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PUC DOCKET NO. 41606

JOINT APPLICATION OF ELECTRIC TRANSMISSION TEXAS, LLC AND SHARYLAND UTILITIES, L.P. TO AMEND THEIR CERTIFICATES OF CONVENIENCE AND NECESSITY FOR THE PROPOSED NORTH EDINBURG TO LOMA ALTA DOUBLE-CIRCUIT 345 KV TRANSMISSION LINE IN HIDALGO AND CAMERON COUNTIES, TEXAS	§	**BEFORE THE PUBLIC UTILITY COMMISSION OF TEXAS**

DIRECT TESTIMONY

OF

MARK E. CASKEY

ON BEHALF OF

ELECTRIC TRANSMISSION TEXAS, LLC

AND

SHARYLAND UTILITIES, L.P.

July 3, 2013

6

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Exhibits

Exhibit MEC-1	List of PUC Dockets in which Mr. Caskey has testified
Exhibit MEC-2	Routing Circle for potential location of new 345 kV substation and 345/138 kV autotransformer in proximity to AEP TCC South McAllen substation

I. INTRODUCTION

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Mark E. Caskey. My business address is 1807 Ross Avenue, Suite 460, Dallas, Texas 75201.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am employed as President of Sharyland Utilities, L.P. (Sharyland).

Q. PLEASE DESCRIBE YOUR EDUCATIONAL QUALIFICATIONS AND PROFESSIONAL EXPERIENCE.

A. I graduated from Texas A&M University in 1980 with a Bachelor of Science degree in Electrical Engineering. I have 32 years of experience in electrical engineering and operations, beginning as a Transmission and Distribution (T&D) Engineer at Gulf States Utilities in Conroe, Texas in 1981, where I was responsible for the planning, maintenance and general operation of the T&D facilities in The Woodlands, Texas.

In 1986, I joined Bryan Utilities in Bryan, Texas, as Senior Engineer of Electrical Distribution. In 1991, I was promoted to Division Manager of Electric Dispatch at Bryan Utilities, a new division set up to consolidate the numerous activities of several departments of the utility to provide 24-hour monitoring, outage restoration, and overall operation of the T&D System. One of my major tasks at Bryan was the switchover of the City of College Station, Texas, from the Southwest Power Pool (SPP) to the Electric Reliability Council of Texas (ERCOT), when College Station switched its power supplier from Gulf States Utilities to the Texas Municipal Power Agency. While Manager of

Dispatch, I became involved with the formation of the ERCOT Independent System Operator and was also an observer on the Reliability and Security Subcommittee of ERCOT. In September 1998, I was transferred to Division Manager of Electric Distribution of the newly-named Bryan Texas Utilities, where I was responsible for the overall engineering, construction, and operation of the distribution system.

In September 1999, I joined Sharyland as the General Manager. I was appointed to Vice President of Operations in 2008, to Senior Vice President in 2010, and President in 2013. I am a registered Professional Engineer in the State of Texas.

Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THIS COMMISSION?

A. Yes. A list of the dockets before this Commission in which I previously have submitted direct testimony is provided as Exhibit MEC-1.

Q. PLEASE DESCRIBE YOUR RESPONSIBILITIES AT SHARYLAND.

A. As President, I supervise all aspects of Sharyland's operations. My responsibilities include managing the construction, operation, and maintenance of transmission and distribution facilities; managing all of Sharyland's employees; and developing and implementing corporate plans and policy to provide safe, reliable, and efficient utility service. For example, I am responsible for the overall management of Sharyland's Competitive Renewable Energy Zone (CREZ) transmission projects, including engineering, design, permitting, construction, operation, and maintenance of those facilities; the transition of the Colorado City and Stanton divisions from SPP to ERCOT; and the transition of Sharyland's non-retail competition divisions to retail competition.

II. PURPOSE OF DIRECT TESTIMONY

Q. WHAT IS THE PURPOSE OF YOUR DIRECT TESTIMONY IN THIS PROCEEDING?

A. My testimony summarizes the Application, introduces the other witnesses testifying for Sharyland and Electric Transmission Texas, LLC (ETT) (collectively, Joint Applicants), and also describes:

- the proposed North Edinburg to Loma Alta transmission line (Project);
- the Memorandum of Understanding (MOU) between the Joint Applicants;
- the adequacy of existing service and the need for the Project, including ERCOT's review and designation of the Project as critical to the reliability of the ERCOT interconnected system and the purpose of routing the Project in proximity to the South McAllen substation;
- the effect of granting the requested Certificate of Convenience and Necessity (CCN) on the Joint Applicants, other electric utilities in the proximate area, wholesale competition, and customers, including probable improvement of service and/or lowering of cost;
- the route selection process;
- the engineering and construction costs of Sharyland's portion of the Project; and
- the Project schedule.

I also sponsor or co-sponsor Joint Applicants' responses to several Questions in the *Joint Application of Electric Transmission Texas, LLC and Sharyland Utilities, L.P. to Amend Their Certificates of Convenience and Necessity for the Proposed North*

Edinburg to Loma Alta Double-Circuit 345 kV Transmission Line in Hidalgo and Cameron Counties, Texas (Application) filed in this proceeding, as well as co-sponsoring Sections 1.1 through 1.5 of the Environmental Assessment and Alternative Route Analysis (EA) provided as Attachment 1 to the Application.

Q. PLEASE IDENTIFY THE WITNESSES TESTIFYING ON BEHALF OF JOINT APPLICANTS AND BRIEFLY SUMMARIZE THE PURPOSE OF THEIR TESTIMONY.

A. Four witnesses will present Direct Testimony in this proceeding:

- Mark E. Caskey: My Direct Testimony addresses the topics summarized above. I also sponsor or co-sponsor Joint Applicants' responses to Questions 1b, 2b, 3b, 4 through 13 (in part), 14, 15, 16 through 18 (in part), 25 (in part), 29 (in part), and 30 (in part) of the Application (including any attachments that are referenced in those responses), as well as Sections 1.1 through 1.5 of the EA.
- Teresa Trotman: Ms. Trotman is employed by American Electric Power Service Company (AEPSC), a wholly-owned subsidiary of American Electric Power Company, Inc. (AEP), as Manager of Projects. Her testimony discusses how public and landowner input were acquired and then used to select alternative routes, together with project schedule and financing as they relate to ETT's portion of the Project. She also sponsors or co-sponsors Joint Applicants' responses to Questions 1a, 2a, 3a, 4 through 12 (in part), 16 through 18 (in part), 20 (in part), 23 (in part), 25 (in part), 29 (in part), and 30 (in part) and

Attachments 3a and 5 (in part) of the Application, as well as Sections 1.1, 1.4, and 1.5 of the EA.

- Barrett Thomas: Mr. Thomas is employed by AEPSC as a Transmission Line Project Engineer. His testimony discusses the estimated engineering and construction costs of ETT's portion of the Project. He also co-sponsors Joint Applicants' responses to Questions 5 (in part) and 13 (in part) and Attachment 5 (in part) of the Application, and Mr. Thomas also supplied information for Figures 1.2 and 1.3 and Sections 1.3 through 1.5 of the EA.
- Rob R. Reid: Mr. Reid is employed by POWER Engineers, Inc. (POWER) as Vice President / Environmental Project Development and Senior Project Manager. His testimony introduces and sponsors the EA and describes the routing process, as well as the open houses and public participation in the Project. Mr. Reid also sponsors or co-sponsors Joint Applicants' responses to Questions 6 (in part), 17 (in part), 18 (in part), 19, 20 (in part), 21, 22, 23 (in part), 24, 26 through 28, and 29 (in part) of the Application, as well as the EA, included as Attachment 1 to the Application.

