

Appendix D

Black Start Generating Units

The following requirements must be met by Black Start Generating Units:

- (a) Black Start Generating Units must be capable of starting and paralleling with the CAISO Controlled Grid without aid from the CAISO Controlled Grid;
- (b) Black Start Generating Units must be capable of making a minimum number of starts per event (to be without aid from the CAISO Controlled Grid as determined by the CAISO);
- (c) Black Start Generating Units must be equipped with governors capable of operating in the stand alone (asynchronous) and parallel (synchronous) modes.
- (d) Black Start Generating Units must have Start-Up load pickup capabilities at a level to be determined by the CAISO, including total Start-Up load (MW) and largest Start-Up load (MW) for such power output levels as the CAISO may specify. Each Black Start Generating Unit must be able to start up with a dead primary and station service bus within ten (10) minutes of issuance of an Exceptional Dispatch by the CAISO requiring a Black Start. Each Black Start Generating Unit must be capable of sustaining its output for a minimum period of twelve (12) hours from the time when it first starts delivering Energy. Black Start Agreements may specify a different minimum period.
- (e) All Black Start Generating Units must be capable of producing reactive Power (boost) and absorbing reactive Power (buck) as required by the CAISO to control system voltages. Each Black Start Generating Unit must provide sufficient reactive capability to keep the energized transmission bus voltages within emergency Voltage Limits over the range of no load to full load. This requirement may be met by the operation of more than one Black Start Generating Unit in parallel providing that:
 - (i) the Black Start Generation supplier demonstrates that the proposed Generation resource shares reactive burden equitably;
 - (ii) all Participating Generators associated with the proposed Black Start source are located in the same general area.

Buck/boost capability requirement shall be dependent on the location of the proposed resource in relation to Black Start load.

- (f) All Black Start Generating Units must have the following communication/control requirements:
 - (i) dial-up telephone;
 - (ii) backup radio;
 - (iii) manning levels which accord with Good Utility Practice.
 - (iv) Each Black Start Generator must ensure that normal and emergency voice communications are available to permit effective Exceptional Dispatch of Black Start Generating Units.
- (g) The Scheduling Coordinator for the Black Start Generating Unit shall not use the Black Start Generating Unit to serve any Load other than station service Load required by the Black Start Generating Unit until the CAISO has confirmed that the need for such Black Start service has

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Fifth Replacement Tariff

passed.

- (h) Black Start Generating Units must pass performance tests for demonstrating Black Start capability, which the CAISO may periodically undertake in accordance with the CAISO's Operating Procedures for Black Start testing.
- (i) All Black Start Generating Units will comply with Applicable Reliability Criteria.