

**Topic open for feedback:**

**In the September 9 meeting of the Resource Adequacy Subcommittee (RASC), MISO presented RAN Reliability Requirements and Sub-Annual Construct (RASC010, 011, 012) revised evaluation scenarios and options. Stakeholders were invited to provide feedback on the priority of options to evaluate; refer to slide 24 of the linked presentation for more detail.**

**Slide 24 of the September 9<sup>th</sup> presentation provides four proposed areas of evaluation for which we provide comment in turn.**

**A. Conduct detailed LOLE analysis with variations.**

The Environmental Sector continues to support the use of hourly profiles for DIR resources, and we continue to recommend the LOLE methods and enhancements outlined in the Sector's feedback to the August RAN Workshop.

Additionally, if a monthly construct is evaluated, it is critical that MISO does not use the monthly LOLE method that was adopted in this year's LOLE modeling, where each month's data is adjusted in such a way that a 0.1d/month LOLE is created, from which other RA calculations can be performed. This artificially increases the LOL risk on MISO's system in an attempt to provide a framework in which ELCC of renewables can be calculated. However, a side-effect of this method is that every month would then have a 0.1d/month LOLE. For months with zero actual LOLE risk, this approach to monthly RA renders those months as times of risk, discouraging scheduled maintenance, among other issues.

Regardless of the construct design, the annual LOLE modeling results should speak for themselves, because that is the most plausible assessment of LOL risk throughout the year. Calculating an annual 0.1d/y does not constrain LOL risk to occur only during peak periods. During months with 0 LOLE, there is no capacity needed to mitigate risk, unless too much capacity goes out on scheduled maintenance.

Regarding maintenance specifically, MISO could use its annual LOL model as a starting point to calculate the level of capacity on maintenance that would not impact LOLE. As a hypothetical example, suppose March has LOLE=0. MISO gradually removes capacity (to represent planned outages) until LOLE > 0 (or some small value such as 0.001). The capacity removed would represent the amount of capacity that is unneeded during that month. This type of analysis could be done on weekly or monthly bases, informing MISO and stakeholders of the potential level of scheduled maintenance that would have no impact on LOLE and hence RA.

**B. Input results into the following requirement constructs:**

**1. Current construct (with approved filings)**

**2. Annual construct reflecting sub-annual needs**

**3. Seasonal construct reflecting sub-annual needs with 2 periods and possibly 3 or 4 depending results**

The Environmental Sector supports evaluation of these three constructs. Under any of the new construct designs that have been discussed, including monthly, there are a number of important issues that can, and should, be addressed under any of the options. In other words, solutions can be developed for these issues under annual with sub-annual needs, seasonal, and monthly. Two of these critical issues are:

1. How 'must offer' requirements would or could be designed optimally under each construct option; and
2. How flexibility to offer and accredit units for portions of the planning year can be accomplished under each construct option. This would apply to units that are designated to only be available for part of the year, or contracts that are only in place for a portion of a planning year.

As such, MISO should explicitly identify how each of these issues could be addressed under the different options.

#### **C. Use A to inform accreditation trials:**

1. **Current approaches**
2. **Potential approaches aligned with availability during RA hours (further discussion at October RASC)**

In line with our feedback to part B. evaluation options, explicitly identifying how 'must offer' requirements would interact with different accreditation approaches in each construct design is critical and extremely valuable for stakeholders considering the merits of the different design options.

#### **D. Trial 2 sensitivity examples aligned to futures that illustrate potential results and test robustness of the approaches**

The Environmental Sector recommends the following as sensitivities that would be informative and appropriate for robustness testing. In addition, while we are able to provide some preliminary ideas for sensitivities, it would be appropriate for stakeholders to continue to recommend sensitivities once various stages of the analysis are available and highlight particular areas where sensitivities would be most valuable.

1. **Include more flexibility through energy storage and flexible load resources.** None of the scenarios have significant storage resources or contain specific, new flexible load resources in the load shapes or supply side. As the queue and market trends demonstrate, there will be significant storage deployment in MISO, and flexible load is a well-known tool for high-variability systems. Sensitivities including more of these options will illustrate the impact of these growing options on different construct design options, likely demonstrating less overall RA risk.
2. **Transmission expansion's impact on RA.** Transmission expansion is a well-understood tool for increasing resource adequacy. Sensitivities in this analysis should analyze transmission solutions, including specific consideration of transmission solutions emerging from all three of the MTEP20 studies, increasing the North-South transfer, and HVDC connections crossing MISO regions or Seams.