III. OVERVIEW OF THE PROJECT

Q. PLEASE BRIEFLY DESCRIBE JOINT APPLICANTS' PROPOSED PROJECT.

A. The Project consists of a 345 kV transmission line installed on double-circuit capable structures, though only one circuit will be installed initially. The Project will be constructed from the existing AEP Texas Central Company (AEP TCC) 345 kV North Edinburg substation, located in Hidalgo County approximately 3.3 miles northwest of

Edinburg and west of U.S. Highway 281, and terminate at the existing Brownsville Public Utilities Board (BPUB) 138 kV Loma Alta substation, located in Cameron County approximately 6.8 miles northeast of Brownsville and northeast of U.S. Highway 77. The line will be routed in the vicinity of the existing AEP TCC South McAllen substation, located approximately 3.8 miles southwest of McAllen and south of U.S. Highway 83.

Q. PLEASE BRIEFLY DESCRIBE THE NEED FOR THE PROJECT.

A. As more fully set forth below in Section V and in the Application, the ERCOT Board unanimously voted to deem this project to be critical to the reliability of the ERCOT system and the Lower Rio Grande Valley (LRGV), specifically to prevent a large amount of load shed under N-1-1 contingency conditions. The Project is also necessary to accommodate load growth in the Brownsville area, defer upgrades to the transmission system in the western LRGV, provide a more diverse transmission configuration to support the existing and future load in the area, improve transmission system reliability and transmission system capacity, and increase the window for maintenance and construction related planned outages on the existing 345 kV lines (which are constricted to a 180-day window in the spring and fall, and that window will be significantly shorter by 2016 as a result of increased load).

Q. PLEASE DESCRIBE THE ROUTING OPTIONS.

A. Joint Applicants have proposed 32 geographically diverse alternative routes. The lengths of these alternative routes range from approximately 96.3 miles (Route 22) to

approximately 124.5 miles (Route 12). The estimated costs of the proposed routes range from $305,894,000 for Route 22 to $387,453,000 for Route 12, excluding costs associated with expansions and potential upgrades to existing stations. The estimated cost for reach route is provided in Attachment 5 to the Application.

Q. WHAT ROUTE DID THE JOINT APPLICANTS SELECT AS THE ROUTE THAT BEST ADDRESSES THE REQUIREMENTS OF PURA AND THE COMMISSION'S SUBSTANTIVE RULES?

A. Joint Applicants have designated Alternative Route 32 as the route that best addresses the requirements of PURA and the Commission's Substantive Rules.

Q. WHY DID JOINT APPLICANTS SELECT THIS ROUTE?

A. As described in Section VII below, Route 32 was selected based on a combination of factors, including the number of habitable structures, environmental considerations, stakeholder input, land-use impacts, and cost. A description of the routing process is set forth in the Direct Testimony of Rob Reid and Teresa Trotman and Attachment 8 to the Application.

Q. WILL THE PROJECT BE ON A NEW RIGHT-OF-WAY?

A. Yes. Joint Applicants have not yet acquired any of the required right-of-way (ROW) for the Project. The nominal ROW width is 150 feet.

Q. PLEASE DESCRIBE THE STRUCTURES JOINT APPLICANTS INTEND TO USE.

A. The Project will be constructed using primarily steel monopole double-circuit capable structures, as illustrated in Figure 1-2 of the EA. Sharyland may also use a limited number of steel lattice structures, as illustrated in Figure 1-3 of the EA, where appropriate based on engineering or other factors.

The Project will utilize 954.0 kcmil Aluminum Conductor Steel Reinforced (ACSR) "Cardinal" conductors. The line will utilize one overhead optical ground wire and one shield wire.

Q. WHY DID JOINT APPLICANTS SELECT STEEL MONOPOLE STRUCTURES?

A. As more fully described below in Section IX and also in the Direct Testimony of Barrett Thomas, Joint Applicants selected steel monopole structures rather than steel lattice structures based on landowner preference, the reduction of impacts on land use, and the ability to compress the construction schedule with the use of single-pole structures while maintaining comparable costs to alternative structures.

IV. OWNERSHIP DIVISION BETWEEN THE JOINT APPLICANTS

Q. CAN YOU DESCRIBE THE OWNERSHIP ARRANGEMENT BETWEEN THE JOINT APPLICANTS FOR THE PROJECT?

A. The ownership arrangement between the Joint Applicants is set forth in the MOU between the parties dated June 18, 2013. Each Applicant will construct, own, fund, and maintain their own physically discrete and separate sections of the Project, roughly one

half each, as marked by a "Dividing Point" that is approximately at the midpoint of the Project.

Q. HOW WILL THIS DIVIDING POINT BE SELECTED?

A. The Dividing Point will be determined by calculating the total length in miles of the final route selected by the Commission for the Project from the North Edinburg to Loma Alta substations, and establishing the Dividing Point at the place on the transmission line that is located at the midpoint distance along the line between the North Edinburg and Loma Alta substations. The location of the Dividing Point may be adjusted by mutual agreement of the parties based on Good Utility Practice (as defined in P.U.C. SUBST. R. 25.5(56)) or for practical reasons, moving it to the minimal extent necessary.

Q. WILL THE JOINT APPLICANTS BE CO-OWNERS OF THE LINE?

A. No. Each Applicant shall own 100 percent of its segment of the Project, but shall have no ownership interest whatsoever in the other Applicant's segment of the Project. The parties will not be tenants in common or partners or otherwise have any form of joint ownership in any portion of the Project.

V. PROJECT NEED

Q. WHAT CRITERIA ARE CONSIDERED IN DETERMINING WHETHER A TRANSMISSION PROJECT, SUCH AS THE ONE PROPOSED, IS NECESSARY?

A. As a general concept, sound transmission system planning involves ensuring sufficient transmission capability to withstand specific "contingencies" (i.e., events that affect the availability and operation of major components of the electric transmission system) at

projected customer demand and anticipated power transfer levels. Transmission system planners must consider whether the loss of transmission system elements (such as a transmission line or transformer) will cause (1) transmission facility loadings in excess of emergency current carrying ratings, or substation voltage levels outside of emergency operating limits (either maximum or minimum levels) under single contingencies, or (2) uncontrolled loss of demand or cascading outages under multiple contingencies. These "planning" criteria are intended to ensure reliable operation of the transmission system under contingency conditions.

The unavailability of various transmission system components can cause violations of transmission planning criteria established by ERCOT or the North American Electric Reliability Council (NERC). These criteria specify that (1) all transmission facility loadings are to remain within emergency load carrying ratings, and (2) all voltages are to remain within emergency operating limits in the event that the largest generator is unavailable and any single transmission element (such as a transmission line or transformer) is lost. The criteria also require that if a second transmission element is lost, the operator is able to safely mitigate the resulting overloads without creating conditions of uncontrolled load tripping or exposing the system to a cascading system outage. Power system studies based on certain contingencies determine whether transmission system additions are necessary to prevent problems providing service to load, including the overloading of remaining transmission facilities.

