

Mapping of Requirements from PRC-001-1.1(ii) to PRC-027-1 Project 2007-06 System Protection Coordination

Requirement in BOT-Adopted PRC-001-1.1(ii)	Action Taken	Requirement or Language in Proposed PRC-027-1
<p>R1. Each Transmission Operator, Balancing Authority, and Generator Operator shall be familiar with the purpose and limitations of Protection System schemes applied in its area.</p>	<p>Being addressed<u>proposed to be moved to a new TOP Reliability Standard</u> by Project 2007-06.2 Phase 2: System Protection Coordination</p>	<p>N/A</p>
<p>R2. Each Generator Operator and Transmission Operator shall notify reliability entities of relay or equipment failures as follows:</p> <p>R2.1. If a protective relay or equipment failure reduces system reliability, the Generator Operator shall notify its Transmission Operator and Host Balancing Authority. The Generator Operator shall take corrective action as soon as possible.</p> <p>R2.2. If a protective relay or equipment failure reduces system reliability, the Transmission Operator shall notify its Reliability Coordinator and affected Transmission Operators and Balancing Authorities. The Transmission Operator shall take corrective action as soon as possible.</p>	<p>Being addressed<u>proposed for retirement</u> by Project 2007-06.2 Phase 2: System Protection Coordination</p>	<p>N/A</p>

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<p>R3. A Generator Operator or Transmission Operator shall coordinate new protective systems and changes as follows.</p> <p>R3.1. Each Generator Operator shall coordinate all new protective systems and all protective system changes with its Transmission Operator and Host Balancing Authority.</p> <ul style="list-style-type: none"> Requirement R3.1 is not applicable to the individual generating units of dispersed power producing resources identified through Inclusion I4 of the Bulk Electric System definition. <p>R3.2. Each Transmission Operator shall coordinate all new protective systems and all protective system changes with neighboring Transmission Operators and Balancing Authorities.</p>	<p>PRC-027-1: <u>Requirements</u> R1 and R2 Note: Applicability changed to GO, TO and DP</p>	<p>R1. Each Transmission Owner, Generator Owner, and Distribution Provider shall establish a process to develop<u>for developing new and revised Protection System settings for its BES Elements, such that the Protection Systems to operate</u> in the intended sequence during Faults. The process shall include:</p> <p>1.1. — 1.1 <u>A method to review and update the information required to develop new or revised Protection System settings.</u> <u>A review of Protection System settings affected by System changes, short-circuit models for the BES Elements under study.</u></p> <p>1.3.2 A review of existing entity designated<u>the developed</u> Protection System settings based on one of the following:</p> <ul style="list-style-type: none"> Periodic Fault current studies: A 15 percent or greater deviation in Fault current (either three phase or phase-to-ground) from an established Fault current baseline for Protection Systems at the bus under study, and evaluated in a time interval not to exceed six calendar years, or Periodic review of Protection System settings: A time interval, not to exceed six calendar years, or A combination of the above.

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		<p>1.4. A quality review of the Protection System settings prior to implementation.</p> <p>1.5.1.3 For new or revised Protection System settings applied on BES Elements that electrically join Facilities owned by separate functional entities, (Transmission Owners, Generator Owners, and Distribution Providers), procedures<u>provisions</u> to:</p> <p>1.5.3.1. Communicate <u>Provide</u> the proposed Protection System settings with the other functional entities to the owner(s) of the electrically-joined Facilities.</p> <p>1.5.3.2. Review <u>Respond to any owner(s) that provided its</u> proposed Protection System settings provided by other functional entities, and respond regarding the proposed settings. The response should identify <u>pursuant to Requirement R1, Part 1.3.1 by identifying</u> any coordination issue(s) or affirm <u>affirming</u> that no coordination issue(s) were identified.</p> <p>1.5.3.3 Verify that any identified coordination issue(s) associated with the proposed Protection System settings for</p>

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		<p>the associated <u>BES</u> Elements are addressed prior to implementation.</p> <p><u>1.3.4 Communicate with the other owner(s) of the electrically-joined Facilities regarding revised Protection System settings resulting from unforeseen circumstances that arise during:</u></p> <p><u>1.3.4.1. Implementation or commissioning.</u></p> <p><u>1.3.4.2. Misoperation investigations.</u></p> <p><u>1.3.4.3. Maintenance activities.</u></p> <p><u>1.3.4.4. Emergency replacements made due to failures of Protection System components.</u></p> <p>R2. Each Transmission Owner, Generator Owner, and Distribution Provider shall implement the, <u>for each BES Element with Protection System functions identified in Attachment A:</u></p> <ul style="list-style-type: none"> <u>• Option 1: Perform a Protection System Coordination Study in a time interval not to exceed six calendar years; or</u> <u>• Option 2: Compare present Fault current values to an established Fault current baseline and perform a Protection System Coordination Study when the comparison identifies a 15 percent or greater deviation in Fault current values (either</u>

