ELCC Sr. Task Force

Vistra – ELCC Proposal Executive Summary

Vistra appreciates the opportunity to provide its perspective on improvements to PJM's ELCC modeling and accreditation methodology. At base, ELCC should model the likelihood that a resource will be available during periods of significant stress on the system, i.e., when there is a combination of both high load and weather conditions that degrade performance. Vistra believes that, if done correctly, ELCC provides a superior approach to resource accreditation. However, **PJM's current methodology does not adequately distinguish between outages that are coincident with weather events versus outages that are caused by weather events**.

Problems with Current ELCC Modeling

The failure to distinguish between outages in which weather conditions are causal versus coincidental to the outage results in oversampling of outages that are attributed to specific weather conditions even if the outage driver is just as likely to have produced the outage in other, more benign, weather conditions. For example, instead of 100% of the outages observed on January 7, 2014, being represented in a dispatch against load produced with 1994 weather, perhaps only a fraction of the outages should be allocated to weather causation. Additionally, as non-weather dependent load continues to grow, system risk will increase heightening the need to correctly attribute specific outage risk with specific weather conditions. Continuing to rely on the single causation of weather to outage rates undermines ELCC modeling and creates the following issues:

- **Reliability Value:** Challenges PJM's ability to link market incentives with changing system conditions and operating practices, a key goal of ELCC accreditation.
- **Volatility:** Increases concentration of risk in specific days/seasons. Compounding non-weather dependent and weather-dependent outages can cause an increase in the concentration of risks rather than distributing them, which impacts PJM's planning effectiveness, including on setting auction parameters.
- **Investment Signals:** Does not adequately distinguish between risks that can be mitigated via plant investment versus more intractable (systemic) risks. The current methodology undercuts investment opportunities by diluting their impact on resource accreditation. Specifically, investments that do not improve ICAP but improve availability can take an indeterminant number of years before being recognized in accreditation.

- **Risk Management:** Reduces incentives to adjust operator actions and manage risk proactively to avoid non-weather dependent outages.

Vistra Proposal

Vistra proposes placing outages into two separate classes: a **Class-Based Outage Rate ("CBOR")** and a **Resource Specific Monthly Outage Rate ("RSOR").**

CBOR would represent the shared risks between resources in the same class that are difficult to mitigate through individual resource owner action. A statistical significance test would be applied to each ELCC class to identify common cause outages. These outage causes would be limited to those that are not statistically likely to occur at the same or similar frequency across randomly selected weather bins. The hourly outage rate could be selected using existing THI binning and random draw methodology. Every 3-4 years PJM would conduct an assessment of markets, planning, and operations practices to assess categorical risk and determine what outages would be appropriately categorized as CBOR.

RSOR, on the other hand, would be an individual resource's historically observed outage rate as determined through its GADS history. RSOR would include outages that are statistically likely to occur across seasons (i.e., that are coincidental to the weather conditions when they occur). These are also likely to be the outages that the asset owner has the greatest ability to mitigate. Segregating them from other outages enhances the incentive to mitigate these outages. Applying a five-year history for RSOR further incentivizes investment to improve a resource's performance through a relatively quick realization of any reliability-based investment or improved operational practice.

Current Limitations on the Vistra Proposal

Vistra appreciates the sensitivity analysis on forced outage cause codes performed by PJM and presented at the May 8 ELCC STF meeting. As discussed in PJM's presentation, the high number of outage codes (1,700+) and lack of uniform use of codes across resources limits the ability to apply this data to resource accreditation at this time. Vistra is hopeful that in the future the ability to bin related outage codes and a more uniform application of those codes would allow them to be analyzed in a manner that enhances PJM and stakeholders' understanding of outages that are casual versus coincidental to the conditions in which they occur.

Even with the current data limitations, PJM's analysis demonstrates that, while a low level of correlation exists with the vast majority of outage codes (indicating that they were more likely resource, rather than weather dependent), a stronger correlation exists with certain outage codes (indicating that these outages

were more likely weather dependent and represented a system-wide risk). Further analysis by Vistra found correlations as high as 62% between system level load and certain forced outages between January 2021 and March 2024.

Vistra would encourage PJM and stakeholders, either in the ELCC STF or another venue, to continue to examine the relationship between weather conditions and outages. One potential approach that has been discussed but needs further exploration is to independently evaluate resource class performance and weather conditions. This approach could include independent draws for each weather event/bin by resource class. This approach would likely demonstrate a relatively low correlation between cross-class outages, i.e., outage rates for one class of resources were unlikely to be linked to outage rates of another class of resources. In addition to potentially highlighting a stronger correlation between specific resource classes, outages, and weather conditions, this approach would have two additional benefits. First, it would increase the sample size of extreme weather conditions; the current limited number of cold and hot weather events represents another potential risk of oversampling. Second, such an approach is likely to stabilize outcomes and limit outliers resulting in more predictable ELCC accreditation values – a result that will enhance risk management and the reliability value and investability of resources.