



**Item 8: ERCOT Recommendation to PUC  
Project No. 46304, Oversight Proceeding  
Regarding ERCOT Matters Arising Out of  
PUC Docket No. 45624 Relating to DC Tie  
Project Proposed by Southern Cross  
Transmission, LLC, Directive 5 – ERCOT  
Determination regarding Planning Model  
Assumptions and Considerations**

*Matt Mereness*  
Director, Compliance

Board of Directors Meeting

ERCOT Public  
April 9, 2019

# Overview

- Background of Project and PUCT Directives
- Process to review and make recommendations on Directives
- Specific Directives in this update:
  - Directive 5 – Planning Model Considerations (Vote)

# Background of Project and PUCT Directives

- Southern Cross Transmission LLC (SCT) /Pattern Power Marketing LLC received FERC approval (FERC Docket No. TX 11-1-001) to interconnect DC Tie line.
- PUCT imposed conditions for interconnection of the SCT DC Tie line in two PUCT proceedings:
  - City of Garland CCN docket – Docket No. 45624
  - Oversight proceeding arising out of City of Garland docket – Project No. 46304
- As part of the oversight proceeding, PUCT issued 14 Directives to ERCOT, requiring certain studies and determinations be made to accommodate the SCT DC Tie.
- Planned energization date is 2023.

The bi-directional SCT Project can deliver up to 2,000 MW of economic energy and reliability products in either direction



# Stakeholder engagement and approval process

**Working Groups**  
ERCOT's engagement with experts in non-voting Working Groups or Workshops  
Capture key assumptions and solutions in whitepapers and/or Revision Requests

At the direction of TAC/ROS/WMS, ERCOT has engaged the appropriate working groups to brainstorm and assist ERCOT staff in reaching determinations for the issues raised in each Directive.



**Sub-committee**  
Take determinations to appropriate voting body (ROS, WMS, PRS) for endorsement

Whitepapers presented to relevant subcommittees for endorsement. Stakeholder comments posted on [ercot.com](http://ercot.com) along with other documents relevant to work on Directives.



**TAC**  
Determination on Directive presented to Technical Advisory Committee (TAC)

TAC has the option to vote to endorse a determination on a Directive.



**Board**  
Determination on Directive presented to ERCOT Board of Directors

ERCOT Board has the option to vote to approve a determination on a Directive.



# Request for Vote to Accept ERCOT Determination

## Directive 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.”
- **Determination:** ERCOT staff has determined that existing procedures set forth in ERCOT Protocols and Guides can be used for purposes of determining how to model the SCT DC tie’s physical equipment. Further, using information set forth in a prior SCT study and after consultation with the Planning Working Group (PLWG), ERCOT has established flow assumptions that will be used in ERCOT’s initial transmission planning study for the SCT DC Tie. Finally, the ERCOT Board has approved a revision to the ERCOT Planning Guide that establishes when a new DC tie, such as the SCT DC tie, should be included in the planning models. No further revisions to ERCOT Protocols or Guides are necessary in order to effectuate ERCOT’s determinations regarding how to best model the SCT DC Tie.



# Supporting Details for Determination on Directive 5

- **Basis for Determination**

1. ERCOT has reviewed its existing procedure manuals and determined that they prescribe procedures that are adequate for modeling the SCT DC Tie physical equipment.
2. Stakeholders agreed to an initial set of flow assumptions to be used in ERCOT's initial planning study for the SCT DC Tie. These assumptions are based on a study submitted by SCT in PUC Docket 45624. Once the SCT DC Tie is operational, actual flow data can be used.
3. ERCOT sponsored Planning Guide Revision Request (PGRR) 068, Addition of a Proposed DC Tie to the Planning Models, to define when new DC Ties will be added to the planning models. PGRR068 was approved by the ERCOT Board of Directors on December 11, 2018.
4. No further revisions are necessary to address the Directive.

- **TAC unanimously endorsed ERCOT Staff's determination on March 27, 2019.**



## Next steps

- ERCOT staff will continue to provide periodic updates to the PUCT on the status of these and other Directives.
- ERCOT staff will continue to work with stakeholders on remaining Directives.
- Webpage on [ercot.com](http://www.ercot.com) tracks work on Directives:  
<http://www.ercot.com/mktrules/puctDirectives>

# Appendix



## List of PUCT Order 46304 Directives

Directive	Subject	Anticipated Start
1	Determination of appropriate Market Participant category and market segment for SCT.	Started
2	Execution of any necessary coordination agreements.	Q2-2020
3	Determination regarding ramp rate restrictions.	Started
4	Development of methodology for outage coordination.	Started
5	Determination of planning model assumptions and considerations.	Started
6	Determination regarding any needed transmission upgrades.	Started
7	Determination as to how to manage congestion caused by DC Ties.	Q2-2019

