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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 2016 JUN 10 PM 2: 33 BEFORE THE  $F^{1} = \frac{1}{2} \int_{U_{1}} U_{1}$  Hosion STATE OFFICE

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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** 

**STATE OFFICE** 

**OF ADMINISTRATIVE HEARINGS** 

## INITIAL BRIEF OF SOUTHERN CROSS TRANSMISSION LLC

### I. INTRODUCTION

The City of Garland (Garland) is seeking a Certificate of Convenience and Necessity (CCN) for a 37- to 40-mile double-circuit 345-kV transmission line between a new switching station to be built in Rusk County and a new switching station to be constructed in Panola County. This case differs from previous CCN cases in four important respects, all of which are the result of changes made to the Public Utility Regulatory Act (PURA) by the Texas Legislature in 2015:<sup>1</sup>

- 1. This is the first case where a municipal utility seeks to obtain a CCN for a transmission line to be constructed outside its service area.
- 2. It is the first case for a CCN to be obtained by a municipally owned utility to interconnect a facility that will enable power to be imported into or exported out of the ERCOT system.
- 3. Because Garland has been ordered to interconnect the Southern Cross transmission project (SCT Project) pursuant to sections 210, 211, and 212 of the Federal Power Act (FPA), there is no issue of need for the transmission line, and it must be approved within 185 days from the date the application was filed.
- 4. To protect the public interest, the Public Utility Commission of Texas (Commission) may prescribe reasonable conditions that are not inconsistent with the Final Order of the Federal Energy Regulatory Commission (FERC) in TX11-01-001.

<sup>&</sup>lt;sup>1</sup> Acts 2015, 84th Leg., R.S., ch.1162 (SB 776), § 1 (added subsecs. (g), (h), & (i)); Acts 2015, 84th Leg., R.S., ch.1275 (SB 933), § 1 (added subsecs. (c-1), (c-2) & (c-3)).

Southern Cross Transmission LLC (SCT) is an intervenor in support of Garland's CCN. SCT is an affiliate of Pattern Energy Group LP and is the developer of the SCT Project. The SCT Project is an approximately 400-mile long, high-voltage direct-current (HVDC), bidirectional transmission line and related facilities that will connect the ERCOT transmission system at the Texas-Louisiana border to the SERC transmission system.

SCT agrees with and supports Garland with regard to the routing and other issues addressed in its brief and with regard to the landowner settlement on Route RP9 filed after the hearing on the merits. In this brief, SCT addresses only SCT's position regarding the conditions recommended by other parties and the Commission Staff, and the ERCOT-related Preliminary Order issues.

The issue of reasonable conditions requires the Commission to determine the appropriate bounds for those conditions within the 185-day time frame prescribed by legislation. Where several of the issues identified in the Commission's Preliminary Order have substantial market implications, the lack of broad stakeholder participation in this case—and the critical analysis that such participation would bring—dictates that this is not the right place to address most of the substantive Preliminary Order issues. That is not to suggest the discussion of the Preliminary Order issues in the instant proceeding involved wasted time or effort. As shown below, it has been a very productive process that SCT believes has helped clarify what issues need attention, where issues should be considered, and when issues should be resolved.

SCT believes that it is critical to put its project into appropriate context. Although at 2,000 MW while importing and 2,100 MW while exporting, SCT will be the largest DC Tie connected to the ERCOT grid, it is in reality just another addition to the ever-changing ERCOT topography. The SCT Project's physical characteristics are comparable to the existing 1,250 MW of DC Tie transmission capability. It is also comparable to the existing 2,972 MW of switchable generation on ERCOT's borders. It is smaller than some of the existing generation stations, such as the 3,565 MW Parish Generating Station with its four coal and four gas units. And it is relatively minor in comparison to the substantial investment in other assets and the retirements that have occurred in ERCOT over the past 15 years.

The SCT DC Tie will provide substantial benefits to ERCOT customers and Texas citizens. Such benefits include a new \$100+ million, 35 to 40-mile double-circuit, 345-kV transmission line built without cost to ERCOT ratepayers, millions of dollars of annual

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production costs savings, consumer energy benefits and export charge revenues, as well as significant reliability support to ERCOT during system emergencies by adding access to over 200,000 MW of divers generation resources in SERC, benefits to landowners and local economies from increased renewable energy production, and support for the local economy in Rusk and Panola Counties in the form of payments in lieu of taxes and the economic impact of a large local construction project.

### II. PROCEDURAL BACKGROUND

Not addressed.

### **III. JURISDICTION**

Garland filed its application pursuant to PURA § 37.051(c-1), (c-2), (g) and (i). Because ERCOT has had adequate notice of this proceeding, the Commission can exercise its jurisdiction pursuant to PURA §39.151 to include directions to ERCOT in its Order relating to and facilitating the interconnection of the SCT DC Tie.

SCT neither owns nor operates—nor does it plan to own or operate—for compensation equipment or facilities in Texas to transmit electricity. As a result, SCT does not fall within the PURA § 31.002(6) definition of an electric utility. When SCT executes ERCOT's Standard Form Market Participant Agreement and becomes a market participant, the Commission can, if needed, exercise jurisdiction over SCT to adopt and enforce rules relating to the reliability of the regional electrical network pursuant to PURA § 39.151(d) and PURA §15.023, impose administrative penalties to address market power abuses pursuant its broad authority under PURA § 39.157, and request that the Attorney General seek an injunction for any violation of PURA or a PUCT rule.

### IV. NOTICE

Not addressed.

### V. DISCUSSION

SCT has followed the outline circulated among the parties. That outline follows the issues listed in the Commission's Preliminary Order. After listing SCT's recommended conditions in Section V. (B) below, SCT addresses the benefits and costs of the SCT Tie and

Staff's proposed conditions. SCT further divided the benefits and costs of the SCT Tie section into two subparts: the benefits of the SCT DC Tie and proposals to allocate costs to SCT.

### A. Application (Preliminary Order Issue No. 1) Not addressed.

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

If so, what reasonable conditions consistent with the FERC's final order in Southern Cross, if any, should the Commission prescribe in order to protect the public interest?

SCT agrees with, and supports, some of the conditions suggested by parties to be placed on Garland's CCN as prerequisites to interconnecting the SCT Project. Some conditions proposed by various parties—either in testimony or as part of a statement of position—are not reasonable and should not be adopted.

SCT supports the following conditions as prerequisites to interconnecting the new Garland Rusk to Panola transmission line to SCT's DC Tie.<sup>2</sup> SCT supports the proposed findings of fact and conclusions of law being submitted by Garland. SCT believes the conditions supported by SCT below have been incorporated into Garland's proposed findings of fact and conclusions of law.

- Garland may not interconnect the SCT DC Tie to the ERCOT transmission grid until SCT has executed an ERCOT Standard Form Market Participant Agreement (SMFPA) as an Independent DC Tie Operator, and ERCOT should make the necessary changes to the SFMPA and its Bylaws, Protocols and systems to enable SCT to execute the SFMPA no later than June 1, 2017.
- Garland, Southern Cross, and Rusk Interconnection LLC 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.

<sup>&</sup>lt;sup>2</sup> See Rebuttal Testimony of David Parquet, SCT Ex.6 at 4:4–5:13.

- Garland will abide by its interconnection agreements with SCT and Oncor and will disconnect its facilities if FERC asserts jurisdiction over ERCOT due to the Rusk to Panola line.
- ERCOT shall negotiate a coordination agreement with the applicable balancing authority in the southeast prior to commercial operation of the SCT DC Tie. In negotiating that agreement, ERCOT shall involve SCT in its negotiations to assist both balancing authorities in understanding the capabilities and limitations of the SCT Project and in developing other terms of the coordinating agreement.
- On or before June 1, 2017, ERCOT shall adopt a new Nodal Protocol Revision Request (NPRR) to create an Independent DC Tie Operator market participant type and amend its bylaws, as necessary, to include the new Independent DC Tie Operator market participant type within one of the existing market segments.
- ERCOT should evaluate, and if appropriate, implement a Congestion Management Plan (CMP), including the use of a Special Protection Scheme (SPS) to address congestion issues near the SCT DC Tie.<sup>3</sup> For the avoidance of doubt, implementation of a CMP or SPS should not be a condition of the order in this case.
- ERCOT should coordinate with SCT to evaluate whether the SCT DC Tie could provide Primary Frequency Response and other services.
- With respect to any exercise of the put and call options in the Transmission Line Agreement, Garland and Rusk Interconnection LLC will abide by the provisions of PURA § 37.154 relating to Commission approval of a transfer of rights under a CCN.

### Benefits and Costs of the SCT Tie

1. Benefits of the SCT DC Tie

Several proposed conditions from TIEC witness Charles Griffey, from Staff's Statement of Position, and from Luminant, recommend that various types of costs be imposed on SCT and are premised on the assertion that there are no benefits to ERCOT customers from the SCT project. Most of Mr. Griffey's recommendations, however, rely on a faulty analysis of the economic study prepared by SCT expert witness Ellen Wolfe and his bald assertion that the

<sup>&</sup>lt;sup>3</sup> Direct Testimony of Dr. Shams Siddiqi, Luminant Ex. 1 at 5:26, 11:1–14:5.

benefits of the SCT project shown in Ms. Wolfe's study are merely theoretical. Staff presents no testimony of its own but appears to adopt Mr. Griffey's flawed conclusions in its Statement of Position.

Mr. Griffey argued that under the study scenarios, the import flows are small; that the export flows would have been lower if different modeling assumptions had been used for the existing DC Ties, and that it is unknown whether the study results would reflect ultimate benefits to ERCOT if a different termination location in SERC were modeled. Mr. Griffey also attempted to cast doubt on the quality of Ms. Wolfe's study. Neither Mr. Griffey's narrow criticisms nor his efforts to discredit the quality of the study withstand close scrutiny.

