To: Transmission Owners
    Industry Stakeholders

RE: Request for Public Comment on the Transmission Availability Data System
Proposed Element Inventory and Quarterly Data Collection

Ladies and Gentlemen:

The North American Electric Reliability Corporation (NERC) requests public comment by Midnight, PST, November 19, 2012, on its proposed revision to the Transmission Availability Data System (TADS) data collection to individual element inventory data and quarterly reporting as noted below. Comments must be submitted in a Word document to tadscomments@nerc.net.

In accordance with Section 1600 of the NERC Rules of Procedure,1 NERC may request data or information that is deemed necessary to meet its obligations under Section 215 of the Federal Power Act, as authorized by Section 39.2(d) of the Federal Energy Regulatory Commission’s (FERC) regulations. This is a proposal for such a request. Section 1600 requires NERC to provide the proposed data request to FERC’s Office of Electric Reliability prior to posting the data request for public comment. NERC provided this proposed data request to FERC on September 26, 2012. After comments are received and considered, NERC will present this proposed data request to the NERC Board of Trustees (BOT) for approval, as required by Section 1602 of the NERC Rules of Procedure. Upon NERC BOT approval, this data request will become mandatory.

The TADS effort began with the establishment of the Transmission Availability Data System Task Force (TADSTF) under the NERC Planning Committee in October 2006. On October 27, 2007, the NERC BOT approved the collection of TADS Phase I data beginning in calendar year 2008. On October 29, 2008, the NERC BOT approved the collection of Non-Automatic Outage data beginning in calendar year 2010 (Phase II).2

The annual submission of TADs data does not align with other NERC metric reporting periods, and reporting transmission outage data annually causes delays in reliability risk assessment. NERC uses the severity risk index (SRI) to measure risks from major events.3 Transmission outage data corresponds to 30 percent of the index’s value. With the current practice of annual outage reporting, the calculation of this index is delayed until after March 21 of the following year. Without quarterly data submittal,

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NERC will not be able to reconcile event reports of transmission outages with collected transmission outage data in a timely fashion to support event analysis.

Additionally, only total applicable Element counts and total Element circuit-miles are submitted to NERC by Transmission Owners (TOs) via webTADS. Key inventory data for individual circuits and circuit miles along with outages associated with those circuits are not collected. Without this information, analysis of important explanatory variables affecting transmission performance determined by transmission line exposures (e.g., circuit-miles, number of terminals, etc.) cannot be conducted. Further, the data and output analysis cannot be used to support probabilistic planning studies and root cause analysis.

Quarterly reporting of TADs data will enable more consistent reporting and metric display across all NERC data, and assist reporting entities in a more timely review of the data. Inventory data would also help support planning studies such as determination of credible contingencies and bridging gaps between operating and planning assumptions, as outlined in section 2.6 (Intended Uses and Limitations of Data and Metrics) of the 2007 TADS report. Evaluating single (category B) and multiple (category C) outages will result in improved transmission system performance.

For these reasons, NERC is proposing to request quarterly collection of transmission line outage data beginning in the data reporting period beginning 6 months after BOT approval of the data request. NERC is also proposing to request key inventory data for all TADS Elements beginning in the data reporting period 6 months after NERC BOT approval of the data request.

The two proposals for quarterly reporting and collection of detailed inventory data for TADs will provide the necessary information to enable NERC to provide high value information for risk analysis. This data will also enable NERC to determine where improvements can be made when appropriate, and in a timely manner.

This request for public comment is conducted pursuant to Section 1600 – Requests for Data or Information of NERC’s Rules of Procedure. The information required for a Section 1600 data request is defined in Section 1602.1.1 of the NERC rules and is provided below in Section A of this document.

### A. Proposed Outage Data Request Information

The italicized language is information that must accompany a data request.

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1. A description of the data or information to be requested, how the data or information will be used, and how the availability of the data or information is necessary for NERC to meet its obligations under applicable laws and agreements.

