



Western Resource Adequacy Program

RAPC Meeting

December 21, 2021; 8-10am

Participant	Name	Participant	Name
APS	Justin Thompson	NorthWestern	Joe Stimatz
Avangrid		NV Energy	David Rubin
Avista	Scott Kinney	PacifiCorp	Mike Wilding
Basin Electric	Garrett Schilling	PGE	Sarah Edmonds
Black Hills	Eric Scherr	Powerex	Mark Holman
BPA	Rachel Dibble, Jeff Cook	PSE	Paul Wetherbee
Calpine	Mark Smith	SRP	Barbara Cenalmor
Chelan	Shawn Smith	Seattle	Emeka Anyanwu
Clatskanie	Paul Dockery	Shell	Ian White
Douglas		SnoPUD	Jeff Kallstrom
EWEB	Matt Schroettnig	Tacoma	Ray Johnson
Grant	Rich Flanigan	TEA	Ed Mount
Idaho	Ben Brandt	TID	Dan Severson

Objectives

1. Provide the RAPC with updates on project progress.
2. Seek RAPC input on progress and any administrative actions

Meeting Agenda

Call to Order	
8:00	<ol style="list-style-type: none"> 1. Attendance 2. Agenda Overview <ul style="list-style-type: none"> o <i>Agenda approved at 8:07</i> 3. Approve Minutes from last meeting <i>Minutes approved unanimously at 8:09</i>
PA/PO Report	
8:05	<ol style="list-style-type: none"> 1. PO staffing updates <i>Discussion of SPP hiring for WRAP</i> COUs – please fill out doodle for PRC/NC meeting
External Affairs	
8:10	<ol style="list-style-type: none"> 1. OPUC requests that we share: <ul style="list-style-type: none"> • 3A Data Request Template (empty – no data) • 2B mockup showing workbook (no data)



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	<ul style="list-style-type: none">• 3A Data Request Instruction Manual<ul style="list-style-type: none">○ <i>Discussion of OPUC request for template</i> <p><i>Motion to share these documents (with OPUC and others) approved unanimously at 8:28</i></p>
Ongoing Business	
8:20	<ol style="list-style-type: none">1. Solar VER proposal – for approval<ul style="list-style-type: none">○ <i>Discussion on proposal</i> <p><i>Approved unanimously at 8:38</i></p>
New Business	
8:30	<ol style="list-style-type: none">1. Wind VER Zones proposal – for approval <p><i>Approved unanimously at 8:42</i></p>
8:40	<ol style="list-style-type: none">2. Governance V4<ul style="list-style-type: none">○ COSR proposal○ <i>Review and discussion of potential options</i>○ BOD transition○ PRC/NC sector definitions and numbers○ <i>Discussions and clarifications</i>
	<ol style="list-style-type: none">3. PRC/NC Stand Up<ul style="list-style-type: none">○ Press release○ <i>Press release approved unanimously at 9:55</i>○ Send contacts for any of these sectors (esp southwest folks) <p><i>ACTION: send NWPP contacts</i></p>
Upcoming	
9:50	<ol style="list-style-type: none">1. Holidays (few weeks off of meetings)2. Standing up additional task forces in first Jan RAOC meeting3. Gov v4 for publishing early January
Adjourned at 9:58	

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Solar and Wind ELCC Zone Task Force

Solar Accreditation Proposal

Prepared by Solar and Wind ELCC Zone Task Force

Edward Downing, Tyler Moore – APS	Kevin Dickey, Stewart Rossman – AVRN
Ruth Burris - PGE	Edison Elizeh – BPA
Steve Bellcoff – BPA	Daniel MacNeil – PAC
Jennifer Coulson , Villamor Gamponia – PSE	Ryan Atkins – NVE
Joe Stimatz – NWMT	Josh Steiner, Grant Smedley, Jon Cook Barbara Cenalmor, Michael Reynolds – SRP
Charles Hendrix, Alex Crawford – SPP	Ryan Roy - NWPP

Background

The development of VER zones is an outstanding item from Phase 2B and a critical path item for the completion of key milestones in the Program Operator (PO) Scope of Work (SOW). The Solar and Wind ELCC Zone Task Force met on 11/22/2022 to discuss the development of ELCC zones to be utilized by SPP in the ELCC studies for Solar and Wind. During the meeting the Task Force reviewed the initial proposal of two zones roughly split between the Northern and Southern portions of the WRAP footprint with accreditation in the zone being based on historical performance during the Capacity Critical Hours (CCH).

