

ATTACHMENT A

ERCOT - Southern Cross Transmission (SCT)

Project No. 46304

Directives	ERCOT Function(s)	Anticipated Start Date *	Target Completion Date †	Currently Planned Activities ‡
1. ERCOT shall (a) determine the appropriate market participation category for Southern Cross Transmission LLC and for any other entity associated with the Southern Cross DC tie for which a new market participant category may be appropriate (creating new ones if necessary), (b) implement the modifications to the standard-form market-participant agreement and its protocols, bylaws, operating guides, and systems required for Southern Cross Transmission's participation and any other entity's participation, and (c) determine the appropriate market segment for Southern Cross Transmission and any other entity.	Registration	Q2 2017 (1, 2) Q3 2017 (3, 4)	Q3 2018	1. Modify current market-participant types or creation of new market-participant 2. Review of necessary data 3. Draft NPRR – sent to market in Q3 2017 4. Updates to ERCOT bylaws (on cycle – target Dec 2017 Board)
2. ERCOT shall execute a coordination agreement or agreements with any necessary independent system operator, regional transmission organization, or reliability coordinator on the eastern end of the Southern Cross line. ERCOT shall consult Southern Cross Transmission as needed during negotiations of such agreement(s) for technical input and guidance.	Registration / Legal / Operations	Q2 2020	Q4 2020	
3. ERCOT shall determine what ramp rate restrictions, if any, will be necessary to accommodate the interconnection of the Southern Cross DC tie and shall implement those restrictions and shall certify to the Commission when it has completed these actions.	Operations	Q1 2019	Q2 2020	

* Anticipated start date for internal discussions.

† Subject to change – does not include adoption protocol changes or system changes. ERCOT, Inc. will provide periodic updates to schedule as per directives 11 and 12.

‡ Additional activities will be added as project progresses

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4. ERCOT shall develop and implement a methodology to coordinate reliably and cost-effectively outages following the interconnection of the Southern Cross DC tie and shall certify to the Commission when it has completed these actions.	Operations	Q1 2019	Q2 2020	
5. ERCOT shall study and determine how best to model the Southern Cross DC tie in its transmission planning cases, make any necessary revisions to its standards, guides, systems, and protocols as appropriate, and certify to the Commission when it has completed these actions.	Planning	Q3 2017 (1) Q1 2018 (2)	Q2 2018 (1) Q4 2018 (2)	1. Determine assumptions for transmission planning study 2. Determine when to include SCT in base cases
6. ERCOT shall study and determine what transmission upgrades, if any, are necessary to manage congestion resulting from power flows over the Southern Cross DC tie, make any necessary revisions to its standards, guides, systems, and protocols as appropriate, and certify to the Commission when it has completed these actions.	Planning	Q2 2018	Q4 2018	
7. ERCOT shall (a) study and determine whether some or all DC ties should be economically dispatched or whether implementing a congestion-management plan or special protection scheme would more reliably and cost-effectively manage congestion caused by DC tie flows, (b) implement any necessary revisions to its protocols, guides, standards, and systems as appropriate, and (c) certify to the Commission when it has completed these actions.	Operations / Markets	Q3 2017	Q2 2020	1. ERCOT internal to meet and outline options 2. ERCOT and SCT discussion

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<p>8. 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.</p>	<p>Operations / Planning</p>	<p>Q3 2017 (1) Q2 2018 (2&3)</p>	<p>Q2 2018 (1) Q4 2018 (2&3)</p>	<ol style="list-style-type: none"> 1. Draft NPRR to codify voltage support requirements for DC ties 2. Conduct a study of the voltage support requirements for the SC tie 3. Draft NPRR to codify primary frequency response capabilities of DC Ties
<p>9. ERCOT shall (a) evaluate what modifications to existing and additional ancillary services, if any, are necessary for the reliable interconnection of the Southern Cross DC tie, (b) implement any needed modifications to ancillary-services procurement, (c) recommend how the costs of such required ancillary services are to be allocated, and (d) certify to the Commission when it has completed these actions.</p>	<p>Operations</p>	<p>Q2 2017 (1) Q1 2018 (2) Q3 2018 (3)</p>	<p>Q1 2018 (1) Q3 2018 (2) Q2 2019 (3)</p>	<ol style="list-style-type: none"> 1. Determine assumptions for incremental A/S requirements study <ol style="list-style-type: none"> a. ERCOT internal to meet and outline options with assumptions identified b. ERCOT and SCT discussion 2. Conduct evaluation of the incremental A/S requirements due to SC using assumptions 3. Determine A/S Cost Allocation methodology (draft NPRR)
<p>10. ERCOT shall study price formation issues to determine whether, to avoid the flows over the DC ties adversely affecting price formation in the ERCOT wholesale market or otherwise causing outcomes inconsistent with a properly functioning energy market, any changes to pricing within the ERCOT market during emergencies are necessary. ERCOT shall certify to the Commission when it has completed these actions.</p>	<p>Markets</p>	<p>Q3 2017</p>	<p>Q3 2020</p>	

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11. ERCOT shall study and recommend appropriate responsibility for, and allocation of, the costs identified in the Commission's final order in Docket No. 45624, including costs common to the ERCOT system and special costs that are specific to the Garland line and Southern Cross DC tie, and shall identify any existing protocols that need to be modified or new protocols that need to be created, or (if appropriate) any existing Commission rules that need to be modified or new rules that need to be enacted, to appropriately address those costs.	TBD	TBD	TBD	
12. ERCOT shall study and determine for export-related costs whether the qualified scheduling entity should be assigned costs that ordinarily would ultimately be paid by the end-use customer.	TBD	TBD	TBD	
13. ERCOT shall periodically update the Commission regarding its progress in completing the above tasks.	Legal	Q2 2017	Q2 2021	<ol style="list-style-type: none"> 1. Request feedback from TAC at May meeting - complete 2. Periodic filings to PUC
14. ERCOT shall, as soon as practicable, notify the Commission of reasonable completion dates for the above tasks and shall report any changes to those completion dates as changes become known.	Legal	Q2 2017	Q2 2021	<ol style="list-style-type: none"> 1. Request feedback from TAC at May meeting 2. Periodic filings to PUC