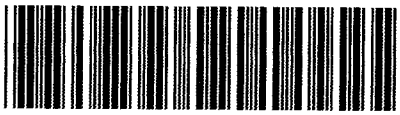

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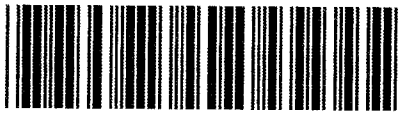

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SOAH DOCKET NO. 473-16-2751
DOCKET NO. 45624

APPLICATION OF THE CITY OF GARLAND TO AMEND A CERTIFICATE OF CONVENIENCE AND NECESSITY FOR THE RUSK TO PANOLA DOUBLE-CIRCUIT 345-KV TRANSMISSION LINE IN RUSK AND PANOLA COUNTIES	§	**BEFORE THE PUBLIC UTILITY COMMISSION OF TEXAS**

EXCEPTIONS TO THE PROPOSAL FOR DECISION OF SOUTHERN CROSS TRANSMISSION LLC

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TO THE HONORABLE PUBLIC UTILITY COMMISSION OF TEXAS:

Southern Cross Transmission LLC ("Southern Cross" or "SCT") files its Exceptions to the Proposal for Decision ("PFD") filed by the presiding Administrative Law Judges ("ALJs") on July 27, 2016. In its July 28, 2016 memorandum, the Public Utility Commission of Texas ("Commission") set the deadline for filing Exceptions as August 4, 2016. Therefore, these Exceptions are timely filed. In support of these Exceptions, SCT respectfully shows as follows:

I. INTRODUCTION (INCLUDING A SUMMARY OF CRITICAL EXCEPTIONS)

The PFD addresses the legal requirements for considering an amendment to the Certificate of Convenience and Necessity held by the City of Garland, doing business as Garland Power & Light ("Garland"), to construct a 37- to 40-mile 345-kV double circuit transmission line in Rusk and Panola Counties (the "Garland Project") and recommends that stipulated route RP9 be approved.

The PFD also addresses several non-traditional issues as a result of amendments to PURA § 37.051 during the 2015 Legislative Session that allow, but do not require, the Commission to consider reasonable conditions to protect the public interest that are consistent with the final order of the Federal Energy Regulatory Commission ("FERC") in TX11-01-001. FERC found that interconnection of the Southern Cross Project ("SCT Project"), an approximately 400-mile HVDC bi-directional transmission line, with ERCOT is in the public interest and ordered Garland to interconnect the SCT Project to ERCOT, and Oncor and CenterPoint to provide transmission service in ERCOT for the SCT Project.

In accordance with the directive from Commission Advising, these Exceptions follow the order of the PFD. In addition to other matters, these exceptions focus on three main issues that are critical to SCT:

1. Timeline for ERCOT projects: The PFD identifies a number of studies and projects that ERCOT should undertake in connection with interconnection of the SCT Project, most of which are generally agreed to by the parties, but the PFD simply says that such studies and projects must be completed by "energization of the SCT Project."
    a) However, the PFD does not recognize the need for expeditious resolution of these issues. To be consistent with recent legislation and the FERC order directing interconnection of the SCT Project, completion dates must be established for these projects.

b) Most of the studies and projects need to be completed before energization of the SCT Project in mid-2020, but determination of some issues, for example, an appropriate market participant category and segment for SCT—so that it can later execute the ERCOT Standard Form Market Participant Agreement—must be completed by June 1, 2017, to enable SCT to obtain financing.

c) If specific timelines are not established by the Commission, a "Catch-22" situation is created in which the studies and projects are not complete, the SCT Project cannot be financed, and therefore the SCT Project can never reach energization. This issue recurs throughout the PFD with regard to the various studies and analyses proposed for ERCOT. See Exceptions 3-5, 9-13, and 15 below.

2. Transmission system improvements: The PFD recommends that ERCOT further evaluate whether transmission system improvements are necessary to accommodate flows on the SCT Project and whether associated costs should be assessed to SCT.

a) However, the record is clear, that improvements are not necessary because SCT expects, and ERCOT will ensure, that SCT will operate within the existing limits of the ERCOT grid.

b) Assessment of specific grid upgrade costs to specific transmission customers would not be consistent with PURA or with the sound policy reasons supporting the postage stamp rate mechanism.

c) Finally, even if SCT did require transmission upgrade costs, export charges for transactions over DC ties contribute to ERCOT transmission cost of service, and the SCT DC Tie will provide substantial benefits to ERCOT ratepayers to offset those costs by a substantial margin.

3. Ancillary services: As with transmission improvements, the PFD recommends that ERCOT further evaluate whether additional ancillary services are necessary to accommodate the SCT tie and whether associated costs should be assessed to SCT.

a) It is not clear whether or to what extent SCT may contribute to ancillary services costs, but ERCOT should study the issue at the appropriate time through its annual review of ancillary services procurement.

b) As is the case with transmission costs, DC tie transactions pay their share or more of ancillary services costs through ERCOT settlement charges when they export and when they import to serve load, and the SCT Project would provide other significant benefits to ERCOT ratepayers.

c) Breaking with the established method of recovering ancillary services costs from load would undermine the current efficient and effective system and open the door to extended debate about ancillary services cost allocation. See Exception 15 below.

Here, SCT must focus on those recommendations with which it disagrees. Because SCT must address only those items to which it excepts, it would be very easy to lose the fact that the

ALJs, Casey Bell and Fernando Rodriquez, did a commendable job in attempting to consider and analyze some very difficult and novel issues in a very limited time. Even though SCT strongly disagrees with certain recommendations in the PFD, the ALJs' professionalism, attentiveness, and effort must be noted.

II. PROCEDURAL HISTORY

Not addressed.

III. JURISDICTION

Not addressed.

IV. NOTICE

Not addressed.

V. DISCUSSION

A. Application (Preliminary Order Issue I)

Not addressed.

B. Reasonable Conditions to Protect the Public Interest (Preliminary Order Issue No. 2)

3. Disconnection from the SCT DC Tie

Exception No. 1: SCT excepts from the PFD where it requires Garland and SCT to disconnect the Garland Project from the SCT DC Tie if a synchronous connection is made with the transmission line outside of Texas. (PFD at 11-15, FoFs 126-127, OP 19)

TIEC witness Charles Griffey recommended that the Commission require that Garland disconnect from the SCT DC Tie "if a synchronous connection is ever made to the Garland facilities outside the State of Texas."[1] Significantly, Mr. Griffey did not testify that such a connection was possible. Since the uncontradicted evidence shows that the interconnection point has been designed to prevent such a connection and make it impossible, Mr. Griffey's condition would be pointless, and it would not serve the public interest to adopt it.

As noted in the PFD, Garland witness Darrell W. Cline testified that he could not imagine how such a connection could be made,

[1] Direct Testimony of Charles S. Griffey, TIEC Ex. 1 at 14:19-22.

> [I]t is difficult to imagine how the Rusk to Panola line could be synchronously connected outside the State of Texas. No part of the Rusk to Panola line will be located outside the State of Texas, and as a result *there will be no physical way to connect to the line except inside the State of Texas.* As a result, no such condition is necessary.[2]

The PFD did not, however, relate Mr. Cline's testimony on cross-examination by TIEC, in which he adamantly refused to admit the possibility of a synchronous connection outside of Texas:

> **Q:** Now, I understand it's hard to imagine, but imagine along with me that that did happen and someone did synchronously connect outside of Texas. Will Garland commit to disconnect the line if that happens?
> **A:** Again, I can't imagine that since our CCN is going to stop at the state line and our ownership is going to stop at the state line, I don't see how we would be able to interconnect outside of the state line.
> **Q:** Just assume with me hypothetically that that did happen. Would Garland disconnect the line if that happened?
> **A:** Our line is not outside the state of Texas so I can't assume a hypothetical for a line that's outside the state of Texas.
> **Q:** No further questions. Thank you, Mr. Cline.[3]

Nor did the PFD relate the testimony of SCT witness David Parquet, who explained at some length that SCT carefully designed and located the Project's converter station immediately against the Texas-Louisiana border in order to accommodate TIEC's concerns that a generator might connect to the ERCOT system without being subject to the Commission's jurisdiction.[4] As a result, Mr. Parquet testified, "the only feasible interconnection would be located on the Texas side of the border and subject to Commission regulation and oversight."[5]

Finally, the PFD overlooks the interconnection agreement between Garland and SCT in Garland's application, which includes a description and diagrams of the interconnection facilities that will be located on the Texas-Louisiana border.[6] SCT's facilities are to be "located on the Louisiana side of the border, but proximate to, the Point of Interconnection at the

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[2] Rebuttal Testimony of Darrell W. Cline, Garland Ex. 8 at 7:24-29 (emphasis added).

[3] Tr. 29-30 (May 31, 2016).

[4] Direct Testimony of David Parquet, SCT Ex. 1 at 4:14–5:2.

[5] *Id.* at 4:23–5:2.

[6] Garland Ex. 1, Application, Attachment 2 at 54-58.

Texas/Louisiana border."[7] Likewise, "GPL's [i.e., Garland's] switching station will be located in Texas and immediately adjacent to Southern Cross's converter station."[8] The diagrams clearly show the facilities hugging the border, connected only by the Point of Interconnection, consisting of a rigid bus, not a transmission line.

There is no evidence or testimony in the record whatsoever suggesting that it will be possible for a third party to make a synchronous connection at the Point of Interconnection between Garland's facilities and SCT's facilities and outside of Texas. All of the evidence says that it will not be possible. Nonetheless, the PFD imagines that there is a real risk that such a connection will be made. The PFD does not explain how that might happen.

In order to assert that a condition requiring disconnection is in the public interest, the PFD ignores, without explanation, the uncontradicted, credible testimony of two witnesses that firmly and clearly establishes that a synchronous interconnection cannot be made outside of Texas. The PFD also had to ignore the description and diagrams of the facilities that show how they are designed and located to prevent such a connection. Given that Mr. Griffey did not assert that there is the slightest possibility that a synchronous connection could be made, his testimony is inadequate to support a conclusion that the condition is necessary to protect the public interest. The proposed ordering paragraph requiring disconnection in the event of an interconnection that cannot occur would be speculative, unnecessary, and ineffective, and there is no reason for the Commission to adopt it.

