

107 FERC ¶ 61,053  
UNITED STATES OF AMERICA  
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Pat Wood, III, Chairman;  
Nora Mead Brownell, Joseph T. Kelliher,  
and Suedeem G. Kelly.

Reporting By Transmission Providers on  
Vegetation Management Practices Related To  
Designated Transmission Facilities

Docket No. EL04-52-000

ORDER REQUIRING REPORTING ON VEGETATION MANAGEMENT  
PRACTICES RELATED TO DESIGNATED TRANSMISSION FACILITIES

(Issued April 19, 2004)

1. In this order, pursuant to section 311 of the Federal Power Act (FPA),<sup>1</sup> the Commission directs all entities that own, control or operate designated transmission facilities<sup>2</sup> in the lower 48 States (referred to herein as “transmission providers”), whether or not they are otherwise subject to the Commission’s jurisdiction as a public utility, to report on the vegetation management practices they now use for those transmission lines and rights-of-ways. In order that this information be received before the summer peak load season, which typically has maximum transmission line loading and continued

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<sup>1</sup> 16 U.S.C. § 825j (2000). Section 311 of the FPA authorizes the Commission to conduct investigations in order to secure information necessary or appropriate as a basis for recommending legislation. Section 311 makes clear that the Commission’s authority in conducting such investigations extends to entities otherwise not subject to the Commission’s jurisdiction “including the generation, transmission, distribution and sale of electric energy by any agency, authority or instrumentality of the United States, or of any State or municipality . . . .”

<sup>2</sup> “Designated transmission facilities” are defined, for the purposes of this order only, as transmission lines with a rating of 230 kV or higher as well as tie-line interconnection facilities between control areas or balancing authority areas (regardless of kV rating) and “critical” lines as designated by the regional reliability council. See NERC, August 14, 2003 Blackout: NERC Actions to Prevent and Mitigate the Impacts of Future Cascading Blackouts at 9 n.3 (Feb. 10, 2004).

vegetation growth, this report should be submitted by June 17, 2004 to the Commission, the appropriate State commissions,<sup>3</sup> the North American Electric Reliability Council (NERC) and the relevant reliability authorities.<sup>4</sup> This order is driven by the findings of the Joint U.S.-Canada Task Force Final Blackout Report and benefits customers because better understanding of utility vegetation management practices on transmission lines will help to support improvements to overall grid reliability.

2. Failure to adequately maintain vegetation within transmission line rights-of-way has been identified as a major cause of the August 14, 2003 electric power blackout and as a common factor contributing to many previous regional outages. The vegetation management report required herein will provide the Commission, the States, NERC, reliability authorities and the Congress with valuable information regarding vegetation management problems that could cause line outages, and action taken to alleviate identified vegetation management problems. The Commission will also use this information in cooperation with the NARUC Ad-Hoc Committee on Critical Infrastructure to identify appropriate ways to assure effective vegetation management for electric transmission facilities.

3. The Commission strongly supports legislative reform to provide a clear Federal framework for developing and enforcing mandatory reliability rules. The information collected from the reporting requirement herein will be reflected in a Commission report to Congress on the reliability of the nation's interstate bulk electric systems, consistent with section 311 of the FPA.<sup>5</sup>

### **Background**

4. On August 14, 2003, an electric power blackout occurred over large portions of the Northeast and Midwest United States and Ontario, Canada. The blackout lasted up to

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<sup>3</sup> Some transmission providers are not subject to the jurisdiction of a State Commission. We request, however, that they serve a copy of the report on all State Commissions for States in which their transmission facilities are located.

<sup>4</sup> A reliability authority is the entity responsible for the safe and reliable operation of the interconnected transmission system for its defined "reliability authority area." This term is replacing the term "reliability coordinator" which has the same meaning and is still in common use in many areas. The term reliability authority as used in this order refers to the corporate entity responsible for reliability, which may be called either the reliability authority or the reliability coordinator for its area.

