



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



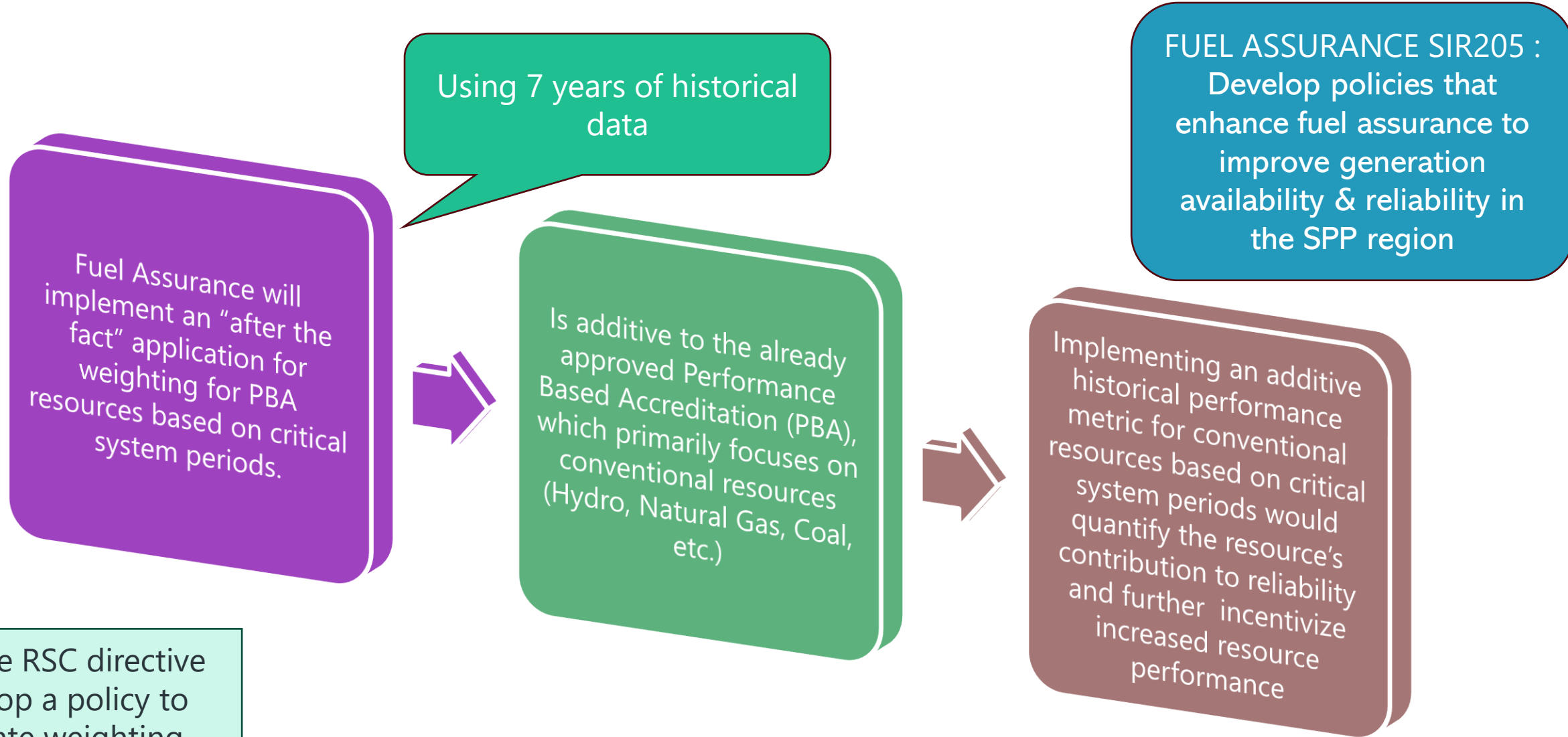
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southwest-power-pool

RR 621: FUEL ASSURANCE OVERVIEW

WHAT IS THE FUEL ASSURANCE MECHANISM?



