

## ALR6-12 Automatic AC Transmission Outages Initiated by Human Error

<b>Metric Number</b>	ALR6-12
<b>Submittal Date</b>	March 31, 2010
<b>Sponsor Group (OC, PC or subgroup name)</b>	NERC
<b>Short Title</b>	AC Transmission Outages - Human Error
<b>Metric Description</b>	Normalized count (on a per circuit basis) of 200kV and above AC Transmission Element outages (i.e. TADS momentary and sustained Automatic Outages) that were initiated by Human Error. This metric will use the TADS definition of <i>Human Error</i> , which states “Automatic Outages caused by any incorrect action traceable to employees and/or contractors for companies operating, maintaining, and/or providing assistance to the Transmission Owner will be identified and reported in this category. Also, any human failure or interpretation of standard industry practices and guidelines that cause an outage will be reported in this category.” <i>Transmission Elements</i> in this metric includes AC Circuits and Transformers. This metric includes protection system misoperations due to human error such as miscoordinated settings, incorrect setting calculations, and errors in applying settings to the relay, in addition to the other human errors identified in the TADS Data Reporting Instruction Manual for the Automatic Outage Cause Code, Human Error.
<b>Purpose</b>	The purpose of this metric is to gauge Human Error as one of many factors in the performance of AC transmission system Automatic Outages.
<b>How will it be suited to indicate performance?</b>	The normalized count provides an indication of the relative human factor performance, specifically the AC Transmission Element outage rate for momentary and sustained outages initiated by Human Error. Human Error is one of the highest causes for initiating automatic transmission system outages.
<b>Formula</b>	$\text{Automatic AC Outages initiated by Human Error} = \frac{\text{Number of Momentary and Sustained AC Element Automatic Outages initiated by Human Error}}{\text{Total Number of AC Elements [AC Circuits or Transformers]}}$ <p>For example on a NERC wide basis the 2008 calculation = <math>284 / (6653 \text{ AC Circuits}) = 0.0427</math> outages per circuit. (Preliminary 2009 calculation = <math>234 / (6805.7 \text{ AC Circuits}) = 0.0344</math> outages per circuit).</p>
<b>Metric Start Time or Baseline</b>	Year 2008 and 2009 TADS data initially and eventually on a 5 year rolling average.
<b>Time Horizon</b>	Historical time frame

<b>Data Collection Interval and Roll Up</b>	The TADS data provides the total number of automatic transmission system outages and the number of outages initiated by Human Error <sup>1</sup> for 200 kV and above.					
<b>Ease of Collection</b>	Data is already being collected via the NERC TADS process.					
<b>Aggregation</b>	Results could be presented by normalized counts on a Regional Entity basis, Interconnection basis, or NERC wide basis.					
<b>Linkage to NERC Standard</b>	None.					
<b>Linkage to Data Source</b>	The NERC TADS definitions and data.					
<b>Need for Validation or Pilot</b>	No, the data and results are already being reported via the TADS process.					
<b>Data Submitting Entity</b>	Transmission Owners via TADS procedures.					
<b>SMART Rating</b>	Total Score	Specific/Simple	Measurable	Attainable	Relevant	Tangible/Timely
	14	3	3	3	3	2
<b>Reporting</b>						
<b>Style (look and feel)</b>	Bar charts					
<b>Publications and Documentation</b>	The statistics needed to compute this ALR metric are currently shown in the TADS reports. This metric may be included in the annual NERC LTRA report, at the discretion of the NERC Planning Committee.					

<sup>1</sup> TADS Data Reporting Instruction Manual can be viewed at [http://www.nerc.com/docs/pc/tadstf/Ph\\_I\\_Data\\_Reporting\\_Instr\\_Manual\\_112108.pdf](http://www.nerc.com/docs/pc/tadstf/Ph_I_Data_Reporting_Instr_Manual_112108.pdf).