Q. BESIDES THE ERCOT AND NERC RELIABILITY STANDARDS, ARE THERE ANY OTHER RELEVANT CRITERIA FOR DETERMINING WHEN A PROJECT IS NECESSARY?

A. Yes. There are also Commission requirements governing transmission service to customer load. Specifically, P.U.C. SUBST. R. 25.195(b) states "[t]he TSP shall, consistent with good utility practice, endeavor to construct and place into service sufficient transmission capacity to ensure adequacy and reliability of the network to deliver power to transmission service customer loads."

Q. WERE THESE CRITERIA TAKEN INTO ACCOUNT IN DETERMINING THE NEED FOR THE PROJECT?

A. Yes. The studies associated with the Project considered all of these planning guidelines.

Q. PLEASE DESCRIBE WHY THIS PROJECT IS NECESSARY.

A. The McAllen-Edinburg-Mission and Brownsville-Harlingen-San Benito areas are consistently among the fastest growing metropolitan areas in Texas. This rapid population growth leads to additional electrical demand. In planning for this rapid load growth in the LRGV, consideration must be given to the impact of load growth in certain higher growth areas on the ability of the system to reliably provide service during a single contingency. ERCOT has determined that the current transmission system supporting the LRGV is insufficient to meet the future reliability needs of the area. As described more fully in the *ERCOT Independent Review of the Sharyland and BPUB Cross Valley Project* (ERCOT Independent Review), included as Attachment 6 to the Application, the

Project is necessary to address numerous different contingency events that result in overloading transmission facilities and resultant shedding of electrical load in the LRGV.

Q. PLEASE DESCRIBE ERCOT'S ROLE IN ASSESSING THE NEED FOR THE PROJECT.

A. ERCOT is responsible for identifying the transmission system improvements that are necessary to provide reliable and adequate transmission in most of Texas, including in the LRGV.

Q. CAN YOU SUMMARIZE ERCOT'S REVIEW OF THE PROJECT?

A. Yes. ERCOT determined, based on a number of factors, including high population and economic growth in the Brownsville area, numerous historical storm-related outages that have impacted electric service to the LRGV, and limited generation in the LRGV and more specifically in the City of Brownsville area, that beginning with the summer peak of 2016 there will be several multiple outage scenarios of great concern in delivering electric service to the LRGV.

The ERCOT Independent Review also determined that the outages caused by the unusually cold weather in February 2011 highlighted the fact that the load in this area has grown more than previously forecasted. Based on the need to address this concern, along with the long-lead time required for new transmission facilities, the ERCOT Independent Review recommended that the Project be deemed critical to the reliability of the ERCOT network per P.U.C. SUBST. R. 25.101(b)(3)(D).

Q. PLEASE ELABORATE ON THOSE OUTAGE SCENARIOS.

A. ERCOT identified three severe outage scenarios of concern: (1) the loss of a 138 kV line combined with the loss of the largest generator in the area; (2) the loss of the two 345 kV lines into the eastern side of the LRGV, which serve as the primary bulk transmission source delivering power into the eastern side of the LRGV; and (3) the loss of the 345 kV and 138 kV transmission lines into the eastern side of the LRGV, which includes the Brownsville area.

ERCOT determined that these potential outages could not be relieved by re-dispatch of generation in the LRGV, and would result in the overload of multiple transmission facilities delivering power to electric load in the LRGV, requiring subsequent load shedding to relieve overloaded facilities. Part of the load would likely have to be shed even if only one of the 345 kV transmission lines delivering power into the eastern side of the LRGV were lost to prevent uncontrolled tripping and eventual system cascading that could result from the outage of a second 345 kV transmission line. Additionally, maintenance and construction related outages on those 345 kV lines are constricted to a 180-day window in the spring and fall, and that window will be significantly shorter by 2016 as a result of increased load.

Q. DID THE ERCOT BOARD FIND THAT THE PROJECT IS CRITICAL TO THE RELIABILITY OF THE TRANSMISSION SYSTEM IN THE AREA?

A. Yes. Based on the ERCOT Independent Review and recommendation of the ERCOT Staff and the ERCOT Technical Advisory Committee, the ERCOT Board unanimously voted to deem the Project critical to the reliability of the ERCOT system. This Project

brings a new bulk power source into the eastern portion of the LRGV, relieving the potential for transmission line overloads and the need to shed load. ERCOT has determined that the Project is critical for the reliability of the Brownsville area, specifically to prevent a large amount of load shed under the contingency conditions described above.

Q. IN THE INDEPENDENT REVIEW, WHAT DID ERCOT STAFF RECOMMEND REGARDING THE NEED FOR THE PROJECT TO BE ROUTED NEAR THE AEP TCC SOUTH MCALLEN SUBSTATION?

A. On page 12 of the ERCOT Independent Review, ERCOT staff recommends "that the line be routed near the existing South McAllen 138 kV station in order to support the long-term needs of the west side of the LRGV." The ERCOT Board endorsed the recommendation of ERCOT staff, and included that recommendation in its endorsement letter for the Project, stating that the Project should be "routed in proximity to the existing South McAllen Substation." As explained more fully in Section VII below, Joint Applicants complied with this recommendation and routed the Project in proximity to the South McAllen substation.

Q. WHY DID ERCOT RECOMMEND ROUTING IN PROXIMITY TO THE AEP TCC SOUTH MCALLEN SUBSTATION?

A. As discussed more fully in Section 5 of the ERCOT Independent Review, included in Attachment 6 to the Application, ERCOT recommended routing the Project in proximity to the AEP TCC South McAllen substation to support the long-term needs of the LRGV.

Specifically, ERCOT concluded that "a 345 kV line from North Edinburg to the east side of the LRGV (with a future connection at South McAllen) will likely defer multiple line upgrades that would be needed between 2016 and 2020."

Q. HOW DID ERCOT DETERMINE THE LONG-TERM NEEDS OF THE WESTERN LRGV?

A. The ERCOT Independent Review determined the long-term needs of the western LRGV by building a 2020 summer peak base case that included this Project as well as other transmission system additions and upgrades that were either previously recommended by ERCOT or currently being considered by ERCOT.

Q. WHAT DID THE 2020 SUMMER PEAK BASE CASE SHOW?

A. The 2020 summer peak base case revealed several generation outage scenarios that would violate the planning criteria for the LRGV that are necessary to ensure reliable operation of the transmission system. Specifically, it demonstrated that with one generation outage and prior to any transmission line outage in the area, there were four overloaded transmission lines in the area and as many as seven additional transmission lines in the area loaded at over 90 percent of their contingency rating.

Q. WHAT WERE THE SOLUTIONS THAT ERCOT CONSIDERED TO ADDRESS THESE OVERLOADED TRANSMISSION LINE ISSUES?

A. ERCOT considered two potential solutions to address the overloads: upgrading the existing transmission lines or constructing a new transmission line. The first solution considered by ERCOT was the upgrade of three of the four overloaded transmission lines

followed by the upgrade of those transmission lines that were above 92 percent of their contingency rating (6 of the 7 remaining transmission lines).