## List of PUCT Order 46304 Directives (continued)

Directive	Subject	Anticipated Start
8	Determination regarding Primary Frequency Response and Voltage Support Service.	Started
9	Determination regarding modifications to Ancillary Services.	Started
10	Determination regarding price formation under emergency conditions.	Complete
11	Determination regarding allocation of costs identified in PUCT Docket No. 45624.	TBD
12	Determination regarding possible assignment of export-related costs to Qualified Scheduling Entities (QSEs).	TBD
13	ERCOT reporting of status of work on Directives to PUCT.	Ongoing
14	ERCOT updates to PUCT regarding completion dates for Directives 1 to 12.	Ongoing



**Date:** April 2, 2019  
**To:** Board of Directors  
**From:** Matt Mereness, Director of Compliance  
**Subject:** ERCOT Recommendations to PUC Project No. 46304, Oversight Proceeding Regarding ERCOT Matters Arising Out of PUC Docket No. 45624 Relating to DC Tie Project Proposed by Southern Cross Transmission, LLC, Directive 5 – ERCOT Determination Regarding Planning Model Assumptions and Considerations

**Issue for the ERCOT Board of Directors**

**ERCOT Board of Directors Meeting Date:** April 9, 2019

**Item No.:** 8

**Issue:**

Whether the Board of Directors (Board) of Electric Reliability Council of Texas, Inc. (ERCOT) should vote to accept ERCOT staff's determination that, for purposes of representing the Southern Cross Transmission, LLC (SCT) DC Tie in ERCOT's transmission planning models:

- Existing ERCOT procedures adequately prescribe the procedures for modeling the DC Tie's physical equipment;
- ERCOT's initial transmission study should use flow assumptions that are based on previous SCT studies and that were discussed with stakeholders;
- Recently approved Planning Guide Revision Request (PGRR) 068, Addition of a Proposed DC Tie to the Planning Models, adequately establishes when a new DC Tie, such as the SCT DC Tie, should be included in ERCOT planning models; and
- No further revisions to ERCOT Protocols or Guides are needed to establish how best to model the SCT DC Tie in its transmission planning cases.

**Background/History:**

In PUC Project No. 45624, the Public Utility Commission of Texas (PUC) issued an Order that approved the City of Garland's application for a certificate of convenience and necessity (CCN) to build a new 38-mile-long, 345kv transmission line connecting the proposed 2,000 MW SCT DC Tie to ERCOT. In the Order, the PUC also imposed certain conditions on the interconnection of the SCT DC Tie. The PUC then opened PUC Project No. 46304, and on May 23, 2017, it issued a Revised Order in that project that directed ERCOT to complete a number of tasks—set forth in 14 different Directives—that the PUC deemed were necessary in order to accommodate the new SCT DC Tie.

ERCOT staff has been working with stakeholders and SCT since mid-2017 to complete the tasks set forth in the Directives. Discussions on the Directives have been taking place in the relevant working groups and subcommittees of the Technical Advisory Committee (TAC) to assist ERCOT staff in reaching resolutions on the discrete issues

raised in each Directive, and these discussions are expected to continue until all of the issues raised in the Directives are fully resolved.

Once ERCOT staff makes a final determination as to how to resolve a discrete issue raised in a Directive, ERCOT staff follows an approval procedure that varies depending on whether or not the resolution of a Directive (or, in some cases, a part of a Directive) requires a Protocol or Other Binding Document (OBD) Revision Request. If the resolution requires a Protocol or OBD Revision Request, then, as appropriate, ERCOT staff will present the issue for discussion at relevant working groups and subcommittees, the TAC, and to the Board; however, ERCOT staff will only request a vote from these groups when the Protocol or OBD Revision Request that is intended to resolve the Directive is before the group for consideration and vote. However, when ERCOT staff has determined that no Protocol or OBD Revision Requests are needed in order to resolve an issue raised in a Directive, ERCOT staff will seek endorsement of this determination at the relevant working groups, subcommittees and TAC. Regardless of whether those groups endorse the determination, ERCOT staff will present the issue and determination to the Board for a vote to accept the determination.

This particular determination concerns Directive 5, which requires that 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.”

Discussions with stakeholders regarding this issue occurred at the following meetings: Planning Working Group (PLWG) 9/20/2017, 10/18/2017, 11/13/2017, 1/29/2018, 2/26/2018; Reliability Operations Subcommittee (ROS) 3/1/2018, 4/5/2018, 2/7/2019; and TAC 3/27/2019. ERCOT staff prepared a whitepaper ([link](#)) setting forth its determination and considerations relevant to that resolution, which was presented for discussion at these meetings.

Stakeholder discussions resulted in a new Planning Guide Revision Request (PGRR) and recommended transmission planning study assumptions. Specifically, on December 11, 2018, the ERCOT Board approved PGRR068, Addition of a Proposed DC Tie to the Planning Models, which establishes when a new DC Tie, such as the SCT DC Tie, should be included in the planning models. Further, ERCOT’s study and discussions with stakeholders with respect to Directive 5 established the flow assumptions used in ERCOT’s initial transmission planning study for the SCT DC Tie; these assumptions are set out in the ERCOT whitepaper. Finally, ERCOT determined that no further revisions to ERCOT Protocols or Guides are necessary in order to effectuate ERCOT’s determinations regarding how to best model the SCT DC Tie, because existing ERCOT procedural manuals adequately address the modeling of DC tie equipment.

