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

DIRECT TESTIMONY

OF

ROB R. REID

ON BEHALF OF

ELECTRIC TRANSMISSION TEXAS, LLC

AND

SHARYLAND UTILITIES, L.P.

July 03, 2013

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EXHIBIT

I. INTRODUCTION

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Rob R. Reid. My business address is 7600B North Capital of Texas Highway, Suite 320, Austin, Texas, 78731.

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

A. I am employed by POWER Engineers, Inc. (POWER) as Vice President / Environmental Project Development and Senior Project Manager.

Q. PLEASE DESCRIBE THE BUSINESS OF POWER ENGINEERS, INC.

A. POWER was founded in 1976 in Idaho and maintains its corporate headquarters in Hailey, Idaho. POWER is an employee-owned company with approximately 1,700 employees, with offices nation-wide. The company is organized into four business areas: Energy, Facilities, Communications, and Environmental. A considerable portion of POWER's business is associated with the design of electric transmission lines for a large number of electric utility companies in the United States. Environmental services include routing and siting studies, biological and cultural resource studies, impact analyses, mitigation planning, visualization services, impact assessment documents, resource management plans, permitting/licensing/certification services, and compliance monitoring. POWER offers extensive staff experience in the assessment of environmental impacts associated with new electric transmission facilities and major energy development projects.

Q. PLEASE DESCRIBE YOUR EDUCATIONAL AND PROFESSIONAL QUALIFICATIONS AND BUSINESS EXPERIENCE.

A. I received a Bachelor of Science degree in Wildlife and Fisheries Sciences from Texas A&M University in 1975 and a Master of Science degree in Wildlife Fisheries Sciences from Texas A&M University in 1977. I have worked as a full-time professional ecologist since 1978 and have authored or co-authored over 200 technical environmental papers and reports.

Until July 2011, I was employed by Atkins North America, formerly PBS&J, as Senior Vice President and Principal Project Director. On August 1, 2011, I joined POWER as Vice President / Environmental Project Development. POWER opened a new office in Austin, Texas, and I lead that office. I have spent a significant portion of my career over the past 30 plus years conducting routing analyses/environmental assessments for electric transmission line projects, particularly in Texas. Since joining the firm in 1978 that ultimately merged into PBS&J (recently becoming Atkins), and now POWER, I have managed or participated in numerous multi-disciplinary environmental assessments for development projects, including transmission lines, and have served as Project Manager for over 150 environmental impact assessments associated with transmission facilities.

In my present position, I am responsible for organizing, conducting, and managing various types of environmental assessment projects and assuring that POWER's environmental studies and impact assessments under my direction address the provisions and requirements of applicable regulations, guidelines and standards of

local, state, and federal agencies. I also have administrative and business development responsibilities.

My resume is attached as Exhibit RRR-1.

Q. HAVE YOU PREVIOUSLY PERFORMED WORK RELATED TO TRANSMISSION LINE ADMINISTRATIVE PROCEEDINGS?

A. Yes, I have.

Q. HAVE YOU TESTIFIED PREVIOUSLY BEFORE THE PUBLIC UTILITY COMMISSION OF TEXAS?

A. Yes. I have testified before the Public Utility Commission of Texas (PUCT or Commission) and the State Office of Administrative Hearings on numerous occasions.

II. PURPOSE OF TESTIMONY

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to introduce and support the document entitled *North Edinburg-Loma Alta 345 kV Transmission Line Project—Environmental Assessment and Alternative Route Analysis* (EA). The EA supports the proposed 345-kV double-circuit capable transmission line that 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, to the existing Brownsville Public Utilities Board (BPUB) Loma Alta substation located in Cameron County east of the City of Brownsville (the Project). The EA was prepared by POWER on behalf

of Electric Transmission Texas, LLC and Sharyland Utilities, L.P. (together, Applicants). The EA is sponsored by me and is Attachment 1 to the *Joint Application of Electric Transmission Texas, LLC and Sharyland Utilities, L.P. To Amend Their Certificates of Convenience and Necessity for the Proposed North Edinburg to Loma Alta Double-Circuit 345-kV Transmission Line in Hidalgo and Cameron Counties, Texas* (Application) that Applicants filed in this docket.

Q. WHAT PORTIONS OF THE APPLICATION IN THIS DOCKET DO YOU SPONSOR?

A. I am sponsoring the answers to Question Nos. 6 (in part), 17 (in part), 18 (in part), 19, 20, 21, 22, 23, 24, 26, 27, 28, and 29 (in part) of the Application, as well as the EA, Attachment 1 to the Application.

Q. WERE YOUR TESTIMONY AND THE INFORMATION YOU HAVE BEEN IDENTIFIED AS SPONSORING PREPARED BY YOU OR BY KNOWLEDGEABLE PERSONS UNDER YOUR SUPERVISION AND UPON WHOSE EXPERTISE, JUDGMENT AND OPINIONS YOU RELY IN PERFORMING YOUR DUTIES?

A. Yes, they were.

Q. IS THE INFORMATION THAT IS CONTAINED IN YOUR TESTIMONY AND THAT YOU ARE SPONSORING TRUE AND CORRECT TO THE BEST OF YOUR KNOWLEDGE AND BELIEF?