Whether the results of Ms. Wolfe's study would change for some of Mr. Griffey's hypotheticals or whether the results would have been different for different years or different assumptions is beside the point of the analysis' conclusions: The SCT Project will provide hundreds of millions of dollars in benefits to ERCOT ratepayers. SCT did not have to undertake the study to prove the project benefits ratepayers. But it did so—not to show a benefit-to-cost ratio that meets typical PUCT tests for approving transmission line upgrades, but simply to show there were positive, substantial benefits. Ms. Wolfe's study demonstrated that value for the single year of her study, based on ERCOT provided grid topology and other assumptions. There will be many, many years of operation of the SCT Project.

Ms. Wolfe has over 28 years' experience with electric utilities and in the energy industry. She is a recognized expert in modeling electric grids across North America to assess the impacts and benefits of changes to the grid. In 2004, she led a cost-benefit study for ERCOT to assess the merits of ERCOT forming a nodal market from its then-existing zonal market, which was subsequently filed by ERCOT with the PUCT (PUC Project No. 28500).<sup>4</sup> She has also led similar studies for a group of northwestern utilities and energy companies to assess the costs and benefits of joining a regional transmission organization as RTO West, for organizations in the Southwest considering the formation of WestConnect, for the Regional State Commissions from the member states of the Southwest Power Pool (SPP) on the benefits of SPP implementing a

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<sup>&</sup>lt;sup>4</sup> Direct Testimony of Ellen Wolfe, SCT Ex. 3 at 3:5-8.

nodal energy imbalance market, and for the Federal Energy Regulatory Commission (FERC) on the benefits of Entergy and Cleco joining the SPP.<sup>5</sup>

The study performed for this case is unprecedented in ERCOT's history and is most likely the first time that ERCOT and the Eastern Interconnect have been modeled on a combined basis with this level of sophistication. Moreover, it received the same level of review and quality assurance checks as work Ms. Wolfe has performed for the SPP's Regional State Commission, the FERC, and—with Resero's modeling partner, LCG Consulting—ERCOT's Regional Planning Group.

Ms. Wolfe's 2015 economic analysis, studying the year 2020, shows that if the SCT Project is added, ERCOT would receive annual production cost benefits of \$175 million. These benefits are realized through reductions in the cost of serving ERCOT load. If 2,000 MW of additional wind generation resources accompany the development of the SCT Project (SCT + 2,000 MW Wind Case), the study showed that the *annual* production cost benefits increase to \$364 million. The 2015 economic analysis shows that the SCT Project creates *annual* consumer benefits of \$162 million and \$306 million under the SCT + 2,000 MW Wind scenario. The 2015 economic analysis shows that the export of power over the SCT Project would result in an additional \$65 million *each year* in export charges to offset ERCOT settlement charges, including ancillary service charges, and transmission revenue requirements.

Mr. Griffey questioned the way the existing DC Ties in ERCOT were modeled in Ms. Wolfe's 2015 study. There are five relatively small DC Ties connected to ERCOT: two with SPP and three with Mexico. The total capacity of these ties is 1,250 MW. The flows over these ties are minor compared with the 30,000 to 70,000 MW of ERCOT customer load.

Mr. Griffey criticized Ms. Wolfe's assumptions regarding the existing ties. Ms. Wolfe attempted to model the ties in the same manner as ERCOT. Ms. Wolfe therefore modeled the ties to Mexico the way her modeling team believed ERCOT has modeled them in the past: i.e., always importing. According to Mr. Lasher, however, ERCOT currently models the flows over the Mexico DC Ties as fixed flows based on historical data.

In light of Mr. Lasher's testimony, Ms. Wolfe evaluated whether the results of her study are sensitive to these particular assumptions. Ms. Wolfe identified three separate reasons why

<sup>&</sup>lt;sup>5</sup> Id.

the Mexico tie assumptions do not weaken the study results: One, using ERCOT's approach, each hour's flows would be fixed and not responsive to ERCOT market or system conditions. Two, the Mexico DC Ties do not necessarily export during periods of wind curtailment. And three, the Mexico ties along the border in South Texas are electrically too remote to be effective at moving energy out of ERCOT from the curtailed wind projects in West Texas and the Panhandle. In addition, if the Mexico ties had been modeled based on historical flows as Mr. Lasher suggests, the SCT Project may have been shown to import more energy during peaks periods. As a result, there would be increased production cost savings from imports over the SCT DC Tie, not reduced savings as Mr. Griffey suggested.

Mr. Griffey suggests that the SPP ties should have been modeled as importing and exporting in response to market conditions. By contrast, Ms. Wolfe modeled the SPP ties exactly as ERCOT models them, i.e., importing only. Mr. Griffey acknowledged that his own position on how the ties should be modeled is inconsistent with the way ERCOT models the SPP ties,<sup>6</sup> and Mr. Lasher agreed that Ms. Wolfe's modeling approach for the SPP ties was consistent with ERCOT's.<sup>7</sup>

Mr. Griffey states that because imports over the SCT DC Tie are only a small amount relative to ERCOT's total energy usage, the benefits of the import flows over the tie are *de minimis* and insignificant. He even stated in response to SCT's RFI 2-4 to TIEC that the imports over the SCT Project "appear to be caused by increased imports over the existing DC Ties rather than imports over the SCT line." Mr. Griffey's statement flies in the face of reality. The Base Case reflects market conditions that occurred without the SCT Project. The change case reflects the addition of the SCT Project and the measured benefits are the differences between the two cases. If the existing SPP ties alone could have resulted in lower production costs those lower production costs would already be showing themselves in the Base Case.

Mr. Griffey's conclusion that the benefits of the import flows over the tie are *de minimis* and insignificant has two flaws. First, he focused on megawatts, not dollars. In response to SCT's RFI 2-4 to TIEC, Mr. Griffey states the basis for his *de minimis* claim was that there are only 50,000 MWh of imports across the SCT DC Tie, "which is very small relative to ERCOT's

<sup>&</sup>lt;sup>6</sup> Direct Testimony of Charles Griffey, TIEC Ex. 1 at 21:1-16 (Griffey Direct).

<sup>&</sup>lt;sup>7</sup> Tr. at 271 (Jun. 1, 2016).

total usage." In a follow up RFI, SCT 3-1, SCT asked Mr. Griffey to provide the analysis supporting his conclusion that the value of the imports across the SCT DC Tie is an insignificant amount of total production costs. Second, and even more important, however, Mr. Griffey calculated only the costs—but not the benefits—of the import flows as is demonstrated in his work papers produced in discovery. What Mr. Griffey characterizes as the value of imports in case 2 as approximately \$1.5 million and in case 3 as approximately \$3 million, is actually just the sum of the hourly cost of imports at the Rusk node;<sup>8</sup> i.e., the *cost* that would have been assigned for the imported energy. These costs are no measure of the benefits to ERCOT from importing the energy rather than producing it from more expensive ERCOT resources. Thus, his calculations failed to measure either production cost benefits or consumer energy benefits associated with imports over the tie.

Finally, Mr. Griffey argued that because the termination point of the SCT Project is not known with certainty, it is not possible to meaningfully estimate the value of interconnecting ERCOT to the Eastern Interconnect.<sup>9</sup> Based on guidance from SCT, Ms. Wolfe modeled the SCT Project as terminating at West Vernon, a switching station on the 500-kV Southern Company system. The project benefits occur because the ERCOT market would be interconnected with the Eastern Interconnect markets at an uncongested area within Southern Company's 500-kV system.<sup>10</sup> The important point is not where the SCT Project terminates in the East, but simply that it is connected to an uncongested area that would allow free-flowing power flows into and out of the bulk electric system of the Eastern Interconnect. In his rebuttal testimony, Mr. Parquet confirmed that SCT would not connect to a congested area.<sup>11</sup> As a result, even if circumstances change and the interconnection is not at West Vernon, any other

<sup>&</sup>lt;sup>8</sup> Southern Cross Ex. 12 is TIEC's response to SCT 3-1. Looking at the spreadsheet for the Case # 2 change case, for example, column O is what Mr. Griffey characterizes as the "value of imports." The formulas used to calculate the values in column O are shown on the next page of the exhibit. Mr. Griffey multiplied the amount in column G, the imports, times the hourly price at the Rusk node. The final two pages of Southern Cross Ex. 12 show that Mr. Griffey made the same calculations for the Case # 3 change case.

<sup>&</sup>lt;sup>9</sup> As of the time the hearing on the merits concluded, SCT had not completed and accepted its requested interconnection study for the connection to the Eastern Interconnect and had not executed an interconnection agreement with an entity in SERC.

<sup>&</sup>lt;sup>10</sup> See Rebuttal Testimony of Ellen Wolfe, SCT Ex. 7 at 27:4-6.

<sup>&</sup>lt;sup>11</sup> Rebuttal Testimony of David Parquet, SCT Ex. 6 at 11.

interconnection point that would be acceptable to SCT would yield comparable benefits to those shown in Ms. Wolfe's economic analysis.

Mr. Griffey isolated elements of the 2015 study, attempted to explain how each one negates a particular aspect of the study, and then leapt to the conclusion that the study shows no meaningful benefits. Such a leap is overreaching. Studies such as Ms. Wolfe's are performed because the elements of the system are so interrelated that taking pieces of data in isolation and attempting to infer what they suggest invariably leads to erroneous conclusions like Mr. Griffey's.

Mr. Griffey did not perform his own study nor did he develop his own economic analysis. By contrast, Ms. Wolfe's study is a robust representation of hundreds of aspects of the ERCOT and Eastern Interconnect grid. The study was largely based on assumptions provided by ERCOT and the Eastern Interconnect planners. The study demonstrates that the benefits of the SCT tie to ERCOT are real and meaningful. In the SCT + 2,000 MW wind case, for example, there is somewhere between a 2% and 4% production cost savings, which in a \$9 billion market represents hundreds of millions of dollars to Texas ratepayers. Nothing in Mr. Griffey's critique undermines the conclusion from Ms. Wolfe's study that the SCT tie will produce some \$175 million per year in benefits to ERCOT customers.

Neither Mr. Griffey nor Staff address other benefits of the SCT project, which are largely undisputed in the record. For example, there was discussion at the hearing and appears to be no real dispute that the SCT could be a significant source of additional power supply during emergency conditions on the ERCOT grid. Although such conditions occur only rarely and the value of additional power supply when they occur is difficult to value, the availability of up to 2,000 MW of additional power from outside of ERCOT (or, if the tie is already importing, the resulting availability of additional generation inside ERCOT) could provide a significant buffer against the risk of service interruptions, which can have enormous costs if they occur. There are over 200,000 MW of generation resources in the SERC system from which to draw that needed power to ERCOT.

