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Control Number - 58136

Item Number - 2

STANDARD APPLICATION FOR A CERTIFICATE OF CONVENIENCE AND NECESSITY FOR A PROPOSED TRANSMISSION LINE

AND

APPLICATION FOR A CERTIFICATE OF CONVENIENCE AND NECESSITY FOR A PROPOSED TRANSMISSION LINE PURSUANT TO 16 TEX. ADMIN. CODE § 25.174

DOCKET NO. 58136

Submit seven (7) copies of the application and all attachments supporting the application. If the application is being filed pursuant to 16 Tex. Admin. Code § 25.101(b)(3)(D) (TAC) or 16 TAC § 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

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.

1. **Applicant (Utility) Name:** Entergy Texas, Inc. ("Entergy Texas" or "ETI")

   Certificate Number: 30076
   Street Address: 350 Pine Street, Beaumont, Texas 77701
   Mailing Address: P.O. Box 2951 Beaumont, Texas 77704

2. **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.**

   There are no such entities for the proposed Project.

3. **Person to Contact:** Mario A. Contreras

   Title/Position: Manager, Regulatory Affairs
   Phone Number: (512) 487-3985
   Mailing Address: 919 Congress Avenue, Suite 740, Austin, TX 78701
   Email Address: mcontre@entergy.com

   Legal Counsel: Laura B. Kennedy, Senior Counsel
   Phone Number: (512) 487-3961
   Mailing Address: 919 Congress Avenue, Suite 701, Austin, TX 78701
   Email Address: lkenn95@entergy.com

4. **Project Description**:
   Name or Designation of Project

   Cypress to Legend 500 kV Transmission Line

   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.

   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.).

   If applicable, 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.

Entergy Texas, Inc. ("ETI") is planning to construct a new single-circuit 500 kilovolt ("kV") transmission line to connect ETI's existing Cypress Substation to the new Legend 500 kV Substation ("Project"). The Project will be approximately 40 to 49 miles in length (depending on the route ultimately approved by the Public Utility Commission of Texas ("PUCT" or "Commission") in Hardin and Jefferson Counties.

The existing Cypress Substation is located approximately 5 miles northwest of the intersection of United States Highway ("US Hwy") 69 and Farm-to-Market ("FM") 421. The new Legend 500 kV Substation will be located approximately 1.5 miles southwest of the intersection of State Highway ("SH") 73 and SH 82.

The study area and the locations of ETI's existing Cypress Substation and the new Legend 500 kV Substation, as well as existing transmission lines, are shown on Figure 2-1 of the Environmental Assessment and Alternative Route Analysis ("EA") provided as **Attachment 1** to the application.

5. **Conductor and Structures:**

Conductor Size and Type: 954 kcmil Aluminum Conductor, Steel Reinforced ("ACSR")

Number of conductors per phase: Three (3) wires/phase

Continuous Summer Static Current Rating (A): 3000 Amperes

Continuous Summer Static Line Capacity at Operating Voltage (MVA): 2598 MVA @ 500 kV

Continuous Summer Static Line Capacity at Design Voltage (MVA): 2598 MVA @ 500 kV

Type and composition of Structures: Steel single-circuit structures, either tubular steel H-Frames, self-supporting, or guyed lattice

Height of Typical Structures: 105 to 170 feet

Estimated Maximum Height of Structures: 195 feet. However, there could be structures that exceed this height at certain locations with longer spans or additional clearance requirements, such as highways or major waterways.

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.

Steel structures are required to support the expected structural loading requirements of the Project. Other materials such as wood or concrete were not selected because of cost or structural limitations. Steel structures can be engineered to meet a variety of loading requirements and have a proven record of reliability when properly designed. Depending on the need at a particular point in a proposed route, the typical structures will be one of the types illustrated below.

