



NORTH AMERICAN ELECTRIC  
RELIABILITY CORPORATION

June 4, 2008

Ms. Kimberly Bose  
Secretary  
Federal Energy Regulatory Commission  
888 First Street, N.E.  
Washington, D.C. 20426

Re: NERC Notice of Penalty regarding MidAmerican Energy Company, FERC Docket No. NP08--000

Dear Ms. Bose:

The North American Electric Reliability Corporation (NERC) hereby provides this Notice of Penalty regarding MidAmerican Energy Company,<sup>1</sup> in accordance with the Federal Energy Regulatory Commission's (Commission or FERC) rules, regulations and orders, as well as NERC Rules of Procedure including Appendix 4C (NERC Compliance Monitoring and Enforcement Program (CMEP)).<sup>2</sup>

This Notice of Penalty is being filed with the Commission because, based on information from Midwest Reliability Organization, MidAmerican Energy Company submitted a self-report of its violation of FAC-003-1 Requirement (R.) 2. Midwest Reliability Organization and MidAmerican Energy Company have entered into a settlement agreement in which MidAmerican Energy Company has accepted the violation and the proposed penalty of \$75,000 to be assessed to MidAmerican Energy Company, in addition to other remedies which include mitigation actions under the terms and conditions of the settlement agreement, at issue in this Notice of Penalty. Accordingly, the violation identified as NERC Violation Tracking Identification Number MRO200700010 is a Confirmed Violation, as that term is defined in the NERC Rules of Procedure and the CMEP.

### Statement of Findings Underlying the Violation

This Notice of Penalty incorporates by reference the findings and justifications set forth in the settlement agreement executed on March 5 and 12, 2008, by and between Midwest Reliability Organization and MidAmerican Energy Company, which is included as Attachment a. The

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<sup>1</sup> *Rules Concerning Certification of the Electric Reliability Organization; and Procedures for the Establishment, Approval, and Enforcement of Electric Reliability Standards* (Order No. 672), III FERC Stats. & Regs. ¶ 31,204 (2006); *Notice of New Docket Prefix "NP" for Notices of Penalty Filed by the North American Electric Reliability Corporation*, Docket No. RM05-30-000 (February 7, 2008). See also 18 C.F.R. Part 39 (2008). *Mandatory Reliability Standards for the Bulk-Power System*, FERC Stats. & Regs. ¶ 31,242 (2007) (Order No. 693). See 18 C.F.R. § 39.7(d)(1).

<sup>2</sup> See 18 C.F.R. § 39.7(c)(2).

details of the findings and basis for the penalty are set forth in the settlement agreement, as well as the determinations of the NERC Board of Trustees Compliance Committee (NERC BOTCC) in its decision, which is included as Attachment b. In accordance with Section 39.7 of the Commission's regulations, 18 C.F.R. § 39.7 (2007), NERC provides the following summary table identifying each Reliability Standard violated by MidAmerican Energy Company.

<b>NOP ID</b>	<b>NERC ID</b>	<b>Date of Violation</b>	<b>Reliability Standard</b>	<b>Requirement</b>	<b>VRF</b>	<b>Total Penalty (\$)</b>
NOP-38	MRO200700010	9/21/2007	FAC-003-1	2	HIGH	75,000

FAC-003 R. 2 provides that a Transmission Owner shall create and implement an annual plan for vegetation management work to ensure the reliability of the system. The plan shall describe the methods used, such as manual clearing, mechanical clearing, herbicide treatment, or other actions. The plan should be flexible enough to adjust to changing conditions, taking into consideration anticipated growth of vegetation and all other environmental factors that may have an impact on the reliability of the transmission systems. Adjustments to the plan shall be documented as they occur. The plan should take into consideration the time required to obtain permissions or permits from landowners or regulatory authorities. Each Transmission Owner shall have systems and procedures for documenting and tracking the planned vegetation management work and ensuring that the vegetation management work was completed according to work specifications.

MidAmerican Energy Company submitted, to Midwest Reliability Organization, a self-report of its failure to maintain, pursuant to NERC Reliability Standard FAC-003-1 R.2, the appropriate clearance between a tree and a conductor in accordance with its Vegetation Management Plan, which resulted in a 345 kV transmission line outage on September 21, 2007. The line was returned to service on September 22, 2007.

NERC stated its interpretation of the vegetation management standard during FERC's consideration of proposed FAC-003-1: A vegetation-related transmission line outage as a result of vegetation that has grown into the pre-defined clearance zone is a violation of the standard.<sup>3</sup> The Commission adopted that interpretation when it approved NERC's proposed reliability standards. It stated, "FAC-003-1 requires sufficient clearances to prevent outages due to vegetation management practices under all applicable conditions."<sup>4</sup> Because violations of the Requirements 1 and 2 of FAC-003-1 could directly lead to or contribute to widespread outages or cascading failures, NERC assigned "high" violation risk factors to those requirements. NERC stated, "Clearly, the failure to have a vegetation management program with appropriate

<sup>3</sup> *Comments of the North American Electric Reliability Council and the North American Electric Reliability Corporation on Staff Preliminary Assessment*, Docket No. RM06-16-000, filed June 26, 2006, p. 31.

