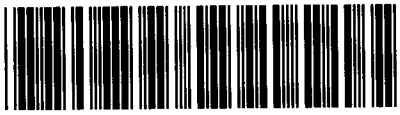

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JOINT APPLICATION OF ELECTRIC TRANSMISSION TEXAS, LLC AND SHARYLAND UTILITIES, L.P. TO AMEND THEIR CERTIFICATES OF CONVENIENCE AND NECESSITY FOR THE PROPOSED NORTH EDINBURG TO LOMA ALTA DOUBLE-CIRCUIT 345-KV TRANSMISSION LINE IN HIDALGO AND CAMERON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

APPLICATION

JULY 3, 2012

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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

DOCKET NO. 41606

Submit seven (7) copies of the application and all attachments supporting the application: If the application is being filed pursuant to P.U.C. SUBST. R. 25.101(b)(3)(D) or P.U.C. SUBST. R. 25.174, include in the application all direct testimony. The application and other necessary documents shall be submitted to:

Public Utility Commission of Texas
Attn: Filing Clerk
1701 N. Congress Ave.
Austin, Texas 78711-3326

Applicants Electric Transmission Texas, LLC (ETT) and Sharyland Utilities, L.P. (Sharyland) are filing this Application as Joint Applicants and request that all parties serve copies of all pleadings, discovery, correspondence, and other documents on the following two representatives:

Service Contacts:

Electric Transmission Texas, LLC

Jerry Huerta
State Bar No. 24004709

AEP Service Corp

400 W. 15th Street, Suite 1520
Austin, Texas 78701

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Attorneys for Sharyland Utilities, L.P.

Note: As used herein, the term "joint application" refers to an application for proposed transmission facilities for which ownership will be divided. All applications for such facilities should be filed jointly by the proposed owners of the facilities.

Information concerning ETT is provided beginning with Question 1a, and information concerning Sharyland is provided beginning with Question 1b.

Electric Transmission Texas, LLC

1a.	**Applicant (Utility) Name:**	Electric Transmission Texas, LLC
	Certificate Number:	30193 and 30194
	Street Address:	400 W. 15th Street, Suite 800 Austin, Texas 78701
	Mailing Address:	400 W. 15th Street, Suite 800 Austin, Texas 78701

2a. Please identify all entities that will hold an ownership interest or an investment interest in the proposed project but which are not subject to the Commission's jurisdiction.

MidAmerican Energy Holdings Company. Electric Transmission Texas, LLC is a joint venture between subsidiaries of American Electric Power and MidAmerican Energy Holdings Company.

3a.	**Person to Contact:**	Randal E. Roper, PE
	Title/Position:	Regulatory Case Manager – AEP Service Corp
	Phone Number:	(512) 481-4572
	Mailing Address:	400 W. 15th Street, Suite 1520 Austin, Texas 78701
	Email Address:	reroper@aep.com
	Alternate Contact:	Mel Eckhoff
	Title/Position:	Regulatory Consultant – AEP Service Corp
	Phone Number:	(512) 391-2979
	Mailing Address:	400 W. 15th Street, Suite 1520 Austin, Texas 78701
	Email Address:	mleckhoff@aep.com
	Legal Counsel:	Jerry Huerta – AEP Service Corp
	Phone Number:	(512) 481-3323
	Mailing Address:	400 W. 15th Street, Suite 1520 Austin, Texas 78701
	Email Address:	jnhuerta@aep.com

Sharyland Utilities, L.P.

1b.	**Applicant (Utility) Name:**	Sharyland Utilities, L.P.
	Certificate Number:	30026, 30114, 30191 and 30192
	Street Address:	1807 Ross Avenue, Suite 460 Dallas, Texas 75201
	Mailing Address:	1807 Ross Avenue, Suite 460 Dallas, Texas 75201

2b. Please identify all entities that will hold an ownership interest or an investment interest in the proposed project but which are not subject to the Commission's jurisdiction.

Consistent with the Order in Docket No. 35287,[1] Sharyland Distribution & Transmission Services, L.L.C. (SDTS) will hold legal title to Sharyland's portion of the proposed transmission line facilities, and will in turn lease those facilities to Sharyland, which will have sole responsibility for operating the proposed facilities and complying with all Commission requirements. Sharyland and SDTS will collectively be referred to herein as "Sharyland."

3b.	**Person to Contact:**	Bridget Headrick
	Title/Position:	Director, Regulatory Affairs
	Phone Number:	(512) 721-2668
	Mailing Address:	One American Center 600 Congress Avenue, Suite 2000 Austin, Texas 78701
	Email Address:	bheadrick@sharyland.com
	Alternate Contact:	Alicia Rigler
	Title/Position:	Counsel
	Phone Number:	(512) 721-2661
	Mailing Address:	One American Center 600 Congress Avenue, Suite 2000 Austin, Texas 78701
	Email Address:	arigler@sharyland.com
	Legal Counsel:	James E. Guy John T. A. Scharbach
	Phone Number:	(512) 721-2700
	Mailing Address:	SUTHERLAND ASBILL& BRENNAN LLP One American Center 600 Congress Avenue, Suite 2000 Austin, Texas 78701
	Email Address:	james.guy@sutherland.com john.scharbach@sutherland.com

[1] *Application of Sharyland Utilities, L.P. and Sharyland Distribution & Transmission Services, L.L.C. for Regulatory Approvals Pursuant to PURA §§ 14.101, 39.262, and 39.915*, Docket No. 35287 (Jul. 21, 2008).

4. Project Description:

Name or Designation of Project:

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 (Project)

Provide a general description of the project, including the design voltage rating (kV), the operating voltage (kV), the CREZ Zone(s) (if any) where the project is located (all or in part), any substations and/or substation reactive compensation constructed as part of the project, and any series elements such as sectionalizing switching devices, series line compensation, etc. For HVDC transmission lines, the converter stations should be considered to be project components and should be addressed in the project description.

The proposed North Edinburg to Loma Alta Project will be designed and operated as a 345 kV transmission line and will be constructed on double-circuit capable structures. Initially, one circuit will be installed. The Project will be constructed from the existing American Electric Power Texas Central Company (AEP TCC) North Edinburg Substation located in Hidalgo County north of the City of Edinburg, and will extend to the existing Brownsville Public Utilities Board (BPUB) Loma Alta Substation located east of the City of Brownsville. Sharyland will construct a new 345 kV station adjacent to the existing 138 kV Loma Alta Substation for the termination of the Project.

In its independent review of the Project, the Electric Reliability Council of Texas (ERCOT) recommended that the Project be routed in proximity to the existing South McAllen 138 kV Substation in order to support the long-term needs of the western side of the Lower Rio Grande Valley (LRGV). This routing recommendation will be discussed further in the response to Question 14 regarding the need for the Project.

The ERCOT Board of Directors has deemed the Project to be critical to the reliability of the LRGV. Pursuant to P.U.C. SUBST. R. 25.101(b)(3)(D), projects deemed critical to reliability of the system shall be considered on an expedited basis; and a decision approving or denying an application shall be rendered within 180 days of the date of filing a complete application unless good cause is shown for extending that period.

If the project will be owned by more than one party, briefly explain the ownership arrangements between the parties and provide a description of the portion(s) that will be owned by each party. Provide a description of the responsibilities of each party for implementing the project (design, Right-Of-Way acquisition, material procurement, construction, etc.).

In accordance with the ERCOT RPG Planning Charter and Procedures Section 2.3.4, ERCOT staff designates transmission providers for projects reviewed in the RPG.[2] The default providers will be those that own the end points of the new projects. The owners of the end points can agree to delegate the responsibility to construct the new facilities. In its independent review of the project, ERCOT recognized that the end points of the Project are owned by AEP TCC (North Edinburg Substation) and BPUB (Loma Alta Substation). AEP TCC has delegated its portion of the Project to ETT and BPUB has delegated its portion of the Project to Sharyland.

ETT and Sharyland (Joint Applicants) have agreed to each construct one-half of the Project. ETT will construct and own the western half of the new transmission line, and Sharyland will construct and own the eastern half of the new transmission line. Each Applicant will own 100 percent of its respective portion of the Project and will have no ownership interest whatsoever in the other Applicant's segment of the Project. The Joint Applicants will not own any part of the Project as tenants in common, partners, or any other form of joint ownership.

[2] This provision has subsequently been transferred to Protocol 3.11.4.8.

The Joint Applicants have retained third-party consultants to conduct an environmental assessment and routing analysis, research property ownership, and develop property ownership maps for the application to amend their Certificates of Convenience and Necessity. The Joint Applicants have agreed to mutually direct these activities and to equally share in the costs. The Joint Applicants will individually be responsible for the design, right-of-way acquisition, material procurement, and construction of their respective portions of the Project. The Joint Applicants have entered into a Memorandum of Understanding (MOU) concerning how they will participate in the engineering, construction, ownership, and operation of the Project while also coordinating their efforts to ensure that timely approvals are obtained and the Project is timely and efficiently constructed to begin providing reliable service.

Identify and explain any deviation in transmission project components from the original transmission specifications as previously approved by the Commission or recommended by a PURA §39.151 organization.

There are no transmission specifications that have been previously approved by the Commission for this Project. There have been no deviations in the Project components from the original transmission specifications previously recommended by ERCOT (a PURA § 39.151 organization).

5. Conductor and Structures:

Conductor Size and Type

954.0 kcmil ACSR Cardinal

Number of conductors per phase

Two

Continuous Summer Static Current Rating (A)

2224 A

Continuous Summer Static Line Capacity at Operating Voltage (MVA)

1329 MVA

Continuous Summer Static Line Capacity at Design Voltage (MVA)

1329 MVA

Type and composition of Structures

Single-Pole Steel Tangents (Double-Circuit Capable)
Two-Pole Steel Deadends
Lattice (as appropriate and/or necessary)

Height of Typical Structures

Typical structures will range between 145 to 155 feet above grade for Tangent Structures and 140 to 150 feet above grade for Deadend Structures.

Explain why these structures were selected; include such factors as landowner preference, engineering considerations, and costs comparisons to alternate structures that were considered. Provide dimensional drawings of the typical structures to be used in the project.

The primary reasons that the single-pole structures were selected for this Project are landowner preference and the reduction of impacts on land use. Additional considerations were the ability to compress the construction schedule with the use of single-pole structures, while maintaining comparable costs to alternate structures.

Overwhelmingly, landowners attending the public meetings preferred the selection of single-pole structures instead of a lattice structure design. In public meetings held in or near the study area, approximately 86% of the landowners that expressed an opinion about structure selection preferred the use of single-pole structures. Landowners indicated that single-pole structures would have less of an impact on 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.

