SCT Determination Summary for Directive 8, PFR requirement only

Date: 12/11/2017

Market stakeholder input: PDCWG 10/11/2017 & 11/8/2017

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| **Directive #8 - Frequency response and voltage support** | **ERCOT shall (a) study and determine whether Southern Cross Transmission or any other entity scheduling flows across the Southern Cross DC tie should be required to provide or procure voltage support service or primary frequency response, or their technical equivalents, (b) implement any necessary revisions to its standards, guides, systems, and protocols, as appropriate, and (c) certify to the Commission when it has completed these actions.** |

* ***ERCOT Determination: Regarding frequency response in Directive 8, currently ERCOT does not see the need for the SCT DC Tie or entities scheduling across the DC Tie to provide governor-like frequency response.***
	+ Technical reasons for determination of no PFR requirement
		- Currently per NERC requirement BAL-001-TRE-1 and ERCOT protocols, Primary Frequency Response (PFR) in the ERCOT region is required and provided by generation resources.
		- Existing DC Ties at ERCOT (which are substantially smaller in their/import/export capacity) are not required to provide PFR.
		- If PFR support were required from SCT (or any DC Tie) the support would be intermittent since only be provided during import.
		- ERCOT expects that its methodology for determining Ancillary Services will reflect the impacts of ERCOT’s changing resource mix on its reserve requirements.
		- Requirements considered
			* NERC BAL-003 – Recover frequency within 30 minutes
			* NERC BAL-001-TRE-1 – Generation resource requirement for governor
	+ Market Stakeholder reasons against this determination (i.e., require PFR)
		- Unfair to existing generators which must provide PFR capability, since PFR is not currently compensated and incurs cost in maintaining, as well as wear and tear on machines.
		- With the size of SCT DC Tie, frequent forced outage of the tie may increase the amount of frequency response expected from generation resources subjecting them to increased wear and tear on machines.
	+ Implementation details for ERCOT determination
		- No changes to protocols or guides
		- No system impacts
	+ Related/emerging issues:
		- During frequency events, DC Ties can be ramping to export more energy (wrong direction to recover frequency) and not seen by SCED.
			* This should considered outside of SCT for current DC Tie impacts.
				+ ERCOT should consider proposing SCR to include net DC Tie ramp contribution into SCED calculations
				+ ERCOT should consider if Ties are big enough that ERCOT/SCED should suspend (or reverse) ramping
		- Consensus in PDCWG of importance for PFR to be a paid service
		- Need to study if more ancillary services required due to size of DC Tie (Directive #9)