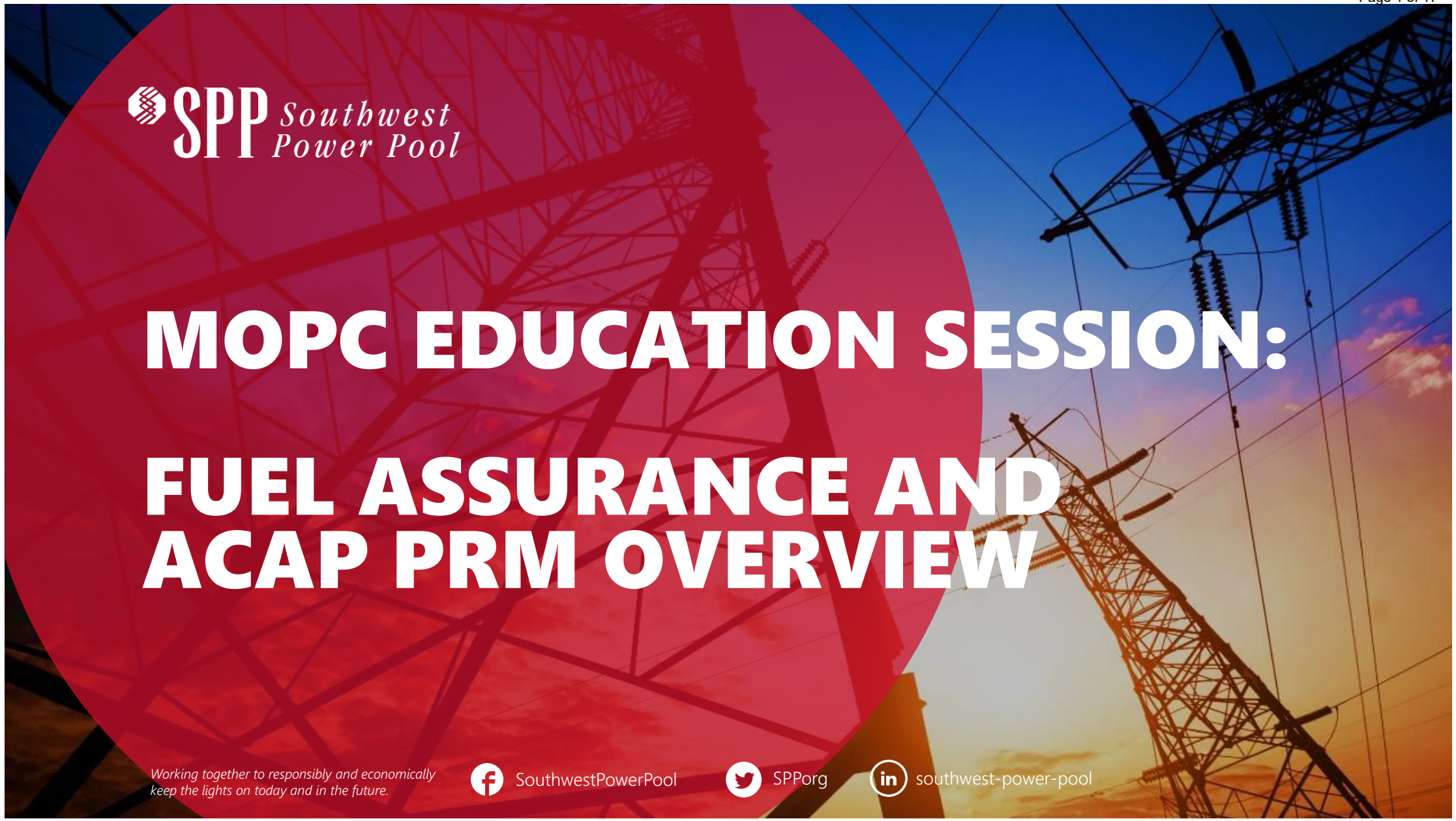

SPP Southwest Power Pool
MOPC EDUCATION SESSION:
FUEL ASSURANCE AND ACAP PRM OVERVIEW
Working together to responsibly and economically keep the lights on today and in the future.
SouthwestPowerPool
SPPorg
southwest-power-pool

RR 621: FUEL ASSURANCE OVERVIEW

WHAT IS THE FUEL ASSURANCE MECHANISM?

