

2.3.2 Real-Time Emergency Procedures (Warnings and Actions)

All warning and actions are issued in real-time. Warnings are issued during present operations to inform members of actual capacity shortages or contingencies that may jeopardize the reliable operation of the PJM RTO. Disturbance control actions per NERC standard BAL-002 are described in PJM Manual 12, “Balancing Operations” section 4, “Providing Ancillary Services”. Generally, a warning precedes an associated action. The intent of warnings is to keep all affected system personnel aware of the forecast and/or actual status of the PJM RTO.

The PJM RTO is normally loaded according to bid prices; however, during periods of reserve deficiencies, other measures must be taken to maintain system reliability. These measures involve:

- loading generation that is restricted for reasons other than cost
- recalling non-capacity backed off-system sales
- purchasing emergency energy from participants / surrounding pools
- load relief measures

Due to system conditions and the time required to obtain results, PJM dispatcher may find it necessary to vary the order of application to achieve the best overall system reliability. Issuance and cancellation of emergency procedures are broadcast over the “ALL-CALL” and posted to selected PJM web-sites. Only affected systems take action. PJM dispatcher broadcasts the current and projected PJM RTO status periodically using the “ALL-CALL” during the extent of the implementation of the emergency procedures.

Note: The Real-Time Emergency Procedures section combines Warnings and Actions in their most probable sequence based on notification requirements during extreme peak conditions. Depending on the severity of the capacity deficiency, it is unlikely that some Steps would be implemented. Attachment G, entitled Capacity Emergency Matrix, is a tabular summary of PJM and Member Company Actions during Real-time Emergency Procedures.

Step 1: Emergency Mandatory Load Management Reductions (Long Lead Time)

Applicability: Any site registered in the PJM Demand Response program as a capacity resource of either interruptible load for reliability (a.k.a. ILR) or demand resource (a.k.a. DR) type that needs between 1 to 2 hours lead time to make its reductions. These reductions are mandatory.

The purpose of the Load Management Reductions is to provide additional load relief by using PJM controllable load management programs. Load relief is expected to be required after initiating Maximum Emergency Generation.

PJM Actions:

- PJM dispatcher notifies PJM management, PJM public information personnel, and members. PJM dispatcher advises members to consider the use of public appeals to conserve electricity usage. PJM dispatcher notifies other Control Areas through the RCIS.

- PJM dispatcher, via the PJM All Call and other available electronic communication described in Manual 1, requests Curtailment Service Providers (CSP) to implement Emergency Mandatory Load Management Reductions (Long Lead Time). An Action can be issued for the entire PJM RTO, specific Transmission Zone(s) or Transmission Subzone(s) if transmission limitations exist.
- PJM dispatcher issues a NERC Energy Emergency Alert Level 2 (EEA2 = ALERT LEVEL 2) via the RCIS to ensure all Reliability Authorities clearly understand potential and actual PJM system emergencies if one has not already been issued concurrent with the issuance of Emergency Mandatory Load Management Reductions. NERC EEA2 is issued when the following has occurred: Public appeals to reduce demand, voltage reduction, and interruption of non-firm load in accordance with applicable contracts, demand side management, or utility load conservation measures.
- PJM dispatcher cancels, when appropriate.

PJM Member Actions:

- Member Curtailment Service Providers implement load management reductions as requested by PJM dispatchers.
- Member dispatchers notify management of the emergency procedure and that they should consider the use of public appeals to conserve electricity usage.
- Member dispatchers notify governmental agencies, as applicable.

Step 2: Emergency Mandatory Load Management Reductions (Short Lead Time)

Applicability: Any site registered in the PJM Demand Response program as a capacity resource of either interruptible load for reliability (a.k.a. ILR) or demand resource (a.k.a. DR) type that needs up to 1 hour lead time to make its reductions. These reductions are mandatory.

PJM Actions:

- PJM dispatcher notifies PJM management, PJM public information personnel, and members. PJM dispatcher advises members to consider the use of public appeals to conserve electricity usage. PJM dispatcher notifies other Control Areas through the RCIS.
- PJM dispatcher requests, via the PJM All Call and other available electronic communication described in Manual 1, Curtailment Service Providers to implement Emergency Mandatory Load Management Reductions (Short Lead Time). An Action can be issued for the entire PJM RTO, specific Transmission Zone(s) or Transmission Sub-Zone(s) if transmission limitations exist.
- PJM dispatcher issues a NERC Energy Emergency Alert Level 2 (EEA2 = ALERT LEVEL 2) via the RCIS to ensure all Reliability Authorities clearly understand potential and actual PJM system emergencies if one has not already been issued concurrent with the issuance of Emergency Mandatory Load Management Reductions (Short Lead Time). NERC EEA2 is issued when the following has occurred: Public appeals to reduce demand, voltage reduction, and interruption of

non-firm load in accordance with applicable contracts, demand side management, or utility load conservation measures.