There are other benefits of the SCT DC Tie as well. For example, the SCT DC Tie will facilitate additional wind generation that would otherwise be constrained. Additional wind generation provides significant benefits to landowners that host wind farms across West Texas and the Panhandle, as well as to the local economies in those areas. In addition, the Garland

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Project will bring millions of dollars in payments in lieu of taxes to the taxing authorities in the area where the line will be constructed, in addition to economic benefits to the region as a result of construction and maintenance of the line.<sup>12</sup>

### 2. Proposals to Allocate Costs to SCT

While they do not acknowledge the benefits of the SCT project, TIEC, Staff, and Luminant propose to break from longstanding Commission policy for recovering costs of transmission upgrades, ancillary services, and ERCOT operational expenses from load and instead allocate such costs to SCT. Their proposals are ill-considered and should be rejected.

As an initial matter, DC Tie exports already pay their share of ERCOT transmission system, ancillary services, and ERCOT operations costs. For example, Substantive Rule 25.192(e) provides for transmission rates 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 exports charges under Subsection (e) is credited to all 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 of 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 that is served by export transactions. As Ms. Wolfe's study shows, the benefits of such export transaction charges would be more than \$60 million per year in reduction of ERCOT customers' cost for transmission service, Ancillary Services and ERCOT overhead.<sup>13</sup>

Similarly, export transactions over DC ties already pay their share of ERCOT ancillary services costs, just as ERCOT customers do. DC Tie users, whether importing or exporting, bear an appropriate share of system costs under today's rules. 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

<sup>&</sup>lt;sup>12</sup> Direct Testimony of Darrell Cline, Garland Ex. 2 at 10:8-11.

<sup>&</sup>lt;sup>13</sup> SCT Ex. 3 at 4:19-21 (Wolfe Direct).

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.<sup>14</sup>

The same is true of ERCOT administrative costs such as the cost of studies, system upgrades or rule revision processes, which are recovered through the system administration fee approved by the Commission and spread to QSEs, including for export transactions.<sup>15</sup> SCT is not aware of any instance where one party has been singled out to pay the cost to implement a protocol revision at ERCOT. As Mr. Hailu stated about the costs associated with implementing NPRRs during cross-examination:

- Q. And is the expense for implementing NPR 4 --NPRR, excuse me, 461, is the expense for that coming out of the ERCOT system admin fee?
- A. (Hailu) Yes, as is most all NPRRs.<sup>16</sup>

Not only do export transactions over DC ties already pay their share of ERCOT transmission system costs, ancillary services, and the ERCOT operating budget, there are strong reasons not to adopt proposals to break from the longstanding policy that load pays for such costs in this case and instead attempt to assign them specifically to SCT. As former Commissioner Hudson testified, the longstanding 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 the complexity of transmission cost allocation issues remains 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. 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

<sup>&</sup>lt;sup>14</sup> Rebuttal Testimony of Mark Bruce, SCT Ex. 9 at 27; Rebuttal Testimony of Paul Hudson, SCT Ex. 11 at 9.

<sup>&</sup>lt;sup>15</sup> ERCOT's response to Staff RFI 2-2, Staff Ex. 14; ERCOT's response to Staff RFI 2-3, Staff Ex. 15; Tr. at 264-267 (Jun. 1, 2016).

<sup>&</sup>lt;sup>16</sup> Tr. at 269 (Jun. 1, 2016). Also see the discussion of SCT Ex 14 (Tr. at 261-263) and SCT Ex. 16 (Tr. at 268-270).

prescription for near endless argument over the nuance of cost and benefits. The postage stamp model in ERCOT has avoided that difficulty.<sup>17</sup>

Moreover, 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 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.<sup>18</sup>

SCT disagrees with Staff's recommendation to open a project to evaluate changes to the current cost allocation methodology. Staff acknowledges that ERCOT has not identified any upgrades that are necessary to accommodate the SCT DC Tie. Staff's recommendation is based on the possibility that upgrades might be identified in the future. While not specifically stated, Staff once again appears to make their recommendation based on the flawed assumption that there are no benefits to ERCOT ratepayers associated with the interconnection of the SCT Project and that any future transmission upgrades would only benefit the SCT Project. It is the QSEs representing buyers and sellers of power that will use the ERCOT system and they will pay for their use of the ERCOT system under the existing Commission rules and ERCOT protocols. From a policy perspective, Staff's recommendation to depart from the postage stamp methodology is ill-advised. This expedited CCN proceeding with limited stakeholder investment is not an appropriate venue to consider a significant departure from longstanding cost recovery principles that could have far-reaching and unintended implications. No changes are required.

Finally, it is not clear that any costs associated with exports over the SCT tie will be significant, particularly in comparison to the potential scope of the benefits of the tie, many of which would recur on an annual basis. Oncor's interconnection study indicates that no transmission upgrades are required for the 1,500-MW export case beyond those required in the

<sup>&</sup>lt;sup>17</sup> SCT Ex. 11 at 8-10 (Hudson Rebuttal).

<sup>&</sup>lt;sup>18</sup> Id. at 10.

benchmark case without the SCT DC Tie, other than 640 MVar of new reactive support.<sup>19</sup> SCT will add capacitors to provide reactive support near the Panola Station to compensate for the transmission losses on the Rusk to Panola transmission line and for the reactive consumption of the HVDC terminals.<sup>20</sup> It is also important to note that no new ERCOT customer-funded transmission lines are required to interconnect SCT. ERCOT's Mr. Woodfin indicates that the Southern Cross DC Tie might also cause an increase in ancillary services costs when the tie is exporting, but neither the costs nor the type of ancillary services that would be needed to cover the potential system risk from a trip of the tie under these conditions have been determined by ERCOT.<sup>21</sup> ERCOT also has not estimated the cost of various studies, system modifications, or stakeholder processes to address interconnection of the SCT tie,<sup>22</sup> but costs for similar activities in the past have been limited.<sup>23</sup>

In sum, the evidence shows that the benefits of the SCT tie will be substantial, and will recur on an annual basis, while any costs associated with the SCT Project are uncertain and limited. Under existing cost recovery mechanisms, load outside of ERCOT that benefits from exports over the ties already pays for costs of the transmission system, ancillary services, and ERCOT administration on the same basis that customers in ERCOT do. There is a simple, effective system for recovering such costs in ERCOT based on the postage stamp methodology and no basis has been shown for making a major break from current methodologies to directly impose costs on SCT, particularly in a venue like this expedited CCN proceeding with limited stakeholder participation and opportunity for analysis.

For all of the foregoing reasons, proposals to break from longstanding Commission policy and to allocate costs transmission system, ancillary service, and ERCOT administration costs specifically to SCT should be rejected.

<sup>&</sup>lt;sup>19</sup> Rebuttal Testimony of Stan Gray, SCT Ex. 10, Exhibit SG-1-R at 2 of 71 (Table 1).

 $<sup>^{20}</sup>$  Id. at 5.

<sup>&</sup>lt;sup>21</sup> ERCOT's response to Staff RFI 2-8, Staff Ex. 20 at 2.

<sup>&</sup>lt;sup>22</sup> Staff Ex.20.

<sup>&</sup>lt;sup>23</sup> See the discussion of SCT Ex. 13, SCT Ex 14, SCT Ex. 15 and SCT Ex. 16 at Tr. at 261-270 (Jun. 1, 2016).

#### Staff's Proposed Conditions

Staff proposed certain conditions in its Statement of Position but did not present a witness to support those conditions. While Staff generally relies on Mr. Griffey's testimony in support of its positions, it has gone beyond anything stated by Mr. Griffey and declared "If Texas ratepayers will not benefit from the Southern Cross DC Tie, they should not be required to pay for the costs of interconnecting it to the ERCOT transmission system." There is no credible evidence in the record that supports such a conclusion. Yet, it is apparent that the quoted statement is the basis for Staff's repeated recommendation that Southern Cross should be required to pay ERCOT for costs historically paid out of the ERCOT administrative fee. Making the statement, as Staff has, that there are no benefits to ERCOT ratepayers is directly contrary to the findings of FERC in granting its order under sections 210, 211 and 212 of the Federal Power Act (FPA)—a proceeding in which the Commission participated that resulted in an order the Commission did not oppose.

Under the FPA, FERC can require an interconnection under Section 210 only upon the finding that the order would encourage conservation of energy or capital, optimize the efficiency of use of facilities and resources or improve the reliability of the electric systems to which the order applies. SCT described the efficiency benefits of the ordered interconnection and transmission services and no party to the proceeding challenged those claimed benefits. It is clear from the proposed Order (particularly, Paragraphs 23, 31, 32 and n.33) that FERC agreed those efficiency benefits were the basis for the FERC's findings that the statutory requirements had been met. Numerous provisions of PURA indicate that Commission action must be consistent with federal authority,<sup>24</sup> including § 37.051(c-2) and (g), which provide that any conditions prescribed in this case must be consistent with the FERC order in *Southern Cross*. As a result, the underpinnings for Staff's assertions regarding lack of benefits and assignment of costs to SCT are neither supported by evidence nor consistent with FERC's order.

With regard to Staff's specific recommendations, other than their repeated recommendation to impose costs on SCT (that in some cases may be nonexistent), SCT responds to each as follows:

<sup>&</sup>lt;sup>24</sup> See PURA §§ 11.009, 17.051, 17.158, 35.005, 35.006, 36.001, 39.151, and 39.203.

Staff Proposed Condition No. 1. Southern Cross must execute a Market Participant Agreement.

SCT agrees with all of the parties commenting on the question and has included this proposed condition at the beginning of this section of the brief. SCT would also add that the changes should be completed by ERCOT by June 1, 2017 to permit SCT to complete project financing before the end of 2017.

<u>Staff Proposed Condition No. 2.</u> ERCOT must execute a coordination agreement with any Regional Transmission Organization, Independent System Operator, or Balancing Authority on the eastern end of the Southern Cross DC Tie.

