

Critical Energy Infrastructure Information Has Been Redacted From This Public Version

February 29, 2012

**VIA ELECTRONIC FILING**

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

**Re: *North American Electric Reliability Corporation,*  
Docket No. RM06-16-000**

Dear Ms. Bose:

The North American Electric Reliability Corporation (“NERC”) hereby submits this filing in compliance with Paragraph 629 of the Federal Energy Regulatory Commission’s (“FERC”) Order No. 693. Order No. 693 requires that NERC provide a quarterly informational filing regarding the timeframe to restore power to the auxiliary power systems of U.S. nuclear power plants following a blackout as determined during simulations and drills of system restoration plans. This filing contains the referenced material pertaining to the fourth quarter of 2011.

NERC’s filing consists of the following:

- This transmittal letter;
- A table of contents for the entire filing;
- A narrative description summarizing the data collected;
- Official Data Request to Fulfill FERC Order No. 693 Requirements: Restoration of Nuclear Power Plant Off-site Power Sources (**Exhibit A**); and
- Restoration of Nuclear Power Plant Off-site Power Sources Data: 4th Quarter 2011 (**Exhibit B**).

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Please contact the undersigned if you have any questions.

Respectfully submitted,

/s/ Willie L. Phillips

Willie L. Phillips

*Attorney for North American Electric  
Reliability Corporation*

**UNITED STATES OF AMERICA  
BEFORE THE  
FEDERAL ENERGY REGULATORY COMMISSION**

**MANDATORY RELIABILITY STANDARDS )      Docket No. RM06-16-000  
FOR THE BULK POWER SYSTEM            )**

**FOURTH QUARTER 2011 COMPLIANCE FILING OF THE  
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION  
IN RESPONSE TO PARAGRAPH 629 OF ORDER No. 693**

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February 29, 2012

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**EXHIBIT A** – Official Data Request to Fulfill FERC Order No. 693 Requirements: Restoration of Nuclear Power Plant Off-site Sources

**EXHIBIT B** – Restoration of Nuclear Power Plant Off-site Power Sources Data: 4th Quarter 2011

**UNITED STATES OF AMERICA  
BEFORE THE  
FEDERAL ENERGY REGULATORY COMMISSION**

**MANDATORY RELIABILITY STANDARDS ) Docket No. RM06-16-000  
FOR THE BULK POWER SYSTEM )**

**FOURTH QUARTER 2011 COMPLIANCE FILING OF THE  
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION  
IN RESPONSE TO PARAGRAPH 629 OF ORDER No. 693**

**I. INTRODUCTION**

In its March 16, 2007 Order,<sup>1</sup> the Federal Energy Regulatory Commission (“FERC” or “Commission”) directed the North American Electric Reliability Corporation (“NERC”) to provide a quarterly informational filing regarding the timeframe to restore power to the auxiliary power systems of U.S. nuclear power plants following a blackout as determined during simulations and drills of system restoration plans. This filing includes information for the fourth quarter of 2011.

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<sup>1</sup> *Mandatory Reliability Standards for the Bulk-Power System*, 118 FERC ¶ 61,218, FERC Stats. & Regs. ¶ 31,242 (2007) (Order No. 693), *Order on reh’g, Mandatory Reliability Standards for the Bulk-Power System*, 120 FERC ¶ 61,053 (Order No. 693-A) (2007).

## **II. NOTICES AND COMMUNICATIONS**

Notices and communications with respect to this filing may be addressed to the following:<sup>2</sup>

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## **III. SUMMARY OF RESTORATION OF NUCLEAR POWER PLANT OFF-SITE POWER SOURCES DATA**

### **Background**

In response to comments offered by the U.S. Nuclear Regulatory Commission during the Notice of Proposed Rulemaking process, FERC expressed, in Order No. 693, its concern regarding the role and priority that nuclear power plants should have in bulk power system restoration plans. FERC addressed the concern in the discussion of the EOP-005-1 — System Restoration Plans Reliability Standard. Specifically, in Paragraph 629 of Order No. 693, FERC directed NERC as follows:

The Commission directs the ERO to gather data, pursuant to §39.5(f) of the Commission's regulations, from simulations and drills of system restoration on the time it takes to restore power to the auxiliary power

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<sup>2</sup> Persons to be included on the FERC's service list are indicated with an asterisk. NERC requests waiver of FERC's rules and regulations to permit the inclusion of more than two people on the service list.

systems of nuclear power plants under its data gathering authority and report that information to the Commission on a quarterly basis.

