

**TAC Response the ERCOT Board Operations Task Force Report
on the February 2, 2011 Extreme Weather Event**

Board Recommendation 1, Regarding Seasonal Assessments:

- a) Consider requiring the Regional Planning Group (RPG) to review the ERCOT seasonal assessment and make a presentation of their findings to the Board, preferably before the assessment goes to NERC. The seasonal assessments should be presented to the Board prior to the appropriate season.**

ERCOT has agreed to take the seasonal assessment to RPG for review. It should be noted that ERCOT does not submit the seasonal assessment to NERC; that is done by the TRE. ERCOT provides the data for the seasonal assessment to the TRE.

Separately, ERCOT plans to modify its seasonal assessment that it provides to the ERCOT Board and PUC. This new methodology would have an operational reserve reported for the upcoming year for the winter and the summer. ERCOT presented this concept to the Board in September. The CDR would still report planning reserves for year two onwards as has traditionally been the case.

Tentatively called the ***Seasonal Assessment of Resource Adequacy*** (SARA), the intent is to facilitate understanding of near-term risks. The CDR would continue to be based on assumptions consistent with use of probabilistic-derived target reserve margin, albeit with improvements to some inputs. Since long-term projections are necessarily based on less certain information than near-term projections, the CDR would be issued annually in January for *Year+1* to *Year+10* (e.g. January 2012 release would include 2013-2022). SARA would be based on most-current available projections of inputs and it would be released around April 15 for the summer season and October 15 for the winter season. Inputs to SARA would be deterministic ranges; comparison would not be made to target reserve margin.

The Wholesale Market Subcommittee (WMS) of TAC has been examining the SARA and CDR issues in its Generation Adequacy Task Force (GATF).

- b) Recommend the winter assessment include scenario analysis estimating the impact of extended (>3 days) freezing (< 20°) weather on:**
- (i) estimated load,**
 - (ii) the expected and worst case forced outage rate on generating units,**
 - (iii) the loss of gas generating units on interruptible gas transportation and supply agreements that do not have fuel oil back up,**
 - (iv) an estimate of fuel oil inventory and the projected run time based on the “on site” fuel oil inventory and**
 - (v) an estimate of the loss of gas supply due to freezing of the gas production and delivery system.**

In response to the revised PUCT substantive rule 25.361, ERCOT is studying two scenarios representing the worst expected winter in a 20 and 50 year period. As a part of this study ERCOT has surveyed generators for expected performance under extreme conditions (Forced outage rates), is analyzing what the worst expected conditions for these time frames entail; estimating load under these

conditions, factoring in generator rerating and studying the risks of fuel curtailments. ERCOT intends to analyze the reliability and availability of the system by combining (through Markov analysis) these factors and estimate the risk of winter load curtailments for the winter of 2011- 2012. A review of backup fuel inventory is included in this analysis.

Board Recommendation 2, Regarding Operational Communications:

- b) When sharing information during an emergency, ERCOT system operators should never withhold operational information from the operator community on the basis that the information may be competitively sensitive. Provide what is known, the actions taken, and the actions expected to be taken as the quality and substance of the communication is more important than the market sensitivity. Consider adding language to Protocol Section 1.3.6 to allow for an exemption to the restriction for protected information when under and Energy Emergency Alert.**

ERCOT and Transmission and Distribution Service Providers (TDSPs) have taken steps to improve their communication. ERCOT believes the changes they have implemented are responsive to the Board's request. Additionally, ERCOT has taken steps to improve their communications with the market during emergency events. WMS reviewed this issue and supports improved sharing of information between TDSP operators and ERCOT operators. WMS expressed concerns about sharing operational information of one Qualified Scheduling Entity (QSE) with operators from another QSE. The justification of WMS' position is that such sharing can create economic harm to market participants who are having unit outages or performance issues as they may be trying to contract with competitors to mitigate problems they are having. Much of the information that could be shared has been deemed confidential in both the PUC Substantive Rules and ERCOT Protocols.

Board Recommendation 3, regarding further technical investigation.