<sup>4</sup> *Mandatory Reliability Standards for the Bulk-Power System*, FERC Stats. & Regs. ¶ 31,242 at P 729 (2007) (Order No. 693).

clearances, and an annual work plan could directly (and has) contribute to widespread outages.”<sup>5</sup>  
The Commission confirmed that interpretation and understanding when it approved NERC’s proposed violation risk factors for FAC-003-1, stating:

With regard to FAC-003-1, Requirement R1 requires a transmission owner to develop a transmission vegetation management program, and Requirement R2 requires a transmission owner to implement the program. NERC’s assignment of a “high” Violation Risk Factor to Requirements R1 and R2 is appropriate because inadequate vegetation management presents a serious risk of sustained transmission outage and could directly cause or contribute to Bulk-Power System instability, separation, or a cascading sequence of failures. Both planning and implementation are critical to vegetation management. A vegetation-related transmission outage would result in a violation of Requirement R1, R2 or both.<sup>6</sup>

FAC-003-1 has a “High” VRF. In the settlement agreement, the Midwest Reliability Organization did not assess a Violation Severity Level (VSL) because the standard as approved utilizes Levels of Non-Compliance. Based on the NERC Sanction Guidelines Base Penalty Table, the possible penalty range for a “High” VRF is \$4,000 to \$1,000,000.

### **Status of Mitigation Plan<sup>7</sup>**

MidAmerican Energy Company’s Mitigation Plan is embodied in the settlement agreement.

### **Statement Describing the Proposed Penalty, Sanction or Enforcement Action Imposed<sup>8</sup>**

#### **FERC Order Excerpts**

In Order No. 693, the Commission provided guidance to NERC and the industry on the determination of penalties during the first six month period of mandatory and enforceable Reliability Standards:

222. . . . In light of commenters’ concerns, including the fact that there are new aspects to the Reliability Standards and the proposed compliance program that will apply to all users, owners and operators of the Bulk-Power System, *the Commission directs the ERO and Regional Entities to focus their resources on the most serious violations during an initial period through December 31, 2007.* This thoughtful use of enforcement discretion should apply to all users, owners and operators of the Bulk-Power System, and not just those new to the program as originally proposed in the NOPR. This approach will allow the ERO, Regional Entities and other entities time to ensure that the compliance monitoring and

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<sup>5</sup> *Request of the North American Electric Reliability Corporation for Approval of Supplemental Violation Risk Factors for Version 1 Reliability Standards*, Docket No. RR07-12-000 (May 4, 2007), at Exhibit A.

<sup>6</sup> *North American Electric Reliability Corporation*, Order on Violation Risk Factors, 119 FERC ¶ 61,321 at P 10 (June 26, 2007).

<sup>7</sup> See 18 C.F.R § 39.7(d)(7).

<sup>8</sup> See 18 C.F.R § 39.7(d)(4).

enforcement processes work as intended and that all entities have time to implement new processes.

*223. By directing the ERO and Regional Entities to focus their resources on the most serious violations through the end of 2007, the ERO and Regional Entities will have the discretion necessary to assess penalties for such violations, while also having discretion to calculate a penalty without collecting the penalty if circumstances warrant.* Further, even if the ERO or a Regional Entity declines to assess a monetary penalty during the initial period, they are authorized to require remedial actions where a Reliability Standard has been violated. Furthermore, where the ERO uses its discretion and does not assess a penalty for a Reliability Standard violation, we encourage the ERO to establish a process to inform the user, owner or operator of the Bulk-Power System of the violation and the potential penalty that could have been assessed to such entity and how that penalty was calculated. We leave to the ERO's discretion the parameters of the notification process and the amount of resources to dedicate to this effort. Moreover, the Commission retains its power under section 215(e)(3) of the FPA to bring an enforcement action against a user, owner or operator of the Bulk-Power System.

*224. The Commission believes that the goal should be to ensure that, at the outset, the ERO and Regional Entities can assess a monetary penalty in a situation where, for example, an entity's non-compliance puts Bulk-Power System reliability at risk.* Requiring the ERO and Regional Entities to focus on the most serious violations will allow the industry time to adapt to the new regime while also protecting Bulk-Power System reliability by allowing the ERO or a Regional Entity to take an enforcement action against an entity whose violation causes a significant disturbance. Our approach strikes a reasonable balance in ensuring that the ERO and Regional Entities will be able to enforce mandatory Reliability Standards in a timely manner, while still allowing users, owners and operators of the Bulk-Power System time to acquaint themselves with the new requirements and enforcement program. In addition, our approach ensures that all users, owners and operators of the Bulk-Power System take seriously mandatory, enforceable reliability standards at the earliest opportunity and before the 2007 summer peak season.<sup>9</sup>

### **Basis for Determination**

Taking into consideration the Commission's direction in Order No. 693 and the NERC Sanction Guidelines, the NERC BOTCC reviewed the NOC and supporting documentation on April 24, 2008 and May 5, 2008.

The NERC BOTCC affirmed Midwest Reliability Organization's determination to exercise enforcement discretion to impose a \$75,000 penalty against MidAmerican Energy Company,

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<sup>9</sup> Order No. 693 at PP 222-224 (emphasis added).

based upon the NERC BOTCC's review of the applicable requirements of the Commission-approved Reliability Standards, the underlying facts and circumstances of the violations at issue, and the other remedies included in the settlement agreement.

In reaching this determination, NERC and MRO considered the following: (1) In mid-May 2007, MidAmerican Energy Company identified vegetation to be removed in accordance with its vegetation management program and scheduled the tree for removal; however, due to human error: (i) the wrong location (structure number) was recorded in the work order (WO) to remove the tree, (ii) the tree crew executing the WO did not notice, or was not aware, that they were not removing the vegetation intended to be removed, and (iii) the first line trip was attributed to lightning activity; (2) Following the second outage after which the WO error was identified, MidAmerican Energy Company worked cooperatively with MRO; (3) There is no question that MidAmerican Energy Company had a vegetation plan and was actively implementing the plan, as evidenced by its discovery and removal of the vegetation at issue; (4) MidAmerican Energy Company acted immediately to mitigate and/or correct the violation and worked with other entities to ensure reliability was not adversely affected; (5) The tree was promptly removed and has been verified as removed by MRO; (6) No customers lost service as a result of the outage; (7) The additional actions taken or to be taken by MidAmerican Energy Company to implement the use of GPS location for vegetation patrols and removal as well as other activities under the terms of the Settlement Agreement ensure that reliability is maintained.

