



**Item 11: 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 7 – ERCOT
Determination regarding DC Tie Congestion
Management**

Matt Mereness
Director, Compliance

Board of Directors Meeting

ERCOT Public
February 11, 2020

- Background of Project and PUCT Directives
- Consideration of Directive #7 – Congestion Management
- Next Steps
- Appendix
 - List of PUCT Order 46304 Directives
 - Market Stakeholder Process Summary

Background of Project and PUCT Directives

- Southern Cross Transmission LLC/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 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



Consideration of Directive #7 – Congestion Management

Directive 7

- “ERCOT shall 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 and shall certify to the Commission when it has completed these actions.”
- **Determination:** *(a) ERCOT has determined that DC Ties cannot be economically dispatched using the existing DC Tie scheduling interface and that developing the appropriate systems to enable economic dispatch between ERCOT and one or more other systems would be prohibitively complicated and expensive. ERCOT’s consideration of any Constraint Management Plan (CMP) or Remedial Action Scheme (RAS) is fact-specific, and ERCOT will evaluate any CMP or RAS developed by ERCOT or properly proposed by other entities at the appropriate time. Based on information currently available to ERCOT, ERCOT expects that it would have reliability concerns with a CMP or RAS solution to address potential congestion impacted by the Southern Cross DC Tie due to its size;*

(b) ERCOT has not identified any required revisions to ERCOT Protocols or Guides as a result of this Directive.



Supporting Details for Determination on Directive 7

1. Incorporating DC Ties into SCED is not presently feasible, as it is prohibitively complicated and expensive.
2. ERCOT evaluates a properly proposed CMP or RAS in light of the relevant facts and circumstances and in accordance with the ERCOT rules and policies in effect at the time of consideration.
 - Based on current information, ERCOT believes that it would likely have reliability concerns with a CMP or RAS solution to address potential congestion impacted by the Southern Cross DC Tie.
 - Nevertheless, ERCOT will evaluate any CMP or RAS proposed in the future in light of the relevant facts and circumstances at that time.
3. Existing mechanisms can be used to manage congestion due to flows over the DC ties:
 - Price signals provide a strong incentive to each affected QSE to adjust its e-Tags to mitigate the congestion;
 - ERCOT can use Reliability Unit Commitment (RUC) to bring available dispatchable generation on line to alleviate the congestion; and
 - ERCOT can issue a DC Tie Curtailment Notice and curtail the import or export of the DC Tie to the extent necessary to operate the system within its limits.

Supporting Details for Determination on Directive 7

- WMS endorsed ERCOT Staff's determination on January 8, 2020, with 2 objections and 3 abstentions.
- TAC endorsed ERCOT Staff's determination on January 29, 2020, with 8 abstentions.

Next steps

- Request Board consideration to accept ERCOT's Determination on Directive #7.
- ERCOT staff continues to work with stakeholders on remaining Directives
- Webpage on [ercot.com](http://www.ercot.com) tracks progress and artifacts supporting each Directive:
<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.	Complete
5	Determination of planning model assumptions and considerations.	Complete
6	Determination regarding any needed transmission upgrades.	Started
7	Determination as to how to manage congestion caused by DC Ties.	Started

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

Market Stakeholder Process Summary

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 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.





Date: February 4, 2020
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, (Southern Cross) Directive 7 – ERCOT Determination Regarding Congestion Management

Issue for the ERCOT Board of Directors

ERCOT Board of Directors Meeting Date: February 11, 2020

Item No.: 11

Issue:

Whether the Board of Directors (Board) of Electric Reliability Council of Texas, Inc. (ERCOT) should vote to accept ERCOT staff’s determination that: (1) DC Ties cannot be economically dispatched using the existing DC Tie scheduling interface, and developing the appropriate systems to enable economic dispatch between ERCOT and one or more other systems would be prohibitively complicated and expensive; (2) while ERCOT would likely have reliability concerns with any Constraint Management Plan (CMP) or Remedial Action Scheme (RAS) that might be used to manage congestion caused by the Southern Cross DC Tie, ERCOT’s consideration of any CMP or RAS is fact-specific, such that ERCOT will evaluate any future CMP or RAS developed by ERCOT or properly proposed by other entities at the appropriate time; and (3) no revisions to ERCOT Protocols or Guides are needed to address this Directive.

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 Southern Cross DC Tie to ERCOT. In the Order, the PUC also imposed certain conditions on the interconnection of the Southern Cross 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.

The Directives require ERCOT to study various issues related to the new DC Tie and make determinations as to whether any actions need to be taken by ERCOT in order to accommodate the new DC Tie. ERCOT staff has been working with stakeholders and Southern Cross 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.

For each Directive, ERCOT staff will propose one or more determinations for stakeholder review and comment, along with any NPRRs needed to address the Directive, and will seek stakeholder endorsement of the determination at relevant working groups, subcommittees, TAC, and the Board.

This particular determination concerns Directive 7, which requires that 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.”

Discussions with stakeholders regarding this issue occurred at the following meetings: Congestion Management Working Group (CMWG) on 5/6/2019, 9/30/2019, and 12/16/2019; Wholesale Market Subcommittee (WMS) on 1/8/2020; and TAC on 1/29/2020. ERCOT staff prepared a whitepaper ([link](#)) setting forth its determination and considerations relevant to that resolution, which was presented for discussion at these meetings.