The second solution ERCOT considered was the construction of a new 345 kV transmission line from the AEP TCC North Edinburg substation to either the AEP TCC South McAllen substation (along with the installation of new 345 kV bus and 345/138 kV autotransformer), or the AEP TCC Frontera substation (with the same 345 kV facility and autotransformer improvements). ERCOT ultimately eliminated the routing option to the AEP TCC Frontera substation because it was not as effective at relieving area transmission loading issues as routing to the AEP TCC South McAllen substation.

Q. AS BETWEEN UPGRADING THE EXISTING LINES OR CONSTRUCTING A NEW LINE, WHICH DID ERCOT DETERMINE WAS THE MOST EFFECTIVE?

A. ERCOT determined that the best long-term solution to significantly reduce the north to south flow on the overloaded transmission lines would be to facilitate a future 345 kV transmission interconnection between the AEP TCC North Edinburg substation and the AEP TCC South McAllen substation (along with a 345 kV bus and a 345/138 kV autotransformer). ERCOT stated that the 345 kV source to this area would defer or eliminate the need to implement a significant amount of upgrades to the overloaded transmission lines identified in the contingency study. Therefore, ERCOT concluded, based on its analysis, that it would be prudent to route the Project in close proximity to the AEP TCC South McAllen substation to facilitate this future 345 kV interconnection and the addition of a 345/138 kV autotransformer.

Q. DOES ERCOT SUPPORT THE PROJECT?

A. Yes. The Project was supported throughout the ERCOT planning process, which included participation of all market segments. The ERCOT Regional Planning Group and the Technical Advisory Committee both recommended that the Project be endorsed by the ERCOT Board of Directors. On January 17, 2012, the ERCOT Board of Directors endorsed the Project and deemed it critical to the reliability of the ERCOT System. The ERCOT endorsement letter from Kent Saathoff, Vice President – System Planning and Operations, is included as Attachment 6 to the Application.

Specifically, that letter recommended that Joint Applicants construct:

- "a new single circuit 345 kV line from North Edinburg to Loma Alta, on double-circuit capable structures, routed in proximity to the existing South McAllen substation;" and
- "a new single circuit 138 kV line with a rating of at least 215 MVA from La Palma to Palo Alto."

Q. HOW DOES THE PROJECT FILED IN THIS APPLICATION COMPARE TO THE PROJECT DESCRIBED IN THE ERCOT INDEPENDENT REVIEW?

A. The Project is a component part of the project recommended in the ERCOT Independent Review. As noted above, ERCOT recommended the construction of a new 345 kV line from North Edinburg to Loma Alta and a new 138 kV line from La Palma to Palo Alto. This Application concerns the first of those two recommendations. It also includes the accompanying expansions to the existing North Edinburg and Loma Alta substations.

Q. IS THE PROPOSED PROJECT THE BEST ALTERNATIVE TO MEET THE NEED DESCRIBED ABOVE?

A. Yes. ERCOT analyzed seven project alternatives using projected 2016 and 2020 summer peak conditions. Ultimately, ERCOT staff recommended Option 5, which, in addition to the 345 kV North Edinburg-Loma Alta line, also includes a 138 kV line connecting the La Palma substation to the Loma Alta substation and a new 345 kV bus at the Loma Alta substation with one 345/138 kV autotransformer. The ERCOT Technical Advisory Committee endorsed Option 5 on January 5, 2012, and the ERCOT Board of Directors unanimously endorsed the same option on January 17, 2012. This application specifically concerns the construction of the 345 kV North Edinburg-Loma Alta portion of Option 5.

Q. IS THE PROJECT THE BEST OPTION WHEN COMPARED TO IMPROVEMENTS TO THE LOCAL DISTRIBUTION SYSTEM?

A. Yes. Since the reliability issues addressed by the Project are associated with a large area of South Texas, distribution alternatives were not a viable solution.

Q. IS DISTRIBUTED GENERATION A VIABLE ALTERNATIVE?

A. No. Since the reliability issues addressed by the Project are associated with a large area of the LRGV, distributed generation (DG) would not be a viable alternative. Although DG is available in the competitive market, Joint Applicants are not bundled utilities and cannot control the amount or location of DG available in the LRGV and by law cannot provide DG themselves.

Q. IS THE ADDITION OF GENERATION RESOURCES IN THE LRGV AREA A VIABLE ALTERNATIVE?

A. No. Joint Applicants are not bundled utilities, and by law cannot provide generation or control the installation or location of such resources. Furthermore, neither ERCOT nor the Joint Applicants have the ability to compel the construction of additional generation resources in the LRGV. Additional generation resources could potentially help accommodate additional load growth, assuming it could be readily integrated into the existing transmission system in the absence of any high-capacity line connecting the Brownsville area. But as noted in the ERCOT Independent Review, the Project is necessary not only because it would increase reliability in the eastern side of the LRGV in the Brownsville area, but also because routing in the vicinity of the South McAllen substation would significantly reduce the north to south flow on the highly loaded transmission lines on the western side of the LRGV, and thereby defer or eliminate the need to implement a significant amount of 138 kV line upgrades that would be needed between 2016 and 2020.

Q. PLEASE SUMMARIZE HOW THIS PROJECT ADDRESSES TRANSMISSION NEEDS.

A. The Project will (1) relieve exposure to line overloading on critical facilities during different contingency events; (2) provide a more diverse transmission configuration to support the existing and future load in the area; (3) improve transmission system reliability and transmission system capacity; (4) provide increased opportunities for

scheduled maintenance on critical transmission infrastructure; and (5) help resolve future system reliability and transmission system facility loading issues in the western LRGV.

VI. EFFECT ON CUSTOMERS AND SERVICE

Q. WILL CONSTRUCTION OF THE PROJECT RESULT IN IMPROVED SERVICE TO ELECTRIC CUSTOMERS?

A. Yes. Electric service (reliability, voltage regulation, and service restoration) for customers in the LRGV area will be improved by ensuring secure operation of the power system in south Texas.

Q. WHAT BENEFIT WILL UTILITIES AND OTHER MARKET PARTICIPANTS IN THE AREA EXPERIENCE IF THE PROPOSED LINE IS BUILT?

A. The Project would provide additional transmission access for consumers and generation within the LRGV area, improved service reliability, and additional transmission capacity.

Q. HOW WILL THE PROPOSED TRANSMISSION LINE FACILITATE WHOLESALE COMPETITION IN ERCOT?

A. Wholesale competition in ERCOT depends on the ability to move electric power from economical generation resources over the transmission grid to the load centers demanding such power. Having an additional 345 kV transmission line across the LRGV would provide additional transmission capacity for new generation access and allow for a more diverse transmission configuration and thereby facilitate the flow of economic power.

VII. ROUTE SELECTION

Q. WAS A ROUTING STUDY PREPARED FOR THIS PROJECT?

A. Yes. POWER prepared a routing study as part of the EA, a copy of which is included as Attachment 1 to the Application.

