SOUTHWEST POWER POOL MARKET PARTICIPATION MODELS

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MARKET DESIGN PRINCIPLES AND PARTICIPATION MODELS

Design Guiding Principles

- Market Efficiency - Minimize Operating Cost
- Price Discovery and Transparency – Price Formation
- Reliability
- Complexity (Software Implementation and Market Participation)

Current Market Resource Participation Models

- Gen/PLT/CC
- Variable Energy Resource (VER)
- Demand Response Resources
- Multi-Configuration Resources (MCR)
- Market Storage Resource

SUPPLEMENTAL SLIDES FOR DISCUSSION

CURRENT PARTICIPATION MODELS IN SPP

Gen/PLT/CC:

- Most generic model
  - Includes Max and Min output limits, runtime limits, ramp rates, commitment limitations etc.

Variable Energy Resource (VER):

- Incorporates "follow" logic to allow VERs to output up to capability when not actively being curtailed

Demand Response Resources:

- All offer parameters from Gen/PLT, but must model a Demand Response Load for measurements

Multi-Configuration Resources (MCR):

- Currently for Combine Cycle units only. Include additional parameters such as transition costs and time.

Market Storage Resource:

- For Electric Storage Resources only. Include addition parameters such as charge/discharge times, limits, and State of Charge limits

MARKET STORAGE RESOURCE (MSR) MODEL

Run Times

- Max/Min Charge/Discharge Times
- Max/Min Run Times

Energy Limits

- Max/Min State of Charge (SOC) Limits
- Interval Beginning SOC level for each interval

Offer MW Limit Configurations

- Non-Zero Max and Min Charge Limits with Zero Max and Min Discharge Limits (Charging Mode)
- Zero Max and Min Charge Limits with Non-Zero Max and Min Discharge Limits (Discharging Mode)
- Zero Min Charge and Discharge Limits with Non-Zero MW Max Charge and Discharge Limits (Continuous Mode)

State of Charge Aware

- Each Interval stands alone regarding SOC limits.
- MSRs can be offered in a way that is infeasible if the Market Participant is not careful