Using 7 years of historical data

Fuel Assurance will implement an "after the fact" application for weighting for PBA resources based on critical system periods.

Is additive to the already approved Performance Based Accreditation (PBA), which primarily focuses on conventional resources (Hydro, Natural Gas, Coal, etc.)

Implementing an additive historical performance metric for conventional resources based on critical system periods would quantify the resource's contribution to reliability and further incentivize increased resource performance

FUEL ASSURANCE SIR205 : Develop policies that enhance fuel assurance to improve generation availability & reliability in the SPP region

Meets the RSC directive to "develop a policy to incorporate weighting for PBA based on critical system periods"

SAWG APPROVED MECHANISM

Fuel Assurance Allocation Mechanism (Option A)

To all units that have EFOF

Performance Based Accreditation Policy

Fuel Assurance Policy

$$Unit\ Accredited\ Capacity_i = capacity_i \cdot (1 - EFORd') - Seasonal\ Correlated\ Outages \cdot Critical\ Period\ Allocator_i$$

$$Critical\ Period\ Allocator_i = \frac{Unit\ incremental\ nonperformance}{fleet\ incremental\ nonperformance} = \frac{EFOF_i * capacity_i}{\sum_{i=1}^{n} EFOF_i * capacity_i}$$

$EFOF_i$ is the unit 7 year EFOF
$EFORd'_i$ is the unit 7 year EFORd'
Seasonal Correlated Outages is from the LOLE Study and refreshed every two years

NEW TARIFF DEFINITIONS

Conventional Resource Performance Adjustment

- The historical performance adjustment for conventional resources using the combination of a *modified demand Equivalent Forced Outage Rate ("EFORd") method* and Equivalent Forced Outage Factor ("EFOF") method adjusted for Incremental Outage Impact *in accordance with this Attachment AA and the SPP Business Practices*. A resource's EFOF shall only be considered during the Winter Season. *Conventional resources are defined as thermal fuel type resources, pump storage hydroelectric resources, and hydroelectric resources with reservoir storage capability not subject to hourly river flow limitations similar to run-of-river hydro.*

EFOF will only apply unit performance to the Winter Season

Incremental Outage Impact

- The incremental impact of simultaneous conventional resource forced outages in excess of the normally modeled forced outages experienced during timeframes of extreme temperatures from the LOLE Study. This value shall be assessed in accordance with the LOLE Study scope and SPP Business Practices. Incremental Outage Impact shall only be considered during the Winter Season.

EFORD METHODOLOGY

- Determined on an individual historical year basis
- Averaged together considering all appropriate historical years for the applicable season
- A resource's seasonal EFORd includes events occurring during the entire applicable season and exclude OMC events, as defined by NERC
- SPP will calculate and post a weighted class average EFORd for each applicable season
- Resources weighted against all other resources in the same class for determining class average EFORd

EFOF METHODOLOGY

Determined on an individual historical year basis and averaged together considering all appropriate historical years for the applicable season

Includes events occurring during the top three percent (3%) Adjusted Net Peak Load hours

- Applicable season for each historical year

SPP calculate and post a weighted class average EFOF for each applicable season

- The resources weighted against all other resources in the same class for determining class average EFOF
- The class average EFOF calculated prior to the application of Incremental Outage Impact

EFOF INCREMENTAL OUTAGE IMPACT (IOI)

EFOF further adjusted for Incremental Outage Impact

The IOI determined by SPP on a biennial basis in accordance with the LOLE Study scope

The impact on the Base PRM with and without the modeled incremental correlated forced outages calculates and sets the Incremental Outage Impact

In the event SPP does not determine a resource's EFOF prior to the first season the resource is qualified