Q. HOW WAS THIS ROUTING STUDY PREPARED?

A. The routing study was prepared by first selecting the study area based on the Project endpoints and other constraints within the area (e.g., border with Mexico), identifying and characterizing the existing land use and environmental and cultural resource constraints, and developing line segments within the study area. During this process, POWER identified potentially affected resources and constraints, as well as available land use features, to be considered in the routing process. POWER also contacted government officials and other stakeholders, whose comments were incorporated into the route development process. Public open-house meetings were also held to incorporate public input in the route development process. Once individual line segments were developed, they were linked to create geographically diverse alternative routes for analysis based on their potential impacts to existing land use and environmental and cultural resources. Finally, POWER ranked the alternative routes from an environmental, land use, and cultural resource perspective, and developed the top five "consensus" routes based on all the factors. Joint Applicants considered POWER's ranking in its selection of a route that best addresses the requirements of PURA and the Commission's Substantive Rules. The routing study is more fully explained in the Direct Testimony of Rob Reid.

Q. DID JOINT APPLICANTS HAVE INPUT INTO THE ROUTING STUDY?

A. Yes. Specifically, Joint Applicants participated in the consideration of and decisions related to (1) the delineation of the study area; (2) the number, location, and dates for the open house meetings; (3) the information gathering process at the open house meetings and from governmental agencies and other stakeholders; (4) the alternative routes developed based on those meetings; and (5) routing adjustments based on public input, engineering considerations, land use impacts, and input from governmental agencies and officials (e.g., U.S. Fish and Wildlife Service (USFWS)).

Q. PLEASE GENERALLY DESCRIBE JOINT APPLICANTS' ALTERNATIVE ROUTES.

A. The Joint Applicants have proposed 32 geographically diverse alternative routes between the North Edinburg and Loma Alta substations (routed in proximity to the South McAllen substation). As more fully set forth in Table 4-1 of the EA, wherever possible, links were routed within or parallel to existing transmission or other compatible ROWs. Where that was not possible, links were routed within or parallel to existing linear features. All of the alternative routes parallel existing linear features for at least 73 percent of their lengths.

Q. DID JOINT APPLICANTS COMPLY WITH THE ERCOT RECOMMENDATION TO ROUTE IN PROXIMITY TO THE SOUTH MCALLEN SUBSTATION?

A. Yes.

Q. HOW DID ETT AND SHARYLAND DETERMINE HOW CLOSE THE PROJECT SHOULD BE ROUTED TO THE AEP TCC SOUTH MCALLEN SUBSTATION?

A. In determining how close the Project should be routed to the AEP TCC South McAllen Substation, four factors were considered: (1) the general area near the AEP TCC South McAllen Substation for locations where there appeared to be adequate space to construct a new substation; (2) adequate routing options for transmission facilities in and out of the potentially available substation sites; (3) the location of existing transmission facilities in close proximity; and (4) the current upgrade status of those existing transmission facilities. In other words, Joint Applicants considered where we could acquire land for a new substation, how we could connect the Project to the new substation, and how we could connect the new substation to the existing South McAllen substation, both in terms of where lines run into the South McAllen substation and also whether those lines either currently use or could be upgraded to use the high-capacity conductor that would be necessary for such an interconnection.

After this review, and taking into consideration the other routing constraints in the area, a circular area was developed through which the Project's alternative routes would cross to ensure the Project crosses through an area where the above conditions are achieved. This circular area, referred to herein as the "Routing Circle," is shown on Exhibit MEC-2.

Q. WHY NOT ROUTE DIRECTLY INTO THE AEP TCC SOUTH MCALLEN SUBSTATION?

A. Several land use constraints near the AEP TCC South McAllen substation would raise potential routing and construction issues if the Project were routed directly into the AEP TCC South McAllen substation. These land use constraints include dense residential development to the west and southwest, the location of the McAllen Miller International Airport to the north-northeast, and other known planned development adjacent to the substation, as well as the existing eight 138 kV transmission lines that terminate into the AEP TCC South McAllen substation. To provide better options for construction of a new 345 kV substation and 345/138 kV autotransformer, improve routing possibilities into and out of a new substation, and thereby potentially reduce future routing costs, the potential routes have been routed in proximity to the AEP TCC South McAllen substation, as opposed to directly into it.

Q. DO YOU BELIEVE THAT THIS ROUTING CIRCLE MEETS THE INTENT OF ERCOT IN HAVING THE ROUTE FOR THE PROJECT IN PROXIMITY TO THE AEP TCC SOUTH MCALLEN SUBSTATION?

A. Yes, I believe the consideration of reasonable and significant factors regarding "proximity" was necessary for the routing of this Project, that the factors used to develop the Routing Circle were appropriate, and that the Routing Circle meets the intent of ERCOT to have the Project routed in proximity to the AEP TCC South McAllen substation. The process ETT and Sharyland used was methodical and reasonable.

Q. ASIDE FROM THE ERCOT RECOMMENDATION TO ROUTE IN PROXIMITY TO THE SOUTH MCALLEN SUBSTATION, WERE THERE ANY SPECIAL CIRCUMSTANCES COMPLICATING THE DEVELOPMENT OF THE ROUTES IN THIS CASE?

A. Yes, there were several such circumstances. As an initial matter, the selection of the study area was complicated by several constraints: the need to route the Project near the South McAllen substation; the border with Mexico limiting the southern boundary of the study area; and the existence of other constraints limiting the boundary of the study area and the available corridors within the study area.

Additionally, the study area contains land owned or managed by several governmental agencies, and authority to cross such lands would need to be obtained prior to construction of the Project in those areas. First, the study area contains an International Boundary and Water Commission (IBWC) flood-control ROW, which traverses the study area such that routing around it is not practicable. Second, the study area contains USFWS National Wildlife Refuges (NWR), and in particular, one NWR (east of FM 577, near San Benito) traverses nearly the entire study area from north to south, complicating routing considerations in that area. Third, the study area contains property managed by National Park Service (NPS). Fourth, the study area contains property managed by Texas Parks and Wildlife Department (TPWD). IBWC ROW, NWRs, and NPS lands are under federal control, and thus any crossings would be subject to federal approval. Similarly, crossing TPWD property would be subject to State approval.

Q. WHAT HAVE JOINT APPLICANTS DONE TO ADDRESS THESE CONCERNS?

A. Joint Applicants have consulted with IBWC, USFWS, NPS, and TPWD about obtaining permits or licenses, as applicable, over these lands in the event the Commission selects one of the routes for which a permit or license would be necessary. As part of this process, Joint Applicants have worked with these agencies to modify those portions of the routes crossing their lands to minimize any conflicts with the existing land uses and to maximize the ability to procure the necessary authorizations while still maintaining a sufficient number of geographically diverse alternative routes. Nevertheless, permits or license, as applicable, will need to be obtained and the processes for obtaining access across these properties could take more time than is typically required to procure ROW across private property.

Q. ARE THERE OTHER ALTERNATIVE ROUTES THAT THE COMMISSION COULD APPROVE APART FROM THE ALTERNATIVE ROUTES YOU MENTIONED?

A. Yes. All of the individual line segments are constructible, viable, and can be used to create additional routes or modifications to the proposed routes as long as the combinations are forward-progressing. The routing criteria were applied to each segment and the resultant information was tabulated to create Table 4 of the application.