Ask TAC to review the actions taken by ERCOT (including market participants) surrounding the event and the ERCOT protocols and operating guides and make recommendations on appropriate changes that would make those actions, protocols and guides more efficient or appropriate. TAC should also consider the recommendations found in the report “ERCOT Emergency Operation, December 21-23, 1989” and determine if the recommendations are appropriate for today and should they be implemented if not already implemented.

There are several initiatives progressing on this subject. Some are not under TAC jurisdiction while others have had active TAC supervision. These include initiatives covering improvements from the perspective of generation, transmission, and market rules.

The examination of generation performance and improvements are happening at two levels. First, generators met with ERCOT and created a report to develop best practices for extreme weather. The report recommends:

Plant

1. Freeze protection guidelines and design criteria that are implemented consistently across the entire fleet.
2. Plant-specific emergency operating plans for winter weather.
3. Heat tracing on critical lines and pipes monitored throughout winter weather events to ensure the circuits are functional (evaluate the use of infrared cameras, and other technologies, to inspect critical heat circuits).
4. Secondary wind barriers as deemed appropriate to protect critical instrument cabinets, heat tracing and sensing lines.
5. Consideration of enhancing staffing 24x7 during winter weather events.
6. Consideration of enhancing management staffing 24x7 during winter weather events.
7. Consideration of developing a way to override certain frozen instruments whose failure causes units to trip offline (master trip logic block switch) for use during winter weather preparation with appropriate senior management approval.
8. Review of operator and maintenance training to support winter weather guideline implementation.
9. Process for ensuring adequate quantities of winter weather commodities and personal protection equipment are available during winter weather events (e.g., heat lamps, heaters, fuel supply, etc).
10. Process for monitoring instrument air dew points year round to ensure air is moisture free.

Corporate

11. Company-specific emergency operating plan for winter weather.
12. Use of continuous improvement to document lessons learned, best practices and to implement enhancing actions after each winter weather event.
13. Executive support of winter weather preparation (e.g., by sponsoring a fleet-wide annual winter preparedness review).

14. Consider asking Transmission Service Providers to staff plant switchyard 24x7 during winter weather events to seek to ensure minimal line outages.
15. ERCOT generator operators will share technical information and lessons learned, as it enhances unit availability, on an annual basis.

External

16. Consideration of warming/starting additional gas units and auxiliary boilers prior to a winter weather event to improve unit readiness and reliability.
17. Consideration of formalizing process for requesting discretionary enforcement from applicable environmental permits in support of grid reliability. Memorandum of Understanding (MOU) would be developed with the PUCT, TCEQ, and ERCOT to formalize the process. During the February 2, 2011 event PUCT, TCEQ, and ERCOT coordinated waivers as requested by generators to keep units online. This was proved to be very helpful and should be continued.

Market design changes are also being examined and implemented at TAC. The board has already approved:

- NPRR 365 - Change in Resource Outage Approvals from Eight to 45 Days (formerly "Change in Resource Outage Approvals from Eight to 90 Days")
- NPRR 379 - EILS Dispatch Sequence and Performance Criteria Upgrades
- NPRR 356 - EEA Changes Related to Dispatch Instructions and BLTs
- NPRR 369 – Black Start Service Revision Requirements

One NPRR is still pending:

- NPRR 402 - Clarification of Pre-DAM RUC Instruction Sequence

Two NPRRs were rejected

- NPRR 336 – Authorize ERCOT to Procure Additional RRS During Severe Cold Weather. The rationale for TAC rejecting NPRR 336 is described in the response to Board Recommendation 6a.
- NPRR 418 – Reporting Resource Forced Outages. PRS rejected this NPRR, however stakeholders and ERCOT are working on a method to ensure ERCOT operators have all the information that is required to monitor forced outages. NPRR 418 envisioned a manual process for reporting forced outages. TAC has instructed Stakeholders and ERCOT to explore a more automated approach.

Second, PUC has an active Project (No. 39646), requesting proposals for a report on extreme weather preparedness.