Additionally, lattice steel construction typically requires more time to construct than steel single-pole structures. Since ERCOT has deemed this Project critical to the reliability of the LRGV, another factor in the selection of structures was the compressed construction schedule and the importance of completing the Project expeditiously.

Dimensional drawings of the structures are included as Figures 1-2 and 1-3 of the *Environmental Assessment and Alternative Route Analysis for the Proposed North Edinburg to Loma Alta 345 kV Transmission Line Project in Hidalgo and Cameron Counties, Texas.* This document, prepared by the Joint Applicants' routing consultant POWER Engineers, is also referred to in this application as the "EA," and is included as Attachment 1 of this application.

For joint applications, provide and separately identify the above-required information regarding structures for the portion(s) of the project owned by each applicant.

ETT and Sharyland propose to use the same conductors and general structure type for their respective portions of the Project.

6. Right-of-way:

Miles of Right-of-Way

The miles of right-of-way for all 32 alternative routes filed by the Joint Applicants ranges from approximately 96.3 miles for Route 22 to approximately 124.5 miles for Route 12.

Miles of Circuit

The Project will initially be a single-circuit constructed on double-circuit capable structures; therefore, the number of miles of circuit is the same as the number of miles of right-of-way. The potential miles of new transmission line circuit if both circuits were installed ranges from 192.6 miles for Route 22 to 249.0 miles for Route 12.

A table that shows the miles of right-of-way and the miles of circuit for each route is included as Attachment 2 of this application.

Width of Right-of-Way

The typical right-of-way is 150 feet wide.

Percent of Right-of-Way Acquired

0%

For joint applications, provide and separately identify the above-required information for each route for the portion(s) of the project owned by each applicant.

In accordance with the MOU, ETT and Sharyland will each own physically discrete and separate portions of the Project, as determined by the location of a "dividing point" between the Joint Applicants' ownership segments. The location of the "dividing point" shall be the physical midpoint of the approved route such that each of the Joint Applicants own approximately 50 percent of the length of the transmission line. The "dividing point" is subject to adjustment by mutual agreement of the Joint Applicants if Good Utility

Practice (as defined by P.U.C. SUBST. R. 25.5(56)) makes it inadvisable or impracticable to use a precise midpoint. Accordingly, the following distances are subject to minor adjustments.

ETT

Miles of Right-of-Way

The miles of right-of-way for ETT's portion of the routes ranges from approximately 48.15 miles for Route 22 to approximately 62.25 miles for Route 12.

Miles of Circuit

The Project will initially be a single-circuit constructed on double-circuit capable structures; therefore, the miles of circuit for ETT are the same as the miles of right-of-way. The potential miles of new transmission line circuit if both circuits were installed ranges from 96.3 miles for Route 22 to 124.5 miles for Route 12.

A table that shows the miles of right-of-way and the miles of circuit for ETT's portion of each route is included as Attachment 2 of this application.

Width of Right-of-Way

The typical right-of-way is 150 feet wide.

Percent of Right-of-Way Acquired

0%

Sharyland

Miles of Right-of-Way

The miles of right-of-way for Sharyland's portion of the routes ranges from approximately 48.15 miles for Route 22 to approximately 62.25 miles for Route 12.

Miles of Circuit

The Project will initially be a single-circuit constructed on double-circuit capable structures; therefore, the miles of circuit for Sharyland are the same as the miles of right-of-way. The potential miles of new transmission line circuit if both circuits were installed ranges from 96.3 miles for Route 22 to 124.5 miles for Route 12.

A table that shows the miles of right-of-way and the miles of circuit for each route is included as Attachment 2 of this application.

Width of Right-of-Way

The typical right-of-way is 150 feet wide.

Percent of Right-of-Way Acquired

0%

Provide a brief description of the area traversed by the transmission line. Include a description of the general land uses in the area and the type of terrain crossed by the line.

The area traversed by the transmission line is located in the Tamaulipan Biotic Province of Texas, within the Western Gulf Coastal Plain. The study area is a 50 to 90 mile wide strip of land bordered on the south by the Rio Grande River and characterized by a relatively flat topography with a high percentage of habitat

converted to croplands. The northern portion of the area is predominantly rangeland, the southern area is predominantly cropland, and the central portion is composed of high-intensity commercial and residential development. Elevations range between less than five feet above mean sea level near the Brownsville Ship Channel to 90 feet above mean sea level near North Edinburg.

7. Substations or Switching Stations:

List the name of all existing HVDC converter stations, substations or switching stations that will be associated with the new transmission line. Provide documentation showing that the owner(s) of the existing HVDC converter stations, substations and/or switching stations have agreed to the installation of the required project facilities.

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. Documentation showing that AEP TCC and BPUB have agreed to the installation of the Project facility is included as Attachment 3a and 3b of this application.

There are no existing HVDC converter stations that will be associated with the new transmission line.

List the name of all new HVDC converter stations, substations or switching stations that will be associated with the new transmission line. Provide documentation showing that the owner(s) of the new HVDC converter stations, substations and/or switching stations have agreed to the installation of the required project facilities.

There are no new HVDC converter stations, substations or switching stations that will be associated with the new transmission line.

8. Estimated Schedule:

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

The above Estimated Schedule assumes this 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.

9. Counties:

For each route, list all counties in which the route is to be constructed.

Any route selected for the construction of this Project will be located in Hidalgo and Cameron Counties.

10. Municipalities:

For each route, list all municipalities in which the route is to be constructed.

A table showing the municipalities associated with each route is included as Attachment 4 of this application.

For each applicant, attach a copy of the franchise, permit or other evidence of the city's consent held by the utility, if necessary or applicable. If franchise, permit, or other evidence of the city's consent has been previously filed, provide only the docket number of the application in which the consent was filed. Each applicant should provide this information only for the portion(s) of the project which will be owned by the applicant.

Not Applicable

11. Affected Utilities:

Identify any other electric utility served by or connected to facilities in this application.

The transmission line that is the subject of this application will be connected to the existing AEP TCC North Edinburg Substation and the Sharyland extension of the existing BPUB Loma Alta Substation.

Describe how any other electric utility will be affected and the extent of the other utilities' involvement in the construction of this project. Include any other utilities whose existing facilities will be utilized for the project (vacant circuit positions, ROW, substation sites and/or equipment, etc.) and provide documentation showing that the owner(s) of the existing facilities have agreed to the installation of the required project facilities.

There are three electric utilities that have retail service areas in Brownsville and the surrounding areas: BPUB, AEP TCC, and Magic Valley Electric Cooperative. In addition, South Texas Electric Cooperative, Inc. (STEC), Medina Electric Cooperative, Inc., and LCRA Transmission Services Corporation own and/or operate transmission facilities in the area. These entities will benefit from the improved service reliability in the LRGV and to the City of Brownsville and the surrounding areas.

AEP TCC and BPUB have delegated the Project to the Joint Applicants and will not be directly involved in the construction of the Project. Only ETT and Sharyland are involved in the construction of the Project. No existing vacant circuit positions, right-of-way, substation sites (other than North Edinburg and Loma Alta), and/or equipment will be utilized for the Project.

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, STEC, and Sharyland) to upgrade the stations in the area for engineering and reliability reasons. Constructing the Project parallel to other existing transmission lines in the area can result in a coupling effect that results in additional induced voltage 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 of this application.

12. Financing:

Describe the method of financing this project. For each applicant that is to be reimbursed for all or a portion of this project, identify the source and amount of the reimbursement (actual amount if known, estimated amount otherwise) and the portion(s) of the project for which the reimbursement will be made.

ETT

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

Sharyland

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

13. Estimated Costs:

Provide cost estimates for each route of the proposed project using the following table. Provide a breakdown of "Other" costs by major cost category and amount. Provide the information for each route in an attachment to this application.

	Transmission Facilities	Substation Facilities
Right-of-way and Land Acquisition		
Engineering and Design (Utility)		
Engineering and Design (Contract)		
Procurement of Material and Equipment (including stores)		
Construction of Facilities (Utility)		
Construction of Facilities (Contract)		
Other (all costs not included in the above categories)		
Estimated Total Cost		

For joint applications, provide and separately identify the above-required information for the portion(s) of the project owned by each applicant.

Tables showing the estimated cost of the transmission facilities and substation facilities for this Project are included as Attachment 5 of this application.

14. Need for the Proposed Project:

For a standard application, describe the need for the construction and state how the proposed project will address the need. Describe the existing transmission system and conditions addressed by this application. For projects that are planned to accommodate load growth, provide historical load data and load projections for at least five years. For projects to accommodate load growth or to address reliability issues, provide a description of the steady state load flow analysis that justifies the project. For interconnection projects, provide any documentation from a transmission service customer, generator, transmission service provider, or other entity to establish that the proposed facilities are needed. For projects related to a Competitive Renewable Energy Zone, the foregoing requirements are not necessary; the applicant need only provide a specific reference to the pertinent portion(s) of an appropriate commission order specifying that the facilities are needed. For all projects, provide any documentation of the review and recommendation of a PURA §39.151 organization.

Brownsville is the 16th largest city in Texas and is located at the southernmost portion of the LRGV area in the ERCOT system along the international border with Mexico. There are three electric utilities that have service areas in Brownsville and its surrounding areas (BPUB, AEP TCC, and Magic Valley Electric Cooperative). The bulk of the electrical service inside the city is supplied by BPUB, the city-owned, non-profit utility. Currently, Brownsville's load is primarily served by four 138 kV lines and the Silas Ray natural gas and oil-fired plant owned and operated by BPUB. The total generation capability of the Silas Ray power plant is approximately 120 megawatts. One of the generating plant's units is sixty (60) years old.

Due to its proximity to the Gulf of Mexico and location at the southern edge of the ERCOT system, the Brownsville area has experienced multiple storm related forced outages and rolling blackouts in the past. Additionally, the transmission utilities in the area have experienced difficulty in taking lines out for maintenance due to the reliance on only one power plant and a limited number of transmission circuits to support the area. The Brownsville area also has experienced high population and economic growth and consequently high electric load growth rates.

ERCOT is responsible for identifying necessary transmission system improvements to provide a reliable and adequate transmission network in most of Texas, including the LRGV. ERCOT has determined, based on a number of factors, including high population and economic growth in the LRGV (resulting in higher load growth rates than previously forecasted), numerous historical storm-related outages that have impacted electric service to the LRGV, limited generation in the LRGV, and a constrained transmission network to support the LRGV, that by 2016 there will be several multiple outage scenarios of great concern in delivering electric service to the LRGV.

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 LRGV that 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 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 and subsequent load shed required to relieve overloaded facilities.

