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WESTERN RESOURCE ADEQUACY PROGRAM

Public Webinar on Program Design

CONE Penalty, Settlements and Pricing, and Load Forecasting

March 2, 2022

AGENDA

- WRAP Updates
- Load Forecasting
- CONE
- Settlements and Pricing
- Wrap Up

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Recent WRAP Activities

- In response to feedback at the December 8th executive meeting, NWPP is now doing business as Western Power Pool (WPP)
  - This is just a dba – no contracts or accounts payable need to change
  - Only applies to the corporation, not to the NWPP agreement
- Issued an updated governance proposal in January (found on WPP website) and held webinar on February 4th
- Standing up Nominating Committee (NC) – sector-representative group which will nominate the WPP's future independent board of directors
- Standing up Program Review Committee (PRC) – sector-representative group charged with receiving, considering, and proposing design changes to the WRAP

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Load Forecasting Methodology

Review

- Critical that quantified elements are consistent and objective
- In 2B: Load forecasting to be determined and submitted by each Participant, based on their own load forecasting methodology
- Load forecasts are used:
  - As inputs for the Loss of Load Expectation (LOLE) and Effective Load Carrying Capability (ELCC) studies
  - To establish the load term in the compliance metric (Forward Showing Capacity Requirement -> P50 + PRM)
- Not a replacement for existing IRP or infrastructure planning processes

Load Forecasting

Approach for Non-Binding Forward Showing

For the LOLE Study

- Start with median of each year's peak load by season for the last five years
- Apply a program-wide growth rate of 1.1% to all participating Load Responsible Entities (LRE)
  - 1.1% was identified by an informal survey of published load growth and demand projections from ten participating LREs as well as publicly available load forecast information from the Northwest Power and Conservation Council and other group - Values ranged from –0.6% to +4.5 load growth
- This load forecast, used for modeling (LOLE study and resulting PRM), will not limit or indicate the load to be used for the non-binding or binding showing (for any individual LREs P50 + PRM compliance metric)
- Introduces potential disconnect between load used in LOLE and load used for Forward Showing Compliance metric
  - Small changes to the load forecast utilized should have minimal impact on the actual Planning Reserve Margin (PRM) output from the modeling exercise

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Load Forecasting

Approach for Non-Binding Forward Showing

For the Participant Forward Showing Requirement

- Start with median of each year's peak load by season for the last five years - at this time, a load growth factor will not be included
- Participants will modify their base load to account for known load to be added and any existing load that will be removed in the forecast window (normalized for stepwise changes)
- Participant must provide the median value as well as a narrative describing the load to be added or removed
- More formal process will be established for the binding program as described next

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Load Forecasting

Approach for Binding Forward Showing

Proposing a general framework for Participants to establish their P50 for the binding Forward Showing (FS) capacity requirement and to form the basis for the aggregate load forecast used in the FS modeling

Base Load + Program Established Growth Rate

- Retain approach from non-binding FS for calculating base load from median of previous 5 years (normalized for stepwise changes)
- Establish a base program-wide growth rate that could then be regionalized to account for geographic differences, entity type, customer makeup, weather and other key factors

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Load Forecasting

Approach for Binding Forward Showing

- Expectation that details of this framework will be developed by the Program Review Committee (PRC)
- Two options:
  - Establishing standard growth rate to apply to Participant base load (median of last 5 years) and adopted as their binding forecast
  - Entity specific growth rate through a negotiated process
- Proposal ensures that the growth rate is objectively established, accounts for potential differences between Participants, and is informed by input from stakeholders

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LOAD FORECASTING

APPROACH FOR BINDING FORWARD SHOWING

Base Load + Participant Alternative Growth Rate

- If Participant believes using program established growth rate is not accurate proxy, can opt for alternative rate negotiated with independent entity – *possibilities include Program Administrator (PA), Program Operator (PO), or Independent Evaluator (IE)*
- Evaluate alternative growth rate against a set of principles developed by the PRC and stakeholders
- This alternative negotiation process should be executed only:
    1. In circumstances that it is absolutely necessary, and would therefore not be permitted unless the proposed growth rate was more than "x%" different from the program's default growth rate for the applicable area; and
    2. If it results in incremental program costs (e.g., for the independent entity making the evaluation) then those costs may have to be covered by the requesting Participant