Therefore, NERC believes that the proposed \$75,000 penalty and other remedies included in the settlement agreement are appropriate and consistent with NERC's goal to ensure reliability of the bulk power system.

Pursuant to Order No. 693, the penalty will be effective upon expiration of the thirty (30) day period following the filing of this Notice of Penalty with FERC, or, if FERC decides to review the penalty, upon final determination by FERC.

### **The Record of the Proceeding<sup>10</sup>**

The record of the proceeding includes the following documents and material, which are set forth in the Attachments below:

- a) Settlement Agreement by and between MidAmerican Energy Company and Midwest Reliability Organization;
- b) NERC BOTCC Decision.

### **A Form of Notice Suitable for Publication<sup>11</sup>**

A copy of a notice suitable for publication is included in Attachment c.

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<sup>10</sup> See 18 C.F.R § 39.7(d)(5).

<sup>11</sup> See 18 C.F.R § 39.7(d)(6).

### **Notices and Communications**

Notices and communications with respect to this filing may be addressed to the following:

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\*Persons to be included on the  
Commission's service list are indicated with  
an asterisk.

**Conclusion**

NERC respectfully requests that the Commission accept this Notice of Penalty as compliant with its rules, regulations and orders.

Respectfully submitted,

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cc: MidAmerican Energy Company  
Midwest Reliability Organization

Attachment(s)

**Settlement Agreement by and between  
MidAmerican Energy Company and Midwest  
Reliability Organization**



**SETTLEMENT AGREEMENT**  
**OF**  
**Midwest Reliability Organization**  
**AND**  
**MidAmerican Energy Company**

**I. INTRODUCTION**

1. Midwest Reliability Organization (MRO) and MidAmerican Energy Company (MEC or MidAmerican) enter into this Settlement Agreement (“Agreement”) to resolve all outstanding issues arising from a non-public, preliminary assessment resulting in MRO’s determinations and findings of a violation by MEC of the NERC Reliability Standard FAC-003-1 *Transmission Vegetation Management Program*.

**II. STIPULATION**

2. The facts stipulated herein are stipulated solely for the purpose of resolving, between MRO and MEC, the matters discussed herein and do not constitute stipulations or admissions for any other purpose. MEC and MRO hereby stipulate and agree to the following:

**A. Background**

3. MEC is a regulated public utility providing service to over 714,000 electric customers and over 696,000 natural gas customers in Iowa, Illinois, and South Dakota. Its principal executive offices are located in Des Moines, Iowa.

4. MEC electric utility assets include about 6,000 MW of generating capability and the associated transmission and distribution system assets required to serve the electric customers. One asset MEC owns is the Cooper – Booneville transmission line, which is a 345 kV line between the Cooper Nuclear Generating Plant located in southeastern Nebraska and the Booneville Substation located just southwest of Des Moines.

5. MRO confirmed MEC's NERC Registration Status as a Transmission Owner ("TO") and that MEC, therefore, was subject to the Requirements of NERC's Standard FAC-003-1.

**B. Violation**

6. NERC Reliability Standard FAC-003-1 "*Transmission Vegetation Management Program*" requires, among other things, "the Transmission Owner shall establish clearances to be achieved at the time of vegetation management work identified herein as Clearance 1, and shall also establish and maintain a set of clearances identified herein as Clearance 2 to prevent flashover between vegetation and overhead ungrounded supply conductors."<sup>1</sup> The Reliability Standard also requires "each Transmission Owner shall have systems and procedures for

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<sup>1</sup> NERC Standard FAC-003-1 — Transmission Vegetation Management Program, Approved by NERC Board of Trustees on 2/7/06, Approved by the Commission effective 6/18/07, Requirement R1.2.

documenting and tracking the planned vegetation management work and ensuring that the vegetation management work was completed according to work specifications.”<sup>2</sup> In basic terms, the Standard requires any entity subject to the Requirements of FAC-003-1 to determine (subject to a minimum clearance<sup>3</sup>) and maintain its Clearances 1 and 2. Clearance 1 is the minimum clearance between vegetation and the conductor to which the entity is to trim vegetation at the time work is completed. Clearance 2 is the minimum clearance between vegetation and conductor that should never be encroached. Although the entity is free to determine these clearances appropriate for conditions unique to each transmission line, Clearance 2 is subject to an IEEE required minimum.

C. **Summary of Events**

7. A trip occurred on the Cooper – Booneville 345 kV line at approximately 14:40 on 9/21/07. Breakers for the line operated correctly and did not automatically reclose with the result that the line remained open and out of service. There was no loss of load as a result of the line trip. MEC decided to request a patrol of the line to investigate the cause of the outage before restoring the line to service. The Midwest Independent Transmission System Operator (“MISO”), the Reliability Coordinator for that geographic area, was contacted to ensure that reliability of the interconnection would not be jeopardized should the line need to remain open

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<sup>2</sup> NERC Standard FAC-003-1 — Transmission Vegetation Management Program, Approved by NERC Board of Trustees on 2/7/06, Approved by the Commission effective 6/18/07, Requirement R2.

