

ALR6-14 Automatic AC Transmission Outages Initiated by Failed AC Circuit Equipment

Metric Number	ALR6-14
Submittal Date	April 12, 2010
Sponsor Group (OC, PC or subgroup name)	NERC
Short Title	AC Transmission Outages – Failed AC Circuit Equipment
Metric Description	Normalized count (on a per 100 circuit-mile basis) of 200kV and above AC Transmission Element outages (i.e. TADS momentary and sustained Automatic Outages) that were initiated by failed AC circuit equipment. This metric will use the TADS definition of “ <i>Failed AC Circuit Equipment</i> ”, which states “Automatic Outages related to the failure of AC Circuit equipment, i.e., overhead or underground equipment ‘outside the substation fence.’ Refer to the TADS definition of “ <i>AC Circuit</i> ”, which states “A set of AC overhead or underground three-phase conductors that are bound by AC Substations. Radial circuits are AC Circuits.” <i>Transmission Elements</i> in this metric include AC Circuits only.
Purpose	The purpose of this metric is to gauge failed AC circuit equipment as one of many factors in the performance of transmission system Automatic Outages.
How will it be suited to indicate performance?	The normalized count provides an indication of the relative transmission circuit equipment performance, specifically the AC Transmission Element outage rate for momentary and sustained outages initiated by AC circuit equipment. AC circuit equipment is one of the highest causes for initiating automatic transmission system outages.
Formula	$\text{Automatic AC Outages caused by Failed AC Circuit Equipment} = \frac{\text{Number of Momentary and Sustained Automatic AC Element Outages initiated by Failed AC Circuit Equipment}}{\text{Total Number of AC Elements (AC Circuits or Transformers)}}$ <p>For example on a NERC-wide basis the 2008 calculation = $326 / (6605 \text{ AC Circuits}) = 0.05$ outages per circuit. (Preliminary 2009 calculation = $277 / (6756.7 \text{ AC Circuits}) = 0.04$ outages per circuit).</p>
Metric Start Time or Baseline	Year 2008 and 2009 TADS data initially and eventually a 5 year rolling average.
Time Horizon	Historical time frame

Data Collection Interval and Roll Up	The TADS data provides the total number of automatic transmission system outages and the number of outages initiated by Failed AC Circuit Equipment ¹ for 200 kV and above.						
Ease of Collection	Data is already being collected via the NERC TADS process.						
Aggregation	Results could be presented by normalized counts on a Regional Entity basis, Interconnection basis, or NERC wide basis.						
Linkage to NERC Standard	None						
Linkage to Data Source	The NERC TADS definitions and data.						
Need for Validation or Pilot	No, the data and results are already being reported via the TADS process.						
Data Submitting Entity	Transmission Owners via TADS procedures.						
SMART Rating	Total Score	Specific/Simple	Measurable	Attainable	Relevant	Tangible/Timely	
	14	3	3	3	3	2	
Reporting							
Style (look and feel)	Bar charts						
Publications and Documentation	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.						

¹ TADS Data Reporting Instruction Manual can be viewed at http://www.nerc.com/docs/pc/tadstf/Ph_I_Data_Reporting_Instr_Manual_112108.pdf.