Part of the load would likely have to be shed, even if only one of the 345 kV transmission lines providing service into 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 the 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.

Based on these findings, the ERCOT Board voted to deem the Project critical to the reliability of the ERCOT system and the Brownsville area, specifically to prevent a large amount of load shed under the contingency conditions described above. This Project will (1) bring a new bulk power source into the eastern portion of the LRGV, relieving transmission line overloads and the need to shed load; (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.

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 this Project and deemed the Project critical to the reliability of the ERCOT System. The ERCOT endorsement letter from Kent Saathoff, Vice President – System Planning and Operations, is included in this application as Attachment 6. Attached to ERCOT's endorsement letter is the report of ERCOT's independent review of the Project. This report describes the existing transmission system, discusses future load forecasts, and describes the steady state load flow analysis that justifies the need for the Project.

15. Alternatives to Project:

For a standard application, describe alternatives to the construction of this project (not routing options). Include an analysis of distribution alternatives, upgrading voltage or bundling of conductors of existing facilities, adding transformers, and for utilities that have not unbundled, distributed generation as alternatives to the project. Explain how the project overcomes the insufficiencies of the other options that were considered.

Transmission Alternatives

In addition to the option originally submitted to ERCOT for study (Submitted Option), ERCOT analyzed the system needs and studied six transmission improvement options to determine the infrastructure needed to meet the required reliability criteria and support projected load growth in the area:

- The **Submitted Option** consisted of two new 345 kV lines (using double-circuit capable towers with one circuit in place)—one from the La Palma Substation to the Loma Alta Substation, and another from the Frontera Substation to the Loma Alta Substation—along with a new 345 kV bus at the Loma Alta Substation (with two 345/138 kV autotransformers) and a new 345 kV bus at the Frontera Substation (with one 345/138 kV autotransformer).
- **Option 1** consisted of a new La Palma–Frontera 345 kV line (using double-circuit capable towers with one circuit in place) routed in proximity to the South McAllen Substation, along with a new La Palma–Palo Alto 138 kV line (with a rating of at least 215 MVA) and a new 345 kV bus at the Frontera Substation (with one 345/138 kV autotransformer).
- **Option 2** consisted of a new La Palma–South McAllen 345 kV line (using double-circuit capable towers with one circuit in place), along with a new La Palma–Palo Alto 138 kV line (with a rating of at least 215 MVA) and a new 345 kV bus at the South McAllen Substation (with one 345/138 kV autotransformer).
- **Option 3** consisted of a new North Edinburg–Loma Alta 345 kV line (using double-circuit capable towers with one circuit in place) routed in proximity to the South McAllen Substation, along with a new 345 kV bus at the Loma Alta Substation with one 345/138 kV autotransformer.
- **Option 4** consisted of a new North Edinburg–La Palma 345 kV line (using double-circuit capable towers with one circuit in place) routed in proximity to the South McAllen Substation, along with a new La Palma–Palo Alto 138 kV line (with a rating of at least 215 MVA).
- **Option 5** was the same as Option 3, with the addition of a new La Palma–Palo Alto 138 kV line (with a rating of at least 215 MVA).
- **Option 6** consisted of a new Frontera–Loma Alta 345 kV line (using double-circuit capable towers with one circuit in place) routed in proximity to the South McAllen Substation, along with a new La Palma–Palo Alto 138 kV line (with a rating of at least 215 MVA) and a new 345 kV bus (with one 345/138 kV autotransformer) at both the Frontera and Loma Alta Substations.

Ultimately, ERCOT concluded that Option 5 was the preferred option to meet both the short-term and the long-term needs of the Brownsville area and the entire LRGV, particularly since an eastbound 345 kV line out of AEP TCC's South McAllen Substation will likely be needed sometime in the 2020s for a contingency involving the loss of even a single transmission element. The ERCOT Board of Directors endorsed this recommendation.

ERCOT's Independent Review of the Project, which is included in Attachment 6 of this application, provides greater detail regarding the transmission improvement alternatives that were considered and how the recommended Project that is the subject of this application overcomes the insufficiencies of the other options.

Distribution Alternatives

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

Distributed Generation

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.

16. Schematic or Diagram:

For a standard application, provide a schematic or diagram of the applicant's transmission system in the proximate area of the project. Show the location and voltage of existing transmission lines and substations, and the location of the construction. Locate any taps, ties, meter points, or other facilities involving other utilities on the system schematic.

A schematic of the transmission system in the proximate area of the Project is included with this application as Attachment 7.

17. Routing Study:

Provide a brief summary of the routing study that includes a description of the process of selecting the study area, identifying routing constraints, selecting potential line segments, and the selection of the routes. Provide a copy of the complete routing study conducted by the utility or consultant. State which route the applicant believes best addresses the requirements of PURA and P.U.C. Substantive Rules.

A copy of the complete environmental assessment and routing study that was prepared by POWER Engineers is included as Attachment 1 of this application. This study is titled *Environmental Assessment and Alternative Route Analysis for the Proposed North Edinburg to Loma Alta 345 kV Transmission Line Project in Hidalgo and Cameron Counties, Texas* (EA). The EA presents the analysis that was conducted by POWER Engineers and the land use and environmental data for all of the routes that were considered for this Project.

The objective of the EA was to identify and evaluate an adequate number of geographically diverse alternative transmission line routes that comply with the routing criteria in PURA and the PUC's substantive rules, and ultimately recommend to Joint Applicants the routes that POWER Engineers determined best address the requirements of PURA and the PUC's substantive rules from a land use and environmental standpoint. The Joint Applicants and POWER Engineers utilized a comprehensive transmission line routing and evaluation methodology to delineate and evaluate alternative transmission line routes. As discussed below, the study approach utilized by POWER Engineers for this EA consisted of project scoping and study area delineation, data collection, constraint mapping, preliminary alternative route identification, review and adjustment of alternative routes following field review, consideration of open-house input, alternative route analysis and impact assessment, and finally the recommendation by POWER Engineers of alternative routing to Joint Applicants, including the primary alternative routes determined to best address the requirements of PURA and the PUC's Substantive Rules from a land use and environmental perspective.

The first step in the selection of alternative routing options was to select a study area. This area needed to encompass the Project endpoints and include a sufficiently large area within which feasible and geographically diverse alternative routes could be delineated. The study area for the Project was defined based on both the North Edinburg and the Loma Alta endpoints, the need to route the Project near the South McAllen substation, and the constraints within the area (e.g., border with Mexico). Major physiographic features, jurisdictional boundaries, sensitive land uses, and existing utility corridors helped to define the study area boundaries. From north to south the study area is approximately 9- to 17-miles wide and the length of the study area from east to west is approximately 73 miles, encompassing a total area of approximately 1,004 square miles in portions of Hidalgo and Cameron Counties. The study area is shown on Figure 2-1 of the EA.

POWER Engineers used data in the delineation and evaluation of routes that were drawn from a variety of sources, including published literature (documents, reports, maps, aerial photography, etc.), and information from local, state and federal agencies. Recent (2010) National Agriculture Inventory Program color aerial photographs, 2010-2011 Environmental Systems Research Institute (ESRI) aerial photography, U.S. Geological Survey (USGS) 7.5 minute quadrangle topographic maps, Texas Department of Transportation (TxDOT) county highway maps, FWS National Wetlands Inventory maps, Texas Natural Diversity Database (TXNDD), Federal Emergency Management Agency maps, and ground reconnaissance surveys were used throughout the selection and evaluation of routes. Ground reconnaissance of the study area and computer-based evaluation of digital aerial imagery was utilized for both refinement and evaluation of routes. Though the data collection effort was concentrated in the early stages of the Project, it was ongoing and continued throughout the evaluation process.

A constraint mapping process was used in the selection and refinement of possible alternative routes. The geographic locations of environmentally sensitive and other restrictive areas within the study area were located and considered during transmission line route delineation. These constraints were mapped on a topographic representation of the area created on a USGS 7.5 minute quadrangle topographic base maps, and on aerial photography. The environmental and land-use constraints topographic maps are included in Attachment 1 of this application as Figure 3-2, (located in Appendix D of the EA).

Using the constraint maps, electrical system maps, field inspections, and input from the Joint Applicants, POWER Engineers designated numerous preliminary routing options that took into consideration environmental and land use constraints. These preliminary alternative routing options are shown on Figure 3-1 of the EA. The principal criteria used to locate these preliminary routing option alternatives were using or paralleling existing transmission facilities, paralleling existing road right-of-way, avoiding residential and commercial development, and paralleling apparent property lines.

In order to solicit public input about the Project, the Joint Applicants presented these preliminary alternative routing options to the public at six open-house meetings held in the area in October 2012.

After these public meetings, ETT, Sharyland, and POWER Engineers evaluated public comments (both written and verbally communicated at the public meetings), performed additional reviews to address areas of concern that were discussed at the public meetings, and discussed some revisions to the preliminary routing options. In response to the public input and landowner concerns, several links were modified to reduce impacts to habitable structures, cropland, and other constraints to the greatest extent practicable. In addition, some new links were added and others were deleted. Due to the number of routing links that were modified or added after the initial public meetings, the Joint Applicants held an additional public open-house meeting in February 2013 for new potentially affected landowners that were not mailed notice of the open-house meetings held in October 2012. Additional modifications, additions, or deletions of preliminary alternative routing options were made while considering the resource sensitivities, governmental agency guidance, and public input and comments.

Based on information obtained from the public meetings, meetings and communications with local, state, and federal agencies, further field review, additional communications with property owners, and discussions with the Joint Applicants project team, POWER Engineers identified the primary alternative links. The primary alternative links were then used by POWER Engineers with input from the Joint Applicants project team to develop the primary alternative routes for evaluation. POWER Engineers identified potentially affected resources and considered each during this route development process. In evaluating these identified primary alternative routes, POWER Engineers considered 48 environmental and land-use criteria. These criteria are listed in Table 2-1 of the EA.

POWER Engineers professionals with expertise in different environmental disciplines (wildlife biology, land use/planning, and archaeology) and the POWER Engineers project manager evaluated the primary alternative routes. Evaluations were based on environmental and land use conditions present along each primary alternative route. Each POWER Engineers staff person independently analyzed the environmental data for each primary alternative route from the perspective of their own technical discipline. The evaluators then met as a group and discussed their independent results. The group reached a consensus regarding the relationship and relative sensitivity among the major environmental factors, and ranked the top five primary alternative routes based strictly on the environmental and land use data and shared discussion. Based upon this ranking, POWER Engineers recommended a route that best addresses the requirements of PURA and P.U.C. Substantive Rules from an environmental and land use perspective, and the results are shown in Table 5-1 of the EA.

