RR 554 - RESOURCE ADEQUACY PERFORMANCE BASED ACCREDITATION FOR CONVENTIONAL RESOURCES COMMENT FORM

SUBMITTER INFORMATION

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RR OBJECTIVES (FROM RR FORM)

What is the objective of this RR?

Describe the objective and end result

Per the original RR submission: *"Current accreditation methodologies for conventional resources consist of one hour performance testing of the resources on an annual basis (for the operational test) and a more stringent one-hour capability test (while maintaining a four-hour continuous availability requirement) every five (5) years. The current methodology does not consider past performance (i.e. outages) or availability and generally closely aligns with the nameplate of the conventional resource. The objective of this RR is to implement performance based accreditation methodology, to better align capacity accreditation to the capacity value provided by conventional resources starting with the 2025 Summer Season."*

The current accreditation methodology for conventional resources also does not capture correlated outage risk, such as we have seen during recent winter storms, nor does it result in comparable treatment with the current or proposed accreditation methodologies for wind and solar resources. We suggest that comparable treatment of all resource types, and reasonably capturing correlated outage risk should also be objectives for this RR effort.

How RR addresses the objectives:

Describe how this RR addresses or solves the objectives

Per the original RR submission: *"This RR meets the objective for implementing the performance based accreditation policy paper as approved by the SPP Board of Directors, Regional State Committee, and additional SPP working groups and committees in 2022. This RR also addresses, at least partially, the IRATF Resource Planning & Availability 2.1 & 2.2 initiatives to identify the appropriate accreditation of all resources."*

Benefits RR will provide:

- Reliability benefits: Yes, improving accreditation methodologies for conventional resources by better reflecting historical performance or availability for each resource type will allow SPP and its members to improve reliability by more accurately evaluating a resource's expected capacity availability, and improve resource adequacy planning. Basing the accreditation methodology on actual historic performance will also provide an incentive for generators to be available during the season for which they are being accredited. Further improving accreditation for conventional resources beyond what is contemplated in this RR to also reflect the risk of correlated outages, would further improve resource adequacy planning and reliability.

SUBMITTER COMMENTS

The Natural Resources Defense Council, Sustainable FERC Project, and Sierra Club, and Earthjustice, collectively Clean Energy Organizations, appreciate the opportunity to provide these initial comments on the proposed revisions to the accreditation methodology for conventional resources currently under consideration via Revision Request 554. We agree with the stated goal of RR 554 to better align resource accreditation of conventional resources with the capacity value these resources can reasonably be expected to provide to serve load. A more accurate methodology for capacity accreditation will improve reliability planning by giving SPP planners and operators a better understanding of the risk of resources being unavailable.
While we support the direction of RR 554, this proposal is deficient in several ways. Specifically, two aspects of these proposed changes are particularly problematic: 1) the revisions will limit the accuracy of conventional resource accreditation, and 2) the revisions will not result in comparable treatment for capacity accreditation of conventional resources as compared to wind and solar resources. As a result, these revisions will likely be rejected, again, by the Federal Energy Regulatory Commission. For these reasons, we offer several proposed changes to RR 554. We also include some clarifying questions in these comments and we request that SPP staff address them at a future SAWG discussion of RR 554.