SCT agrees with Staff and those parties urging the Commission to direct ERCOT to execute a coordinating agreement with the balancing authority at the eastern end of the SCT Project, once that authority is known. SCT has included a condition on ERCOT in its above list of proposed conditions and has included a requirement that SCT be included in those negotiations to assure that the agreement not only properly reflects the capabilities and limits of the SCT DC Tie, but also includes consideration of potential benefits to ERCOT and to the authority at the Eastern end that might be available from the SCT Project.

<u>Staff Proposed Condition No. 3.</u> ERCOT be required to study price formation issues during emergencies when ERCOT takes out-of-market actions to import or export power over the Southern Cross DC Tie.

This issue was not raised in the Commission's Preliminary Order. Instead, it was raised by Luminant Witness Shams Siddiqi and in NRG's Statement of Position. SCT agrees with Staff and others that the matter should be addressed at ERCOT. SCT has included this condition above and further urges the Commission to direct ERCOT to file a Nodal Protocol Revision Request before the end of 2017.<sup>25</sup>

<sup>&</sup>lt;sup>25</sup> SCT Ex. 9 at Exhibit MB-R-2 (Bruce Rebuttal).

<u>Staff Proposed Condition No. 4.</u> ERCOT be required to study whether changes should be made to planning assumptions/criteria to identify transmission upgrades that may address congestion related to power flows over the Southern Cross DC Tie in a cost-effective manner.

As discussed more fully in section F (4) below, SCT agrees with ERCOT that this issue will be addressed in the normal stakeholder process at ERCOT and no Commission action is required in this proceeding.

<u>Staff Proposed Condition No. 5</u>. Staff be required to open a project to consider whether changes should be made to the cost allocation method for transmission upgrades built to facilitate imports/exports over the Southern Cross DC Tie.

As discussed more fully above under the heading Proposal to Allocate Costs to SCT, SCT disagrees with Staff's recommendation to open a project that would consider changes to the current cost allocation methodology. No Commission action is necessary.

<u>Staff Proposed Condition No. 6.</u> Require ERCOT to study ways to manage congestion caused by imports and exports over the Southern Cross DC Tie and then, to the extent necessary, implement a plan to address congestion in a cost-effective manner before the Garland Project is energized.

As discussed more fully in section F (4), except for Staff's recommendation that SCT should be singled out and pay ERCOT for the costs to study, and if appropriate implement, a congestion management plan, SCT generally agrees that exploration of a CMP/SPS for the affected area in East Texas through the appropriate ERCOT stakeholder process is appropriate.

<u>Staff Proposed Condition No. 7.</u> Require that ERCOT develop new tools and processes to evaluate whether ERCOT can accommodate an e-Tag request by the proposed Southern Cross DC Tie and, if necessary, establish new ramp restrictions for the Southern Cross DC Tie before the Garland Project is energized.

SCT agrees that ramp rates will need to be established for the SCT DC Tie. As discussed more fully in section F(5) below, SCT believes that the normal stakeholder process will fully address the issue and no Commission action is required in this case.

<u>Staff Proposed Condition No. 8.</u> Require ERCOT to study and implement any new systems or tools necessary to coordinate outages before the Garland Project is energized.

While Staff agrees with ERCOT witness Dan Woodfin and SCT Mark Bruce that any additional complexities associated with outage coordination should be addressed through the

normal ERCOT stakeholder process, Staff nonetheless recommends that a specific condition be included in the Commission's Order in this case requiring ERCOT to study, and if necessary implement new systems or tools necessary to address coordinating outages. As discussed in section F(6) below, this technical issue will be addressed by ERCOT in the normal course of business and no specific Commission action is needed in this docket.

<u>Staff Proposed Condition No. 9.</u> Southern Cross should be required to supply Primary Frequency Response and reactive power to the ERCOT transmission system.

The issue of Primary Frequency Response and reactive power are discussed in section F(8) below. Like the majority of the ERCOT-related matters, this is a technical issue best addressed at ERCOT and any requirement imposed through the ERCOT process on the SCT DC Tie will need to be consistent with the capabilities of the SCT equipment and ERCOT's coordination agreement with the balancing authority at the Eastern end of the SCT Project. No specific condition is required in this case.

Staff Proposed Condition No. 10. There is no condition No. 10 in Staff's Statement of Position.

<u>Staff Proposed Condition No. 11.</u> Require Staff to study whether changes to the cost allocation method for ancillary services is necessary.

In section F(9) below, SCT addresses whether it is necessary to address changes in the cost allocation method for Ancillary Services in this CCN case and concludes that it is not necessary to include a condition in this proceeding that assumes any changes are necessary to the Commission's long-held cost allocation policies or ERCOT's existing market settlement policies and practices. The Commission always has the authority to review the cost recovery method for Ancillary Services. Nothing in this proceeding enhances or diminishes that authority. Staff's recommendation that the Commission open a new project to study cost allocation methods for ancillary services should be rejected.

<u>Unnumbered Staff Proposed Conditions.</u> Prior to the numbered conditions in Staff's Statement of Position and in a separate section at the end, Staff proposes three additional unnumbered conditions. First, Staff recommends that the Commission open a compliance docket to confirm how its proposed conditions are being met. SCT opposes Staff's proposed condition as being too vague in its mechanics and too uncertain in its scope. Such a vague proposal, if implemented in a manner that allows third parties to object to required filings and delay progress

on the SCT Project would unnecessarily add significant risk that the SCT Project might not be able to obtain and close financing. In fact, SCT is very concerned that a catch 22-like situation could easily, but inadvertently, be created where proof of financing is required in the compliance docket, but it cannot be obtained because there is an open compliance docket. If the Commission chooses to order a compliance docket assure compliance with any conditions that the Commission adopts in this proceeding, the Commission should assure that their order is not an improper conditional order and compliance should be limited to only ministerial filings that milestones have been accomplished and conditions met. Such an approach would not prevent any party from separately filing a complaint or the Commission from instituting a contested case, if compliance becomes an issue.

Second, Staff proposes the Commission adopt a condition that would prevent the TCOS recovery of any cost for Oncor's Rusk switching station, the Panola switching station or the Rusk to Panola transmission line under any circumstances. Staff's position appears to be influenced by a similar suggestion presented by Mr. Griffey.<sup>26</sup> Staff acknowledges that Garland has entered into a Transmission Line Agreement with SCT affiliate, Rusk Interconnection LLC (Rusk), and that agreement includes obligations by Rusk to sell the completed Rusk to Panola Transmission Line and the Panola switching station to Garland for one dollar as well as reimburse Garland for the reasonable costs incurred by Garland for operation and maintenance, all as more specifically described in the Transmission Line Agreement. Instead of recognizing that over the life of the facilities circumstances could change-for example Garland could be required to add or change its facilities based on unforeseen mandates by ERCOT in its normal course of business-Staff advocates an absolute bar to any cost recovery. Oncor has been ordered by a regulatory authority with jurisdiction to provide transmission service. Oncor has a right to seek and obtain cost recovery for the reasonable cost of the facilities it constructs. The proper place to consider whether Oncor is entitled to cost recovery will be in the rate case where approval for such cost recovery is sought.

Garland addresses future costs that are not reimbursed or reimbursable under the Transmission Line Agreement in its brief and SCT supports its position.

<sup>&</sup>lt;sup>26</sup> TIEC Ex. 1 at 13 (Griffey Direct).

Staff's recommendation as to both Oncor and Garland is not well thought out and would most likely be illegal if it were adopted. Oncor is not a party to this proceeding, the issue of cost recovery for these facilities was not adequately noticed, the condition and would prejudge the rights of the affected parties with no evidentiary support. Moreover, there are numerous situations in which ERCOT or the PUCT might order upgrades, for example if a new generator interconnected with the Garland Project, and cost recovery for those upgrades would certainly be appropriate. Staff's recommendation to bar any possibility of future cost recovery should be rejected because appropriate safeguards exist to address the concerns expressed by Mr. Griffey and Staff.

Staff's third and last condition would limit Garland's ability to condemn land until SCT has filed evidence that SCT has obtained all necessary state regulatory approvals, SCT has secured funding for both the Garland Project and the SCT Project, and that at least 75% of the Southern Cross DC Tie has been constructed. SCT has agreed in the Route Stipulation to language that is acceptable to the landowners regarding filing evidence that funding has been obtained for the SCT Project and Staff does not oppose that Stipulation.

Staff's proposed requirement that at least 75% of the Southern Cross DC Tie has been constructed before condemnation occurs should be rejected. First no rationale has been provided by Staff or any party to support this condition. Second, it is unreasonable to impose the requirement where the construction schedule for facilities and the lead time for the delivery of equipment is unknown. Third, for all practical purposes, it would make financing of the project impossible. Fourth, landowners are fully and adequately protected by the relevant provisions in the Route Stipulation.

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

Not addressed.

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

SCT fully expects to honor the representations it made in *Southern Cross*. The key commitment it made was that it will not seek to recover from ERCOT ratepayers the cost of the interconnection facilities identified in the Garland/SCT Interconnection Agreement.<sup>27</sup>

<sup>&</sup>lt;sup>27</sup> CCN Application, Garland Ex. 1, Attachment 2 at 54-55; FERC Docket No. TX11-1-001, Final Order at ¶ 9.

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

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

Please see SCT's discussion of this issue under Staff Proposed Condition 1.

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

Please see SCT's discussion of this issue under Staff Proposed Condition 2.