Q. HAVE JOINT APPLICANTS SELECTED A ROUTE THAT BEST ADDRESSES THE REQUIREMENTS OF PURA AND THE COMMISSION'S SUBSTANTIVE RULES?

A. Yes. The Joint Applicants identified Route 32 as the route that best addresses the requirements of PURA and the Commission's Substantive Rules. That route is

approximately 117.5 miles long and, as shown in solid lines on Figures 3-2 and 5-1 of the EA, consists of links 1, 4, 7, 10, 17, 26, 32, 33, 43, 45, 51, 48, 54, 56, 60, 64, 342, 71a, 71b, 75, 78, 81, 82, 83, 85a, 85c, 84b, 84c, 87, 89, 92, 94, 96, 97, 105, 107, 114, 117, 116, 118a, 118c, 125a, 125b, 128, 175, 179, 185, 187a, 187b, 196a, 196b, 200, 203, 212, 214, 219, 226, 233, 235, 256, 258, 265, 271, 270, 269, 268, 267, 274, 277, 304, 305, 312, 313, 357, 339, and 341.

Q. PLEASE EXPLAIN JOINT APPLICANTS' BASIS FOR SELECTING ROUTE 32.

A. The selection of Route 32 required the balancing of various competing siting considerations. POWER considered 48 routing criteria addressing factors such as land use, aesthetics, cultural resources, the number of potentially affected habitable structures, and potential environmental impacts for each of the alternative routes, and recommended Route 32. A list of the routing criteria is provided in Table 2-1 of the EA, and the criteria data for each route is provided in Table 5-1. POWER's analysis of the routing criteria data is provided in Section 5 of the EA.

In addition to POWER's recommendation, the Joint Applicants also balanced the environmental and land use analysis with engineering and construction constraints, costs, grid reliability, security issues, public input, and community values. As a result of this evaluation, the Joint Applicants believe that all of the 32 alternative routes comply with the PUC's routing criteria and are acceptable from a design and constructability perspective. Further, the Joint Applicants identified Route 32 as the route that best addresses the requirements of PURA and P.U.C. Substantive Rules regarding certification criteria.

Given the constraints within the study area for this Project, a significant factor in the Joint Applicants' evaluation of all the alternative routes was the potential impact to habitable structures, which was also one of the most important factors ranked by individuals who completed questionnaires at the Joint Applicants' open-house meetings. Route 32 has 209 fewer habitable structures within 500 feet of the proposed right-of-way centerline than the route with the next fewest (Route 31), and 141 fewer newly affected habitable structures within 500 feet of the proposed right-of-way centerline than the route with the next fewest (also Route 31). A more thorough description of the route selection process, including the factors the Joint Applicants considered, is contained in Attachment 8 to the Application.

Q. DOES ROUTE 32 FOLLOW COMPATIBLE ROW AND APPARENT PROPERTY BOUNDARIES?

A. Yes. All of the routes parallel varying amounts of existing transmission line ROW or other existing ROW such as roads, railroads, or pipelines. In areas where the routes do not parallel existing ROW, each route also parallels apparent property lines. The combined length of each route that parallels existing transmission line ROW, roads and other compatible ROW, and apparent property lines (combined parallel criteria) for all 32 routes ranges from 73.2 percent of Route 6, to as high as 81.5 percent of Route 30. Route 32 has combined parallel criteria of 74 percent of the length of the route. Though only two other routes have a smaller percentage of combined parallel criteria, the range among all routes is fairly narrow.

Q. HOW MANY HABITABLE STRUCTURES ARE WITHIN 500 FEET OF THE ROW CENTERLINE OF ROUTE 32?

A. There are 465 habitable structures within 500 feet of the ROW centerline of Route 32, which is the fewest number of habitable structures affected for any of the alternative routes, which range from 465 (Route 32) to 1,818 (Route 26). A complete list of the number of habitable structures within 500 feet of each alternative route's ROW centerline is provided in Table 4-1 of the EA.

Q. ARE THERE ANY OTHER RELEVANT CONSIDERATIONS FOR HABITABLE STRUCTURES?

A. Yes. Due to the highly developed nature of some portions of the study area and the need to provide an adequate number of geographically diverse routing options, the alignment of some links results in the proposed easement containing existing habitable structures, and therefore potentially requiring them to be relocated or removed. As many as 13 habitable structures would potentially have to be relocated or removed on Routes 8 and 9. There are two habitable structures that potentially would have to be relocated or removed on Route 32. Five routes (Routes 13, 15, 22, 24, and 31) would not require any habitable structures to be relocated or removed, though these routes have significantly more habitable structures (947, 1,202, 1,299, 1,434, and 674 respectively) within 500 feet of their centerlines than does Route 32.

Q. DID JOINT APPLICANTS CONSIDER COMMUNITY VALUES?

A. Yes, Joint Applicants have considered community values. Such considerations affect all of the routes, including the route Joint Applicants selected as best meeting the requirements of PURA and the Commission's Substantive Rules. As explained by Mr. Reid and Ms. Trotman in their Direct Testimony, six open house meetings were held in October 2012 to inform the public of the alternative routes under consideration and to seek public input. There were 464 attendees at these six meetings and 276 people submitted questionnaires providing comments.

Several route adjustments were made based on information gained from these meetings. Due to the number of routing links that were modified and added after the initial public meetings, the Joint Applicants held an additional public open house meeting on February 25, 2013, for landowners potentially affected by the modified or added links who were not notified of the earlier open house meetings. These newly affected landowners were invited to make them aware of the process and to seek their input. A total of thirteen people attended this meeting, and ten people submitted questionnaires providing comments.

Q. DO JOINT APPLICANTS INTEND TO WORK WITH LANDOWNERS CONCERNING THE FINAL PLACEMENT OF STRUCTURES ON THE ROUTE ULTIMATELY SELECTED BY THE COMMISSION?

A. Yes. Upon final selection of a route by the Commission, Joint Applicants intend to work with landowners to address specific concerns to the extent that it is practicable to do so.

VIII. CONDUCTOR SELECTION

Q. WHAT CONDUCTOR ARE JOINT APPLICANTS PROPOSING TO INSTALL ON THE PROJECT?

A. Joint Applicants are proposing to install 954.0 kcmil ACSR "Cardinal" conductors on the Project.

Q. WHAT ARE THE NORMAL AND EMERGENCY RATINGS FOR THIS CONDUCTOR?

A. The conductor is rated at 2,224 A under normal conditions (95 degrees Celsius) and 3,245 A under emergency conditions (150 degrees Celsius), and has a continuous summer static line capacity of 1,329 MVA, with an emergency rating of 1,939 MVA. This emergency rating exceeds the rating of 1,600 MVA recommended by ERCOT for the Project.

IX. STRUCTURE SELECTION

Q. WHAT STRUCTURES WERE EVALUATED FOR THE PROJECT?

A. Both double-circuit capable steel lattice structures and double-circuit capable steel monopole structures were considered for the construction of the Project.

Q. WHAT STRUCTURE WAS SELECTED FOR THE PROJECT?

A. Joint Applicants plan to use primarily single-pole (also known as monopole) structures rather than lattice structures for the Project. Sharyland may also use a limited number of steel lattice structures where appropriate based on engineering or other considerations. Diagrams of these towers are located in Figures 1-2 and 1-3 of the EA.