FoFs 126, 127 and 128 should be deleted or revised as follows:

126. The Garland Project will be located entirely within Texas, and a synchronous connection with the Garland Project transmission line outside of Texas will therefore not be possible.

127. It will not be feasible to make a synchronous connection with the SCT DC Tie at the interconnection point and outside of Texas.

128. A condition to the Commission's approval of Garland's application requiring Garland and SCT to disconnect the Garland Project from the SCT DC Tie if a synchronous connection is made with the transmission line outside of Texas is not necessary to protect the public interest.

Proposed OP 19 should be deleted.

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[7] *Id.* at 54, ¶ 7.

[8] *Id.* at 54, ¶ 8.

Exception No. 2. SCT excepts to the PFD's discussion and recommendation regarding the conditions for condemnation. (PFD at 7-8, FoF 120, OP 17).

Garland, SCT, Rusk Interconnect LLC and the intervening landowners reached an unopposed stipulation regarding the route in this case. A key element in achieving the agreement is a condition regarding when condemnation of right-of-way may occur. Specifically, Garland, SCT and Rusk Interconnect have agreed in the Stipulation as follows:

> 6. Garland, Southern Cross and Rusk Interconnect LLC agree that they will not, nor will they cause any of their affiliates to, seek condemnation of any landowner's land in Panola County for the Garland Project as described in the Direct Testimony of Darrell W. Cline, so long as the landowner provides access to the land for surveying and design purposes, until such time as Southern Cross provides the Public Utility Commission of Texas with evidence that it has secured the funding to construct the complete interconnection project, including the Garland Project and the Southern Cross Transmission Project as described in the Direct testimony of David Parquet.[9]

The ALJs specifically recommended that the cited provision be a condition of the final order.[10] However, in drafting FoF 120, the condition has been changed. The condition reads:

> It is reasonable and will protect the public interest for the Commission to prescribe a condition to its approval of Garland's application that prohibits Garland, SCT, Rusk, and their affiliates, from seeking condemnation of any landowner's land in Panola County for the Garland Project, so long as the landowner provides access to the land for surveying and design purposes, until SCT provides the Commission with evidence that it has secured the funding to construct the complete interconnection project, including the Garland Project, the SCT DC Tie, *and all related interconnection facilities.*[Emphasis Added.]

Similarly, OP 17 states:

> SCT must provide the Commission with evidence that it has secured the funding to construct the Garland Project, the SCT DC Tie, *and all related interconnection facilities* before Garland, SCT, and Rusk, and their affiliates, are permitted to seek condemnation of any landowner's land in Panola County for the Garland project, so long as the landowner provides access to the land for surveying and design purposes. [Emphasis Added.]

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[9] Garland Ex. 12. *Stipulation Concerning Transmission Line Route,* at 2-3. *See* SOAH Order No. 9 (Jul. 27, 2016).

[10] PFD at 9.

The specific language of the condemnation provision was the result of significant effort to find a workable agreement that would satisfy the needs of the affected parties: SCT, so it could get timely access to land for surveying and design purposes, and landowners, to ensure that the SCT and Garland projects were real, as evidenced by SCT's securing financing. It should be honored as agreed to by the affected parties. By adding "and all related interconnection facilities," the obligation to which Garland, SCT and Rusk agreed has been changed and compliance has been made impossible. Specifically, the term "all related interconnection facilities" is vague and would necessarily include the Rusk switch yard to be constructed by Oncor, not SCT, as well as the interconnection switch yard facilities at the eastern end of the SCT Project that are not expected to be the responsibility of SCT. In short, because of the vagueness of "all related interconnection facilities," SCT may well not be securing financing for "all related interconnection facilities" and therefore SCT can never provide the evidence to the Commission required by OP 17.

Based on the foregoing, proposed FoF 120 and OP 17 should be modified. FoF 120 should be modified as follows:

120. It is reasonable and will protect the public interest for the Commission to prescribe a condition to its approval of Garland's application that prohibits Garland, SCT, Rusk, and their affiliates, from seeking condemnation of any landowner's land in Panola County for the Garland Project, so long as the landowner provides access to the land for surveying and design purposes, until SCT provides the Commission with evidence that it has secured the funding to construct the complete interconnection project, including the Garland Project and the Southern Cross Transmission Project.

OP17 should be modified to read:

17. SCT must provide the Commission with evidence that it has secured the funding to construct the Garland Project, and the Southern Cross Transmission Project before Garland, SCT, Rusk, and their affiliates, are permitted to seek condemnation of any landowner's land in Panola County for the Garland Project, so long as the landowner provides access to the land for surveying and design purposes.

C. Routing Issues (Preliminary Order Issue No. 2a)

Not addressed.

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D. Representations Made in *Southern Cross* (Preliminary Order Issue No.2b)

Not addressed.

E. Application of PURA § 37.051(c-2) to SCT (Preliminary Order Issue No. 3)

1. Market Participant Agreement (Preliminary Order Issue No.3a)

Exception No. 3: SCT excepts to the PFD's recommendation not to establish a June 1, 2017 completion date for ERCOT to develop an appropriate market participant category and market segment for SCT. (PFD at 26-30, FoFs 37 and 42, and OP 13)

Without a market participant category and market segment that will allow SCT to execute the ERCOT Standard Form Market Participant Agreement ("SFMPA"), SCT cannot obtain financing for the project. And without financing, it cannot begin the construction that will eventually lead to energizing the line. Proposed OP 13 could thus allow ERCOT to indefinitely postpone its determination of a category and segment for SCT. As a result, the proposed FoF and OP would create a Catch-22, and they are inconsistent with the FERC Order, which found the interconnection of ERCOT and SERC to be in the public interest, and PURA § 37.051(c-2), which requires certainty and timelines in approving Garland's CCN.

The requested completion date is essential to obtaining the financing that will make the interconnection possible. Since the interconnection is in the public interest, the timely completion of financing must be in the public interest. The PFD is therefore wrong when it says that there is insufficient evidence to find that the June 1, 2017 deadline for financing is in the public interest.[11]

Section 37.051(c-2) requires the Commission to approve Garland's application within 185 days after it was filed. But by imposing conditions that require non-ministerial actions by ERCOT before Garland (and therefore SCT) can effectively utilize the CCN, the Commission would in effect delay the effective final approval of the application. SCT recognizes that additional time will be required for ERCOT to determine an appropriate market participant category and market segment for SCT, but proposed OP 13 would allow ERCOT (and parties who oppose the project) to in effect nullify the 185-day statutory deadline and the certainty required for approving the CCN.

[11] PFD at 30. The PFD acknowledges that financing can depend on the timing of ERCOT's determination of a market participant category for SCT. *Id.*

The result would be inconsistent with the FERC order that authorized SCT, pursuant to the interconnection agreements, to direct Garland and Oncor to construct facilities to interconnect with the SCT DC Tie. The proposed FoF 42 and OP 13 do not require ERCOT to take any action by a date certain. As long as SCT is unable to give assurance in its financing package that it can register as a market participant in ERCOT with known rights and obligations, it cannot obtain financing from lenders that is necessary to initiate construction. Such an indefinite delay prevents Garland from interconnecting with SCT and Oncor and CenterPoint from providing transmission service to SCT as the FERC Order directs them to do. A condition that permits denial of the interconnection just by the passage of time is neither reasonable nor consistent with the FERC order directing the interconnection and would therefore violate section 37.051(c-2) of PURA.

SCT is not asking that ERCOT be directed to resolve most of the issues assigned to it by June 1, 2017, but focuses only on the specific determination of market classification necessary to provide lenders and investors the regulatory certainty they need to close financing. Other studies and analysis assigned to ERCOT can be resolved before the SCT Project energizes in December 2020, as discussed further below. It is not unreasonable to request resolution in a time frame that permits the project to move forward, nor is June 1, 2017 completion of the market participant issue unreasonable. The PFD recognizes in various places the need for expeditious resolution of the ERCOT issues and, indeed, that financing can depend on that timing,[12] but stops short of recommending completion dates. However, establishing end dates for these issues is necessary to make these conditions to the Commission's order reasonable and consistent with the FERC order to interconnect.

The proposed findings and ordering paragraph would (1) require SCT to execute the SFMPA before the Garland Project is energized; (2) require ERCOT to develop an appropriate market participant category and market segment for SCT; and (3) require ERCOT to implement necessary changes to its protocols, standards, bylaws, and systems to accommodate SCT's participation in ERCOT. But the only deadline imposed on ERCOT is that it complete task one "prior to energization of the SCT DC Tie and the Garland Project." Since the actual execution of the SFMPA requires little time, the ordering paragraph would allow ERCOT to postpone

[12] PFD at 30.

determination of a category and segment for SCT until a date just before expected energization.[13] Without the determination of a market participant category and a market segment, however, SCT cannot obtain the financing that will lead to energization. As noted above, the PFD acknowledged the problem. The resulting delay is contrary to the 185-day time limit in section 37.051(c-2) and frustrates the FERC Order.

Staff and intervening parties knew well in advance of testimony filing dates that the close of financing will depend on ERCOT's determining a market participant category and market segment for SCT, yet no witness testified that it will not be feasible for ERCOT to accommodate the project's estimated schedule. Garland's application sets forth the estimated schedule, which envisions an ultimate completion date in 2021, some four and a half years from now:[14]

Estimated Dates of:	*Estimated Start Date*	*Estimated Completion Date*
Right-of-way (ROW) and Land Acquisition	March 2017	April 2018
Engineering and Design	May 2017	February 2018
Material and Equipment Procurement	March 2018	Ongoing throughout construction
Construction of Facilities	2018-2019	2021
Energize Facilities	2021	Within 30 days of completion of construction

The preliminary work for identifying needed ROW and Engineering scoping studies does not depend on the completion of project financing. However, the third and fourth actions—Material and Equipment Procurement and Construction of Facilities—including actually obtaining ROW, constitute the considerable bulk of the project cost as shown in the application, and they therefore cannot begin before SCT closes financing.[15] Parties reading the estimated schedule in the application should therefore have been aware that financing was expected to close by SCT's target—the end of 2017—which allows time for completion of key final Engineering and Design elements so that procuring can begin by March 2018.

