

**NERC**

NORTH AMERICAN ELECTRIC  
RELIABILITY CORPORATION

# Vegetation–Related Transmission Outage Report

Second Quarter 2013

**RELIABILITY | ACCOUNTABILITY**



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## Executive Summary

The NERC Board of Trustees Compliance Committee (Committee) has reviewed and accepted this Vegetation-Related Transmission Outage Second Quarter 2013 Report.

The reportable<sup>1</sup> vegetation-related transmission outages that occurred in the second quarter of 2013 are being reported in accordance with Requirement 4<sup>2</sup> of standard FAC-003-1<sup>3</sup>.

Specifically, Requirement 3.4 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 ROW.
- Category 3 — Fall-ins: Outages caused by vegetation falling into lines from outside the ROW.

Table 1 is a summary of the vegetation outages that occurred in the second quarter of 2013 by voltage class and 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	1	0	0	0	3
<b>Total</b>	<b>2</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>

**Table 1: Summary of Vegetation-Related Outages, by Voltage Class and Outage Category for Second Quarter 2013**

The three vegetation-related transmission outages reported in the second quarter of 2013 were classified as Category 3. One outage involved a 230kV line and two outages involved designated critical lines under 200 kV. All three outage events were weather related due to high wind or localized storm conditions causing a tree outside the ROW to break off and fall into the line or damage part of the structure. Similarly, there were three category 3 vegetation-related transmission outages reported during the second quarter of 2012. The outages were on three 230 kV lines within two different Regional Entities footprint. All three outage events were due to high wind conditions during storms and involved trees located close to the edge of the ROW.

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<sup>1</sup> Per R3.2 of Reliability Standard FAC-003-1, the Transmission Owner is not required to report to the Regional Entity certain sustained transmission line outages caused by vegetation such as (1) vegetation-related outages that result from vegetation falling into lines from outside the ROW that result from natural disasters or (2) vegetation-related outages due to human or animal activity.

<sup>2</sup> The Regional Entity shall report the outage information provided to it by Transmission Owners, as required by Requirement 3, quarterly to NERC, as well as any actions taken by the Regional Entity as a result of any of the reported outages.

<sup>3</sup> FAC-003-2 was approved on March 21, 2013 by the Federal Energy Regulatory Commission (Commission). The Commission approved the related definitions, violation severity levels, implementation plan, and effective dates proposed by NERC. The Commission also approved the related violation risk factors, except that it directed a revision to the violation risk factor corresponding to one requirement.

The second quarter of 2011 had five Category 3 outages, and the second quarter of 2010 had six Category 3 outages. Most of these outages involved high winds/storms.

The events that occurred in the second quarter of 2013 do not cause a concern or pose a significant risk on the reliability of the bulk power system.

## Reported Vegetation Outages for Q2 2013

The following vegetation related transmission line trips were reported to NERC per R4 of FAC-003-1 for the second quarter of 2013.

### Category 1 — Grow-ins

No outage caused by vegetation growing into lines from vegetation inside and/or outside of the ROW was reported during the second quarter 2013.

### Category 2 — Fall-ins

No outages caused by vegetation falling into lines from inside the ROW were reported during the second quarter 2013.

### Category 3 — Fall-ins

Three (3) outages caused by vegetation falling into lines from outside the right-of-way were reported during the second quarter 2013.

#### **SERC Reliability Corporation**

SERC reported the following one 230kV vegetation-related transmission outage from outside the ROW:

Outage on April 14, 2013: During a localized storm, a 98-foot tall hollow trunk oak tree located approximately 14 feet off the ROW near a creek bank split and broke off onto a 230 kV transmission line breaking one of the structure cross arms causing an outage for 30 hours and 55 minutes. After ground patrol inspection, it was determined that neither the rising creek nor the water conditions were contributors to the fall. The ground patrol's visual inspection of the tree condition and surrounding grounds did not identify any other trees or issues requiring further actions.

#### **Western Electric Coordinating Council (WECC)**

WECC reported the following two vegetation-related transmission outages from outside the right-of-way for two Regional Entity designated critical lines under 200kV:

#### Background

The facilities involved in these two outages are separate 115kV circuits on the same ROW connecting the same two substations and runs through a national forest. Between 2007 and 2009 there were 22 total recorded vegetation-related outages of these circuits. To address the high number of events, in 2008 the Transmission Owner and the US Forest Service agreed to a plan to allow the Transmission Owner to remove dead or dying trees that could potentially fall into these transmission lines ('danger trees'). Since 2009 there have only been five outages (including the two noted in this report) on these transmission lines, all involving a healthy tree located well outside the ROW falling into the transmission line during either a severe winter snow storm or a high wind event. Healthy trees located outside the ROW are not something patrols normally identify in accordance with the Transmission Owner's TVMP.

Outage on April 21, 2013: During severe wind a live healthy tree located outside the ROW sheared off above groundline and fell into a <200kV transmission line breaking a cross arm causing an outage for 16 hours and 34 minutes. Ongoing patrols for vegetation issues were conducted, including danger trees outside the ROW.

Outage on May 13, 2013: The transmission owner reported one <200kV vegetation-related transmission outage caused by vegetation falling from outside the ROW. The outage duration was 24 hours and 16 minutes. A live, healthy tree located 20 feet outside the ROW sheared off above groundline and fell into the transmission line. High winds were suspected at the time of the outage. Ongoing patrols for vegetation issues were conducted, including danger trees outside the ROW. WECC had requested the entity to submit additional information about this vegetation-related outage.

