



Consideration of Generic Transmission Constraints (GTCs) in Planning Studies

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Background

- Generic Transmission Constraints (GTCs) and their associated Generic Transmission Limits (GTLs) are operational tools for managing non-thermal System Operating Limits (SOLs) using market-based dispatch*
- GTC studies consider existing resources and resources with planned Initial Synchronization dates ~3-6 months in the future
- Planning studies evaluate system needs 2-6 years in the future (or beyond), and include planned resources meeting the requirements of Planning Guide Section 6.9
 - i.e., Planning studies include more resources further out in the future than GTC studies

* For more information on GTCs and GTLs refer to the ERCOT white paper, *Use of Generic Transmission Constraints in ERCOT*, which can be found at http://www.ercot.com/content/wcm/key_documents_lists/209817/The_Use_of_GTCs_in_ERCOT_July_2020.pdf.

Background

- Stability interfaces and limits considered in planning studies may necessarily differ from current operational GTCs/GTLs
- Underlying stability constraints within the planning horizon are considered
- The purpose of this presentation is to:
 - Provide insight into ERCOT's thought process for considering appropriate stability constraints and limits for planning studies
 - Provide an update on stability constraints and limits for the 2021 Regional Transmission Plan (RTP)

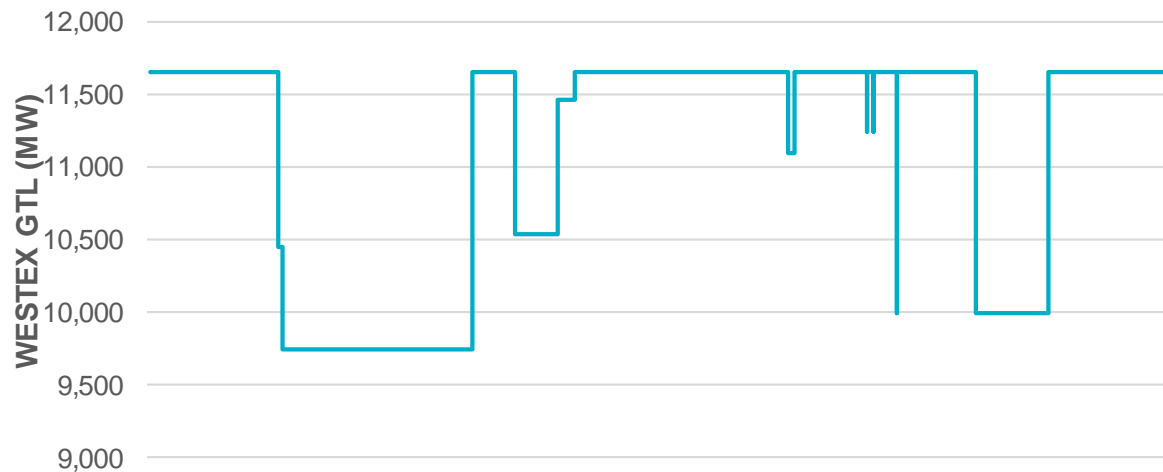
Current Generic Transmission Constraints

- ERCOT currently employs the following GTCs in the Operations Horizon*:
 - North to Houston (N_TO_H)
 - Rio Grande Valley Import (VALIMP)
 - Panhandle (PNHNDL)
 - West Texas (WESTEX)
 - Nelson Sharpe – Rio Hondo (NELRIO)
 - North Edinburg – Lobo (NE_LOB)
 - Red Tap (REDTAP)
 - East Texas (EASTEX)
 - McCamey (MCCAMY)
 - Treadwell (TRDWEL)
 - Raymondville – Rio Hondo (RV_RH)
 - Bearkat (BEARKT)
 - Valley Export (VALEXP)
 - Zapata Starr (ZAPSTR)
 - Culberson (CULBSN)
 - Williamson – Burnet (WILBRN)