A. Yes, it is.

III. ENVIRONMENTAL ASSESSMENT AND ROUTING ANALYSIS

Q. WHY DID POWER PREPARE THE EA?

A. Applicants contracted with POWER to perform a routing study and prepare the EA for this project. As Project Director, I am responsible for the EA and its findings. I oversaw all elements of the EA from baseline data acquisition and analysis through selection of the routes that POWER determined best addressed from an environmental and land use standpoint the requirements of the Public Utility Regulatory Act (PURA) and the PUCT's Substantive Rules for new transmission lines.

Q. PLEASE DESCRIBE THE PURPOSE OF THE EA.

A. The objective of the EA was to select and evaluate an adequate number of geographically diverse alternative transmission line routes that comply with PURA and the PUCT's rules and ultimately to recommend to Applicants the routes that POWER determined best address the requirements of PURA and the PUCT's Substantive Rules from environmental and land use standpoints. I sometimes refer to these routes as the "primary alternative" routes. The environmental planning process completed by POWER consisted of a series of tasks to address the requirements of PURA, the Commission's Rules, and Applicants' design practices for the development of an EA to address essential elements for a CCN application.

Q. WHAT DOES THE EA ADDRESS?

A. The EA provides a detailed description of the procedures and methodology followed and the factors considered in recommending alternative routes to Applicants. The EA

was prepared to address land use, visual resources, socioeconomic elements, biological/ecological resources, geology and soils, hydrology, and cultural resources within the regional study area and along all of the alternate routes. Applicants provided the information contained in Sections 1.1 through 1.5 of the EA. The EA also specifically addresses the environmental factors that appear in PURA's CCN provisions in Section 37.056(c)(4), the PUCT Substantive Rules, and the Commission's CCN application form.

Q. WHO PARTICIPATED IN THE PREPARATION OF THE EA?

A. A team of professionals under my direction, representing various environmental disciplines, was assembled from the POWER staff and was involved in data acquisition, routing analysis, and environmental impacts assessment of the Project.

Q. PLEASE DESCRIBE THE STEPS TAKEN IN PREPARING THE EA.

A. The tasks included 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 the recommendation by POWER of alternative routing to Applicants, including the primary alternative routes determined to best address the requirements of PURA and the PUCT's Substantive Rules.

Project Scoping and Study Area Delineation

Project scoping and study area delineation required the selection of a study area. This area needed to encompass the Project endpoints and include a large

enough area within which feasible and geographically diverse alternative routes could be delineated. The study area for the Project was defined based on the Project endpoints, the need to route the Project in the vicinity of 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.

Data Collection

Data used by POWER in the delineation and evaluation of the preliminary and primary alternative links/routes were drawn from a variety of sources, including readily available Geographic Information System (GIS) coverage with associated metadata; published literature (documents, reports, maps, aerial photography, etc.); and information from local, state, and federal agencies. Throughout the selection and evaluation of primary alternative routes, POWER used recent color aerial and electronic, high-resolution digital photography; various scale U.S. Geological Survey (USGS) topographic maps; Texas Department of Transportation (TxDOT) county highway maps; and ground reconnaissance surveys undertaken in June and October 2012. 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 alternative route selection.

Constraint Mapping

To minimize potential impacts to sensitive environmental and land use features, a constraints mapping process was used in developing and refining possible alternative routes. The geographic locations of environmentally sensitive and other restrictive areas within the study area were identified and considered during alternative route development. These constraints were mapped on topographic base maps. The alternative routes were selected to reduce the potential impact to land use and environmentally sensitive areas including: individual residences, congested urban areas, community facilities, subdivisions, airports, cemeteries, historic sites, archeological sites, wetlands and playa lakes, parks, churches, schools, and known occupied federally listed threatened and endangered species habitat. Impacts have also been reduced by efforts to parallel existing compatible rights-of-way (ROW), other existing linear features, and property lines where reasonable and practical.

Preliminary Alternative Route Delineation/Adjustments

Based on a review of recent aerial photographs, environmental and land use constraints, existing transportation and utility ROW, and the location of existing facilities, POWER, with input from Applicants, delineated a network of links for the Project to connect its endpoints, which included routing through a circular area in proximity to the AEP TCC South McAllen substation. These links combined to form preliminary alternative routes, which POWER presented to Applicants for review and comment. These initial preliminary links/routes were examined in the field in June 2012 and October 2012 by POWER staff. Following environmental and engineering review by the project team, adjustments were made to the location and alignment of

several links/routes resulting in a set of preliminary alternative links/routes. Applicants and POWER identified 341 preliminary alternative links through this process.

Public Open-house Meeting Input/Route Revisions

These adjusted preliminary alternative links/routes were presented at six open-house meetings held in the study area in October 2012. Following these meetings, Applicants and POWER analyzed the input, comments, and information received both at and following the open houses, from follow-up meetings and communication with landowners, interested public stake-holders, and governmental agencies and offices. The purpose of this analysis was to determine any issues warranting modification to the preliminary alternative links and identify potential new links not presented at the meetings. Several preliminary alternative links were modified, and new links were added.

Because modifications to the preliminary alternative links presented at the October 2012 public open-house meetings affected 482 landowners that were not affected by the preliminary alternative links presented at those meetings, Applicants held an additional public open-house meeting for these new potentially affected landowners. This meeting was held on February 25, 2013, in Edinburg, Texas.

