

Vegetation-Related Transmission Outage Report First Quarter 2008

The NERC Board of Trustees Compliance Committee has reviewed and accepted this Vegetation-Related Transmission Outage First Quarter 2008 Report.

Vegetation-related transmission outages that occurred in the first quarter of 2008 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 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.

All Category 1 and 2 outages are considered to be violations of NERC standard FAC-003-1, with corresponding levels of noncompliance defined in the standard. The reporting of these violations is handled separately as part of the NERC performance reporting process. Category 3 outages are not considered to be violations of NERC standard FAC-003-1. Table 1 is a summary of the vegetation outages that occurred in the first quarter by voltage class and category.

Table 1: First Quarter 2008 Summary of Vegetation-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
Category 2 — Fall-ins						0
Category 3 — Fall-ins	4	10				14
Total	4	10	0	0	0	14

Similarly, during the first quarter of 2007 there were no Category 1 or Category 2 vegetation-related transmission outages. However, there was one Regional Entity (RE) designated critical

line <200 kV, four 230 kV, and one 500 kV transmission outage caused by trees falling into lines from outside the right-of-way zone (Category 3).

Category 3 — Fall-ins

Outages caused by vegetation falling into lines from outside the right-of-way

Florida Reliability Coordinating Council

Reported one 230 kV outage from outside the right-of-way:

1. The transmission owner reported a 230 kV vegetation-related outage occurred on March 8, 2008 with duration of approximately 8 hours and 13 minutes. A Green Pine tree outside the right-of-way was found blown over laying on phases. The tree was removed and the line restored. Examination of the failed tree indicated that root rot and high wind combined to cause the tree to fail. The tree had no outward signs of root rot and was not previously identified as a danger tree. The line was re-patrolled after the event; no other danger trees were present. An interim helicopter patrol was completed for the 500 and 230 kV backbones. Danger trees were identified during the patrol and have been mitigated.

SERC Reliability Corporation

Reported one 230 kV outage from outside the right-of-way:

1. The transmission owner reported a 230 kV vegetation-related outage occurred on January 30, 2008 with duration of 2 hours and 5 minutes. Wind uprooted a dead tree that was 30 feet off the right-of-way. The tree had been identified for removal during the next routine patrol. The transmission owner has reported an increase in routine patrols.

Western Electricity Coordinating Council

Reported eight 230 kV outages from outside the right-of-way:

1. The transmission owner reported a 230 kV vegetation-related outage occurred on January 1, 2008 with duration of 23 hours. A tree fell into the line from outside the right-of-way due to heavy snow conditions. A crew removed the tree.
2. The transmission owner reported a 230 kV vegetation-related outage occurred on January 4, 2008 with duration of 9 hours and 9 minutes. A single Douglas fir uprooted and fell across C Phase. The tree was removed and the area analyzed for other potentially unstable trees, none were found.
3. The transmission owner reported a 230 kV vegetation-related outage occurred on January 7, 2008 with duration of 26 hours and 19 minutes. Heavy wet snow loading brought down a clump of conifers from off the right-of-way, the largest of which contacted and rested on the line. Trees slid off a rock outcrop 8–10 meters inside the forested edge. The cause was shallow rooting over bedrock and heavy snow load stress on the tree clump. There was a high avalanche risk reported for the area. There was a delay in repair due to poor visibility and foggy conditions, making helicopter access difficult. This circuit has regular vegetation patrols twice a year and all right-of-way maintenance was reported up to date. Further review of hazards at this site is scheduled to occur during the spring of 2008 when the snow clears.

4. The transmission owner reported a 230 kV vegetation-related outage occurred on January 27, 2008 with duration of 21 hours and 12 minutes. A green healthy tree, loaded with snow and ice, fell in from outside the right-of-way. Line patrol did not find any other tree problems.
5. The transmission owner reported a 230 kV vegetation-related outage occurred on January 29, 2008 with duration of 19 hours and 37 minutes. Several small 8–10 inch diameter at breast height (DBH) healthy trees loaded with snow and ice broke off and fell into the right-of-way. Line patrol did not find any other tree problems.
6. The transmission owner reported a 230 kV vegetation-related outage occurred on February 1, 2008 with duration of 6 hours and 26 minutes. A green healthy tree, loaded with snow and ice, fell in from outside of right of way.
7. The transmission owner reported a 230 kV vegetation-related outage occurred on February 2, 2008 with duration of 24 hours. An off the right-of-way 80-foot tall pine tree fell into the line during a winter storm.
8. The transmission owner reported a 230 kV vegetation-related outage occurred on February 5, 2008 with duration of 4 days, 2 hours, and 52 minutes. A co-dominant stemmed Douglas fir, about 32 inch DBH, broke due to gusty winds coupled with snow loading. The stem broke at the stem attachment approximately 12 feet from the ground. The tree itself was 20 feet off the right-of-way. When the snow melts the line will be patrolled through the higher elevation areas to determine if there are any additional co-dominant stemmed trees within proximity to the right-of-way.

WECC also reported four RE designated critical line <200 kV outages from outside the right-of-way:

1. The transmission owner reported a <200 kV vegetation-related outage occurred on January 3, 2008 with duration of approximately 16 hours and 37 minutes. A tree fell into the line from the edge of the right-of-way; the tree was removed as a result.
2. The transmission owner reported a <200 kV vegetation-related outage occurred on January 15, 2008 with duration of approximately 16 hours and 7 minutes. A tree fell into the line from the edge of the right-of-way; the tree was removed as a result.
3. The transmission owner reported a <200 kV vegetation-related outage occurred on February 6, 2008 with duration of approximately 21 hours and 35 minutes. A tree fell into the line from the edge of the right-of-way; the tree was removed as a result.
4. The transmission owner reported a <200 kV vegetation-related outage occurred on February 7, 2008 with duration of 6 days, 9 hours, and 15 minutes. Crews were not able to be sent immediately due to avalanche danger. Several days later the transmission owner found a tree outside the right-of-way uprooted and fell into the line.

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

Table 2: Summary of Vegetation-Related Transmission Outages by Region and by Outage Category for Each Quarter in 2008

Region	First Quarter			Second Quarter			Third Quarter			Fourth Quarter		
	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)
FRCC			1–230 kV									
MRO												
NPCC												
RFC												
SERC			1–230 kV									
SPP												
TRE												
WECC			4–<200 kV 8–230 kV									
Subtotal			4–<200 kV 10–230 kV									
TOTAL	Category 1 (Grow-ins inside/outside ROW)			Category 2 (Fall-ins inside ROW)			Category 3 (Fall-ins outside ROW)					
							4–<200 kV; 10–230 kV					