Figure 1-1: Typical Tubular Steel H-Frame Tangent Structure

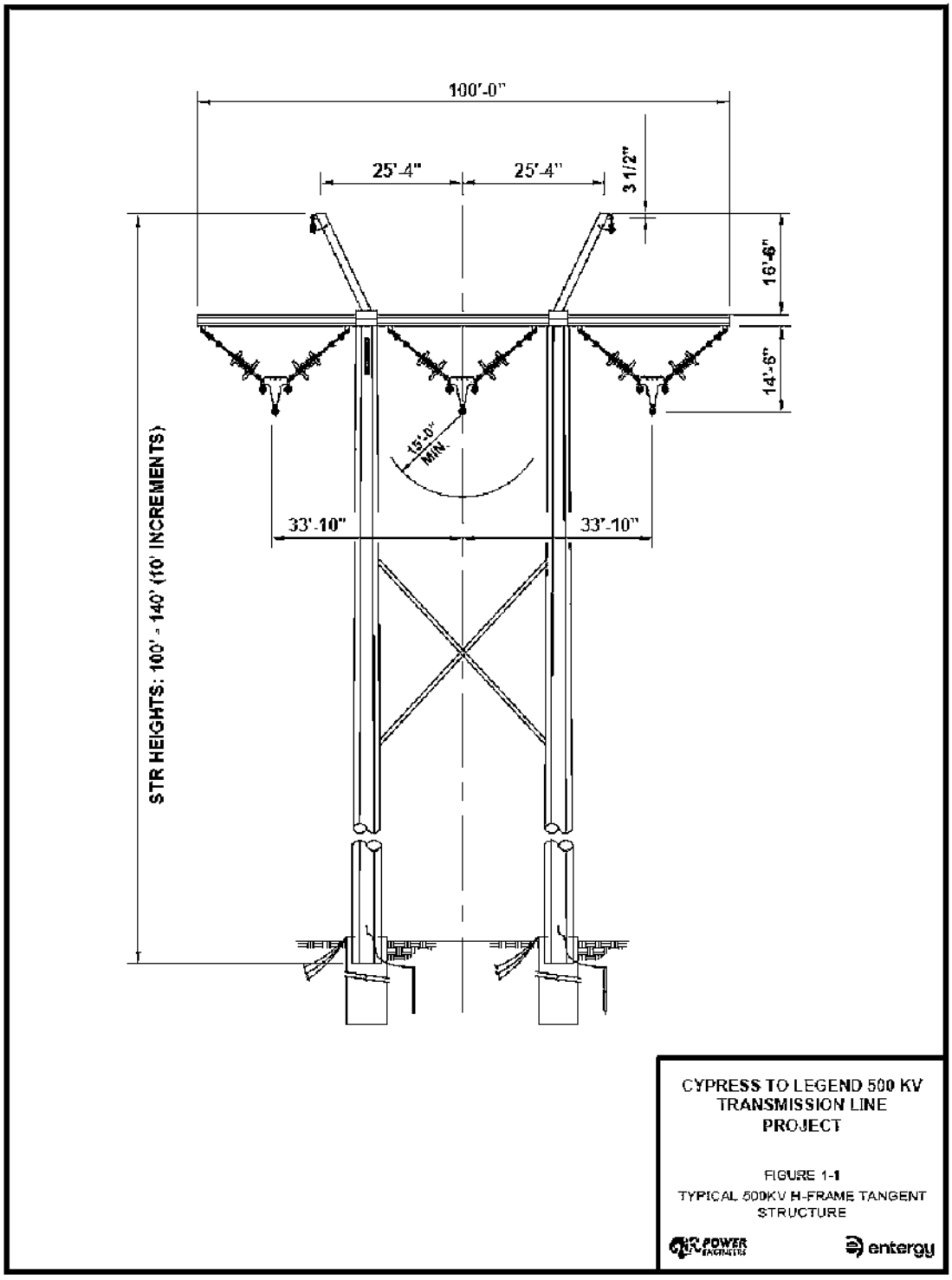


Figure 1-2: Typical Tubular Steel 3-Pole Deadend Structure

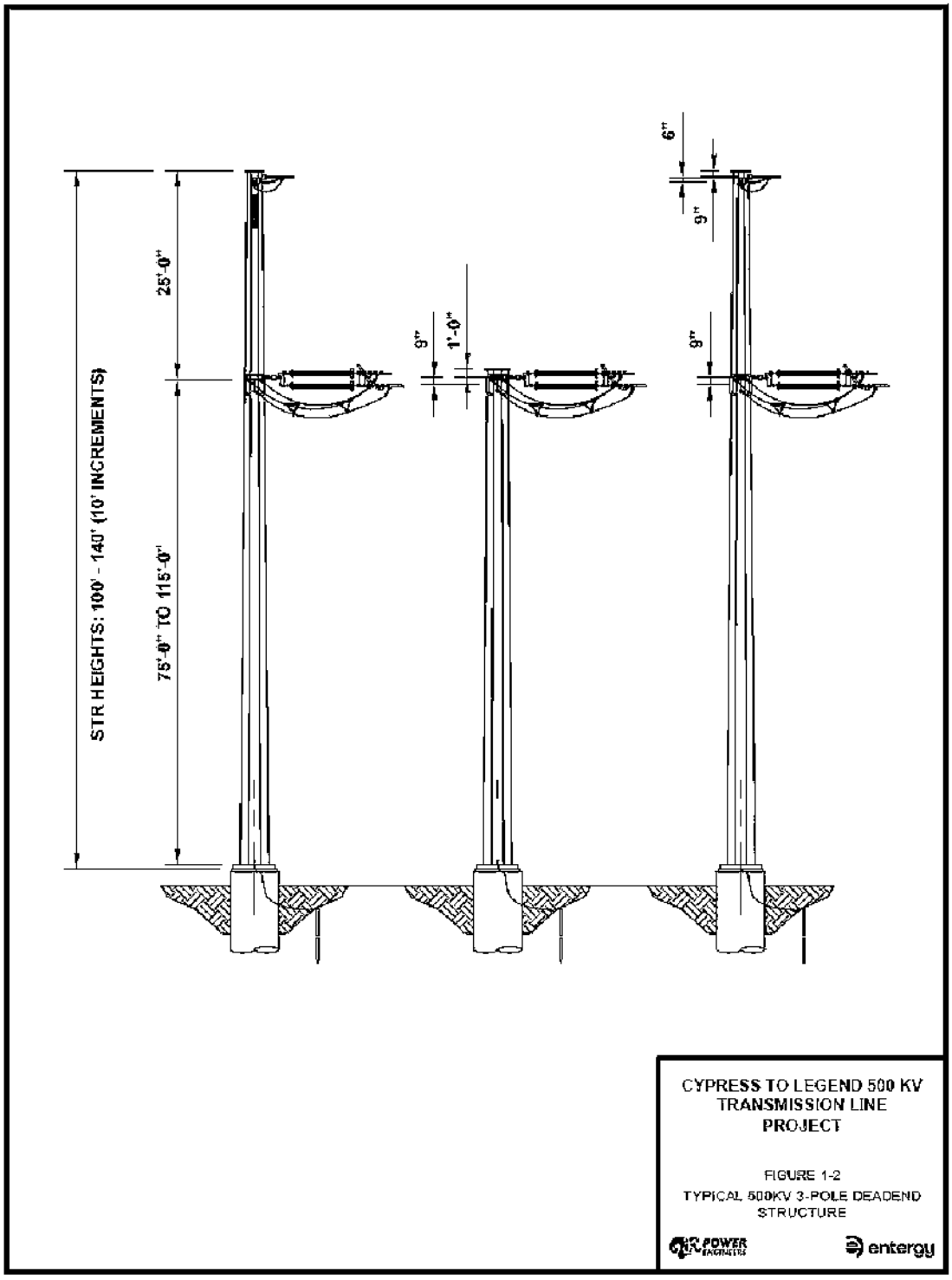


Figure 1-3: Typical 500-kV Steel Self-Supporting Lattice Tangent Structure

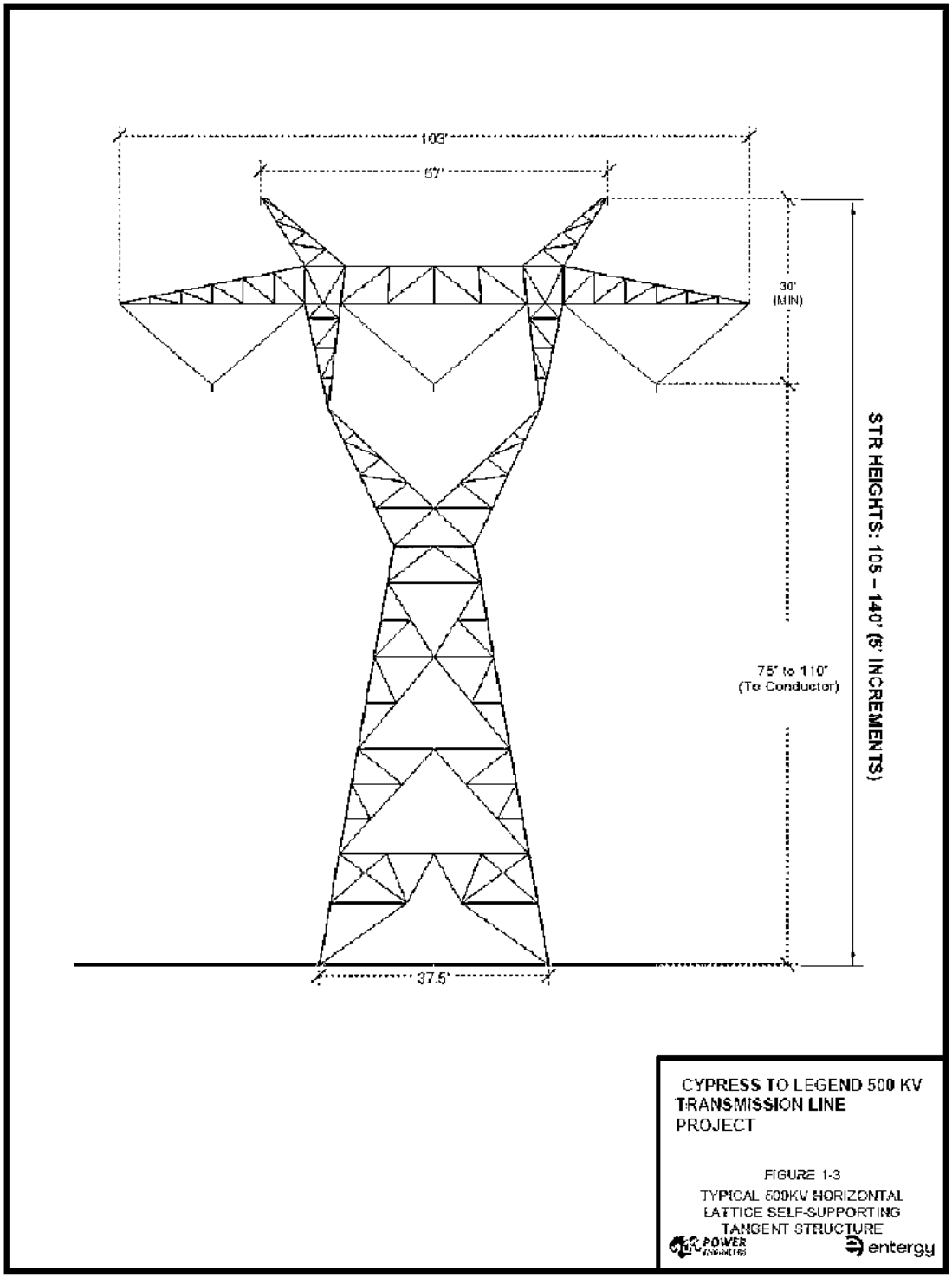