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

There is fairly general agreement among parties that the ERCOT issues presented in Preliminary Order Issue No. 4 would be better addressed in the ERCOT stakeholder process or a rulemaking than in this expedited CCN proceeding with limited stakeholder participation. For example, in its Statement of Position, ERCOT states:

As a threshold matter, ERCOT generally agrees with Southern Cross Transmission LLC ("Southern Cross") that many of the identified issues involve complex and often technical policy questions that are not easily addressed within the procedural limitations of a contested case. ERCOT therefore recommends that the Commission consider either addressing these issues in a separate rulemaking or requiring ERCOT to address these issues in its Protocols and/or other standards. The Commission's statutory right to impose "reasonable conditions" on the CCN in no way obligates the Commission to address these (or any other) issues in this proceeding. Certainly, if the Commission would prefer in this proceeding to secure the timely future resolution of these issues, the Commission may wish to consider simply ordering, as a statutorily permitted "reasonable condition" on the interconnection of the Southern Cross DC tie project, that these issues be resolved through the relevant PUCT or ERCOT processes by some date certain.<sup>28</sup>

Other parties, including CenterPoint, share this conclusion. Aside from his recommendation that export transactions should not be subsidized by ERCOT ratepayers, TIEC witness Mr. Griffey testifies that the other ERCOT issues in the Preliminary Order should not be addressed at this time.<sup>29</sup> CenterPoint also asserts that the Commission should let the normal ERCOT process resolve technical issues and that policy questions related to cost recovery should

<sup>&</sup>lt;sup>28</sup> ERCOT Statement of Position at 1 (Apr. 27, 2016).

<sup>&</sup>lt;sup>29</sup> TIEC Ex. 1 at 25 (Griffey Direct).

be resolved through the rulemaking process.<sup>30</sup> There is little support among the parties for addressing the ERCOT issues in Preliminary Order No. 4 in this proceeding.

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

At what point of development should ERCOT include a proposed merchant DC Tie project in the planning models?

Mr. Lasher explained that new generation resources and discrete customer loads are included in transmission planning studies when the projects reach one or more milestones that indicate they are highly likely to be completed.<sup>31</sup> Mr. Lasher recommends that new DC Tie projects likewise be included in transmission planning models when they reach a milestone indicating that they are likely to be completed.<sup>32</sup> The milestone requirements could include the collateralization of the necessary transmission system upgrades for interconnecting the project and a notice to proceed with construction of the interconnection facilities. These requirements are consistent with those for other grid-connected infrastructure.

Mr. Lasher noted several impacts of including in the transmission planning studies a DC Tie project that is not completed.<sup>33</sup> SCT witness Mark Bruce also stressed the importance of determining when a new DC Tie is to be included in the planning models.<sup>34</sup> The planning models are used to evaluate potential additions to the transmission system to meet reliability requirements or to improve system dispatch economics. If new resources and transmission facilities are included in the planning model but not constructed, the resulting planning studies could overstate or understate the economic or reliability benefits of projects under consideration.

Mr. Bruce noted that once a TSP is authorized to construct a new transmission facility, it is added to the planning models for the year the facility will be energized.<sup>35</sup> Developers of any planned facilities must have issued notice to the interconnecting TSP to proceed with the

<sup>&</sup>lt;sup>30</sup> CenterPoint Statement of Position at 3-4 (Apr. 27, 2016).

<sup>&</sup>lt;sup>31</sup> Direct Testimony of Warren Lasher, ERCOT Ex. 1 at 5:10-23.

<sup>&</sup>lt;sup>32</sup> ERCOT Ex. 1 at 5:24–6:5 (Lasher Direct).

<sup>&</sup>lt;sup>33</sup> ERCOT Ex. 1 at 6: 9-19 (Lasher Direct).

<sup>&</sup>lt;sup>34</sup> Supplemental Direct Testimony of Mark Bruce, SCT Ex. 4 at 8: 7-19.

<sup>&</sup>lt;sup>35</sup> SCT Ex. 4 at 9:3-7 (Bruce Supp. Direct).

construction of the interconnecting facilities.<sup>36</sup> The developer of any generation resource must have posted sufficient collateral with the TSP to cover the cost of those facilities in case the developer fails to construct the generation resource.

Agreeing with Mr. Lasher, Mr. Bruce believes that a non-TSP-owned DC Tie such as the SCT project should be considered highly likely to be developed and included in transmission planning models once SCT achieves two milestones: (1) posting the required financial security, and (2) issuing notice to Oncor to proceed with the construction of the interconnection facilities at the Rusk substation.<sup>37</sup>

The staff statement of position and the remaining intervenor witnesses did not specifically address this issue.

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

How should the uncertainty of whether DC Ties will be exporting or importing be addressed in transmission planning?

Mr. Lasher testified that the issues related to modeling the DC Ties can be resolved by ERCOT stakeholders through discussions in RPG meetings and possibly the nodal protocol and Planning Guide revision process.<sup>38</sup> Mr. Lasher explained that the general purpose of transmission planning is to identify future system needs for improvements in grid infrastructure.<sup>39</sup>

Mr. Lasher explained that ERCOT conducts two types of transmission planning studies: reliability studies and economic studies.<sup>40</sup> Reliability studies focus on transmission projects needed to reliably serve expected customer demand within established applicable reliability criteria. Economic studies are used to identify projects that increase the system operational efficiencies. ERCOT uses different assumptions for the DC Ties in the two types of studies.

<sup>&</sup>lt;sup>36</sup> SCT Ex. 4 at 9:11-21 (Bruce Supp. Direct).

<sup>&</sup>lt;sup>37</sup> SCT Ex. 4 at 10:4-10 (Bruce Supp. Direct); SCT Ex. 9 at 9:1-3 (Bruce Rebuttal).

<sup>&</sup>lt;sup>38</sup> ERCOT Ex. 1 at 11:11-13 (Lasher Direct).

<sup>&</sup>lt;sup>39</sup> ERCOT Ex. 1 at 6:23–7:8 (Lasher Direct).

<sup>&</sup>lt;sup>40</sup> ERCOT Ex. 1 at 7:1-16 (Lasher Direct).

Mr. Lasher explained further that the modeling assumptions are specified in the Regional Transmission Plan Scope document.<sup>41</sup> The document is reviewed during Regional Planning Group meetings at the start of each year, and the assumptions are adjusted from year to year. By modeling the DC Ties consistent with recent historical operations, ERCOT Planning accomplishes its goal to have sufficient infrastructure to allow the DC Ties to operate to the benefit of all resources and loads.<sup>42</sup> If future system conditions indicate a better method of modeling the DC Ties, ERCOT planning would likely propose revisions to the modeling assumptions.

Mr. Lasher is not certain how a new large DC Tie like SCT's would be modeled.<sup>43</sup> He believes that future study assumptions for the SCT proposed DC Tie could be informed by the modeling data presented in this case. A conservative approach would be to use assumptions that minimize the need for system improvements until market operations indicate that participants want to use the facility beyond current local transmission capacity.

Mr. Bruce agrees with Mr. Lasher that the issues related to modeling DC Ties are best suited to the ERCOT stakeholder process, which builds new planning models each year and constantly reviews and improves planning assumptions and methods.<sup>44</sup> In the first place, the questions are not specific to the SCT project, but are applicable to all of the DC Ties. As a result, while there are specific planning questions raised by the SCT DC Tie, there are more general planning issues related to potentially larger volumes of total system imports and exports through all of the ties. Mr. Bruce believes that the subject-matter experts in the ERCOT stakeholder process can best frame and resolve all of these issues as sufficient information becomes available and it becomes possible to make reasoned adjustments to the assumptions used in the ERCOT planning process.

The staff statement of position and the remaining intervenor witnesses did not specifically address this issue.

<sup>&</sup>lt;sup>41</sup> ERCOT Ex. 1 at 9:11-17 (Lasher Direct).

<sup>&</sup>lt;sup>42</sup> ERCOT Ex. 1 at 9:20–10:6 (Lasher Direct).

<sup>&</sup>lt;sup>43</sup> ERCOT Ex. 1 at 10:18–11:7 (Lasher Direct).

<sup>&</sup>lt;sup>44</sup> SCT Ex. 4 at 12: 3-13 (Bruce Supp. Direct); SCT Ex. 9 at 9:1-3 (Bruce Rebuttal).

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

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?

As a threshold matter, the evidence does not show that transmission upgrades are necessary to facilitate exports over the SCT DC Tie. SCT witness Stan Gray explained the results of the interconnection studies that Oncor performed pursuant to the ERCOT regional planning process.<sup>45</sup> The studies show that system upgrades are not necessary to interconnect the SCT DC Tie.<sup>46</sup> ERCOT is a market and will limit market participants' production to mitigate system reliability concerns like line overloads or system instabilities with or without the addition of system upgrades.<sup>47</sup> And, as the ERCOT grid topology changes in the future, SCT will operate on an economic basis where flows will be dictated by prices in the ERCOT market as compared to those in the Southeast, or at times, by ERCOT in its management of reliability of the grid.

According to Mr. Gray, the Oncor studies show that the primary impact to the ERCOT system by adding either export or import flows over the SCT DC Tie would be a voltage drop near the Rusk station.<sup>48</sup> Adding reactive devices like capacitors instead of relying on generators for reactive supply is a practical solution, especially because generation near Rusk tends to run a limited number of hours as year.

In its statement of position, Texas Competitive Power Advocates (TCPA) expressed concern a large DC Tie export could increase transmission costs to ERCOT load customers. While it advocated that some sort of equitable cost sharing be adopted, TCPA did not offer a specific recommendation.<sup>49</sup>

Mr. Bruce testified that it would be appropriate for all ERCOT ratepayers to bear the cost of transmission system upgrades to serve DC Tie imports and exports—if they were needed—because the facilities will serve the same purpose as other ratepayer-funded transmission

<sup>&</sup>lt;sup>45</sup> SCT Ex. 10 at 3:12–5:16 (Gray Rebuttal).

<sup>&</sup>lt;sup>46</sup> SCT Ex. 10 at 3:17-20 (Gray Rebuttal); ERCOT Response to Staff RFI 1-3, Staff Ex. 4.

<sup>&</sup>lt;sup>47</sup> SCT Ex. 10 at 4:20-23 (Gray Rebuttal).

<sup>&</sup>lt;sup>48</sup> SCT Ex. 10 at 6:11-20 (Gray Rebuttal).