EOP-005-1, Requirement R11 and sub-requirement R11.4 identify the expected priority for restoring off-site power to nuclear stations. They state:

**R11.** Following a disturbance in which one or more areas of the Bulk Electric System become isolated or blacked out, the affected Transmission Operators and Balancing Authorities shall begin immediately to return the Bulk Electric System to normal.

**R11.4.** The affected Transmission Operators shall give high priority to restoration of off-site power to nuclear stations.

Importantly, while the requirement provides the instruction to give high priority to off-site power restoration, it does not specify target timeframes.

NERC, in its role as the Electric Reliability Organization (“ERO”) and in accordance with 18 C.F.R. § 39.2(d), is required to provide information as necessary to FERC in order to implement section 215 of the Federal Power Act. That same regulation obligates users, owners and operators of the bulk power system to provide the ERO with information in support of this same objective.

To collect the data necessary to respond to the FERC directive for nuclear power plant off-site power source data, NERC issued a data request process that was, at that time, drafted as a proposed rule of procedure. This procedure required NERC to post a proposed ERO data request for industry comment, followed by NERC Board of Trustees approval, before issuing it as a formal data request.<sup>3</sup> NERC posted the “nuclear data request” for a 30-day industry comment period that began on June 26, 2007. NERC reviewed the comments received and presented a final version of the data request that was adopted by the NERC Board of Trustees at its August 2, 2007 meeting.

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<sup>3</sup> FERC has since approved Section 1600 of the Rules of Procedure, known as the Data Rule, which establishes the process for issuing ERO data requests.

## Critical Energy Infrastructure Information Has Been Redacted From This Public Version

The data presented in **Exhibit B** to this filing contain critical energy infrastructure information. Specifically, the information set forth in **Exhibit B** to the instant filing includes critical energy infrastructure information as defined by FERC Rules of Practice and Procedure (18 C.F.R. Part 388), FERC Orders, and NERC Rules of Procedure. The information pertains to proprietary or business design information, including design information related to vulnerabilities of critical energy infrastructure information that is not publicly available. Accordingly, the information set forth in **Exhibit B** has been redacted from the public filing. In accordance with the FERC Rules of Practice and Procedure, 18 C.F.R. § 388.112, a non-public version of the information redacted from the public filing is being provided separately. NERC requests that the confidential, non-public information be provided special treatment in accordance with the above regulation.

The ERO data request for nuclear power plant off-site power source restoration data, as approved by the NERC Board of Trustees, is found in **Exhibit A**. Following Board of Trustees approval, NERC began to collect nuclear data from U.S. Transmission Operators during the fourth quarter 2007 and will continue to collect the data quarterly until otherwise directed by FERC. This filing represents data captured for the fourth quarter of 2011.

The specific data requested of the Transmission Operators requests the following information:

- Reporting entity;
- Name of exercise, drill or simulation;
- Date of exercise, drill or simulation;
- Name of nuclear plant;
- Unit designation (each unit must be included separately);
- Identifier of off-site power source;



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- Time duration when off-site power sources are lost to the restoration of first off-site power source (For this request, the loss of off-site power sources is the simulated physical interruption of power in support of EOP-005-1 requirements); and
- Discussion of scenario assumptions or constraints impacting the restoration of the initial off-site power source to the nuclear power plant.

In addition, the following clarifying language was included in the data request to guide the Transmission Operators when supplying the requested data.

Simulations, drills, or exercises that are implemented for individualized operator training requirements are not included in this request. Simulations, drills, and exercises conducted to support the requirements of EOP-005-1 are included in this request. This request is not intended to require additional simulations or studies to those conducted to satisfy EOP-005-1 requirements.

