

Below is a high-level summary of the different packages currently offered at the Primary Frequency Response Sr. Task Force. It is assumed that all packages have a primary frequency response requirement on all new units as per FERC Order 842. Please note that the summary description of the package does not include all details of that package. The intended purpose is to provide a high-level overview and highlight any key differences. Please see matrix for details of each package.

**PJM proposal (Package A):**

The PJM package would require existing units greater than 20 MW (with an exception process) to have PFR capability, contains a one-time capital recovery method and performance measurement to ensure capability 24 months from approved OATT and Manual requirements. Exception process for resources needing longer time to implement. PJM staff will provide quarterly updates to Operating Committee on PFR performance and trends. PJM staff will continue to follow industry and regulatory developments in PFR and bring forward a new problem statement if PFR performance significantly declines or opportunities to develop a PFR market solution become viable.

**IMM proposal (Package B):**

The IMM package would require existing units greater than 10 MW (with an exception process) to have PFR capability. The IMM agrees with the proposed PJM exception document with the exception of resource size. The IMM position is that the obligation to provide primary frequency response service should apply to all existing resources in order to prevent a competitive advantage to existing resources in PJM's markets. The IMM position is that the costs of PFR are already reflected as a cost of doing business in PJM markets. No additional compensation is required for existing resources because PJM's capacity and energy markets already provide the opportunity for compensation and recovery of costs associated with the installation, maintenance and operation of primary frequency response capability. The IMM position is that providing additional, out of market compensation to existing resources to recover costs associated with PFR is not only unnecessary, it would create an unfair competitive advantage to existing resources.

**Calpine proposal (Package E):**

The Calpine package applies PFR capability requirements on existing units that increase their unit capability via a modified interconnection agreement under a restoration scenario. Existing resources providing PFR are encouraged to continue to do so. This package offers a purchase of service option in both the up and downward directions. Units or their identified third party supplier(s) will provide annual confirmation on the ability to provide primary frequency response and dynamic reserves. Performance measurement will be based on frequency deviations of 120 consecutive seconds or more to ensure capability with reevaluation of the requirements if the system wide aggregated real-time response reduces by 10% or greater. DER resources with an ISA or WMPA after October 1, 2018 will be obligated to provide an upward primary frequency response. Resources will be exempt from performance assessment interval performance when PFR is for a downward response. Upon FERC acceptance of appropriate tariff, or other PJM language, Stakeholders will reconvene if the PJM system-wide aggregate amount of "up-direction" PFR reduces by 10% or greater. This would indicate those that were providing are no longer providing.