Western Resource Adequacy Program

Public Webinar

January 26, 2022 1-2:30 pm PT

NORTHWEST PowerPool

AGENDA

- WRAP Update
- Load Forecasting
- Solar Accreditation
- Wind Accreditation
- Wrap up

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WRAP UPDATE

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WRAP UPDATE

- Published Governance version 4 on Jan 13th
  - *Extensive process with states facilitated by WIEB*
  - *Incorporated feedback from 2B Detailed Design*
  - *Webinar on Governance scheduled for Friday Feb 4th 12-3pm PT*
- On track to file with FERC in Spring
- Standing up Program Review Committee and Nominating Committee
- Task Forces working through outstanding design topics from Phase 2B

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Load Forecasting Methodology

Background

- 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 LOLE and ELCC studies*
  - *To establish the load term in the compliance metric*
- Not a replacement for existing IRP or infrastructure planning processes

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Load Forecasting
Current State

- Task force considering approach for **non-binding seasons**
- Anticipate Program Review Committee will work on proposal for **binding seasons**

ELCC Study Process

Review (from 2B)

“Pure Capacity 1”

Calculate "pure capacity(+/-)" added to benchmark system to achieve 1-in-10 LOLE

- The benchmark system is defined as load supplied by all conventional resources, storage hydro generation and VERS **excluding the VER of interest**

“Pure Capacity 2”

Calculate "pure capacity(+/-)" added full system (all resources included) to achieve 1-in-10 LOLE

ELCC of VER of interest = *“Pure Capacity 1” – “Pure Capacity 2”*

ZONAL ELCC APPROACH

REVIEW (FROM 2B)

- ELCC will be calculated on a zonal basis
- To ensure that over-accreditation of VERs does not occur, zonal ELCC will be scaled to RA footprint ELCC

A study of four wind zones reveals the following capacity values for wind in each zone:				
Zone 1	Zone 2	Zone 3	Zone 4	**Total**
1,000 MW	800 MW	700 MW	1,000 MW	**3,500 MW**
A study of the region **reveals the following capacity value for the region's wind:**				
Regional wind = 3,200 MW				
The zones will be recalculated as follows:				
Zone 1	Zone 2	Zone 3	Zone 4	**Total**
1,000 * (3,200/3,500)	800 * (3,200/3,500)	700 * (3,200/3,500)	1,000 * (3,200/3,500)	
914 MW	732 MW	640 MW	914 MW	**3,200 MW**

Additional ELCC Considerations

- How to handle 'next-in' resource
  - Study incremental additions of wind and solar resources in each zone (2,000, 4,000 and 6,000 MWs)
  - PO provides an ELCC curve to determine future capacity values for new resources dependent upon the penetration of resources in that zone

- Appropriately accounting for scaling from:

  Seasonal, footprint-wide ELCC by resource (to) ->
  Seasonal, zonal ELCC by resource (to) ->
  Monthly, zonal ELCC by resource ->

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- Following proposal was presented to RA Participant Committee (RAPC) in early December
- Robust discussion on the merits of two zones (North and South)
  - Trade-offs: modeling / computation time and resources that occur with a zone-heavy approach
  - East/West diversity considered

Solar Accreditation Proposal

The WRAP footprint will be split into two zones for the purposes of modeling Solar resources in the ELCC study

- Zone 1 – North
  - *Washington, Oregon, Idaho, Montana, Wyoming*
- Zone 2 – South
  - *California, Nevada, Utah, Arizona*
- Allocation of ELCC within each zone based on average monthly output on the capacity critical hours (CCHs) (real or synthesized output)
  - *Anticipated to capture the time zone and geographic (East/West) diversity of resources*

$$\boldsymbol{Resource\ ELCC = \ Montly\ ELCC\ MW\ *} \left(\frac{\boldsymbol{Resource\ average\ hourly\ net\ power\ output\ on\ top\ 5\%\ of\ net\ load\ hours (CCH)}}{\boldsymbol{Zone\ total\ average\ hourly\ net\ power\ output\ on\ top\ 5\%\ of\ net\ load\ hours\ (CCH)}}\right)$$

Analysis of historical average hourly net power output will utilize the following data:

- 3 years of data, if available
  - No less than 3 years will be utilized - if 3 years of data is not available, resource will receive class ELCC % * nameplate*
- Allocation of zonal ELCC to individual resource may be adjusted as actual production data is accumulated

*See exception for new / repowered resources

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Solar Degradation

» Degradation approximation of 0.5% per year will be applied to the last year's historical performance

***Example**: In year 2021, PO would be modeling for 2023, using historical information from 2020*

Anticipate a 1.5% degradation from the 2020 historical performance for 2023, 2% for 2024, etc.