Although ERCOT’s discussions with stakeholders with respect to Directive 7 identified concerns related to congestion management associated with a DC Tie of the size proposed by Southern Cross, ERCOT staff determined that existing systems and processes are sufficient to manage congestion associated with DC Ties. ERCOT reviewed the possibility of integrating DC Ties into its Security-Constrained Economic Dispatch (SCED) engine and determined this would be infeasible due to the cost and the nature and degree of coordination that would be required with system operators at the other end of the DC Ties. Further, ERCOT staff determined that the use of a Constraint Management Plan (CMP) or Reliability Action Scheme (RAS) (formerly referred to as “Congestion Management Plan” and a “Special Protection Scheme,” respectively, as used in the PUCT’s Order in Project No. 46304) to address congestion related to the Southern Cross DC Tie would likely raise reliability concerns; however, ERCOT remains open to reviewing a possible CMP or RAS in the future should one be proposed.

In light of the foregoing, ERCOT staff determined that no further revisions to ERCOT Protocols or Guides are necessary in order to effectuate ERCOT’s determinations regarding reliable and cost-effective congestion management following the interconnection of the Southern Cross DC Tie. ERCOT staff’s recommendation was endorsed by TAC on January 29, 2020, with eight abstentions.

Key Factors Influencing Issue:

- Although integrating DC Ties into ERCOT’s SCED engine would allow for more efficient scheduling of imports and exports over the DC Ties, ERCOT has determined

that this is not feasible. Such an effort would require the complex and costly development of a joint dispatch mechanism with system operators in other affected regions, a binding commitment that would limit ERCOT's authority over one aspect of its market design, and may not be subject to the sole authority of the PUCT. Further, integrating DC Ties into SCED would likely involve high costs of implementation that would be borne by consumers, and it is not certain that these costs would result in a clear public benefit.

- Although a CMP or RAS might enable greater transfers over the DC Ties under certain conditions, ERCOT is required to consider the potential reliability impacts of such a proposal. Based on information currently available to ERCOT, ERCOT believes that it would likely have reliability concerns with a CMP or RAS solution to address potential congestion impacted by the Southern Cross DC Tie due to its size. Nevertheless, going forward, ERCOT will evaluate any properly proposed CMP or RAS in light of the relevant facts and circumstances and in accordance with the ERCOT rules and policies in effect at the time of consideration.
- Existing mechanisms in ERCOT can be used to manage congestion due to flows over the DC Ties:
 - Price signals provide a strong incentive to affected QSEs to adjust e-Tags to mitigate the congestion;
 - ERCOT can use Reliability Unit Commitment (RUC) to bring available dispatchable generation on line to alleviate the congestion; and
 - ERCOT can issue a DC Tie Curtailment Notice and curtail the import or export of electric energy over the DC Tie to the extent necessary to operate the system within its limits.

Conclusion/Recommendation:

ERCOT has determined that DC Ties cannot be economically dispatched using the existing DC Tie scheduling interface and that developing the appropriate systems to enable economic dispatch between ERCOT and one or more other systems would be prohibitively complicated and expensive. Further, while ERCOT would likely have reliability concerns with any CMP or RAS that might be used to manage congestion caused by the Southern Cross DC Tie, ERCOT's consideration of any CMP or RAS is fact-specific, such that ERCOT will evaluate any future CMP or RAS developed by ERCOT or properly proposed by other entities at the appropriate time. Consequently, ERCOT has not identified any required revisions to ERCOT Protocols or Guides that are needed at this time to more reliably and cost-effectively manage congestion caused by DC Tie flows. ERCOT staff recommends that the Board accept ERCOT staff's determination that no further action is necessary at this time.



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 (Southern Cross) DC Tie and make determinations as to whether certain actions must be taken by ERCOT in order to accommodate the Southern Cross DC Tie;

WHEREAS, Directive 7 of the Revised Order requires that ERCOT study and determine whether some or all DC Ties should be economically dispatched or whether implementing a congestion-management plan or special protection scheme—now referred to as “Constraint Management Plan” (CMP) and “Remedial Action Scheme” (RAS), respectively—would more reliably and cost-effectively manage congestion caused by DC Tie flows, implement any necessary revisions to its protocols, guides, standards, and systems as appropriate, and certify to the Commission when it has completed these actions;

WHEREAS, ERCOT staff, after discussions with stakeholders, determined that developing systems to enable economic dispatch of DC Ties would be prohibitively complicated and expensive and that, while ERCOT would likely have reliability concerns with any CMP or RAS used to manage congestion on the Southern Cross DC Tie, ERCOT’s consideration of any CMP or RAS is fact-specific, such that ERCOT will evaluate any CMP or RAS proposed in the future at that time; 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:

- DC Ties cannot be economically dispatched using the existing DC Tie scheduling interface and developing the appropriate systems to enable economic dispatch between ERCOT and one or more other systems would be prohibitively complicated and expensive;
- ERCOT’s consideration of any CMP or RAS is fact-specific, and ERCOT will evaluate any CMP or RAS developed by ERCOT or properly proposed by other entities at the appropriate time;
- Based on information currently available to ERCOT, ERCOT expects that it would have reliability concerns with a CMP or RAS solution to address potential congestion impacted by the Southern Cross DC Tie due to its size; and
- No revisions to ERCOT Protocols or Guides are needed at this time to more reliably and cost-effectively manage congestion caused by DC Tie flows.



CORPORATE SECRETARY'S CERTIFICATE

I, Vickie G. Leady, Assistant Corporate Secretary of ERCOT, do hereby certify that, at its February 11, 2020, meeting, the ERCOT Board passed a motion approving the above Resolution by_____.

IN WITNESS WHEREOF, I have hereunto set my hand this ____ day of February 2020.

Vickie G. Leady
Assistant Corporate Secretary