There was robust discussion on the merits of two zones, differences seen between not only North and South but East and West (potentially indicating the need for more zones) as well as differences that might be seen between resources in the same zone. PacifiCorp, APS and SRP provided helpful insight into the accreditation of Solar resources given their experience contracting for and evaluating solar resources.

In support of the discussion SPP provided background on their current approach to VER accreditation. They also informed the discussion by highlighting some of the trade-offs in terms of modeling / computation time and resources that occur when electing to utilize a zone-heavy approach.

The Task Force elected to bring forth the following proposal to the RAOC for the development of Solar Zones and allocation of ELCC within each zone.

Zones

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

Zone 1 – North

- » Consists of the following states: Washington, Oregon, Idaho, Montana, Wyoming

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Zone 2 – South

- » Consists of the following states: California, Nevada, Utah, Arizona

The Program Operator will have some discretion to move resources very near a state line (i.e., Northern California) to an alternate zone if a more natural boundary exists or it is necessary to support the modeling.

ELCC Allocation Methodology

Given the differences in resource performance within a zone, the Task Force believes that an allocation of ELCC within each zone based on historical performance is the best way to capture inherent differences between resources. This allocation methodology will also help to capture the time zone and geographic diversity of resources distributed throughout the footprint (east/west diversity). The methodology being proposed is the following:

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

Resource ELCC values will be calculated by season and for each month within the season.

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

- I. 3 years of data will be utilized if available
- II. No less than three years will be utilized if data does not exist. If three years of data is not available resource will receive class ELCC % * nameplate (see exception for repowering)
- III. ELCC will be adjusted once three years of data exists

Solar Degradation

When the PO is forecasting capacity of solar resources for LOLE and ELCC modeling, a 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. Would anticipate a 1.5% degradation from the 2020 historical performance for 2023, 2% for 2024, etc.

New and Repowered Facilities

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To accommodate the repowering of existing solar resources, a participant (or resource owner) will be responsible for synthesizing a three-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 (e.g. one year of actuals + two years of synthesized; two years actuals + one year synthesized, then eventually three years of actuals).

Once a new or repowered facility has a full year of operational data the synthesized data for years two (2) and three (3) will be evaluated for reasonableness. If the synthesized data significantly understated or overstated the forecasted generation of the resource, the year 2 and 3 synthesized data will be adjusted by the PO accordingly.

Validation

PO will not validate this synthesized data set. It is expected that a program evaluator may identify any discrepancies and determine if additional validation may be necessary.

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Solar and Wind ELCC Zone Task Force

Wind Accreditation Proposal

Prepared by Solar and Wind ELCC Zone Task Force

Edward Downing, Tyler Moore – APS	Kevin Dickey, Stewart Rossman – AVRN
Ruth Burris - PGE	Edison Elizeh – BPA
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Background

The development of VER zones is an outstanding item from Phase 2B and a critical path item for the completion of key milestones in the Program Operator (PO) Scope of Work (SOW). The Solar and Wind ELCC Zone Task Force met on several occasions the last being on 12/10/2021 to finalize the proposed wind zones and associated ELCC allocation methodology.

In evaluating proposed wind zones the team first mapped each wind installation by county and shaded the county by the installed capacity. This analysis provided insight into how the wind in the footprint is clustered and highlighted those areas that have the heaviest concentration of wind. To supplement this analysis the team looked at the installations relative to NREL wind data for various regions.