<sup>3</sup> Institute of Electrical and Electronics Engineers (IEEE) Standard 516-2003 (Guide for Maintenance Methods on Energized Power Lines) and as specified in its Section 4.2.2.3, Minimum Air Insulation Distances without Tools in the Air Gap.

and out of service until the cause of the outage was determined and addressed. After receiving a confirmation from MISO that leaving the line out of service overnight would not cause unacceptable additional risk to reliability of the bulk power system (BPS), a joint decision was made between MEC, Nebraska Public Power District (“NPPD”), and MISO to leave the line open overnight due to the inability to obtain a patrol aircraft prior to nightfall. MRO confirmed the coordination between MEC, MISO and NPPD. MEC decided to conduct an aerial patrol of the line early in the morning on Saturday 9/22/07. Evidence of a tree contact was discovered by the patrol on the same day, 9/22/07. MEC then dispatched a tree crew and eliminated the tree, which was inside of the Right of Way (ROW) of the line. MEC records show that MEC had identified the tree near structure 882 on 5/11/07 and had dispatched a crew on 5/18/07. However, the structure number was incorrectly recorded as structure 892 (rather than 882) and the tree crews cleared vegetation at the wrong location.

8. Because the 5/18/07 work order indicated vegetation to be cleared, and the crew found and cleared one or more trees, the crew reported the work order as complete and the threat was assumed to have been eliminated. It was confirmed later on 9/22/07 that this was not the case and the tree at structure 882 was then eliminated. A detailed summary of events follows:

a. Pre 9/21/07 Events

1. The Cooper – Booneville line tripped at 21:24 on 9/18/07 and locked out.
2. After consultation with NPPD and MISO, MEC reclosed the line at 21:38 and it held.
3. Since storms were in the area and the line reclosed, the operators attributed the cause as lightning.
4. A post event lightning analysis by MEC confirmed approximately 52 lightning strikes were potentially on or near the line (within a five-mile radius) within a +/- 10 minute period of the trip on 9/18/07.

b. 9/21/07 Events

1. The Cooper – Booneville line trip occurred at approximately 14:40 on 9/21/07.
2. Prior to the trip, the Cooper – Booneville 345 kV line was carrying approximately 383 MVA (41% of normal rated capacity) of power from Cooper towards Booneville on the 926 MVA rated line.
3. The Des Moines Control Center (DMCC) contacted Engineering Field Services to report a line trip and requested a flight at approximately 15:00. MEC believed that a flight was the best way to patrol the line as the terrain was cross country and rough.

4. Due to the late trip time and need to recall the helicopter from Madison, WI, MEC determined that the helicopter would not be able to fly the line before dark.
5. The DMCC contacted NPPD and MISO to verify that leaving the Cooper – Booneville 345 kV line out-of-service would not cause them any heightened concern and received confirmation from both that leaving the line out of service as requested would not cause them any undue reliability concerns.

c. 9/22/07 Events

1. On 9/22/07 the line was flown and the tree was spotted at structure 882 at approximately 13:00.
2. The DMCC contacted the Council Bluffs tree crew foreman at approximately 13:30 on 9/22/07.
3. The tree was cut down at approximately 17:00 on 9/22/07 and the Cooper – Booneville 345 kV line was re-energized at approximately 17:10 on 9/22/07.

d. Post 9/22/07 Events

1. MEC voluntarily reported the 9/21/07 tree contact within 48 hours as required by the MRO's 48-hour reporting requirements.
2. In an additional effort to insure there were no other vegetation issues, MEC subsequently patrolled the entire Cooper – Booneville 345 kV line again on

11/29/07, verified that the tree was removed, and verified that the line was clear of other potential vegetation issues.

9. MEC indicated they performed a root cause analysis to identify fundamental issues in order to prevent avoidable vegetation contacts in the future. MEC's findings are addressed below:

a. Tree Trimming Schedules

MEC reviewed its current and past tree trimming schedules. The vegetation management program called for an annual review. Past schedules show that all 345 kV lines were flown and reviewed on schedule. The specific Missouri section B11 on the Cooper – Booneville 345 kV line had vegetation work performed in 2005, 2006, and 2007. MRO was able to verify the record of past inspections and their findings. Since the tree that contacted the Cooper – Booneville line was identified as vegetation to be cut prior to the tree contact, the basic process identified the issue, but human error from an incorrectly recorded structure number was the primary contributing factor to the tree contact. The problem was further obscured by the fact that vegetation was present at both the target structure 882 and structure 892.

The investigation did note that the 2006 MEC vegetation management program documentation was combined, enhanced, and more formalized in 2007 in part due to recommendations from a 2006 Readiness Evaluation and also from the adoption of mandatory Reliability Standards in 2007. The 2006 version of the

vegetation documentation shows the same basic program was in effect prior to 2007.

b. Prior Year Budgets

MEC reviewed its 2005, 2006, and 2007 tree trimming budgets and concluded that tree trimming budgets have been relatively stable with the application of herbicides and growth retardants. MEC provided to MRO the annual budget information for the three years along with the actual expenditures for section B11 on the Cooper – Booneville 345 kV line.

c. Personnel

The primary agents involved in this incident were the tree inspectors that misreported the structure number (892 instead of 882) which sent the tree crews to the wrong location. Secondary agents involved are the tree crew that showed up at the location, trimmed vegetation, and reported the incident as complete. However; on 5/18/07 vegetation was present at both the target structure 882 and at the wrongly identified structure of 892, which reduced the chance of the problem being recognized.

