



NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

Princeton Forrestal Village, 116-390 Village Boulevard, Princeton, New Jersey 08540-5731

Vegetation-Related Transmission Outages First Quarter 2005

July 7, 2005

During the first quarter 2005, there were five vegetation-related outages reported for 200 kV and higher transmission lines. There were four 230-kV and one 500-kV transmission outages caused by tree contact from outside the right-of-way zone. The following is a brief description of each of these outages:

NPCC

- Reported one 230-kV outage outside the right-of-way. The outage was the result of the transmission owner's crew removing a danger tree. A full internal investigation was conducted by the transmission owner following the incident, and all work procedures were reviewed.

SERC

- Reported one 500-kV outage outside the right-of-way. The transmission owner reported that "the line locked out when loggers got a tree into the line and caused an A-phase to ground fault." There was no mitigating action taken by the transmission owner or the region.

WECC

Reported three 230-kV outages outside the right-of-way.

- The transmission owner reported that, "A seventy-five foot tall cottonwood tree uprooted and contacted the outside phase of the line. The tree was located off the right-of-way and was in good condition with no obvious signs of failure potential during the last inspection in October 2004. At the time of inspection, the tree was at least fifty feet from the edge of the river. During the three days prior to the incident, record rainfall resulted in an increase in water flow and the gradual change of the river's course. The island began to erode, eventually uprooting the cottonwood tree." The transmission owner removed three other trees that were eminent threats. The forester will continue to monitor the site during annual patrols. No mitigating action was taken by the region.
- The transmission owner reported that "An off the row tree fell into the river. This line crosses over an area with a thick fir, hemlock, and cedar forest. The event occurred on January 18 during winter conditions, and the region was experiencing heavy snow and

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winds. On that day, weather data shows 1.97 inches of rain with 25-mph wind gusts. This tree event was considered an isolated event and no other danger trees were reported in the area.” The transmission owner patrolled the entire line by helicopter during the spring of 2005. No mitigating action was taken by the region.

- The transmission owner reported that “During a storm, a hemlock tree that was off the row fell onto the right-of-way.” The transmission owner investigated the incident and analysis of the failed tree indicated that laminated root rot was the cause. The transmission owner is examining the need for further tree removal in the area. The transmission owner instituted a Hazard Tree Program and is working with a forest pathologist to identify hazard trees. It is also working with municipal and other landowners in an environmentally sensitive area to remove hazard trees outside the transmission line right-of-way. No mitigating action was taken by the region.

NERC has received follow-up information from the regions on all outages through the first quarter of 2005 and is satisfied with the actions taken to prevent further outages of this type.

Table 1 summarizes the number of transmission outages by voltage level, and whether the outage was a result of vegetation within or outside of the right-of-way for the first quarter of 2005.

Table 1 — 2005 NERC Vegetation-Related Transmission Outage Statistics

Region	First Quarter		Second Quarter		Third Quarter		Fourth Quarter	
	<i>Category 1</i>	<i>Category 2</i>	<i>Category 1</i>	<i>Category 2</i>	<i>Category 1</i>	<i>Category 2</i>	<i>Category 1</i>	<i>Category 2</i>
	(within ROW)	(outside ROW)	(within ROW)	(outside ROW)	(within ROW)	(outside ROW)	(within ROW)	(outside ROW)
ECAR	0	0	0	0	0	0	0	0
ERCOT	0	0	0	0	0	0	0	0
FRCC	0	0	0	0	0	0	0	0
MAAC	0	0	0	0	0	0	0	0
MAIN	0	0	0	0	0	0	0	0
MRO	0	0	0	0	0	0	0	0
NPCC	0	1-230 kV	0	0	0	0	0	0
SERC	0	1-500 kV	0	0	0	0	0	0
SPP	0	0	0	0	0	0	0	0
WECC	0	3-230 kV	0	0	0	0	0	0
Subtotal	0	4-230 kV; 1-500 kV	0	0	0	0	0	0
TOTAL								