



# TPL-001-5.1

## Timeline & Status Update

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Reliability Standards & Compliance  
Subcommittee

July 21, 2023

- TPL-001-5.1 became effective 7/1/2023
  - First annual Planning Assessment has been completed in accordance with the standard but without Corrective Action Plans (CAPs) for revised P5
    - PJM 2022 RTEP Baseline Assessment - Updated for TPL-001-5 distributed on 6/29/2023
- Additional 24-month period (7/1/2025) allows time for the development of CAPs for Category P5 planning events involving single points of failure in Protection Systems
- TPL-001-5.1 is fully enforceable by 7/1/2029



# P5 (Single Points of Failure) – Table 1 Planning Events

Category	Initial Condition	Event <sup>1</sup>	Fault Type <sup>2</sup>	BES Level <sup>3</sup>	Interruption of Firm Transmission Service Allowed <sup>4</sup>	Non-Consequential Load Loss Allowed
P5 Multiple Contingency (Fault plus <u>relay non-redundant component of a Protection System</u> failure to operate)	Normal System	Delayed Fault Clearing due to the failure of a non-redundant <u>relay component of a Protection System</u> <sup>13</sup> protecting the Faulted element to operate as designed, for one of the following: 1. Generator 2. Transmission Circuit 3. Transformer <sup>5</sup> 4. Shunt Device <sup>6</sup> 5. Bus Section	SLG	EHV	No <sup>9</sup>	No
				HV	Yes	Yes

13. Applies For purposes of this standard, non-redundant components of a Protection System to the following consider are as follows:

- a. A single protective relay which responds to electrical quantities, without an alternative (which may or may not respond to electrical quantities) that provides comparable Normal Clearing times;
- b. A single communications system associated with protective functions or types: pilot (#85), distance (#21), differential (#87), current (#50, 51), necessary for correct operation of a communication-aided protection scheme required for Normal Clearing (an exception is a single communications system that is both monitored and reported at a Control Center);
- c. A single station dc supply associated with protective functions required for Normal Clearing (an exception is a single station dc supply that is both monitored and reported at a Control Center for both low voltage (#27 & 59), directional (#32, & 67), and tripping (#86, & 94), and open circuit);
- d. A single control circuitry (including auxiliary relays and lockout relays) associated with protective functions, from the dc supply through and including the trip coil(s) of the circuit breakers or other interrupting devices, required for Normal Clearing (the trip coil may be excluded if it is both monitored and reported at a Control Center).

- PJM is working with the Transmission Owners on the identification of CAPs necessary to remediate the identified P5 violations
  - CAPs to be identified by 7/1/2025
  - Elimination of non-redundancy and/or inclusion of monitoring & reporting where applicable
- Future series RTEP builds will be TPL-001-5.1 compliant

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Version No.	Date	Description
1	7/17/2023	<ul style="list-style-type: none"><li>• Original slides posted</li></ul>

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