The response is provided in subparts. Capitalized terms are definitions that are contained in Appendix 7 of the TADS Data Instruction Manual.

a. A description of the data or information requested.
   Effective the first quarter beginning six months after BOT approval, the following information will be collected for each TADS Element, as applicable:

1. Transmission Owner Unique Element Identifier.
2. Circuit Mileage (Not applicable to Transformer or AC/DC Back-to-Back Converter Elements): The Circuit-Miles of the Element.
3. Number of Terminals (Not applicable to Transformer or AC/DC Back-to-Back Converter Elements): The number of connection points (commonly called “switching stations,” “substations,” or “generating stations”) to which the Element extends. Note, only terminals containing breakers that are part of the Normal Clearing Circuit Breaker Set (NCCBS) are included. Switching or other stations that do not have fault interrupting circuit breakers for the Element are not counted. A Normal Clearing Circuit Breaker Set definition will be developed by TADSWG prior to implementation.
4. Substation, Terminal, or Converter Name(s): The termination name(s) at each end of the circuit. For AC Circuits, these are the AC Substation Names; for DC Circuits, these are the AC/DC Terminal Names. For AC/DC Back-to-Back Converters, this is the Converter Station Name.
5. Element Voltage Class.
6. Change/Reconfiguration Date: The date that the Element becomes In-Service after reconfiguration or initial commissioning.
7. Retirement Date: The date the Element becomes Out-of-Service for retired Elements.
8. Precursor Element(s): The Transmission Owner Unique Element Identifier(s) that preceded any reconfiguration of the Element. If the Element has never been reconfigured, leave blank.
9. **Terminal Type:** The bus type that the Element is connected to at each of the terminals enumerated in item 3. Each terminal connection shall be coded as one of the following types:
   a. Single Bus
   b. Sectionalized Bus
   c. Main and Transfer Bus
   d. Ring Bus
   e. Breaker-and-a-Half
   f. Double Breaker-Double Bus
   g. Directly connected to another Element (not necessarily a reportable Element)
   h. Other

10. **Overhead/Underground Circuit:** For AC Circuit and DC Circuit Elements only, whether the circuit is an Overhead Circuit or an Underground Circuit.

11. **AC Multi-Owner Common Structure Flag:** For AC Circuit Elements only, this flag identifies whether the AC Circuit is on common structures with another circuit that is owned by a different Transmission Owner. This flag does not apply to DC Circuits which by default are all assumed to be on common structures with the circuits owned by the same Transmission Owner.

The proposed changes to the applicable version of the *TADS Data Instruction Manual* will be developed after public comments are received on the proposal.

It should be noted that an Element terminating at a terminal of types a) through c) will be separated from that terminal following a fault by the operation of a single circuit breaker. An Element terminating at a terminal of types d) through f) will require the simultaneous operation of two or more circuit breakers. No general statement can be made about terminal type h).

When two Elements are directly connected to each other (terminal type g), both Elements must be removed from service for a fault on either. If either or both has connections to more than two terminals, it is common practice to connect them through a switch or other device that does not have the capability to interrupt the available fault current at that location. Following a fault, the switch is

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opened, and the remainder of the Element is returned to service. A common instance is direct connection of an overhead line Element to a transformer serving local load.

b. How the data or information will be used?

NERC will use the information to develop statistics regarding the TADS Outages that occur on the transmission system. The TADS Phase I report *Transmission Availability Data System Revised Final Report* dated September 26, 2007, which may be downloaded at [http://www.nerc.com/filez/tadstf.html](http://www.nerc.com/filez/tadstf.html), discusses the intended uses of the data. A portion of Section 2.6 is provided below:

“...We believe that the greatest use of TADS data will be for outage cause analysis and outage Event analysis. Event analysis will aid in the determination of credible contingencies and will result in better understanding, and this understanding should be used to improve planning and operations. Ultimately, these improvements should result in improved transmission system performance. In addition, trending each Regional Entity’s performance against its own history will show how that region’s performance is changing over time. It will take a number of years of data collection (five years was suggested by several commenter’s) before the data can be useful for trend analysis. A through-time comparison is appropriate for evaluating a region’s performance...”

c. How is the availability of the data or information necessary for NERC to meet its obligations under applicable laws and agreements?