SAWG APPROVED MECHANISM

Fuel Assurance Allocation Mechanism (Option A)

To all units that have EFOF

$$\text{Unit Accredited Capacity}_i = \text{Performance Based Accreditation Policy} \left[\text{capacity}_i \cdot (1 - \text{EFORD}') \right] - \text{Fuel Assurance Policy} \left[\text{Seasonal Correlated Outages} \cdot \text{Critical Period Allocator}_i \right]$$

$$\text{Critical Period Allocator}_i = \frac{\text{Unit incremental nonperformance}}{\text{fleet incremental nonperformance}} = \frac{\text{EFOF}_i * \text{capacity}_i}{\sum_{i=1}^n \text{EFOF}_i * \text{capacity}_i}$$

EFOF_i is the unit 7 year EFOF

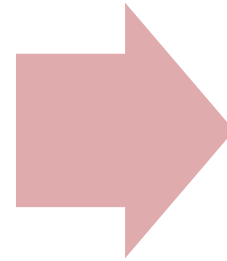
EFORD' is the unit 7 year EFORD'

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.*



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.

EFOF will only apply unit performance to 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

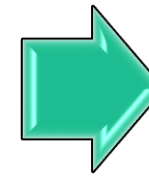
EFOF METHODOLOGY

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?



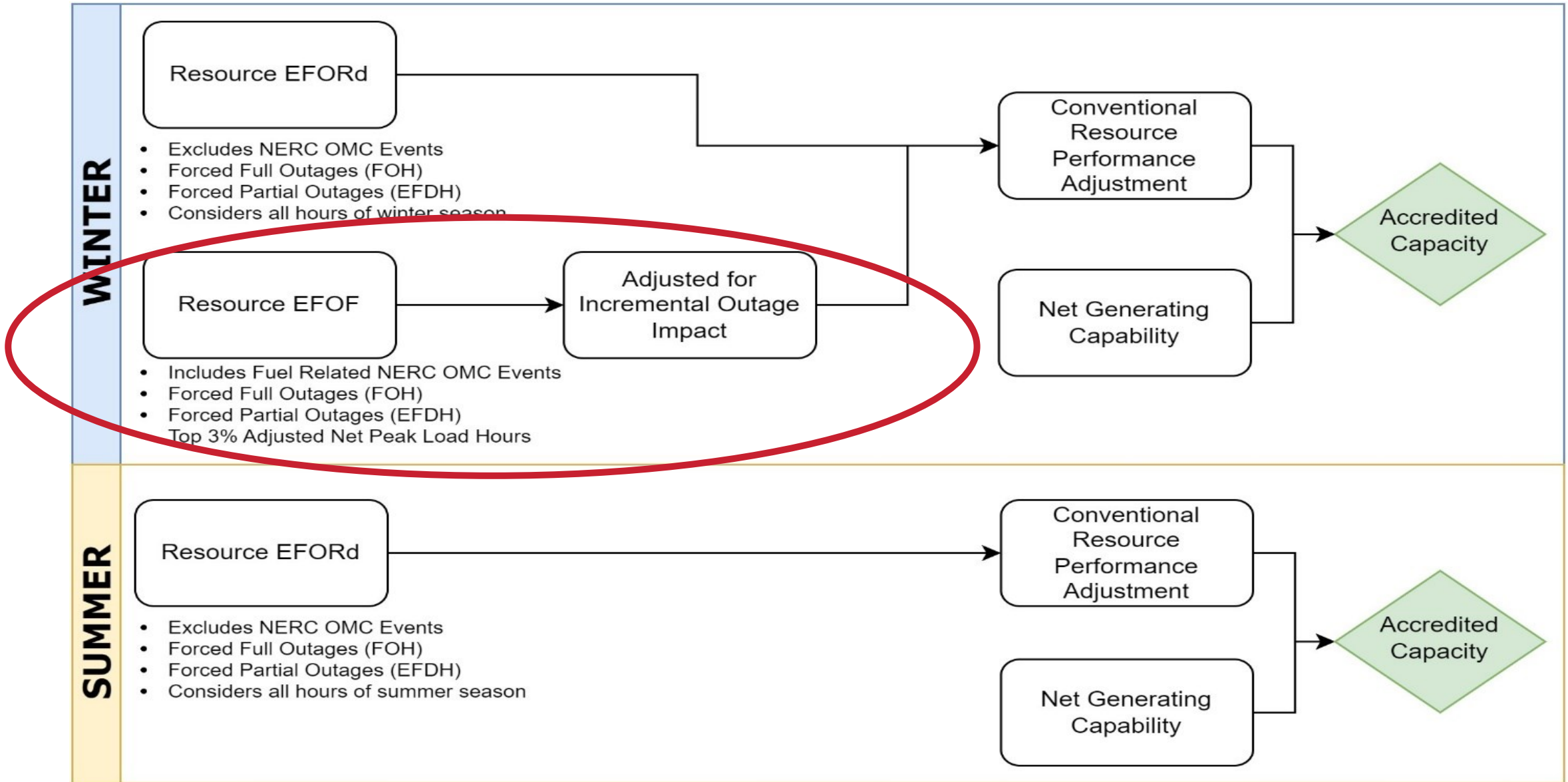
Resources internal to the SPP where historical performance data exists but is not provided for the applicable season receive no accreditation for the historical year