Following that meeting, additional modifications were made to the preliminary alternative links, resulting in development of 367 primary alternative links. Using the 367 primary alternative links, Applicants and POWER identified primary alternative routes for the Project, with each of the 367 primary alternative links incorporated in at least one route.

Primary Alternative Route Evaluation/POWER Route Recommendation

Ultimately, 32 primary alternative routes were selected that, when combined, form an adequate number of reasonable and geographically diverse primary alternative routes to consider for this Project and reflect all of the previously discussed routing considerations. These 32 primary alternative routes were then specifically studied and evaluated by Applicants and POWER. The results of POWER's effort are presented in sections 4.0 and 5.0 of the EA. These primary alternative routes are shown in Figure 3-2 (Appendix D) of the EA.

The EA compares the primary alternative routes from a strictly environmental and land use standpoint, based upon the measurement of 48 separate environmental criteria for route evaluation (listed in Table 4-1 of the EA). These criteria encompass the factors set forth in PURA § 37.056(c) and P.U.C. SUBST. R. 25.101(b)(3)(B) and the consensus opinion of POWER evaluators. The number or amount for each of the criteria, by route, was determined by reviewing various maps and recent color aerial photography and by performing field verification, where possible.

The environmental advantages and disadvantages of each primary alternative route were then evaluated. POWER professionals with expertise in different environmental disciplines (wildlife biology, plant ecology, land use/planning, and archaeology) evaluated the alternative routes based upon environmental conditions present along each route, augmented by aerial photograph interpretation and field surveys, where possible, and the general routing methodology used by POWER and Applicants. Each POWER staff person independently analyzed the primary alternative routes and the environmental criteria data. The evaluators then met as a

group and discussed their independent results. The relationship and relative sensitivity among the major environmental criteria were determined by the group as a whole. The POWER evaluators then ranked the primary alternative routes based strictly upon the environmental criteria evaluation, considering the relationships and relative sensitivities among the criteria, and selected the primary alternative route determined to best address the requirements of PURA and the PUCT's Substantive Rules.

Q. WHAT DID POWER TAKE INTO ACCOUNT TO DETERMINE PRELIMINARY ALTERNATIVE ROUTES FOR THIS PROJECT?

A. POWER used data drawn from a variety of sources, including published literature and information from local, state, and federal agencies. POWER also considered recent digital photography, USGS topographic maps, TxDOT county highway maps, and ground reconnaissance surveys throughout the selection and evaluation of preliminary alternative links/routes and ultimately the primary alternative routes. Also, since a large number of potential routes could be drawn to connect the North Edinburg substation and the Loma Alta substation, a constraints mapping process was used to select and refine 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. POWER also took into account existing and known documented proposed land uses, areas of environmental concern, and the Commission's rules and criteria for the routing of electric transmission lines.

Q. WERE APPLICANTS INVOLVED IN REVIEW OF THE PRELIMINARY ALTERNATIVE ROUTES?

A. Yes. Applicants reviewed the preliminary alternative routes with regard to economic, engineering, and ROW issues and constraints, and also conducted field reviews.

Q. PLEASE DESCRIBE THE STEPS TAKEN BY POWER IN FORMULATING THE PRIMARY ALTERNATIVE ROUTES.

A. The initial preliminary alternative links were examined in the field in June 2012 and October 2012 by POWER staff. The project team made modifications to the preliminary alternative links, based on the results of the field evaluation and review of high-resolution aerial photography. These preliminary alternative links, which are shown on Figure 3-1 of the EA, were presented to the public at six open-house meetings held in the study area in October 2012 and another meeting in February 2013. In response to public input received at these open-house meetings, revisions were made to the preliminary alternative links. These revisions included adding links, deleting links, and relocating all or portions of some links. The revisions were then reviewed with regard to potential environmental impacts, landowner input, land use, and environmental constraints.

The resulting set of 32 revised preliminary alternative routes, following Applicants' approval, were designated as primary alternative routes. These routes were then thoroughly evaluated as described below.

Q. PLEASE DESCRIBE THE PROCESS UTILIZED IN COMPARING THE PRIMARY ALTERNATIVE ROUTES.

A. The evaluation of the primary alternative routes involved studying a variety of environmental criteria that encompass the factors set forth in PURA § 37.056(c) and P.U.C. SUBST. R. 25.101(b)(3)(B). In evaluating the primary alternative routes, 48 environmental criteria were considered. These criteria are presented in Table 2-1 of the EA. The goal of this evaluation was for POWER to provide an opinion on the primary alternative routes that best address the requirements of PURA and the PUCT's Substantive Rules under the criteria assessed in the EA. The analysis of each primary alternative route involved the inventory and tabulation of the number or quantity of each environmental criterion located along each route (e.g., length paralleling existing ROW, amount of cropland/pastureland crossed, etc.). The number or amount of each factor was determined by studying TxDOT county highway maps, recent color digital aerial photography, and USGS topographic maps, and performing field verification, where possible. The environmental advantages and disadvantages of each primary alternative route were then evaluated.