Personnel knowledge, physical or mental distress, motivation or supervision do not appear to be primary or secondary drivers for the tree contact or the structure number incorrectly reported.

10. The NERC Standard FAC-003-1 requires documentation of a formal transmission



vegetation management program. MRO's review found MEC's documentation of its vegetation management program complied with the requirements for FAC-003-1. The documentation addresses the requirements for maintaining a vegetation management program including defining a schedule and type of vegetation inspections and also identifies the clearances that are required to be maintained. MEC also has an annual schedule and plan for transmission line inspections. This schedule calls for aerial patrols, field evaluations, and priority work to be completed by May 31<sup>st</sup> each year. The documentation also addresses many related items including safety requirements and reporting requirements.

11. MRO reviewed MEC's Transmission *Vegetation Management Program*, a three-year inspection summary for its 345 kV transmission and the May 2007 inspection report. MEC also provided photographs of the vegetation which caused this outage. MRO conducted several conferences with various MEC employees to gather information.

C. Summary of Findings

12. While MEC has a vegetation management plan, MRO found a human error in the execution of the plan resulted in a violation of the requirement to maintain vegetation outside of its Clearance 2. A failure to maintain Clearance 2 is a violation of FAC-003-1, R2. The vegetation management work was not completed according to work specifications, in this case, a clearance of 10 feet between the energized, ungrounded conductor and the vegetation within the right of way.

13. MEC was required by FAC-003-1 to specify and maintain Clearance 2 between any 200 kV or greater transmission line and any vegetation surrounding that line. Consistent with this

requirement, MEC's Transmission *Vegetation Management Program* specifies Clearance 2 as 10 feet for 345 kV voltage lines such as the Cooper to Booneville 345 kV line.

14. Specifically, MRO finds that on 9/21/07, and some time preceding this incidence, MEC did not maintain its specified clearance of 10 feet between the energized, ungrounded conductor and the vegetation within the right of way on its Cooper – Booneville 345 kV line near structure 882. This is a violation of a Commission-approved standard, FAC-003-1. MEC's failure to maintain its specified clearance resulted in a vegetation contact with the line and was the cause leading to the 9/21/07 outage of the Cooper – Booneville 345 kV line.

15. MRO considered a number of factors in determining the benefit of the remedies required for this violation.

a. MRO performed a review of MEC's internal compliance program using NERC evaluation guidance. MEC has participated in voluntary compliance programs prior to the effective date of the mandatory and enforceable reliability standards. MEC's program is documented and includes a list of staff that is responsible for compliance. The program has been distributed to those directly involved in reporting or evaluating compliance. MEC indicated that "Regulatory Integrity" is one of their "Six Pillars of Operations" and the NERC compliance program is an integral portion of their regulatory compliance efforts. MRO staff acknowledges that MEC has an adequate internal compliance program, based on their review utilizing the NERC guide.

b. MEC self reported this violation, demonstrated cooperation throughout the

proceeding, and provided timely responses to all of MRO's questions about the details of this violation. There is no prior violation history. There is no indication of an attempt by MEC to conceal any information.

- c. While it took over 24 hours to clear the right of way for this outage, there was coordination with neighboring transmission operators and authorization from the Reliability Coordinator to minimize the possibility that the length of the outage would adversely impact the reliability of the bulk power system.
- d. MRO initially had two concerns regarding the outage and the alleged violation. First, there were two outages in three days, the first outage was assumed to be the result of a storm. This was adequately addressed by MEC in the detailed analysis of the lightning strike, using the "Fault Analysis and Lightning Location System". The second concern was that the line was loaded to less than 50% of its rating at the time of the contact which would indicate that the vegetation grow-in was in an advanced stage. This concern is explained by the circumstances discussed in the root cause for this violation.

16. MEC admits to the violations that MRO has alleged and has agreed to enter into this Agreement with respect to the matters described or referred to herein to effect a complete and final resolution of the issues set forth herein.

17. MRO understands and acknowledges that the triggering event of this violation was MEC's human transposition error of the location of the transmission structure where the tree responsible for the contact was located and had that transposition error not been made, the tree

would have been removed and the outage would have been avoided entirely.

18. MEC has a vegetation management plan document and schedule for inspecting the transmission system that addresses the requirements of FAC-003-1. However, the tree contact and resulting violation of FAC-003-1 was related to the implementation of MEC's vegetation management plan.

19. The mitigation and remedies discussed below address the root cause of the violation and provide important, verifiable enhancements to vegetation management implementation for MEC.

### **III. MITIGATION AND REMEDIES**

20. For purposes of settling any and all disputes arising from MRO's assessment and review of the matters reported by MEC in its self-reported vegetation violation which occurred on 9/21/07, MRO and MEC agree that, on and after the effective date of this Agreement, MEC shall take the following actions which will prevent recurrence of this violation and increase the reliability of the bulk power system:

#### **1) Additional Patrol-Cooper-Bonneville 345 kV Line**

MEC subsequently patrolled the entire Cooper – Booneville 345 kV line on 11-29-07, verified that the tree was removed, and that there were no other potential vegetation problems. This effort was over and beyond the normal annual inspections that are part of the MEC schedule, and had previously been completed. MEC states that this action is complete.

**2) Global Positioning System (GPS) Enhancements-Coordinated Tracking System**

MEC commits to enhancing its vegetation identification program by adopting the inclusion of GPS coordinates in its records and work order processes to verify the position of the vegetation requiring action. GPS coordinates will be collected to confirm locations to minimize human errors resulting from recording data and information (e.g. transposition errors). At a meeting held on 1/07/08 with the tree contractor management a work order tracking system for transmission tree work was presented for review. The work order tracking system uses tablet personal computers (PCs) as described above to record and track progress from the patrol findings through work order completion. The cost of the hardware and software for these enhancements is estimated at \$30,000. MEC shall complete this action, including implementation by 4/30/08.