<sup>&</sup>lt;sup>49</sup> TCPA Statement of Position at 3 (Apr. 27, 2016).

facilities: They provide access to ERCOT system resources, they improve ERCOT market efficiency, and they facilitate economic transactions for all ERCOT market participants. As discussed above in response to Preliminary Order Issue No. 2, Qualified Scheduling Entities (QSEs) exporting power from the ERCOT system are assessed export charges for their use of the system and these revenues offset transmission revenue requirements that would otherwise be collected from ERCOT loads. As a result, non-ERCOT loads served by DC Tie exports contribute to the ERCOT transmission system revenue requirement. Ms. Wolfe's study shows that this contribution will exceed \$60 million per year.<sup>50</sup> Similarly, load in ERCOT pays its share of ERCOT's transmission revenue requirements, regardless of whether it is served by an ERCOT generator or a DC tie.

Luminant witness Amanda Frazier urged the Commission to decide in this case that costs attributable to exports can be identified and charge to DC Tie owners or users.<sup>51</sup> But Ms. Frazier conceded that her proposal would deviate from the postage stamp method generally used for the recovery of the cost of wholesale transmission service. In connection with Preliminary Order Issue No. 2, above, SCT has addressed why the Commission should not disrupt the longstanding postage stamp methodology set out in PURA § 35.004(d).

Mr. Gray noted that while it's not entirely clear whether Ms. Frazier is addressing reliability or economic studies, he doesn't agree that transmission upgrades are needed for reliability reasons.<sup>52</sup> The same, long-established pre- and post-contingency power flow and stability study methods used in the Oncor studies are the correct techniques, used and accepted worldwide for reliability studies of power systems, and the studies showed that upgrades are not necessary as long as SCT operates economically, that is, flows over the SCT DC Tie will be dictated by prices differences between the ERCOT market and the Eastern Interconnect and by ERCOT in its management of reliability of the grid.

In his rebuttal testimony, Mr. Bruce pointed out that Ms. Frazier is requesting the Commission to make major policy changes in this narrow, focused proceeding that would have

<sup>&</sup>lt;sup>50</sup> SCT Ex. 3 at 4 (Wolfe Direct).

<sup>&</sup>lt;sup>51</sup> Direct Testimony of Amanda J. Frazier, Luminant Ex. 2 at 8:20-26.

<sup>&</sup>lt;sup>52</sup> SCT Ex. 10 at 7:4-8 (Gray Rebuttal).

far-reaching consequence throughout the ERCOT market and system.<sup>53</sup> In his opinion, this case is the wrong venue in which to suddenly upend 15 years of effective, workable cost allocation policy. As a result of that policy, DC Tie exporters already pay costs attributable to their exports under current planning and cost allocation methods. Exporting QSEs pay transmission rates like other loads and pay the same types of ERCOT load settlement charges as other loads. None of the TSPs who own the existing DC Ties have had to bear special allocations of costs supposedly attributable to exports, nor have any of the many QSEs that use the existing ties had to bear them. Current planning methods do not have to be changed to identify export costs and allocate them to new DC Tie exporters.

Staff recommends that the Commission require Staff to open a project to consider whether to change the cost allocation method for transmission upgrades necessary to facilitate flows across the SCT DC Tie.<sup>54</sup> For the reasons discussed more fully above in connection with Preliminary Order Issue No. 2 above, the Commission should not change existing cost allocation for transmission system costs. The existing postage stamp system fairly allocates a share of transmission system costs to export transactions. That system works well, and far better than areas outside ERCOT that engage in prolonged and fruitless disputes over transmission cost allocation.

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

Should DC Ties be subject to economic dispatch? If not, how should ERCOT manage congestion created by DC Tie imports/exports?

ERCOT witness Dan Woodfin described two alternative approaches to manage congestion due to DC Tie imports: including DC Tie transfers in SCED and using Congestion Management Plans (CMPs).<sup>55</sup> Mr. Bruce testified that it is probably technically infeasible at this time to subject DC Ties to SCED automated economic dispatch in the same manner as generation resources and controllable load resources are dispatched.<sup>56</sup> Automated adjustments in the flow across a DC Tie necessarily affect the balancing authority on the other end of the line.

<sup>&</sup>lt;sup>53</sup> SCT Ex. 9 at 9:22–10:9 (Bruce Rebuttal).

<sup>&</sup>lt;sup>54</sup> Staff Statement of Position at 7 (May 25, 2016).

<sup>&</sup>lt;sup>55</sup> Direct Testimony of Dan Woodfin, ERCOT Ex. 2 at 9:8–10:3.

<sup>&</sup>lt;sup>56</sup> SCT Ex. 4 at 13:15–14:7 (Bruce Supp. Direct).

Mr. Bruce believes that there may be ways, however, to improve current practices by moving the DC Tie scheduling window closer to the operating hour or using proxy offer curves in a SCED workaround to approximate economic dispatch.

Although the issue is important, in Mr. Bruce's opinion it is not urgent.<sup>57</sup> First, ERCOT operates the existing DC Ties outside SCED and, even in the often-congested Rio Grande Valley, no market participants have called for a change. Second, much of the generating capacity near SCT's DC Tie is either mothballed much of the year or generating outside of ERCOT. And since QSEs will likely export over the tie many more hours each year than they will import, congestion will likely be an issue only a relatively small number of hours each year—as Luminant witness Dr. Siddiqi notes<sup>58</sup>—and affect a limited number of market participants. Third, alternative solutions or mitigation strategies may address congestion without requiring changes to SCED, such as using a CMP or, as noted above, or moving the DC Tie scheduling window closer to the operating hour. There will be ample time before the SCT tie begins operations to explore and implement alternative strategies.

The Commission could instruct ERCOT to initiate a review of congestion management practices related to DC Tie imports and exports through the appropriate stakeholder committees. Then, all affected stakeholders could participate in the technical discussions and market design deliberations, and appropriate market rules for all DC Tie imports and exports can be developed and implemented.

On behalf of Luminant, Dr. Siddiqi proposed adoption of a CMP or Special Protection Scheme (SPS) to address grid congestion issues in the area of the SCT tie.<sup>59</sup> A CMP/SPS would utilize a set of predefined actions executed in response to system conditions to prevent or resolve transmission constraints. The effectiveness of a CMP/SPS depends on the specific situation. Mr. Woodfin believes that a broader discussion by ERCOT stakeholders may be helpful to investigate the options and determine the costs and benefits of each.

Dr. Siddiqi testified that since transmission constraints in northeast Texas may not be relieved for a long period of time due to their likely inability to meet modeled economic

<sup>&</sup>lt;sup>57</sup> SCT Ex. 9 at 13:9-23 (Bruce Rebuttal).

<sup>&</sup>lt;sup>58</sup> Luminant Ex. 1 at 12:26–13:1 (Siddiqi Direct).

<sup>&</sup>lt;sup>59</sup> Luminant Ex 1 at 5-7, 12-14 (Siddiqi Direct).

transmission upgrade criteria, a CMP/SPS may help accommodate the resulting flows. An SPS could be designed to first runback and, if necessary, trip supply in this area to relieve transmission system overloads. Such an SPS could allow for the use of the base N-0 transmission capacity to export energy from this area to the rest of the ERCOT grid, thus allowing for the full use of all supply resources in this area. The use of SPSs in ERCOT, particularly the ones that rundown generation, is well established and supported by significant precedent. Imposing an appropriate CMP would benefit ERCOT consumers, those resources adversely impacted by the constraints, and the tie line importers.<sup>60</sup>

According to Mr. Gray, SCT would support the concept of a well-designed Special Protection Scheme (SPS) implemented by ERCOT, where all parties benefiting from the SPS participate in the SPS.<sup>61</sup> Mr. Gray explained that SPSs have been used successfully for many years around the United States.<sup>62</sup> There are many forms of SPSs, but in concept an SPS is a system of relays, software, and devices that monitor parts of a power system and automatically take appropriate actions to protect the transmission system. Without an SPS, some transmission capacity is left in reserve to be available in the event of an outage. With an SPS in place, more flow can be scheduled over a transmission system, and the SPS is relied on to automatically reduce any overloads if an outage occurs. An SPS can thereby allow additional generation and a more complete use of a transmission system.

SCT supports the exploration of a CMP for the affected area in East Texas with the participation of appropriate parties through the appropriate ERCOT stakeholder process.<sup>63</sup> And SCT will likely support implementation of a cost-effective and reliable CMP—if it can be designed to maximize the use of the area's transmission capacity and is applied fairly both to the nearby generation resources and users of the DC Tie. But because details matter a great deal, SCT cannot make a blanket commitment today to support a yet-to-be-designed CMP.

For that reason, SCT opposes Dr. Siddiqi's recommendation that approval of SCT's DC Tie should be conditioned on the development and implementation of a CMP. Nor is it

<sup>&</sup>lt;sup>60</sup> Luminant Ex. 1 at 7, 12 (Siddiqi Direct).

<sup>&</sup>lt;sup>61</sup> SCT Ex. 10 at 10:5-7 (Gray Rebuttal).

<sup>&</sup>lt;sup>62</sup> SCT Ex. 10 at 10:11–11:14 (Gray Rebuttal).

<sup>&</sup>lt;sup>63</sup> SCT Ex. 9 at 14:15-22 (Bruce Rebuttal).

appropriate for the Commission to order SCT to bear the cost of the study as recommended by Staff.

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

Should ERCOT rules impose ramp restrictions on imports/exports over the DC Ties, given system ramp limitations?

Mr. Woodfin testified that it will likely be necessary to impose some type of ramp rate limit on the SCT DC Tie, perhaps beyond what is currently in place for the existing smaller ties.<sup>64</sup> He explained that ramp restrictions preserve system reliability if other resources on the system cannot match a DC Tie's unrestricted ramp rate and can decrease the need to procure and deploy ancillary services.

Mr. Woodfin explained that the other resources on the system cannot generally match the ramp rate of a DC Tie.<sup>65</sup> Generators can change output at different rates, depending on a unit's characteristics and operating conditions, but they cannot generally change output instantaneously.

Mr. Woodfin noted that ERCOT has the discretion to deny scheduled transactions, and it would certainly endeavor to deny any e-Tag that exceeded system ramp capability.<sup>66</sup> But ERCOT may not have sufficient time to evaluate whether it can accommodate the schedule. ERCOT would therefore need to implement additional tools and processes to review a scheduled change within that timeframe. Mr. Woodfin observed that a broader discussion by ERCOT stakeholders may be helpful to investigate and evaluate the options.