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Additional Considerations

- Basis for the load utilized in the LOLE / PRM studies will be the sum of the values submitted by Participants (Base Load + Growth Rate) – ensures alignment between Participant forecasts and modeling inputs
- Additions and removals are intended to be separate and distinct from the load growth factor
- Additions and removals of load after the LOLE / PRM modeling but before the Forward Showing can be reflected in the allocation of the regional capacity requirement
- Load changes after the Forward Showing will be absorbed by the Operations Program

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Cone Deficiency Charge

Overview

- Cost of New Entry (CONE) charge is intended to strongly motivate Participants to comply with program metrics in the FS time horizon
- If a Participant fails to meet their FS capacity or transmission requirements after the cure period, the program will assess some multiple of a CONE
- CONE is based on publicly available information relevant to the estimated annual capital and fixed operating costs of a hypothetical natural gas-fired peaking facility

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CONE Deficiency Charge

Proposed Approach

- Overview of deficiency charge
  - Proposal contemplates a FS Year (grouping of Summer + Winter season)
  - Deficiency charge is based principally on the largest monthly failure for the forward showing year * annual CONE * CONE factor
  - Additional monthly failures are incrementally penalized, but at a monthly rate
  - Intent is to remove any incentive for additional failures after an initial failure
  - If a deficient participant pays the CONE charge, that Participant is considered to have met their FS Capacity Requirement – able to participate in the Operations Program
- CONE value: $91.81 per kW-Year
  - CONE value will be re-evaluated on a yearly basis to ensure that it is still an accurate proxy for the cost

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CONE Deficiency Charge

Detailed Mechanics – FS Year Season 1

1. Identify the maximum monthly deficit from the first (summer) season within a FS Year (Max Summer Deficit)
2. Determine the "first stage" deficiency charge as follows:
   - Max Summer Deficit*(Annual CONE*1000)*Summer Season Annual CONE Factor
3. The Seasonal CONE Factor scales depending on the program's aggregate deficit as a % of seasonal P50 for the Summer FS – the Summer Annual CONE Factor can vary from 125% to 200%
4. Incremental monthly failures within the first season are penalized at a $-kW month rate consistent with the Annual CONE * a CONE factor of 200%
5. The deficiency charge is charged immediately after failure to cure capacity deficits by the end of the summer forward showing cure period

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CONE Deficiency Charge

Detailed Mechanics – FS Year Season 2

1. Identify the maximum monthly deficit from the second (winter) season within a FS Year (Max Winter Deficit)
2. Determine the "second stage" penalty as follows:
   - Maximum of (Max Winter Deficit-Max Summer Deficit,0)*(Annual CONE*1000)*Winter Season Annual CONE Factor
3. If the winter maximum monthly failure is less than the summer maximum monthly failure, then each failure within the season are penalized at a $-kW month rate consistent with the Annual CONE * a CONE factor of 200%
4. The Winter Season CONE Factor scales depending on the program's aggregate deficit for the winter forward showing – the Winter Season Annual CONE Factor can vary from 125% to 200%
5. Incremental monthly failures within the second season are penalized at a $-kw month rate consistent with the Annual CONE * a cone factor of 200% (this includes any portion of a month that ends up being the highest failure in the FS Year that was equal to the Max Summer Deficit)
6. The deficiency charge is charged immediately after failure to cure capacity deficits by the end of the Winter forward showing cure period
7. If a participant has a failure in either season of a year the CONE Factor for that participant will automatically be 200% if they have a deficiency in the subsequent year

CONE Deficiency Charge

CONE Factor Scaling

Summer Season Annual CONE Factor

$$\begin{aligned} &Summer\%Deficit \\ &= Summer\ Program\ Aggregate\ Deficit \\ &\div Summer\ Program\ P50\ Load \end{aligned}$$

- If the Summer%Deficit is less than 1%, the Summer Season Annual CONE Factor = 125%
- If the Summer%Deficit is greater than 1% but less than 2%, the Summer Season Annual CONE Factor = 150%
- If the Summer%Deficit is greater than 2% but less than 3%, the Summer Season Annual CONE Factor = 175%
- If the Summer%Deficit is greater than 3%, the Summer Season Annual CONE Factor = 200%

Winter Season Annual CONE Factor

$$\begin{aligned} &Winter\%Deficit \\ &= Winter\ Program\ Aggregate\ Deficit \\ &\div Winter\ Program\ P50\ Load \end{aligned}$$