As stated in TADS Phase I Report, Section 2.6:

“Since becoming the Electric Reliability Organization, NERC has taken on the role of being an independent source of reliability performance information, thereby fulfilling one of the recommendations in the April 2004 U.S.-Canada Power System Outage Task Force Report on the August 14, 2003 blackout...”

Pursuant to Section 215 of the Federal Power Act, NERC develops Reliability Standards that are just, reasonable, not unduly discriminatory or preferential, and in the public interest. NERC Reliability Standards are developed based on the technical expertise of the industry. A better understanding of transmission Element inventory will allow analysis of important explanatory variables affecting transmission performance determined by transmission line exposures (e.g., Circuit-Mileage, number of terminals, etc.). Also, the data will be used to support probabilistic planning studies and root cause
analysis. For example, Transmission Planners will be able to compare historical Element outage rates to their own system performance expectations and assumptions to provide a baseline or to improve their own assumptions in planning and reliability studies.

Section 215(g) of the Federal Power Act requires NERC to make periodic assessments on the reliability of the bulk power system in North America. The key inventory data for all TADS Elements and the quarterly collection of transmission line outage data requested in this Section 1600 data request will provide the timely data NERC needs to make risk-based periodic assessments to assess bulk power system reliability as well as analyze its ongoing performance and reliability risk.

2. A description of how the data or information will be collected and validated.

The data collection and validation process is described in Section 5.2 of the TADS Phase I Report. The Element inventory information will be collected following the same process as the current TADS data collection and validation. The new data will be manually entered or bulk uploaded by Transmission Owners into the webTADS software system. After the software checks for errors, data will be further validated by the Regional Entities and then by NERC as described in Section 5.3.2 of the Phase I Report.

In addition, Section 5.1 of the Phase II Report permits NERC to review the data and conduct data validation reviews of all TADS data submissions with the submitting Transmission Owners. As multiple years of data collection occur, to the extent that a review indicates systematic data entry errors, data entries for previous years may need to be revised. For example, five year rolling average performance statistics need to be consistent and reasonably accurate. Therefore, it will be necessary for Transmission Owners to capture and retain five years of supporting data. Supporting data older than five years may be discarded at Transmission Owner discretion. NERC will retain the outage data submitted to webTADS indefinitely, beyond a 5 year rolling average.

3. A description of the entities that will be required to provide the data or information (“reporting entities”).

The submission of Phase I TADS data is mandatory for all U.S. Transmission Owners who are on the NERC Compliance Registry. Non-U.S. Transmission Owners who are also NERC members are required to comply with NERC’s Rules of Procedure. Accordingly, because the proposed data is
being requested in accordance with Section 1600, the submission of Phase I TADS data is mandatory on non-U.S. Transmission Owners as NERC members\(^6\)

4. **The schedule or due date for the data or information.**

Upon NERC BOT approval, the key Element inventory data must be submitted by the reporting deadline for the reporting period 6 months after the NERC BOT approval of this data request and on a quarterly basis thereafter as described in Table 1, below. As of July 24, 2012, there were 339 Transmission Owners listed in the NERC compliance registry. Out of that number, 211 Transmission Owners have reported a total of 7,900 Elements that are 200 kV and above, with 108 of these Transmission Owners owning ten or more such Elements. Providing a six month period to populate inventory before beginning quarterly collection should provide sufficient lead time for Transmission Owners to adapt their internal data collection systems and processes to the new TADS reporting requirements. This schedule allows Transmission Owners to develop or revise business processes and make improvements to internal business system protocols. Table 1 provides a detailed data request schedule.