On cross-examination, Mr. Woodfin was questioned about a Protocol Revision Request (PRR 771) at ERCOT that involved ramping restrictions placed on wind turbines in October 2008.<sup>67</sup> The PRR addressed a problem with some wind generation that could ramp down faster than ERCOT could accommodate the change. Mr. Woodfin was employed by ERCOT at the time, and he confirmed that the ramp rate limitations on the wind turbines had been addressed through the ERCOT stakeholder process without any staffing or budgetary impact on ERCOT.

<sup>&</sup>lt;sup>64</sup> Direct Testimony of Dan Woodfin, ERCOT 2 at 10:8-15.

<sup>&</sup>lt;sup>65</sup> ERCOT Ex. 2 at 10:18–11:2 (Woodfin Direct).

<sup>&</sup>lt;sup>66</sup> ERCOT Ex. 2 at 12:9-16 (Woodfin Direct).

<sup>&</sup>lt;sup>67</sup> Tr. at 261-263 (Jun.1, 2016); SCT Ex. Nos. 13-16.

In its Statement of Position, Staff recommended that the Commission condition approval of the application on ERCOT's resolving the ramping issue.<sup>68</sup> It also recommends that the Commission require SCT to reimburse ERCOT for any required studies and new tools.

Mr. Gray testified that SCT agrees that ramp rate restrictions are required for DC Ties, as well as several other facilities.<sup>69</sup> SCT has discussed ramp rate control strategies with ERCOT and is keenly aware that flows across its DC Tie will have to be matched in the power systems on both ends of the tie. Mr. Gray pointed out that since a modern DC Tie is controllable, SCT will be able to change flows over its tie slowly or quickly depending on the needs of the systems on both ends as determined by the system operators.

Mr. Gray also noted that SCT's economic study, conducted by Ms. Wolfe, incorporated the ramp-rate limits for the generators in both ERCOT and the eastern interconnect, complying with all of the actual generator ramp rate limitations.<sup>70</sup> In the model, changes in the direction of flow over the DC Tie took up to two hours to ramp. SCT fully understands that it must ramp in accordance with the capabilities of the ERCOT and southeastern systems.

Mr. Bruce seconded Mr. Woodfin's observation that the implementation of ramp rate limitations would benefit from a broader discussion of ERCOT stakeholders.<sup>71</sup> Moreover, ERCOT has full authority to impose ramp rate restrictions and to deny DC Tie schedules that would exceed the system's ramp rate capability. In light of ERCOT's authority and the successful history of the ERCOT stakeholder process in developing and implementing ramp rate limitations for network elements—such as ERCOT's ramp rate limits for wind turbines—Mr. Bruce believes that this issue can be resolved in the normal course of business without Commission direction.

SCT does not agree with Staff's recommendation that the Commission require SCT to pay ERCOT for the costs of any studies or tools necessary to address this issue. Mr. Bruce pointed out that no intervenors, including ERCOT, asked the Commission to take action in this case on this issue.

<sup>&</sup>lt;sup>68</sup> Staff Statement of Position at 9-10 (May 25, 2016).

<sup>&</sup>lt;sup>69</sup> SCT Ex. 10 at 11:20–12:11 (Gray Rebuttal).

<sup>&</sup>lt;sup>70</sup> Id.

<sup>&</sup>lt;sup>71</sup> SCT Ex. 9 at 15:18–16:8 (Bruce Rebuttal).

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

How should ERCOT address the greater complexity of coordinating outages and the additional cost of addressing that complexity, given the unpredictable nature of DC Tie flows?

There seems to be general agreement that outage coordination issues relating to DC Ties are best suited for the ERCOT stakeholder process.<sup>72</sup> Many of the parties note that this issue, like all or most of the ERCOT issues in Preliminary Order Issue No. 4, involve complex, technical issues and may benefit from broader stakeholder involvement in a more open forum than this contested case.

ERCOT and SCT also agree that ERCOT will need to expand its analytical capabilities to incorporate the SCT tie into its outage coordination process.<sup>73</sup> As Mr. Bruce points out, ERCOT will also likely need to expand its capabilities for many of the other increasingly variable components of the modern ERCOT grid such as increased variable output renewables, low system inertia during sustained periods of low loads, more rapid distributed generation market penetration, and growing price-responsive demand, among other issues currently challenging ERCOT's analytical capabilities.<sup>74</sup> As a result, SCT concurs that ERCOT should study this issue in the context of its other analytical needs.

It is not necessary for the Commission to prescribe in this case a condition related to this issue because it is a technical issue appropriate for development by ERCOT in the stakeholder process.<sup>75</sup> ERCOT's Statement of Position notes that the Commission is not required to address the issues ERCOT raised in this case, and both the Commission and ERCOT will retain authority to address issues of market and operations policy that may be raised by new technologies or developments.<sup>76</sup> If the Commission elects to impose a condition, as Staff suggests, that ERCOT complete its study and, to the extent necessary, implement any new tools or systems necessary to coordinate outages before the Garland Project is energized, then SCT requests that the

<sup>&</sup>lt;sup>72</sup> See SCT Ex. 4 at 15:5-10 (Bruce Supp. Direct); SCT Ex. 9 at 19:23–20:6 (Bruce Rebuttal); ERCOT Statement of Position at 2-3 (Apr. 27, 2016); Staff Statement of Position at 10 (May 25, 2016); CenterPoint Statement of Position at 3-4 (Apr. 27, 2016); TIEC Ex. 1 at 25:3-6 (Griffey Direct).

<sup>&</sup>lt;sup>73</sup> ERCOT Ex. 2 at 14:14-17 (Woodfin Direct); SCT Ex. 9 at 19:14–20:2 (Bruce Rebuttal).

<sup>&</sup>lt;sup>74</sup> Id.

<sup>&</sup>lt;sup>75</sup> SCT Ex. 9 at 4:13-15 (Bruce Rebuttal).

<sup>&</sup>lt;sup>76</sup> ERCOT Statement of Position at 3 (Apr. 27, 2016).

Commission establish a deadline for completion of those measures consistent with SCT's schedule to energize the project in 2020. SCT supports ERCOT's comment that the Commission may prefer to note its intention to address one or more of the identified ERCOT issues within a timeframe that would accommodate the project timeline contemplated by Garland and the developers of the Southern Cross DC Tie.<sup>77</sup>

For reasons discussed above in section V(4) above, SCT does not agree with Staff's recommendation that the Commission require SCT to pay ERCOT for the costs of any studies or tools necessary to address this issue.

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

How will ERCOT coordinate with other independent system operators (ISOs)/regional transmission operators (RTOs) and/or NERC balancing authorities (BAs) on imports or curtailments of exports during emergencies? In the event ERCOT is unable to reach agreeable terms with the other affected ISOs/RTOs and/or BAs, what measures may/should ERCOT take to ensure reliability?

There appears to be consensus that ERCOT should negotiate a coordination agreement with the balancing authority on the eastern end of the SCT tie, similar to the agreements ERCOT already has in place with the Southwest Power Pool (SPP) and Comisión Federal de Electricidad (CFE) for the existing SPP and Mexico ties as well as with operators of generation units capable of switching in and out of the ERCOT system.<sup>78</sup>

There is considerable incentive for the system operators on the ends of the SCT tie to execute such an agreement regarding emergency power transfers due the significant distance between the end points of the SCT line on an east-west axis. The end points are in different time zones, serve different geographic regions of the country, and each system has a different mix of generation resource types, so there is likely a much greater emergency support opportunity for both system operators connected by SCT than is possible with the more limited ties to SPP and CFE, both of which share ERCOT's time zone and weather. Given this incentive and the fact that such a coordination agreement will be bounded by the long-established e-Tag process used

<sup>&</sup>lt;sup>77</sup> ERCOT Statement of Position at 3 (Apr. 27, 2016).

<sup>&</sup>lt;sup>78</sup> SCT Ex. 4 at 15:20–16:5 (Bruce Supp. Direct); SCT Ex. 9 at 11:7-9 (Bruce Rebuttal); ERCOT Ex. 2 at 15:13–16:3 (Woodfin Direct); Tr. at 156:23–157:7 (Jun. 1, 2016).

all over North America, the system operator requirements under existing NERC reliability standards, and the market rules or tariffs in place today on both sides of the SCT Tie, there are few substantive issues for the system operators to resolve in negotiating such a coordination agreement.<sup>79</sup>

In the unlikely event that ERCOT is unable to execute a satisfactory agreement, ERCOT possesses unilateral authority to ensure system reliability by disapproving E-tag requests, curtailing DC Tie exports, or otherwise directing the disconnection of any DC Tie interconnected to the ERCOT transmission system.<sup>80</sup>

For reasons discussed above in section V(4) above, SCT does not agree with Staff's recommendation that the Commission require SCT to pay ERCOT for the costs of negotiating a coordination agreement. ERCOT has indicated that negotiation of such an agreement would likely be accomplished with existing operations and legal staff.<sup>81</sup>

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

Should either the DC Tie owner/operator or the qualified scheduling entity scheduling over the tie be required to supply reactive power or primary frequency response to the ERCOT system, consistent with ERCOT's treatment of generators?

In its statement of position, Staff recommends that the Commission require ERCOT to study whether and how SCT should provide PFR and reactive power to the ERCOT system before the Garland line is energized.<sup>82</sup> Staff believes also that SCT should pay for the study. Ms. Frazier testified that a DC Tie owner/operator should be required to supply reactive power or primary frequency response (PFR).<sup>83</sup> Mr. Woodfin testified that it would be helpful for SCT to provide PFR and voltage support service (VSS).<sup>84</sup>

<sup>&</sup>lt;sup>79</sup> See generally SCT Ex. 9 at 11:18–12:13 (Bruce Rebuttal).

<sup>&</sup>lt;sup>80</sup> SCT Ex. 4 at 16:5-9 (Bruce Supp. Direct); Tr. at 224:18-20 (Jun. 1, 2016).

<sup>&</sup>lt;sup>81</sup> ERCOT's response to Staff RFI 2-7, Staff Ex. 19.