<sup>5</sup> "The Commission shall report to Congress the results of investigations made under authority of this section." 16 U.S.C. § 825j.

two days in some areas of the United States and longer in some areas of Canada. It affected an area with over 50 million people and 61,800 megawatts of electric load. In the wake of the blackout, a joint U.S.-Canada Task Force (Task Force) undertook a study of the causes of that blackout and possible solutions to avoid future such blackouts. In November 2003, the Task Force issued an interim report, describing its investigation and findings and identifying the causes of the blackout.<sup>6</sup> The Task Force's final report, issued on April 5, 2004, verifies and expands the findings of the interim report.

5. The Task Force identified FirstEnergy Corporation's (FirstEnergy) failure to adequately trim trees and manage vegetation in its transmission rights-of-way as one of the four primary causes of the August 14, 2003 blackout.<sup>7</sup> The blackout investigation explained that, during the hour before the cascading blackout occurred, three FirstEnergy 345 kV transmission lines failed as a result of contact between the lines and overgrown vegetation that encroached into the required clearance height for the lines.<sup>8</sup> It stated that "because the trees were so tall . . . each of these [three] lines faulted under system conditions well within specified operating parameters."<sup>9</sup>

6. The Interim Blackout Report also compared the August 2003 blackout with seven previous major outages and concluded that conductor contact with trees was a common factor among the outages.<sup>10</sup> The Task Force emphasized that vegetation management is critical and that many outages can be mitigated or prevented by managing the vegetation

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<sup>6</sup> U.S.-Canada Power System Outage Task Force, Interim Report: Causes of the August 14<sup>th</sup> Blackout in the United States and Canada (Nov. 2003) (Interim Blackout Report). The Interim Blackout Report is fully replaced by the Final Report.

<sup>7</sup> U.S.-Canada Power System Outage Task Force, Final Blackout Report (April 2004), at 20. The other primary causes identified by the Task Force were inadequate system understanding by FirstEnergy and the East Central Area Reliability Coordination Agreement (ECAR), a NERC Regional Reliability Council, and inadequate situational awareness by FirstEnergy, and failure of the interconnected grid's reliability organizations to provide effective diagnostic support. *Id.* at 17-20.

<sup>8</sup> *Id.* at 57-67.

<sup>9</sup> *Id.* at 58.

<sup>10</sup> *Id.* at 107. The Interim Blackout Report concluded that conductor contact with trees "was an initiating trigger in several of the outages and a contributing factor in the severity of several more. . . . In some of the disturbances, tree contact accounted for the loss of more than one circuit, contributing multiple contingencies to the weakening of the system." *Id.*

before it becomes a problem.<sup>11</sup> It also noted that investigation reports from previous major outages recommended paying special attention to the condition of vegetation on rights-of-way and the need for preventative maintenance in this area.

7. In an October 15, 2003 letter to the chief executive officers of all entities operating control areas or serving as NERC reliability coordinators, NERC listed six categories of “near term” actions, including vegetation management, that would promote reliable operations of the bulk power system.<sup>12</sup> The letter requested that they report to their respective regional councils and to NERC within 60 days that they had completed a review of the listed reliability practices and the status of any necessary corrective actions. With regard to vegetation management, NERC asked that the control area operators and reliability councils report on their efforts to “ensure high voltage transmission line rights-of-way are free of vegetation and other obstructions that could contact an energized conductor within the normal and emergency ratings of each line.”<sup>13</sup>

8. NERC posted on its website an abbreviated summary of its vegetation management findings. The summary states:

Some entities did not specifically address the issue of vegetation management. Of those that did, almost all indicated they have an active comprehensive vegetation program in place with rights-of-way patrolled at least annually. One entity indicated it did not yet comply with the heat-sensing portion of the Regional Reliability Council’s operating procedure but is taking action to do so in 2004. Some entities patrol by air, some by ground, and some by both. To some extent, the amount of transmission an entity is responsible for determines the type of patrol used. Routine tree trimming is conducted on cycles that range from every three to six years. Local vegetation type and geographic region of the country has an impact on deciding the frequency of the trimming cycle. Typical problems and concerns noted are as follows:

- One entity owns transmission lines located on lands under the jurisdiction of the U.S. Forest Service or Bureau of Land Management. The need for

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<sup>11</sup> Id. at 59.