The consensus opinion of POWER Engineers evaluators was to recommend Route 32 as the route that best addresses the requirements of PURA and P.U.C. Substantive Rules from an environmental and land use perspective.

The Joint Applicants considered all of the certification criteria in PURA and the P.U.C. Substantive Rules, input from the public, and the environmental and land use recommendation of its routing consultant, POWER Engineers. The Joint Applicants also evaluated each primary alternative route from an engineering, design, construction, operations, and maintenance perspective, and considered the estimated cost for each of the primary alternative routes. The Joint Applicants determined that Route 32 provides the best balance of routing characteristics and best addresses the requirements of PURA and P.U.C. Substantive Rules. Data and a discussion of this determination are included with this application as Attachment 8.

18. Public Meeting or Public Open House:

Provide the date and location for each public meeting or public open house that was held in accordance with P.U.C. Proc. R. 22.52. Provide a summary of each public meeting or public open house including the approximate number of attendants, and a copy of any survey provided to attendants and a summary of the responses received. For each public meeting or public open house provide a description of the method of notice, a copy of any notices, and the number of notices that were mailed and/or published.

In October 2012, ETT and Sharyland hosted six public open-house meetings within the affected communities to solicit comments from landowners, public officials, and other interested residents regarding the preliminary alternative links. A notice of the public open-house meetings, in both English and Spanish, was mailed to the approximately 12,000 landowners who own property located within 500 feet of the preliminary alternative routing links. This notice included a map of the study area depicting the preliminary alternative routing links, a question and answer sheet, and a diagram of typical 345 kV transmission line structures. An example of the notice letter and a copy of the attachments are provided in Appendix B to the EA.

The meetings were held on the following dates at the following locations:

Date	Location	Attendees	Responses
Oct. 8, 2012	McAllen Convention Center, 700 Convention Center Blvd., McAllen, Texas	121	73
Oct. 9, 2012	McAllen Convention Center, 700 Convention Center Blvd., McAllen, Texas	96	54
Oct. 10, 2012	Rio Grande Valley Livestock Show, 1000 N Texas Ave., Mercedes, Texas	36	35
Oct. 11, 2012	Rio Grande Valley Livestock Show, 1000 N Texas Ave., Mercedes, Texas	37	27
Oct. 15, 2012	Casa de Amistad, 1204 Fair Park Blvd., Harlingen, Texas	102	15
Oct. 16, 2012	Brownsville Event Center, 1 Events Center Blvd., Brownsville, Texas	72	16

The above chart also provides the number of attendees that signed in at each meeting, and the number of questionnaire responses that were submitted at each meeting. Additionally, a total of 56 questionnaires and four letters commenting on the proposed Project were received by ETT and Sharyland after the public meetings took place.

The purpose of the meetings was to

- Promote a better understanding of the proposed Project, including the purpose, need, potential benefits and impacts, and the PUC CCN application approval process;
- Inform and educate the public about the routing procedure, schedule, and decision-making process; and
- Ensure that the decision-making process adequately identifies and considers the values and concerns of the public and community leaders.

Due to the number of routing links that were modified and added after the initial public meetings, the Joint Applicants held an additional public meeting for new potentially affected landowners that were not mailed notice of the open-house meetings held in October 2012. The additional meeting was held on the following date and at the following location:

Date	Location	Attendees	Responses
Feb. 25, 2013	The University of Texas-Pan American, 1407 E. Freddy Gonzales, Edinburg, Texas	13	6

Six questionnaires were submitted at the public meeting, and four questionnaires additional were received by ETT and Sharyland by mail after the public meeting took place.

At the public meetings, each information station was devoted to a particular aspect of the routing study and was manned with personnel representing ETT, Sharyland and/or POWER Engineers. Displays, maps, illustrations, and photographs were used to explain each particular topic that was presented. Large aerial photographic maps were used to present the routes to the attendees and obtain input. Interested citizens and property owners were encouraged to visit each station in order so that the process could be explained in the general sequence of development. The information station format is advantageous because it allows attendees to process information in a relaxed manner and also allows them to focus on their particular interest and ask specific questions. Importantly, the one-on-one discussions with Joint Applicant representatives and POWER Engineers staff encourage more interaction from those citizens who might be hesitant to participate in a speaker/audience format.

Additional information concerning these open-house meetings, including the comments received and the revisions that were made in response to the comments, is contained in Section 3 of the EA, appended to this Joint Application as Attachment 1.

19. Routing Maps:

Base maps should be a full scale (one inch = not more than one mile) highway map of the county or counties involved, or other maps of comparable scale denoting sufficient cultural and natural features to permit location of all routes in the field. Provide a map (or maps) showing the study area, routing constraints, and all routes or line segments that were considered prior to the selection of the routes. Identify the routes and any existing facilities to be interconnected or coordinated with the project. Identify any taps, ties, meter points, or other facilities involving other utilities on the routing map. Show all existing transmission facilities located in the study area. Include the locations of radio transmitters and other electronic installations, airstrips, irrigated pasture or cropland, parks and recreational areas, historical and archeological sites (subject to the instructions in Question 27), and any environmentally sensitive areas (subject to the instructions in Question 29).

Routing maps are provided in the EA. Figure 3-2 (located in Appendix D of the EA) is a topographic-based map (scale of 1 inch = 1,500 feet) that shows the study area, all routing links, routing constraints and other environmental and land use features, and existing transmission lines. Figure 5-1 (located in Appendix D of the EA) is an aerial-based map (scale of 1 inch = 1,500 feet) that shows the study area, all routing links, routing constraints and other environmental and land use features, and existing transmission lines. Figure 3-1 of the EA shows the preliminary alternative route links that were presented at the open houses.

Provide aerial photographs of the study area displaying the date that the photographs were taken or maps that show (1) the location of each route with each route segment identified, (2) the locations of all major public roads including, as a minimum, all federal and state roadways, (3) the locations of all known habitable structures or groups of habitable structures (see Question 19 below) on properties directly affected by any route, and (4) the boundaries (approximate or estimated according to best available information if required) of all properties directly affected by any route.

Figure 5-1 (located in Appendix D of the EA) is an aerial-photograph based maps (scale of 1 inch = 1,500 feet) that shows the study area, all routing links, existing transmission lines, other environmental and land use features, and the locations of all known habitable structures or groups of habitable structures located within 500 feet of the route centerlines.

Aerial-photograph-based maps (scale of 1 inch = 500 feet) are included in this application as Attachments 9a through 9d and show the approximate boundaries of all properties that are directly affected by all routes according to the best information available from county tax appraisal district records.

For each route, cross-reference each habitable structure (or group of habitable structures) and directly affected property identified on the maps or photographs with a list of corresponding landowner names and addresses and indicate which route segment affects each structure/group or property.

A cross reference table that shows the landowner name and address, the property identification number and the habitable structure identification number from the landownership maps in Attachments 9a through 9d, and the route segments (links) associated with the landowners and habitable structures is included as Attachment 9e of this application.

20. Permits:

List any and all permits and/or approvals required by other governmental agencies for the construction of the proposed project. Indicate whether each permit has been obtained.

Joint Applicants will coordinate with all of the appropriate local, state, and federal agencies with jurisdiction regarding the construction of the transmission facilities associated with this Project. Joint Applicants and/or POWER Engineers have initiated contact with and provided information about the Project to various agencies. Some input from these agencies have been incorporated in this application; however, requests for permits and/or approvals will not be submitted to the appropriate agencies until the final alignment of the approved route is determined. None of the following potential permits, approvals, requirements, easements, or clearances has been obtained.

- Floodplain development permits and road crossing permits might be required by the counties in which the approved route is located, depending on the location of the transmission line structures.
- Permits or licensing for construction in the floodway maintained by the International Boundary and Water Commission will obtained as necessary.
- Permits for crossing roads, highways, and/or other properties owned or maintained by TxDOT will be obtained as necessary.
- Cultural resource clearance will be obtained from the Texas Historical Commission for the proposed Project right-of-way as necessary.
- Permits or approvals for construction in the Palo Alto National Battlefield Historic Site will be obtained from the National Park Service if necessary.
- A Storm Water Pollution Prevention Plan (SWPPP) might be required by the Texas Commission on Environmental Quality (TCEQ). Joint Applicants or its contractor will submit a Notice of Intent to the TCEQ at least 48 hours prior to the beginning of construction; and will have the SWPPP on site at the initiation of clearing and construction activities.
- A Miscellaneous Easement from the Texas General Land Office will be obtained as necessary for any right-of-way that crosses a state-owned riverbed or navigable stream.
- Notification to the Federal Aviation Administration (FAA) might be required depending on the alignment of the approved route, structure locations, and structure designs. Requirements to alter the design of the structures or potential requirements to mark and/or illuminate the line will be coordinated with the FAA.
- Permits or other requirements associated with possible impacts to endangered/threatened species will be coordinated with the U.S. Fish and Wildlife Service (USFWS) as necessary.
- Approvals and/or easements for crossing property owned or controlled by USFWS and/or Texas Parks and Wildlife Department (TPWD) will be obtained as necessary.

- Permits or other requirements associated with possible impacts to waters of the U.S. under the jurisdiction of the U.S. Army Corps of Engineers (USACE) will be coordinated with the USACE as necessary. None of the routing links for this Project crosses property that is owned by the USACE, and no easements on USACE property will be necessary.
- Permits for crossing canals and other irrigation facilities will be obtained as necessary from the Cameron and Hidalgo County Irrigation Districts.

21. Habitable structures:

For each route list all single-family and multi-family dwellings and related structures, mobile homes, apartment buildings, commercial structures, industrial structures, business structures, churches, hospitals, nursing homes, schools, or other structures normally inhabited by humans or intended to be inhabited by humans on a daily or regular basis within 300 feet of the centerline if the proposed project will be constructed for operation at 230kV or less, or within 500 feet of the centerline if the proposed project will be constructed for operation at greater than 230kV. Provide a general description of each habitable structure and its distance from the centerline of the route. In cities, towns or rural subdivisions, houses can be identified in groups. Provide the number of habitable structures in each group and list the distance from the centerline of the route to the closest and the farthest habitable structure in the group. Locate all listed habitable structures or groups of structures on the routing map.

The number of habitable structures that are within 500 feet of the centerlines of the 32 alternative routes ranges from a high of 1,818 on Route 26 to a low of 465 on Route 32. Since some of the proposed alternative routes will be parallel to existing transmission line right-of-way, consideration is given to the number of habitable structures that are currently within 500 feet of existing lines that are paralleled to the Project. The number of newly affected habitable structures (i.e., those that are not already located within 500 feet of an existing transmission line) ranges from a high of 1,585 on Route 26 to a low of 335 on Route 32. Details regarding the number of habitable structures that are within 500 feet of the centerline of the alternative routes are included in Table 4-1, and in Section 4.1.1.1 of the EA.

