

Operations Contingency / Outage Impacts

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Q: *Would the installation and use of a DLR system require PJM / TOs to update their list of active monitored contingencies?*

A: PJM contingency analysis monitors the contingent loss of all facilities with potential impact to BES and/or PJM congestion management facilities, including any BES facilities proposed for DLR implementation.

- Active monitored contingencies only change from 'Active' to 'Inactive' when a change to clearing is anticipated/projected and are not associated with any ratings changes.
- DLR will not have any impact to the clearing of associated equipment/facilities.
- DLR will only impact the ratings on the associated facility utilized for protecting the facility in both actual (n-0) or contingency (n-1) situations.

Note: PJM cannot speak for all TOs EMS contingency analysis packages.

Q: *If a DLR system increases a facility limit, might that move or delay the occurrence of congestion associated with a contingency scenario?*

A: Yes.

- DLR, or any uprate, upon a given facility A, can delay the occurrence of congestion on A for the loss of B (A I/o B).
- DLR, or any uprate, upon a given facility A, can also have the effect of moving congestion from A I/o B to congestion on C I/o D; Or, C I/o B; Or, C I/o A.
- The impact could be either (1) a marginal improvement for any contingency pair trending just behind A I/o B by a few MVA, or (2) drastic and potentially eliminate the trend entirely, depending on the facility, load, and system topology.
- Similar impacts can be seen within temperature set changes for AAR and constraint mitigation techniques such as redispatch & topology control (switching solutions).

Q: *Would a DLR implementation require additional information to be provided by the TO for expected weather conditions?*

A: Forecasted ratings will be required for proactive mitigation and situational awareness.

- In addition to real-time ratings, TOs with DLR will be required to telemeter forecasted ratings for the next 1hr (t+1hr) and 4hr (t+4hr) time period.
- TOs will be required to send forecasted hourly ratings for the next 38-48 hours for use in Day Ahead cases.
 - This information will be utilized in PJM Operational Planning Assessment studies and Day Ahead Market cases.
 - Forecasted information will be required prior to running the Day Ahead Market case.

Note: Expected conditions are embedded within the ratings themselves, and is associated with the timeframe for their use. Unless requested, PJM does not require the specific inputs for the DLR calculations any more than it does for AAR.

Q: *How will the process work to ensure that transmission owner(s) and PJM Day Ahead and Real-time analysis are aligned related to DLR?*

A: Forecasted DLR limits will be required and utilized within Day Ahead projections. Real-time DLR limits will be required and utilized within Real-time.

- Unless incorporated within the TO's rating methodology, Day Ahead rating forecasts would not be an input to or a substitute for Real-time DLR limits.
- They would be aligned in accordance with their use of DLR-derived ratings, but vary based upon change in accuracy associated with forecasted weather conditions versus having the benefit of actual field measurements.

Q: *How will the implementation of DLR impact the transmission outage submittal, scheduling, and approval processes, both for outages that are submitted on time and outages that are late?*

A: PJM does not foresee any substantive changes with respect to transmission outage coordination processes due to DLR implementation, regardless of on time status.

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Note: PJM does not derive System Operating Limits & equipment ratings beyond stability/IROL. PJM utilizes the ratings provided by its member facility/equipment owners in determining SOL for equipment-based thermal and voltage limitations.

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A: [Continued from Previous Slide]

- If a given facility with DLR is the subject of the transmission outage AND *out of service*, then its rating would be irrelevant.
- If a given facility with DLR is the subject of the transmission outage AND *in-service*, then any ratings impacts should be noted by the owner (as today with non-DLR) and an eDART: TERM ticket (temporary or new default) updated where appropriate.
- If a given facility with *in-service* DLR is *impacted by another* electrically close (non-distant) transmission outaged facility (with or without DLR), PJM's expectation would be that DLR ratings would not be directly impacted beyond any DLR calculations which include flow upon the DLR facility. Such impact/evaluation needs to be factored into the TO's ratings methodology/calculations.

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