SCT witness David Parquet testified in his direct testimony that the process to enable SCT to execute an SFMPA needs to occur before SCT closes financing.[16] In addition, in

[13] As will be discussed below, without clarification, the ordering paragraph may be read to hold SC's ability to energize the SCT Project hostage until ERCOT acts and Garland can energize its facilities.

[14] Garland Ex. 1, Application at 5 and Direct Testimony of Chris McCall, Garland Ex. 4 at 5:8. The estimated ultimate completion in 2021 is conservative, and in its briefs, SCT has given a completion date in 2020, or about four years from now.

[15] Garland Ex. 1, Attachment 1 at 2.

[16] SCT Ex. 1 at 5:1-4.

supplemental direct testimony, SCT witness Mark Bruce made it abundantly clear that in order to close project financing at the end of 2017, SCT's lenders will require the regulatory certainty of adopted market rules that determine a market participant category for SCT and enable it to register as a market participant in ERCOT.[17] He noted that the required changes would also require some revisions to ERCOT Protocols.[18]

Nonetheless, no ERCOT witness, staff witness, or witness for any other intervenor testified—in direct testimony, cross-rebuttal testimony or on cross-examination—that ERCOT would be unable to determine a market participant category and market segment for SCT in time for it to negotiate and close financing by the end of 2017. There is therefore no evidence in the record to dispute SCT's evidence that the June 1, 2017 completion date for ERCOT to act on this issue is necessary for SCT to prepare the financing package, allow the bankers and investors to perform their due diligence review and close financing in December 2017, and initiate construction in accordance with the estimated schedule. There is also no evidence to support Staff's assertion—accepted in the PFD—that the requested completion date "could force ERCOT to forgo or reprioritize other projects."[19]

To the contrary, Mr. Bruce testified that the issues ERCOT needs to resolve by June 1, 2017, are not particularly complex and can be accomplished on a fairly short timeline.[20] He also explained that SCT's regulatory classification is a fundamental question for the lenders and investors because it establishes SCT's compliance obligations and performance requirements, which in turn are critical elements of the due diligence conducted by banks and investors prior to financing projects such as this.

In its reply brief, ERCOT noted that policy issues that involve potential reliability impacts must be fully resolved as a condition for interconnecting the SCT DC Tie.[21] ERCOT also observed that the commercial goals of a single market participant cannot take precedence over the reliability of the ERCOT system. SCT does not contend otherwise, but there must be certainty in resolving such issues in a timely manner by a known date. SCT's requested

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[17] Supp. Direct Testimony of Mark Bruce, SCT Ex. 4 at 4:18–6:18.

[18] *Id.* at 5:9-15.

[19] Staff's Initial Brief at 11.

[20] Tr. 222-224 (Jun. 1, 2016).

[21] ERCOT's Reply Brief at 1-2.

completion date for determining SCT's market participant category and market segment does not impact the reliability of the ERCOT system. Contrary to its brief, the policy argument that ERCOT raises does not support its opposition to the June 1, 2017 completion date requested by SCT.[22]

Proposed FoF 42 should be revised as follows:

42. Requiring ERCOT, by June 1, 2017, to: (a) determine the appropriate market participant category for SCT; (b) implement the necessary modifications to the SFMPA; and (c) determine the appropriate market segment for SCT is a reasonable condition to approval of Garland's application, will protect the public interest, and is consistent with the FERC Order.

Proposed OP 13 should be revised as follows:

13. SCT shall execute the ERCOT SFMPA prior to energization of the SCT DC Tie and the Garland Project, and ERCOT shall determine, through its stakeholder process and by June 1, 2017, the appropriate market participant category for SCT, implement the modifications to the SFMPA and its protocols and bylaws required for SCT's participation, and determine the appropriate market segment for SCT.

2. Coordination Agreement (Preliminary Order Issue No. 3b)

Not addressed.

F. ERCOT Issues (Preliminary Order Issue No. 4)

1. Inclusion of SCT DC Tie in Planning Models (Preliminary Order Issue No. 4a)

Exception No. 4: SCT excepts to the PFD's recommendation not to establish a completion date by which ERCOT must study and determine when to include the SCT DC Tie in ERCOT planning models and make any revisions to ERCOT protocols as are appropriate. (PFD at 35-37 and FoF 48.)

The PFD does not propose an ordering paragraph to implement the applicable finding of fact, and it does not discuss a timeframe in which ERCOT must make its determination or provide guidance that ERCOT must diligently pursue resolution of the issue. SCT proposes that the Commission add an ordering paragraph to do so, and it states its position that a completion date must be established in any condition that directs ERCOT to undertake and complete a task as a condition to the certificate.

The Commission should set a completion date of June 1, 2020, which is based on the application's estimated schedule for completion of the project, which requires energization by

[22] ERCOT's Reply Brief at 3.

December 2020.[23] That will give ERCOT and the stakeholder process almost four years to include the SCT DC Ties in the ERCOT Planning models, allowing ample time for a full and deliberate consideration of the mandated tasks.

When it enacted section 37.051(c-2) of PURA, the Texas legislature imposed a 185-day deadline on the Commission's approval of Garland's application in this case. If the Commission imposes a condition on the certificate that delays SCT from utilizing it for more than four years, it will effectively nullify the statutory deadline. Such a condition would fly in the face of the legislature's requirement of an expeditious approval of the application.

An indefinite delay would also be inconsistent with the FERC order that authorizes SCT to direct Garland to interconnect and Oncor and CenterPoint to provide transmission service. Without a completion date for ERCOT to act, stakeholders who oppose the project will be in a position to slow down the deliberations at ERCOT, create a cloud of uncertainty, potentially delay financing of the project, and thus delay the energization of the line. Meanwhile, SCT would be prevented from exercising its right under the FERC order to obtain interconnection and transmission service that FERC determined is in the public interest.

SCT recognizes that this system planning issue has important implications for the reliability of the ERCOT grid, but there is no evidence in the record suggesting that a careful deliberation of it will require nearly four years. By encouraging diligent progress in considering the issue and, in any event, setting a clear completion date that provides ample time for a full and complete deliberation, the Commission will ensure that ERCOT's stakeholder process will make orderly progress to completion of the task.

The following ordering paragraph should be added:

21A. ERCOT, through its stakeholder process, shall expeditiously make a final determination as to when the SCT DC Tie should be included in ERCOT's transmission planning models and implement any needed change by June 1, 2020.

2. Treatment of DC Ties in Transmission Planning (Preliminary Order Issue No. 4b)

Exception No. 5. SCT excepts that the PFD does not impose a completion date by which ERCOT must study and determine how best to model the SCT DC Tie in transmission planning cases and make any necessary revisions to its standards and protocols as appropriate. (PFD at 38-40, FoF 54, and OP 22)

[23] Garland Ex. 1, Attachment 1 at 2.

Proposed OP 22 would require ERCOT, through its stakeholder process, to study and determine how best to model the SCT DC Tie in transmission planning cases and to do so before the project is energized. As stated, OP 22 is ambiguous. It can reasonably be interpreted to require ERCOT to complete the study and make a determination before SCT is prepared to energize the tie. But others will no doubt read OP 22 to imply that SCT may not energize its tie before ERCOT completes the mandated tasks, which would effectively set no date for ERCOT to complete the project.

As explained in the section E above, a certificate condition that does not set a completion date for ERCOT to act would violate section 37.051(c-2) of PURA, and it would be inconsistent with the FERC order that found interconnection of the SCT Project to be in the public interest.

The PFD does not clarify the ALJs' intention regarding the timeline for ERCOT to make its determination pursuant to OP 22. For the reasons explained in section F.1, the Commission should therefore revise the ordering paragraph to set a completion date of June 1, 2020, for ERCOT to make a determination concerning modeling of the SCT DC Tie so that the project may be energized after that date.

Proposed FoF 54 should be revised as follows:

54. A condition to approval of Garland's application requiring ERCOT, through its stakeholder process and by June 1, 2020, to expeditiously study and determine how best to model the SCT DC Tie in its transmission planning cases and make any necessary revisions to its standards and protocols is reasonable, would protect the public interest, and is consistent with the FERC Order.

Proposed OP 22 should be revised as follows:

22. ERCOT, through its stakeholder process and by June 1, 2020, shall expeditiously study and determine how best to model the SCT DC Tie in its transmission planning cases and make any necessary revisions to its standard and protocols as appropriate.

3. Transmission Upgrades to Facilitate Exports Over DC Ties (Preliminary Order Issue No. 4c)

Preliminary Order Issue No. 4c states: "Should ERCOT ratepayers be financially responsible for transmission upgrades that are necessary to facilitate exports over DC ties, given that those improvements are made only to serve load in non-ERCOT areas?" This section of the PFD addresses three discrete issues: (1) whether transmission upgrades are necessary to support

exports over the SCT tie; (2) whether a change from the postage stamp methodology for allocating transmission costs in ERCOT can or should be considered for upgrades to facilitate exports; and (3) whether the SCT tie will benefit ERCOT ratepayers. SCT addresses each issue in turn.

Exception No. 6: SCT excepts to the PFD's discussion and recommendation concerning the need for transmission system improvements to facilitate exports over the SCT tie. (PFD at 40-46, FoFs 55-62, OP 23*)*

The PFD concludes that some degree of upgrades may be necessary to accommodate electrical flows across the SCT tie, and that ERCOT should be directed to expeditiously determine, prior to energization of the SCT tie, what upgrades are necessary, if any, to facilitate such flows.[24] SCT disagrees with certain aspects of the PFD's analysis. The PFD does not distinguish between reliability upgrades and economic upgrades, and several aspects of its discussion do not clearly present the issue:

- With respect to *reliability* upgrades, ERCOT will require SCT to operate, and SCT expects to operate, within the limits of the ERCOT system.[25] As a result, SCT will not cause overloads of ERCOT system elements and no grid upgrades (beyond the interconnection facilities) will be required to accommodate SCT operations.
    - Oncor's reliability studies, which both ERCOT and FERC determined were sufficient to reliably interconnect the SCT tie,[26] do not show SCT causing the need for system reliability upgrades.
- With respect to *economic* upgrades, it is premature to direct ERCOT to determine whether such upgrades are needed until ERCOT develops its method of analyzing those upgrades in relation to the SCT tie.
    - Moreover, under Commission rules, economic upgrades will only be approved if resulting production cost savings to ERCOT consumers exceed the cost of the upgrades.