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. Five routes (13, 15, 22, 24, and 31) would not require any habitable structures to be relocated or removed.

General descriptions of the habitable structures that are within 500 feet of the centerline of each route and the distances from the centerlines are provided in Section 5 of the EA and in Tables 5-2 through 5-33 in Appendix C of the EA. The habitable structures that are located within 500 feet of the routes are shown on Figure 5-1 (located in Appendix D of the EA) and on Attachments 9a through 9d of this application.

22. Electronic Installations:

For each route, list all commercial AM radio transmitters located within 10,000 feet of the center line of the route, and all FM radio transmitters, microwave relay stations, or other similar electronic installations located within 2,000 of the center line of the route. Provide a general description of each installation and its distance from the center line of the route. Locate all listed installations on a routing map.

The number of commercial AM radio towers located within 10,000 feet of the alternative route centerlines ranges from none (zero) for 12 of the alternative routes to 14 for seven of the alternative routes. The number of FM radio transmitters, microwave towers, and other electronic installations located within 2,000 feet of the alternative route centerlines ranges from five on Route 17 to 25 on Route 26.

For each alternative route, the number of commercial AM radio transmitters within 10,000 feet of right-of-way centerline and the number of electronic installations (including commercial FM transmitters, cellular telephone towers, microwave relay stations, or other similar electronic installations) within 2,000 feet of the right-of-way centerline are provided in Table 4-1 of the EA. General descriptions of the electronic

installations and the distances from the centerlines of the routes is provided in Section 4.1.1.5 of the EA and in Tables 5-2 through 5-33 in Appendix C of the EA, and are shown on Figure 5-1 (located in in Appendix D of the EA).

23. Airstrips:

For each route, list all known private airstrips within 10,000 feet of the center line of the project. List all airports registered with the Federal Aviation Administration (FAA) with at least one runway more than 3,200 feet in length that are located within 20,000 feet of the center line of any route. For each such airport, indicate whether any transmission structures will exceed a 100:1 horizontal slope (one foot in height for each 100 feet in distance) from the closest point of the closest runway. List all listed airports registered with the FAA having no runway more than 3,200 feet in length that are located within 10,000 feet of the center line of any route. For each such airport, indicate whether any transmission structures will exceed a 50:1 horizontal slope from the closest point of the closest runway. List all heliports located within 5,000 feet of the center line of any route. For each such heliport, indicate whether any transmission structures will exceed a 25:1 horizontal slope from the closest point of the closest landing and takeoff area of the heliport. Provide a general description of each listed private airstrip, registered airport, and heliport; and state the distance of each from the center line of each route. Locate and identify all listed airstrips, airports, and heliports on a routing map.

According to Federal Aviation Administration (FAA) Regulations, Title 14 Code of Federal Regulations, Part 77, notification of the construction of the proposed transmission line will be required if structure heights exceed the height of an imaginary surface extending outward and upward at a slope of 100 to 1 for a horizontal distance of 20,000 feet from the nearest point of the nearest runway of a public or military airport having at least one runway longer than 3,200 feet (FAA, 1975).

If a runway is less than 3,200 feet, notification would be required if structure heights exceed the height of an imaginary surface extending at a slope of 50 to 1 for a distance of 10,000 feet. Notification is also required for structure heights exceeding the height of an imaginary surface extending outward and upward at a slope of 25 to 1 for a horizontal distance of 5,000 feet from the nearest point of the nearest landing and takeoff area for heliports. In addition, FAA Regulations require notification of the construction of any object that is greater than 200 feet above ground level and within three miles of an airport with a runway more than 3,200 feet in length. Typical structure heights for this Project will be approximately 140 feet to 155 feet, depending on location and design.

All of the alternative routes have three or four public and/or private FAA-registered airports with one runway more than 3,200 feet in length located within 20,000 feet of their centerline.

The number of FAA-registered airports with no runway more than 3,200 feet in length located within 10,000 feet of the alternative routes ranges from none (zero) on Routes 4, 6, and 30 to five on Route 17.

Each of the alternative routes has one private airstrip located within 10,000 feet of the centerlines. There are 14 known private airstrips located within 10,000 feet of the alternative route links; ten are FAA registered.

The number of heliports located within 5,000 feet of the alternative routes ranges from none (zero) on 20 of the alternative routes to three on Route 5.

Table 4-1 of the EA identifies the number of airports, airstrips, and heliports for each of the alternative routes. Table 4-2 of the EA identifies each airport, airstrip, and heliport and indicates which routes are associated with the airport, airstrip, or heliport and shows that structures will likely exceed horizontal slope for each FAA-registered airport. Tables 5-2 through 5-33 in Appendix C of the EA provide the distance of each airport, airstrip, or heliport from the centerline of each route.

Following PUC approval of a route for the proposed transmission line, the Joint Applicants will make a final determination of the need for FAA notification, based on specific route location and structure design. The result of this notification, and any subsequent coordination with the FAA, could include changes in the line design and/or potential requirements to mark and/or light the structures.

24. Irrigation Systems:

For each route identify any pasture or cropland irrigated by traveling irrigation systems (rolling or pivot type) that will be traversed by the route. Provide a description of the irrigated land and state how it will be affected by each route (number and type of structures etc.). Locate any such irrigated pasture or cropland on a routing map.

None of the alternative routes of the Project crosses land with known traveling irrigation systems.

25. Notice:

Notice is to be provided in accordance with P.U.C. Proc. R. 22.52.

A. Provide a copy of the written direct notice to owners of directly affected land. Attach a list of the names and addresses of the owners of directly affected land receiving notice.

A sample copy of the written direct notice in English and in Spanish, and enclosures that were mailed to owners of directly affected land is provided in Attachments 10a through 10f. A list of the names and addresses of these landowners is provided in Attachment 10g.

B. Provide a copy of the written notice to utilities that are located within five miles of the routes.

A sample copy of the written notice to utilities that are located within five miles of the proposed Project is provided in Attachment 11a. The list of the names and addresses of these utilities is provided in Attachment 11b.

C. Provide a copy of the written notice to county and municipal authorities.

Sample copies of the written notice to county and municipal authorities are provided as Attachment 12a. The list of the names and addresses of these authorities is provided in Attachment 12b.

D. Provide a copy of the notice that is to be published in newspapers of general circulation in the counties in which the facilities are to be constructed. Attach a list of the newspapers that will publish the notice for this application. After the notice is published, provide the publisher's affidavits and tear sheets.

A sample copy of the notice to be published in newspapers of general circulation in the counties in which the proposed facilities are to be constructed is provided in Attachment 13a. A list of the newspapers that will publish the notice for this application is provided as Attachment 13b.

In addition to the notices described above, P.U.C. PROC. R. 22.52 requires the Joint Applicants to provide notice of this application to the Office of Public Utility Counsel. A copy of that notice is included in this application as Attachment 14.

For a CREZ application, in addition to the requirements of P.U.C. Proc. R. 22.52 the applicant shall, not less than twenty-one (21) days before the filing of the application, submit to the Commission staff a "generic" copy of each type of alternative published and written notice for review. Staff's comments, if any, regarding the alternative notices will be provided to the applicant not later than seven days after receipt by Staff of the alternative notices. Applicant may take into consideration any comments made by Commission staff before the notices are published or sent by mail.

Not Applicable. This is not a CREZ application.

26. Parks and Recreation Areas:

For each route, list all parks and recreational areas owned by a governmental body or an organized group, club, or church and located within 1,000 feet of the center line of the route. Provide a general description of each area and its distance from the center line. Identify the owner of the park or recreational area (public agency, church, club, etc.). List the sources used to identify the parks and recreational areas. Locate the listed sites on a routing map.

POWER Engineers performed a review of federal and state databases, and county and local maps to identify parks and/or recreational areas within the study area. Reconnaissance surveys were also conducted to identify any additional park or recreational areas that are located within the study area.

The number of parks or recreational areas crossed by the alternative routes ranges from none (zero) for 13 of the alternative routes to five for Route 14. The number of additional parks or recreational areas located with 1,000 feet of the alternative route centerlines ranges from none (zero) for Route 21 to nine for Route 16. Refer to Table 4-1 of the EA for the number of parks or recreational areas crossed and located within 1,000 feet of the alternative routes.

Alternative route lengths crossing the USFWS Lower Rio Grande Valley National Wildlife Refuge (LRGVNWR) range from none (zero) for 16 of the alternative routes to approximately 1.8 miles for Route 8. The lengths of each of the alternative routes crossing the LRGVNWR are presented in Table 4-1 of the EA.

General descriptions of the parks or recreational areas, including the ownership, are provided in Sections 2.3 and 4.2 of the EA. The parks or recreational areas are shown on Figure 5-1 (located in Appendix D of the EA); and the distances from the centerlines of the routes are provided in Tables 5-2 through 5-33 in Appendix C of the EA.

27. Historical and Archeological Sites:

For each route, list all historical and archeological sites known to be within 1,000 feet of the center line of the route. Include a description of each site and its distance from the center line. List the sources (national, state or local commission or societies) used to identify the sites. Locate all historical sites on a routing map. For the protection of the sites, archeological sites need not be shown on maps.

To identify the historical and archeological sites in the study area, POWER Engineers researched the available records and literature at the Texas Archeological Research Laboratory, J.J. Pickle Research Campus, at the University of Texas at Austin. In addition, the Texas Historical Commission's Archeological Sites Atlas files were used to identify listed and eligible National Register of Historical Places (NRHP) properties and sites, NRHP districts, cemeteries, Official Texas Historical Markers, State Archeological Landmarks, and any other potential cultural resources such as National Historic Landmarks, National Monuments, National Memorials, National Historic Sites, and National Historical Parks to ensure the completeness of the study. To identify areas with a high probability for the occurrence of cultural resources, POWER Engineers used 7.5-minute topographic maps and aerial photography.

Eight recorded archeological sites are directly crossed by various routes. These include sites 41CF92, 41CF107, 41CF203, 41CF208, 41HG94, 41HG144, 41HG151, and 41HG230. The routes crossing these sites are shown in tables in Appendix C of the EA. Aside from 41CF92, a site included in the Palo Alto Battlefield National Historic Landmark (discussed below) that potentially could be impacted, no impacts are expected for the archeological sites. It is anticipated that potential direct impacts to these sites will be mitigated through routing and/or engineering design and construction measures that will protect the archeological sites.