**3) Develop Crew Training Module**

MEC Forestry Services met with the tree contractor management on 1/7/08 and developed a crew training module. The crew training module focused on confirming work locations using global positioning system (GPS) coordinates as well as comparing the work description with the conditions found in the field. MEC states that this action is complete.

**4) MEC and Contractor Crew Training- New Technology**

Training for the MEC and contractor personnel involved in conducting the patrols shall be completed by the earlier date of 4/30/08, or in time for the next scheduled patrol. The training will focus on the use of GPS devices, the use of the work order tracking system and a review of

the priority codes for reporting vegetation. MEC shall complete this action by 4/30/08.

5) **Additional Vegetation-Only Patrol on MEC Transmission System**

Typically, MEC conducts line inspections for the purposes of both facility maintenance and vegetation management. In 2008 the combined patrol will be continued and a second vegetation-only patrol, estimated at \$60,000, shall be conducted by 9/30/08 to measure and evaluate the effectiveness of above enhancements to the vegetation management program and plan winter maintenance work. MEC will report the outcomes of this inspection to MRO by 10/31/08. The report will include MEC's findings for the evaluation of the trimming program and any resulting recommendations.

6) **Review and Enhance Vegetation Threat / Priority Criteria-Earlier Identification of Potential Vegetation Risks**

MEC shall review its existing vegetation threat priority criteria and consider if it should be more aggressive. There are currently three levels, with only the first level requiring immediate clearing. Level 2 is a notice that future clearing will be required and level 3 is used if additional ground patrol in the area is needed. The levels are based on the anticipated schedule for next clearing and current clearance. A key benefit is to identify potential vegetation contacts at an earlier stage allowing more time to mitigate vegetation risks. Such a review may create more aggressive classifications to identify vegetation priorities sooner to avoid tree contacts. MEC shall complete this action by 9/30/08 with documentation in the MEC *Vegetation Management Program*.

## 7) Tree Risk Analysis of the Transmission System

While the vegetation violation addressed in this document was the result of a contact from growth within the ROW, some contacts are a result of vegetation from outside of the ROW. Broadening the evaluation and survey of the transmission system, as defined below, to include the risk of tree related outages caused by trees beyond MEC's control in a priority manner, could significantly reduce the threats resulting from random grow-ins outside of the right of way (ROW).

MEC shall develop a tree risk assessment program. The program shall consider the transmission system, including existing easement rights in the evaluation of whether or not a particular span can be reasonably protected. At one extreme, there are spans that will never conceivably experience a tree-related outage, while at the other extreme, there are spans that may not reasonably be protected from an outage. In between the two extremes, there could be a multitude of ratings based on the perceived risk to the transmission system. In order to simplify the rating process and be compatible with the existing risk matrix, overhead spans shall be rated in one of four categories, based on what can be accomplished by MEC's current vegetation management practices and existing easement rights. MEC shall develop a procedure for the initial patrol and collection of data of the facilities. Data from that patrol will be analyzed and kept as a stand alone database. The collected data will provide a numerical risk rating for each facility or grouping of facilities. The survey data will provide a system where remedial work can be prioritized using this rating in concert with a risk matrix. Changes in this risk rating from year to year will indicate whether or not the risk of having a tree-related outage is being properly managed.

Due to the extent of the transmission system and the resources needed for the patrol, data collection and evaluation, only the 345kV system and facilities of lower operating voltages designated as “critical” shall be included in the survey and evaluation. The estimated cost of the initial survey, including helicopter rental, vehicle and labor expenses is approximately \$140,000.

Milestones for completion:

Complete data collection by 10/31/08

Complete initial data analysis by 11/30/08

**8) Fund EPRI Collaborative Project-Integrative Vegetation Management (IVM)**

EPRI has identified a project is available in which EPRI consultants with expertise in vegetation management perform an on-site assessment of a utility’s vegetation management program. The assessment focuses on ten key principles based on past EPRI research and accepted performance standards to provide the utility a benchmark against best practices and to identify what areas its vegetation management program could be improved. The deliverables from this supplemental project would be a confidential report summarizing the assessment and an existing EPRI Technical Report “Actual and Potential Use of Integrated Vegetation Management (IVM) Performance Standards in the Electric Transmission Industry”. MEC shall fund this assessment for \$30,000.



Milestones for completion:

Contact EPRI to schedule an IVM assessment by 3/1/08

Perform the IVM assessment by 12/31/08

**9) MEC Reporting Requirements**

In order to assure accountability for its corrective action plans, MEC shall provide to MRO a written report every three months for each of the items listed above in this section of the Agreement. MEC shall maintain records and other evidentiary materials to support completion of the mitigation and remedies in this Agreement. The written report shall include scope, progress, and actual expenditures for each of the mitigation and remedies. Additionally, the written report shall include lessons learned as a result of performing the above mitigation and remedies in this section of the Agreement. MRO staff will audit the progress, as necessary, within its discretion and adequately coordinated with MEC personnel. The purpose of the audit is to validate that the actions resulting from this settlement are performed in accordance with the terms and conditions of the Agreement.