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[24] PFD at 81-82 (FoFs 55-56, 60-61).

[25] Rebuttal Testimony of Stan Gray, SCT Ex. 10 at 4, 6; Rebuttal Testimony of David Parquet, SCT Ex. 6 at 9-10.

[26] SCT Ex. 10 at 3 and WP/SG Rebuttal Testimony/1 (ERCOT Response to Staff RFI 1-1); *Southern Cross Transmission LLC*, 147 FERC ¶ 61,113 at 6-7 (2014). In fact, none of the parties to the FERC Section 210/211 proceeding, including the PUCT, ERCOT, TIEC and Oncor, took issue with SCT's representation to FERC as to the reliability impacts of interconnecting the Southern Cross project to the ERCOT gird.

Reliability Analysis

The SCT tie will not create a need for reliability upgrades to the ERCOT grid because SCT expects to operate—and expects that ERCOT will allow it to operate—only within the capabilities of the grid.[27] SCT understands and expects that ERCOT will limit SCT's import or export schedules if necessary to maintain the ERCOT grid within normal operating limits and to avoid reliability concerns. SCT does not expect or desire that the grid be upgraded just to allow it to operate at a level above the grid's existing capability, unless such upgrades are economically justified through already established processes. As a result, operation of the SCT tie will not require upgrades of the ERCOT grid for reliability reasons.

SCT understands the concern raised by Luminant that DC ties are not currently dispatchable in security-constrained economic dispatch ("SCED"), and that SCED will therefore back down generators to prevent overloads before import flows over ties are limited.[28] SCT does not seek such an advantage over generators, and will work with ERCOT, Luminant, and other stakeholders to pursue a fair solution such as making the SCT tie subject to economic dispatch through a SCED proxy or maximizing the capacity of existing transmission infrastructure in East Texas through implementation of a Congestion Management Plan (CMP) or Special Protection Scheme (SPS). This issue is further addressed in Section V.F.4 at pp. 46-50 of the PFD, to which SCT does not take exception (except with respect to the need for a completion date for any ERCOT analysis). SCT seeks only that transactions over its facilities be allowed to compete fairly on a level playing field within the existing capabilities of the ERCOT transmission grid.

Although the PFD does not reach a conclusion on the issue, it suggests that a new 147-mile 345-kV transmission line may be necessary to support flows over the SCT tie.[29] However, the Oncor interconnection study discussed in the PFD assumed full import and export over the tie.[30] As noted above, SCT does not expect to and ERCOT will not allow it to operate at such levels if the transmission grid cannot accommodate it. There is no reliability basis for upgrading the grid to enable flows over the tie beyond what the grid would otherwise accommodate.

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[27] SCT Ex. 6 at 9-10; SCT Ex. 10 at 4, 6; Tr. at 199.

[28] Luminant's Initial Brief at 7.

[29] PFD at 42.

[30] SCT Ex. 10, Exhibit SG-1-R at 10 of 71.

Moreover, Oncor's interconnection study does not show the need for significant upgrades at either the 1,500 MW import or export level. Table 1 from the study summarizes the SCT project upgrade requirements at maximum flows and is reproduced below:[31]

Table 1 – Total New and Upgraded Equipment Required for Southern Cross Project

	IMPORT				EXPORT		
	Benchmark	1500 MW	3000 MW		Benchmark	1500 MW	3000 MW
New circuit miles	147 miles	147 miles	407 miles		0	0	147 miles
Upgrade circuit miles	23 miles	24 miles	293.9 miles		0	0	99.4 miles
Autotransformer	750 MVA	750 MVA	750 MVA		750 MVA	750 MVA	750 MVA
New Reactive	80 MVar	480 MVar	1200 MVar		0	640 MVar	1800 MVar
Series Reactor	2-ohm	2-ohm	2-ohm		0	0	0

As can be seen, the only upgrade required for the 1,500 MW *export* case beyond the facilities in the benchmark case (without SCT) is 640 MVar of reactive support. Reactive support (capacitors) will be installed as part of the Garland project[32] or as part of the Oncor interconnection facilities. For the 1,500 MW *import* case, Table 1 shows the 147-mile transmission line referenced in the PFD in both the 1,500 MW import case *and* in the benchmark case, which did not include SCT.[33] Thus, the new line was needed, under the assumptions modeled by Oncor, even without the SCT tie and such upgrade cannot be attributed to SCT. The study shows that the only additions to the benchmark case for the 1,500 MW SCT *import* case are one mile of upgraded transmission line and 400 MVar of reactive support.[34]

In any event, SCT will operate within the limits of the ERCOT grid, and does not seek or desire upgrades to enable it to operate at its full capacity at all times. As a result, no upgrades beyond the interconnection facilities are required for reliability reasons.[35]

Economic Analysis

[31] *Id.* at 2 of 71.

[32] *Id.* at 5-6 of 71.

[33] *Id.* at 3 of 71. Tr. at 176, 179, 183-4.

[34] SCT Ex. 10, Exhibit SG-1-R at 2 (Table 1).

[35] Oncor recently filed a letter expressing the view that due to grid topology changes since its study was conducted in 2013 and resizing of the SCT tie to 2,000 MW, an updated study may be necessary for an SCT interconnection in 2021. The Oncor letter is not part of the evidentiary record. Nonetheless, SCT does not disagree with Oncor's concern and will work with Oncor to update the study. Docket No. 45624, Letter from Jaren Andrew Taylor, Interchange Filing No. 369 (Jul. 19, 2016).

Although the PFD does not clearly distinguish between grid upgrades for reliability and economic reasons, it would be premature to direct ERCOT to perform an economic analysis of the need for upgrades at this time. Both Luminant and SCT witnesses testified that current ERCOT methodologies for evaluating economic upgrades may not be well suited for use in connection with DC ties and are unlikely to result in any recommended economic transmission upgrades.[36] Mr. Lasher similarly testified for ERCOT that he is not sure how to model the SCT tie at this time and that one approach may be to use assumptions that limit the need for upgrades until actual operating and market experience is available.[37] As a result, there appears to be some consensus that an economic analysis of the need for grid improvements would be premature at this time. Moreover, economic upgrades are not needed for reliability reasons, and are only approved if they create production cost savings that exceed the cost of the upgrades.[38] As a result, there is no urgency or even benefit to mandating that they be studied before the SCT project is energized, as the PFD suggests.

Exception No. 7: SCT excepts to the PFD's suggestion that ERCOT evaluate assessing specific transmission upgrade costs to SCT. (PFD at 45-46, 81-82)

Interspersed with its discussion of whether the SCT tie will require grid upgrades, the PFD also considers whether to break with the postage stamp methodology for allocating transmission costs and instead directly assess costs to SCT. The PFD does not reach a conclusion on this issue but recommends that it be evaluated further through the ERCOT stakeholder process.[39] The PFD recites TIEC's and Staff's repeated assertion that ERCOT ratepayers should not "subsidize" the tie, even though the record provides evidence that no upgrades are required, and therefore discussions of subsidies are moot. In any event, the PFD also overlooks the fact that transactions over DC ties already pay their share, or more, of ERCOT transmission costs as well as the evidence that current planning methodologies and standards will not produce any recommended projects which do not result in production cost savings for ERCOT consumers.

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[36] Direct Testimony of Amanda Frazier, Luminant Ex. 2 at 7-8, Direct Testimony of Dr. Shams Siddiqi, Luminant Ex. 1 at 12, Rebuttal Testimony of Mark Bruce, SCT Ex. 9 at 10.

[37] Direct Testimony of Warren Lasher, ERCOT Ex. 1 at 9-10.

[38] 16 TAC § 25.101(b)(3)(A)(i).

[39] PFD at 45-46, 81-82 (FoF 55-56, 58).

Substantive Rule 25.192(e)[40] provides for transmission charges for exports from ERCOT. Under that rule, export charges are based on the same rates and methods established under Rule 25.192(c) and (d) for customers inside ERCOT. Under Subsection (f), revenue from export charges is credited to ERCOT transmission customers as a reduction in the cost of service of the transmission provider that receives the revenue. As a result, export transactions contribute to the cost of ERCOT transmission on the same basis as ERCOT customers do, and that contribution reduces the cost paid by ERCOT customers. In other words, the overriding principle that load pays for the cost of the ERCOT transmission system is carried through to load outside of ERCOT through transmission charges for export transactions. As discussed below, export charge revenues from SCT tie transactions will provide a substantial offset to ERCOT transmission cost of service.

The Commission's export charge rule is consistent with PURA's transmission cost recovery provisions, while TIEC's and Staff's proposal to allocate specific upgrade costs to SCT would violate those provisions. PURA § 35.004(d) provides that the price of wholesale transmission services within ERCOT *shall* be based on the postage stamp method, under which a transmission-owning utility's rate is determined based on its load-ratio share of ERCOT's total demand. Section 35.004(c) requires that the Commission ensure that cost of transmission provided within ERCOT at the request of a third party be recovered from the third party so that other customers do not bear the cost of that service. The export charges provided in Rule 25.192(e) correctly harmonize these provisions by using the postage stamp rate to determine the charge for use of the ERCOT transmission system in exporting power to serve non-ERCOT third party load, and then crediting the export charge revenue as a reduction to transmission cost of service paid by ERCOT load. In other words, the rule imposes an export charge based on the postage stamp method (PURA § 35.004(d)), and ensures that ERCOT ratepayers do not pay for export transactions by crediting the export charge revenues against ERCOT transmission cost of service (PURA § 35.004(c)). By contrast, TIEC's and Staff's proposal to assess specific ERCOT transmission facility costs to SCT would violate PURA § 35.004(d)'s mandate to use the postage stamp method.

[40] 16 Tex. Admin. Code ("TAC") § 25.192(e).

TIEC and Staff both acknowledge that export transactions pay transmission grid costs under existing rules.[41] TIEC specifically recognizes that export fees for DC tie transactions are intended to recover costs of the transmission system, but asserts that not all TSPs have implemented such charges.[42] SCT agrees that the Commission should consider and fully implement appropriate export charges under Rule 25.192(e).[43] This could be accomplished in Project No. 46203,[44] which was recently opened by the Commission. However, notwithstanding this implementation issue, the fact remains that the rules in place today provide for collection of transmission costs from export transactions.

