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Demand Response and Performance Based Accreditation Overview

NPPD Board of Directors
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Nebraska Public Power District
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Objective

- To share with the Board a high-level overview of two key changes likely to impact NPPD's Resource Adequacy Requirements in the near future:
  - Performance Based Accreditation (PBA)
  - Demand Response (DR)

- To share examples of the potential implications of PBA and DR on NPPD's existing conventional units and flexible customer loads

- Answer questions the Board may have regarding these changes

Resource Adequacy

- Resource Adequacy (RA) - A regulatory requirement developed to ensure that there will be sufficient resources available to serve electric demand under all but the most extreme conditions.
- Resource Adequacy Requirement (RAR) – It is equal to the Load Responsible Entity's (LRE) (such as NPPD) Net Peak Demand plus a Planning Reserve Margin.
- Planning Reserve Margin (PRM) – A percentage of the Load Responsible Entity's peak load in the Southwest Power Pool (SPP) and is used to ensure there are adequate resources to meet forecasted load over time. The PRM in SPP is set to increase in the summer of 2026 (as part of a Revision Request subject to FERC approval).
  - Summer – 15% going to 16%
  - Winter – 15% going to 36%

FERC = Federal Energy Regulatory Commission

Performance Based Accreditation

Performance Based Accreditation (PBA)

- SPP's current methodology for accrediting conventional resources (such as Cooper Nuclear Station or Canaday Station) is based on capability and operational testing to establish accreditation
- SPP is moving to PBA for conventional resources beginning Summer 2026 as part of determining Resource Adequacy requirements
- PBA will further adjust a resource's tested capability to reflect the historical performance of the resource when called upon during periods of demand during defined Resource Adequacy seasons (currently Summer & Winter)
- Authorized Planned and Maintenance outages for resources during those seasons will not affect resource accreditation, but Forced outages will reduce resource accreditation
- Example: A Forced outage caused by tube leak at a thermal generator during the Summer or Winter Season will reduce accreditation to that resource

Determining Forced Outage Impacts on Performance Based Accreditation (PBA)

- SPP will utilize outage data to determine a key metric called EFORd (Equivalent Forced Outage Rate on demand)
- This outage rate will be used to establish Accredited Capacity based on the resource's performance over time
  - Seasonal – unique accreditation values for Summer vs. Winter
  - Will use a 7-year average of available data in calculations
- Winter Season will also adjust for a unit's Equivalent Forced Outage Factor (EFOF) for fuel-related Forced Outages as part of SPP's new Fuel Assurance Policy
- SPP will publish class averages for performance-based metrics
- NPPD will be able to determine if resources are performing better or worse than average