<u>Proposed EFORd Accreditation Methodology:</u>

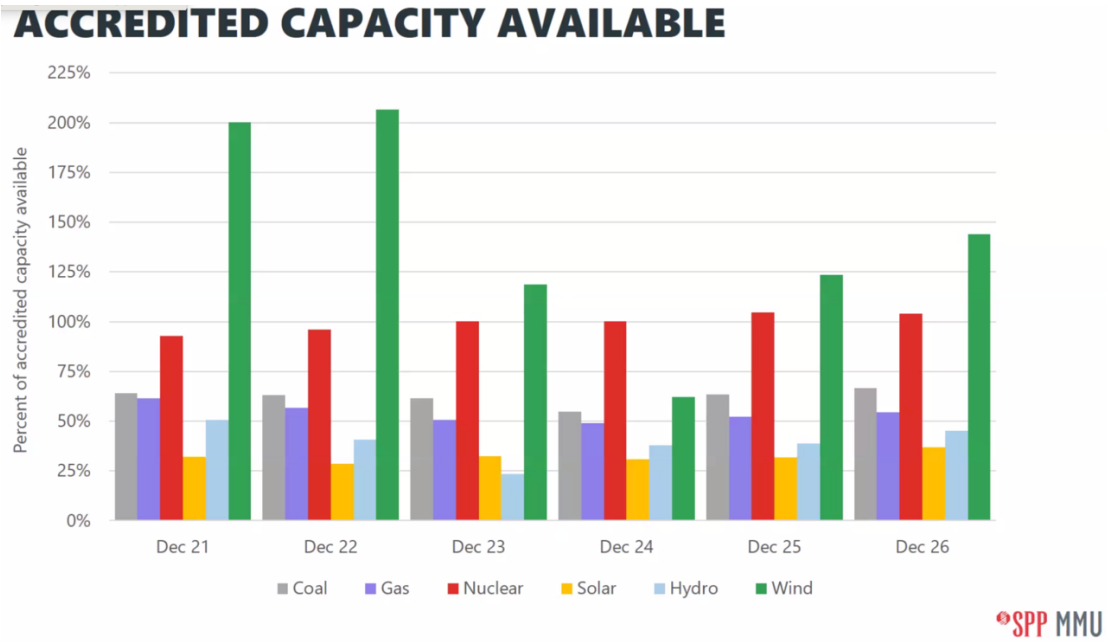
1. Correlated Outage Risk:

The current proposed accreditation methodology under RR 554 for conventional resources does not accurately capture the forced outage risk, nor does it capture correlated outage risk, such as we have seen during recent winter storms. We suggest changes to the proposed new business practice BP XXXX below to address the inaccuracy in the proposed EFORd evaluation and urge SPP to work with stakeholders to determine a method of capturing correlated outage risk.

In addition, the proposed EFORd analysis for thermal resources is discriminatory vis-a-vis the proposed ELCC analysis for inverter-based resources. Specifically, ELCC analysis includes a consideration of correlated outages for wind and solar resources. Yet, the proposed EFORd analysis is calculated using an average forced outage rate over all hours in a season. Therefore, EFORd does not consider that under extreme temperatures the risk of forced outages for many conventional resources is higher than the risk of forced outages under more normal conditions. The two types of analysis (EFORd and ELCC) proposed for the two different resource classes (conventional vs wind and solar) do not consider forced outages in a comparable way, and are therefore discriminatory.

Moreover, the extreme conditions noted above are precisely the key situations that grid operators need to be focused on when planning for resource adequacy. Typical forced outage rates for gas generators might be in the 5-10% range; however, a recent presentation by SPP's market monitor indicated that

during the recent winter storm Elliot, the effective forced outages rates for gas resources were between about 40-50%.[1]



Unmodeled temperature dependence represents substantial resource adequacy risk and SPP must work quickly to include consideration of correlated outage risks for conventional generators, as it does for wind and solar, both to ensure comparable treatment and to improve resource adequacy planning and reliability in some of the most challenging operational hours. Extending the ELCC method to conventional generators, as NYISO is doing, is one approach, but other methods are being developed in MISO, PJM, and ISO New England, from which SPP and its members could learn as part of an accelerated process to update conventional resource accreditation to address correlated outage risks. Astrape[2] and Brattle[3] provide information on some approaches that SPP should consider. We do not endorse any particular methodology at this point, but it is clearly a reliability risk and discriminatory not to account for correlated outages among thermal resources.