Q. PLEASE DESCRIBE THE PUBLIC INPUT PROCESS YOU MENTIONED PREVIOUSLY.

A. As indicated above, in October 2012, Applicants and POWER held six public open-house meetings in the Cities of McAllen, Mercedes, Harlingen, and Brownsville. A seventh meeting was held in February 2013 in the City of Edinburg. The intent of the meetings was to solicit comments concerning the Project from citizens, landowners, and public officials. The meetings had the objective of promoting a better understanding of the purpose, need, and potential benefits and impacts of the Project;

informing and educating the public about Applicants' routing procedure, schedule, and decision-making process; and ensuring that the decision-making process accurately identified and considered the values and concerns of the public and community leaders. Public involvement contributed both to the evaluation of issues and concerns by Applicants and POWER, and to the selection of the primary alternative routes for the Project. Applicants invited landowners along the preliminary alternative routes and local elected officials to the meetings.

The meetings followed an information station format for one-on-one discussion about particular aspects of the project with interested attendees. Each station had maps, illustrations, photographs, and/or text explaining each particular topic. Interested citizens and property owners were encouraged to visit each station in order so that the entire process could be explained in the general sequence of project development. This format was chosen to encourage more interaction from citizens who might be hesitant to participate in a speaker-audience format. In addition, Applicants provided a questionnaire to attendees to solicit concerns. Completed questionnaires were collected and used to provide the evaluation of property owner responses included in the EA.

Q. PLEASE DESCRIBE HOW AND WHEN IN THE PROCESS POWER UTILIZED INPUT IN THE FORM OF COMMENTS OR OTHER INFORMATION FROM THE PUBLIC.

A. POWER utilized public input from the open-house meetings both to evaluate issues and concerns and to select the primary alternative routes and the routes that best

address the requirements of PURA and the PUCT's Substantive Rules. Public input included discussions with individuals at the open-house meetings, responses to questionnaires received both at the meetings and afterwards by mail, and public input relayed by Applicants from their meetings and discussions with landowners.

Q. DID POWER CONSIDER INPUT FROM GOVERNMENTAL AGENCIES?

A. Yes, as discussed in Sections 2.1.5 and 3.2.3 of the EA, POWER solicited information and comments from a variety of state and federal agencies and local and county officials and departments with responsibilities in the areas of natural and cultural resources. Correspondence with such entities is included in Appendix A to the EA.

Q. PLEASE DESCRIBE HOW AND WHEN IN THE PROCESS POWER UTILIZED THE COMMENTS AND/OR INFORMATION FROM GOVERNMENTAL AGENCIES.

A. POWER utilized comments and information from governmental agencies throughout the process, including during the preparation of the EA, the constraints map, and in the selection and evaluation of the primary alternative routes.

Q. PLEASE SUMMARIZE THE BASIS FOR POWER'S SELECTION OF THE ROUTE IT DETERMINED BEST ADDRESSES THE REQUIREMENTS OF PURA AND THE PUCT'S SUBSTANTIVE RULES.

A. POWER selected Alternative Route 32 as the primary alternative route that best addresses the requirements of PURA and the PUCT's Substantive Rules from an environmental/land use perspective based primarily on the following advantages

among the 48 objective environmental criteria that encompass the factors set forth in PURA § 37.056(c) and P.U.C. SUBST. R. 25.101(b)(3)(B).

Alternative Route 32:

1. has the fewest habitable structures (465) within 500 feet of the proposed ROW centerline;

2. has the fewest newly affected habitable structures (335) within 500 feet of the proposed ROW centerline;

3. has the fourth fewest US and State highway crossings (nine);

4. is tied with Alternative Route 30 for having the third fewest farm-to-market (FM) road crossings (18)

5. is tied with Alternative Routes 1 and 31 for having the fourth fewest FM radio transmitters, microwave towers, and other electronic installations within 2,000 feet of the proposed ROW centerline (12);

6. has the third shortest length of ROW within the foreground visual zone of FM roads (32.3 miles);

7. is tied with Alternative Routes 27 and 31 for having the tenth shortest length of ROW through bottomland/riparian woodlands (1.8 miles);

8. is tied with six other routes for the second fewest stream crossings (four);

9. is tied with nine other routes for crossing the fifth fewest recorded cultural resource sites (five); and

10. has the ninth shortest length of ROW crossing areas of high archaeological site potential (77.7 miles).

Q. ARE THERE OTHER FACTORS SUPPORTING ALTERNATIVE ROUTE 32?

A. Yes, there are seven other such factors. Alternative Route 32:

1. crosses no parks/recreational areas, including the Palo Alto Battlefield;

2. crosses no U.S. Fish and Wildlife Service (USFWS) National Wildlife Refuges;

3. crosses no land irrigated by traveling systems (rolling or pivot type);

4. has no heliports within 5,000 feet of its ROW centerline;

5. has no AM radio transmitters within 10,000 feet of its ROW centerline;

6. crosses no rivers; and

7. has no length of ROW parallel (within 100 feet) to streams or rivers.

IV. INFORMATION ADDRESSING THE COMMISSION'S CCN CRITERIA AND ISSUES OF COMMUNITY VALUES, RECREATIONAL AND PARK AREAS, HISTORIC AND AESTHETIC VALUES, AND ENVIRONMENTAL INTEGRITY

Q. HOW WAS THE INFORMATION COMPILED BY POWER USED FOR PURPOSES OF THE APPLICATION?

A. POWER provided environmental and land use information for all of the primary alternative routes, which was used to complete several specific questions in the Application, as discussed above in Section II.