An additional seven archeological sites, 41CF123, 41CF143, 41HG141, 41HG142, 41HG145, 41HG208, and 41HG226 will be crossed by a right-of-way that is assumed to extend 75 feet from the centerline. Potential direct impacts to these sites could be mitigated through routing and/or engineering design and construction measures that will protect the archeological sites. Recorded archeological sites do not typically

depend on visual and aesthetic qualities for their cultural significance, so no visual indirect effects are anticipated for the archeological sites.

No cemeteries are crossed by the proposed routes.

Two NRHP properties are crossed by alternative route centerlines. These include the Palo Alto National Battlefield Historic Site and the Rio Grande Canal Company Irrigation System. The Palo Alto Battlefield Historic Site is also a National Historic Landmark, a Texas Cultural Landscape, a Texas Military Site, the subject of an OTHM, and a recorded archeological site, 41CF92. Multiple alternative routes cross the Palo Alto Battlefield Historic Site, each of which may affect the visual and aesthetic qualities of this historic property, and potentially directly impact archeological deposits.

Additionally, the proposed routes traverse the Rio Grande Canal Company Irrigation System, although no adverse effects are anticipated because engineering design and construction measures used for the Project will not directly affect the contributing elements of the historic property, and the visual and aesthetic qualities historically associated with the canal system have already been substantially altered, thereby diminishing the severity of visual or aesthetic indirect effects caused by the currently proposed Project.

Because a cultural resource survey has not been conducted for most of the alternative routes, additional cultural resources sites that have not yet been recorded or evaluated might also exist within these corridors. Consequently, the potential of impacting undiscovered cultural resources exists along many of the alternative routes. To assess this potential, high probability areas (HPAs) for additional, unrecorded prehistoric resources were identified by a professional archeologist by reviewing aerial, soil, and topographic maps. Topography, availability of water and other natural resources are all taken into consideration to determine HPAs, as well as the effects of geologic processes on archeological deposits. Water crossings, stream confluences, closed depressions capable of holding water, stream terraces, wide floodplains, and areas near previously recorded sites are all typical HPAs, as well as lithic resource outcroppings, and the locations of other resources. HPAs defined using these considerations were mapped using GIS and the length of each alternative route across the HPAs was tabulated for use in comparison of the alternative routes. The TASA was also reviewed to identify areas where prehistoric resources have been documented in the vicinity of the study area.

General descriptions of the historical and archeological sites are provided in Table 4-5 in Section 4.3 of the EA. The distances from the centerline of the alternative routes is shown in Tables 5-2 through 5-33 in Appendix C of the EA. For the protection of the sites, archeological sites are not shown on the maps.

28. Coastal Management Program:

For each route, indicate whether the route is located, either in whole or in part, within the coastal management program boundary as defined in 31 T.A.C. §503.1. If any route is, either in whole or in part, within the coastal management program boundary, indicate whether any part of the route is seaward of the Coastal Facilities Designation Line as defined in 31 T.A.C. §19.2(a)(21). Using the designations in 31 T.A.C. §501.3(b), identify the type(s) of Coastal Natural Resource Area(s) impacted by any part of the route and/or facilities.

This application includes facilities located within the coastal management program boundary as defined in 31 T.A.C. § 503.1.

The coastal management program (CMP) boundary as defined in 31 T.A.C. § 503.1 and the Coastal Facilities Designation Line (CFDL) as defined in 31 T.A.C. § 19.2(a)(21) coincide in the portion of Cameron County encompassed by the study area defined in the EA for this Project. Both the CMP boundary and the CFDL are located along F.M. 1847 in this area, and portions of all alternative routes of the Project are located seaward of this boundary.

P.U.C. SUBST. R. 25.102 indicates that the Commission "may grant a certificate for the construction of generating or transmission facilities within the coastal boundary as defined in 31 T.A.C. § 503.1 only when it finds that the proposed facilities are consistent with the applicable goals and policies of the Coastal Management Program specified in 31 T.A.C. § 501.14(a), or that the proposed facilities will not have any direct and significant impacts on any of the applicable coastal natural resource areas specified in 31 T.A.C. § 501.3(b)." After P.U.C. SUBST. R. 25.102 was adopted, CCC rule § 501.14(a) was repealed and replaced by § 501.16, which now establishes the policies for construction of electric transmission facilities with the CMP. (See Texas Register, Vol 29, Number 30, July 23, 2004, p. 7039.)

The Coastal Coordination Council (CCC) has adopted rules to ensure that state agency actions are consistent with the CMP goals and policies [TAC 31, Part 16, Chapter 505, Subchapter A.]. When issuing a certificate of convenience and necessity, the actions of Public Utility Commission must be consistent with the CMP goals and policies [§ 505.11(a)(2)]. The CCC achieves consistency primarily through individual agency rules that reflect the CMP goals and policies [§ 505.10(b)]. The Commission has adopted rules that reflect the CMP goals and policies.

One of the goals and policies of the CMP is "to ensure sound management of all coastal resources by allowing for compatible economic development and multiple human uses of the coastal zone." [§ 501.12(2)] The CCC recognizes that transmission lines may be constructed within the coastal zone [§ 501.2(6)] and has adopted specific rules to address transmission line projects. CCC rule § 501.16 delineates the policies for the construction of electric transmission facilities in the coastal zone [§ 501.16(a)(4)] and requires the Commission to comply with the policies in that section when issuing certificates of convenience and necessity [§ 501.16(b)]. The policy of the CCC indicates that transmission lines constructed within a coastal zone "be located, where practicable, in existing rights-of-way or previously disturbed areas if necessary to avoid or minimize adverse effects." [§ 501.16(a)(4)(A)] According to the definition in § 501.3(a)(11), the term 'practicable' means "available and capable of being done after taking into consideration existing technology, cost, and logistics in light of the overall purpose of the activity." P.U.C. SUBT. R. 25.101 reflects the CMP goals and policies and requires the applicant for a CCN to consider 'engineering constraints' and 'costs' [P.U.C. SUBST. R. 25.101(b)(3)(B)], and reflects the CMP goals and policies of constructing transmission lines in existing rights-of-way and in previously disturbed areas [P.U.C. SUBST. R. 25.101(b)(3)(B)(i), (ii)and (iii)]. The CCC rules recognize that the construction of a transmission line may affect coastal historic areas, wildlife corridors or fish or bird migratory routes, and habitat for terrestrial and aquatic wildlife [501.3(a)(1)(C), (D), and (E)]; and the Commission has the statutory obligation to consider the effects on historical values and environmental integrity [PURA § 37.056].

The CCC goal of constructing transmission lines in previously disturbed areas as expressed in § 501.16(a)(4) is limited to transmission lines constructed to or on Coastal Barrier Resource System Units (barrier islands). Though this Project is not located on a barrier island, the Joint Applicants selected alternative routes that comply with this goal by paralleling or utilizing existing transmission lines; or paralleling existing roads, and railroads to the greatest extent possible.

Portions of the Project are located within coastal natural resource areas (CNRA) as identified in 31 T.A.C. § 501.3(b). CNRAs include waters of the open Gulf of Mexico, waters under tidal influence, submerged lands, coastal wetlands, submerged aquatic vegetation, tidal sound and mud flats, oyster reefs, hard substrate reefs, coastal barriers, coastal shore areas, gulf beaches, critical dune areas, special hazard areas (floodplains, etc.), critical erosion areas, coastal historic areas, and coastal preserves.

To determine whether any CNRAs are located along the alternative routes, POWER Engineers conducted a review of the CMP and performed field reconnaissance in the study area. POWER Engineers also reviewed aerial photography and associated mapping provided by the Texas General Land Office, Federal Emergency Management Agency, U.S. Fish and Wildlife Service, and the U. S. Geological Survey. Based on this review, POWER Engineers determined that the following CNRAs are located along the alternative routes to varying extents.

- Coastal wetlands
- Special hazard areas
- Coastal historic areas

Any potential impacts to the CNRAs listed above will be avoided or minimized by the special construction methods to be utilized in sensitive environmental areas (see Section 1.4 of the EA) and by potential mitigation measures required by the appropriate state or federal agency. Table 4-7 in the EA presents detailed information pertaining to the length a particular CNRA is crossed by each alternative route. A detailed discussion of each route's potential impact on a particular CNRA is included in Section 4.3.5 of the EA.

As required by P.U.C. SUBST. R. 25.102, the proposed facilities are consistent with the goals and policies of the Coastal Management Program specified in § 501.16 [formerly § 501.14(a)].

29. Environmental Impact:

Provide copies of any and all environmental impact studies and/or assessments of the project. If no formal study was conducted for this project, explain how the routing and construction of this project will impact the environment. List the sources used to identify the existence or absence of sensitive environmental areas. Locate any environmentally sensitive areas on a routing map. In some instances, the location of the environmentally sensitive areas or the location of protected or endangered species should not be included on maps to ensure preservation of the areas or species. Within seven days after filing the application for the project, provide a copy of each environmental impact study and/or assessment to the Texas Parks and Wildlife Department (TPWD) for its review at the address below. Include with this application a copy of the letter of transmittal with which the studies/assessments were or will be sent to the TPWD.

Wildlife Habitat Assessment Program
Wildlife Division
Texas Parks and Wildlife Department
4200 Smith School Road
Austin, Texas 78744

The EA that was conducted by POWER Engineers is included with this application as Attachment 1. Data used by POWER Engineers in the delineation and evaluation of alternative routes were drawn from a variety of sources, including published literature (documents, reports, maps, aerial photography, etc.), and information from local, state, and federal agencies. Recent (2010) National Agriculture Inventory Program color aerial photographs, 2010-2011 Environmental Systems Research Institute (ESRI) aerial photography, U.S. Geological Survey (USGS) 7.5 minute quadrangle topographic maps, Texas Department of Transportation (TxDOT) county highway maps, FWS National Wetlands Inventory maps, Texas Natural Diversity Database (TXNDD), Federal Emergency Management Agency maps, and ground reconnaissance surveys were also used throughout the selection and evaluation of alternative routes. Ground reconnaissance of the study area and computer-based evaluation of digital aerial imagery was utilized for both refinement and evaluation of alternative routes. The data collection effort, although concentrated in the early stages of the Project, was an ongoing process and continued up to the point of final alternative route option selections.

A copy of the letter of transmittal of the Application, including the EA for this Project, to the TPWD is included in this application as Attachment 15a. An affidavit verifying that Application and EA were sent to TPWD is included in this application as Attachment 15b.

30. Affidavit:

Attach a sworn affidavit from a qualified individual authorized by the applicant to verify and affirm that, to the best of their knowledge, all information provided, statements made, and matters set forth in this application and attachments are true and correct.