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		<p><u>three phase or phase to ground) at a bus to which the Element is connected, all in a time interval not to exceed six calendar years; or</u></p> <ul style="list-style-type: none"> <u>• Option 3: A combination of the above.</u> <p><u>R3. Each Transmission Owner, Generator Owner, and Distribution Provider shall utilize its process established in accordance with Requirement R1 to develop new and revised Protection System settings for BES Elements.</u></p>
<p>R4. Each Transmission Operator shall coordinate Protection Systems on major transmission lines and interconnections with neighboring Generator Operators, Transmission Operators, and Balancing Authorities.</p>	<p>PRC-027-1: <u>Requirements</u> R1 and R2 Note: Applicability changed to GO, TO and DP</p>	<p>R1. Each Transmission Owner, Generator Owner, and Distribution Provider shall establish a process to develop <u>for developing new and revised Protection System settings for its BES Elements, such that the Protection Systems to operate in the intended sequence during Faults. The process shall include:</u></p> <p>1.1. — 1.1 <u>A method to review and update the information required to develop new or revised Protection System settings.</u> <u>A review of Protection System settings affected by System changes, short-circuit models for the BES Elements under study.</u></p> <p>1.3.2 <u>A review of existing entity-designated the developed Protection System settings based on one of the following:</u></p> <ul style="list-style-type: none"> • <u>Periodic Fault current studies: A 15 percent or greater deviation in Fault current (either three phase or phase to</u>

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		<p>ground) from an established Fault current baseline for Protection Systems at the bus under study, and evaluated in a time interval not to exceed six calendar years, or</p> <ul style="list-style-type: none"> • Periodic review of Protection System settings: A time interval, not to exceed six calendar years, or • A combination of the above. <p>1.4. A quality review of the Protection System settings prior to implementation.</p> <p>1.5.1.3 For new or revised Protection System settings applied on BES Elements that electrically join Facilities owned by separate functional entities (Transmission Owners, Generator Owners, and Distribution Providers), procedures provisions to:</p> <p>1.53.1. Communicate Provide the proposed Protection System settings with the other functional entities to the owner(s) of the electrically-joined Facilities.</p> <p>1.53.2. Review Respond to any owner(s) that provided its proposed Protection System settings provided by other functional entities, and respond regarding the proposed settings. The</p>

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		<p>response should identify pursuant to Requirement R1, Part 1.3.1 by identifying any coordination issue(s) or affirm affirming that no coordination issue(s) were identified.</p> <p>1.5-3.3 Verify that any identified coordination issue(s) associated with <u>the</u> proposed Protection System settings for the associated <u>BES</u> Elements are addressed prior to implementation.</p> <p>1.3.4 <u>Communicate with the other owner(s) of the electrically-joined Facilities regarding revised Protection System settings resulting from unforeseen circumstances that arise during:</u></p> <p><u>1.3.4.1. Implementation or commissioning.</u></p> <p><u>1.3.4.2. Misoperation investigations.</u></p> <p><u>1.3.4.3. Maintenance activities.</u></p> <p><u>1.3.4.4. Emergency replacements made due to failures of Protection System components.</u></p> <p>R2. Each Transmission Owner, Generator Owner, and Distribution Provider shall implement the, <u>for each BES Element with Protection System functions identified in Attachment A:</u></p>

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		<ul style="list-style-type: none"> • <u>Option 1: Perform a Protection System Coordination Study in a time interval not to exceed six calendar years; or</u> • <u>Option 2: Compare present Fault current values to an established Fault current baseline and perform a Protection System Coordination Study when the comparison identifies a 15 percent or greater deviation in Fault current values (either three phase or phase to ground) at a bus to which the Element is connected, all in a time interval not to exceed six calendar years; or</u> • <u>Option 3: A combination of the above.</u> <p><u>R3. Each Transmission Owner, Generator Owner, and Distribution Provider shall utilize its process established in accordance with Requirement R1 to develop new and revised Protection System settings for BES Elements.</u></p>
<p>R5. A Generator Operator or Transmission Operator shall coordinate changes in generation, transmission, load or operating conditions that could require changes in the Protection Systems of others:</p> <p>R5.1. Each Generator Operator shall notify its Transmission Operator in advance of changes in generation or operating conditions that could require changes in the Transmission Operator’s Protection Systems.</p>	<p>Being addressed<u>proposed for retirement</u> by Project 2007-06.2 Phase 2: System Protection Coordination</p>	<p>N/A</p>

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<p>R5.2. Each Transmission Operator shall notify neighboring Transmission Operators in advance of changes in generation, transmission, load, or operating conditions that could require changes in the other Transmission Operators' Protection Systems.</p>		
<p>R6. Each Transmission Operator and Balancing Authority shall monitor the status of each Remedial Action Scheme in their area, and shall notify affected Transmission Operators and Balancing Authorities of each change in status.</p>	<p>Being addressed<u>proposed for retirement</u> by Project 2007-06.2 Phase 2: System Protection Coordination</p>	<p>N/A</p>