2. Improve EFORd Accuracy:

Even if SPP and members do not expand the scope of RR 554 to include evaluation of correlated outage risks for conventional resources as we recommend, and which is necessary to result in comparable treatment for all resource types, at the very least SPP should 1) ensure that the dataset used to evaluate EFORd is as accurate as possible, and 2) commit to developing a more robust methodology that does address correlated outages as soon as practicable.

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1 Similar analysis shows increased correlated outage risks relative to temperature. For example, see Sinnott Murphy, et. al., "Resource adequacy implications of temperature-dependent electric generator availability", Applied Energy, March 15, 2020, https://www.sciencedirect.com/science/article/pii/S0306261919321117?via%3Dihub.

[2] https://info.aee.net/hubfs/Accrediting%20Resource%20Adequacy%20Value%20to%20Thermal%20Generation-1.pdf

[3] https://www.brattle.com/wp-content/uploads/2022/06/Capacity-Resource-Accreditation-for-New-Englands-Clean-Energy-Transition-Report-2-Options-for-New-England.pdf

Using ICAP to accredit resources results in a highly inaccurate method of planning for resource adequacy, because it does not incorporate any estimate of the risk of unexpected outages for conventional resources. We support the effort in RR 554 to improve accreditation of these resources by moving towards an accreditation methodology that recognizes forced outage risk for all resources. However, the proposed language in BP XXXX allows conventional resources to eliminate their worst performance year in the evaluation of their expected forced outage rate. The resulting inaccuracy in a forced outage rate is unjustified and limits the reliability benefits of this change. The proposed changes we offer below eliminate the best 4 out of 5 years approach for calculating the average forced outage rate (EFORd) and return to the well-reasoned original suggestion of SPP staff.

Also, allowing conventional generators to throw out their worst performance year when calculating their accreditation does not result in comparable treatment with wind and solar resources, as wind and solar resources cannot eliminate one of their worst performance years when calculating their accreditation values using an effective load carrying capability (ELCC) accreditation approach, and therefore the best 4 out of 5 years approach is unduly discriminatory.

In sum, not only do the EFORd and ELCC analyses reflect discriminatory treatment between thermal and inverter-based resources based on correlated outage risks, but the proposed EFORd method also inaccurately calculates the very risks that SPP must be seeking to mitigate.

<u>Proposed Transition Period:</u>

We are concerned that the proposed transition period unnecessarily postpones the proposed improvements of RR 554 for too long, which also postpones any reliability benefits that the final revisions can provide. While we understand that a transition period helps Load Responsible Entities prepare their resource plans to meet the Planning Reserve Margin requirements for resource adequacy under these proposed changes to accreditation for their resources, the longer SPP delays full implementation of these changes, the longer it will continue the impact of the very inaccurate ICAP accreditation methodology used today, which excludes any consideration of forced outage risk. We do not offer an alternate transition period proposal at this point, but note that MISO recently implemented changes to its accreditation methodology for thermal resources without an extended transition period. We recommend SPP develop changes to Sections 4.0 and 15.0 of Attachment AA of SPP's tariff, and Section 4. of SPP's Planning Criteria to include a transition period that does not wait until the summer of 2028 to fully implement EFORd based accreditation for conventional resources. Given that LRE's understand the direction that SPP is moving with conventional resource accreditation today, prior to the summer of 2023, it is more than reasonable to expect full implementation of these proposed change could happen in less than five years. We also note that this timeline does not align with the proposed implementation timeline of the ELCC based accreditation approach proposed for wind and solar resources. Absent alignment of the implementation of new accreditation approaches for all resource types, SPP's accreditation approaches for different resources cannot meet the comparable treatment standard and are unduly discriminatory.

Lastly, Section 3.4.1. on page 58 of RR 554 currently proposes that in 2025, the first year of proposed implementation under RR 554, only the last two years of outage data will be considered, and for 2026 only the last three years of outage data will be considered, and so on until 2028 when finally, five years of outage data will be considered. This limitation of the number of years of outage data used during the transition is unnecessary and again limits the accuracy of the EFORd calculation. We recommend that in whatever year SPP begins to use the revised EFORd methodology for part or all of the accreditation of conventional resources, the calculations should include GADS outage data for the prior five years. If

there is a technical reason why this is not possible, we request SPP provide that explanation at the next SAWG meeting.