It is important to note that EOP-005 focuses on restoration plans and does not contain any requirement for restoration plans specific to nuclear plants. Hence, the reporting conducted under this data request so far will not result in a tabulation resulting in reports for each US nuclear plant.

**Exhibit B** presents the raw data collected through this period of observation. As noted above, for the public version of this report, **Exhibit B** has been redacted to remove the actual raw data collected through the period of observation, in accordance with the data survey, and in recognition that the information requested constitutes confidential critical energy infrastructure information. Specifically, **Exhibit B** contains information that, if released, could identify system weaknesses and pose a risk of attack on existing infrastructure. NERC respectfully requests that the critical energy infrastructure information be protected consistent with national energy security objectives and in accordance with the cited regulation.

NERC has not analyzed this data to identify the impact of the reported off-site power source restoration times relative to the ability of the U.S. nuclear power plants to remain in a mode that permits a timely return to service. NERC will utilize the information contained herein to ensure applicable entities are supporting their reliability standard obligations as defined in EOP-005-1 relative to the priority of off-site power source restoration to nuclear power plants in plans for system restoration.

### **Summary of Data**

There are 104 nuclear units in the U.S. All of these units have reported the requested information as directed. In the fourth quarter of 2011, Transmission Operators conducted twenty-six (26) individual exercises, drills, or simulations during this period that included the restoration of off-site power sources to fifty-six (56) units, with many exercises, drills, or simulations impacting more than one nuclear unit.<sup>4</sup> Transmission Operators conduct these exercises, drills, and simulations in support of EOP-005-1 and report their results to their respective Regional Entities. The Regional Entities then report their findings to NERC.

In total, one hundred and two (102) off-site power source restoration “events” are included in the raw data presented in **Exhibit B** of this filing. Of the one hundred and two (102) events, there were eighty-four (84)<sup>5</sup> potential initial off-site source restorations (some units have multiple off-site sources). The remaining eighteen (18) events included

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<sup>4</sup> For example, an entity conducted one system restoration exercise on June 10, 2011 that involved the restoration of offsite power sources to two nuclear units. In the summary chart that follows below, each offsite power source restoration “event” is reported separately for purposes of data analysis.

<sup>5</sup> Not all units provided data for off-site sources beyond the first source restored. The data included represents only the units that provided the data and does not include the entire spectrum of off-site sources beyond the initial source for the rest of the units.

Critical Energy Infrastructure Information Has Been Redacted From This Public Version in the data involved the restoration of a subsequent off-site source beyond the first source restored. Of the eighteen (18) events, two (2) subsequent sources were simulated to be restored in two hours or less, six (6) sources were simulated to be restored in the two to four hour window, and three (3) sources were simulated to be restored in the four to six hour window. The remainder of the subsequent sources (5) were restored in more than ten hours or did not have a time reported for restoration (2).

NERC categorized the restoration of first off-site sources in two-hour windows. Fifty-six (56) percent (47 of 84) of the initial off-site power source restorations occurred within the first two hours following the simulated blackout event, with over seventy-one (71) percent (60 of 84) occurring in four hours or less. Thirteen (13) sources were simulated to be restored in the 2 to 4 hour window. Seven (7) sources were simulated to be restored in the 4 to 6 hour window with an additional one (1) source in the 6 to 8 hour window.

The data shows eleven (11) sources were restored in over 10 hours. Several Transmission Operators that reported data provided explanations of the time to restore off-site sources. For example, one entity reported restoration time of twelve (12) hours and forty-nine (49) minutes for the primary source. This time includes two (2) hours and thirty-nine (39) minutes of measured simulation time during the exercise plus ninety (90) minutes to account for initial assessment and manning/start-up of the blackstart units plus eight (8) hours for field switching to sectionalize and reconnect circuits. Five (5) sources did not have a restoration time reported.