<sup>12</sup> A copy of the letter is available on the NERC website at: <http://www.nerc.com/~filez/blackout.html>. While a list of entities that voluntarily responded is also available on the NERC website, the actual responses are not posted on NERC's website.

<sup>13</sup> October 15, 2003, NERC letter at 3.

special use permits can impede the ability to remove vegetation from rights-of-way for these circuits.

- One entity cited state and federal restrictions, such as those related to environmental or endangered species regulations, which create concerns because they are not allowed to clear rights-of-way appropriately to ensure reliability.”

9. In March 2004, the Commission made available to the public a 128-page vegetation management report (Final Vegetation Report), prepared to support the blackout investigation.<sup>14</sup> The report details problems with vegetation management relating to the August 2003 blackout, and the impact of vegetation management on electric reliability. The report concludes that the August 2003 blackout likely would not have occurred had the rights-of-way been maintained for three 345 kV transmission lines that tripped due to tree-line contacts.<sup>15</sup> It also concludes that utilities responsible for the right-of-way maintenance had in place vegetation management programs that were in line with current industry norms. Further, it concludes that current industry “standards” are inadequate and must be improved. The Final Vegetation Report recommends specific practices that would reduce the likelihood of tree and power line conflicts and provides recommendations for the oversight and enforcement of utility vegetation management activities.

10. On April 5, 2004, the Joint Task Force issued its Final Blackout Report. That report verifies the findings of the interim report, including the role of inadequate tree-trimming as an immediate cause of the 345 kV line outages in the Cleveland-Akron area that ultimately precipitated the blackout.

### **Discussion**

11. The Interim and Final Blackout Reports and the Final Vegetation Report all indicate that inadequate maintenance of vegetation on transmission line rights-of-way was a major cause of the August 14, 2003 blackout. Further, the Task Force’s analysis of seven other major outages identified tree contacts as an initiating or contributing factor to such outages.

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<sup>14</sup> CN Utility Consulting, Utility Vegetation Management Final Report, (March 2004) (Final Vegetation Report). The Final Vegetation Report is available on the Internet at [www.ferc.gov/cust-protect/moi/blackout.asp](http://www.ferc.gov/cust-protect/moi/blackout.asp).

<sup>15</sup> Id., at 26-27.

12. It is clear from these reports that a higher standard of performance of vegetation management is critical to minimizing the risk of regional power outages and ensuring the uninterrupted flow of electricity in the nation's interconnected bulk electric systems. As noted above, NERC requested that control area operators and reliability authorities report their efforts to ensure that high voltage transmission line rights-of-way are free of vegetation and other obstructions that could cause a line outage. The information provided in response to NERC's inquiry is useful but incomplete. Further inquiry is necessary to understand the state of the industry's vegetation management programs and to better support industry efforts to improve, and sustain improvement of, industry vegetation management programs and protect the public interest.<sup>16</sup> In addition, a more comprehensive view of the vegetation management practices in the United States will allow the Commission to provide a more complete report to Congress. Accordingly, pursuant to section 311 of the FPA,<sup>17</sup> the Commission is requiring that all transmission providers (whether or not they are otherwise subject to the Commission's jurisdiction as public utilities) that own, control or operate designated transmission facilities in the lower 48 States submit a report containing the following information:<sup>18</sup>

- a) Describe in detail the vegetation management practices and standards that the transmission provider uses for control of vegetation near designated transmission facilities, and indicate the source of any standard utilized (state law or regulation, historical practice, etc.). Describe the clearance assumptions or definition used for the appropriate distance between the vegetation and the facilities. Indicate how the vegetation management practices treat vegetation that encroaches or might reasonably be expected to encroach due to growth prior to the next inspection into the line clearance zone from below, beside, and above the facilities.
- b) "Designated transmission facilities" are defined, for the purposes of this report only, as lines with a rating of 230 kV or higher as well as tie-line interconnection facilities between control areas or balancing authority areas (regardless of kV

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<sup>16</sup> See Final Blackout Report at 59.