ERCOT's determination regarding Directive 5 was unanimously endorsed by TAC on March 27, 2019.

**Key Factors Influencing Issue:**

- Existing working group (Steady State Work Group (SSWG), System Protection Working Group (SPWG), and Dynamics Working Group (DWG)) procedure manuals adequately address the modeling of DC Tie equipment, and these existing procedures can be used to model the SCT DC Tie physical equipment.
- Based on a study previously submitted by SCT in the Southern Cross CCN proceeding (PUC Docket No. 45624), as well as stakeholder input at the Planning Working Group (PLWG) regarding what should be considered reasonable DC Tie flow assumptions, stakeholders agreed to an initial set of flow assumptions to be used in ERCOT's initial transmission planning study for the SCT DC Tie. Under ERCOT's current planning practices, once the SCT DC Tie becomes operational, actual flow data would be used for transmission planning.
- ERCOT determined that a new DC Tie should be added to the planning models only when there is a high likelihood that the DC Tie will be constructed. Because ERCOT Protocols and Guides contain no language stating when a new DC Tie should be added to the ERCOT models, ERCOT sponsored PGRR068, Addition of a Proposed DC Tie to the Planning Models, which was approved by the ERCOT Board on December 11, 2018. PGRR068 provides that a new DC Tie will be added to the planning models only after ERCOT receives a signed interconnection agreement from the relevant Transmission Service Provider (TSP) and written notice from the TSP that the DC Tie developer has provided notice to proceed with the construction of the interconnection and the financial security required to fund the interconnection facilities, as well as the data necessary to model the new DC Tie.

**Conclusion/Recommendation:**

ERCOT staff requests that the Board vote to accept ERCOT staff's determination that: existing procedures set forth in ERCOT Protocols and Guides can be used for purposes of determining how to model the SCT DC Tie's physical equipment; using information set forth in a prior SCT study and after consultation with PLWG, ERCOT established the flow assumptions used in ERCOT's initial transmission planning study for the SCT DC Tie; the ERCOT Board has approved a revision to the ERCOT Planning Guide that establishes when a new DC Tie, such as the SCT DC Tie, should be included in the planning models; and no further revisions to ERCOT Protocols or Guides are necessary in order to effectuate ERCOT's determinations regarding how best to model the SCT DC Tie.



**ELECTRIC RELIABILITY COUNCIL OF TEXAS, INC.**  
**BOARD OF DIRECTORS RESOLUTION**

WHEREAS, the Public Utility Commission of Texas (PUCT) issued a Revised Order (Revised Order) on May 23, 2017, in PUCT Project No. 46304 that contains 14 Directives requiring Electric Reliability Council of Texas, Inc. (ERCOT) to study certain issues related to the proposed Southern Cross Transmission, LLC (SCT) DC Tie and make determinations as to whether certain actions must be taken by ERCOT in order to accommodate the SCT DC Tie;

WHEREAS, Directive 5 of the Revised Order requires that ERCOT 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;

WHEREAS, on December 11, 2018, the ERCOT Board approved Planning Guide Revision Request (PGRR) 068, Addition of a Proposed DC Tie to the Planning Models, which establishes when a new DC tie, such as the SCT DC Tie, should be included in the ERCOT planning models;

WHEREAS, ERCOT staff, after discussions with stakeholders, determined that no other revisions to ERCOT Protocols or Guides, other than PGRR068, are needed in order to effectuate ERCOT's determinations regarding how to model the SCT DC Tie; and

WHEREAS, after due consideration of the alternatives, the Board deems it desirable and in the best interest of ERCOT to accept ERCOT staff's determination;

THEREFORE, BE IT RESOLVED, that the Board hereby accepts ERCOT staff's determination that, for purposes of representing the SCT DC Tie in ERCOT's transmission planning models:

- Existing ERCOT procedures adequately prescribe the procedures for modeling the DC Tie's physical equipment;
- ERCOT's initial transmission study should use flow assumptions that are based on previous SCT studies and that were discussed with stakeholders;
- Recently approved PGRR068 adequately establishes when a new DC Tie, such as the SCT DC Tie, should be included in ERCOT planning models; and
- No further revisions to ERCOT Protocols or Guides are needed to establish how best to model the SCT DC Tie in its transmission planning cases.



**CORPORATE SECRETARY'S CERTIFICATE**

I, Vickie G. Leady, Assistant Corporate Secretary of ERCOT, do hereby certify that, at its April 9, 2019, meeting, the ERCOT Board passed a motion approving the above Resolution by \_\_\_\_\_.

IN WITNESS WHEREOF, I have hereunto set my hand this \_\_\_\_ day of April 2019.

\_\_\_\_\_  
Vickie G. Leady  
Assistant Corporate Secretary