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<th>Table 1: Data Request Schedule</th>
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<tr>
<td><strong>Milestone</strong></td>
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<tr>
<td>PC Approval of Data Request</td>
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<td>FERC Data Request Review</td>
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<td>45 Day Stakeholder Comment Period</td>
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<td>Board of Trustees Approval</td>
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<td>Initial Inventory and First TADS Quarterly Data Submittal</td>
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<td>Subsequent Quarterly Reporting Deadline (Functional Entities)</td>
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<td>Subsequent Quarterly Reporting Deadline (Regional Entities)</td>
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\(^6\) Phase I was approved by the NERC BOT prior to the addition of Section 1600 to the *Rules of Procedure*. Because NERC’s Phase I TADS approval relied upon Section 39.2(d) of the Federal Energy Regulatory Commission’s regulations, 18 C.F.R. § 39.2(d), it is mandatory for all U.S. Transmission Owners. However, most non-U.S. Transmission Owners have indicated that they will voluntarily comply with Phase I.
5. A description of any restrictions on disseminating the data or information (e.g., “confidential,”
“critical energy infrastructure information,” “aggregating” or “identity masking”.

The treatment of confidential information for the above proposal is the same as Phase I TADS. NERC’s treatment of confidential information is governed by Section 1500 of NERC’s *Rules of Procedure*. TADS public reports will not inadvertently release confidential information by the display of regional or NERC information from which a Transmission Owner’s confidential information could be ascertained. Section 2.4.7 of the Phase I Report addresses data confidentiality, and Section 5.4 addresses data access policies.

6. An estimate of the relative burden imposed on the reporting entities to accommodate the data or
information request:

a. Key Inventory Data

NERC met with the TADSWG to develop this data request and assess the potential burden on reporting entities to accommodate the data request. The TADSWG determined that the Element inventory data collection implementation should not add a substantial reporting burden beyond the current data collection. Reporting entities already report Circuit-Mile values as the sum of Circuit-Miles for each TADS Element and the number of TADS Elements in current annual reporting data. In this data request, entities will be asked to report Circuit-Miles on an individual TADS Element basis. Also, to verify the total count of each Element type, an entity would have to verify that all Elements were included. To do this, a unique identifier would be assigned by the entity. Existing unique identifiers presently used by the entity would suffice for this purpose.

There would be an initial effort required to first populate the Element inventory. This initial effort would be a one-time event, and subsequent changes would not involve significant effort. Based on webTADS Element counts of total inventory, the total number of Elements changes less than 3 percent annually.

b. Quarterly Outage Reporting

The incremental effort from annual outage reporting to quarterly reporting is minimal. There will be 3 more on-line logins to webTADS and XML uploads, but quarterly 3-month outage volume will be significantly less than annual 12-month outage set. Currently TOs only have 60 days of review time for annual 12-month outage dataset. With the quarterly reporting, TOs will have 45 days to review significantly smaller outage dataset. With this additional review time, data quality will be improved.
B. Comment Questions
While each commenter is not restricted in the format of their comments, your answers to the following questions would be appreciated:

1. If you are a Transmission Owner, do you currently collect individual Element inventory data similar to the proposed TADS outage data? Please describe the extent to which you collect inventory data similar to the proposed TADS outage data.

2. What incremental increase in effort beyond the BES Standards will be required to fulfill the proposed TADS data collection?

3. Is the data being requested reasonable and obtainable? If “no,” please explain.

4. Is the implementation schedule for the request reasonable? If “no,” please explain.

5. Assuming you will have to develop a system to export the key inventory data, what is the incremental cost of this reporting?

6. Assuming you will have to develop a system to report outage data quarterly, what is the incremental cost comparing with reporting outage data annually?

Comments are due by Midnight, PDT on November 19, 2012, and must be submitted in a Word document to tadscomments@nerc.net. If you have any questions, please contact Andrew Slone at (404) 446-9719 or by e-mail at Andrew.Slone@nerc.net.

Sincerely,

Herb Schrayshuen
Interim Vice President and Director of Reliability Assessments and Performance Analysis