Q. WHERE WILL THE PROJECT BE LOCATED?

A. The Project will be located in Cameron and Hidalgo Counties, Texas (see the study area map in EA Figure 2-1). The Project will be constructed from the existing 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 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.

Q. PLEASE PROVIDE A GENERAL DESCRIPTION OF THE AREA TRAVERSED BY THE PROPOSED PRIMARY ALTERNATIVE ROUTES.

A. 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. The study area is characterized by relatively flat topography with a high percentage of habitat converted to croplands. The northern and southern portions of the study area are predominantly rural, while the central portion is predominantly urban. The northern portion of the study area is predominantly rangeland/pastureland, where most of the habitable structures are associated with rural ranch properties. The southern portion of the study area, bordered by the Rio Grande, is predominantly cropland. The central portion of the study area is composed of high density residential and commercial development.

Habitable structures include, but are not limited to single-family and multi-family dwellings, mobile homes, apartment buildings, commercial structures, industrial structures, business structures, churches, hospitals, nursing homes, and schools. Elevations range between less than five feet above mean sea level near the Brownsville Ship Channel to 90 feet above mean sea level near the North Edinburg substation.

Q. WHAT ARE POWER'S FINDINGS REGARDING PROXIMITY TO HABITABLE STRUCTURES IN THE VICINITY OF THE PROPOSED PRIMARY ALTERNATIVE ROUTES?

A. The number of habitable structures within 500 feet of the centerlines of the 32 alternative routes ranges from a high of 1,818 on Alternative Route 26 to a low of 465 on Alternative Route 32. However, some of the proposed alternative routes will utilize and/or parallel existing transmission line ROW. With this fact in mind, 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 Alternative Route 26 to a low of 335 on Alternative 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 Section 4.1.1.1 of the EA.

General descriptions of the habitable structures that are within 500 feet of the centerline of each route and their distances from the centerlines are provided 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 (Appendix D) of the EA.

Q. WHAT ARE POWER'S FINDINGS WITH RESPECT TO AM RADIO TRANSMITTERS WITHIN 10,000 FEET OF THE CENTERLINE AND OTHER TYPES OF ELECTRONIC INSTALLATIONS WITHIN 2,000 FEET OF THE CENTERLINES OF THE PROPOSED PRIMARY ALTERNATIVE ROUTES?

A. The number of commercial AM radio towers located within 10,000 feet of the alternative route centerlines ranges from none 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 5 on Alternative Route 17 to 25 on Alternative Route 26.

For each alternative route, the number of commercial AM radio transmitters within 10,000 feet of ROW 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 ROW centerline are shown in Table 4-1 of the EA. General descriptions of the electronic installations and their distances from the centerlines of the routes are provided in Section 4.1.1.5 and in Tables 5-2 through 5-33 (Appendix C) of the EA and are shown on Figure 5-1 (Appendix D) of the EA.

Q. WHAT ARE POWER'S FINDINGS WITH RESPECT TO KNOWN PRIVATE AIRSTRIPS WITHIN 10,000 FEET, FEDERAL AVIATION ADMINISTRATION (FAA) REGISTERED AIRPORTS WITHIN 20,000 FEET, AND HELIPORTS WITHIN 5,000 FEET OF THE CENTERLINES OF THE PROPOSED PRIMARY ALTERNATIVE ROUTES?

A. 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, indicates which routes are associated with each airport, airstrip, or heliport, and shows that structures will likely exceed the horizontal slope standard 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 alternative route.

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 on Alternative Routes 4, 6, and 30 to five on Alternative Route 17.

Each of the alternative routes has one private airstrip located within 10,000 feet of their 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 on 20 of the alternative routes to three on Alternative Route 5.

Q. WHAT ARE POWER'S FINDINGS WITH RESPECT TO AREAS IRRIGATED BY TRAVELING IRRIGATION SYSTEMS IN THE VICINITY OF THE PROPOSED PRIMARY ALTERNATIVE ROUTES?

A. As shown in Table 4-1 of the EA, none of the alternative routes cross agricultural lands with known travelling irrigation systems.

Q. WHAT ARE POWER'S FINDINGS WITH RESPECT TO COASTAL MANAGEMENT ZONE IMPACTS IN THE VICINITY OF THE PROPOSED PRIMARY ALTERNATIVE ROUTES?

A. A portion of the project area is located within the Coastal Zone Management Boundary as defined in 31 TEX. ADMIN. CODE § 503.1, and portions of all of the alternative routes are seaward of the Coastal Facilities Designation Line and are

located within coastal natural resource areas (CNRA) as identified in 31 TEX. ADMIN. CODE § 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 reviewed the coastal management program and performed field reconnaissance in the study area. POWER also reviewed aerial photography and associated mapping provided by the Texas General Land Office (GLO), Federal Emergency Management Agency, USFWS, and the USGS. Based on this review, POWER determined that the following CNRAs are located along the alternative routes to varying extents:

- Coastal wetlands;
- Special hazard areas; and
- Coastal historic areas.

