



NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

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Vegetation-Related Transmission Outages Second Quarter 2005

September 13, 2005

During the second quarter 2005, there were seven vegetation-related outages reported for 200 kV and higher transmission lines. There were two 230 kV, two 345 kV, and two 500 kV transmission outages caused by tree contact from inside the right-of-way zone. There was one 230 kV transmission outage caused by tree contact from outside the right-of-way zone. The following is a brief description of each of these outages:

Category 1 — Vegetation Located Within Transmission Right-of-Way

ECAR

Reported one 230 kV and two 345 kV vegetation-related outages from inside the right-of-way. These outages occurred across three different transmission owners.

- A 345-kV vegetation-related transmission line outage occurred on June 4, 2005, with a duration of 5.9 hours. A tree encroached into a 345-kV transmission line. The transmission owner immediately dispatched a crew and the tree was cut down.
- A 345-kV vegetation-related transmission line outage occurred on June 6, 2005, with a duration of 1.12 hours. The transmission owner reported that the line was patrolled and crews found that the line sagged into the tree. The tree was removed and the line was put back in service.
- A 230-kV vegetation-related transmission outage occurred on June 30, 2005, with a duration of 9.8 hours. The transmission line sagged into a tree and was cut down.

In all three outage cases, ECAR discussed the outage and the actions taken with the transmission owner, and believes the action taken was appropriate. ECAR will continue to monitor vegetation related outages and will assess the effectiveness of the vegetation management program if a negative performance trend continues.

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SERC

Reported one 230 kV outage from inside the right-of-way.

- On June 6, 2005, a conductor contacted a yard tree in a residential area. The contact resulted in a momentary operation at 14:39:40, with a sustained outage following at 15:22:30. The sustained outage lasted for 298 minutes. All but one of the yard trees in this span and the adjacent spans were removed immediately by the transmission owner following the event. Other trimming locations on the line were reviewed and actions completed as necessary. The scheduled mid-June aerial patrol was completed with additional focus on reliability-related trimming locations. No action was taken by the region, but SERC noted that the annual work plan includes cycle-based trimming on the line that was scheduled for September 2005.

WECC

Reported two 500 kV vegetation-related outages from inside the right-of-way. WECC reported these outages to NERC within 48 hours of becoming aware of the outages.

- A 500-kV vegetation-related outage occurred on May 25, 2005 with duration of 3.08 hours. The transmission owner reported that during construction of a transmission project, a number of trees were left intact to preserve habitat for the spotted white owl and to improve visual aesthetics with respect to clear cut areas and transmission line visibility. The tree that the line contacted was part of an aesthetic screen located in a remote, densely vegetated area. The transmission owner removed approximately fifty trees immediately and reported that the remaining trees have adequate clearance and will be removed in July 2005. The transmission owner's line crew performed an annual patrol of the line during June 6–13 and reported that all trees have adequate clearance. The crew fell numerous trees during the patrol and identified approximately sixty spans to be removed by contract. WECC feels that the transmission owner took appropriate action, and no further action was necessary.
- A 500-kV vegetation-related outage occurred on June 14, 2005, with duration of 21 hours. The outage was caused by Aspen trees growing up into the line. The tree was trimmed as a result. Since 1997, the transmission owner notified the forestry service multiple times that they were not getting adequate clearance on the line and were not permitted access. The transmission owner notified WECC and asked for assistance. In turn, the region forwarded documentation from the transmission owner to NERC, documenting the efforts and difficulties in obtaining access to the ROW, and requested NERC's assistance with this matter.

Category 2 — Vegetation Located Within the Buffer Zone of the Transmission Line ROW or Outside the Transmission ROW

WECC

Reported one 230 kV vegetation-related transmission outage from outside the right-of-way.

- A 230-kV vegetation-related outage occurred on June 30, 2005, with duration of 3.5 hours. The outage was caused by tree contact with the line. The tree was cut down, and the transmission owner notes that it has been a “very wet year”. There was no action taken by the region as a result.

In addition, WECC reported four outages for critical 115 kV transmission facilities as a result of vegetation well outside the right-of-way. It was reported to WECC that in some instances the lines are located on steep mountainsides and any vegetation that falls will naturally fall directly down into the lines. The ROW has been cleaned and these contacts are not from vegetation that the transmission owner considers danger trees. WECC was told that in some cases all vegetation up to 100 feet outside the ROW would have to be cleared to prevent contacts from falling vegetation. WECC was told that there is nothing that can be done, and the transmission owner expects that these types of outages will continue. The transmission owner also indicates that the outage of these lines in no way impacts the transfer capabilities of the path they are included in and does not expect that the loss of these facilities can impact the interconnected system.

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 second 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	1-230 kV; 2-345 kV	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	1-230 kV	0	0	0	0	0
SPP	0	0	0	0	0	0	0	0
WECC	0	3-230 kV	2-500 kV	4-<200 kV 1-230 kV	0	0	0	0
Subtotal	0	4-230 kV; 1-500 kV	2-230 kV; 2-345 kV; 2-500 kV	4-<200 kV 1-230 kV	0	0	0	0
TOTAL								