Not only does Rule 25.192(e) already provide for transactions over DC ties to pay their share, or more, of ERCOT transmission system costs, but there are strong policy reasons not to attempt to assign the costs of specific facilities to specific transmission customers. As former Commissioner Paul Hudson testified, the ERCOT postage stamp method is a simple, effective way for recovering transmission costs that has resulted in a robustly reliable ERCOT grid. In contrast, in some areas of the United States transmission cost allocation issues remain a point of significant controversy—and stakeholders spend significant resources arguing over the details. The result is that needed transmission projects are sometimes mired in stakeholder process arguments. Commissioner Hudson noted that attempting to parse the costs and benefits of each network element over time as the system changes is an extraordinarily complicated exercise, and as a matter of policy should be approached with considerable caution. The result at various other venues has been a prescription for near endless argument over cost and benefits. The postage stamp model in ERCOT has avoided that difficulty.[45]

Commissioner Hudson also testified that the ERCOT marketplace is extraordinarily dynamic. Significant resources regularly enter and exit the market, and transmission topology, the flow of power, and transmission utilization changes on an hourly basis. For example, the original CREZ build-out was intended to allow wind to access load and the grid, but that same

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[41] Staff's Initial Brief at 16-17; TIEC's Initial Brief at 11-12.

[42] TIEC's Initial Brief at 11-12.

[43] Issues to consider in such a project could include implementation of export charge tariffs by transmission service providers, access to information necessary to bill for export charges, and scope and duration of peak period pricing under such tariffs.

[44] *Rulemaking Regarding DC Ties* (Jul. 22, 2016).

[45] Rebuttal Testimony of Paul Hudson, SCT Ex. 11 at 8-10.

network is now being studied for integration of Lubbock into ERCOT, utilized for integrating other generation resources, and has served to relieve congested elements serving oil and gas load. In the face of this dynamism, calculating the precise costs and benefits of a future potential resource is nearly impossible.[46] Not only does PURA require use of the postage stamp methodology,[47] but that methodology is good policy and should not be changed.

TIEC and Staff have argued that their proposal to assign grid upgrade costs to SCT is not discriminatory. However, that proposal would break from longstanding practice and assign costs to SCT that have never been assigned to other DC ties or to other beneficiaries of specific grid upgrades. TIEC and Staff are wrong to assert that their recommendation to impose incremental costs on SCT, in addition to the charges already paid for export transactions over the tie, is not discriminatory.

If TIEC's and Staff's proposals were adopted, it would not be hard to foresee future controversies over who benefits from and should bear the costs of transmission upgrades. For example, an argument could readily be made that a new $300 million transmission line parallel to the Mexico border in the Lower Rio Grande Valley[48] provides no benefit to most ERCOT customers and that local beneficiaries should bear those costs. Similar arguments could be made about many if not most transmission facilities. But that is not how it is done in ERCOT. The postage stamp method completely avoids such controversies, in stark contrast to other parts of the country where they are fought incessantly and impair the ability to build needed transmission. There is no reason to consider a departure from this long-established, statutorily-mandated, and beneficial policy, and the PFD's proposal for ERCOT to evaluate the issue should not be adopted.

Exception No. 8: SCT excepts to the PFD's inadequate discussion of the benefits of the SCT project. (PFD at 45-46, FoF 55-62, OP 23)

The PFD contains virtually no discussion of the potential benefits of the SCT project to ERCOT customers, even though that was one of the most prominent issues in the testimony, hearing and briefing of this case. For example, the PFD does not reveal that SCT filed an

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[46] *Id.* at 10.

[47] PURA § 35.004(d).

[48] *See Joint Application of Electric Transmission Texas, LLC and Sharyland Utilities, L.P. to Amend Their Certificate of Convenience and Necessity for the North Edinburg to Loma Alta Double-Circuit 345-kV Transmission line in Hidalgo and Cameron* Counties, Docket No. 41606, Order (Apr. 11, 2014).

economic study using the electric system modeling software UPLAN to model the impact of the SCT project on ERCOT. UPLAN is widely used by ERCOT and other RTOs as well as utilities and other market participants to model the impacts of changes to electric systems.[49] The study was performed by Ellen Wolfe, a well-respected system modeler who led ERCOT's study of the benefits of moving to a nodal market in 2004 and has performed numerous similar studies for state regulatory commissions, utilities, and FERC.[50]

Ms. Wolfe's study showed that in 2020 addition of the SCT project would result in production cost benefits in ERCOT of *$175 million*, consumer benefits in ERCOT of *$162 million*, and export charges of *$65 million* that would offset transmission revenue requirements, ERCOT settlement charges and ancillary service charges.[51] These benefits would continue in subsequent years and increase substantially if additional wind generation is added to ERCOT.[52] Despite the extended discussion of Ms. Wolfe's study in testimony and briefs in this case, the PFD does not mention either SCT's economic benefits nor the contribution it makes to TCOS and ERCOT settlement charges in export charges. Nor does the PFD mention other, largely undisputed benefits of the SCT project, such as providing a significant power source for ERCOT in emergencies and providing economic benefits and revenue to local taxing authorities in the east Texas counties where the Garland project will be located and in wind generation areas in the Panhandle and West Texas.[53]

Ms. Wolfe's study updated a similar study of the SCT project she performed in 2010 under the guidance of the ERCOT Regional Planning Group (RPG).[54] Like the current study, the 2010 study also found ERCOT annual production cost savings and consumer energy benefits of $73 million and $700 million respectively, even though natural gas prices and wind generation

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[49] Direct Testimony of Ellen Wolfe, SCT Ex. 3 at 6. ERCOT has licensed UPLAN since 2003, and its Regional Planning Group continues to use UPLAN for transmission planning and economic analysis. *Id.* at 10.

[50] SCT Ex. 3 at 2-3 and Exhibit EW-1 (Ms. Wolfe's Resume). The study Ms. Wolfe led for ERCOT concerning conversion to a nodal market was filed in Project No. 28500, *Activities Related to the Implementation of a Nodal Market for the Electric Reliability Council of Texas,* on December 21, 2004 and can be accessed at the following link:
http://interchange.puc.state.tx.us/WebApp/Interchange/application/dbapps/filings/pgSearch_Results.asp?TXT_CNTR_NO=28500&TXT_ITEM_NO=28

[51] SCT Ex. 3, Exhibit EW-2 at 3, 19.

[52] *Id.*

[53] SCT Ex. 6 at 7-8.

[54] SCT Ex. 3 at 5, 8.

penetration were very different at that time and resulted in different flows on the SCT tie than the current study.[55] In short, under two different sets of market conditions, the SCT project produced well over $100 million per year in benefits to ERCOT customers. Excerpts from Ms. Wolfe's Study Report[56] are attached as Attachment A.

Although TIEC witness Charles Griffey challenged the results of SCT's economic study, he did not present any economic analysis of his own, demonstrate that the SCT project would not produce the substantial benefits modeled by Ms. Wolfe, or challenge the other benefits of the SCT project such as its contribution to export charges, emergency power supply to ERCOT, and economic benefits in east Texas, West Texas and the Panhandle. No other witness addressed the economic impact of the SCT project on ERCOT, although Staff's briefs echoed some of TIEC's arguments on the issue.

Because TIEC and Staff are likely to reiterate their arguments about SCT project economic benefits, SCT addresses them briefly here:

1. Staff argued that SCT modeled only one year based on assumptions that could turn out to be wrong.[57] However, Ms. Wolfe testified that the study results could reasonably be extrapolated to reflect a multiyear study.[58] Moreover, the UPLAN model and studies like Ms. Wolfe's are relied on by ERCOT, other RTOs, utilities and others throughout the electric industry to make significant decisions about market design and billions of dollars of transmission investment. Staff's position unreasonably dismisses the method extensively relied on by regulators, RTOs and industry stakeholders to plan and analyze the benefits of changes to the electric system.

2. TIEC argued that the economic benefits of the study should be ignored because SCT did not retain certain underlying modeling data that TIEC requested in discovery.[59] However, the data TIEC requested was almost *2 billion* records of intermediate hourly nodal data (*i.e.*, modeling data for each hour of the year at each of 74,000 nodes in ERCOT and the eastern interconnection). UPLAN cumulated this hourly data into its reported results. Because UPLAN can produce a virtually unlimited amount of data, users of the program do not retain all intermediate data, and probably could not have stored all of the data requested by TIEC in this instance.[60]

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[55] SCT Ex. 3 at 18-19 and Exhibit EW-2 at 3, 19.

[56] SCT Ex. 3 at Exhibit EW-2.

[57] Staff's Initial Brief at 8-9.

[58] SCT Ex. 3 at 21.

[59] TIEC's Initial Brief at 19-20.

[60] Response of Southern Cross Transmission LLC to Texas Industrial Energy Consumers' Motion to Compel a Response to TIEC 1-18 at Affidavit of Ellen Wolfe (Apr. 5, 2016).

Although TIEC asserted it was prevented from reviewing modeling assumptions, in fact it received all the assumptions it requested in discovery and did not challenge those discovery responses. The 2 billion records sought by TIEC were intermediate data, not modeling assumptions, and there is no reason to think UPLAN could not accurately calculate that data.[61] TIEC provided no basis for ignoring the $162 million of annual economic benefits that SCT would provide to ERCOT.

3. TIEC argued Ms. Wolfe modeled the existing DC ties incorrectly.[62] However, Ms. Wolfe testified that information concerning ERCOT's modeling of the existing ties was not readily available, so she modeled them the way she understood that ERCOT did, *i.e.*, as importing.[63] With respect to the existing Southwest Power Pool (SPP) ties, she was correct, as ERCOT models those ties like efficient generators that supply power when it is economic to do so.[64] Although TIEC asserted that this was unreasonable, modeling the SPP ties as ERCOT does was a reasonable approach. Mr. Griffey asserted that this approach to modeling the SPP ties distorted the model results, but did not present any data to support his claim.