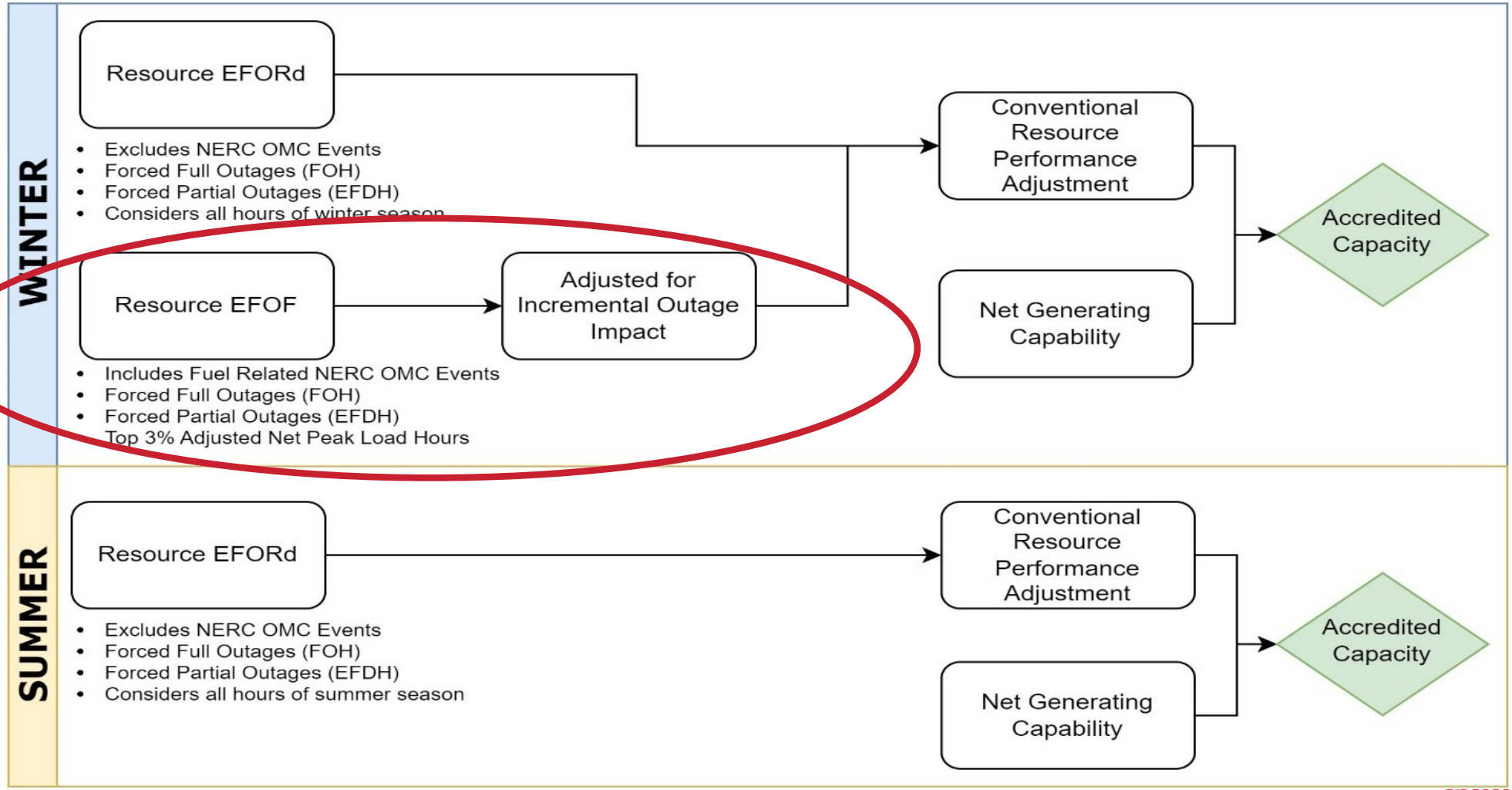
- Resource's EFOF determined by the entity not adjusting Incremental Outage Impact for the first applicable season

WHAT IF HISTORICAL DATA IS NOT PROVIDED?