Figure 1-4: Typical 500-kV Steel Guyed V Lattice Tangent Structure

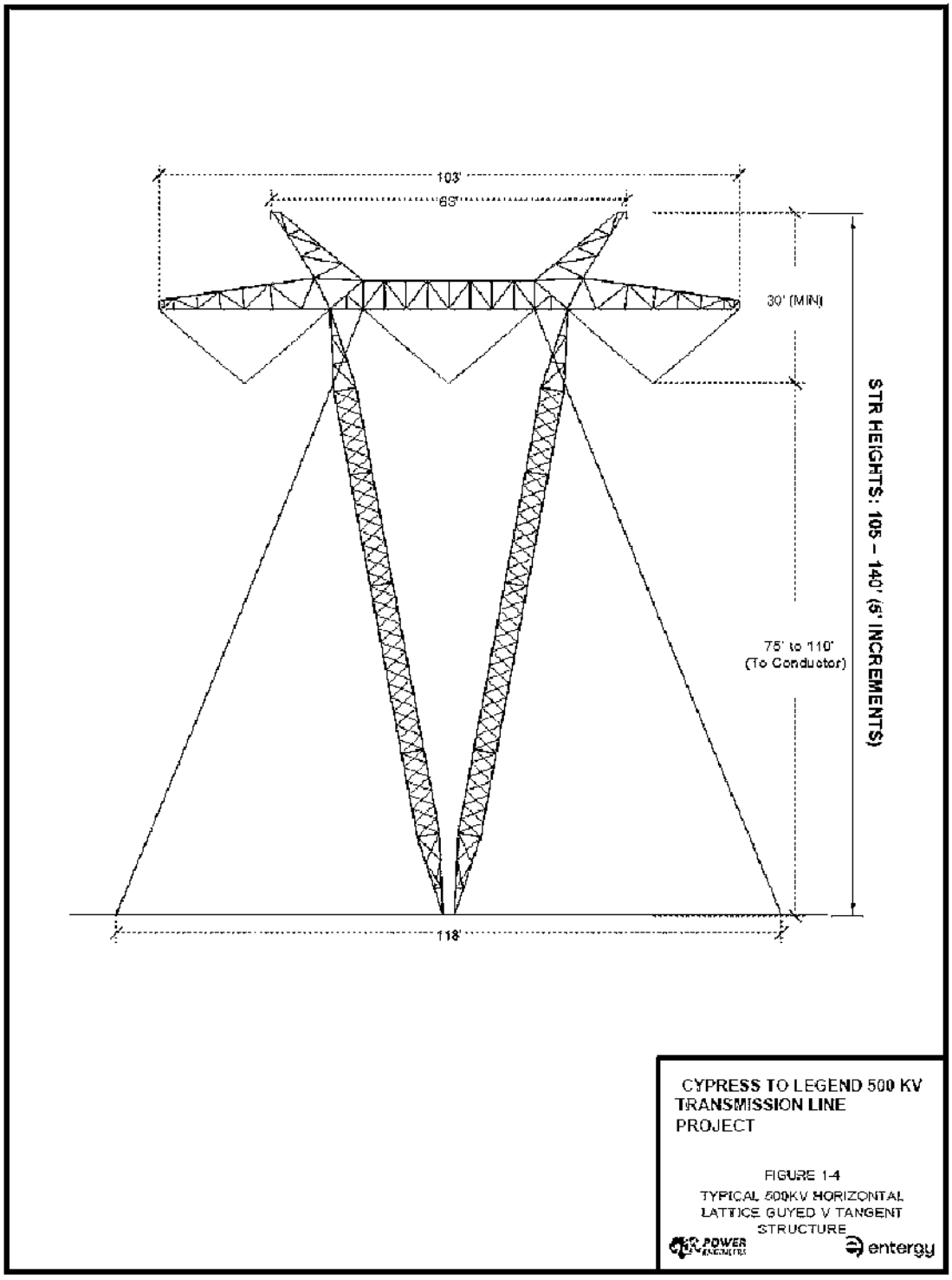
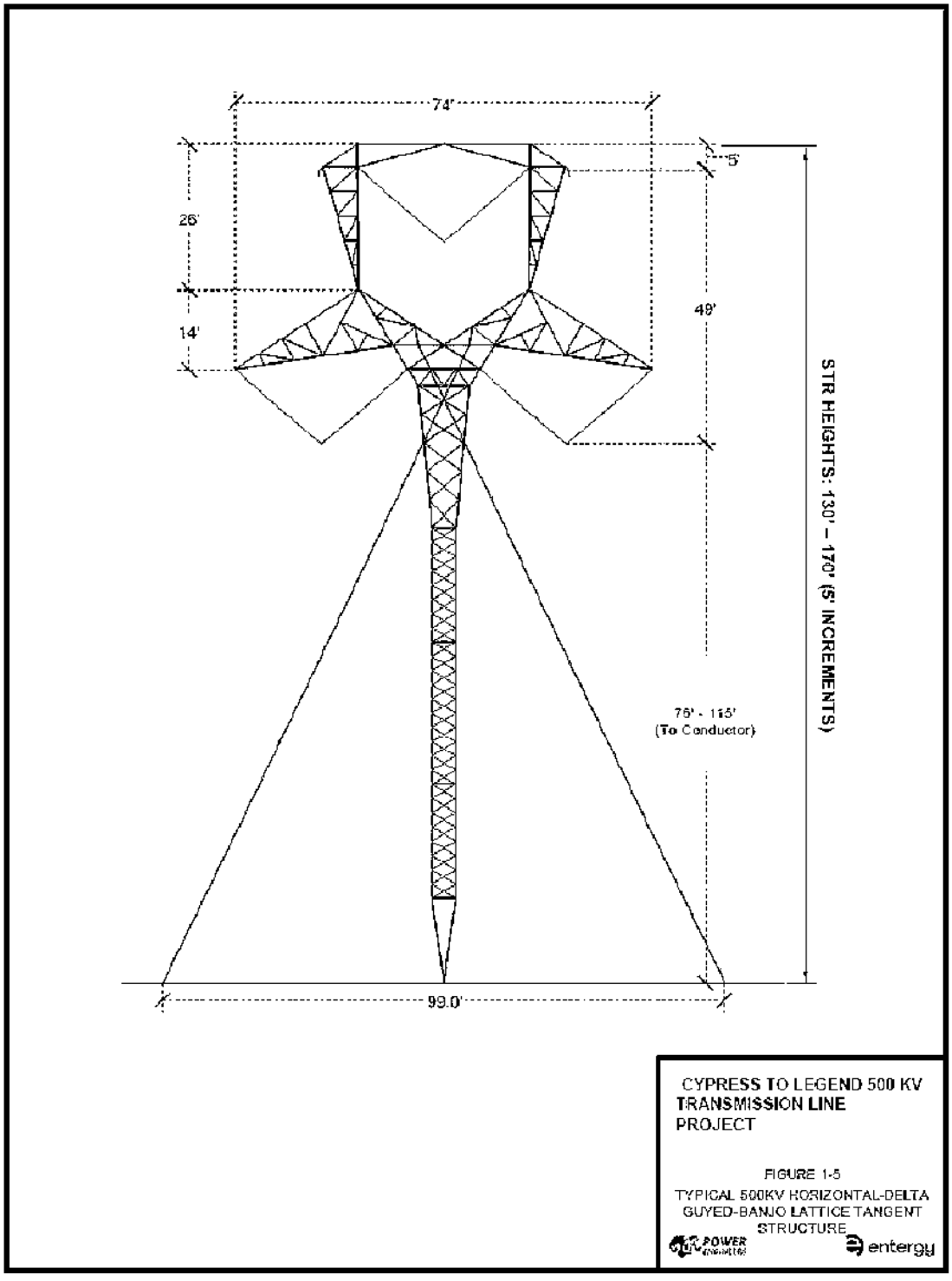


Figure 1-5: Typical 500-kV Steel Horizontal-Delta Guyed Banjo Lattice Tangent Structure



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

Not applicable.

6. **Right-of-way:**
Miles of Right-of-Way: Approximately 40.4 to 48.4 miles depending on the final route approved.

Miles of Circuit: Approximately 40.4 to 48.4 miles depending on the final route approved.

Width of Right-of-Way: Approximately 225 feet wide, depending on location.

Percent of Right-of-Way Acquired: 1-2%

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.

Not applicable.