Q. WHAT FACTORS LED TO THE DECISION TO USE A SINGLE-POLE STRUCTURES?

A. Steel monopole structures were selected primarily on the basis of (1) landowner preference, and (2) the reduction of impacts on land use. An additional consideration was the ability to compress the construction schedule with the use of single-pole structures while maintaining comparable costs to alternate structures.

Landowners overwhelmingly supported single-pole rather than lattice structures. As discussed in the Direct Testimony of Mr. Reid, Ms. Trotman, and Mr. Thomas, Joint Applicants held public meetings in the Cities of Brownsville, Edinburg, Harlingen, McAllen, and Mercedes, Texas. At each of those meetings, Joint Applicants solicited public input on the preferred structures (among other things), and the vast majority of landowners (approximately 86 percent) who expressed an opinion on the matter preferred single-pole towers.

Relatedly, landowners indicated that single-pole structures would have less of an impact on land use and property values. Landowners specifically expressed a preference for single-pole structures in agricultural areas because their smaller footprint requires less weed control and generally reduces interference with farming activities when compared to lattice structures. Landowners also favored single-pole structures from an aesthetic perspective.

Finally, since the ERCOT Board has deemed the Project critical to the reliability of the LRGV, Joint Applicants also considered the compressed schedule in choosing single-pole structures. The Joint Applicants' experience in both structure types has

shown that lattice steel structures generally require more time and labor to construct than steel monopole structures.

Q. ARE JOINT APPLICANTS WILLING TO UTILIZE STEEL LATTICE STRUCTURES ON PORTIONS OF THE SELECTED ROUTE?

A. Yes. If directed by the Commission to utilize steel lattice structures for portions of the route, Joint Applicants are willing and able to do so.

Q. YOU ALSO STATED THAT SHARYLAND MAY USE STEEL LATTICE STRUCTURES AS APPROPRIATE. PLEASE EXPLAIN.

A. In some instances, it may be advantageous to use a lattice structure instead of a monopole to dead end or turn the line (angle structure). Two monopoles are necessary at a single location to dead end or turn the line at a large angle. In these cases, Sharyland will investigate whether it is advantageous to use a lattice structure. As a general matter, a lattice structure will use approximately the same amount of ROW or footprint and could be less expensive to install while still maintaining the capability for double-circuit construction. This decision will be considered on an individual basis.

X. ESTIMATED COST AND ENGINEERING OF THE PROJECT

Q. WHAT IS THE ESTIMATED COST RANGE FOR THE PROPOSED ROUTES?

A. The estimated costs of the proposed routes range from $305,894,000 for Route 22 to $387,453,000 for Route 12. Route 32 has an estimated cost of $340,229,000. These cost estimates include the costs of acquiring ROW, materials and supplies, labor and transportation, engineering, administration, and estimates for the Allowance for Funds

Used During Construction (AFUDC). The estimated lengths and costs for each alternative route are set forth in more detail in Attachment 5 of the Application.

Q. ARE THERE ANY OTHER ROUTE-SPECIFIC COSTS THAT COULD BE ASSOCIATED WITH THE PROJECT?

A. Yes. All of the 32 alternative routes parallel existing transmission facilities for some of their length. This paralleling might require the owners or operators of the existing facilities (i.e., AEP TCC, South Texas Electric Cooperative, and Sharyland) to incur costs to upgrade their stations for engineering and reliability reasons.

Q. WHY ARE THESE UPGRADES POTENTIALLY REQUIRED?

A. Constructing a new 345 kV transmission line parallel to existing transmission lines can result in a coupling effect that results in an additional induced current applied to the existing lines from the new 345 kV transmission line. In order to protect from this coupling effect, the affected utilities might need to add or modify system protection equipment. These modifications could include additions or upgrades to relay packages, communication facilities, system control and data acquisition equipment, and current/voltage monitoring equipment. Depending on the size of the existing control house where these upgrades would occur, the control house might need to be expanded, which would also require new cable trays and cables to be installed. Estimated costs for the potential upgrades have been included in Attachment 5 to the application.

Q. WHAT IS THE ESTIMATED COST RANGE FOR THE PROPOSED ROUTES TAKING INTO ACCOUNT THESE ADDITIONAL COSTS?

A. Taking into account the additional costs described above, the estimated costs of the proposed routes range from $313,894,000 for Route 22 to $405,453,000 for Route 12. Route 32 has an estimated cost of $352,229,000.

Q. DO THE JOINT APPLICANTS EXPECT TO INCUR COSTS ASSOCIATED WITH INTERCONNECTING THE NEW TRANSMISSION LINE TO THE SUBSTATION ENDPOINTS?

A. Yes. The transmission line Project will terminate at the existing North Edinburg substation owned by AEP TCC and the existing Loma Alta substation owned by BPUB. AEP TCC will provide the necessary substation improvements at the North Edinburg substation, and Sharyland will construct a new 345 kV station adjacent to the existing 138 kV Loma Alta substation for the termination of the Project.

Ms. Trotman describes the costs associated with connecting to the AEP TCC North Edinburg substation. Depending on the route approved by the Commission, those costs range from $5,114,000 to $7,368,000. Sharyland's addition at the BPUB Loma Alta substation is expected to cost approximately $34,836,000

Q. DID EACH JOINT APPLICANT DEVELOP THE ESTIMATED COSTS FOR ITS PORTION OF THE PROJECT?

A. Yes, each Joint Applicant developed the costs associated with its portion of the Project, and then the costs were combined to obtain the total estimated costs.

Q. WHAT IS THE ESTIMATED COST RANGE FOR SHARYLAND'S PORTION OF THE PROJECT?

A. The estimated costs of Sharyland's portion of the Project range from $148,432,000 for Route 22 to $197,395,000 for Route 12, excluding costs associated with expansions and potential upgrades to existing stations. Both ETT's and Sharyland's estimated costs for each alternative route are set forth in more detail in Attachment 5 to the Application.

Q. PLEASE DESCRIBE THE BASIS FOR THESE COST ESTIMATES FOR SHARYLAND'S PORTION OF THE PROJECT.

A. Sharyland's transmission cost estimates for its portion of the Project were developed using manufacturers' recent quotes for similar materials and cost data from past comparable projects (with an estimated annual inflation rate applied to the cost of labor and materials costs through the targeted construction date).

Q. HOW DID SHARYLAND DEVELOP THE COST ESTIMATES FOR THE INDIVIDUAL ROUTES?

A. The route costs were developed by tabulating the component parts of the project which includes the engineering, material and acquisition costs, ROW and acquisition costs, construction labor, and project management. These components were developed by the project team made up of experts in each of the specific disciplines.

Q. DO THESE COSTS REFLECT THE ACTUAL TRANSMISSION PROJECT COSTS FOR SHARYLAND'S PORTION OF THE ROUTES THAT JOINT APPLICANTS PROPOSE?

