



Item 7.2: Planning Reserve Margin Update

Warren Lasher

Director, System Planning

Board of Directors Meeting

ERCOT Public

September 17, 2013



Board of Directors Request

In the July 2013 Board of Directors meeting, ERCOT was asked to respond to three outstanding stakeholder comments regarding the completed Loss of Load Expectation (LOLE) study:

1. Forced Outage Data doesn't reflect seasonal differences
2. Load analysis for peak hour conditions does not include impacts of price-responsive demand or conservation appeals
3. Effective load carrying capability (ELCC) of wind resources as determined by the LOLE model is not consistent with peak hour availability of thermal resources

ERCOT agrees these are relevant concerns.

Background: Study Findings

- Recent LOLE Study Results:
 - Using a 1-event-in-10-years loss-of-load criteria leads to a target reserve margin of ~13.8 % to ~18.9% depending on assumed likelihood of 2011 weather conditions
 - Model output indicates an effective load carrying capability (ELCC) of 14.2% for non-coastal wind resources, and 32.9% for coastal wind resources
- TAC has recommended that the ERCOT Board approve 16.1% as the Planning Reserve Margin, along with an effective-load carrying capability (ELCC) of 14.2% for non-coastal wind resources and 32.9% for coastal wind resources.

Stakeholder Comment 1: Outage Rates

- Outage Data used in the study doesn't reflect seasonal differences
 - In the current study, maintenance outages are scheduled consistent with typical unit operations (most maintenance hours occur in the spring and fall seasons).
 - Forced outage rates in the study are not seasonally adjusted; generation outage data available to ERCOT from NERC GADS is not granular enough to allow seasonal analysis. ERCOT internal outage data is not comprehensive.
 - The aggregate generation fleet outage rate is higher in this analysis than in the previous analysis, but the consistency of results between the two studies with 2011 weather removed from the analysis indicates that the impact of the increased aggregate outage rate is minimal (13.75% vs. 13.8%).
 - Obtaining higher quality outage data will be a primary focus for future LOLE studies. At this time ERCOT does not have sufficient outage data to estimate seasonal outage rates.

Stakeholder Comment 2: Impact of Price-Responsive Load

- Load analysis for peak hour conditions does not include impacts of price-responsive demand or conservation appeals
 - SARA report for summer 2012 and the Brattle Resource Adequacy study (June 2012; pg. 89) indicate a likely impact under peak load conditions of price-responsive demand and conservation appeals.
 - ERCOT has made improvements to the load forecast model that incorporate some of these impacts; these changes were not available when the load inputs for the LOLE study were developed in early 2012.
 - ERCOT agrees this is a relevant concern. Using the updated load models will likely have a material impact on the study results.
 - ERCOT is working with the project consultant to reevaluate the study with updated load information.

Stakeholder Comment 3: Wind Capacity Value Results

- Wind effective capacity analysis is not consistent with peak hour availability of thermal resources
 - Wind ELCC results indicated by this study are based on modeled wind output using 15 years of weather data; model results indicate average wind contribution during extreme peak load conditions
 - ERCOT is confident in the wind ELCC results derived from the study. However, GATF has recently recommended a different method for calculating the capacity value of solar resources using operational data (see [NPRR 550](#)). As non-wind variable resources become more prevalent, it may be appropriate to apply a consistent approach.
 - This issue warrants further stakeholder discussion.
 - It is important that the selected Target Reserve Margin be consistent with the selected ELCC for variable resources.

Conclusions

- Stakeholder Comments:
 1. Seasonal Outage Rates: Available unit outage data is currently not adequate to assess seasonal forced outage rates.
 2. Price-responsive loads: The impact of price-responsive loads and other demand response was not captured in the completed analysis. Incorporating these impacts using updated load models could have a material impact on study results.
 3. Wind ELCC: ERCOT believes the current wind ELCC recommendations are appropriate, but recent stakeholder recommendations for a solar ELCC may indicate a better approach for a system with multiple variable generation resources.
- Action Items:
 - Obtaining improved unit outage data will be a focus of future LOLE studies.
 - ERCOT is working with the study consultant to incorporate updated load models into the study results. ERCOT will bring revised study recommendations to the November Board of Directors meeting.
 - ERCOT will revisit the methodology for determining the capacity value of wind with stakeholders.

QUESTIONS / COMMENTS???