Total Number Offsite Power Source Restoration Events Included in EOP-005-1 Exercises, Drills or Simulations	102
Potential first off-site source restorations	84

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Exercises, Drills, or Simulations in which the first off-site source was restored in 2 hours or less following the loss of power	47
Exercises, Drills, or Simulations in which the first off-site source was restored 2-4 hours following the loss of power	13
Exercises, Drills, or Simulations in which the first off-site source was restored 4-6 hours following the loss of power	7
Exercises, Drills or Simulations in which the first off-site source was restored 6-8 hours following the loss of power	1
Exercises, Drills, or Simulations in which the first off-site source was restored 8-10 hours following the loss of power	0
Exercises, Drills or Simulations in which the first off-site source was restored more than 10 hours following the loss of power	11
Exercises, Drills, or Simulations that did not achieve the restoration of the first off-site power source to a nuclear power plant or that did not report a time for source restoration	5

**IV. CONCLUSION**

NERC respectfully requests that FERC accept this informational filing for the fourth quarter of 2011 in accordance with FERC's directive that NERC provide information regarding the time it takes to restore off-site power sources to nuclear power plants following a blackout as determined by drills and simulations.

Respectfully submitted,

/s/ Willie L. Phillips

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**CERTIFICATE OF SERVICE**

I hereby certify that I have served a copy of the foregoing document upon all parties listed on the official service list compiled by the Secretary in this proceeding.

Dated at Washington, D.C. this 29 day of February, 2012.

*/s/ Willie L. Phillips*

Willie L. Phillips

*Attorney for North American Electric  
Reliability Corporation*

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**Exhibit A**

**Official Data Request to Fulfill FERC Order No. 693 Requirements: Restoration of**

**Nuclear Power Plant Off-site Power Sources**



**Gerry Adamski**  
Vice President and  
Director of Standards

August 24, 2007

TRANSMISSION OPERATOR CONTACT  
TITLE  
COMPANY  
ADDRESS  
CITY, STATE ZIP CODE (TNR, 12pt)

Dear XXXXX:

**Official Data Request to Fulfill FERC Order No. 693 Requirements  
Restoration of Nuclear Power Plant Off-site Power Sources**

Pursuant to the authority granted by FERC Order 672 and as implemented in Title 18, Section 39.2 of the Code of Federal Regulations, NERC as the appointed electric reliability organization issues this official data request as described in **Attachment 1**.

The legal basis in the United States for this authority is explained in FERC's Order 672, paragraph 114:

114. The Commission agrees with commenters that, to fulfill its obligations under this Final Rule, the ERO or a Regional Entity will need access to certain data from users, owners and operators of the Bulk-Power System. Further, the Commission will need access to such information as is necessary to fulfill its oversight and enforcement roles under the statute. Section 39.2 of the regulations will include the following requirement:

(d) Each user, owner or operator of the Bulk-Power System within the United States (other than Alaska and Hawaii) shall provide the Commission, the Electric Reliability Organization and the applicable Regional Entity such information as is necessary to implement section 215 of the Federal Power Act as determined by the Commission and set out in the Rules of the Electric Reliability Organization and each applicable Regional Entity. The Electric Reliability Organization and each Regional Entity shall provide the Commission such information as is necessary to implement section 215 of the Federal Power Act.



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Within the United States, failure to comply with an official data request would constitute a violation of FERC regulations. Enforcement action is available to FERC to deal with violations of its regulations. This is authority FERC could exercise, not authority available to NERC. NERC's Compliance Monitoring and Enforcement Program, including the ability to impose penalties and sanctions, is limited to violations of reliability standards.

Please note the following additional pieces of information relative to this data request:

- An Excel spreadsheet (attached) to serve as a template for providing the requested information.
- Regional entities are requested to submit the requested information to [sarcomm@nerc.net](mailto:sarcomm@nerc.net).

Thank you for your support of this effort. Please contact me should you have any questions.

Sincerely,

A handwritten signature in cursive script that reads "Gary Adams". The signature is written in black ink on a light-colored background.