- If the Winter%Deficit is less than 1%, the Winter Season Annual CONE Factor = 125%
- If the Winter%Deficit is greater than 1% but less than 2%, the Winter Season Annual CONE Factor = 150%
- If the Winter%Deficit is greater than 2% but less than 3%, the Winter Season Annual CONE Factor = 175%
- If the Winter%Deficit is greater than 3%, the Winter Season Annual CONE Factor = 200%

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CONE Deficiency Charge

Plan to only adopt the CONE deficiency charge when:

- On the occasion that a CONE deficiency charge is levied against and paid by a deficient Participant, funds collected would be allocated back to Participants who passed the FS with sufficient resources based on their percentage share of the footprint's total P50 load
- *Illustrative example included in proposal on website: https://www.westernpowerpool.org/resources/wrap-cone-proposal*

CONE Deficiency Charge

Plan to only adopt the CONE deficiency charge when:

- Participants can secure supply in a competitive environment to pass the Forward Showing
- There are mechanisms to ensure adequate liquidity and ability to contract for capacity in the 8-10 month ahead timeframe
- There has been an assessment of capacity availability prior to the binding season to ensure that all Participants can procure enough capacity to pass the Forward Showing

Program must be workable for all participants and as such is not intended to set up any participant for failure during the initial binding seasons – CONE deficiency charge is designed to incentivize new build when there is insufficient capacity in the market

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Settlements and Pricing

Overview

- To ensure a well-functioning RA Program, critical that the settlement pricing is calculated appropriately
- Pricing should encourage Participants with a negative Sharing Requirement to address capacity shortfalls using other means before accessing program capacity in the Operational Program
- When those Participants with a positive Sharing Requirement holdback and/or deliver energy, pricing should adequately compensate their contribution to the program without being punitive to Participants in need
- Proposal topics
  - Applicable indices
  - Settlement pricing for holdback and delivery
  - Calculation and posting of settlement quantities and prices
  - Participant charge for non-delivery of holdback

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Settlements and Pricing

Applicable Indices

- Key component of the settlement and pricing methodology is having prices reflective of market value of energy in both day-ahead and real-time and are applicable to specific areas in the broad geographic footprint of the WRAP
- For those entities participating in the Northwest region the following prices will be utilized:
  - Day-ahead Price: Ice Day-Ahead (DA) Mid C Index
  - Realtime Price: Powerdex Realtime Index
- For those entities participating in the Eastern and Desert Southwest Regions the following prices will be utilized:
  - Day-ahead Price: Ice DA Palo Verde Index
  - Realtime Price: Average of the 4 fifteen-minute (FMM) market results for the Palo Verde intertie in the CAISO market (FMM Scheduling Point / Tie Combination LMP; Node: PALOVRDE_ASR-APND; Tie: PVWEST)

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Settlements and Pricing

Settlement Pricing for Holdback and Delivery

- Proposed settlement price is based on the CAISO methodology for implementing FERC Order 831
  - Benefit of significant stakeholder input during the CAISO's 831 implementation and was accepted by FERC
- Settlement price is shaped using a shaping factor that reflects changes in energy/capacity value from hour to hour and is based on locational indices at Mid C and Palo Verde
- If settlement price does not adequately reflect the foregone opportunity cost of the Participant providing holdback, as measured by selling the heavy load block at the applicable locational index (Mid C or PV), then a make whole payment will be triggered, payable from the receiving Participant

$$\textbf{\textit{Total Settlement Price}} = MAX(MIN(\$2000, \text{Hourly Shaping Factor} \times \text{Applicable Index Price} \times 110\%), 0)$$

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Settlements and Pricing

Settlement Pricing for Holdback and Delivery

- The Settlement Price is split into two components
  1. Capacity price for confirming the need for a holdback in preschedule, referred to as the Holdback Settlement Price
  2. Energy price charged for any energy dispatched in the operational program after a holdback has been confirmed, referred to as the Energy Settlement Price
- The Total Settlement Price is then split into its two underlying components: the Energy Declined Settlement and the Holdback Settlement Price

Energy Declined Settlement Price*=MIN(Applicable Powerdex (or similar) hourly index, Settlement Price ×80%)*

Holdback Settlement Price*=Total Settlement Price - Energy Declined Settlement Price*

Final Settlement *(for any applicable hour)=(Holdback Settlement Price × Holdback MW Requested)+(Energy Settlement Price × Operational Energy MWh Dispatched)*

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Settlements and Pricing

Make Whole Payment

» The Make Whole Payment is triggered in the event that the settlement revenue and the estimated value of the non-dispatched energy is less than what the selling entity would have received had they sold a day-ahead block of energy instead