**10) Reliability Standard Violation – Monetary Penalty**

MRO gave due consideration to self reporting, prompt and responsive cooperation, organizational commitment to reliability, and corrective action plans that commit additional investments to improve bulk power system reliability as outlined in Section IV. Based on these factors, MEC shall pay a \$75,000 monetary penalty to MRO within 20 days of NERC approval of this Agreement; amounts unpaid by the due date are subject to interest. The

penalty monies shall be applied to the MRO compliance and enforcement budget consistent with NERC rules. MEC shall increase its currently budgeted programs to fund the additional costs for the programs above without negatively impacting other budget areas which impact bulk electric system reliability.

#### **IV. ADDITIONAL TERMS**

21. The signatories to the Agreement agree that they enter into the Agreement voluntarily and that, other than the recitations set forth herein, no tender, offer or promise of any kind by any member, employee, officer, director, agent or representative of MRO or MEC has been made to induce the signatories or any other party to enter into the Agreement.

22. MRO shall report the terms of settlements for compliance matters to NERC. NERC will review the settlement for the purpose of evaluating its consistency with other settlements entered into for similar violations or under other, similar circumstances. Based on this review, NERC will either approve the settlement or reject the settlement and notify the MRO and MEC of changes to the settlement that would result in approval. If NERC rejects the settlement, the MRO will attempt to negotiate a revised settlement agreement with MEC including any changes to the settlement specified by NERC. If a settlement cannot be reached, the compliance process shall continue to conclusion. NERC will (i) report the approved settlement of the violation to the Commission, and (ii) publicly post the violation settled and the resulting penalty or sanction provided for in the settlement.

23. This Agreement shall become effective upon NERC's approval of the Agreement as submitted to it or as modified. The Settlement will be submitted by NERC to FERC for

informational purposes.

24. Failure to comply with the mitigation plan and remedies, and specifically to Section III, agreed to herein, or any other provision of this Agreement, shall be deemed to be the same and/or additional violation(s) and may subject MEC to additional enforcement, penalty or sanction actions in accordance with the NERC Rules of Procedure. MRO acknowledges that the immediate mitigation of this violation has been completed. The remaining remedies eliminate the root cause and improve the implementation of MEC's vegetation management efforts above expected practices.

25. MEC agrees that this Agreement approved by NERC without material modification shall be final and unappealable. MEC agrees to waive its right to further hearings and appeal, unless and only to the extent that MEC contends that NERC action approving the Agreement contains one or more material modifications to the Agreement. Absent an assertion by MEC that there has been one or more material modifications to the Agreement, MEC and MRO, to the extent that it may otherwise be deemed necessary, waive findings of facts and conclusions of law, rehearing of any Commission order or NERC action approving the Agreement without material modification, and judicial review by any court of any Commission order or NERC action approving the Agreement without material modification. However, MRO reserves all rights to initiate enforcement, penalty or sanction actions against MEC in accordance with the NERC Rules of Procedure in the event that MEC fails to comply with the mitigation plan and compliance program agreed to in this Agreement. In the event MEC fails to comply with any of the stipulations, remedies, sanctions or additional terms, as set forth in this Agreement, MRO may initiate enforcement, penalty, or sanction actions against MEC to the maximum extent

allowed by the NERC Rules of Procedure, up to the maximum statutorily allowed penalty.

26. Each of the undersigned warrants that he or she is an authorized representative of the entity designated, is authorized to bind such entity and accepts the Agreement on the entity's behalf.

27. The undersigned representative of each party affirms that he or she has read the Agreement, that all of the matters set forth in the Agreement are true and correct to the best of his or her knowledge, information and belief, and that he or she understands that the Agreement is entered into by such party in express reliance on those representations, provided, however, that such affirmation by each party's representative shall not apply to the other party's statements of position set forth in Section II of this Agreement.

28. The Agreement binds MEC and its agents, successors and assigns.

29. The Agreement may be signed in counterparts.

30. This Agreement is executed in duplicate, each of which so executed shall be deemed to be an original.

Agreed to and accepted:

Daniel P. Skaar

March 5, 2008

[NAME] Daniel P. Skaar

Date

[TITLE] President

Midwest Reliability Organization

Barry Campbell

MARCH 12, 2008

[NAME] BARRY CAMPBELL

Date

[TITLE] VP, DELIVERY

MidAmerican Energy Company

## **NERC BOTCC Decision**

Board of Trustees Compliance Committee  
Decision on Settlement  
(Issued May 21, 2008)

The North American Electric Reliability Corporation (NERC) Board of Trustees Compliance Committee approves for filing with the Federal Energy Regulatory Commission (Commission) the Settlement Agreement by and between the Midwest Reliability Organization (MRO) and MidAmerican Energy Company (MEC) executed on March 5 and 12, 2008, in accordance with the NERC *Rules of Procedure* and the Commission’s orders and regulations,<sup>1</sup> to resolve the following violation of a reliability standard.

NOP ID	NERC ID	Date of Violation	Reliability Standard	Requirement	VRF	Total Penalty (\$)
NOP-38	MRO200700010	9/21/2007	FAC-003-1	2	HIGH	75,000

The Board of Trustees Compliance Committee affirms MRO’s findings and determination, in accordance with Order No. 693, to impose a financial penalty of \$75,000 against MEC, in addition to other remedies which include mitigation actions under the terms and conditions of the Settlement Agreement, based on the Committee’s review of the applicable requirements of the Commission-approved Reliability Standards and the underlying facts and circumstances of the violation.<sup>2</sup>

NERC stated its interpretation of the vegetation management standard during FERC’s consideration of proposed FAC-003-1: A vegetation-related transmission line outage as a result of vegetation that has grown into the pre-defined clearance zone is a violation of the standard.<sup>3</sup> The Commission adopted that interpretation when it approved NERC’s proposed reliability standards. It stated, “FAC-003-1 requires sufficient clearances to prevent outages due to vegetation management practices under all applicable conditions.”<sup>4</sup> Because violations of the Requirements 1 and 2 of FAC-003-1 could directly lead to or contribute to widespread outages or cascading failures, NERC assigned

<sup>1</sup> *Rules Concerning Certification of the Electric Reliability Organization; and Procedures for the Establishment, Approval, and Enforcement of Electric Reliability Standards* (Order No. 672), III FERC Stats. & Regs. ¶ 31,204 (2006); *Notice of New Docket Prefix “NP” for Notices of Penalty Filed by the North American Electric Reliability Corporation*, Docket No. RM05-30-000 (February 7, 2008). See also 18 C.F.R. Part 39 (2008).