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

Region		FRCC	MRO	NPCC	RFC	SERC	SPP	TRE	WECC	TOTAL
First Quarter	Category 1									
	Category 2									
	Category 3					2-230kV	1-345kV			2-230kV 1-345kV
Second Quarter	Category 1									
	Category 2									
	Category 3					1-230kV			2-<200kV	1-230kV 2-<200kV
Third Quarter	Category 1									
	Category 2									
	Category 3									
Fourth Quarter	Category 1									
	Category 2									
	Category 3									
TOTAL for 2013	Category 1									
	Category 2									
	Category 3					3-230kV	1-345kV		2-<200kV	2-<200kV 3-230kV 1-345kV
Category 1: GROW-INS (inside/ outside ROW) Category 2: FALL-INS (inside ROW) Category 3: FALL-INS (outside ROW)										

**Table 2: Summary of Vegetation-Related Transmission Outages<sup>4</sup> by Region and by Outage Category for Each Quarter in 2013**

<sup>4</sup> 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 illustrates the number of outages caused by vegetation growing into transmission lines from within the right-of-way that have been reported since 2004.

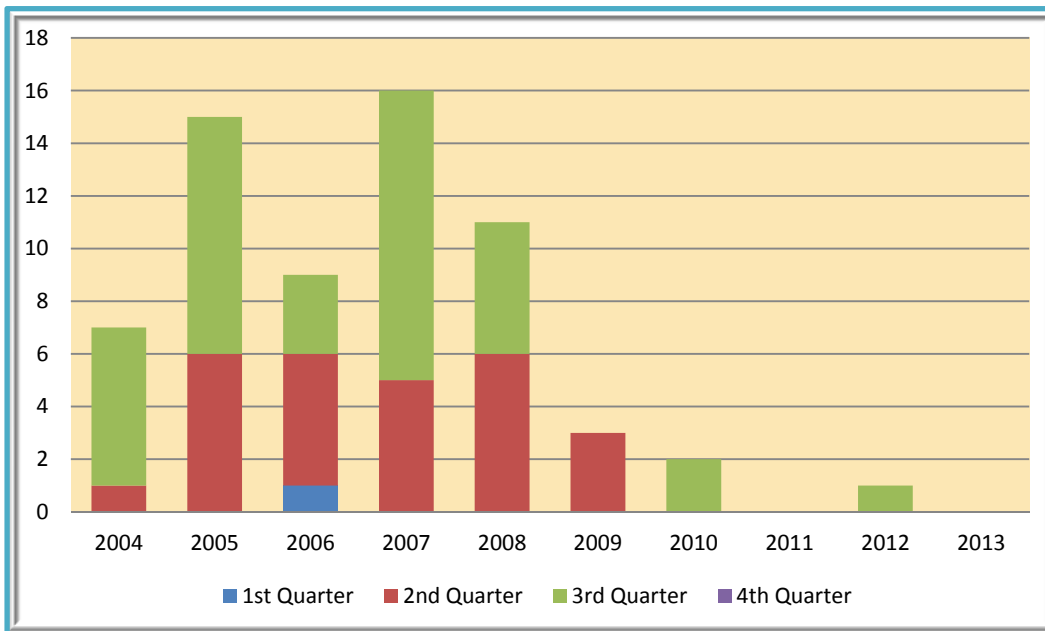


Figure 1: Category 1 — Grow-in Outages Caused by Vegetation Growing into Lines from Inside and/or Outside the ROW.<sup>5</sup>

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

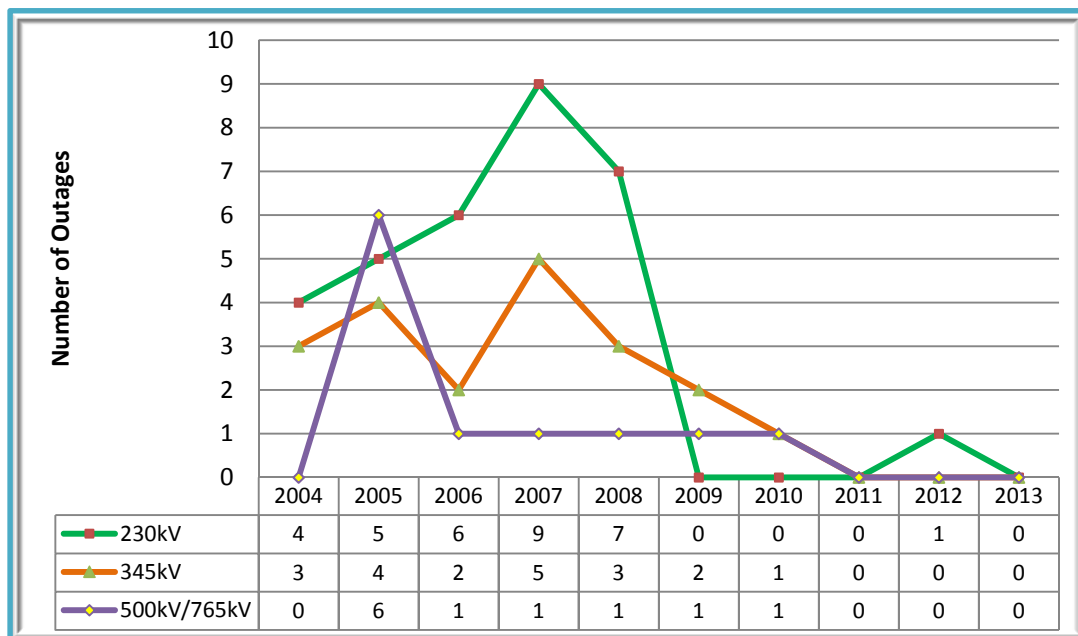


Figure 2: Category 1 — Grow-In Vegetation Related Outages of 230 kV and Higher

<sup>5</sup> Includes one 2007 Category 1 outage caused by vegetation growing into a Regional Entity-designated critical line <200 kV.