<sup>&</sup>lt;sup>82</sup> Staff Statement of Position at 11 (May 25, 2016).

<sup>&</sup>lt;sup>83</sup> Luminant Ex. 2 at 9:13-23 (Frazier Direct).

<sup>&</sup>lt;sup>84</sup> ERCOT Ex. 2 at 16:11-23 (Woodfin Direct).

In response, Mr. Bruce pointed out that DC Ties are not generators, and the system support functions they provide are different from those provided by generators.<sup>85</sup> Mr. Gray explained that as controllable transmission lines, DC Ties do have some capabilities to provide services like PFR in cooperation with the power systems on both ends of the HVDC line.<sup>86</sup> As a technical matter, the service provided must be carefully defined so the HVDC controls can be appropriately programmed in the initial design of the line. Administratively, arrangements and agreements would have to be negotiated between the balancing authorities on both ends of the HVDC line as well as SCT as a prerequisite to setting the initial controls design.

Mr. Gray explained that, within design capabilities (including capacity), SCT could provide low-frequency PFR by borrowing energy from an adjacent system to support the ERCOT system very quickly in the early stages of a frequency change, but only with an agreement between the systems on both ends of the line. He pointed out, however, that ERCOT doesn't currently have rules that would allow SCT to supply PFR, so the ERCOT stakeholders would have to consider a rule change through the revision request process, in addition to ERCOT coordinating with the balancing authority at the other end of the line.

According to Mr. Gray, the HVDC equipment in a DC Tie cannot supply reactive power. He noted, however, that the characteristics of DC Ties enable them to provide other ancillary services from resources such as spinning and non-spinning reserves located in the system at the other end of the line.<sup>87</sup> Although the necessary agreement between the balancing authorities and with SCT would be complex, SCT would be willing to participate in such a process if ERCOT determines that it would be useful. In any event, Mr. Gray cautioned that the tasks expected of the DC Tie need to be well defined at an early stage in its initial design because late changes to the HVDC facility controls would be very costly.

In his rebuttal testimony, Mr. Bruce pointed out that Mr. Woodfin's position is closely aligned with Mr. Gray's and SCT's.<sup>88</sup> That is, SCT will work with ERCOT and affected TSPs to determine what system support services can be provided by the SCT project.

<sup>&</sup>lt;sup>85</sup> SCT Ex. 4 at 18:16-21 (Bruce Supp. Direct).

<sup>&</sup>lt;sup>86</sup> SCT Ex. 10 at 7:16–8:20 (Gray Rebuttal).

<sup>&</sup>lt;sup>87</sup> SCT Ex. 10 at 9:3-13 (Gray Rebuttal).

<sup>&</sup>lt;sup>88</sup> SCT Ex. 9 at 17:10-19 (Bruce Rebuttal).

Mr. Bruce pointed out that Ms. Frazier is the only witness recommending that DC Tie owners be required to provide PFR and reactive power services, and, in his opinion, her position is unreasonable.<sup>89</sup> Just because a DC Tie looks like a generation resource on the system when it's importing does not imply it can perform like a generator. Moreover, Ms. Frazier's contention that DC Ties should be treated "like any other Generation Resource" not only ignores that DC Ties are not generators, but also that different types of generators — such as nuclear power plants, combined-cycle units, and wind turbine—have very different system support capabilities and requirements. Regardless, the SCT DC Tie will be a transmission line, not a generator.

Also, Ms. Frazier overlooks the fact that the existing DC Ties in Texas are owned by TSPs that cannot own generation resources in ERCOT. By lumping transmission lines with generating equipment, she blurs a very important distinction in the ERCOT market structure. And if she intends to suggest that a performance requirement be imposed on the owner of one DC Tie but not on the owners of the other ties, she raises even more significant concerns about potentially discriminatory treatment of SCT.

This issue is best resolved in the normal course of business through the ERCOT stakeholder process, which can determine whether and to what extent DC Ties should provide reactive power and PFR support to the ERCOT system. There is no need for the Commission to direct ERCOT to take any particular action.

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

If the interconnection of a new DC Tie or other asset to the ERCOT system increases the most severe single contingency [MSSC], should the costs of any resulting increase in ancillary services procured be borne by the owner of that asset?

With the exception of SCT and Luminant, no party offered testimony concerning whether ancillary services costs resulting from the addition of a new asset that increases the most severe single contingency (MSSC) should be borne by the owner of that asset. Former Commissioner Paul Hudson and Mark Bruce testify for SCT that such a change in practice would be unprecedented and undesirable.<sup>90</sup> Luminant witness Amanda Frazier questioned such a change

<sup>&</sup>lt;sup>89</sup> SCT Ex. 9 at 17:19–18:22 (Bruce Rebuttal).

<sup>&</sup>lt;sup>90</sup> SCT Ex. 11 at 8-12 (Hudson Rebuttal); SCT Ex. 4 at 17-20 (Bruce Supp. Direct.

in cost allocation, noting that it would be a major departure from ERCOT's current practice.<sup>91</sup> No other party offered testimony concerning the MSSC cost allocation issue, although Texas Competitive Power Advocates (TCPA) filed a Statement of Position asserting that it may be prudent to consider shared allocation of ancillary services costs with the owners and/or beneficiaries of large new DC ties.<sup>92</sup> TCPA did not address the remainder of the Commission's Preliminary Order question, relating to whether such increased ancillary services costs should also be assessed to any other new asset (such as the generators that TCPA represents) that increases the MSSC.

As an initial matter, it is not at all clear what impact the SCT tie would have on ancillary services costs resulting from an increased MSSC. ERCOT's Mr. Woodfin and SCT's Mr. Bruce provided evidence on this point. Mr. Woodfin indicated that the SCT tie would be the new MSSC, but that ERCOT has not estimated the cost of the additional ancillary services that might be needed as a result.<sup>93</sup> Currently, ERCOT procures reserves to withstand the simultaneous loss of the two units at the South Texas Project nuclear plant.<sup>94</sup> This provides a margin above the minimum level required to meet applicable NERC standards.<sup>95</sup> Any increase in ancillary services due to SCT would be based on decisions by ERCOT stakeholders and/or NERC.<sup>96</sup> ERCOT does not know what the result of those decisions would be, but they would not result in a lower amount of responsive reserves being needed.<sup>97</sup> The SCT tie might also cause an increase in ancillary services costs when the tie is exporting, but the amount of such costs has not been determined.<sup>98</sup>

Mr. Bruce noted that although the SCT Tie may have the capacity to import more than 1,375 MW (the current MSSC), the tie may rarely import that amount.<sup>99</sup> When a 2,000 MW DC

- <sup>93</sup> Staff Ex. 20 at 1.
- <sup>94</sup> Id.
- <sup>95</sup> Id.
- <sup>96</sup> Id.
- <sup>97</sup> Id.
- <sup>98</sup> Id. at 2.

<sup>&</sup>lt;sup>91</sup> Luminant Ex. 2 at 10:8-10 (Frazier Direct).

<sup>&</sup>lt;sup>92</sup> TCPA Statement of Position at 5 (Apr. 27, 2016).

<sup>&</sup>lt;sup>99</sup> SCT Ex. 4 at 18 (Bruce Supp. Direct).

Tie does not import more than 1,375 MW, it should not be considered the MSSC.<sup>100</sup> There is also a fundamental distinction between the current MSSC—a nuclear reactor that runs at or near maximum output around the clock all year—and a DC Tie that is, at various times under various grid conditions, importing or exporting various quantities of energy.<sup>101</sup> Mr. Bruce observed that in Ms. Wolfe's analysis, hourly imports across the SCT Project never reached 1,000 MW.<sup>102</sup>

SCT does not agree with Staff's recommendation that the Commission open a project to consider whether there should be a change in policy to allocate ancillary services costs to the MSSC.<sup>103</sup> There is no support for such an evaluation among the parties in this docket, aside from a brief comment in TCPA's Statement of Position that suggests consideration of such an allocation to SCT but ignores the Commission's Preliminary Order question about allocation of such costs to *any* new MSSC. Staff took no position on the issue but, like TCPA, seemed to suggest that any evaluation would be limited to SCT, despite the broader scope stated in the Commission's Preliminary Order issue.<sup>104</sup> This cost allocation issue is discussed at greater length in response to Preliminary Order issue No. 2 above.

SCT and Luminant presented valid reasons not to consider disrupting the current system for recovering ancillary services costs in ERCOT, and Staff's proposal to open a project on the issue should not be adopted. In the event such a project is opened, the Commission should establish a completion date of June 1, 2017, so that any uncertainty will be resolved by SCT's planned date to secure financing.

### G. Texas Parks & Wildlife Issues

Not addressed.

### VI. CONCLUSION

SCT requests that the Commission adopt the conditions accepted by SCT in this brief and decline to adopt unreasonable conditions for the reasons discussed above and as reflected in the proposed Findings of Fact and Conclusions of Law filed by Garland. SCT supports the Route

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<sup>&</sup>lt;sup>100</sup> Id.

<sup>&</sup>lt;sup>101</sup> SCT Ex. 9 at 20 (Bruce Rebuttal).

<sup>&</sup>lt;sup>102</sup> Id., citing SCT Ex. 3, Exhibit EW-2 at 13 (Wolfe Direct).

<sup>&</sup>lt;sup>103</sup> Staff Statement of Position at 11-12 (May 25, 2016).

<sup>&</sup>lt;sup>104</sup> Staff Statement of Position at 12 (May 25, 2016).

Stipulation filed in this case and route RP9 selected by landowners for the construction of the Rusk to Garland double circuit 345 kV transmission line and the cooperation agreements with SWEPCO and the three intervening electric cooperatives.

Respectfully submitted,

In In w perisi

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Attorney for Southern Cross Transmission LLC

### **CERTIFICATE OF SERVICE**

I certify that a true and correct copy of this document was served to all parties on June 10, 2016 via the Public Utility Commission of Texas Interchange website pursuant to SOAH Order No. 3. Pursuant to SOAH Order No. 5, a true and correct copy of this document was served to Intervenors Ms. Elizabeth Lane and Ms. Gloria Moffett by mail.

Robert A. Rima Robert A. Rima In w/Pernis -