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PUC PROJECT NO. 46304

OVERSIGHT PROCEEDING	§	
REGARDING ERCOT MATTERS	§	BEFORE THE
ARISING OUT OF DOCKET NO. 45624	§	
(APPLICATION OF THE CITY OF	§	PUBLIC UTILITY COMMISSION
GARLAND TO AMEND A	§	
CERTIFICATE OF CONVENIENCE	§	OF TEXAS
AND NECESSITY FOR THE RUSK TO	§	
PANOLA DOUBLE-CIRCUIT 345-KV	§	
TRANSMISSION LINE IN RUSK AND	§	
PANOLA COUNTIES)	§	

**ELECTRIC RELIABILITY COUNCIL OF TEXAS’S
REPORT ON SOUTHERN CROSS DIRECTIVES**

Electric Reliability Council of Texas, Inc. (ERCOT) submits this Report on Southern Cross Directives pursuant to the order issued by the Public Utility Commission of Texas (Commission) on November 4, 2021, in this project. The order requested that ERCOT and other interested parties “file an update regarding the remaining actions that need to be taken by the City of Garland or Southern Cross Transmission, LLC [(Southern Cross)], [ERCOT] or the Commission to complete regulatory review in accordance with the revised order creating and scoping Project No. 46304 filed in this project on May 23, 2017.” The Commission’s May 23, 2017, Order on Rehearing in Commission Docket 45624 (Order) imposed certain conditions on the interconnection of the DC tie project proposed by Southern Cross. The Order also specifically requires ERCOT to complete a set of 14 directives and to report to the Commission when work on each directive is complete.

I. STATUS REPORT ON COMMISSION DIRECTIVES

To date, ERCOT has filed nine status reports related to its work on the directives. As further described in these reports, ERCOT has completed its work on the following six directives:

- Directive 3, regarding DC tie ramp rate limitations;
- Directive 4, regarding outage coordination;
- Directive 5, regarding planning model assumptions and considerations;
- Directive 7, regarding congestion management;

- Directive 9, regarding ancillary services needs; and
- Directive 10 regarding price formation.

Two of the directives (13 and 14) concern status reporting to the Commission, which ERCOT will continue to provide. Substantive work remains ongoing on the six outstanding directives, as described in greater detail below. ERCOT expects to complete its work on four of these directives (6, 8, 11, and 12) by August 2022. The timeline for resolving the other two directives (1 & 2) remains uncertain, as these require further action on the part of Southern Cross before they may be fully addressed.

ERCOT notes that certain directives that have been or are soon expected to be identified as “complete” will also require further action by Southern Cross as a condition for implementation of the identified policy solution. Specifically, pursuant to the Commission’s order in Docket 45624 and a memorandum of understanding (MOU) between ERCOT and Southern Cross based on that order,¹ Southern Cross must provide funding for required upgrades to ERCOT computer systems as a condition for ERCOT’s commencement of the development of those upgrades.² This condition applies to the Revision Requests adopted to resolve directives 1 and 9 and to the Revision Requests proposed to resolve directive 8, which remains pending in the ERCOT stakeholder

¹ The MOU is attached to ERCOT’s Second Status Update in this proceeding.

² For example, Nodal Protocol Revision request (NPRR) 1034, which was approved by the ERCOT Board as the solution to address certain frequency risks associated with the Southern Cross DC tie pursuant to directive 9, will require approximately \$50,000-\$70,000 in upgrades to ERCOT’s grid application displays, market management system, and other computer systems to implement the functionality required by that NPRR. *See* NPRR1034, Frequency-Based Limits on DC Tie Imports or Exports, available at https://www.ercot.com/files/docs/2021/02/12/1034NPRR-20_Board_Report_020921.doc. Consistent with the ERCOT-Southern Cross MOU, the Board-approved impact analysis for that NPRR provides that Southern Cross must provide funding for the estimated cost of the upgrades before ERCOT may proceed with developing the upgrades. *See* NPRR1034 Impact Analysis, available at https://www.ercot.com/files/docs/2020/12/15/1034NPRR-14_Impact_Analysis_121520.docx. In addition, to ensure that ERCOT does not expend its limited software development resources to accommodate a transmission project that might not be built, the impact analysis also provides that, before ERCOT will proceed with the systems development work, Southern Cross must sign an interconnection agreement with a transmission service provider (TSP), and that the TSP must notify ERCOT that Southern Cross has provided the appropriate financial security and notice to proceed with needed interconnection facilities. Similar language is found in the impact analyses for NPRR857 (associated with directive 1) and NPRR1098 (associated with directive 8), the latter of which remains pending.

process. In this respect, the timeline for the implementation of the solution for these directives depends entirely on the timing of Southern Cross's satisfaction of these funding conditions. ERCOT understands from Southern Cross that the timing of its project, in turn, depends on the resolution of certain directives and other policy issues that may impact the economics of that project. To that end, ERCOT expects that its anticipated completion of all outstanding issues next year should facilitate Southern Cross's ability to proceed with financing and construction.