New and Repowered Facilities

» Participant (or resource owner) will be responsible for synthesizing a 3-year forecasted output, using:

Manufacturer's engineering or performance data

Actual weather (preferably from on-site, but not from outside of 50-mile radius) and/or

Historical performance of similar resources within a 50-mile radius

» As actual data is accrued, it will replace synthesized data as available

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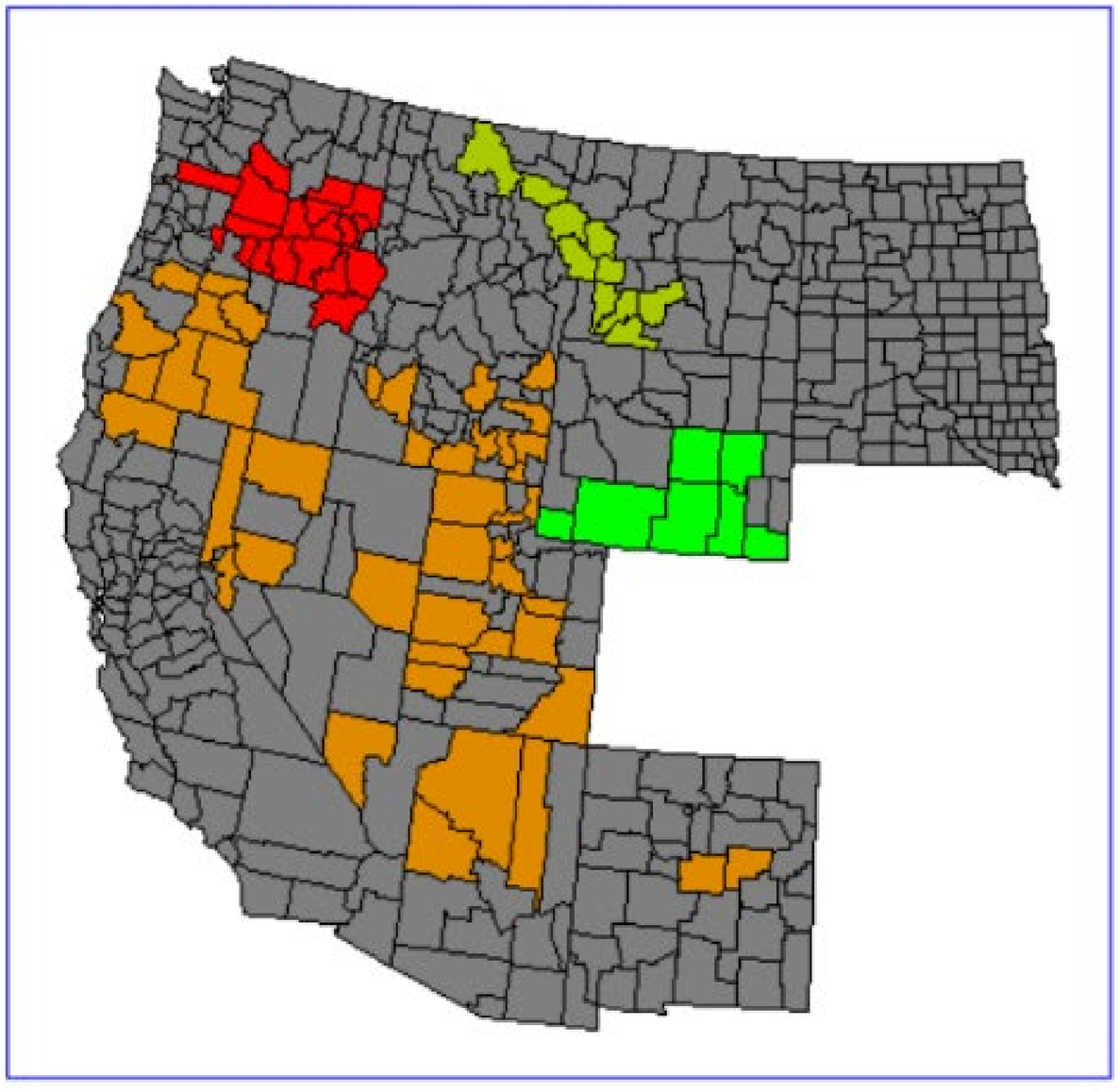
Background