Questions:

1. On page 20 of RR 554, Section 7.9 states:

Demand Response Resource(s) classified as Demand Response Program(s) shall not be: a) eligible to be used as Firm Capacity, Firm Power, or Unforced Capacity; and b) available for purchase to satisfy the Resource Adequacy Requirement, Winter Season Obligation, Summer Season Net Peak Demand Requirement, or Winter Season Net Peak Demand Requirement of another LRE.

Please explain this section and provide an explanation of how Demand Response Resources will be treated with regard to capacity accreditation.

2. Section 2.1.a.ii. on page 52 states:

Monthly GADS information from the performance screen for the timeframe spanning April 1 to October 31 of the previous year for the Summer Season data submission and November 1 of the previous year to March 31 of the current year for the Winter Season submission

And section 3.4 on page 57 states:

Each resource will have its EFORd calculated independently for both the Summer Season and Winter Season. The Summer Season will include all hours between the timeframe of June 1st through September 30th. The Winter Season will include all hours between the timeframe of December 1st of the previous year through March 31st of the subsequent year.

Why don't the timeframes for the required submission of GADS data match with the months used to accredit conventional resources for winter and summer?

3. On page 57 of RR 554, Section 3.4 states:

Out of Management Control (OMC) events, as defined by NERC GADS Appendix K, will be excluded from the EFORd calculation.

Please provide specific details of which events fall under the category of "Out of Management Control" and why outages related to each of these types of events should not be included in the EFORd calculation. In particular, please explain what types of outages related to fuel supply would be excluded from the EFORd calculations.

Respectfully submitted,

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SUBMITTER DOCUMENT REVISIONS

IN THE APPROPRIATE SECTIONS BELOW, PLEASE PROVIDE THE LANGUAGE FROM THE CURRENT RR SUBMISSION FORM FOR WHICH YOU ARE PROPOSING REVISION(S), WITH ALL EDITS REDLINED.

SPP OPEN ACCESS TRANSMISSION TARIFF

No specific edits are included, however, we recommend change be made to Sections 4.0 and 15.0 to implement a shorter transition period as discussed in our comments above.

SPP PLANNING CRITERIA

No specific edits are included, however, we recommend change be made to Section 4. to implement a shorter transition period as discussed in our comments above.

SPP BUSINESS PRACTICES

Our proposed changes to the tariff and business practice redlines included in RR 554, as discussed in the comments above, are included below. Our edits are indicated in blue. Only sections where we have proposed edits are included.

BP XXXX Unforced Capacity Methodology and Calculations for Conventional Resources

3.4.1 Years considered in the determination of EFORd

The most recent five (5) years of outage data will be used when determining the EFORd of each season. The ~~best four (4) out of the~~ five (5) years will be averaged together when determining the resource's EFORd. The calculation of EFORd ~~consideration of best 4 out of 5 years~~ will be performed for each season independently. The example shown below demonstrates the application of the EFORd calculation~~best 4 of 5 years~~ for each season applied to an individual resource.

Season	2016	2017	2018	2019	2020	Average ~~of best 4 of 5 years~~
Summer	5.7%	1.8%	6.4%	3.3%	4.0%	~~3.7~~4.2%
Winter	10%	6.3%	7.5%	8.7%	2.3%	~~6.2~~7.0%