<sup>2</sup> *Mandatory Reliability Standards for the Bulk-Power System*, FERC Stats. & Regs. ¶ 31,242 (2007) (Order No. 693).

<sup>3</sup> *Comments of the North American Electric Reliability Council and the North American Electric Reliability Corporation on Staff Preliminary Assessment*, Docket No. RM06-16-000, filed June 26, 2006, p. 31.

<sup>4</sup> Order No. 693 at P 729.

“high” violation risk factors to those requirements. NERC stated, “Clearly, the failure to have a vegetation management program with appropriate clearances, and an annual work plan could directly (and has) contribute to widespread outages.”<sup>5</sup> The Commission confirmed that interpretation and understanding when it approved NERC’s proposed violation risk factors for FAC-003-1, stating:

With regard to FAC-003-1, Requirement R1 requires a transmission owner to develop a transmission vegetation management program, and Requirement R2 requires a transmission owner to implement the program. NERC’s assignment of a “high” Violation Risk Factor to Requirements R1 and R2 is appropriate because inadequate vegetation management presents a serious risk of sustained transmission outage and could directly cause or contribute to Bulk-Power System instability, separation, or a cascading sequence of failures. Both planning and implementation are critical to vegetation management. A vegetation-related transmission outage would result in a violation of Requirement R1, R2 or both.<sup>6</sup>

In reaching this determination, NERC and MRO considered the following: (1) In mid-May 2007, MEC identified vegetation to be removed in accordance with its vegetation management program and scheduled the tree for removal; however, due to human error: (i) the wrong location (structure number) was recorded in the work order (WO) to remove the tree, (ii) the tree crew executing the WO did not notice, or was not aware, that they were not removing the vegetation intended to be removed, and (iii) the first line trip was attributed to lightning activity; (2) Following the second outage after which the WO error was identified, MEC worked cooperatively with MRO; (3) There is no question that MEC had a vegetation plan and was actively implementing the plan, as evidenced by its discovery and removal of the vegetation at issue; (4) MEC acted immediately to mitigate and/or correct the violation and worked with other entities to ensure reliability was not adversely affected; (5) The tree was promptly removed and has been verified as removed by MRO; and (6) The additional actions taken or to be taken by MEC to implement the use of GPS location for vegetation patrols and removal as well as other activities under the terms of the Settlement Agreement ensure that reliability is maintained.

Therefore, the NERC Board of Trustees Compliance Committee finds that the proposed \$75,000 penalty is appropriate and consistent with NERC’s goal to ensure reliability of the bulk power system.

***By the Board of Trustees Compliance Committee***

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<sup>5</sup> *Request of the North American Electric Reliability Corporation for Approval of Supplemental Violation Risk Factors for Version 1 Reliability Standards*, Docket No. RR07-12-000 (May 4, 2007), at Exhibit A.

<sup>6</sup> *North American Electric Reliability Corporation*, Order on Violation Risk Factors, 119 FERC ¶ 61,321 at P 10 (June 26, 2007).



## **Notice of Filing**

UNITED STATES OF AMERICA  
FEDERAL ENERGY REGULATORY COMMISSION

MidAmerican Energy Company

Docket No. NP08-\_\_\_\_-000

NOTICE OF FILING  
(DATE)

Take notice that on [DATE], the North American Electric Reliability Corporation (NERC) filed a Notice of Penalty regarding MidAmerican Energy Company in the Midwest Reliability Organization region.

Any person desiring to intervene or to protest this filing must file in accordance with Rules 211 and 214 of the Commission's Rules of Practice and Procedure (18 CFR 385.211, 385.214). Protests will be considered by the Commission in determining the appropriate action to be taken, but will not serve to make protestants parties to the proceeding. Any person wishing to become a party must file a notice of intervention or motion to intervene, as appropriate. Such notices, motions, or protests must be filed on or before the comment date. On or before the comment date, it is not necessary to serve motions to intervene or protests on persons other than the Applicant.

The Commission encourages electronic submission of protests and interventions in lieu of paper using the "eFiling" link at <http://www.ferc.gov>. Persons unable to file electronically should submit an original and 14 copies of the protest or intervention to the Federal Energy Regulatory Commission, 888 First Street, N.E., Washington, D.C. 20426.

This filing is accessible on-line at <http://www.ferc.gov>, using the "eLibrary" link and is available for review in the Commission's Public Reference Room in Washington, D.C. There is an "eSubscription" link on the web site that enables subscribers to receive email notification when a document is added to a subscribed docket(s). For assistance with any FERC Online service, please email [FERCOnlineSupport@ferc.gov](mailto:FERCOnlineSupport@ferc.gov), or call (866) 208-3676 (toll free). For TTY, call (202) 502-8659.

Comment Date: [BLANK]

Kimberly D. Bose,  
Secretary