



**High Level Implementation plan concepts – all of the below is open for discussion;**

The purpose of this implementation plan is to allow stakeholders sufficient time to properly plan, allocate resources, and execute **new PJM primary frequency response (PFR) requirements**. This suggested plan takes advantage of current stakeholder resources allocated to comply with NERC Reliability Standard MOD-027-1. MOD-027-1 allows for a phased-in approach to “verify that the turbine/governor and load control or active power/frequency control model and the model parameters, used in dynamic simulations that assess Bulk Electric System (BES) reliability, accurately represent generator unit real power response to system frequency variations.”<sup>[1]</sup> The tests performed to meet the MOD-027-1 Requirements also allow PJM stakeholders to determine current deadband and droop settings on generating resources, in some cases being the only methodology to determine these settings. As outlined below a phased-in approach appears to be the optimal method of balancing stakeholder concerns and achieving reliability.

Examples of NERC phased-in implementation plans;

[MOD-027-1A](#) effective 7/1/14 with a [phased-in implementation process](#) through 2024

[BAL-001-TRE-1](#) effective 4/1/14 with a [phased-in implementation process](#) up to 30 months after the effective date

- as resources may need to verify deadband settings through use of specific vendor resources (these are limited industry vendors), and
- Some existing resources (i.e. Solar/Wind) that were never required to provide frequency response will have to make software upgrades, equipment upgrades, allow for budgeting of these expenses to occur, and accommodate outage scheduling.

When NERC recommended settings are updated to become required generator governor settings, PJM should consider allowing resources with existing phased-in plans to comply with requirements in MOD-027 to follow that established schedule to perform testing and model validation prior to making any changes to governor settings (testing in MOD-027 will verify and in some cases, provide the current deadband setting).

For resources not required to comply with MOD-027, they would need a similar implementation plan/schedule/timeframe to make necessary changes to accommodate the required settings.

**If the MOD-027 implementation process is not favored, resources will still need a phased-in implementation plan to meet these new requirements.**

**Exemption process;** One example of a technical limitation; there are mechanical controls that have no physical deadband setting and there is no physical way to set a specific deadband value

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<sup>[1]</sup> MOD-027-1 Purpose statement