3.5 UCAP Determination of New Conventional Resources

For conventional resources that have less than 5 years of performance data, whether a newly commercially operable resource or newly submitted resource in the SPP Resource Adequacy process, a class average EFORd for years where historical data is not yet available will be utilized when calculating the resource's EFORd. The Generation Owner will have the ability to provide the resource's design performance projections in lieu of the class average EFORd if desired. The EFORd initially chosen would then be phased out of the calculation as historical data is available. The same EFORd initially chosen would continue to be utilized in all future calculations of the resource until it is phased out. In the event that a newly accredited resource or new unit does not submit outage data following its initial accreditation year, it will receive a 100% forced outage rate for the year no historical performance data is provided. The table below shows an example on how a new natural gas resource with a design performance projection of 3% EFORd would be applied within the first six years of commercial operation for the Summer Season. The EFORd values with an asterisk (*) indicate the design performance projection of 3% while the other values indicate the actual performance of the generating facility for each applicable operating year.

Operating Years	(Current Year – 1) EFORd	(Current Year – 2) EFORd	(Current Year – 3) EFORd	(Current Year – 4) EFORd	(Current Year – 5) EFORd	~~Best 4 of 5 Years~~ Average EFORd
0	3%*	3%*	3%*	3%*	3%*	**3.0%**
1	4%	3%*	3%*	3%*	3%*	**3.20%**
2	7%	4%	3%*	3%*	3%*	**~~3.3~~4.0%**
3	1%	7%	4%	3%*	3%*	**~~2.8~~3.6%**
4	3%	1%	7%	4%	3%*	**~~2.8~~3.6%**
5	2%	3%	1%	7%	4%	**~~2.5~~3.4%**

4.0 Calculation of the Class Average EFORd by Resource Type

The Transmission Provider will publish a class average EFORd for the Summer Season and Winter Season by resource type. The resources will be divided by fuel type and the EFORd of each resource will be appropriately weighted in the class average EFORd. The weighted class average EFORd for each resource type will be determined based on the formula below. The Transmission Provider will publish the latest weighted class average results by October 1 for the Summer Season and April 1 for the Winter Season of every year.

$$\frac{Sum\ of\ all\ Accredited\ Capacity - Sum\ of\ all\ UCAP}{Sum\ of\ all\ Accredited\ Capacity}$$

The table below gives an example of one fuel type with five (5) resources, each one with a different EFORd and Accredited Capacity. Using the formula above, the weighted class average for this example fuel type would be 8.5% ((810 - 741) / 810).

Resource	Accredited Capacity (MW)	~~Best 4 of 5 years~~ Average EFORd	UCAP (MW)
Resource A	100	5%	95
Resource B	10	10%	9
Resource C	200	8%	184
Resource D	350	7%	325.5
Resource E	150	15%	127.5
Total	810		741

6.0 Establishment of UCAP for Resource Specific Power Purchase Agreements or Fleet Based Agreements

Capacity and external Firm Power agreements from specific resources will have the resource's EFORd applied to the contracted amount from the resource. If the agreement is based on a facility level, then the weighted forced outage rate of the facility will need to be determined in order to apply the facility's EFORd to the contracted amount. Internal Firm Power agreements will not have the EFORd applied to them since they are considered in the Net Peak Demand of the Resource Adequacy Requirement.

The EFORd for fleet based capacity and external Firm Power agreements will be determined by utilizing all the associated EFORd from the resources backing up the contract. It will be the responsibility of the LRE, Generator Owner, or Market Participant to identity the list of resources, the amount of Accredited Capacity of each resource backing the agreement, and the EFORd of each resource to adequately determine the EFORd applied to the fleet contract. The table below gives an example of five (5) resources, each one with a different Accredited Capacity and UCAP. Using the weighted class average EFORd for each resource type, the EFORd applied to the contracted amount would be 5.4% ((410 - 388) / 410).

Resource	Fuel Type	Accredited Contracted Capacity (MW)	~~Best 4 of 5 years~~ Average EFORd	UCAP (MW)
Resource A	Coal	100	5%	95
Resource B	Natural Gas	10	10%	9
Resource C	Coal	200	8%	184
Resource D	Solar	70	N/A	70
Resource E	Wind	30	N/A	30
Total		410		388