Directive 1

Directive 1 requires that ERCOT “(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.” As detailed in ERCOT's Fourth Status Update, ERCOT completed work on part (a) of this directive via the approval of Nodal Protocol Revision Request (NPRR) 857 and Nodal Operating Guide Revision Request (NOGRR) 177 in 2018. Implementation of NPRR857 and NOGRR177 will require upgrades to ERCOT computer systems. ERCOT expects that it will take approximately 12-18 months to complete these upgrades once Southern Cross has met the conditions to allow ERCOT to proceed with implementation of these upgrades.

With respect to part (c) of directive 1, the determination of the appropriate market segment for Southern Cross remains deferred at the request of Southern Cross. If Southern Cross notifies ERCOT that it wishes to pursue participation in a market segment, ERCOT will promptly reinstate

a stakeholder discussion on this issue. If Southern Cross notifies ERCOT that it does not intend to pursue this issue (or does not intend to do so as part of the resolution of the Commission's directives under the Order), ERCOT would be willing to proceed with a brief whitepaper to promptly resolve this issue with ERCOT stakeholders, consistent with ERCOT's established process for resolving the Commission's directives in this proceeding.

Directive 2

Directive 2 requires that ERCOT "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 has not yet begun work on this directive because negotiation of any required agreement(s) cannot begin until Southern Cross provides more definitive information about the location of the eastern endpoint of the DC tie, which would determine the entity (or entities) with which ERCOT would need to negotiate. ERCOT also believes it is prudent to wait until the Southern Cross project is financed and construction on the project has commenced before ERCOT expends its limited resources engaging another entity (or entities) in developing a coordination agreement. Once Southern Cross has definitively identified the location of the eastern endpoint of the tie and has begun construction on the tie, ERCOT can initiate development of the appropriate coordination agreement with the appropriate entities. ERCOT anticipates it will take several months to develop the agreement and that this agreement will be completed well in advance of the energization of the Southern Cross DC tie, as construction of the project will likely take several years.

Directive 6

Directive 6 requires that ERCOT "study and determine what transmission upgrades, if any, are necessary to manage congestion resulting from power flows over the Southern Cross DC tie."

ERCOT completed its transmission planning study regarding the Southern Cross DC tie in May 2019. Using model data and other information about the project provided by Southern Cross, ERCOT's study determined that transmission upgrades may be needed to support the DC tie; however, whether transmission upgrades will in fact be needed depends on other factors. For example, after the completion of the directive 6 studies, the ERCOT Board of Directors approved Planning Guide Revision Request (PGRR) 077, which codified ERCOT's practice of curtailing flows on DC ties in its planning studies as necessary to resolve planning criteria violations. The formal determination that ERCOT may resolve violations by curtailing flows in planning studies would obviate the need for any transmission upgrades to resolve congestion. Additionally, the need for certain other transmission upgrades will be impacted by whether Southern Cross is required to provide reactive power capability. This issue will be decided as part of the ongoing work on directive 8, described below.

Accordingly, ERCOT currently expects to resolve directive 6 following the final resolution of the voltage support issue raised in directive 8. As described in more detail below, ERCOT expects to pursue Commission approval of the Revision Requests needed to resolve directive 8 in the first quarter of 2022. Following final approval of those Revision Requests, ERCOT will sponsor whitepapers to formally close out directives 6 and 8 based on the various Revision Requests that have been developed to address those issues. ERCOT intends to pursue ERCOT Board approval of these whitepapers at the Board's June 2022 meeting. Therefore, ERCOT expects that it will complete work on directives 6 and 8 in June 2022.

Directive 8

Directive 8 requires ERCOT to study and determine if Southern Cross or entities scheduling power flows across the Southern Cross DC tie should be required to provide Primary

Frequency Response (PFR) or Voltage Support Service (VSS), or their technical equivalents. As stated in ERCOT's Fourth Status Update, ERCOT completed work on the PFR portion of directive 8 in 2018.

With respect to the VSS portion of directive 8, ERCOT is currently working with stakeholders towards the approval of Protocol and Market Guide revisions necessary for final resolution of the directive. More specifically, NPRR1098, *Direct Current Tie (DC Tie) Reactive Power Capability Requirements*, and NOGRR234, *Related to NPRR1098, Direct Current Tie (DC Tie) Reactive Power Capability Requirements*, are currently being discussed in various ERCOT stakeholder forums.³ ERCOT currently expects that these revisions will be up for approval at the February 2022 meeting of the ERCOT Board. As currently proposed, the revisions would require the owner of any DC tie facility that has an initial energization date after January 1, 2021, and any DC tie facility that is materially modified or replaced after that date, to have at least 0.95 power factor leading/lagging reactive power capability across a defined set of voltage ranges.

Upon approval of NPRR1098 and NOGRR234 by the ERCOT Board and the Commission, ERCOT will propose a whitepaper to formally close out directive 8. As noted above in the discussion of directive 6, ERCOT intends to submit whitepapers to resolve directives 6 and 8 in time for approval by the ERCOT Board in June 2022. ERCOT therefore expects directive 8 will be complete at that time.