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 study area for the Project is depicted in Figure 2-1 of the EA, provided as **Attachment 1** to the Application. The study area is an irregularly shaped area approximately 10.1 miles east to west and 38.1 miles north to south and encompasses approximately 382 square miles in Hardin and Jefferson Counties. The majority of the study area is in a rural or suburban setting located near the cities of Beaumont and Port Arthur and includes the unincorporated cities of Pinewood Estates, Westbury, Cheek, and La Belle, and the cities of Lumberton, Bevil Oaks, China, and Taylor Landing. Land use within the study area is a mix of residential and commercial development and forested areas located in the northern part of the study area. The study area is located within the Coastal Prairies sub-province of the Gulf Coastal Plains Physiographic Region of Texas. Elevations in the study area range from sea level to approximately 130 feet above mean sea level. The study area occurs within the Piney Woods and Gulf Prairies and Marshes Vegetational Area of Texas. The Piney Woods Vegetational Area has a gently undulating landscape dominated by mixed pine-hardwood forest, occurring on sandy and loamy uplands, and mixed hardwood forest, occurring on loamy and clayey lowlands. The Gulf Prairies and Marshes Vegetational Area is a nearly flat, low, wet, marshy coastal area adjacent to the Gulf of Mexico extending 30 to 80 miles inland from the coast.

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.

All existing substations that are associated with the proposed transmission line will be owned by ETI:

- Cypress Substation:

ETI will install a new 500 kV breaker to the existing Cypress Substation to make the new configuration a four (4) breaker ring bus to accept the new 500 kV transmission line to the new Legend 500 kV station.

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.

ETI will construct a new substation:

Legend 500 kV Substation: ETI will construct a new 500 kV substation that will initially consist of a bus with one (1) incoming transmission line as a source feeding three (3) single phase 500/230 kV transformers and one spare single-phase transformer. The new station will have one (1) 230 kV circuit breaker for a new 230 kV transmission line to the existing Legend 230 kV substation.

ETI will be the sole owner of the new Legend 500 kV Substation.

8. **Estimated Schedule**:

Estimated Dates of:	Start	Completion
Right-of-way and Land Acquisition	12/2025	3/2027
Engineering and Design	12/2025	1/2027
Material and Equipment Procurement	10/2024	4/2028
Construction of Facilities	5/2027	12/2028
Energize Facilities	12/2028	12/2028

9. **Counties:**
For each route, list all counties in which the route is to be constructed.

Each of the alternative routes included in this application will cross through Hardin and Jefferson Counties.

10. **Municipalities:**
For each route, list all municipalities in which the route is to be constructed.

Segment 79 crosses through the city limits of Beaumont (alternative routes 1, 2, 3, 7, 8, 9, 15, 20, 21).

Segments 96, 105, 107, 108, 109, 110, 111, 112, 119, 120, 121, 123 and 124 cross through the city limits of Port Arthur (alternative routes 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21 and 22).

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.

ETI's franchise agreements with the Cities of Beaumont and Port Arthur are provided as **Attachment 14**.

11. **Affected Utilities:**
Identify any other electric utility served by or connected to facilities in this application.

None. ETI is the only electric utility involved in the construction of the transmission facilities. The transmission line will not be directly connected to any other electric utility.

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 electric 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.

Not applicable.

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.

ETI plans to finance the construction through borrowings and equity, either through withholding dividends to ETI's parent and/or receiving contributions from ETI's parent.

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.

Please see **Attachment 2**.

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

Not Applicable.

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.

Load growth in Hardin, Orange, and Jefferson Counties in Southeast Texas is the driving need for the Project. This load growth is predominately driven by economic development associated with new and expanded industrial facilities. The remainder of the growth is associated with native residential and commercial growth. Within 5 years, the area's load is expected to grow by approximately 40%.

In particular, Southeast Texas is home to the largest concentration of oil refineries and petrochemical plants in the United States, four of the nation's ten largest oil refineries and the largest methanol facility.[1]

The Beaumont/Port Arthur/Orange area specifically is a key player in the global energy sector. Three Foreign Trade Zones, several major highways, a regional airport, rail service, two deep-water ports, as well as proximity to the Port of Houston, connect Beaumont/Port Arthur/Orange to global commerce.[2] Major business clusters like chemical and petroleum manufacturing, materials manufacturing and transportation are contributing to the $80 billion

[1] U.S. EIA, Oil and petroleum products explained, Refining crude oil, Refinery Rankings (Jan. 1, 2023), available at https://www.eia.gov/energyexplained/oil-and-petroleum-products/refining-crude-oil-refinery-rankings.php.

[2] Texas Economic Development Corporation, Beaumont-Port Arthur Area of Economic Development, available at https://businessintexas.com/texas-regions/texas-gulf-coast/beaumont-port-arthur.

in announced and proposed projects in Southeast Texas.[3]

The Southeast Texas region fuels the state, national, and world economies, and ETI's ability to continuously supply reliable and sufficient power to support this expansion will be essential to the continued economic growth of Southeast Texas and the State of Texas as a whole.

Figure 2 below shows the recent summer peaks and projected load forecast for the Beaumont/Port Arthur/Orange area of ETI's service territory.