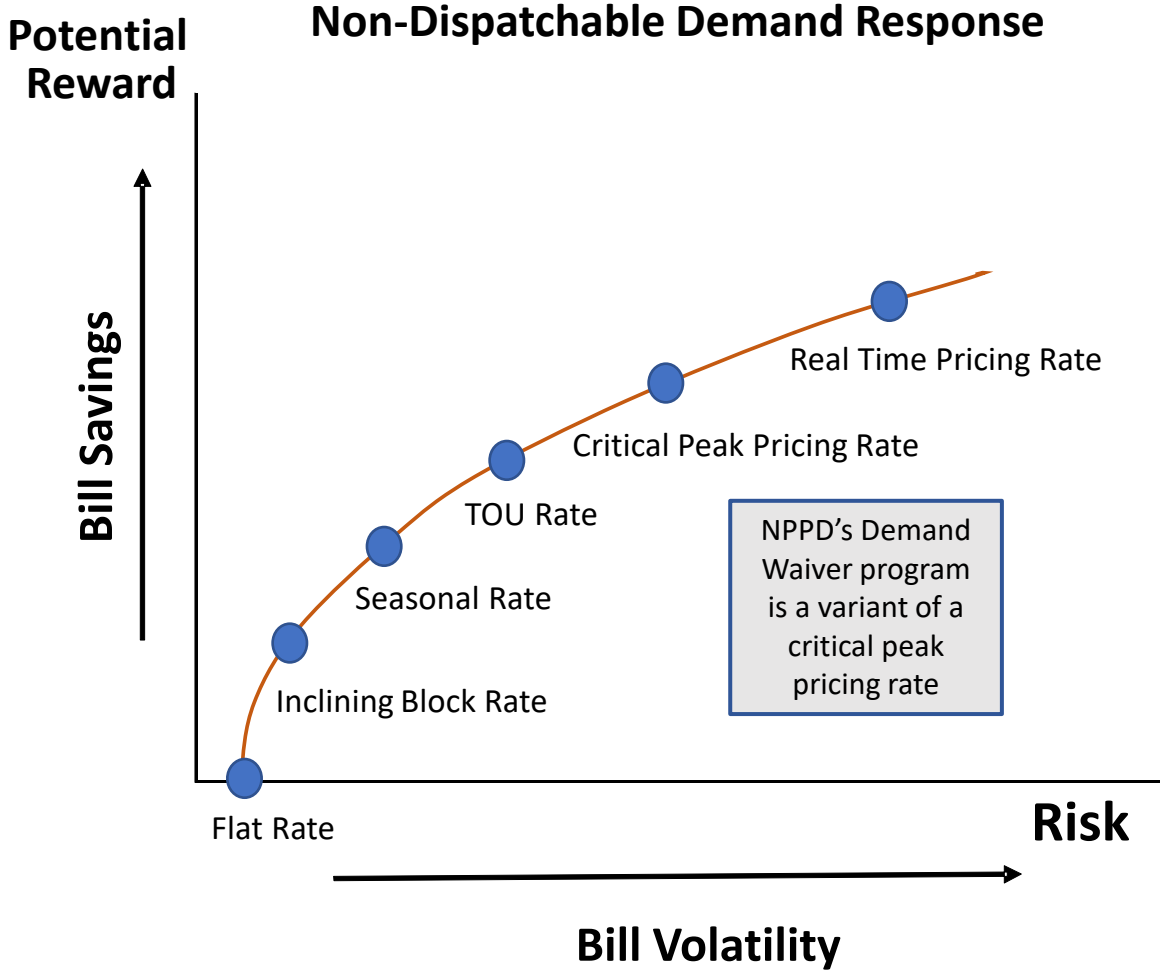
Demand Response

Demand Response

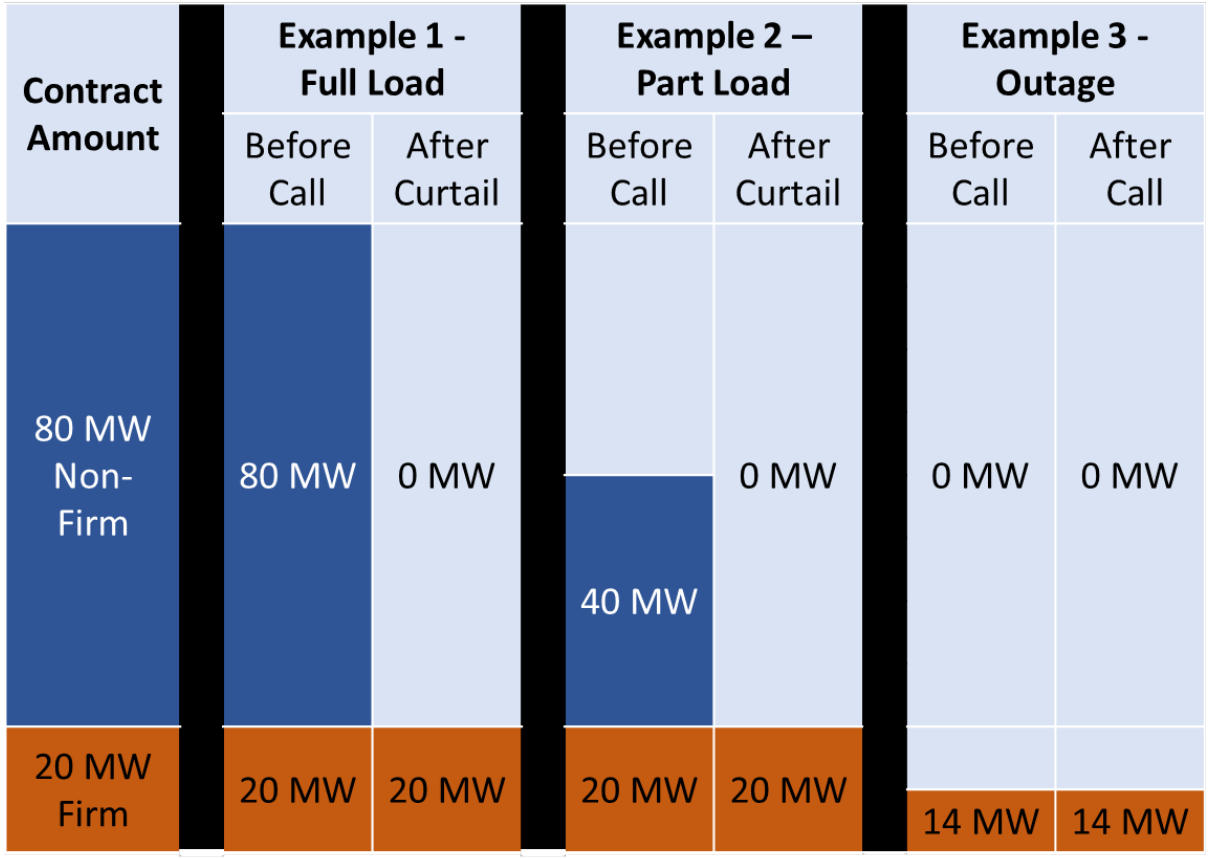
- Demand response (DR) programs result in customers reducing electric consumption (demand) during peak periods and/or shifting consumption to periods of lower system demand
- DR programs typically involve price signals or other economic incentives to change consumer behavior in order to reduce demand on the grid, improve reliability, and lower overall system costs
- DR programs can be either non-controllable/non-dispatchable (consumer determines the response) or controllable/dispatchable (utility or RTO/ISO determines)

What Rate Designs Constitute a "Demand Response Program"?