The sworn affidavits of the project managers for each of the Joint Applicants for this Project are included with this application as Attachment 16a and 16b.

Docket No. 41606
ETT/Sharyland North Edinburg – Loma Alta 345 kV Transmission Line

CCN Application – List of Attachments

1	Environmental Assessment and Route Analysis
2	Estimated Lengths of Alternative Routes
3a	AEP TCC Letter of Agreement with ETT
3b	Brownsville Public Utilities Board Letter of Agreement with Sharyland
4	Municipalities Associated with Alternative Routes
5	Estimated Costs of Alternative Routes and Substations
6	ERCOT Endorsement Letter and Independent Review
7	Diagram of Existing Transmission System
8	PURA and P.U.C. Substantive Rules Routing Requirements
9	Property Ownership Maps Index 1 and 2
9a	Hidalgo County Property Ownership Maps Sheets 1 through 28
9b	Cameron County Property Ownership Maps Sheets 29 through 46
9c	Hidalgo County Property Ownership Inset Maps Sheets 47 through 54
9d	Cameron County Property Ownership Inset Maps Sheets 55 through 56
9e	Habitable Structure / Landowner Cross-Reference Table
10a	Notice – Landowner Letter
10b	Notice – Notice Maps
10c	Notice – Route Descriptions
10d	Notice – Landowner Brochure
10e	Notice – Protest/Comment Form
10f	Notice – Intervenor Form
10g	Notice – Landowner List
11a	Notice – Utilities Letter
11b	Notice – Utilities List
12a	Notice – County and Municipal Officials Letter
12b	Notice – County and Municipal Officials List
13a	Notice – Newspaper Publication
13b	Notice – Newspaper List
14	Notice – Office of Public Utility Counsel
15a	Letter of Transmittal of Application to the Texas Parks and Wildlife Department
15b	Affidavit Verifying Transmittal of Application to the Texas Parks and Wildlife Department
16a	ETT Affidavit
16b	Sharyland Affidavit

June 2013

ELECTRIC TRANSMISSION TEXAS, LLC
SHARYLAND UTILITIES, L.P.

NORTH EDINBURG-LOMA ALTA 345 kV TRANSMISSION LINE PROJECT
Environmental Assessment and Alternative Route Analysis

Hidalgo and Cameron Counties, Texas

Docket No. 41606

POWER PROJECT NUMBER:
126120

POWER ENGINEERS

NORTH EDINBURG-LOMA ALTA
345 kV TRANSMISSION LINE PROJECT

PREPARED FOR: *ETT AND SHARYLAND*
PREPARED BY: *POWER ENGINEERS (AUSTIN, TEXAS)*

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ACRONYMS AND ABBREVIATIONS

ACSR	aluminum conductor steel reinforced
AEP TCC	American Electric Power Texas Central Company
AM	radio amplitude modulation radio
amsl	above mean sea level
ANSI	American National Standards Institute
BEG	Bureau of Economic Geology
BGEPA	Bald and Golden Eagle Protection Act
BMP	best management practices
B.P.	Before Present
BPUB	Brownsville Public Utilities Board
CCC	Coastal Coordination Council
CCN	Certificate of Convenience and Necessity
CCRMA	Cameron County Regional Mobility Authority
CLF	civilian labor force
CMP	Coastal Management Program
CMZ	Coastal Management Zone
CNRA	Costal Natural Resource Area
CR	County Road
CWA	Clean Water Act
E2EM	estuarine emergent
EA	Environmental Assessment and Alternative Route Analysis
EPA	US Environmental Protection Agency
ERCOT	Electric Reliability Council of Texas
ESA	Endangered Species Act
Esri	Environmental Systems Research Institute
ESSS	Ecologically Significant Stream Segments
ETT	Electric Transmission Texas, LLC
FAA	Federal Aviation Administration
FCC	Federal Communications Commission
FEMA	Federal Emergency Management Agency
FM	Farm-to-Market Road
FM	radio frequency modulation radio
GIS	Geographic Information Systems
GLO	Texas General Land Office
HCRMA	Hidalgo County Regional Mobility Authority
HPA	high probability area
HTC	Historic Texas Cemeteries
IBWC	International Boundary and Water Commission
IH	Interstate Highway
ISD	Independent School District
kV	kilovolt
LTC	Lower Texas Coast
LRGV	Lower Rio Grande Valley
MBTA	Migratory Bird Treaty Act
MW	megawatt
NAIP	National Aerial Imagery Program

NBC	National Butterfly Center
NEPA	National Environmental Policy Act
NERC	North American Electric Reliability Council
NESC	National Electrical Safety Code
NHL	National Historic Landmarks
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NOI	Notice of Intent
NOT	Notice of Termination
NPS	National Park Service
NRCS	Natural Resource Conservation Service
NRHP	National Register of Historic Places
NWI	National Wetland Inventory
NWP	Nationwide Permit
NWR	National Wildlife Refuge
NWSRS	National Wild and Scenic River System
OHWM	ordinary high water mark
OPGW	optical ground wires
OTHM	Official Texas Historical Marker
PCB	polychlorinated biphenyls
PEM	palustrine emergent
PFO	palustrine forested
POWER	POWER Engineers, Inc.
PSS	palustrine shrub/scrub
PUC	Public Utility Commission of Texas
PURA	Public Utility Regulatory Act
RIP	Record, Investigate, and Protect
RMA	Regional Mobility Authority
ROW	right-of-way
RRC	Railroad Commission of Texas
SAL	State Archeological Landmark
SCS	Soil Conservation Service
SH	State Highway
SHPO	State Historic Preservation Office
Sharyland	Sharyland Utilities, L.P.
SWPPP	Stormwater Pollution Prevention Plan
TAC	Texas Administrative Code
TARL	Texas Archeological Research Laboratory
TASA	Texas Archeological Sites Atlas
TBBA	Texas Breeding Bird Atlas
TCEQ	Texas Commission on Environmental Quality
TCWC	Texas Cooperative Wildlife Collection
THC	Texas Historical Commission
THSA	Texas Historical Site Atlas
TNRIS	Texas Natural Resource Information Systems
TPWD	Texas Parks and Wildlife Department
TPWC	Texas Parks and Wildlife Code
TSS	Texas Speleological Survey

TWDB	Texas Water Development Board
TX150000	Texas Pollution Discharge Elimination System General Construction Permit
TxDOT	Texas Department of Transportation
TXNDD	Texas Natural Diversity Database
US	United States
USACE	US Army Corps of Engineers
USBOC	US Bureau of the Census
U.S.C.	United States Code
USDA	US Department of Agriculture
USFWS	US Fish and Wildlife Service
USGS	US Geological Survey
US Hwy	US Highway
WBC	World Birding Center
WMA	Wildlife Management Area

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1.0 DESCRIPTION OF THE PROJECT

1.1 SCOPE OF THE PROJECT

Electric Transmission Texas, LLC (ETT)[1] and Sharyland Utilities, L.P. (Sharyland) propose to construct a new double-circuit capable 345 kilovolt (kV) transmission line in Cameron and Hidalgo counties (the Project) (see Figure 1-1 for the Project area location). Initially, one circuit will be installed. The Project will be constructed from the existing American Electric Power Texas Central Company (AEP TCC) 345 kV North Edinburg Substation located in Hidalgo County north of the City of Edinburg, and will extend generally south until it reaches a location near the existing AEP TCC South McAllen Substation. From this area, the new transmission line will extend east to the existing Brownsville Public Utilities Board (BPUB) 138 kV Loma Alta Substation located in Cameron County east of the City of Brownsville. Depending on the route selected the Project ranges in length from approximately 96 to 125 miles. The Project will require a typical right-of-way (ROW) width of approximately 150 feet, though additional easement area may be necessary in some locations for specialized structures or where multiple structures are necessary at significant angles in the line.

ETT and Sharyland contracted with POWER Engineers, Inc. (POWER) to prepare this Environmental Assessment and Alternative Route Analysis (EA). This EA will support ETT and Sharyland's joint application to the Public Utility Commission of Texas (PUC) to amend their Certificates of Convenience and Necessity (CCNs). This EA may also be used to support any additional federal, state, or local permitting activities that might be required prior to construction of the Project.

This EA discusses the environmental and land use constraints identified within the Project study area, documents routing methodologies, documents public involvement, and provides an evaluation of alternative routes from an environmental and land use perspective. The EA also provides the basis for ETT and Sharyland to identify an alternative route that best addresses requirements of the Public Utility Regulatory Act (PURA) and PUC Substantive Rule Section 25.101 (P.U.C. SUBST. R. 25.101).

To assist POWER in its evaluation of the Project, ETT and Sharyland provided POWER with the Project endpoints and information regarding the purpose and need for the Project, proposed construction practices, preliminary transmission line design, clearing methods, ROW requirements and maintenance procedures for the Project.

[1] ETT is a transmission utility, which is a joint venture between subsidiaries of American Electric Power (AEP) and Mid-American Energy Holdings Company, LLC. AEP is the parent company of AEP Texas Central Company (AEP TCC). American Electric Power Service Corporation, a subsidiary of AEP, will provide design, project management, construction, and other administrative services including regulatory support to ETT for the proposed transmission line and associated facilities.

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Figure 1-1 Project Area Location Map

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1.2 PURPOSE AND NEED

The Electric Reliability Council of Texas (ERCOT) is responsible for identifying necessary transmission system improvements to provide a reliable and adequate transmission network in most of Texas, including the Lower Rio Grande Valley (LRGV). ERCOT has determined, based on a number of factors, including high population and economic growth in the LRGV; numerous historical storm-related outages that have impacted electric service to the LRGV; limited generation in the LRGV and more specifically in the City of Brownsville area; and a constrained transmission network to support the LRGV, that by 2016 there will be several multiple outage scenarios of great concern in delivering electric service to the LRGV.

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 LRGV, which serves 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 serving into 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.

Based on these findings, the ERCOT Board voted to deem the Project critical to the reliability of the ERCOT system, which in this specific region of the ERCOT system consists of the LRGV and the Brownsville area. This Project brings a new bulk power source into the eastern portion of the LRGV, relieving transmission line overloads and the need to shed load in the LRGV and the Brownsville area for certain transmission facility outage events.

1.3 DESCRIPTION OF PROPOSED DESIGN AND CONSTRUCTION

1.3.1 Design Criteria

The Project is located in the American National Standards Institute (ANSI) National Electric Safety Code (NESC) Light Loading Zone and will be designed to meet or exceed NESC 2012 loading criteria (ANSI C2-2012). All structure components, conductors, and overhead ground wires will be designed using the appropriate overload capacity factors, strength reduction factors, and tension limits as given in NESC 2012 and the manufacturer's recommended strength ratings for hardware. In conjunction with NESC 2012, ETT and Sharyland's standard design practices will be used. The NESC light and medium-Loading Zone design criteria and extreme wind and ice loading conditions will be utilized to determine tension sags for all wires.