Resources internal to the SPP where historical performance data exists but is not provided for the applicable season receive no accreditation for the historical year

Once a resource has been qualified, the historical data must continually be submitted to avoid 100% EFORd and EFOF applied to the applicable historical year

METHODOLOGY FLOW

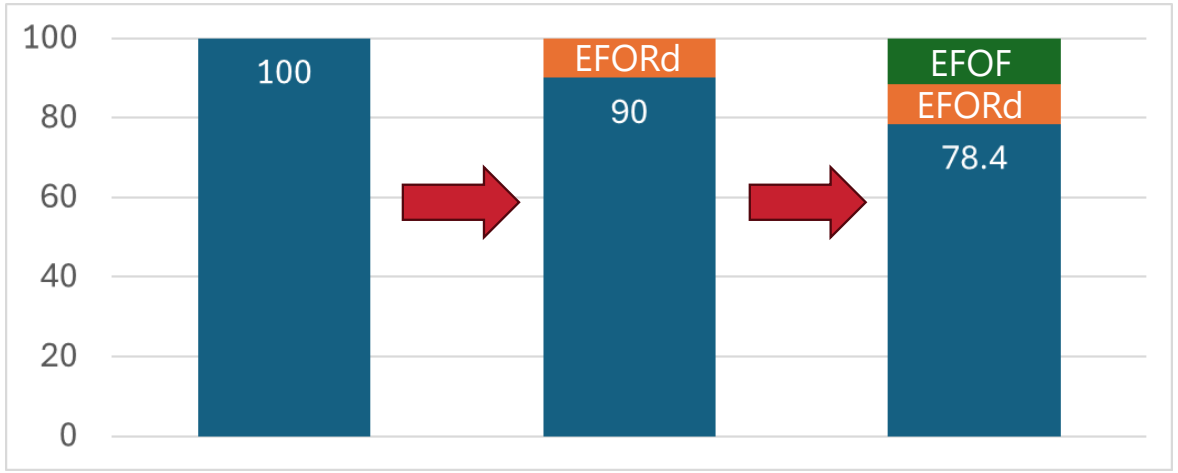


WINTER ACCREDITED CAPACITY EXAMPLE
100 MW UNIT

NGC = Net Generating Capability
ACAP = Accredited Capacity

$$Unit\ ACAP = \text{NGC} * \left(1 - \left(\text{EFORd\%} + \text{EFOF \%} * \frac{\text{Incremental Outage Impact}}{\text{Sum of EFOF capacity from all units}}\right)\right)$$

$$Unit\ ACAP = 100 * \left(1 - \left(10\% + 20\% * \frac{4{,}102}{7{,}100}\right)\right) = 78.4\ MW$$



BASE PRM VS ACCREDITED CAPACITY (ACAP) PRM OVERVIEW

BASE VS ACCREDITED CAPACITY PRM OVERVIEW

Base PRM

- RSC/**BOD** approves
- Based on installed capacity values **for conventional resources and ELCC values for renewable and energy limited resources**
- **Stays** static between LOLE study years
- Is the foundation for calculation of the ACAP PRM %
- No enforcement mechanism applied on this %
- **Reliability needs based on BA (SPP) level**

ACAP PRM

- Does not require RSC/**BOD** approval
- Capacity value based on PBA and FA **for conventional resources and ELCC values for renewable and energy limited resources**
- Changes annually based on **performance**
- Resource Adequacy Requirement is enforced on this %
- **Applied for resource planning on entity level**

SYSTEM WINTER SEASON PRM IMPACT EXAMPLE BASE PRM 36%

Determine Base PRM Impact

Variable	Winter
Summation of LRE Peak Demand	47,822
Winter Base PRM	36%
Calculated Required Capacity	65,038

Demand and PRM values from 2023 LOLE Study for Year 2026

Determine PBA, and FA Impacts

Variable	Winter
Summation of Conv. Resources PBA EFORd Impacts	6,844
Summation of Conv. Resources PBA FA Impacts	4,102
Total PBA Impact from all conventional resources	10,946

PBA Reduction Impact has to consider all conventional resources in footprint, not just what entities are claiming for winter season