As required by P.U.C. SUBST. R. 25.102, ETT and Sharyland propose to construct the transmission line in accordance with the goals (31 TEX. ADMIN. CODE § 501.12) and policies (31 TEX. ADMIN. CODE § 501.16) [formerly § 501.14(a)] of the Coastal Management Program and to avoid or minimize any potential impacts to CNRAs 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 4.5.3.4 of the EA.

Q. PLEASE DESCRIBE THE PERMITS OR APPROVALS THAT WILL BE OBTAINED AS NECESSARY TO CONSTRUCT THE PROJECT.

A. Applicants and POWER have contacted and provided information about the Project to various agencies. Some input from these agencies has been incorporated in the EA; 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.

Permits and/or approvals that may be required include the following, in no particular order:

1. Floodplain development permits and road crossing permits may be required by the counties in which the approved route is located, depending on the location of the transmission line structures.

2. Permits or licensing from the International Boundary and Water Commission (IBWC) for construction in floodways maintained by the IBWC will be obtained as necessary.

3. Permits for crossing roads, highways, and/or other properties owned or maintained by TxDOT will be obtained as necessary.

4. Cultural resource clearance will be obtained from the Texas Historical Commission for the proposed Project as necessary.

5. Permits or approvals for construction in the Palo Alto National Battlefield Historic Site will be obtained from the National Park Service if necessary.

6. A Storm Water Pollution Prevention Plan (SWPPP) may be required by the Texas Commission on Environmental Quality (TCEQ). Applicants or their contractors 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.

7. A Miscellaneous Easement from the Texas GLO will be obtained as necessary for any ROW that crosses a state-owned riverbed or navigable stream.

8. Notification to the FAA may 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.

9. Permits or other requirements associated with possible impacts to endangered/threatened species will be coordinated with the USFWS as necessary.

10. Approvals and/or easements for crossing property owned or controlled by the USFWS and/or Texas Parks and Wildlife Department (TPWD) will be obtained as necessary.

11. 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 cross property that is owned by the USACE, and no easements on USACE property will be necessary.

12. Permits for crossing canals and other irrigation facilities will be obtained as necessary from the Cameron and Hidalgo County Irrigation Districts.

Q. WHAT ARE POWER'S FINDINGS WITH RESPECT TO THE NUMBER OF PARKS AND RECREATIONAL AREAS WITHIN 1,000 FEET OF THE CENTERLINES OF THE PROPOSED PRIMARY ALTERNATIVE ROUTES?

A. POWER reviewed the TPWD's Texas Outdoor Recreation Inventory and Texas Outdoor Recreation Plan, and federal, state, and local maps, and performed field reconnaissance to identify parks and recreation facilities located within the study area. The distance of each park or recreation area from the nearest primary alternative link

was measured using GIS software and aerial photography interpretation (see Table 4-4 of the EA).

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

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

No significant impacts to the use or enjoyment of the parks and recreation facilities located within the study area are anticipated from any of the alternative routes. No adverse impacts are anticipated for any public fishing or hunting areas from any of the alternative routes.

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 (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.

Q. WHAT ARE POWER'S FINDINGS WITH RESPECT TO POTENTIAL IMPACTS ON HISTORICAL AND AESTHETIC VALUES FROM THE PROPOSED PRIMARY ALTERNATIVE ROUTES, INCLUDING KNOWN CULTURAL RESOURCES SITES WITHIN 1,000 FEET OF THE CENTERLINES OF THE PROPOSED PRIMARY ALTERNATIVE ROUTES?

A. General descriptions of the known/recorded historical and archeological sites are provided in Table 4-5 in Section 4.3 of the EA. The distances of the sites from the centerlines of the alternative routes are shown in Tables 5-2 through 5-33 in Appendix C of the EA.

Eight recorded archeological sites are directly crossed by various routes. The number of sites crossed by each alternative route is shown in Table 4-1 of the EA and routes crossing specific sites are shown in tables in Appendix C of the EA. Aside from potential impacts to a site included in the Palo Alto Battlefield National Historic Landmark, as discussed below, no impacts are expected for the archeological sites. Potential direct impacts to the other seven sites, if any, 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 alternative routes.

Two National Register of Historic Places properties are crossed by alternative route centerlines: the Palo Alto National Battlefield Historic Site, and the Rio Grande

Canal Company Irrigation System. 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, all of 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. Additionally, 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 potentially caused by the Project.

As for aesthetic values, no known high quality aesthetic resources, designated views, or designated scenic roads or highways were identified within the study area. Research did not indicate any Wild and Scenic Rivers or National Monuments within the study area, although one National Historic Park, the Palo Alto Battlefield, is located in the eastern portion of the study area in Brownsville, Texas. Thus, the study area exhibits a moderate degree of aesthetic quality for the region.

Construction of the proposed 345 kV transmission line could have both temporary and permanent aesthetic effects. Temporary impacts would include views of the actual assembly and erection of the tower structures. If wooded areas are cleared, the brush and wood debris could have an additional negative temporary impact on the local visual environment. Permanent impacts from the Project would involve the views of the cleared ROW, transmission structures, and lines.