A. No. These costs are only estimates. The costs provided in the Application are for the purposes of evaluating and ranking the routes, and thus estimates were produced on a comparative basis for that purpose. Since the final route has not been selected, the final surveying and engineering design has not been performed. After a final route has been selected and the surveying and design process has been completed, construction costs can be re-estimated based on bids received and information gathered and then updated in the Joint Applicants' monthly transmission construction reports to the Commission. Actual costs will be supplied to the Commission in the same report after the construction has been completed.

Q. DO YOU BELIEVE THESE ESTIMATED COSTS FOR SHARYLAND'S PORTION OF THE PROJECT ARE REASONABLE?

A. Yes. I believe Sharyland's estimated costs are reasonable based on my experience with projects requiring similar construction activities.

Q. HOW WILL SHARYLAND FINANCE ITS PORTION OF THE PROJECT?

A. Sharyland's portion of the Project will be financed through a combination of debt and equity.

Q. DOES THE PROJECT ADEQUATELY CONSIDER ELECTRICAL EFFICIENCY AND RELIABILITY?

A. Yes, the Project adequately considers electrical efficiency and reliability. A transmission line constructed on any of the alternative routes will be engineered so that the line itself will be electrically efficient and reliable. Obviously, various factors, such as line length and number of angle structures, will make lines located on some alternative routes more efficient than others. However, any of the alternative routes can be engineered so that electrical efficiency and reliability will be adequate for that route.

Q. DOES THE TRANSMISSION LINE DESIGN FOR THE PROJECT MEET THE REQUIREMENTS OF THE NATIONAL ELECTRICAL SAFETY CODE (NESC)?

A. Yes. Design for the Project meets or exceeds the requirements for construction as defined in the NESC. However, the NESC is a safety code and not a design guide, so additional design criteria will be used, including the American National Standards Institute (ANSI) standards, ETT, Sharyland, and AEPSC standard practices, and such practices as required by federal, state, and local governments and agencies.

XI. PROJECT SCHEDULE

Q. WHAT IS THE SCHEDULE FOR THE PROJECT?

A. The following table indicates the projected completion dates for certain Project milestones. This same information is provided in response to Question 8 in the Application, and assumes the Application will be approved within 180 days of filing, in

accordance with P.U.C. SUBST. R. 25.101(b)(3)(D). If there is a delay in approval of the Application, the Estimated Schedule will be revised accordingly.

Estimated Dates of:	**Start**	**Completion**
Right-of-way and Land Acquisition	January 11, 2014	October 11, 2015
Engineering and Design	November 28, 2013	November 27, 2014
Material and Equipment Procurement	March 1, 2014	December 31, 2015
Construction of Facilities	October 1, 2014	June 30, 2016
Energize Facilities	----------	June 30, 2016

XII. UTILITIES, MUNICIPALITIES, AND COUNTY GOVERNMENTS

Q. WHAT OTHER CERTIFICATED ELECTRIC UTILITIES ARE LOCATED WITHIN FIVE MILES OF THE PROJECT?

A. The Project is located within five miles of the AEP TCC, BPUB, South Texas Electric Cooperative, Inc., Magic Valley Electric Cooperative, Inc., Medina Electric Cooperative, Inc., and LCRA Transmission Services Corporation certificated service areas or facilities.

Q. ARE OTHER ELECTRIC UTILITIES INVOLVED WITH THE PROJECT OR DIRECTLY AFFECTED BY IT?

A. Two electric utilities, AEP TCC and BPUB, will have substation facilities connected to the termination points of this new transmission line. AEP TCC will be making the necessary substation improvements at the AEP TCC North Edinburg station for the termination of the ETT section of the new transmission line. Sharyland will be constructing the Loma Alta 345 kV/138 kV transmission substation and the necessary improvements to tie into BPUB. Documentation showing that AEP TCC and BPUB have

agreed to the installation of the Project facilities is included as Attachments 3a and 3b to the Application.

Q. PLEASE IDENTIFY THE MUNICIPALITIES AND COUNTIES IN WHICH THE PROJECT WILL BE LOCATED.

A. The alternative routes are all located within Hidalgo and Cameron Counties, Texas. The municipalities in which an alternate route crosses are listed in Attachment 4 to the Application.

XIII. CONCLUSION

Q. IS THE PROJECT THE BEST OPTION, TAKING INTO ACCOUNT CONSIDERATIONS OF EFFICIENCY, RELIABILITY, COSTS, AND BENEFITS?

A. For the reasons I have included and described above, yes, it is.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes, it does.

Proceedings Before the Public Utility Commission of Texas
in Which Mark E. Caskey Has Previously Submitted Testimony

Docket No. 21591, *Application of Sharyland Utilities, L.P. to Establish Initial Rates and Tariff*

Docket No. 22348, *Application of Sharyland Utilities, L.P. for Approval of Unbundled Cost of Service Rate Pursuant to PURA § 39.20 and Public Utility Commission Substantive Rule 25.344*

Docket No. 28834, *Application of Sharyland Utilities, L.P. for a Certificate of Convenience and Necessity ("CCN") for a 138 kV Transmission Line in Hidalgo County, Texas, to Implement a High Voltage Direct Current Interconnection with Comisión Federal de Electricidad ("CFE")*

Docket No. 33672, *Commission Staff's Petition for Designation of Competitive Renewable Energy Zones*

Docket No. 35665, *Commission Staff's Petition for Selection of Entities Responsible for Transmission Improvements Necessary to Deliver Renewable Energy From Competitive Renewable Energy Zones*

Docket No. 37990, *Joint Report and Application of Sharyland Utilities, L.P., Sharyland Distribution & Transmission Services, L.L.C., Hunt Transmission Services, L.L.C., Cap Rock Energy Corporation, and NewCorp Resources Electric Cooperative, Inc. for Regulatory Approvals Pursuant to PURA §§ 14.101, 37.154, 39.262 and 39.915*

Docket No. 38290, *Application of Sharyland Utilities, L.P. to Amend Its Certificate of Convenience and Necessity ("CCN") for the Proposed Hereford to White Deer 345 kV CREZ Transmission Line in Armstrong, Carson, Deaf Smith, Oldham, Potter, and Randall Counties*

Docket No. 38560, *Application of Sharyland Utilities, L.P. to Amend Its Certificate of Convenience and Necessity for the Silverton to Cottonwood 345 kV CREZ Transmission Line in Briscoe, Crosby, Dickens, Floyd and Motley Counties*

Docket No. 38750, *Application of Sharyland Utilities, L.P. to Amend Its Certificate of Convenience and Necessity for the Hereford to Nazareth to Silverton 345 kV CREZ Transmission Line in Briscoe, Castro, Deaf Smith, Randall and Swisher Counties*

Docket No. 38829, *Application of Sharyland Utilities, L.P. to Amend Its Certificate of Convenience and Necessity for the Proposed White Deer to Silverton 345 kV CREZ Transmission Line In Armstrong, Briscoe, Carson, Donley, Gray and Swisher Counties*

Docket No. 39592, *Application of Sharyland Utilities, L.P. To Approve Retail Plan Pursuant To The Commission's Order In Docket No. 37990 For Customers In The Stanton, Colorado City, Brady And Celeste Divisions*

Docket No. 41474, *Application of Sharyland Utilities, L.P. To Establish Retail Delivery Rates, Approve Tariff for Retail Delivery Service, and Adjust Wholesale Transmission Rate*