<sup>17</sup> See note 1, infra.

<sup>18</sup> OMB Control Number 1902—0207; expiration date October 31, 2004.

rating) and “critical” lines as designated by the regional reliability council.<sup>19</sup> List the facilities under transmission provider control that meet this definition.

c) For each facility identified pursuant to item b), indicate how often the transmission provider inspects that facility for vegetation management purposes. Indicate when the most recent survey of that facility was performed, what kind of survey was used (e.g., helicopter overflight or foot patrol), and indicate what the findings of that survey showed. If the survey led to further action, indicate what action was taken and the date(s) it was performed.

d) For the facilities identified pursuant to b), indicate whether identified remediation has been completed as of June 14, 2004.

e) Describe any factors that the respondent believes prevents or unduly delays the performance of adequate vegetation management.

13. The Commission expects that the responses to parts (b) and (c) above should come in two parts. Each transmission provider should submit a general response that contains clear information responding to each question. The transmission providers must also provide a detailed response that addresses the specifics of each part. This detailed response may be filed under the protection of Critical Energy Infrastructure Information.<sup>20</sup>

14. Transmission Providers should submit the report by June 17, 2004 to the Commission, the appropriate State commissions, NERC and the relevant reliability authorities.<sup>21</sup> In circumstances where multiple entities own, control or operate the same transmission facilities, only a single report need be submitted (but the report should identify which entities and lines are being handled through consolidated reporting).

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<sup>19</sup> If the reporting utility's regional reliability council has already designated specific lines below 230 kV as “critical,” it is those lines which should be included in this report. If the regional reliability council has not already designated such lines, then there is no need for the reporting utility to identify additional “critical” lines below 230 kV nor to request such designation by its regional reliability council for the purpose of this report.

<sup>20</sup> 18 CFR § 388.113(c)(1) (2000).

<sup>21</sup> Utilities in the Western Electricity Coordinating Council (WECC) should also submit the results to WECC.

15. Consistent with the Commission's regulations that apply to any filings made with the Commission, contained in 18 CFR 385.2005,<sup>22</sup> the report should be verified by a corporate officer.

### **Document Availability**

16. In addition to publishing the full text of this document in the Federal Register, the Commission provides all interested persons an opportunity to view and/or print the contents of this document via the Internet through FERC's Home Page (<http://www.ferc.gov>) and in FERC's Public Reference Room during normal business hours (8:30 a.m. to 5:00 p.m. Eastern time) at 888 First Street, N.E., Room 2A, Washington D.C. 20426.

17. From FERC's Home Page on the Internet, this information is available using the eLibrary link. The full text of this document is available on eLibrary in PDF and Microsoft Word format for viewing, printing, and/or downloading. To access this document in eLibrary, type the docket number excluding the last three digits of this document in the docket number field.

18. User assistance is available for eLibrary and the FERC's website during normal business hours at [FERCOnlineSupport@ferc.gov](mailto:FERCOnlineSupport@ferc.gov) or by calling (866) 208-3676 or for TTY, contact (202) 502-8659.

### **The Commission orders:**

(A) All entities that own, control or operate designated transmission facilities, as defined herein, in the lower 48 States, whether or not they are otherwise subject to the Commission's jurisdiction as public utilities, are directed to submit to the Commission, the appropriate State commissions, the North American Electric Reliability Council

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<sup>22</sup> 18 CFR 385.2005 requires the signer of a filing to verify that: the signer has read the filing signed and knows its contents; the contents are true as stated, to the best knowledge and belief of the signer; and the signer possess full power and authority to sign the filing.



(NERC) and the relevant reliability coordinators and reliability authorities, by June 17, 2004, a report on vegetation management practices related to such transmission lines, as discussed in the body of this order.

(B) The Secretary shall promptly publish a copy of this order in the Federal Register.

By the Commission.

( S E A L )

Magalie R. Salas,  
Secretary.