

## Project 2010-13.2 Generator Relay Loadability

### Consideration of Issues and Directives

Project 2010-13.2 Generator Relay Loadability		
Issue or Directive	Source	Consideration of Issue or Directive
<p><b>NERC Ref: S-10724</b></p> <p>Para 106 supported by Paragraphs 104, 105, and 108.</p> <p><b>106.</b> We also expect that the ERO will develop the Reliability Standard addressing generator relay loadability as a new Standard, with its own individual timeline, and not as a revision to an existing Standard. While we agree that PRC-001-1 requires, among other things, the coordination of generator and transmission protection systems, we think that generator relay loadability, like transmission relay loadability, should be addressed in its own Reliability Standard if it is not to be addressed with transmission relay loadability.</p> <p>Para 104, 105, and 108</p> <p><b>104.</b> We decline to adopt the NOPR proposal and will not direct the ERO to modify PRC-023-1 to address</p>	<p>Order No. 733 (Para 104, 105, 106, and 108)</p>	<p><b>Response to P106</b></p> <p>The Reliability Standard PRC-025-1 is responsive to paragraph 106 by establishing a new standard that addresses generator unit relay loadability for load-responsive protective relays applicable to generators for the conditions (depressed voltages) observed during the August 2003 blackout in the northeastern portion of North America.</p> <p><b>Response to P104</b></p> <p>The Reliability Standard PRC-025-1 is responsive to paragraph 104 by establishing requirements for load-responsive protective relays on generator step-up (GSU) transformers and on unit auxiliary transformers (UAT) that supply station service power to support the on-line</p>

Project 2010-13.2 Generator Relay Loadability

Issue or Directive	Source	Consideration of Issue or Directive
<p>generator step-up and auxiliary transformer loadability. After further consideration, we conclude that it does not matter if generator step-up and auxiliary transformer loadability is addressed in a separate Reliability Standard, so long as the ERO addresses the issue in a timely manner and in a way that is coordinated with the Requirements and expected outcomes of PRC-023-1.</p> <p><b>105.</b> In light of the EROs statement that within two years it expects to submit to the Commission a proposed Reliability Standard addressing generator relay loadability, we direct the ERO to submit to the Commission an updated and specific timeline explaining when it expects to develop and submit this proposed Standard. While we recognize that generator relay loadability is a complex issue that presents different challenges than transmission relay loadability, we note that more than six years have passed since the August 2003 blackout and there is still no Reliability Standard that addresses generator relay loadability. With this in mind, the Commission will not hesitate to direct the development of a new Reliability Standard if the ERO fails to propose a Standard in a timely manner. While the ERO is developing a</p>		<p>operation of generating plants. These transformers are variably referred to as station power, unit auxiliary, or station service transformer(s) used to provide overall auxiliary power to the generator station when the generator is running. Loss of these transformers will result in removing the generator from service. The standard is coordinated with the expected outcomes of PRC-023-2 in that it will assure that the applicable equipment will not be removed from service unnecessarily for the conditions observed during the August 2003 blackout in the northeastern portion of North America.</p> <p><b>Response to P105</b></p> <p>The Reliability Standard PRC-025-1 is responsive to paragraph 105 by developing a new standard to address generator relay loadability according to the filed schedule. This Phase II of relay loadability required an extension of time to complete, extending the deadline to September 30, 2013. A one year extension was granted on February 15, 2012, Docket No. RM08-13-001.</p> <p><b>Response to P108</b></p> <p>The Reliability Standard PRC-025-1 is responsive to</p>

Project 2010-13.2 Generator Relay Loadability

Issue or Directive	Source	Consideration of Issue or Directive
<p>technical reference document to facilitate the development of a Reliability Standard for generator protection systems, only Reliability Standards create enforceable obligations under section 215 of the FPA.</p> <p><b>108.</b> Finally, the PSEG Companies suggest that the ERO consider whether a generic rating percentage can be established for generator step-up transformers and, if so, determine that percentage. Although we do not adopt the NOPR proposal, we encourage the ERO to consider the PSEG Companies’ suggestion in developing a Reliability Standard that addresses generator relay loadability.</p>		<p>paragraph 108 by establishing a requirement for each Generator Owner to apply settings on its load-responsive protective relays for generator step-up transformers (including, generator units and unit auxiliary transformers).</p> <p>For generator step-up (GSU) transformers connected to synchronous generator units, the standard implements Attachment 1: Relay Settings to the standard and Table 1 which establishes settings based on a percentage of the generator unit’s maximum gross Real Power capability in megawatts (MW), as reported to the Planning Coordinator and Transmission Planner; and the unit’s Reactive Power capability, in megavoltampere-reactive (Mvar).</p> <p>For generator step-up (GSU) transformers connected to synchronous generator units, the standard implements Attachment 1: Relay Settings to the standard and Table 1 which establishes settings based on a percentage of the generator unit’s aggregate installed maximum rated MVA output (including the Mvar output of any static or dynamic reactive power devices) of the connected generators at rated power factor. Asynchronous generator criteria also include inverter-based</p>

## Project 2010-13.2 Generator Relay Loadability

Issue or Directive	Source	Consideration of Issue or Directive
		<p>installations.</p> <p>Unit auxiliary transformers unit auxiliary transformers (UAT) that supply station service power to support the on-line operation of generating plants are based on a percentage of the MVA rating of the transformers or the auxiliary loads at the rated MW as reported to the Planning Coordinator or Transmission Planner. These transformers are variably referred to as station power, unit auxiliary, or station service transformer(s) used to provide overall auxiliary power to the generator station when the generator is running.</p>