   With respect to the Mexico ties, ERCOT's testimony revealed that it models them based on historical flows, rather than as generators like the SPP ties.[65] However, Ms. Wolfe demonstrated that the modeling of the Mexico ties as importing did not affect the benefits attributable to the SCT project.[66]

4. Finally, TIEC argued that the import benefits of the SCT tie are *de minimis*, based on the limited amount of imports modeled by Ms. Wolfe.[67] However, this argument ignores the fact that those imports occur at peak periods when power prices in ERCOT are high and ERCOT needs the energy to offset costs otherwise incurred to run expensive generators.[68] In addition, TIEC ignored that the SCT tie would also benefit ERCOT while exporting by allowing more low-cost renewable energy on to the system.[69]

TIEC's and Staff's arguments do not undermine SCT's evidence, based on the widely-accepted modeling software UPLAN and the widely-respected system modeler Ellen Wolfe, that the SCT tie will provide significant annual production cost savings, economic benefits, and export charge revenues to ERCOT under varying market conditions and flow patterns. TIEC and

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[61] See generally SCT's Reply Brief at 11-12.

[62] TIEC's Initial Brief at 13-16.

[63] Rebuttal Testimony of Ellen Wolfe, SCT Ex. 7 at 8-10, 16-18.

[64] Tr. at 69, 122 (Jun. 1, 2016); ERCOT Ex. 1 at 8-9.

[65] ERCOT Ex. 1 at 9.

[66] See generally SCT's Reply Brief at 13-15; SCT Ex. 7 at 18-26..

[67] TIEC Ex. 1 at 10.

[68] Tr. at 119-120 (Jun. 1, 2016).

[69] SCT Ex. 7 at 11; Tr. at 99-100, 110; TIEC Ex.9.

Staff presented no study or data of their own concerning the economic impacts of the SCT project, nor did they challenge the other project benefits such as an emergency power supply and economic benefits in East Texas, West Texas and the Panhandle.

In 2005, when some parties challenged the study led by Ms. Wolfe for ERCOT concerning the benefits of a nodal market, Chairman Smitherman had this response:

> Those who do not like the Cost-Benefit Analysis findings have quibbled extensively about methodologies and assumptions, *but they have never produced affirmative numbers of their own.* And frankly, although I believe the Cost-Benefit Analysis to be sound, it could wildly overestimate the expected nodal benefits – by fifty percent or more – and nodal would *still* produce significant savings for loads.[70]

The same can be said for this case. TIEC and Staff have criticized an economic analysis by a respected consultant using an established methodology, but have produced no numbers of their own. And given the magnitude of the economic benefits shown in Ms. Wolfe's study, they provide no reasonable basis for asserting that benefits have not been shown to result from the SCT tie. The ALJs should have provided the Commission a meaningful discussion of this issue, and the Commission should conclude from the credible evidence that the SCT tie will provide substantial benefits to ERCOT customers. Even if SCT project exports resulted in additional ERCOT transmission costs, they would be more than offset by the export charge revenues from transactions over the tie and by production cost savings and economic benefits produced by the tie.

Based on Exceptions 6-8 above, proposed Ordering Paragraph 23 should be deleted and proposed findings of fact 55-62 should be modified as follows:

55. SCT does not intend to operate the SCT tie, and does not expect to be able to operate the SCT tie, at a level that exceeds the capability of the ERCOT transmission system or that would cause the ERCOT transmission system to operate beyond its limits.

56. Because ERCOT will limit flows over the SCT tie if necessary to ensure that the ERCOT transmission grid does not exceed its operating limits, no grid upgrades will be required for reliability purposes as a result of flows on the SCT tie.

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[70] *Activities Related to the Implementation of a Nodal Market for the Electric Reliability Council of Texas*, Project No. 28500, Memorandum from Chairman Smitherman to fellow Commissioners at 3 of 5 (emphasis in original) (citing the cost-benefit analysis led by Ms. Wolfe as a basis for his recommendation to adopt a nodal market) (Jul. 28, 2005). The nodal study for ERCOT led by Ms. Wolfe was filed in Project No. 28500 on Dec. 21, 2004.

57. ERCOT should evaluate the appropriate methodology for assessing the need for economic upgrades to the ERCOT transmission grid in areas affected by the SCT tie.

58. At the appropriate time after determination of the appropriate methodology, ERCOT should evaluate whether economic upgrades of the ERCOT transmission grid in areas affected by the SCT tie are justified under 16 TAC § 25.101(b)(3)(A)(i).

59. The postage stamp method effectively and efficiently recovers transmission costs without distorting or delaying build out of needed transmission facilities.

60. Attempting to allocate the cost of specific transmission upgrades to specific customers could create substantial dispute over transmission cost allocation, introduce extra expense, and delay needed transmission expansion.

61. The ERCOT marketplace is dynamic, and determing the beneficiaries of future potential transmission facilities is highly uncertain.

62. The evidence establishes that the SCT tie will provide significant production cost savings, economic benefits, and export charge revenues for the benefit of ERCOT customers under a variety of market conditions.

62A. The evidence establishes that the SCT tie will provide a significant additional power supply to ERCOT in emergencies.

62B. The evidence establishes that the SCT tie will provide significant economic benefits and revenues to local taxing authorities in east Texas counties where the Garland Project will be located and in wind generation areas in West Texas and the Panhandle.

In addition, Conclusions of Law should be added as follows:

[#] PURA § 35.004(d) requires use of the postage stamp method for recovery of ERCOT transmission costs and does not permit allocation of specific transmission facility costs to specific customers.

[#] 16 TAC § 25.192(e) and (f) properly implement PURA § 35.004(c) and (d) by establishing charges for export transactions based on the postage stamp method and crediting revenues from such charges against the ERCOT transmission cost of service.

Exception No. 9: In the event that the foregoing changes are not adopted, SCT excepts to the PFD where it declines to establish a completion date by which ERCOT must determine what transmission upgrades, if any, are necessary to avoid congestion resulting from power flows over the SCT DC Tie. (PFD at 40-46, FoFs 60 and 61, and OP 23)

In the preceding discussion, SCT proposes that the Commission delete OP 23. If the Commission nonetheless includes the ordering paragraph, it should be revised to set a completion date by which ERCOT must act, for the reasons given in sections E and F1 above.

If not deleted, OP 23 should be revised as follows:

23. ERCOT must, by June 1, 2020, study and determine what economic transmission upgrades, if any, are necessary to relieve congestion resulting from power flows on the SCT DC Tie.

4. Economic Dispatch and Congestion Management (Preliminary Order Issue No. 4d)

Exception No. 10: SCT excepts that (1) the PFD does not recommend a completion date by which ERCOT must determine whether some or all DC ties should be economically dispatched or whether implementation of a CMP or SPS would more reliably and cost-effectively manage congestion caused by DC tie flows and (2) it fails to cite evidence to support finding of fact 64. (PFD at 46-50, FoFs 68 and 69, and OP 24)

For the reasons stated in sections E and F1 above, the Commission should require an expeditious resolution of the issue and set a completion date of June 1, 2020, for ERCOT to make its determination. FoF 64 states that the SCT DC Ties will appear differently than current transmission assets owned by ERCOT TSPs. The PFD cites no evidence, and there is no evidence, to support this finding.

FOF 64 should be deleted.

Proposed FoFs 68 and 69 should be modified as follows:

68. It is reasonable, protective of the public interest and consistent with the FERC order, to condition approval of Garland's application on a requirement that ERCOT, through its stakeholder process and by June 1, 2020: (a) expeditiously study and determine whether some or all DC ties should be economically dispatched through SCED, or whether implementation of a CMP or SPS would more reliably and cost-effectively manage congestion, if any, caused by DC tie flow; and (b) implement any necessary revisions to its protocols and standards as appropriate.

69. The ERCOT stakeholder process to study the use of SCED, a CMP, an SPS, or any other process to address congestion should be initiated and completed expeditiously.

Proposed OP 24 should be modified as follows:

24. ERCOT shall, through its stakeholder process and by June 1, 2020: (a) expeditiously study and determine whether some or all DC ties should be economically dispatched through SCED, or whether implementation of a CMP or SPS would more reliably and cost-effectively manage congestion, if any, caused by DC tie flow; and (b) implement any necessary revisions to its protocols and standards as appropriate.

5. Ramp Rate Restrictions (Preliminary Order Issue No. 4e)

Exception No. 11. SCT excepts to the PFD where it fails to impose a completion date by which ERCOT must determine what ramp rate restrictions will be necessary to accommodate interconnection of the SCT DC Tie and implement those restrictions. (PFD at 50-53, FoF 83, and OP 15)

For the reasons stated in sections E and F1 above, the Commission should require ERCOT to expeditiously resolve the issue and set a completion date of June 1, 2020, for ERCOT to make its determination.

Proposed FoF 83 should be revised as follows:

83. Requiring ERCOT, through its stakeholder process and by June 1, 2020, to (a) expeditiously determine what ramping restrictions will be necessary to accommodate the interconnection of the SCT DC Tie, and (b) implement those restrictions is a reasonable condition to the approval of Garland's application that protects the public interest and is consistent with the FERC order.

Proposed OP 15 should be revised as follows:

15. ERCOT shall, through its stakeholder process and by June 1, 2020, expeditiously determine what ramping restrictions will be necessary to accommodate the interconnection of the SCT DC Tie, and implement those restrictions.

6. Outage Coordination (Preliminary Order Issue No. 4f)

Exception No. 12: SCT excepts that the PFD does not propose a completion date by which ERCOT must develop and implement a methodology to reliably and cost-effectively coordinate outages following the interconnection of the SCT DC Tie. (PFD at 53-55, FoF 91, and OP 16)

For the reasons stated in sections E and F1 above, the Commission should require ERCOT to diligently resolve the issue and set a completion date of June 1, 2020, for ERCOT to implement such a methodology.

Proposed FoF 91 should be revised as follows:

91. It would be reasonable and would protect the public interest for the Commission to condition its approval of Garland's application on ERCOT expeditiously developing and implementing, through the ERCOT stakeholder process and by June 1, 2020, a method for reliably and cost-effectively coordinating outages following the interconnection of the SCT DC Tie. Such a condition would be consistent with the FERC order.

Proposed OP 16 should be revised as follows:

16. ERCOT shall, through its stakeholder process and by June 1, 2020, expeditiously develop and implement a method for reliably and cost-effectively coordinating outages following the interconnection of the SCT DC Tie.

