

7.1 Dispatching of Generation

7.1.1 Generator Real-Power Control

The Generator must deliver the electric energy generated by the facility to PJM at the point(s) of interconnection in the form of 3 phase, 60-Hertz alternating current at the nominal system voltage at the point of interconnection.

Generators and their protective systems (relaying, V/Hz, etc.) should meet the frequency guidelines listed in PJM Manual M-36, System Restoration, section 2.3, to coordinate with system preservation under-frequency load shedding. Additionally, generators and their protective systems should be capable of operation at over-frequency up to 61.7 Hz for a limited duration. Refer to NERC Reliability Standard PRC-024, Generator Frequency and Voltage Protective Relay Settings.

At no time shall the operation of the generating facility, including the associated generators or any of their auxiliary devices, result in an electrical output in which harmonic distortion exceeds the recommended limits contained in IEEE Standard 519, which defines voltage waveform and harmonic content.

~~All generators, including pseudo tied or dynamically scheduled generating resources, should operate on unrestricted governor (or equivalent electronic speed control device) control to assist in maintaining interconnection frequency, except for the period immediately before being removed from service and immediately after being placed in service.~~

Governor outages [for all generation resources](#) during periods of operations must be kept to a minimum. If a governor or equivalent electronic speed control device for any unit, regardless of resource type, is out of service or unable to react to a change in system frequency, it must be immediately reported to PJM via eDART as a governor outage. When a generator governor is not available, the unit output should not fluctuate from pre-scheduled output unless otherwise directed.

~~All generators, excluding generators that entered the PJM generation queue after 10/1/2018, including pseudo tied or dynamically scheduled [generating-generation resources](#), should operate on unrestricted governor (or equivalent electronic speed control device) control to assist in maintaining interconnection frequency, except for the period immediately before being removed from service and immediately after being placed in service.~~

All generators that entered the PJM generation queue after 10/1/2018, must operate on unrestricted governor (or equivalent electronic speed control device) control to assist in maintaining interconnection frequency, except for the period immediately before being removed from service and immediately after being placed in service. Governor response to changes in system frequency, high and low, outside the governor deadband, will be evaluated for compliance based on criteria outlined in PJM Manual 12 – Balancing Operations.

NOTE: The performance of all generation resources operating at the time of a high/low frequency event is evaluated by PJM. All generation resources should provide governor response, however, those that entered the PJM generation queue after 10/1/2018 are obligated to have frequency response capability, and are evaluated based on the performance criteria in Manual 12 – Balancing Operations.

With exception of nuclear generators, all generating-generation resources ~~with gross plant/facility aggregate nameplate rating greater than 75 MVA~~ are requested, and all generating-generation -resources that entered the PJM generation queue after 10/1/2018 are required, -to ensure that, -in the absence -of technical or operational considerations, the generator governor (or equivalent electronic speed control device) and Distributed Control System (DCS) settings provide dead bands that do not exceed +/- 36 mHz, and droop settings that do not exceed 5%. Should a generating resource be unable to meet these criteria, the generating resource's actual settings and reasons for being unable to meet these criteria shall be forwarded to PJM. System conditions permitting, Generators must respond immediately to a PJM request directing a change in generation output and must proceed at a rate which is within 2% of the generator's stated ramp-rate, until the prescribed output is reached.