Capacity Market Reform

This template is being provided in addition to the options matrix to help stakeholders provide their high-level design concepts in context with all Key Work Activities. This may cover all or parts of the RASTF key work activities and seasonal capacity and should focus on design objectives and solution options. We are still in the solution options phase of CBIR. Therefore, this should not be proposals or packages at this time.

Contributor – MN8

Concept Overview

A high-level summary to add context needed to help stakeholders understand your high-level design concept. *We propose proceeding with no-regrets reform discussions & analyses on certain topics while kicking off a process in parallel that allows for holistic consideration of interdependent reforms without prematurely committing to any specific reform decision before full consideration can be given for how it fits into the broader Resource Adequacy (RA) framework. For instance, a no-regrets workstreams should begin related to reliability risk modelling, particularly in the case of thermal generation resources, which will be relevant regardless of where the many related KWAs end up landing; indeed, having these models will be essentially to evaluating different design options. In tandem, holistic consideration should be given to all KWAs through a scenario-based approach (except for any deemed to be "independent", e.g., procurement metrics), whereby scenarios take certain market design elements as given and then build out the best framework possible around each of those foundations. Elements with the least consensus, most uncertainty around implementation, greatest knock-on effects vis-à-vis other KWAs, and a manageable number of options should be selected to allow for a productive process, e.g., seasonal/annual and marginal/average could form four foundations upon which comprehensive RA frameworks can be built.*
How does your concept address reliability needs? *Our concept would enable progress on urgently needed no-regrets reliability risk modelling while creating a process that facilitates the holistic consideration of interdependent design options, which is needed to ensure an RA framework that is effective and consistent across the many contributing design components.*
How do you frame the definition of a capacity product in your concept?

We think that capacity can be thought of as a reliability call option backed by a physical asset, where the "contractual terms" include defined performance obligations and measurement, triggering conditions (e.g., a pre-defined level of system tightness such as PAIs today), a penalty/reward framework, and more. We think that UCAP is a reasonable way to measure this product, but its derivation and associated "contractual terms" need to be refined.

Key Work Activity 2 – Reliability Risk and Risk Drivers

Determine the types of reliability risks and risk drivers to be considered by the capacity market and how they should be accounted for.

Option 1	Option 2	Option 3
Extreme weather—both in summer and winter—is the key driver of risk today. This should be accounted for in resource accreditation, through a robust methodological approach to capacity accreditation including a sufficiently long lookback period and/or a scenario-based approach. This should incorporate the same principles as ELCC – consideration given for correlation between generation resources and with load; weighting of performance in the highest-risk hours; etc. Thermal accreditation today misses this, and while a small amount of this risk is captured on the demand side (which is inefficient but wouldn't be unreliable if wholly captured), demand-side accounting today is not transparent and doesn't capture the extent of these risks. This is made evident by the high amount of these risks being captured in other jurisdictions doing more in-depth reliability risk modelling for thermal resources (e.g., ERCOT; ISO-NE; and NYISO).		
Requirements for Option	Requirements for Option	Requirements for Option
Reliability risk drivers like extreme weather relate to all KWAs. Most notably, this relates to supply and demand side accounting, i.e., KWA 5 and the VRR.		

Key Work Activity 3 - Procurement Metric and Level

Determine the desired procurement metric and level to maintain the desired level of reliability.

Option 1	Option 2	Option 3
We believe that the status quo 1-in-10 across the RTO is workable and not unreasonable, though we see the benefits to more nuanced reliability metrics (e.g., EUE) and are open to a discussion around different target reliability levels. However, there are many other issues being adjudicated through this process that we think are more pressing, such that we would caution against spending too much time and effort on these factors.	*We believe that a more deliberate approach should be taken to how LDA constraints are considered. For instance, there should be a discussion around whether 1-in-10 is meant to be the minimum, average, or maximum reliability level. If stakeholders agree that it's the maximum reliability level, then the status quo is appropriate. If it's the minimum, then the RTO-wide metric should be changed to ~1-in-16.7 (such that constrained LDAs would be at 1-in-10). Average could be implemented in any number of ways, e.g., placing 1-in-10 as the midpoint between constrained and unconstrained LDAs, setting the RTO-wide level to goal-seek a load-weighted average of 1-in-10 based on constrained/unconstrained LDAs from the prior auction, etc.*	
Requirements for Option	Requirements for Option	Requirements for Option
The procurement metric/level is not highly contingent on, nor a material driver of, market design decisions across other KWAs. Thus, from our perspective, it is a decision that can be made in parallel to other discussions about broader, inter-related packages, and then parachuted into whatever package we decide on.	*Same response as for Option 1.*	

Key Work Activity 4 – Performance Assessment

Determine the performance expected from a capacity resource.

Option 1	Option 2	Option 3
Performance assessment has two important dimensions – assessing performance during CP events (or whatever replaces CP) and assessing performance for resource-specific accreditation. In both cases, thoughtful assessments should have a clear and targeted definition of the relevant period and should focus on times of greatest system stress.	*Capacity resource CP obligations should be back-to-back with accreditation. The most demanding version of this entails basing performance on offers during system events (i.e., PAIs today) and tying this to accredited levels (i.e., UCAP cleared), as is done under the current CP construct. A next-best version entails basing performance on availability, where resources are deemed "unavailable" in instances where they are on outage for reasons deemed within their control in the accreditation process (e.g., if there were a fuel-secure set of gas resources, they would be penalized for outages during PAIs related to fuel unavailability).*	
Requirements for Option	Requirements for Option	Requirements for Option
Performance assessments are intimately related to capacity accreditation and obligations of capacity resources. If these three items are not designed in a thoughtful, 'back-to-back' fashion, then this will undermine the efficacy of supply side outcomes both in terms of efficiency and reliability.	*Constructing a CP framework that compliments the approach to accreditation is critical given that, together, these items set the tone for the two-settlements market that effectuate the capacity product. The obligations that can be placed on capacity resources look very different under a marginal versus "average" approach. It is not clear to us that there is a workable version of an offer-based performance construct in the case of marginal accreditation. In particular, certain*	

	reliability and efficiency risks emerge when coupling marginal accreditation with CP, whether under a "fixed", "variable", or "dynamic" baseline. This will be a critical factor to work through if we are to arrive at a successful RA construct that uses a marginal accreditation approach. *KWA 6 is also related, as we discuss in our response in that section.*	

