

A decorative graphic consisting of several thin, overlapping, wavy lines in shades of grey and white, positioned at the top of the slide.

# Winter Ops Lessons Learned Load Shed Procedures

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- Review existing processes and procedures related to load shedding including:
  - Processes and procedures for rotating load shed
  - Amount of load shed available before rotating becomes impractical
  - Critical load including gas pipeline system load and other cross sector dependent load
- Update M-13 as needed
- The slides that follow summarize the responses we have received to date

# Processes and Procedures for Rotating Load Shed

- Is the process automated or manual? Please describe
  - Many clarified their responses were for load shed due to capacity emergency or IROL violation – not a PCLLRW where the load that needs to be shed is to relieve a specific element
  - Many companies responded that they have automated processes to implement the load shed once the load shed directive has been issued by PJM
  - For the most part for those with automated processes a dispatcher enters a desired amount of load to be interrupted and the tool executes the load shed
  - In many cases the load shed needs to be coordinated to varying degrees with distribution system operators (DSO)
  - Some companies responded that they have a manual process
  - On a MW basis the vast majority of the load shed capability in PJM is executed through an automated process

## Processes and Procedures for Rotating Load Shed

- How is the process coordinated with the Distribution System Operator(s) (DSO)?
  - Some responded that the question was not applicable as the transmission and distribution are done from the same control room
  - Others noted there was coordination with the DSO
    - Notification
    - Disable distribution automation schemes that automatically restore load
    - DSO has the capability to remove circuits from load shed schemes based on system conditions
    - DSO implements manual load shed at TSO direction

## Processes and Procedures for Rotating Load Shed

- How is load shed in municipal utilities and coops implemented?
  - Some TO zones have municipal utility and coop load split out and load shed is implemented by those entities
  - Some responded that municipal utility and coop load would not initially be shed for capacity driven events.
    - Any requests to shed muni/coop load would be delivered via verbal operating instructions (i.e. for PCLLRWs)
  - Some indicated it was not applicable to their system
  - A couple responses indicated muni/coop load would be shed when the associated distribution circuit was shed

## Processes and Procedures for Rotating Load Shed

- For load shed due to capacity emergencies would you rotate the load that is shed?
  - Is the duration for each block specified or adjustable?
  - If the duration is adjustable does it vary and if so why (i.e. seasonally)?
- Response Summary
  - All but two entities indicated they would rotate the load that was shed
  - For the entities that would rotate blocks of load shed, the duration is adjustable
  - Most durations ranged between 30 minutes and one hour. The shortest was two minutes
  - One entity indicated the duration is adjusted in the winter due to cold load pickup concerns

- Do your load shed procedures avoid shedding critical load?
  - Everyone responded that they avoid shedding critical load
- How is “critical load” defined for purposes of load shed?
  - Critical load includes:
    - Essential health and public safety facilities such as hospitals, police and fire facilities, 911 facilities, wastewater treatment facilities, emergency management facilities
    - Power delivery facilities such as off-site power to generating stations and substation L&P
    - Major transportation facilities such as airports and rail stations
    - Military facilities

- Are gas pipeline, production or processing facilities considered “critical load” in your load shed procedures?
  - Responses varied.
  - Some said they were considered critical load, others indicated they were not, some said they didn’t have any in their zone.
  - One company indicated they are working to enhance their processes to identify critical loads that include gas pipeline and production facilities

- How are “critical loads” reviewed / updated with respect to load shed procedures?
  - All companies that exclude “critical loads” from their load shed procedures have processes in place to update the list of circuits included in their load shed plans to avoid shedding critical load
  - Most entities reported that the lists are reviewed annually

## Attachment F of M-13 Emergency Operations

- What is the amount of load shed in each zone where it may become impractical or impossible to rotate outages during load shed events?
  - Answers varied.
  - The answers ranged from there was no upper limit to various lesser percentages of total load shed capability (i.e. 95% down to approximately 40%)

- Member load shed plans should:
  - Consider/recognize priority/critical load including:
    - Essential health and public safety facilities such as hospitals, police and fire facilities, 911 facilities, wastewater treatment facilities
    - Facilities providing electric service to facilities associated with the bulk electric system including off-site power to generating stations, substation light and power
    - Critical gas infrastructure used to supply gas pipeline pumping plants, processing and production facilities.
    - Telecommunication facilities
  - Plans should be reviewed and updated at least annually including Attachment F of M-13.
  - Consider using automated programs in member EMS to facilitate shedding the specified amount of load within the required timeline.
  - Coordinate with distribution system operators where applicable
  - Rotate load that is shed when feasible to reduce the impact to end use customers

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**Winter Operations – Lessons Learned  
 Load Shed Survey**



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