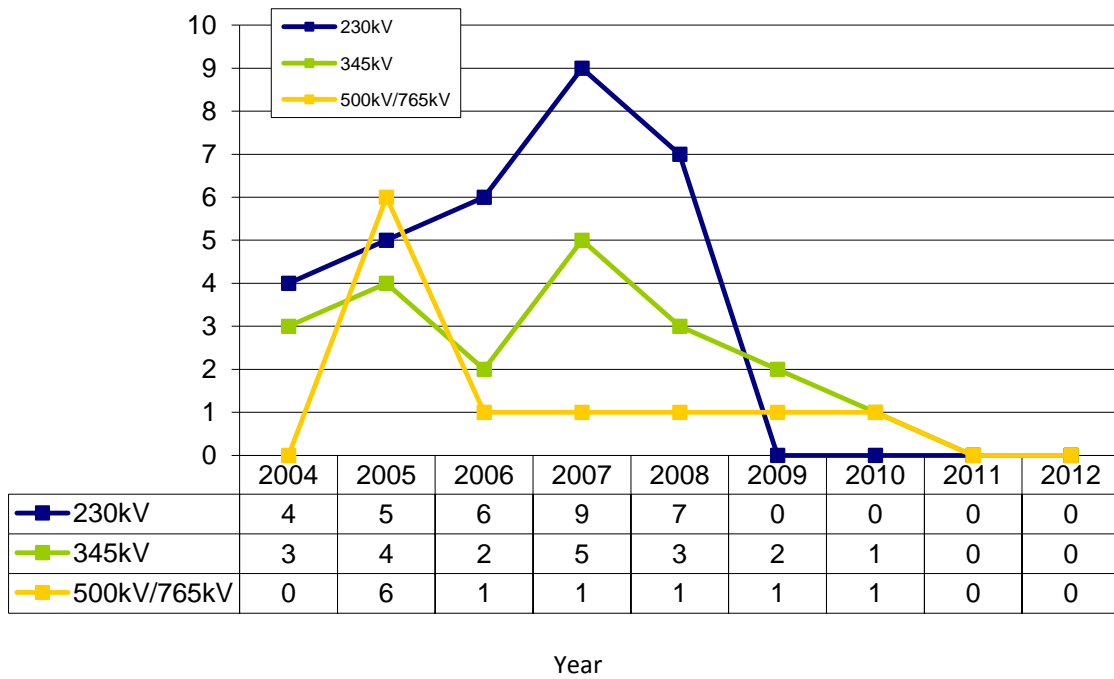
¹ Contains only sustained outages of transmission lines and does not include violations resulting from momentary outages or encroachments into the clearance zone as described in standard FAC-003.

Figure 1: Category 1 — Grow-in Outages Caused by Vegetation Growing into Lines from Inside and/or Outside the ROW.¹



¹ Includes one 2007 Category 1 outage caused by vegetation growing into a RRO-designated critical line <200 kV.

Figure 2: Category 1 — Grow-In Vegetation Related Outages of 230 kV and Higher



Transmission by Voltage Class