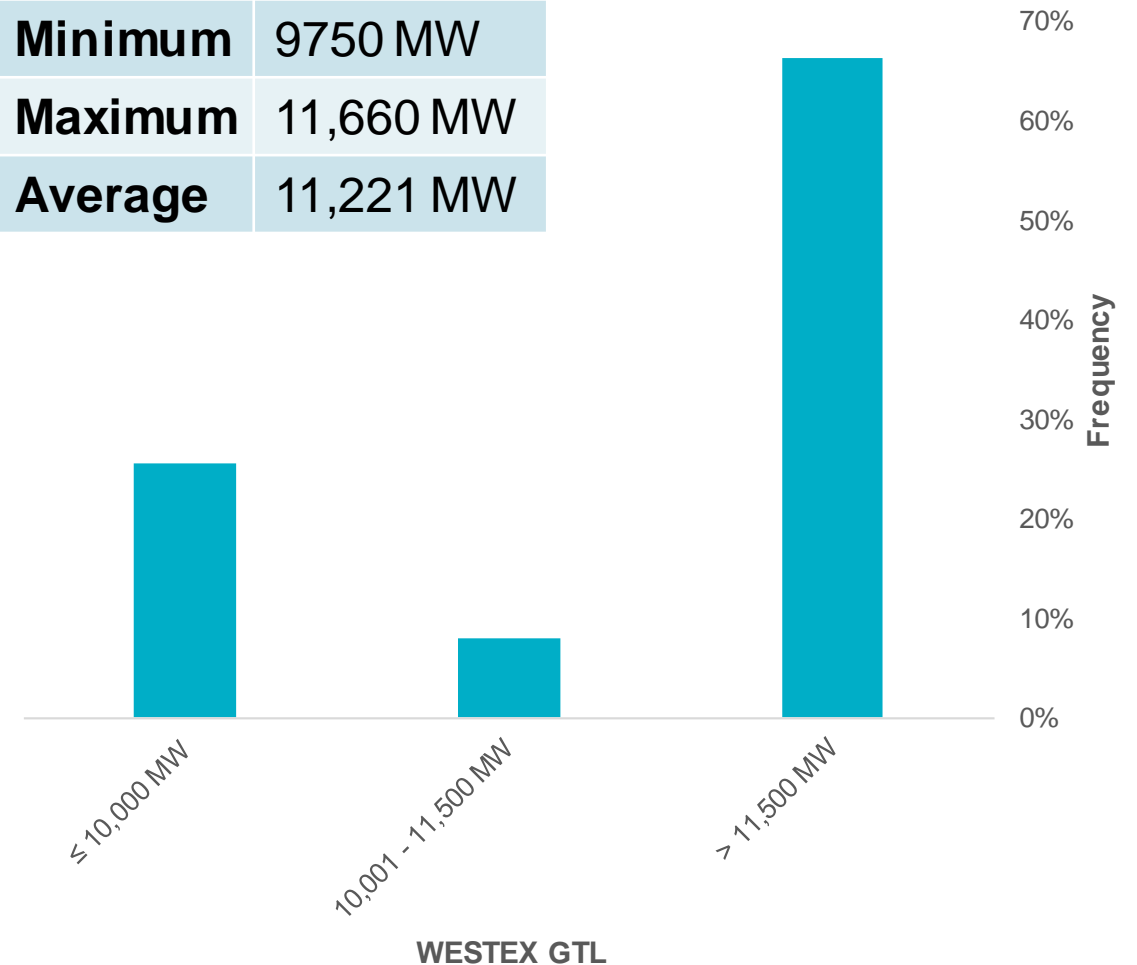
*Generic Transmission Constraint Definitions posted to MIS Secure as of May 6, 2021

Example 1: West Texas Export (WESTEX)

- The WESTEX GTL was at the maximum limit identified in the GTC Methodology the majority of the time
- Events that reduce the limit can be evaluated via outage sensitivity analysis