Examples of Non-Controllable / Non-Dispatchable Demand Response



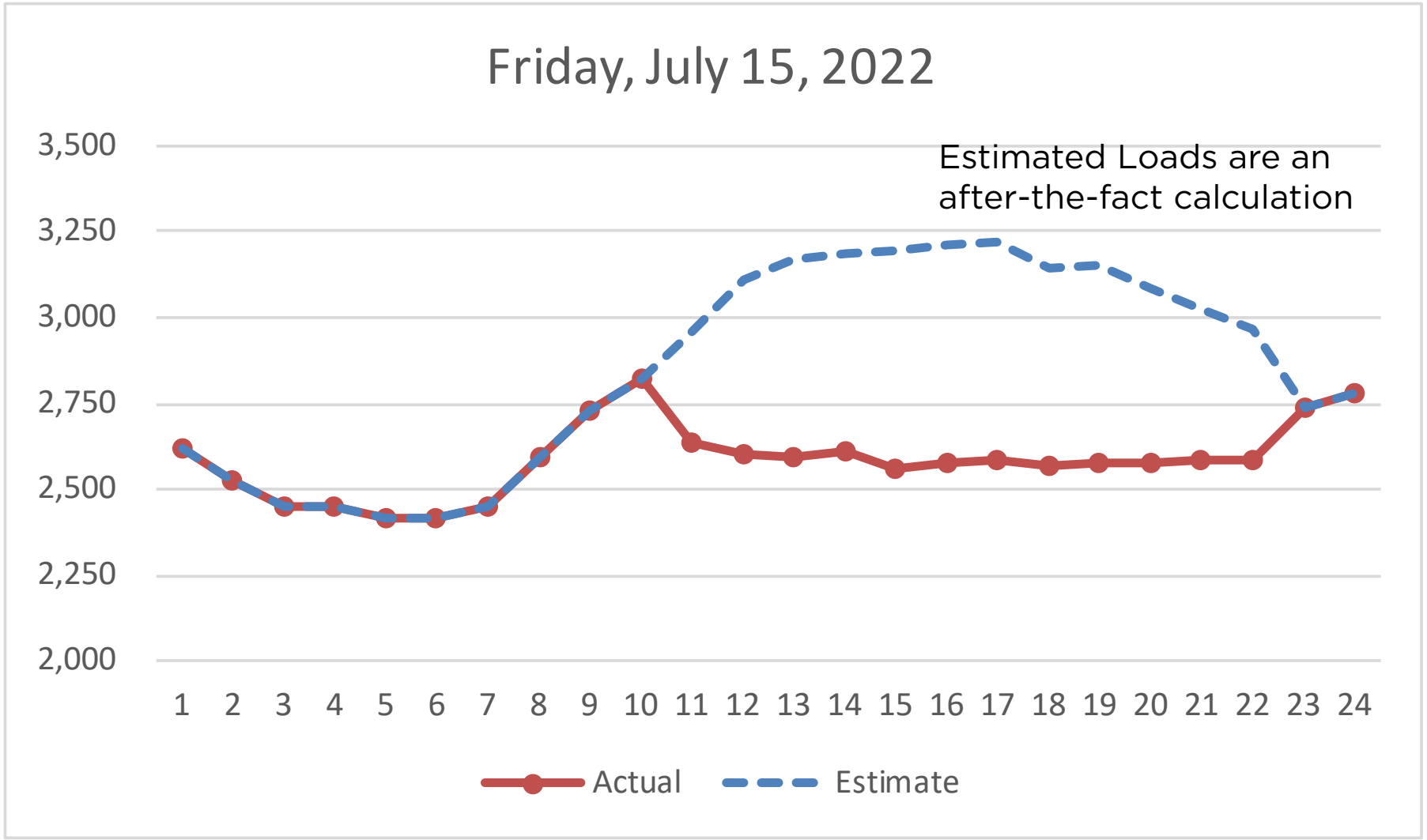
Special Power Product #8 (Interruptible Rate)
Controllable and Dispatchable Demand Response