All of the alternative routes have some portion of the routes located within the foreground visual zone of parks or recreational areas, of U.S. and state highways, and of farm-to-market roads. A summary of the lengths for each of the alternative routes within the foreground visual zone of these areas is presented in Table 4-1 of the EA.

Q. WHAT ARE POWER'S FINDINGS WITH RESPECT TO IMPACTS ON ENVIRONMENTAL INTEGRITY FROM THE PROPOSED PRIMARY ALTERNATIVE ROUTES?

A. The EA addresses impacts on environmental integrity in Sections 2.6 and 4.5. Construction of the transmission line is not anticipated to have any significant adverse effects on the physiographic or geologic features and resources of the area.

The construction, operation, and maintenance of electrical transmission lines typically do not adversely impact soils and potential impacts, primarily erosion and compaction, would be minimized with the development and implementation of a SWPPP. Therefore, the magnitude of potential soil impacts are considered equivalent for all of the alternative routes.

Multiple surface waters within the study area would be crossed by all of the alternative routes. Since all surface waters are proposed to be spanned and a SWPPP will be implemented during construction, no significant impacts are anticipated for any of the alternative routes. The construction, operation, and maintenance of the proposed transmission line are not anticipated to adversely affect groundwater resources within the study area.

All of the alternative routes cross significant portions of the mapped 100-year floodplains; however, construction using any of the alternative routes is not likely to significantly impact the overall function of a floodplain or adversely affect adjacent or downstream properties.

Potential impacts to vegetation would result from clearing the ROW of woody vegetation and/or herbaceous vegetation. During the route development process, consideration was given to avoid wooded areas and/or to maximize the length of the routes parallel to existing linear corridors. Clearing would occur only where necessary to provide access, work space, safety, reliability, and future maintenance access to the ROW.

Due to the arid nature of the region, the mapped wetland areas are typically restricted to small areas within depressions and/or associated with streams. In most instances these areas could be spanned with impacts limited to the clearing of woody vegetation necessary to obtain conductor to ground clearance requirements. No equipment would be required to traverse the wetlands or surface waters. Within the coastal zone area, more extensive expanses of freshwater emergent wetlands may be crossed. While permanent loss of wetlands would be restricted to structure locations, temporary impacts to wetlands may occur to access each structure during construction. Impact minimization measures can be implemented (e.g., timber matting and access road minimization) to reduce temporary impacts.

Applicants propose to implement best management practices as a component of their SWPPP to prevent off-ROW sedimentation and degradation of any wetland areas. With Applicants' use of impact avoidance and minimization measures, none of

the alternative routes are anticipated to have a significant impact on jurisdictional wetlands.

Construction of the proposed transmission line is not anticipated to have direct adverse impacts to wildlife and fisheries within the study area. Implementation of a SWPPP utilizing best management practices will minimize potential impacts to aquatic habitats.

Regarding threatened and endangered plant species, several buffer areas historically known to have occurrences of federally listed plant species are crossed by several of the alternative routes. Once a route is approved, field surveys will be completed, if necessary, to identify potential suitable habitat for each listed plant species and also determine the need for any additional species-specific surveys. With the development of an avoidance and impact minimization plan, the potential for any of the alternative routes to adversely affect federally listed plant species is not anticipated to be significant.

Of the federally listed threatened and endangered animal species identified in Section 2.6.4.5 of the EA, the jaguarundi and ocelot would have the highest risk from potential impacts due to habitat degradation and/or fragmentation. But minimization of this impact could be achieved by spanning streams and riparian areas which would leave movement corridors for these and other wildlife species requiring woody cover. Only two breeding populations of ocelot are known in south Texas, and neither is located within the study area.

Pedestrian surveys for threatened and endangered species have not been completed for any of the alternative routes; therefore, suitable habitat for these

species might occur within the ROW of any of the alternative routes. If necessary, a field survey for potential suitable habitat for all listed species will be completed after a route is approved.

V. ADDITIONAL COMMISSION ROUTING CONSIDERATIONS

Q. HOW HAS POWER'S ANALYSIS CONSIDERED SUCH FACTORS AS 1) USE AND PARALLELING OF EXISTING COMPATIBLE ROW, 2) USE OF VACANT POSITIONS ON EXISTING MULTIPLE CIRCUIT TRANSMISSION LINES, AND 3) USE OF PROPERTY BOUNDARIES OR OTHER NATURAL OR CULTURAL FEATURES?

A. In consideration of and in compliance with P.U.C. SUBST. R. 25.101(b)(3)(B)(i), POWER's route delineation and route evaluation process considered utilizing and paralleling existing compatible ROW, apparent property boundaries, and other natural or cultural features where practical and reasonable.

The table below, which includes data from Table 4-1 in the EA, illustrates the extent to which the proposed alternative routes parallel existing ROWs and apparent property boundaries. (The proposed alternative routes for the Project range from 96 to 125 miles long.)