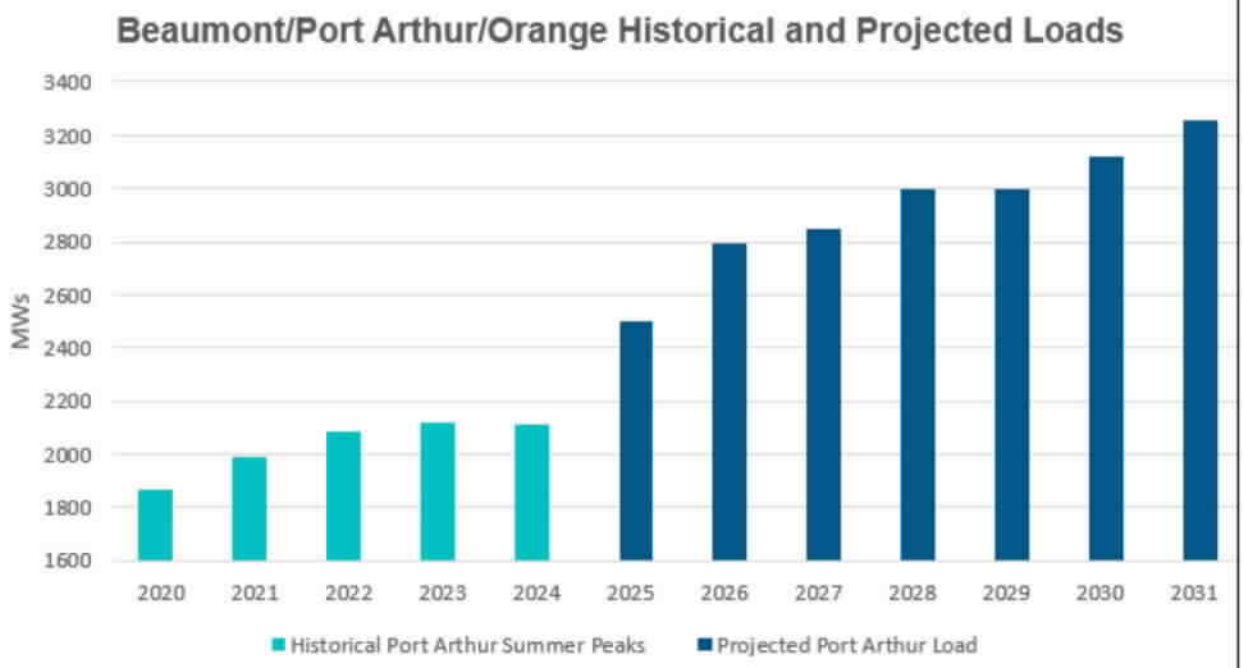


Figure 2 – Beaumont/Port Arthur/Orange Historical and Projected Area Loads

The Beaumont/Port Arthur/Orange area is currently served by six 230 kV transmission lines, five 138 kV transmission lines, and four 69 kV transmission lines. The region also has several generators (ETI and third-party owned) which are online to serve ETI load in the transmission planning models varying by year and dispatch assumptions. See Figure 3 for a depiction of these area resources.

[3] Beaumont Economic Development Foundation, available at https://www.bmtecon.org.

Figure 3 – Existing and Proposed Facilities in the Southeast Portion of ETI's Service Area

As noted above, the primary purpose of the Project is to provide electric service to support the load growth in Hardin, Orange, and Jefferson Counties in Southeast Texas. While transmission upgrades and the addition of generation have improved ETI's load-serving capability over the years, the growth in the region continues to increase the peak loads. ETI must add new transmission sources, as well as in-region generation (which ETI is currently pursuing certification of in Docket Nos. 56693 and 56865), if it is to reliably serve the significant growth it continues to experience. The new line will provide greater reliability to the Southeast Texas region by adding a new transmission source into the growing area. The Midcontinent Independent System Operator, Inc. ("MISO"), a regional transmission organization of which ETI is a member, identified the Project as a Baseline Reliability Project that is needed to comply with federal reliability standards for transmission planning. Additionally, by creating a new large-capacity transmission source into the area, the Project will increase operational flexibility, help meet the growing power demands of Southeast Texas, and increase reliability and resiliency during extreme events such as hurricanes and winter storms.

During the MISO 2024 Transmission Expansion Plan ("MTEP24") process, MISO identified the Project as a Baseline Reliability Project that is needed to comply with Electric Reliability Organization (*i.e.*, the North American Electric Reliability Corporation or "NERC") reliability requirements using steady state load flow analysis. In particular, in the MTEP24 process, MISO identified multiple P3 (N-1, G-1) contingencies (*i.e.*, the concurrent loss of a generator element and transmission element) resulting in NERC Transmission Planning ("TPL") Standard TPL-001-5 violations. The violations included a projected thermal overload on

multiple transmission lines that feed the Beaumont/Port Arthur/Orange area. The Project was proposed to mitigate the violations. More recently, in the MTEP25 process, ETI identified P3 contingencies resulting in undervoltage violations that are also mitigated by this Project.

With regard to operational flexibility, the Project will provide a key source of import to the Beaumont/Port Arthur/Orange area and allow for generation and transmission maintenance outages. With regard to resiliency, the Project helps promote a geographically diverse transmission system, by providing a new Extra High Voltage ("EHV") source into the Beaumont/Port Arthur/Orange area to be built to the latest wind loading design standards.

INDEPENDENT REVIEW BY A PURA § 39.151 ORGANIZATION

ETI is a member of MISO, a regional transmission organization and independent system operator. MISO is a PURA § 39.151 organization. As part of the MTEP24 process, MISO reviewed the Project with stakeholders and solicited feedback on alternatives, classified the Project as a "Baseline Reliability Project," and included it in MISO's Appendix A (Project ID 25432) of the MTEP 2024 study cycle. The Project was approved by the MISO board of directors in December 2024.

Pursuant to the MISO Transmission Owners Agreement, ETI, as the incumbent Transmission Owner, has the obligation to make a good faith effort to design, certify, pursue the approval of, and construct this MTEP 2024 Appendix A Project, subject to such siting, permitting, and environmental constraints as may be imposed by state, local, and federal laws and regulations, and subject to the receipt of any necessary federal or state regulatory approvals.

The Project is included in the MTEP24 report on MISO's website at the following link: https://cdn.misoenergy.org/MTEP24%20Full%20Report658025.pdf

Additionally, state and federal authorities have recently provided clear direction and guidance in favor of timely electric transmission development in Texas and across the country.

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.

The Project is the most cost-effective and electrically efficient solution to address the needs described above. The ETI and MISO transmission planning analyses discussed above identified projected overloads as well as a need for voltage support in the Eastern Region that cannot only be addressed by the recently completed, under-construction, and proposed additions of new generation within the ETI service area.[4]

[4] This new generation includes the Montgomery County Power Station (a 993 megawatt ("MW") combined-

Addressing thermal and voltage violations requires the addition of source, which can come from a few different system additions. The most common ways to add voltage support are: (1) the addition of new generation; (2) the addition of new EHV transmission lines; or (3) the addition of reactive support devices. The addition of reactive support devices can be helpful, but in this instance, reactive support devices are incapable of providing enough voltage support in contingency scenarios, and additional transmission upgrades would still be needed to meet growing customer needs. New EHV transmission lines typically must be greater than 230 kV to provide the voltage support necessary to solve these issues.