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



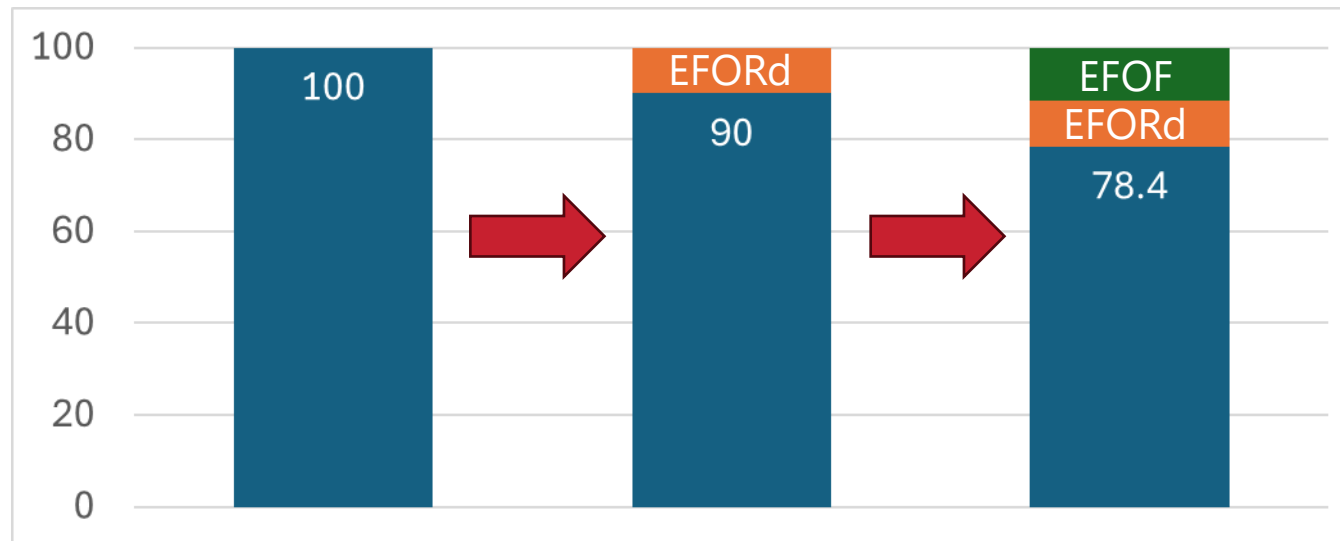
WINTER ACCREDITED CAPACITY EXAMPLE

100 MW UNIT

NGC = Net Generating Capability
ACAP = Accredited Capacity

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

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



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

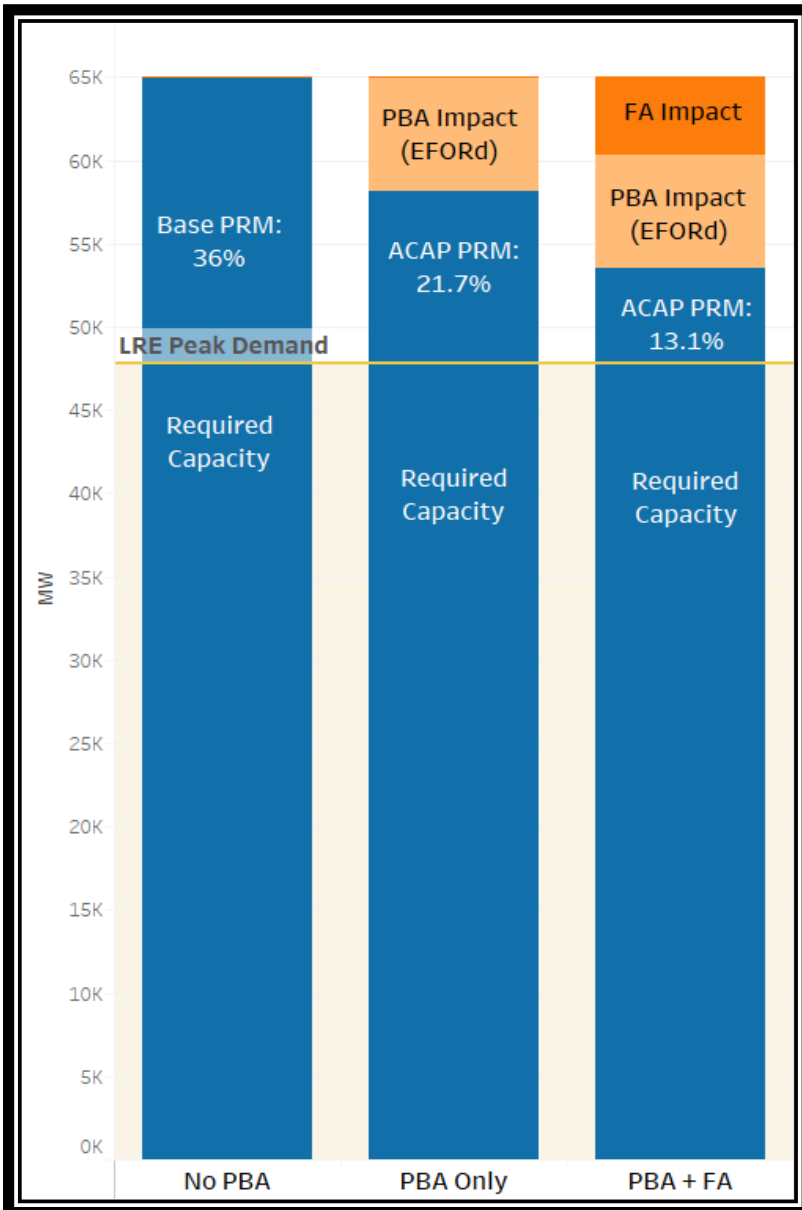
Variable	Winter
Calculated Required Capacity	65,038
Total PBA Impact from all conventional resources	10,946
Required Capacity after PBA Impacts (Conventional resource accreditation reduction)	54,092

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

Calculate ACAP PRM

Variable	Winter
Required Capacity after PBA Impacts	54,092
Summation of LRE Peak Demand	47,822
ACAP PRM $[(\text{Capacity} - \text{Demand}) / \text{Demand}]$	13.1%

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

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

Applied to Winter only

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