

## Mapping Document

### Project 2008-02.2 Phase 2: Undervoltage Load Shedding

During development of PRC-010-1, the standard drafting team provided the following explanation on its approach to cover Misoperation of UVLS equipment in future work:

“As PRC-022-1 addresses UVLS equipment Misoperations, the UVLS drafting team’s intention is for PRC-004 to address Misoperations of UVLS Program equipment. A change to make PRC-004 explicitly applicable to UVLS Program equipment will be addressed once PRC-004-3 – Protection System Misoperation Identification and Correction<sup>1</sup> is completed under Project 2010-05.1 – Misoperations (Phase 1 of Protection Systems).”

Table[The table below](#) demonstrates how proposed changes map from the retirement of PRC-022-1 (retired by the initial 2008-02 project) to the proposed PRC-010-2. The revisions are being proposed to provide additional clarity with the aligning revisions being proposed in PRC-004-5 as shown in Table 2.

<sup>1</sup> PRC-004-3 was surpassed by version four which addressed applicability to dispersed generation resources under Project 2014-01.

Table 1: Mapping PRC-022-1 to PRC-010-2

Requirement in Approved PRC-022-1 Reliability Standard	Translation to New Standard or Other Action	Proposed Language in PRC-010-2 or Comments
<p><b>R1.</b> Each Transmission Operator, Load-Serving Entity, and Distribution Provider that operates a UVLS program to mitigate the risk of voltage collapse or voltage instability in the BES shall <b>analyze and document all UVLS operations and Misoperations.</b> The analysis shall include:*</p> <p><b>R1.5</b> For any Misoperation, a Corrective Action Plan to avoid future Misoperations of a similar nature.</p> <p>*Sub-requirements R1.1 through R1.4 have been omitted because they were addressed in Project 2008-02 during development of PRC-010-1.</p>	<p>PRC-010-2 proposes Part 4.2 to provide additional clarity that UVLS equipment operations and Misoperations are addressed by Requirement R4 through the Planning Coordinator or Transmission Planner assessment.</p> <p>Part 4.1 was originally embedded in the main Requirement R4 of PRC-010-1 and is now shown as a new Part 4.1 now.</p> <p>Part 4.2 is being proposed to provide the necessary clarity that the assessment conducted following an event that resulted in a voltage excursion for which its UVLS Program was designed to operate must include UVLS Program equipment.</p>	<p><b>R4.</b> Each Planning Coordinator or Transmission Planner shall, within 12 calendar months of an event that resulted in a voltage excursion for which its UVLS Program was designed to operate, perform an assessment to evaluate:</p> <p><b>4.1.</b> whether its UVLS Program resolved the undervoltage issues associated with the event, and</p> <p><b>(Proposed) 4.2.</b> the performance (i.e., operation and non-operation) of the UVLS Program equipment.</p>

Table 1: Mapping PRC-022-1 to PRC-010-2

Requirement in Approved PRC-022-1 Reliability Standard	Translation to New Standard or Other Action	Proposed Language in PRC-010-2 or Comments
	<p>Part 4.2 requires the Planning Coordinator or Transmission Planner to assess the UVLS equipment performance and address any deficiencies in a Corrective Action Plan (CAP) as required by PRC-010-2, Requirement R5.</p> <p>The clause “in its UVLS Program” was removed to clarify the Corrective Action Plan is addressing components of the assessment, which is about the UVLS Program.</p>	<p><b>R5.</b> Each Planning Coordinator or Transmission Planner that identifies deficiencies during an assessment performed in either Requirement R3 or R4 shall develop a Corrective Action Plan to address the deficiencies and subsequently provide the Corrective Action Plan, including an implementation schedule, to UVLS entities within three calendar months of completing the assessment. <del>[Violation Risk Factor: Medium] [Time Horizon: Operations Planning]</del></p>

Table 2: Mapping PRC-~~022-1~~ to PRC-004-5

Requirement in Approved PRC-022-1 Reliability Standard	Translation to New Standard or Other Action	Proposed Language in PRC-004-5 or Comments
<p><b>R1.</b> Each Transmission Operator, Load-Serving Entity, and Distribution Provider that operates a UVLS program to mitigate the risk of voltage collapse or voltage instability in the BES shall <b>analyze and document all UVLS operations and Misoperations.</b> The analysis shall include:*</p> <p><b>R1.5</b> For any Misoperation, a Corrective Action Plan to avoid future Misoperations of a similar nature.</p> <p>*Sub-requirements R1.1 through R1.4 have been omitted because they were addressed in Project 2008-02 during development of PRC-010-1.</p>	<p><u>The proposed</u> Applicability 4.2.3 addresses the clause “analyze and document all UVLS operations and Misoperations-” in <u>PRC-022-1, Requirement R1.</u></p> <p><u>The standard PRC-004-5, Requirement R5 requires a Corrective Action Plan (CAP) to be developed for a known cause of a Misoperation and addresses Requirement R1.5. Requirement R6 requires the implementation of the CAP.</u></p>	<p><b>(Proposed) 4.2.3</b> Undervoltage load shedding (UVLS) that is intended to trip one or more BES Elements.</p> <p><u>R5. Each Transmission Owner, Generator Owner, and Distribution Provider that owns the Protection System component(s) that caused the Misoperation shall, within 60 calendar days of first identifying a cause of the Misoperation: [Violation Risk Factor: Medium] [Time Horizon: Operations Planning, Long-Term Planning]</u></p> <ul style="list-style-type: none"> <li><u>• Develop a Corrective Action Plan (CAP) for the identified Protection System component(s), and an evaluation of the CAP’s applicability to the entity’s other Protection Systems including other locations; or</u></li> </ul>

Table 2: Mapping PRC-~~022-1~~ to PRC-004-5

Requirement in Approved PRC-022-1 Reliability Standard	Translation to New Standard or Other Action	Proposed Language in PRC-004-5 or Comments
		<ul style="list-style-type: none"> <li>• <u>Explain in a declaration why corrective actions are beyond the entity’s control or would not improve BES reliability, and that no further corrective actions will be taken.</u></li> </ul> <p><u>R6. Each Transmission Owner, Generator Owner, and Distribution Provider shall implement each CAP developed in Requirement R5, and update each CAP if actions or timetables change, until completed.</u></p>