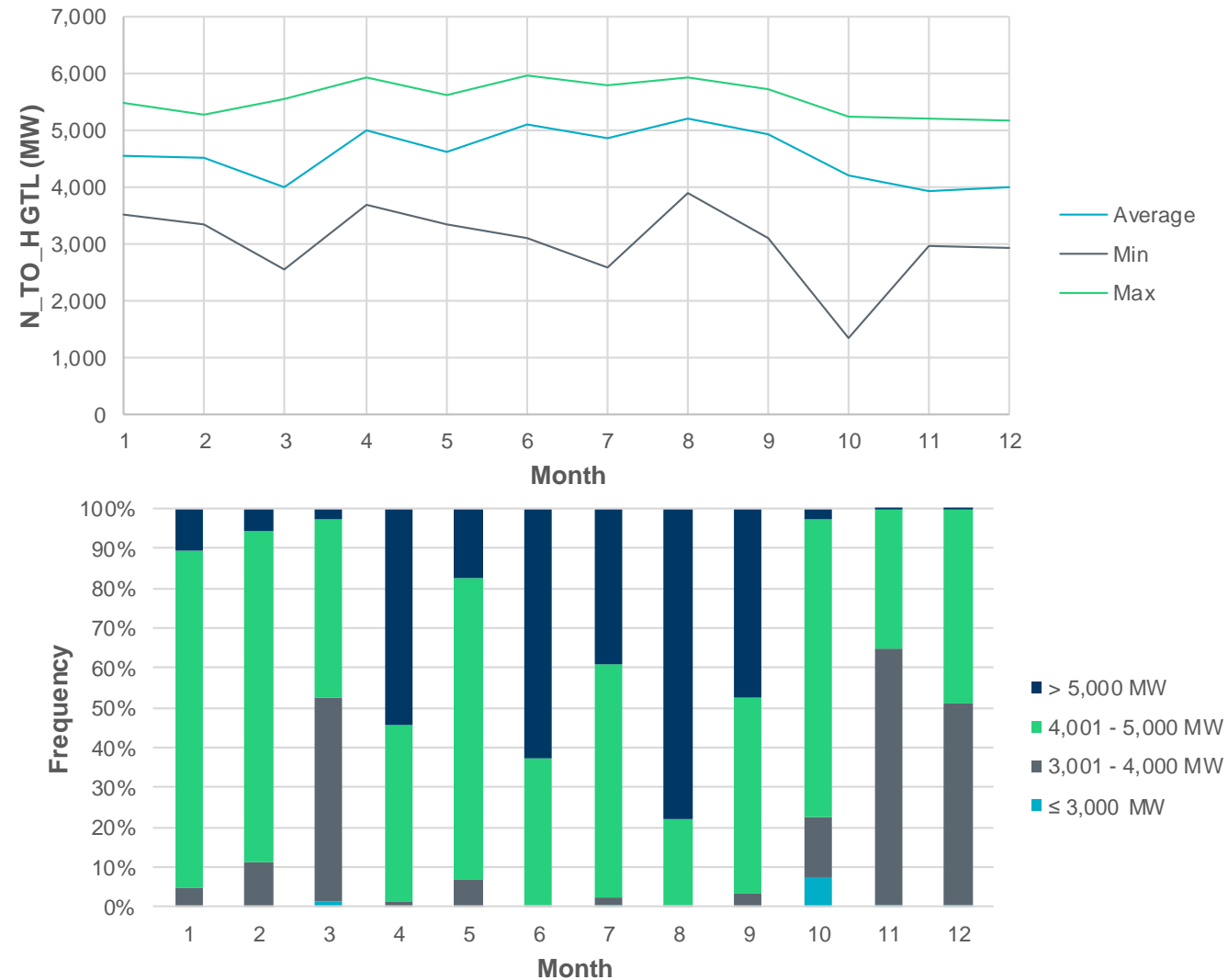


Minimum	9750 MW
Maximum	11,660 MW
Average	11,221 MW



Example 2: North to Houston (N_TO_H)

- Limit varies in based on real-time VSAT results
- Profiles developed from average values can be used for base analysis to account for seasonal and other variations
- More restrictive limits can be considered for outage sensitivity analysis



*Figures based on real-time N_TO_H GTLs for 2020

2021 RTP Stability Limit Summary

- The table below shows stability constraints to be included in the 2021 RTP that are directly analogous to current GTCs
- Stability constraints related to underlying issues in the Valley will also be included in 2021 RTP base analysis
 - Interface(s) and limits will be determined based on the results of the ongoing South Texas Stability Study

GTC	2021 RTP Stability Limit	Notes
West Texas	11,016 MW	Limit for the 2021 RTP is 90%* of the 12,240 MW limit from preliminary Long-Term West Texas Export Special Study results.
North to Houston	Limit profile under development	Limit profile based on average historical values. Enforced at 90%* of historical average.

* Consistent with the ERCOT Transmission and Security Operating Procedure found at <http://www.ercot.com/mktrules/guides/procedures>.

2021 RTP Stability Limit Summary

- The table below shows current GTCs that will not be included in 2021 RTP base analysis
- Stability constraints related to these GTCs may be considered for outage sensitivity analysis

GTC	Notes
Panhandle	No limit identified under N-1 conditions for the planning horizon.
Red Tap	No limit under N-1 conditions.
East Texas	No limit under N-1 conditions.
Treadwell	No limit under N-1 conditions.
Raymondville – Rio Hondo	No limit under N-1 conditions.
Bearkat	No limit under N-1 conditions without the RAS in service.
Zapata Starr	No limit under N-1 conditions.
McCamey	No limit under N-1 conditions.
Williamson - Burnet	No limit under N-1 conditions.
Culberson	Planned improvements are expected to remove limits under N-1 conditions for the planning horizon.

Questions?

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