- PJM dispatcher cancels, when appropriate.

PJM Member Actions:

- Member Curtailment Service Providers implement load management reductions, as requested by PJM dispatchers.
- Member dispatchers notify their management of the emergency procedure and that they should consider the use of public appeals to conserve electricity usage.
- Member dispatchers notify governmental agencies, as applicable.

Note 1: Load management programs, whether under PJM control and directed by PJM dispatcher or solely under the Local Control Center's direction, have various names including, but not limited to Active Load Management, interruptibles, curtailables, or load management. To simplify operations during these emergency situations, all mandatory PJM issued reductions are referred to as Emergency Mandatory Load Management Reductions.

Note 2: PJM RTO Load Management Reductions are not to be used to provide assistance to adjacent Control Areas beyond PJM. Restoration of Load Management Reductions is undertaken in a stepped approach, as necessary. PJM Control Zones implement Emergency Procedures concurrently until a Manual Load Dump Action, which will only occur in the deficient Control Area.

Note 3: Load management reductions can be issued system-wide or by Control Zone, depending on current / projected system constraints.

NOTE 4: Emergency Mandatory Load Management Reductions are available for Limited, Extended Summer and Annual Demand Resources as defined in the RAA.

Note 5, EEA Levels: PJM dispatcher issue a NERC Energy Emergency Alert Level 2 (EEA2 = ALERT LEVEL 2) via the Reliability Coordinator Information System (RCIS) to ensure all Reliability Authorities clearly understand potential and actual PJM system emergencies if one has not already been issued concurrent with the issuance of Emergency Mandatory Load Management Reductions. NERC EEA2 is issued when the following has occurred: Public appeals to reduce demand, voltage reduction, interruption of non-firm load in accordance with applicable contracts, demand side management/active load management, or utility load conservation measures.

Note 6, Demand Resource Curtailment: If PJM needs to dispatch Demand Resources (DR) during the Limited DR availability Period then PJM will dispatch all DR products simultaneously unless all products have been dispatched frequently during the current delivery year. Frequent dispatch of DR during the delivery year is defined as:

- 2 times prior to July 1st
- 4 times prior to August 1st

- 7 times prior to September 1st

Should PJM frequently dispatch DR during a delivery based on the criteria above PJM may elect to dispatch only the Extended Summer and Annual DR, to preserve Limited DR for the remainder of the delivery year.

Step 3 (Real-time): Primary Reserve Warning

The purpose of the Primary Reserve Warning is to warn members that the available primary reserve is less than required and present operations are becoming critical. It is implemented when available primary reserve capacity is less than the primary reserve requirement, but greater than the synchronized reserve requirement.

PJM Actions:

- PJM dispatcher issues a warning to members and PJM management stating the amount of adjusted primary reserve capacity and the requirement. A Warning can be issued for the entire PJM RTO or for specific Control Zone(s) based on the projected location of transmission constraints.
- PJM dispatcher notifies PJM public information personnel.
- PJM dispatcher rechecks with members to assure that all available equipment is scheduled and that requested secondary reserve is brought to primary reserve status.
- PJM dispatcher ensures that all deferrable maintenance or testing on the control and communications systems has halted at PJM Control Center. PJM dispatcher should provide as much advance notification as possible to ensure maintenance/testing does not impact operations. This notification may occur prior to declaration of Primary Reserve Warning.
- PJM dispatcher will obtain a temporary variance from environmental regulators for specific generators to assist in preventing load shedding in accordance with Attachment N.
- PJM dispatcher cancels the warning, when appropriate.

PJM Member Actions:

- Transmission / Generation dispatchers notify management of the warning.
- Transmission / Generation dispatchers advise all stations and key personnel.
- Generation dispatchers prepare to load all available primary reserve, if requested.
- Transmission / Generation dispatchers ensure that all deferrable maintenance or testing affecting capacity or critical transmission is halted. Any monitoring or control maintenance work that may impact operation of the system is halted.
- PJM marketers remain on heightened awareness regarding PJM system conditions and the potential need for Emergency Energy Purchases.