

**TVA Comments on the
Transmission Availability Data System
Final Report June 7, 2007 and the
Data Reporting Instructions Manual June 29, 2007**

In response to NERC's Request for Public Comment on TADS Report and Manual dated June 28, 2007, the following comments are provided per *B. Comment Questions*.

Question

1. *If you are a Transmission Owner (TO), do you currently collect transmission outage data similar to TADS? If "yes," please explain.*

Answer: Yes. However, there are several fields required by TADS that TVA does not currently record. Overall we currently collect about 40% of the TADS outage data. See the answer to Question 2 below for more details on TADS data not collected.

Question

2. *Is the data being requested reasonable and obtainable? See Section 3 of the Report. If "no," please explain.*

Answer: Not enough is known about the intended use of the data requested to determine if it is reasonable, but it is obtainable.

Reasonable - Undetermined: TVA supports the concept that NERC should receive the same information submitted in the DOE EIA-411 filing. Further, TVA supports the submission of data not currently collected that NERC can use to improve grid reliability. However, any increase in the collection and maintenance of data comes at a cost. There are several requested fields for which TVA does not immediately see grid benefit commensurate to cost.

When viewed strictly from the standpoint of reliability reporting, fields such as 'Fault Target', 'Outage Initiation Code', 'Outage Mode', 'Event Type' (only the 'Event Type' is used in calculations of proposed metrics), and 'Disturbance Report Filed' have no apparent benefit. When viewed within the context of ongoing discussions within the NERC Planning Committee, there may be benefit to the capture of this data, but whether it rises above the cost of capture is in question.

TVA recommends that NERC prepare a web template to facilitate data capture and offer detailed training in use of the template to include intent of each data field and discussion of issues surrounding its population. This would facilitate consistent data from the many respondents as well as identify modifications NERC might want to make to the data request.

Obtainable - Yes: While the data is obtainable, many of the fields are not currently recorded or differ from NERC requirements. For example TVA does not currently address or addresses in a different manner the following required TADS Element Inventory/Outage Data: Weighted Average % of Elements added and retired, Weighted Average % of installed Circuit Miles, Multi-Circuit Structure Miles, Multi-Circuit Structure Miles added and retired, Weighted Average % of installed Multi-Circuit Structure Miles, Fault Type, Outage Initiation Code, use of Greenwich Mean Time for Outage Start/End time, Overhead/Underground circuit designations, Outage Duration (TVA uses a different definition than TADS), Outage Initiating Cause Code, Outage Sustained Cause Code, Outage Mode, Event Type and whether or not an Event

**TVA Comments on the
Transmission Availability Data System
Final Report June 7, 2007 and the
Data Reporting Instructions Manual June 29, 2007**

requires Disturbance Report Filing under OE-417 or EOP-004-01. Thus there will be significant impacts to TVA's system interruption data gathering and reporting.

Question

3. *Are the metrics appropriate? See Section 4.b and Appendix 4 of the Report. If "no," please explain.*

Answer: No.

Duration metrics such as Outage Duration per Element, Mean Time To Repair, Median Time Repair, and Percent Availability will have little meaning, since transmission systems and TOs operating and maintenance procedures vary widely. In fact, these metrics may give very misleading results if used to compare TOs. No provisions were made for extended outage durations with little or no customer impact, but that are advantageous to the utility. For example, if not needed to provide customer service and the grid is not compromised by the additional outage time, line sections or even an entire transmission line may be intentionally left in an outage condition over a weekend or for significant periods of time. The utility with a strong system should not be penalized for such an economic decision.

SERC will run the metrics for NERC using NERC provided analysis software and the data TVA collects. TVA will need access to this software or will have to develop its own software to replicate the data analysis for internal review and checking of the SERC metrics. TVA does not currently use any of the fourteen (14) metrics/reports required by TADS and perceives minimal value for the extensive effort that will be required to produce and periodically report them. Moreover, no provision was made for exclusions such as 'major events' related to storms.

Question

4. *Is the data reporting process reasonable? See Section 5.2 of the Report. If "no," please explain.*

Answer: While the process seems reasonable, TVA disagrees with the publication of regional metrics, which by TADS own admission will result in inevitable regional comparisons by others. These comparisons could impact a region's economy. Subsection 5.1 points out that the RE may require additional transmission data to be reported. This will almost certainly add to the data burden required by FERC through TADS. We need to see what SERC will be requiring for metrics in addition to FERC to better assess the potential data gathering and reporting impacts.

Question

5. *Is the implementation schedule for Phase I TADS for 2008 reasonable? See Section 5.3.1 of the Report. If "no," please explain.*

Answer: No. As indicated above the impacts to implement Phase I of TADS will be significant. Revisions to TVA's interruption data base, governing procedures and data submittal forms as well as the development and delivery of training for personnel make the May 30, 2008 submittal date for first quarter data extremely difficult. Final approval of TADS is currently not

**TVA Comments on the
Transmission Availability Data System
Final Report June 7, 2007 and the
Data Reporting Instructions Manual June 29, 2007**

set until October 22, 2007, which provides little more than 2 months to implement TADS changes for 2008 data.

A more realistic date to overcome many of the challenges associated with this process and beta test on real world data is calendar year 2009. This will also allow the metrics to be evaluated more fully to determine those elements that provide the most value and thus set the stage for Phase II to begin in 2010.

A second possibility would be for utilities to report circuit outages by TADS cause codes and duration only for the first year. Other reportable items could be phased in over two more years.