When planning how to best serve ETI's new customers, both transmission and generation solutions were considered. The transmission options evaluated included the proposed 500 kV line that delivers power on a high-rated, low loss line directly into the heart of the expected growth, and a rebuild approach that would upgrade existing infrastructure to meet the new demand. The rebuild approach was not found favorable due to the extensive outages required to perform the work, lack of geographic diversity, higher cost, and lower load serving capability compared to the 500 kV solution. Generation was also considered as an alternative, but the 230 kV transmission infrastructure in the area would not be able to support a second generator at the currently proposed Legend Power Station without substantial upgrades, which paired with the cost of the generation, create a higher cost solution. The rejected alternatives are further detailed in the table below.

cycle combustion turbine ("CCCT") that became commercially operational in 2021); the Orange County Advanced Power Station (a 1,215 MW CCCT currently under construction); the Legend and Lone Star Projects (a 754 MW CCCT and a 453 MW simple-cycle combustion turbine, respectively, proposed for construction in pending Docket No. 56668); and certain renewable resources (proposed for construction in pending Docket No. 56865).

Alternative Project	Cost	Rationale
230 kV menu of projects from Hartburg to Legend and widespread reactive support **The alternative includes:** • **Two 230 kV line rebuilds totaling ~23 miles** • **Four new 230 kV lines totaling ~50 miles** • **Upgrading two 500/230 kV Autotransformers** • **Adding widespread reactive support**	$600M	A menu of 230 kV projects would be needed to provide a compliant alternative. This menu of lower voltage projects would need to originate from the Hartburg Substation to address the projected thermal overloads on the facilities heading south out of Hartburg. This was not chosen as the alternative due to outages required, lack of geographic diversity, increased cost, and lower load serving capability.
Second ~700 MW Generator at Legend & required interconnection	$1.2B+	This was not chosen as an alternative due to higher cost of the base project ($1.2B) and necessary interconnection upgrades ($100-500M). The immediate area transmission infrastructure cannot support this level of generation interconnection without an EHV source.

Given the current configuration of the Eastern Region, a 500 kV source is the most viable transmission solution that can accommodate ETI's projected customer growth. To adequately serve the growth, the Beaumont/Port Arthur/Orange area needs an injection that reaches down to the new expected large loads. EHV lines, such as the Project, are best suited for carrying power the long distance necessary while minimizing losses.

Further, MISO provided an opportunity for stakeholders to submit independently reviewed alternatives, and one alternative was submitted by a stakeholder. MISO independently reviewed the alternative, a 500 kV line from Hartburg to Sabine. However, after studying this alternative, MISO recommended the Project. Per the MISO MTEP24 Report, the alternative was not selected due to superior performance by the Project when taking future load growth into account.

Because the Project was developed to address NERC transmission planning violations, there are no viable distribution alternatives.

The Project will deliver approximately 1,200 MVA of transmission capacity into the Beaumont/Port Arthur/Orange area. There is no viable, cost-effective distributed generation alternative that could deliver comparable capacity and meet the needs that are addressed by the Project, such as maintaining compliance with the NERC transmission reliability standards, increasing operational flexibility, and resiliency during extreme events.

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.

Please see Highly Sensitive **Attachment 13** for a diagram of ETI's existing transmission facilities and a diagram of ETI's existing transmission facilities along with the proposed facilities. The routing location of the proposed construction depends on the Commission's selection of the route. Routing options are identified in the EA.

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.

ETI retained POWER Engineers, Inc. ("POWER") to prepare the EA provided as **Attachment 1** to the Application. Section 1.0 of the EA provides a description of the proposed Project. Specific discussions regarding selection of the study area, identification of constraints, the selection of potential preliminary alternative route segments, and the alternative route evaluation are set forth in Section 2.0 of the EA. Information pertaining to the existing environment and potential impacts of the Project are provided throughout Sections 3.0 and 4.0 of the EA. Sections 5.0 and 6.0 of the EA provide specific information regarding agency correspondence and public involvement. Section 7.0 discusses POWER's environmental evaluation and ETI's route selection.

Routing Study Methodology

The objective of the EA was to develop and evaluate an adequate number of geographically differentiated alternative transmission line routes that comply with PURA § 37.056(c)(4)(A)-(D), 16 TAC § 22.52(a)(4), and 16 TAC § 25.101(b)(3)(B), including the Commission's policy of prudent avoidance. The approach utilized by POWER for the Project included study area delineation based on the Project endpoints; identification and characterization of existing land use and environmental constraints; and identification of areas of potential routing possibilities located within the study area. POWER identified potentially affected resources and considered each during the route development process. Comments from regulatory agencies, local officials, and the public were also incorporated into the alternative route development process. Modifications, additions, or deletions or preliminary alternative segments (or links) were considered regarding resource sensitivities, governmental agency guidance, and public input and comments. Feasible and geographically differentiated alternative routes were then

selected for analysis and comparison using evaluation criteria to determine potential impacts to existing land use and environmental resources. The development process culminated with the ranking of the primary alternative routes by POWER from an environmental and land use perspective. With this recommendation from POWER, ETI also considered engineering and construction constraints, reliability issues, and estimated costs to identify one alternative route that ETI believes best addresses the requirements of PURA and Commission Substantive Rules. This alternative route and other alternate routes that provide geographic diversity and sufficient routing options are included in the EA for Commission consideration.

Study Area Delineation

The first step in the process was to delineate a study area that encompassed the proposed Project termination points and included a large enough area within which a geographically differentiated set of alternative routes could be located to connect the proposed endpoints while also considering potential land use constraints and routing opportunities. The delineation of a study area for the proposed Project was dictated largely by the locations of the Project endpoints, which included ETI's existing Cypress Substation and the new Legend 500 kV Substation. The study area for the proposed Project, as shown on Figure 2-1, is an irregularly shaped area approximately 10.1 miles east to west and approximately 21.2 miles north to south and encompasses approximately 382 square miles in Hardin and Jefferson Counties. POWER mailed a map of this study area location map (Figure 2-1 of the EA) along with a letter to federal, state, and local agencies soliciting information (Appendix A of the EA).

Data Collection and Constraints Mapping

After delineating the study area, a constraint map was prepared and used to initially display resource data and constraints for the study area. The constraints map provides a broad overview of various resource locations indicating obvious routing constraints and areas of potential routing opportunities. Information was regularly updated, and the constraints map was revised accordingly.