7. Coordination with Other Balancing Authorities (Preliminary Order Issue No. 4g)

Exception No. 13: SCT excepts that the PFD does not propose a completion date by which ERCOT must negotiate and execute coordination agreements with ISOs, RTOs, and/or RCs on the eastern end of the SCT DC Tie. (PFD at 55-56, FoF 44, and OP 14)

For the reasons stated in sections E and F1 above, the Commission should require ERCOT to expeditiously resolve the issue and set a completion date of June 1, 2020, for ERCOT to execute the agreements.

Proposed FoF 44 should be revised as follows:

44. Requiring expeditious negotiation and execution of a coordination agreement or agreements between ERCOT and the ISO/RTO and/or RC on the eastern end of the SCT DC Tie before June 1, 2020, is a reasonable condition to the approval of Garland's application. This condition will protect the public interest and is consistent with the FERC Order.

Proposed OP 14 should be revised as follows:

14. Before June 1, 2020, ERCOT shall execute a coordination agreement or agreements with the ISO/RTO and/or RC on the eastern end of the SCT DC Tie, consulting SCT as needed during negotiations of such agreement(s) for technical input and guidance.

8. Reactive Power and Primary Frequency Response (Preliminary Order Issue No. 4h)

Exception No. 14: SCT excepts to the PFD where (1) it finds that the SCT DC Tie is a unique entity, different from other DC ties, (2) it finds that SCT should be required to abide by ERCOT's decisions. (pp.59-60, FoFs 95-98, 103-106, *OP 25)*

The PFD attempts to draw a distinction between the SCT DC Tie and other DC ties that lacks substance. Under the PFD's analysis, SCT will "look like a generator" and have "attributes" of a generator when it imports power.[71] The PFD recognizes, however, that the tie is not a generator, but a controllable transmission line.[72] It does not have the capabilities of a generator to supply PFR or VSS.[73] DC ties cannot supply VSS but may be able to supply some PFR, subject to the issues noted in the PFD, and SCT is willing to work with ERCOT on those issues.[74] The PFD also asserts that SCT will be unique because it will be big,[75] but its relative size will provide no basis for imposing requirements on it that other DC ties are not and will not be subject to.

The PFD asserts that SCT's potential import level could have reliability implications.[76] In fact, however, the evidence shows that SCT imports will occur during peak periods when prices are high and there are many generators online, ready to provide ample PFR and VSS to the grid if needed.[77] Conversely, SCT will export power during low-load, high-wind conditions and thereby keep more generators online during those times. As a result, the size of the SCT DC Tie is no basis for treating it differently from other DC ties.

SCT also excepts to the PFD's proposal that SCT must abide by the conclusions reached by ERCOT after its study of PFR and VSS is complete.[78] SCT intends to work with ERCOT to determine if arrangements can be made for it to provide PFR and, perhaps, other ancillary services. It should be sufficient that SCT will be required to abide by ERCOT's decisions as all other registered market participants are. And at a minimum, SCT should have the same right as any other market participant to appeal an ERCOT decision.

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[71] PFD at 59, proposed FoF 96.

[72] PFD at 59.

[73] SCT Ex. 10 (Gray Rebuttal) at 7-8; SCT Ex. 9 (Bruce Rebuttal) at 18.

[74] PFD at 57-58; SCT Ex. 10 (Gray Rebuttal) at 7-8.

[75] PFD at 59.

[76] PFD at 59.

[77] SCT Ex. 9 (Bruce Rebuttal) at 21-22.

[78] PFD at 60, FoF 105.

For the reasons stated in sections E and F1 above, the Commission should require ERCOT to expeditiously resolve the issue and set a completion date of June 1, 2020, for ERCOT to execute the agreements.

Proposed FoFs 95-98, 103-106 should be deleted or modified as follows:

95. The SCT DC Tie will be a controllable transmission line.

96. The SCT DC Tie is not a generator and cannot provide PFR and VSS as if it were a generator.

97-98 delete.

99-102 no change.

103. The Commission should require ERCOT to study whether DC Tie imports cause situations where ERCOT must procure PFR and VSS within a short period of time.

104. The Commission should require ERCOT to initiate and undertake a stakeholder process to determine whether DC Ties can provide PFR and VSS, or their technical equivalents, and if so, how such service could be provided.

105. delete.

106. The ERCOT stakeholder process to determine whether DC Ties can provide PFR and VSS, or their technical equivalents, should not be tied to a date certain but rather should be undertaken at such time as ERCOT determines the study would prove useful.

Proposed OP 25 should be modified as follows:

25. ERCOT shall, through its stakeholder process and determine whether SCT or any other entity scheduling flows across the SCT DC Tie should be required to provide or procure PFR or VSS, or their technical equivalents and implement any necessary standard revisions as appropriate.

9. Costs of Ancillary Services (Preliminary Order Issue No. 4i)

Exception No. 15: SCT excepts to the PFD's recommendation that the ERCOT stakeholder process consider whether to break with the existing allocation methodology and assign ancillary services costs specifically to SCT. (PFD at 60-66, FoFs 108-119, OP 26)

SCT disagrees with several aspects of the PFD's discussion of the ancillary services issue. As an initial matter, it has not been determined whether addition of the SCT tie will

require ERCOT to procure additional reserves, as the PFD suggests.[79] In addressing this issue, ERCOT indicated that, as a result of addition of the SCT tie, ERCOT "*may* need to procure additional Ancillary Services"[80] and that "ERCOT has not estimated the cost of the additional ancillary services that *might* be needed with the addition of the Southern Cross tie...."[81] ERCOT indicated that the issue will require study, and SCT agrees. However, ERCOT's Protocols require a review of ancillary services procurement at least annually,[82] so the PFD's proposed review could create confusion about whether a separate process is required.

The PFD overstates the potential impact on the cost of ancillary services of the SCT DC Tie becoming the new MSSC. While it is correct that the MSSC determines the minimum responsive reserves that ERCOT must maintain, ERCOT currently procures at least 2300 MW of reserves to respond to the loss of both the units at the South Texas Project nuclear power plant.[83] Since total net capacity of the two units is far greater than the capacity of the SCT DC Tie, it is not obvious to what extent the tie will actually increase the amount of responsive reserves that ERCOT procures.

Moreover, transactions over DC ties already pay their share, or more, of ERCOT ancillary services costs. When a QSE exports from ERCOT over a DC Tie, the DC Tie Load is recorded in the ERCOT settlement systems, and the exporting QSE is responsible for paying all of the load settlement charge types that any other load would pay, including ancillary services, transmission and distribution losses, unaccounted for energy, and others. On the flip side, when a QSE serves load in ERCOT with power imported over a DC Tie, that QSE will also be responsible for load settlement charge types in the ERCOT settlement process, including ancillary services procured from resources within ERCOT.[84] As former Commissioner Hudson pointed out, it may well turn out that a detailed analysis of the load ratio share of payments made

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[79] PFD at 60, 87 (FoF 111).

[80] Staff Ex. 3 (ERCOT Response to Staff RFI 1-2, emphasis added).

[81] Staff Ex. 20 (ERCOT Response to Staff RFI 2-8, emphasis added).

[82] ERCOT Nodal Protocols, Sec. 3.16(2). "ERCOT shall, at least annually, determine with supporting data, the methodology for determining the quantity requirements for each Ancillary Service needed for reliability."

[83] Staff Ex. 20.

[84] SCT Ex. 9 at 27; SCT Ex. 11 at 9.

by both exporting QSEs and load consuming imported power more than offsets any additional procurement costs.[85]

As a result, proposals to impose ancillary services costs on SCT, in addition to the costs borne by transactions over the tie, would create a double charge not imposed on any other user of the ERCOT system. Similarly, proposing to charge SCT if it became the new most severe single contingency (MSSC) would impose costs on SCT never before imposed on the ERCOT system MSSC. Although TIEC and Staff have argued that such treatment would not be discriminatory, they are wrong.

In addition, for the reasons identified by Commissioner Hudson, breaking with the load pays method of allocating ancillary services costs in favor of specific allocations to specific users of the grid would undermine an efficient and effective system and open the door to extended debate about allocation of ancillary services costs.[86] ERCOT's consideration of ancillary service cost allocation in this instance, as proposed in the PFD, would not be the last. Any future project that might become the MSSC would be deterred by such a development. Allocation of ancillary services to load is a fair, efficient, competitively-neutral approach that should be preserved. Inviting ancillary services cost allocation controversies would be a mistake.

Not only will transactions over the SCT tie pay for ancillary services as well as its share, or more, of transmission costs through charges associated with export, but SCT will provide substantial economic benefits. SCT's study shows production cost savings of $175 million per year and consumer benefits of $162 million per year and export charge revenues of $65 million per year.[87] See Attachment A. As a result, the benefits of the SCT project can be expected to exceed any ancillary services impact it may have.

Finally, the PFD's analysis of this issue combines and confuses two distinct issues – transmission upgrades and ancillary services – suggesting that they should be studied "holistically" at ERCOT.[88] However, the two issues are quite different jurisdictionally, since only the Commission can set transmission export rates charged by transmission utilities, while ancillary services charges are more appropriate for ERCOT.

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[85] SCT Ex. 11 at 14.

[86] SCT Ex. 11 at 8-10,15.

[87] SCT Ex3, Exhibit EW-2 at 3, 19.

[88] PFD at 65.

For all of these reasons, the Commission should not direct ERCOT to study imposing ancillary services costs directly on SCT as the PFD recommends. Instead, ERCOT should evaluate ancillary services procurement issues related to the SCT tie through its regular annual processes. Proposed FoF 117 should be deleted, and the following Findings of Fact should be modified as shown:

111. If the SCT DC Tie becomes operational, it may become the new MSSC, and may require ERCOT to procure additional reserves to prepare for the contingency that power across the SCT DC Tie might be disrupted or the line might be taken out of service. The additional reserves may be necessary for ERCOT to maintain system frequency within acceptable limits if such an event occurred.

112. The SCT DC Tie may become the new MSSC in ERCOT whether it is importing or exporting.

114. Transactions over DC ties pay their share of ERCOT ancillary services charges by paying all load settlement charge types that any other load would pay.