³ ERCOT had also sponsored PGRR097 as part of the suite of Revision Requests to resolve directive 8; however, after further discussion, it was determined that PGRR097 is not essential for the resolution of directive 8, and that the subject matter of PGRR097 should be addressed as part of a larger stakeholder effort to determine whether certain responsibilities initially assigned to the DCTO in NPRR857 (as part of directive 1) should be assigned to some other entity, such as the DC tie owner.

Directive 11

Directive 11 requires that 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.” ERCOT’s intention with respect to this directive has been to defer consideration of cost allocation matters until all of the directives that could have material cost impacts have been resolved. This is because the resolution of other directives and changes to ERCOT rules may determine whether there are any costs to be allocated. For example, if ERCOT can curtail DC tie flows in its planning models (as the Planning Guide now allows based on PGRR077), this would avoid the need for major transmission upgrades that TSPs would otherwise be required to construct and would avoid any need for ERCOT to recommend an allocation of those costs pursuant to directive 11. Further, as noted above, the adoption of certain policy changes needed to implement the Commission’s directives may also require upgrades to ERCOT computer systems. However, Southern Cross’s agreement to bear those specific costs under the MOU should avoid any need for ERCOT to evaluate and recommend responsibility for those costs.

At this time, ERCOT is not certain that there will be any costs that will need to be addressed through directive 11. The last directives that ERCOT expects may have material cost impacts are directives 6 and 8, and ERCOT expects that it will be able to seek Commission approval of the Revision Requests associated with those directives in late February 2022. If and when the Commission approves those Revision Requests, ERCOT will initiate an internal review of any

other possible costs that may fall within the scope of this directive. If there are no such material costs, ERCOT would intend to seek ERCOT Board approval of a whitepaper formally closing out this directive no later than August 2022.

Directive 12

Directive 12 requires that ERCOT “study and determine for export-related costs whether the qualified scheduling entity [QSE] should be assigned costs that ordinarily would ultimately be paid by the end-use customer.” At this time, ERCOT is not aware of any “export-related costs” that would fall within the scope of this directive that are not already addressed by directive 6, regarding transmission impacts. As with the cost-allocation issues in directive 11, however, ERCOT intends to consider this issue more fully once all directives that could have material cost impacts have been resolved. Consistent with its intentions regarding directive 11, if ERCOT does not identify any costs that would be subject to the allocation described in this directive, ERCOT would intend to seek ERCOT Board approval of a whitepaper formally closing out this directive no later than August 2022.

Directives 13 and 14

Directives 13 and 14 require ERCOT to periodically report on the status of its work on the directives and to report to the Commission when work on a directive is deemed complete by ERCOT. ERCOT has been fulfilling these requirements through the filing of periodic status reports in the instant docket. ERCOT expects to continue this practice of filing periodic status reports until all directives are deemed complete.

Other Issues

ERCOT has identified two additional issues that will need to be resolved prior to the energization of the Southern Cross DC tie. First, given the size of the DC tie,⁴ ERCOT has determined that it is important to ensure the tie does not trip offline or cease injection or withdrawal of real or reactive power during normal voltage and frequency excursions, consistent with existing rules for Generation Resources. Recent events such as the May 2021 Odessa disturbance have underscored the importance of ride-through capability of Resources in an evolving grid.⁵ ERCOT intends to propose one or more Revision Requests to address these ride-through concerns early next year.

Second, as part of the consideration of NPRR1098 and NOGRR234, which have been proposed to address the VSS concerns identified in directive 8, stakeholder comments have revealed a concern about whether certain responsibilities allocated to DC Tie Operators in NPRR857 and NOGRR177 (which were proposed to resolve the market participant categorization required in directive 1) should more appropriately be assigned to the owners of those facilities. ERCOT intends to initiate conceptual discussions on these issues early next year and to propose any necessary Revision Requests soon thereafter.

While the Revision Requests that would be needed to resolve these additional issues do not fall within the scope of the directives identified in the Commission's Order, ERCOT would nevertheless intend to facilitate stakeholder consideration of these proposals as soon as possible. ERCOT anticipates that it should be able to resolve these issues by the third quarter of 2022.

⁴ As proposed, the tie would be capable of providing imports of 2000 MW and exports of 2100 MW.

⁵ See Joint NERC and Texas RE Staff Report on Odessa Disturbance (Sep. 2021), available at https://www.nerc.com/pa/rrm/ea/Documents/Odessa_Disturbance_Report.pdf.

II. CONCLUSION

ERCOT continues to diligently pursue resolution of the directives in the Commission's Order in this proceeding. Except for those developments that require further action from Southern Cross, ERCOT expects to have completed its work on all directives by August 2022. ERCOT expects to address the two issues that do not come within the scope of the Commission's Order by the third quarter of 2022. ERCOT would be pleased to provide any additional information the Commission may request regarding the status of its efforts relating to the Southern Cross DC tie project.

Respectfully,

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