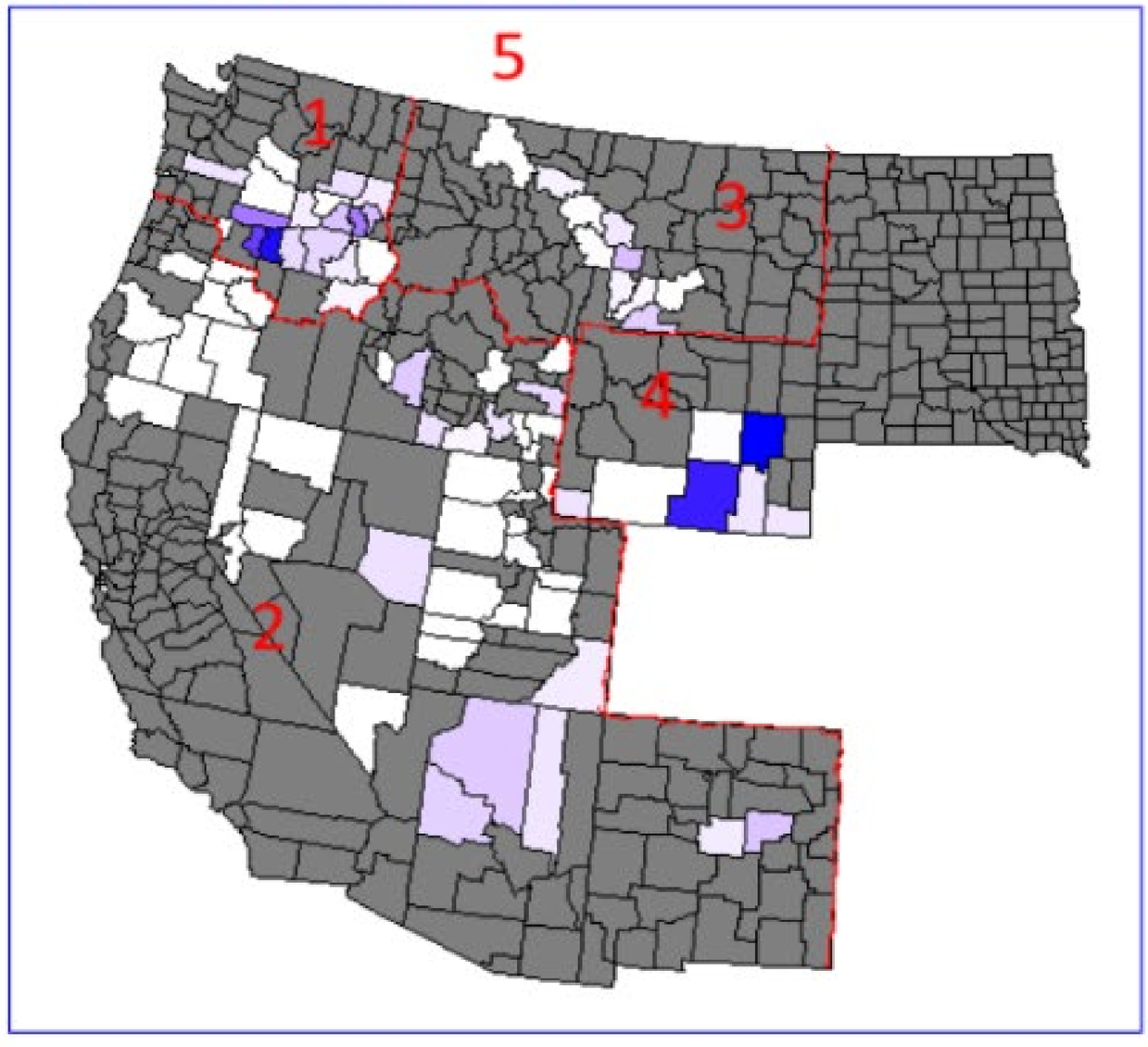
- Mapped wind installations by county – provided insight into how footprint's wind is clustered
- Compared publicly available wind data for various regions to evaluate appropriateness of a grouping based on average weather conditions
- Decision was made to prioritize grouping by wind penetration in a geogrpahic area
- Initial zones not intended to be static for the remainder of the program – ELCC modeling is completed each year; wind concentration will be re-evaluated for appropriateness

WRAP - Counties with Installed Wind



Zone
1.0 2.0 3.0 4.0

WRAP - Counties with Installed Wind



Installed Capacity
300 600 900

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Recommended Wind Zones:

1. Columbia Gorge (Southern Washington / Northern Oregon)
2. All ‘other’ US installed wind (everything but Columbia Gorge, Montana, Wyoming)
3. Montana
4. Wyoming
5. British Columbia

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» Upcoming webinars to discuss design updates as they're approved by RAPC

» Governance webinar Friday Feb 4th 12-3pm PT

Register for the governance webinar here: https://www.nwpp.org/events/118

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THANK YOU

CONTACT US AT WRAP@NWPP.ORG