116. It is reasonable, protective of the public interest, and consistent with the FERC Order to condition approval of Garland's application on a requirement that ERCOT, through its annual process for review of ancillary services procurement and by June 1, 2020: (a) expeditiously evaluate what additional ancillary services, if any, are necessary for the reliable interconnection of the SCT DC Tie; and (b) implement any necessary modifications to ancillary service procurement practices or procedures.

118. The ERCOT stakeholder process should be initiated and undertaken expeditiously and completed with a determination by ERCOT by June 1, 2020.

Proposed OP 26 should be revised as follows:

26. ERCOT shall, through its stakeholder process and by June 1, 2020, (a) expeditiously evaluate what additional ancillary services, if any, are necessary to reliably interconnect the SCT DC Tie and (b) implement any necessary modifications to ancillary services procurement.

G. Texas Parks & Wildlife Issues

Not addressed.

VI. CONCLUSION

The list of proposed conditions contained in the PFD's Conclusion should be modified to conform with the foregoing exceptions.

VII. FINDINGS OF FACT

SCT excepts to the proposed FoFs to the extent that they are inconsistent with the Exceptions made herein. SCT respectfully requests that the Commissioners conform the FoFs as may be necessary to grant SCT's Exceptions. SCT will submit proposed revised FoFs with its Reply to Exceptions as permitted by PUC Proc. R. 22.261(d)(2).

VIII. CONCLUSIONS OF LAW

SCT excepts to the proposed CoLs to the extent that they are inconsistent with the Exceptions made herein. SCT respectfully requests that the Commissioners conform the CoLs as may be necessary to grant SCT's Exceptions. SCT will submit proposed revised CoLs with its Reply to Exceptions as permitted by PUC Proc. R. 22.261(d)(2).

IX. ORDERING PARAGRAPHS

The ALJ's proposed OPs should be modified to be consistent with these Exceptions.

X. CONCLUSION TO SCT's EXCEPTIONS

The PFD does not reasonably or adequately address several issues of critical importance to SCT. Chief among these matters are (1) the need for a timeline for the ERCOT projects; (2) the PFD's failure to acknowledge that significant transmission improvements are not necessary because SCT expects and ERCOT will ensure that SCT operates within the existing limits of the ERCOT grid, and even if some transmission improvements are necessary, the benefits of the SCT Project will more than offset any such costs; and, (3) there is no basis to know whether or to what extent additional ancillary service costs will be required as a result of the interconnection of the SCT Project and departing from the existing ancillary cost recovery methodology would undermine the current effective and efficient system.

SCT respectfully requests that SCT's Exceptions to the PFD, as set forth above, be granted, and that the Commission grant SCT such other and further relief to which it may be entitled.

Respectfully submitted,

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CERTIFICATE OF SERVICE

I certify that a true and correct copy of this document was served to all parties on August 4, 2016 via the Public Utility Commission of Texas Interchange website pursuant to SOAH Order No. 3.

Robert A. Rima

RESERO CONSULTING LCG CONSULTING

ATTACHMENT A

Economic Impacts of Southern Cross Transmission Project—2015 Analysis February 23, 2016

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Resero Consulting

Objective of study and presentation

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- To refresh and report on results for the Southern Cross Transmission ("SCT") project interconnection to SERC
  - Updated independent assessment of ERCOT market effects
    - Included effects of SERC markets on the SCT project flows and economics
  - Comparisons with results of earlier 2010 assessment completed in collaboration with ERCOT's RPG shown where helpful

Summary of Assumptions and ERCOT-Annual Results

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		2015 Analysis (2020 case, SCT Only)	2015 Analysis (2020 case, SCT + 2000 MW Wind)	2010 Analysis (2015 case, full project)
Assumptions	Project Capacity	2000 MWs	2000 MWs	3000 MWs
	Project Termination	Rusk in ERCOT, NW Alabama	Rusk in ERCOT, NW Alabama	Rusk in ERCOT to terminations in NE MS and NW AL
	Study Year/Tranmission Case Year	2020	2020	2015
	Date Transmission Case Was Developed	2015 ERCOT; 2014 SERC	2015 ERCOT; 2014 SERC	2010
Results	Average ERCOT LMP Reduction	$0.42/MWh	$0.80/MWh	$1.18/MWh
	ERCOT Annual Consumer Energy Benefit	$162M	$306M	$701M
	Production Cost Savings (Less Cost of Net Imports)	$173M	$365M	$73M

- Fully integrated ERCOT–Eastern Interconnect model used
- Results show ERCOT exports significant energy across the SCT project, especially during high wind periods
- During high load hours, energy is imported across the SCT project into ERCOT and reduces LMPs in ERCOT
- Benefits reported in 2015 dollars
- Additional revenues to ERCOT ratepayers of $65M (expected wind SCT case) or $68M (2000 MW Wind case) from export related charges collected across the SCT project
- SCT project line capacity of 2,000 MW after losses, delivered east to west, and west to east

ERCOT market assumptions

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	2015 Analysis (2020 case)	2010 Analysis (2015 case, Full project)
Transmission Model	ERCOT - 2015SSWG Summer Peak Power flow case for 2020, Oct 2015; SCT terminus at Rusk SERC - 2014 series Summer Peak Power flow case for 2020; Terminus at MS/AL 500 kV system	Single year, 2015, modeled ("2010 5YTP 2015 Economic Case 08122010.xls"); SCT – multiple terminals in SERC
Foot print	Integrated ERCOT-Eastern Interconnect Model	ERCOT model with derived SPP/SERC "Supply Curves"
SCT Capacity	2000 MW	3000 MW
Results	2020 simulation year; $2015	2015 simulation year; $2010
Cases	1. Base Case – ERCOT status quo, no SCT (68.4 TWh total wind production, 20,144 MW wind capacity) 2. SCT Only Case – Base Case + SCT project 3. SCT + 2000 MW Wind Case – Base Case + SCT project added + 2000 MW added wind in the Panhandle (900 MW), Caprock (195.5 MW), I-20 (426 MW) and South Texas (478.5 MW) areas	1. Base Case – ERCOT status quo, no SCT (36.7 TWh wind production, 11,352 MW wind capacity) 2. SCT Case ("SC Case") – Base Case + SCT Project added 3. SCT High Wind Case ("SC HW Case") – SC Case + 3000 MW added wind (47.5 TWh wind production)
Gas prices	LCG forecast. Basis differentials based on historical price (ERCOT delivered average: $3.12, 54% decrease relative to '10 assumption).	ERCOT gas price from file 2010_5YTP_Gas_Prices.xls (ERCOT average: $6.75)
Load	ERCOT - 50-50 Non-coincidental peak forecast, Sep 2014, 2014 RTP Economic case load profiles by weather zone; SERC - NERC ES&D database, FERC Form 714	Load from ERCOT File 2010 5YTP 2015 Economic Case 08122010.xls
Wheeling	ERCOT (per MWh) export-related charges ($10.87 pk months; $9.28 offpk months); SPP/SERC wheeling costs from utility tariffs, no added wheeling costs for SCT	ERCOT export-related charges; SPP/SERC wheeling costs from utility tariffs, no added wheeling costs for SCT

SCT project flow impacts: more exports and fewer hours of imports than in 2010 study

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- ERCOT primarily exports energy given high level of renewables and low ERCOT gas prices
- ERCOT imports minimal energy during summer high load periods, although less than in the 2010 study, given significant increases in renewables, lower ERCOT gas prices, and increased transmission buildout since 2010
- ERCOT's reduction in LMPs due to SCT is lower in this study, given lower gas prices and additional renewable buildout in the Base Case based on ERCOT's planned generation interconnections

SCT project results in lower average annual LMPs across all regions; price reduction lower than in 2010 study

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Average annual load weighted LMPs

	2015 Analysis			2010 Analysis		
ZONE	Base Case ($/MWh)	SCT Case ($/MWh)	SCT Case - Base Case ($/MWh)	Base Case ($/MWh)	SCT Case ($/MWh)	SCT Case - Base Case ($/MWh)
Houston	$ 30.83	$ 30.57	$ (0.27)	$ 50.34	$ 49.26	$ (1.08)
North	$ 35.52	$ 34.90	$ (0.62)	$ 50.54	$ 49.20	$ (1.34)
South	$ 30.14	$ 29.96	$ (0.19)	$ 50.45	$ 49.38	$ (1.07)
West	$ 31.93	$ 31.11	$ (0.82)	$ 49.87	$ 48.66	$ (1.21)
ERCOT	**$ 32.43**	**$ 32.02**	**$ (0.42)**	**$ 50.41**	**$ 49.23**	**$ (1.18)**

ATTACHMENT A

Exhibit EW-2
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Resulting ERCOT annual economic metrics, also comparing recent analysis with 2010 analysis

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	2015 Analysis (2020 case, SCT Only)	2015 Analysis (2020 case, SCT + 2000 MW Wind)	2010 Analysis (2015 case, full project)
Consumer Energy Benefit	$162M	$306M	$701M
Production Cost Savings (Less Cost of Net Imports)	$173M	$365M	$73M

- Decrease in consumer benefit relative to 2010 analysis, given general reductions in overall LMPs in conjunction with lower gas prices and relief of some significant transmission constraints
- Production cost benefits primarily due to increased sales of excess wind across SCT project
- Collected wheeling-out fees result in an additional $65M in revenues to ERCOT ratepayers in the expected wind case and $68M in revenues in the SCT + 2,000 MW wind case

Producers' Benefits – minimal impacts to producers

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- Producers' benefit between the scenarios is the difference of the Generator Margin of the change case and the Base Case
  - Generator Margin is the difference between the energy revenues received by suppliers in ERCOT and the production costs associated with the energy produced
- Note that the Producer's Benefit differs from the production cost savings in two respects
  - Producer's Benefit includes consideration of Energy Revenues and is thereby affected by changing market clearing prices
  - Production Cost savings also factor in the costs of purchases from neighboring regions and the sales to neighboring regions

	(Millions)		
	Base Case	**SCT Only Case**	**SCT + 2000 MW Wind Case**
Energy Revenue	$12,159	$12,156	$11,846
Production Costs	$9,082	$9,057	$8,876
Generator Margin	$3,077	$3,098	$2,970
Producers' Benefit		**$21**	**($107)**

- Changes in dispatch with the SCT project in place result in nominal (< 4%) impacts on ERCOT generators' annual margin