Calculation and Posting of Settlement Quantities and Prices

» PA will have responsibility for calculating and posting settlement quantities and prices based on PO calculated delivery and holdback requirements

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Settlements and Pricing

Participant Charge for Non-Delivery of Holdback

- Robust framework in which non-delivery events are evaluated and may be waived if they meet a set of program-defined criteria
- If a Participant is requested to deliver holdback and fails to do so without a valid waiver / exemption, they will be subject to a non-delivery charge for every hour of non-waived delivery failure
  - Hourly non-delivery charge is max of applicable day ahead and realtime price on hour on non-delivery multiplied by the penalty factor
- Penalty factor scales based on number of non-delivery instances in both seasons of the year and whether the energy that wasn't delivered was able to be served by another Participant
- Penalties are intended to be high enough that non-delivery is not an economic option
- Potential impact of non-delivery is load shedding so charge for non-delivery intended to provide a significant incentive to deliver holdback energy as requested
  - However, they are not intended to compound in such a way that the Participant charge for non-delivery becomes punitive
  - Individual Participant will be capped at the CONE equivalent non-delivery charge ceiling

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Settlements and Pricing

Participant Charge for Non-Delivery of Holdback

Definition: Penalty for NON-WAIVED Delivery Failures in year (multiple failures in the same day constitute 1 delivery failure when calculating the penalty factor)	
If a Participant fails to provide energy and that deficit is entirely covered by other Participants of the WRAP, the penalties are as follows:	
First day with non-waived delivery failure(s)	5 times the index price of the default centroid for the undelivered megawatt hours (MWhs)
Second day with non-waived delivery failure(s)	10 times the index price of the default centroid for the undelivered MWhs
Third day or more with non-waived delivery failure(s)	20 times the index price of the default centroid for the undelivered MWhs and be cause for review for expulsion by the Delivery Failure Review Committee
If a Participant fails to provide energy and that deficit is not entirely covered by other Participants of the WRAP, the penalties are as follows:	
First day with non-waived delivery failure(s)	25 times the index price of the default centroid for the undelivered MWhs
Second day with non-waived delivery failure(s)	50 times the index price of the default centroid for the undelivered MWhs and be cause for review for expulsion by the Delivery Failure Review Committee

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Settlements and Pricing

Participant Charge for Non-Delivery of Holdback

- Accumulated non-delivery charge capped at a CONE equivalent ceiling
- Maximum hourly non-delivery amount for month is used as an input into the CONE calculation (effectively treated the same as a failure in the Forward Showing)
- This is done for each month of each season in the year
- If the accumulation of non-delivery charges for a participant reaches the CONE equivalent ceiling, they will no longer receive non-delivery charges
- Charges collected
  - Reduce administration costs if program was able to meet all deficit participant's needs
  - Returned to the participant if the deficit was not met by the program (exposed participant to negative reliability impacts)

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Overview of
Project Timeline

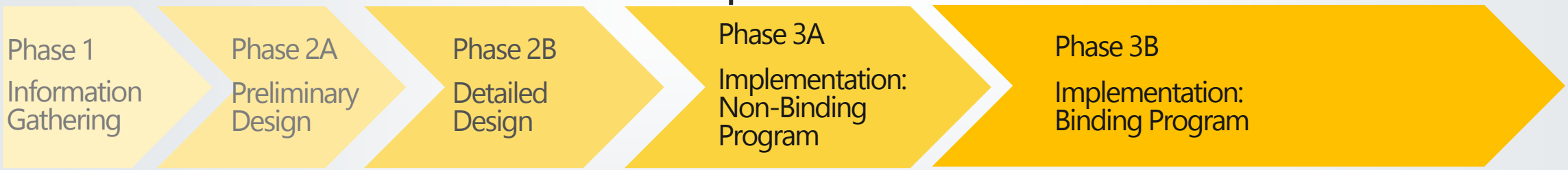
Interim Program

Started Summer 2020

Non-Binding Forward Showing Program

Binding Forward Showing + Full Operational Program

Fully functional by 2024



We are here

FERC approval required

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WRAP UP

- Full proposals can be found at https://www.westernpowerpool.org/wrap
- We will continue posting program design proposals as they are developed and hosting webinars to get stakeholder input
- Reach out at wrap@westernpowerpool.org to be added to our mailing list

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Contact Information

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