Key Work Activity 5 – Qualification and Accreditation

Determine the qualification and accreditation of capacity resources.

Option 1	Option 2	Option 3
First and foremost, thermal capacity accreditation is widely recognized as having shortcomings today that should be urgently addressed. Insofar as risks are accounted for on the demand side, these should be moved to the supply side for greater efficiency; however, a revamp of thermal reliability risk accounting is warranted to ensure that risk drivers facing these resources are fully captured.	*Both marginal and "average" accreditation have pros and cons. While elements of marginal accreditation are conceptually preferable, there are serious practical concerns related to its implementation. We do not think that an affirmative decision can be made to support one or the other of these without a better understanding of implementation details.*	*Unit-specific performance adjustments to accreditation should be reviewed to consider approaches that base adjustments around a more targeted set of critical reliability hours as compared to the very broader 200x2 CP approach used today, for instance through some sort of LOLE/EUE-weighting.*
Requirements for Option	Requirements for Option	Requirements for Option
A revamp of thermal accreditation should happen regardless of what other decisions are made on other KWAs. While certain details of the approach to thermal accreditation reform hinge on other reform decisions (e.g., seasonal/annual market; marginal/average), a lot of no-regrets work can and should be done to begin to build towards a methodology and modelling approach for revamped thermal reliability risk, including lookback periods/scenarios used, resource class distinctions, and other key methodological decisions. This work should start immediately given the lack of precedent or consensus today, the many nuanced considerations that go into	*The marginal versus "average" accreditation decision has widespread ramifications, including for KWAs 2, 4, 6, 7, and 9, as well as for seasonal markets. For example, how would procurement target levels be adjusted in a marginal accreditation setting; what would the approach to thermal accreditation look like in either setting; and what performance obligations would resources have in a marginal setting and what would the broader CP framework look like?*	

this, and the likely material changes to tools that PJM would need to make to effectively carry out this accreditation. It is also important that it be completed ASAP since these revamped modelling tools will be essential for carrying out a complete review of different design options (e.g., marginal vs average).		

Key Work Activity 6 – Obligations of Capacity Resources

Determine the desired obligations of capacity resources.

Option 1	Option 2	Option 3
Must-offer requirements are difficult to consider in the abstract without understanding the context in which they will be implemented (see "Requirements" below).		
Requirements for Option	Requirements for Option	Requirements for Option
Must-offer requirements are intimately related to accreditation and performance assessments. Certain combinations of these elements should be carefully avoided – for instance, a must-offer requirement for variable resources, coupled with marginal accreditation and a "variable" or "dynamic" CP baseline, and no change in the sizing of non-performance penalties would dramatically increase costs to ratepayers by causing viable UCAP to exit the market altogether (e.g., solar would likely choose to not participate given the modest revenue opportunity and immense liability exposure).		

Key Work Activity 7 – Enhancements to the Capacity Procurement Process

Determine if there are needed enhancements to the capacity procurement process.

Option 1	Option 2	Option 3
Requirements for Option	Requirements for Option	Requirements for Option

Seasonal Capacity Construct

Items related to a seasonal capacity market construct.

Option 1	Option 2	Option 3
Consideration for annual versus seasonal markets is hard to do in the abstract. In a market like PJM where there is likely to be material LOLE risk in both the winter and summer in the future, if there isn't already today (it seems likely that there is but is hard to say dispositively given current shortcomings in thermal reliability risk modelling), there are clear conceptual advantages to seasonal markets, given the challenges that emerge in implementing an annual market in such a context. However, we have serious concerns with implementing a seasonal market without addressing other related issues (e.g., thermal accreditation) and committing to important complimentary changes (e.g., seasonal VRRs).		
Requirements for Option	Requirements for Option	Requirements for Option
There are many inter-related elements that determine the value and risks of moving to a seasonal market – VRR, thermal accreditation, marginal/average, and more. We therefore propose that all package combinations have a seasonal and an annual version, with related KWA changes considered in each case, so that seasonal/annual can be considered in a holistic context.		

Key Work Activity 9 – Supply-side Market Power Mitigation Rules

Determine if supply-side market power mitigation rules in the capacity market need to be enhanced.

Option 1	Option 2	Option 3
We believe that the MSOC as implemented today presents capacity price suppression risk due to how capacity performance risk is characterized through CPQR, among other things.		
Requirements for Option	Requirements for Option	Requirements for Option
The MSOC is intimately related to many of the KWAs. We are particularly concerned about updates to other elements of the capacity market that would make performance obligations more onerous (both in terms of CP and energy must-offer obligations) and capacity market revenues less robust (e.g., marginal accreditation) in an environment where MSOC goes unchanged, as this presents risks to participating capacity resources and could substantially undermine the efficacy of the capacity market as a tool for efficiently achieving Resource Adequacy.		