Question

6. *Are there ambiguities in the Manual that need clarification? If "yes," please explain.*

Answer: Yes

- Definitions of 'Outage Initiation Codes' are ambiguous. One example is an outage caused by a fault in a transformer. This happened on the 'Element', and it is also in the 'Substation'. Is it both? A better choice would be 'Internal' (for faults on the element itself (transformer or line), 'External \geq 200-kV' (for faults on other equipment \geq 200-kV) and 'External $<$ 200 kV' (for faults on equipment $<$ 200-kV).
- We recommend changing the definition of an automatic outage as follows:
 - Automatic Outage - Any loss of the ability to supply partial or continuous power flow through a system Element by valid or invalid action of protective systems and/or control systems. *Note: include single pole operations and events such as, dropping a pole in a breaker via a failed lift rod, switches burning clear on one pole and breakers mechanically falling off the latch.*
- We recommend adding a definition to Section B. Outage Reporting Definitions to capture if maintenance intervention was necessary or not to allow operations to restore service. Such an attribute would apply only to automatic outages.
- Intervention Required Outage - Any automatic outage that required active intervention on the part of the utility to return the outage Element to service. Such active intervention includes any repairs to lines or equipment, removal of foreign interference, or removal of vegetation.
- The definition of Cause Codes Types for Vegetation is problematic. Currently in FAC-003-1 the definition of vegetation events exclude human errors for contractors inadvertently felling trees into lines. We recommend changes to be consistent with that standard.
- There should be two Cause Codes Types for Relay and/or Control Misoperation as follows:
 - Relay and/or Control Misoperation device failure - Automatic Outages caused by relay and/or control initiated operations when not desired or the failure to operate when desired caused by device failure or degradation in the relay or control system.
 - Relay and/or Control Misoperation non-device failure - Automatic Outages caused by relay and/or control initiated operations when not desired or the

**TVA Comments on the
Transmission Availability Data System
Final Report June 7, 2007 and the
Data Reporting Instructions Manual June 29, 2007**

failure to operate when desired caused by incorrect settings, improper calibration, jarring the device, or improper installation or maintenance of the device.

- We recommend the following definition of Cause Codes Types for Human Error Human Error - Automatic Outages caused by any design, construction, operating or maintenance activities performed by the Transmission Owner and/or contractors performing work or providing assistance in the design, construction, operations or maintenance.” *This incorporates the design and construction errors and designates the error to a function which is easier to establish than “traceable to employees”*
- We recommend the definition for a Momentary Outage be changed from “An Automatic Outage with an Outage Duration less than 1 minute” to “An Automatic Outage with an Outage Duration of 1 minute or less.” This will be more consistent with industry practice.
- We recommend that the definition for a Sustained Outage be changed from “An Automatic Outage with an Outage Duration of a minute or greater” to “An Automatic Outage with an Outage Duration greater than a minute.”
- Since many of these fields are not currently recorded in our database, there should be a ‘phase-in period’ of one year (2008) to ensure that no other fields are ambiguous. During the ‘phase-in period’ these fields would not be required, but would be requested.
- Appendix 3 Forms for Element Inventory and Summary Outage Data - Row 20 should read 600-799 kV AC not 700-799 kV AC.
- Appendix 7 Inventory Data Examples
 - Calculation 1: (Page 39) Element AE should show 25 Circuit Miles not 30 Miles and the Total Circuit Miles should be 325 not 330.
 - All subsequent references to Element AE and the effects of its use in subsequent calculations such as Calculation 1a, 1b, and in Inventory Data Form 3.1 etc. should be corrected.

Additional Comments:

TADS Final Report dated June 7, 2007

- The TADS Task Force (TF) continues to disagree with EIA on the need for scheduled and manual unscheduled outage data. (See Section 2.3 the penultimate paragraph on page 7.) Nevertheless, in order to have TADS serve as a single source of transmission outage data for both NERC and EIA, TADS recommends a Phase II expansion of TADS to incorporate scheduled and manual unscheduled outages beginning with data reported for calendar year 2009. TVA does not consider the Phase II requirement for scheduled and manual unscheduled outage data reasonable as it will double or triple data gathering with very little discernable value obtained from this additional data.
- In Section 2.6, *Intended Uses and Limitations of Data and Metrics*, the TADS TF states in part that “...we believe that comparisons for the purposes of identifying relative performance between regions are not appropriate.” In spite of this the TF also states, “However, because regional metrics will be published, regional

**TVA Comments on the
Transmission Availability Data System
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Data Reporting Instructions Manual June 29, 2007**

comparisons by others are inevitable.” TVA agrees that with the many physical differences between regions and TOs such as weather, load density, geography, growth rate, system age, customer mix, impact of significant events, and average circuit mileage regional comparisons are not appropriate for identifying relative performance between regions. (See TVA’s answer to Question 4 above.) Therefore, regional metrics should not be released to the public.

- Section 3.3h.iii (Page 14). Replace “in” with “an”. Should read ... result of “an” initiating outage...
- Appendix 2 TADS Definitions B10.1 (Page 4). Add the word “with” after an associated event. Delete the words “with a” after ... Single Mode Automatic Outage
- Appendix 2 TADS Definitions F1 (Page 6). Add clarification to Cause Code ‘Weather, excluding lightning’. It should include ‘flying debris caused by wind’.

Comments were submitted by Larry Akens of TVA on July 14, 2007.