



Black start service supplies electricity for system restoration in the unlikely event that the entire PJM Interconnection grid loses power, or if a part of the grid loses power and is unable to connect to the rest of the system.

### **What Are Black Start Units?**

Black start service is provided by strategically located generating units that are equipped to start up and deliver electricity to the grid without an outside source of power, or are capable of remaining in operation at reduced output levels when disconnected from the grid.

Black start units must be able to reconnect to the grid within three hours or less following a PJM request. They also must be capable of maintaining frequency and voltage under varying loads.

Hydropower, simple-cycle combustion turbines and combined-cycle units constitute the majority of PJM's black start resources.

A unit designated under the PJM Open Access Transmission Tariff as a black start unit must annually pass a series of performance tests to verify black start capability. Owners of black start units are compensated monthly for providing this service to the grid.

### **How Black Start Helps Re-Energize the Grid**

In a system restoration, black start units help re-establish the flow of electricity. When connected, they supply start-up power to other generating units and help restore service to critical load. In the context of black start, critical load is defined as additional generators that can help bring up pockets of load that can then be connected together to restore the entire system. Other categories of critical load include nuclear power plants (so that they are able to shut down safely) or equipment that supports natural gas infrastructure.

The black start process is careful and deliberate, keeping generation in balance with load in order to avoid the possibility of system volatility and subsequent service loss. PJM conducts annual drills with its transmission and generation owners to simulate this critical restoration process.

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#### **At a Glance**

- Black start service is used to help re-energize the grid in the unlikely event of a system-wide outage, or if a part of the grid loses power and is unable to connect to the rest of the system.
- Black start units can start up and deliver electricity to the grid without an outside source of power or remain running when disconnected from the grid. One example is hydropower.
- Owners of black start units are compensated for providing this service.

