**Operations and Planning Synchronization Task Force**

**List of Issues:**

1. Consider use of an Operations feedback loop (e.g. monthly report to the ROS) to identify and address credible scenarios for further study.

* 1. Transmission elements associated with an ERCOT Transmission Watch.
  2. Transmission elements that are chronically denied Maintenance Outages.
  3. Congestion analysis for constraints that are consistently causing security violations similar to the concepts in NPRR393.
  4. Real-time developed mitigation plans requiring load-shed for a credible single contingency, including duration of event and amount of planned load shed.

e. When ERCOT performs outage analysis, if redispatch of generation is needed to avoid congestion, then that information should be made known to the TSP. This would enable TSPs to voluntarily reschedule the outages if there is flexibility in doing so. Learning about generation redispatch costs after the fact is of limited value.

f. Each ERCOT developed TOAP should be posted on the Nodal MIS on or before the effective date (preferably when outage is approved) and should include information such as the underlying scheduled outage that it is associated with and its date range, as well as, relevant load and generation unavailability assumptions used in its development.

g. ERCOT to report transmission clearance related congestion in more detail including the underlying scheduled outage, the congestion rents associated with the clearances, and the associated TOAP description, if applicable, as well as a basic description of which actual conditions were more stressful than study conditions.

1. Ensure that Real-Time Operations, Outage Planning and Transmission Planning processes are aligned in the use of operating generic transmission limits.
2. Consider clarifications and improvements to the Five Year Transmission Plan process.
   1. Consistent publication date for Five Year Transmission Plan.
   2. Consideration of incomplete Five Year Transmission Plan reliability projects in seasonal RAP/MP/SPS development.
   3. Exempt RPG review of Five Year Transmission Plan reliability projects that have an estimated cost less than $50M.
   4. Define and implement an urgent RPG review process for all Five Year Transmission Plan reliability projects that have a need date of less than 36 months.
   5. Ensuring projects in the Five Year Transmission Plan are completed in a timely manner. This includes unforeseen consideration of load variability, transmission outages and construction complexities that may require earlier completion.
   6. Consider LTSA results in determination of Five Year Transmission Plan projects.
3. Appropriate ratings
   1. Ensure Load and Ratings assumption consistency.
   2. Should SCED be limited by 2-hour ratings or make use of 15-minute ratings? [Comment; Exercise caution, 15-minute rating applies to operator action and applicable RAP]
   3. Should planning studies be more conservative by using the planning normal rating (Rate A) for a select set of contingencies? [Comment; monitor 95 to 97% to catch potential problems]
   4. Use of dynamic ratings in planning studies. [Comment; Apply percent loading less than 100% not additional set of ratings]
4. Appropriate load levels to consider in planning studies [Comment; Standards place the responsibility for TPs to develop and apply their own load forecasts for their area/stations.]
   1. Ensure that area load forecasts in the planning base cases are aligned with actual area peak loads.
   2. Establish a basis for load variations, including area seasonal variations.
   3. Review the planning process relative to validating load forecasting inputs of discrete load additions and determine whether process improvements need to be made.
5. Use of double circuit contingencies to develop operating limits – ERCOT Operations conservatively considers all double circuit contingencies. Evaluate appropriate use of double circuit contingencies.

b. In a SCED run, consider not redispatching generation for double circuit outages pre-contingency, as long as the loading is below the 15 minute rating and it can be decreased with online generation. In other words, make redispatch of online generation a valid Mitigation Plan for loading problems due to double circuit outages. Limits can be placed on its use such as:

* The loss of the circuit or transformer should not lead to a cascading outage
* The needed responsive reserve should be carried on two or more generation units and should be deliverable within 15 minutes

1. Long-term unavailability of autotransformers
   1. N-1-1 for autotransformers as a credible contingency for which load interruption is not allowed.
   2. Use of defined spare equipment strategy as mitigation for N-1-1 scenario.
   3. Use of defined distribution feeder switching or distribution transformer loading strategy as mitigation for N-1-1 scenario.
2. Generator unit unavailability and modeling issues
   1. Combined cycle trains as a credible single contingency for which load interruption is not allowed.
   2. Use of “typical” or “historical” Planned, Maintenance and Forced Outages and/or derates in an area.
   3. Use of extreme generator unit unavailability in an area and/or ERCOT-wide.
   4. Unavailability of intermittent resources in an area.
   5. Ensure alignment of anticipated maximum output from RARF submittals, operational tests and Pmax used in the planning base cases.[Comment: ERCOT Staff is using RARF to model generators in SSWG base cases.]
3. Consideration of transmission maintenance outages in planning studies. [Comment; potential N to the Nth degree of scenarios]
   1. Use of “typical” or “historical” Planned, Maintenance and Forced Outages in an area.
   2. Use of construction related outages in determination and timing of planning solutions.
4. Security-constrained deliverability of ancillary services – determine a methodology to account for ancillary service requirements in the generation dispatch or load response in planning and operating studies.
5. Simultaneous feasibility of generation dispatch solutions – ensure planning studies adequately anticipate operational constraints.
6. Planning Cases and Scenarios.
   1. Develop future year seasonal cases in DSB. [Comment; Case use needs to be clearly defined]
   2. Consider modifying DSB structure from years 1, 2, 3, 4 and 5 to years 1, 2, 3, 5 and 7. [Comment; Keep 4 and add 7]
   3. Model voltage regulation at actual reference point (typically the generator bus).[Comment: Controlling generator terminal voltage instead of high voltage side of unit main models actual operation, but greatly complicates base case building and contingency analysis because it requires making multiple solutions adjusting the desired voltage on the generator bus to control voltage on the transmission system.]
   4. Accurate reactive modeling of generation (mainly wind) resources – use reactive capability curve instead of maximum values.
   5. Accurate modeling of reactive loads as seen from the transmission system.
7. RMR Studies.[Comment: The deadlines for RMR analysis as prescribed by the Protocols are very short. They do not support increasing study complexity. ERCOT has already indicated more staff is needed if study complexity is increased.]
   1. Consider generator unit unavailability in RMR studies.
   2. Consider expanding RMR studies for future year generator unit unavailability.
8. Aged Infrastructure, maintenance, and storm hardening considerations - There are situations where aged facilities need to be maintained (such as a circuit rebuild) due to maintenance or storm hardening considerations, or there might be other facilities (such as 138/69 kV autotransformers) that are nearing the end of their life.  In some cases, the TSP may consider whether to upgrade the facilities in-kind or, for an incremental cost, upgrade and replace to ensure future needs are met without the need for a second project.  For example, if a circuit is rebuilt for maintenance, it would be highly undesirable for the TSP to rebuild the new circuit a second time because the load has grown to the point that the circuit needs to be upgraded. Consider modification to RPG procedure to allow certain upgrade projects to be considered as “neutral”. [Comment; It is prudent to upgrade facilities in a growth area]