NPPD's Demand Waiver Program

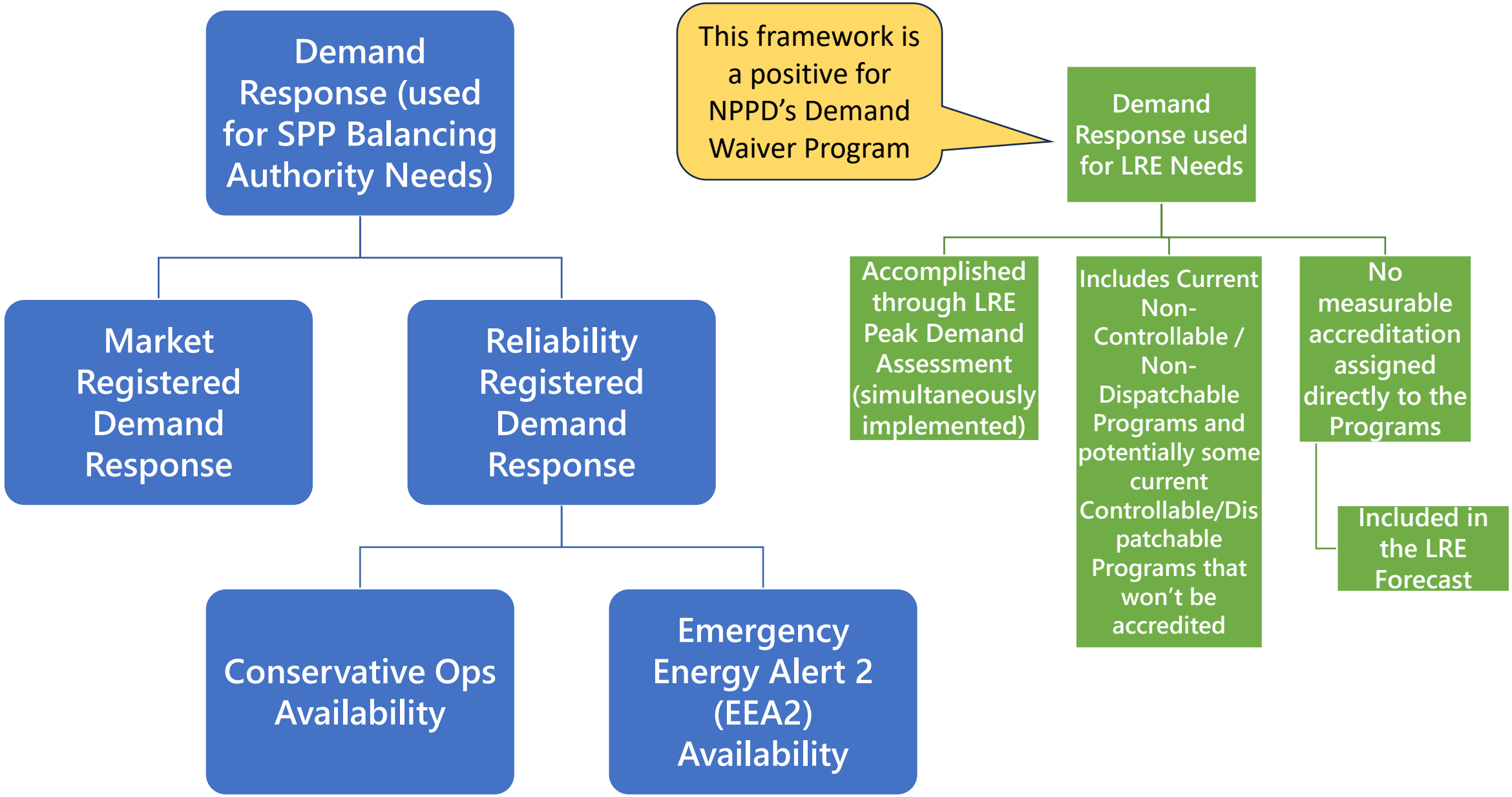
- NPPD has a Demand Waiver Program (DWP) that has been in place since 1982: over 40 years of experience and history in determining and forecasting the impact of the DWP on our load
- This is a Non-Controllable / Non-Dispatchable (NCND) Demand Response (DR) program
  - NPPD only sends a price signal to its wholesale customers; NPPD does not directly control the end-use customers' loads
  - Wholesale customers and NPPD's Retail division utilize sophisticated load management systems to voluntarily shed load (primarily irrigation) and reduce their billing demand to lower their NPPD wholesale power bill
  - A large industrial customer (100 MW+) has also participated in the program in the past, and may do so again in the future
- NPPD factors in the impact of this program on its forecasted load for both the annual submittal for SPP Resource Adequacy purposes, and also for load bids into the SPP market
- This program results in a significant reduction (500-700 MWs) in NPPD's load during the afternoon/evening on summer peak days
  - Irrigation load participating in the DWP only exists for 2-3 months out of the year