Board Recommendation 5, regarding load shedding:

The technical committee system should undertake to produce a generic list of the appropriate types of customers to curtail and the proper length of curtailment time during both manual and automatic under-frequency load shedding and identify the appropriate time intervals for when these criteria should be revisited, recognizing that this information may be security sensitive. TDSPs should maintain current lists of critical customers to the extent not done now. TDSPs should be required to estimate and report to ERCOT and the TRE, the amount of load available for load sheddings in EEA Level 3 after removal of critical care and under frequency circuits. Consideration should be given to the appropriate classification of gas compression loads in the load shed estimate.

In response to the events described in the board recommendation, TSPs are examining this issue. PUC has opened Project No. 39140 and a workshop is scheduled for November 3, 2011. The purpose of this workshop is to address electric power outage issues and comments related to transmission and/or distribution utility curtailment procedures and service restoration priority plans including priorities for power restoration to certain medical facilities. This workshop is a follow-up to the Commission's **Request for Information, Review of TDU Curtailment Procedures and Service Restoration Priorities Plans**, issued March 1, 2011.

Board Recommendation 6, regarding other operational issues:

- a) Consider amending operating rules as necessary to give more discretion to the ERCOT system operators to call for more spinning reserve when approaching abnormal operating conditions.**

NPRR 336 was filed and reviewed by TAC. The NPRR involved procuring additional Responsive Reserves (RRS) during cold weather events. TAC considered this recommendation and rejected the approach at the Protocol Revision Subcommittee (PRS) level. This NPRR was rejected because stakeholders questioned the utility of NPRR336. Instead, market participants believe the problem is better addressed in the Methodology for Determining Ancillary Service Requirements and the long-term look ahead of Reliability Unit Commitment (RUC). Stakeholders believe NPRR402, Clarification of Pre-DAM RUC Instruction Sequence, which proposes use of a Weekly Reliability Unit Commitment (WRUC) process for instances in which ERCOT issues instructions prior to the closing of the Day-Ahead Market

(DAM) submission window is the better answer. ERCOT believes it has the authority to procure more ancillary services during an extreme weather and with the WRUC process can pre-start units that do not have the ability to respond on short notice.

b) Reconsider having ERCOT coordinate generator scheduled maintenance.

TAC has reconsidered the issue and recommended for approval NPRR 365. This NPRR extended the time period for generators to request scheduled maintenance from 8 days to 45 days. The ERCOT Board approved NPRR 365 at its September meeting.

c) Periodically review responsive reserve distribution around the system to ensure that the reserve is useable for any event.

TAC has not advanced this issue because Responsive Reserves are a system-wide service to address system reliability. Instead, Reliability Unit Commitment (RUC) is the vehicle by which ERCOT procures location specific reliability capacity. The appropriateness of the level of RRS is handled in the Ancillary Services Study conducted by ERCOT. Responsive Reserves are resources ERCOT maintains to restore the frequency of the ERCOT System within the first few minutes of an event that causes a significant deviation from the standard frequency. The ERCOT Operating Guides set the minimum RRS requirement at 2300 MW for all hours under normal conditions. The Operating Guides allow ERCOT to increase that requirement under extreme conditions. Unless there is further guidance from the Board TAC does not plan to take any further action.

d) Consider adding testing and rules for Black Start Resources.

In NPRR 369 TAC has presented to the board that addresses testing for Black Start Resources. The features contained therein apply to testing of a unit's ability to perform as a Black-Start Resource and not the unit's ability to run during a cold weather event. The original submission had a feature for unannounced testing of Black Start Units; however, TAC rejected this portion of the test. The basis for TAC's rejection was that the NPRR's primary purpose was to make the test requirements for Black Start Resources more consistent with the North American Electric Reliability Corporation (NERC) Reliability Standard EOP-005-1, System Restoration Plans, and to provide a way for a Resource Entity to propose the alternate Generation Resource during the contract period. ERCOT has stated that NPRR 369 (as approved by the Board and TAC) provided them with the refinements they needed to the Black Start Process.