Reduce Required Capacity to account for PBA

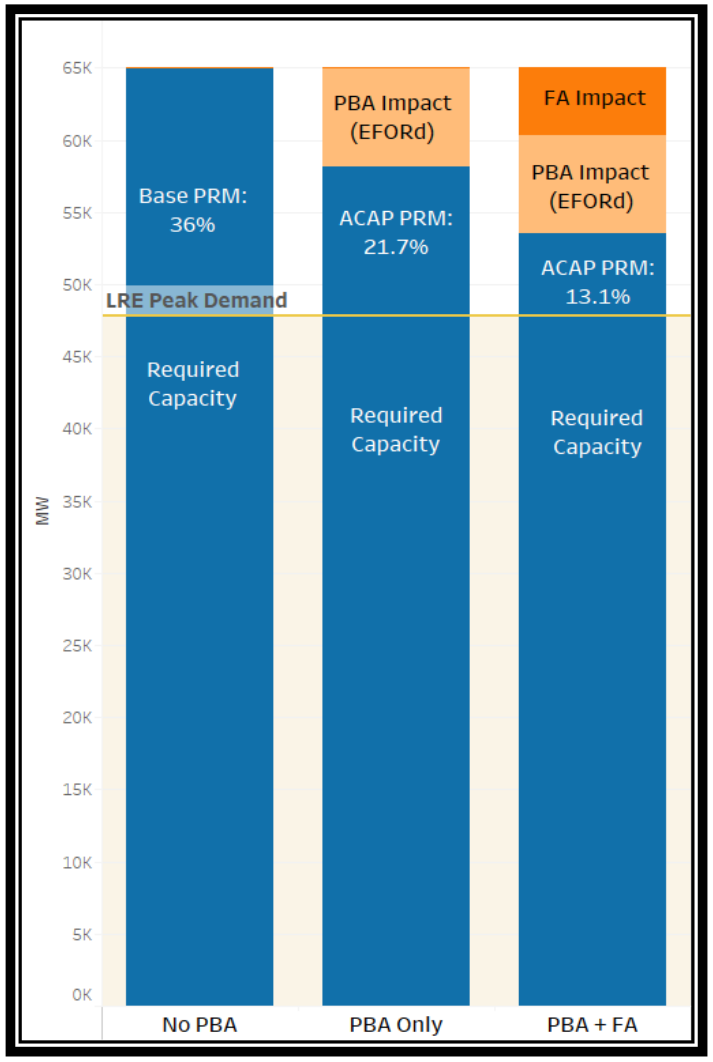
Variable	Winter
Calculated Required Capacity	65,038
Total PBA Impact from all conventional resources	10,946
Required Capacity after PBA Impacts (Conventional resource accreditation reduction)	54,092

Calculate ACAP PRM

Variable	Winter
Required Capacity after PBA Impacts	54,092
Summation of LRE Peak Demand	47,822
ACAP PRM [(Capacity – Demand) / Demand]	13.1%

Calculated Required Capacity for the BA is still 65,038 MW based on "nameplate" conventional, even after considering PBA

CALCULATING THE SYSTEM WINTER ACAP PRM



Variable	No PBA	PBA Only	PBA + FA
LRE Peak Demand	47,822	47,822	47,822
Base PRM	36%	36%	36%
Required Capacity	65,038	65,038	65,038
PBA Impact (EFORd)	0	6,844	6,844
Fuel Assurance Impact (Adjusted EFOF)	0	0	4,102
Total PBA Impact	0	6,844	10,946
Required Capacity after PBA Impact	65,038	58,194	54,092
System ACAP PRM	N/A	21.7%	**13.1%**

PBA Reduction Impact must consider all conventional resources in footprint, not just what entities are claiming for winter season

APPLYING ACAP PRM TO EXAMPLE LRE

Impact calculations were sent to individual LREs

Applied to Winter only

Variable	Winter	Summer
LRE Peak Demand	1,000	1,100
Capacity Resources*	1,200	1,200
PBA Impact (EFORd)	90	90
Fuel Assurance Impact (Adjusted EFOF)	40	0
Total PBA Impact	130	90
Capacity Resources (ACAP)	1,070	1,110
System ACAP PRM	13.1%	7.36%
Resource Adequacy Requirement	1,131	1,181
Excess Capacity	-61	-71

Capacity Resources	Nameplate/Rating	Winter ACAP	Summer ACAP
Natural Gas Facility (PBA)	800 MW	680 MW	720 MW
Natural Gas Resource (PBA)	100 MW	90 MW	90 MW
Wind Resources (ELCC)	1,200 MW	300 MW	300 MW

QUESTIONS?

PLEASE SEND FOLLOW UP REQUEST VIA EMAIL TO RESOURCEADEQUACY@SPP.ORG