The initial proposal from the NWPP / SPP was to create zones based on geographic proximity of installations overlaid with average weather / wind data. After discussion with the group, it was determined that a more natural grouping might be to maintain those areas that have high concentrations of wind. This concentration is particularly important to capture because there is likely to be diminishing returns in these zones as additional resources are added. It also more accurately captures diversity of resource performance between zones (i.e. the wind dropping off in the Columbia Gorge all at once while still remaining relatively strong in Montana or Wyoming).

It is important to note that the development of the initial zones is not intended to be static for the remainder of the program. The ELCC modeling is completed each year so as wind is installed in the footprint the analysis of the wind concentration will be re-evaluated for appropriateness. The group already identified that New Mexico may be an area that experiences significant growth in the near future.

As with the solar accreditation proposal the zonal ELCC will be allocated based on historical performance to account for the differences from resource to resource within a zone.

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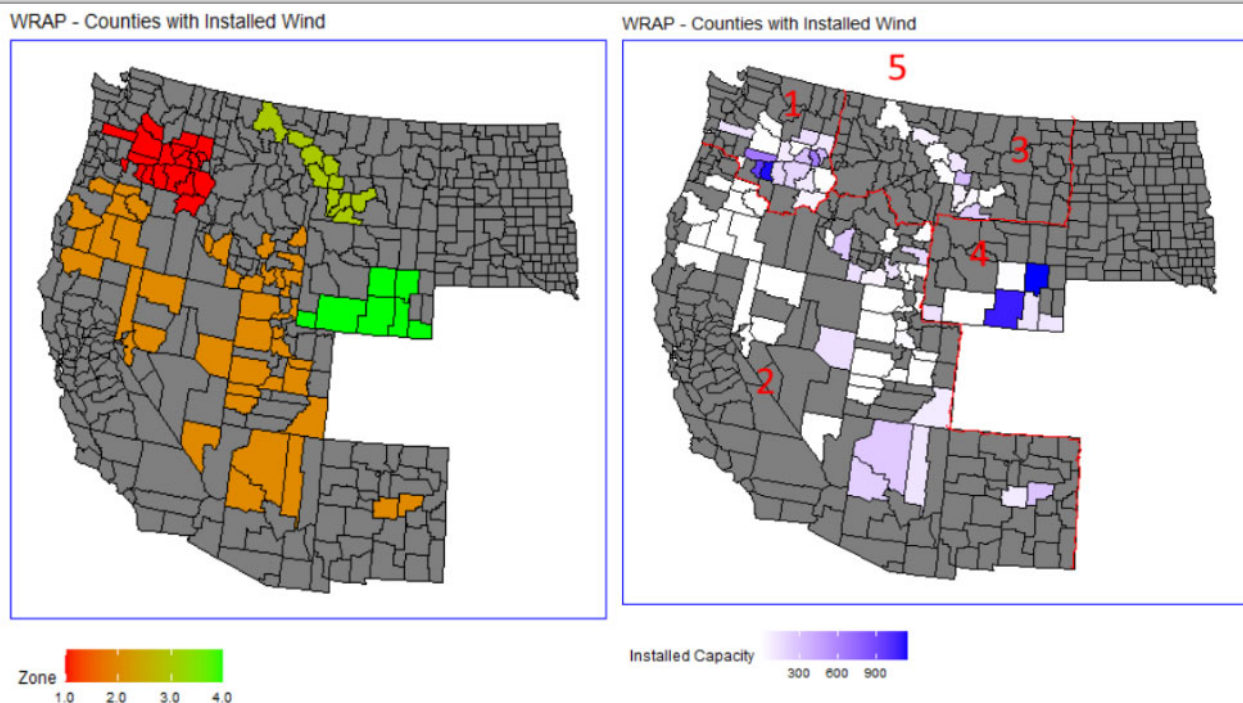
Solar and Wind ELCC Zone Task Force

Zones

The Task Force is recommending the following five (5) ELCC zones for wind:

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

The list of counties and the accompanying zone numbers have been provided to SPP to support the modeling.



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