The Project will utilize two 954.0 kcmil aluminum conductor steel reinforced (ACSR) Cardinal conductors per phase. The line will utilize one overhead optical ground wire (OPGW) shield wire.

All structures will be designed to support conductors and shield wires, as specified above. The configuration of the conductor and shield wires will provide maximum lightning protection and the appropriate clearances for operation of the 345 kV line.

Supporting structures will be primarily single shaft steel poles (monopole) of double-circuit capable design, with use of lattice steel towers where appropriate and/or necessary. Structure height will vary depending on the type of structure used, topography, structure location, and span length with typical structure heights provided on Figures 1-2 and 1-3. The geometry of a typical monopole steel tangent structure is shown on Figure 1-2. The geometry of a typical lattice steel tower is shown on Figure 1-3. Geotechnical considerations will include soil borings and in-situ soils testing to provide the parameters for foundation design and/or the embedment depth required for new structures.

1.4 CONSTRUCTION CONSIDERATIONS

Projects of this type require surveying, ROW clearing, foundation installation, structure assembly and erection, conductor and shield wire installation, and cleanup when the Project is completed. The following information regarding these activities was provided to POWER by ETT and Sharyland.

1.4.1 Clearing and Construction Access

Clearing will comply with North American Electric Reliability Council (NERC) requirements. All trees and brush within the ROW that impede the safe construction of the line will be cleared, generally in a straight path. Stumps will be cut to ground level and left in place. Available methods of disposal are mulching, brush piling, and salvaging. In most cases the ROW will be utilized for access during construction operations, with ingress and egress through private property as necessary to access the ROW. Existing roads will be used where possible. Temporary culverts might be installed to cross creeks and tributaries, where necessary.

Clearing plans, methods, and practices are extremely important for success in any program designed to reasonably minimize the impacts of electric transmission lines on the natural environment. The following factors thoughtfully implemented and applied to this Project will help meet this goal:

- Clearing will be performed in a manner that will preserve natural beauty, and conserve natural resources.
- The time and method of clearing ROW will take into account soil stability, the protection of natural vegetation and sensitive habitats, and the prevention of silt deposition in watercourses. Erosion control measures will be implemented during the clearing and construction process as necessary.
- ETT and Sharyland will use the most efficient and effective methods to remove vegetation. Hydro axes and flail mowers might be used in clearing operations where such use will preserve the cover crop of grass, and similar vegetation. If deemed appropriate, US Environmental Protection Agency (EPA)-approved herbicides will be applied and handled in accordance with the product manufacturers' published recommendations and specifications, and as directed by appropriate qualified personnel.
- If endangered species habitat is present, guidance from the US Fish and Wildlife Service (USFWS) will be obtained prior to clearing or construction.

1.4.2 Construction

The following is a general description of construction methods that will be typically used by ETT and Sharyland for the Project. Structure locations will be marked for construction. Steel pole sections or lattice steel material and associated line construction hardware will be transported to the structure location. Structures may be wholly or partially assembled on the ground, with the whole structure lifted and set in place or sections of the structure lifted and assembled into place. Monopole steel structures can be either direct embedded or installed on concrete anchor bolt foundations, depending on soil condition. Lattice steel structures will be installed on concrete anchor bolt foundations. Once all steel structures have been erected, the process of conductor stringing will begin. This is accomplished by pulling segments of conductor or static wire through stringing blocks or pulleys. Once all conductors and static wires have been strung, each wire is tensioned to the required sag. The wire is then "clipped" into conductor clamps for permanent attachment.

Construction operations will be conducted with attention to preservation of natural beauty and conservation of natural resources. The following criteria will be used to attain this goal. These criteria are subject to adjustment according to the rules and judgments of any public agencies whose lands may be crossed by the proposed line or that may have regulatory authority over the construction activities.

1. Clearing and grading of construction areas such as storage areas, setup sites, etc. will be minimal. These areas will be graded in a manner that will minimize erosion and conform to the natural topography.
2. Soil that has been excavated during construction and not used will be evenly backfilled onto a cleared area or removed from the site. The backfilled soil will be sloped gradually to conform to the terrain and the adjacent land. If natural seeding will not provide ground cover in a reasonable length of time, appropriate reseeding will be performed.
3. Erosion control devices will be constructed where necessary to reduce soil erosion in the ROW.
4. Roads will not be constructed on unstable slopes.
5. Construction activities near streambeds will be performed in a manner to reasonably minimize damage to the natural condition of the area and erosion.
6. Efforts will be made to prevent and remediate accidental oil spills and other types of pollution, particularly while performing work near streams, lakes, and reservoirs.
7. Precautions will be taken to prevent accidental forest or range fires.
8. Precautions will be taken to protect natural features and cultural resources (identified by site-specific studies of the Project) along the ROW.
9. Soil disturbed during construction will be restored within a reasonable period of time.
10. ETT and Sharyland will comply with any applicable permits or regulatory approvals.

1.4.3 Cleanup

Cleanup involves the restoration of all disturbed areas to grade (as much as possible), removal of all construction debris, and restoration of or compensation for any items damaged by the construction of the Project.

The following criteria provide for the cleanup of construction debris and the restoration of the area's natural setting. Further requirements might be imposed by public agencies that have regulatory authority over the cleanup activities and/or by private property owners whose land the line crosses.

1. If site factors make it unusually difficult to establish a protective vegetative cover, other restoration procedures will be used, such as the use of gravel, rocks, concrete, etc.
2. Sears, cuts, fill, or other aesthetically degraded areas will be allowed to seed naturally or might be reseeded with native species to reduce erosion, restore a natural appearance and provide food and cover for wildlife.
3. If temporary roads are removed, the original slopes will be restored.
4. Construction equipment and supplies will be dismantled and removed from the ROW when construction is completed.
5. Clearing down to the mineral soil may be required for road access. In this case, water diversion berms, velocity dissipaters, or other erosion-control devices will be used to reduce erosion potential.
6. Construction waste will be removed prior to completion of the Project.
7. Replacement of soil adjacent to water crossing for access roads will be at slopes less than the normal angle of repose for the soil type involved and will be stabilized/ revegetated for erosion control.
8. ETT and Sharyland will comply with any applicable permit or regulatory approval.

1.5 MAINTENANCE CONSIDERATIONS

The following information regarding maintenance of the facilities was provided to POWER by ETT and Sharyland. Maintenance of the facilities will include periodic inspection of the line and repair of damaged structures due to structural component failures, accidents, or natural phenomena such as wind or lightning damage. In areas where treatment of vegetation within the ROW is required, mowing, pruning, and/or application of EPA-approved herbicides will be conducted as required. While maintenance patrols will vary, aerial patrols and foot patrols will be performed periodically. In cropland areas and properly managed grazing lands, little or no vegetation control will be required due to existing land use practices. The major maintenance activity will be the trimming of trees that pose a potential danger to the conductors or structures in order to provide a safe and reliable power line.

1.6 AGENCY ACTIONS

Numerous federal, state, and local regulatory agencies and organizations have developed rules and regulations regarding the routing and potential impacts associated with the construction of the Project. This section describes the major regulatory agencies and additional issues that are involved in project planning and permitting of transmission lines in Texas. POWER solicited comments from various regulatory entities during the development of this document, and records of correspondence and additional discussions with these agencies and organizations are provided in Appendix A.

1.6.1 Public Utility Commission of Texas

The PUC regulates the routing of transmission lines in Texas under PURA § 37.056(c)(4)(A)-(D). The PUC regulatory guidelines for routing transmission lines in Texas include:

- P.U.C. SUBST. R. 25.101(b)(3)(B);
- P.U.C. PROC. R. 22.52(a)(4);
- Policy of prudent avoidance; and

- CCN application requirements.

This EA has been prepared by POWER in support of ETT and Sharyland's CCN application for PUC approval of the Project.

1.6.2 United States Army Corps of Engineers

Under Section 10 of the Rivers and Harbors Act of 1899, 33 United States Code (U.S.C.) § 403, the US Army Corp of Engineers (USACE) regulates all work or structures in or affecting the course, condition or capacity of navigable Waters of the US. Under Section 404 of the Clean Water Act (CWA), 33 U.S.C. § 1344, the USACE regulates the discharge of dredged and fill material into all Waters of the US, including associated wetlands.

The Project is located within the jurisdiction of the USACE - Galveston District. The Rio Grande is designated a navigable water under Section 10; however, no Section 10 Permit is anticipated to be necessary for construction of this Project.

Review of the National Hydrology Dataset and National Wetland Inventory (NWI) data indicated numerous surface waters of the US and associated areas of potential forested, shrub/scrub and herbaceous wetlands within the study area. Upon PUC approval of a route, additional coordination, ordinary high water mark (OHWM) and jurisdictional wetland delineations/verifications and permitting with the USACE – Galveston District for a Section 404 Permit might be required. Based on the Project footprint and construction techniques proposed, the construction of the Project will likely meet the criteria of the Nationwide Permit (NWP) No. 12 - Utility Line Activities, which applies to activities associated with any cable, line, or wire for the transmission of electrical energy. If the proposed impacts of the Project exceed the criteria established under General Condition 13 or other regional conditions listed under the NWP 12, then a Regional General Permit might be required. An Individual Permit is not anticipated for the Project.

1.6.3 United States Fish and Wildlife Service

The USFWS enforces federal wildlife laws and provides comments on proposed construction projects with a federal nexus under the National Environmental Policy Act (NEPA) and within the framework of several federal laws including the Endangered Species Act (ESA), Migratory Bird Treaty Act (MBTA), and Bald and Golden Eagle Protection Act (BGEPA).

POWER reviewed the Texas Natural Diversity Database (TXNDD) records of federal and state listed species occurrences and/or designated critical habitats and considered these during the route development process. The absence of recorded occurrences for individual listed species is not an indication that the species or potential suitable habitat for the species is not present along the approved route. Upon PUC approval of a route and prior to construction, pedestrian surveys will be completed to identify any suitable habitat for federally listed species. If suitable habitat is noted, then informal consultation with the USFWS – Corpus Christi Ecological Services Field Office and Alamo Sub-office may be completed to determine the need for any required species-specific surveys and/or permitting under Section 7 of the ESA.

The Project study area includes several National Wildlife Refuges (NWRs) that are owned and managed by USFWS. ETT, Sharyland, and POWER have met with USFWS regarding potentially