Alternate Route	Miles of ROW parallel to existing transmission line ROW	Miles of ROW parallel to other existing ROW (highway, pipelines, railways, etc.)	Miles of ROW parallel to apparent property lines
1	23.9	40.5	12.1
2	36.8	38.9	21.3
3	32.2	38.5	19.4
4	19.7	43.4	17.4
5	40.6	25.2	16.9
6	26.1	38.4	15.8
7	37.4	36.8	19.7

Alternate Route	Miles of ROW parallel to existing transmission line ROW	Miles of ROW parallel to other existing ROW (highway, pipelines, railways, etc.)	Miles of ROW parallel to apparent property lines
8	29.6	35.1	21.9
9	23.7	42.1	15.5
10	26.7	41.8	16.9
11	26.6	50.8	14.6
12	35.0	45.0	18.8
13	24.9	51.7	14.1
14	26.1	50.5	14.2
15	23.9	48.3	14.7
16	25.8	43.4	22.2
17	36.9	30.2	21.2
18	37.1	37.7	13.1
19	25.4	44.5	17.0
20	26.8	26.6	20.6
21	25.4	41.3	21.9
22	18.0	36.7	17.2
23	27.9	38.7	21.4
24	17.9	47.5	21.3
25	11.8	52.4	19.5
26	30.1	37.9	19.1
27	27.7	35.8	13.9
28	20.9	48.2	13.8
29	15.3	51.1	17.3
30	26.3	48.2	17.8
31	28.4	37.9	14.5
32	24.8	44.0	18.3

Q. HAVE AN ADEQUATE NUMBER OF ALTERNATIVE ROUTES BEEN FORMULATED TO CONDUCT A PROPER EVALUATION?

A. Yes. Given the distance between the Project endpoints, the requirement to route the Project in the proximity of the South McAllen substation, and the nature of the Project area, I believe that the routes evaluated in the EA provide an adequate number of alternative routes for evaluation. Data for the environmental/land use criteria were collected for each link, and all of the links were used to develop the alternative routes filed in the Application. Given the size of the Project and the constraints in the study

area, I believe the 32 alternative routes filed in the Application represent an adequate number of reasonable, viable, geographically-varied alternative routes.

Q. DO ALTERNATIVE ROUTE CONFIGURATIONS EXIST THAT WOULD HAVE LESS IMPACT ON LANDOWNERS?

A. No. The routing process involved the delineation of numerous alternative routes, as depicted in Figure 3-2 (Appendix D) of the EA. Information of the same general type on community values, parks and recreation areas, archaeological and historic sites, aesthetics, and environmental integrity is presented for the alternative routes in the EA. These alternatives were selected, in part, to minimize landowner impact in accordance with the criteria specified in PURA and the PUCT's Substantive Rules. Any number of alternatives could be formulated that might not affect presently-affected landowners but would instead affect other landowners. It is unreasonable, however, to conduct a routing study in that manner. I believe that, on balance, the alternative routes minimize adverse impacts on directly affected landowners to a reasonable extent. Additional alternative route configurations would not have less impact on landowners.

Q. DO YOU BELIEVE THE CONCEPT OF "COMMUNITY VALUES" HAS BEEN ADEQUATELY ADDRESSED BY COMPILATION OF DATA BY POWER, INCLUDING THE DATA THAT HAS BEEN RECEIVED FROM THE AGENCIES AND THE PUBLIC?

A. Yes, I do. The term "community values" is included as a factor for the consideration of transmission line certification under Section 37.056(c)(4) of PURA although the

term has not been specifically defined for regulatory purposes by the PUCT. For purposes of evaluating the effects of the Project, POWER has defined the term "community values" as a "shared appreciation of an area or other natural resource by a national, regional, or local community."

POWER's studies of the effect on "community values" described in Sections 2.2 and 4.1 of the EA, indicate that the project would not result in the disruption or preemption of any recreational activities but would have some temporary or permanent impact on visual aesthetics. I believe POWER's studies adequately address the requirements of PURA and the PUCT's Substantive Rules regarding consideration of the effects of the Project on "community values."

Q. ARE YOU FAMILIAR WITH THE COMMISSION'S POLICY OF "PRUDENT AVOIDANCE?"

A. Yes. P.U.C. SUBST. R. 25.101(a)(4) defines the term "prudent avoidance" to mean "the limiting of exposures to electric and magnetic fields that can be avoided with reasonable investments of money and effort."

Q. DO YOU BELIEVE THE ROUTES CONSIDERED BY POWER AND APPLICANTS CONFORM TO THE COMMISSION'S POLICY OF PRUDENT AVOIDANCE?

A. Yes. All of the routes considered in the EA conform to the Commission's policy of prudent avoidance in that they reflect reasonable investments of money and effort in order to minimize exposure to electric and magnetic fields.

Q. HAS POWER REVIEWED AND CONSIDERED CERTAIN MITIGATION MEASURES FOR THIS PROJECT TO DECREASE POTENTIAL IMPACTS FROM THE PROJECT?

A. Yes, it has. These mitigation measures are set forth in Section 4 of the EA.

Q. WHAT ARE POWER'S CONCLUSIONS REGARDING THESE MITIGATION MEASURES?

A. The proposed mitigation measures should serve to reduce and mitigate the potential adverse effects of construction and operation of the Project to an appropriate extent.

VI. SUMMARY AND CONCLUSION

Q. PLEASE SUMMARIZE YOUR TESTIMONY.

A. In my opinion, all of the proposed alternative routes satisfy the criteria specified in PURA and the PUCT's Substantive Rules. My testimony and the EA address the differing extent to which the proposed alternative routes satisfy such requirements.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes, it does.