Example of NPPD's Demand Waiver Program Impact to our Billable Peak Summer Day

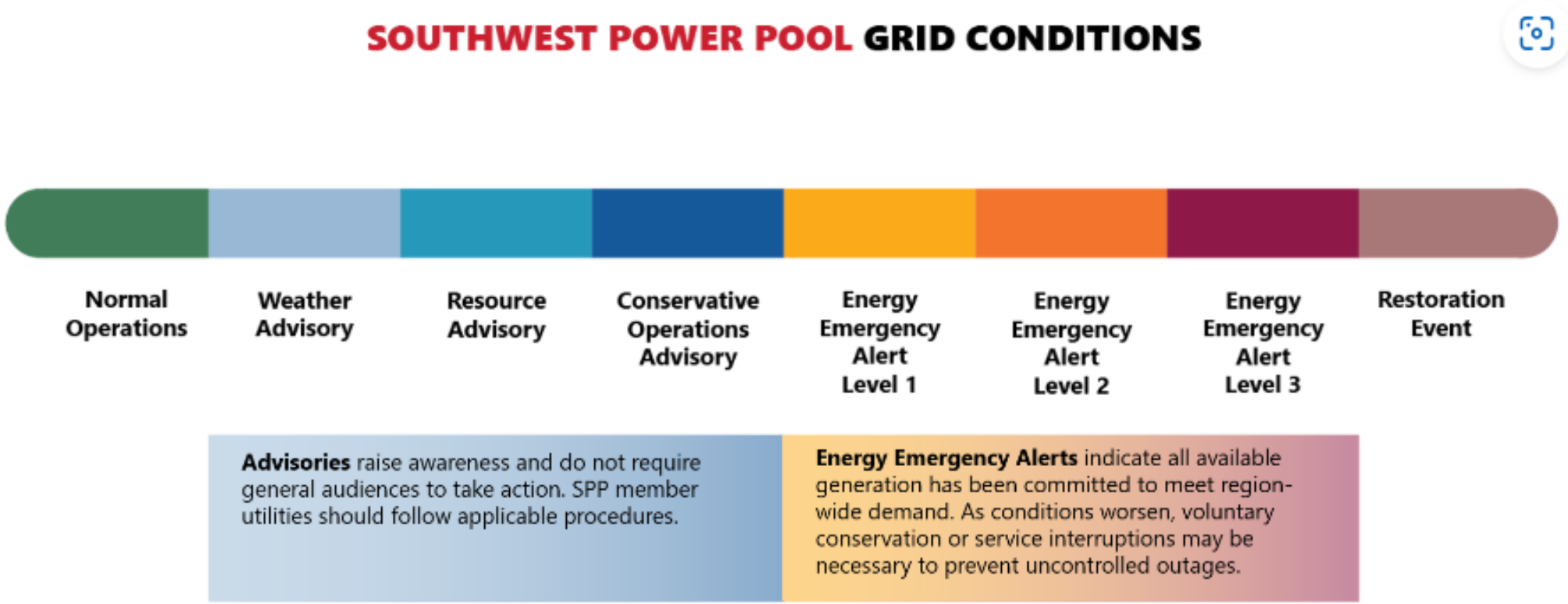


NPPD's demand waiver program is a valuable tool in managing NPPD's resource adequacy requirements

Demand Response Framework Proposal



Southwest Power Pool Grid Conditions



NPPD's Interruptible Rates are attracting Demand Response customer loads

- NPPD's Special Power Product (SPP) rate offerings have attracted significant load growth since 2018.
- The bulk of this load growth has been crypto mining load taking service under the GFPS rate or SPP #8 Interruptible Rate
  - ~205 MW total crypto load online, with ~60% of that beginning service in 2023 and 2024
- NPPD is communicating with existing and interested Interruptible Rate customers to inform them of potential changes to the conditions (frequency, duration, response time) under which loads will be called to curtail in the future
- Customers will ultimately determine which DR program type best suits their needs and capabilities

Key Takeaways

- SPP policy changes for Performance Based Accreditation and Demand Response will impact NPPD's Resource Adequacy Requirements in the future, starting in 2026
- For PBA, the accreditation of NPPD's conventional resources will reflect their historical performance when called upon during RA seasons, including forced outages during Summer and Winter
- Maintaining conventional resources to support reliable operations during the year will be key to maintaining unit accreditation for RA purposes
- SPP changes to the Demand Response policy provides a valuable recognition of our Demand Waiver program in NPPD's RA requirements; also will require NPPD to align Interruptible Rate product offerings with the framework ultimately approved by SPP/FERC.

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Questions

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