Enclosure

cc: James D. Castle, Chairman, Operating Reliability Subcommittee  
Regional Entity Management Group

## **Exhibit A**

### **Restoration of Nuclear Power Plant Offsite Power Source Data Request**

#### **Background**

In paragraph 629 of Order No. 693, FERC directs NERC to provide an informational filing regarding the timeframe to restore auxiliary power to nuclear power plants following a blackout as determined during simulations and drills of system restoration plans:

629. “In addition the Commission directs the ERO to gather data, pursuant to § 39.5(f) of the Commission’s regulations, from simulations and drills of system restoration on the time it takes to restore power to the auxiliary power systems of nuclear power plants under its data gathering authority and report that information to the Commission on a quarterly basis.”

#### **Description of Data Requested**

This request is an ongoing request that begins in the fourth quarter of 2007. If an exercise, drill, or simulation includes the restoration of one or more offsite power sources to a nuclear power plant, the following information is to be prepared and provided *for each offsite power source* in a format developed and provided by NERC:

- Reporting entity
- Name of exercise, drill, or simulation
- Date of exercise, drill, or simulation
- Name of nuclear plant
- Unit designation (each unit must be included separately)
- Identifier of offsite power source
- Time duration when offsite power sources are lost to the restoration of first offsite power source. (For this request, the loss of offsite power sources is the simulated physical interruption of power in support of EOP-005-1 requirements.)
- Discussion of scenario assumptions or constraints impacting the restoration of the initial offsite power source to the nuclear power plant

Simulations, drills, or exercises that are implemented for individualized operator training requirements are not included in this request. Simulations, drills, and exercises conducted to support the requirements of EOP-005-1 are included in this request. This request is not intended to require additional simulations or studies to those conducted to satisfy EOP-005-1 requirements.

The individual data submissions should be submitted to the regional entity who will compile the data in a consolidated format. The regional entity will then forward the compiled data to NERC’s director of standards on a quarterly basis.

To comply with FERC directives, NERC will make a quarterly filing with FERC that includes the compiled data.

### **How the Data Will Be Used**

The data will be provided to FERC per its directive in Order 693. FERC agrees with issues raised by the Nuclear Regulatory Commission (NRC) concerning the role and priority nuclear power plants should have in system restorations, and directs the collection of this data to aid in its review of this issue.

### **How the Data Will Be Collected and Validated**

The regional entities are requested to coordinate the collection and composite presentation of the requested data from its member participants. Transmission operators responsive to this request are expected to validate the data to be correct prior to submittal.

### **Reporting Entities**

Each transmission operator in the United States who has a nuclear power plant tied to a transmission line that it controls and who is participating in an exercise, drill, or simulation in support of the EOP-005-1 standard will report. Transmission operators that do not have a nuclear power plant tied to a transmission line it controls are exempt from this request.

Transmission operators outside the United States subject to EOP-005-1 are voluntarily encouraged to submit this information as well. NERC will seek permission from these non-U.S. entities for inclusion of its data in the information filed with FERC.

### **Due Date for the Information**

If a transmission operator subject to this data request conducts a drill, simulation, or exercise that includes restoration of the initial offsite power source to a nuclear power plant, the transmission operator is to submit the requested information to its regional entity by the fifteenth of the month; following the end of the previous three-month quarter. The regional entity is to provide a quarterly report of all such submissions by April 30, July 31, October 31, and January 31 for the three-month period that concludes on these dates. This data request begins in the fourth quarter of 2007.

If no drill, exercise, or simulation meeting the criteria described above is conducted during a quarter, no submission by the transmission operator and regional entity is required. This data request does not direct transmission operators to conduct quarterly exercises, drills, or simulations to satisfy this data request. It does require the data to be reported if such a simulation, drill, or exercise is conducted.

### **Restrictions on Disseminating Data (Confidential/CEII)**

NERC will provide this data to FERC per its Order No. 693 directives. This information will be treated as critical energy infrastructure information when submitted to FERC.

### **Estimate on Burden Imposed to Collect Data**

There will be ongoing costs for the staff of responsible entities to respond and for regional entities to collect, compile, and report to NERC the requested data.

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**Exhibit B**

**Restoration of Nuclear Power Plant Off-site Source Data: 4th Quarter 2011**

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