Several methodologies were utilized to collect and review environmental and land use data including the incorporation of readily available Geographic Information System ("GIS") data with associated metadata; review of maps and published literature; and review of files and records from numerous federal, state, and local agencies. Data collected for each resource area was mapped within the study area utilizing GIS layers. The conditions of the existing environment are discussed throughout Section 3.0 of the EA Section 5.0, and Appendix A provide information regarding correspondence with agencies and officials.

Maps and/or data layers reviewed include (but were not limited to) United States Geological Survey (USGS) 7.5-minute topographic maps, United States Fish and Wildlife Service ("USFWS") National Wetland Inventory ("NWI") maps, Texas Department of Transportation ("TxDOT") county highway maps, and recent aerial imagery. USGS topographic maps and recent aerial imagery were used as the background for the environmental and land use constraints maps (Appendices C and D of the EA).

Agency Consultation

A list of federal, state, and local regulatory agencies, elected officials, and organizations was developed to receive a consultation letter and study area location map regarding the proposed Project. The purpose of the letter was to inform the various agencies and officials of the proposed Project and provide them with an opportunity to provide information regarding resources and potential issues within the study area. Various federal, state, and local agencies and officials that may have potential concerns and/or regulatory permitting requirements for the proposed Project were contacted. POWER utilized websites and telephone confirmations to identify local officials. A list of agencies contacted, and a summary of responses are included in Section 5.0 of the EA. Copies of all correspondence with the various federal/state regulatory agencies and local/county officials and departments are included in Appendix A of the EA.

Field Reconnaissance

Field reconnaissance surveys of the study area (from public viewpoints) were conducted by POWER personnel to confirm the findings of the research and data collection activities, to identify changes in land use occurring after the date of the aerial imagery, and to identify potential unknown constraints that may not have been previously noted in the data. Field reconnaissance surveys of the study area were conducted by POWER on December 11, 2023 and September 11, 2024.

Opportunities and Constraints Evaluation

Information gathered to identify preliminary alternative route segments included a review of agency comments, agency management plans, internal review, and discussions with the Project team. This information was then used to determine routing opportunities and constraints within the study area. Routing opportunities were generally located within open, undeveloped areas, or parallel to existing linear corridors. For example, existing electric facilities, roadways, and apparent property boundaries and other natural or cultural features provided routing opportunities.

Preliminary Alternative Route Segments

Preliminary alternative route segments were identified by the POWER planning team by using the environmental and land use constraints map while considering resource sensitivity. The preliminary alternative route segments were developed based upon maximizing the use of opportunity areas while avoiding areas of higher environmental constraint or conflicting land uses. Existing aerial imagery and USGS topographic maps were used in conjunction with constraints superimposed to identify optimal locations of preliminary alternative route segment centerlines.

The preliminary alternative route segments were presented to ETI for review and comment. The preliminary alternative route segments were reviewed in accordance with PURA § 37.056 (c)(4)(A)-(D), 16 TAC § 22.52(a)(4), 16 TAC § 25.101, the Commission's policy of prudent avoidance, and consistency with ETI's transmission line routing guidelines. It was POWER's intent to identify an adequate number of environmentally acceptable and geographically differentiated preliminary alternative route segments while considering such factors as

community values, parks and recreational areas, historical and aesthetic values, environmental integrity, route length utilizing and parallel to existing compatible corridors or parallel to apparent property boundaries, and prudent avoidance. ETI and POWER continually reviewed the preliminary alternative route segments throughout development and the preliminary alternative route segments were refined as more information became available.

Public Meetings

ETI hosted two in-person public meetings in accordance with 16 TAC § 22.52(a)(4) and developed a website for the proposed Project for the surrounding communities to solicit comments, concerns, input from residents, landowners, public officials, and other interested parties. Based on input, comments, and information received by ETI and POWER, POWER conducted a public meeting analysis as further described in response to Question 18 below. The purpose of the public meeting analysis was to identify and evaluate the comments and additional information received prior, during, and following the public meetings. Information obtained during the analysis was used to determine any issues that would warrant modifications to the preliminary alternative segments presented during the public meetings and/or the identification of new segments that were not presented during the public meetings. ETI and POWER revised the preliminary alternative route segments after the public meetings to further lessen the potential environmental and land use impacts. As a result, some segments were added, some were modified, and some were eliminated.

ETI and POWER initially identified 125 preliminary alternative route segments that were presented at the public meetings held on May 21 and May 22, 2025. Following the public meetings, ETI and POWER performed an analysis of the input, comments, and information received through the public meetings and follow-up communication with landowners. The purpose of the analysis was to evaluate the comments and any additional information received prior to, during, and following the public meetings. Information obtained during the analysis was used to determine any issues warranting modification to the preliminary segments presented during the public meetings and/or the identification of new segments that were not presented during the public meetings. Information pertaining to public involvement is provided in Sections 2.1.7, 6.0, and Appendix B of the EA provided as **Attachment 1** to the Application.

National Park Service ("NPS") Coordination

ETI engaged NPS early in the routing process to solicit input from NPS Big Thicket National Preserve ("BTNP") resource management regarding the NPS National Environmental Policy Act ("NEPA") and ROW application process. In addition, BTNP primary stakeholders participated in meetings and provided input. ETI and POWER made several revisions to the preliminary alternative route segments after meeting with NPS and BTNP stakeholders to further reduce impacts to NPS owned and/or administered lands. In particular, NPS and BTNP stakeholders expressed a strong preference that ETI utilize its existing easement for the Bevil to Cypress 230 kV transmission line as the corridor for the new 500 kV transmission line as well. POWER concurs that the use of ETI's existing easement minimizes environmental impacts of the Project on the NPS BTNP. Based on that input, ETI submitted a Standard Form ("SF") 299 application with NPS to use the existing easement for the Project. The request was

approved by NPS on March 6, 2025 (See Appendix F for ETI's SF 299 application and the NPS response).

If the use of ETI's existing ROW to cross the NPS BTNP for this Project is not approved by the Commission, then ETI would need to acquire a new easement across the NPS BTNP by submitting an SF 299 with alternatives for NPS to consider and go through NPS' NEPA review process, a process that could take approximately twelve to twenty four months, or more, depending upon the type of NEPA analysis necessary.

Primary Alternative Route Selection

Following the public meetings, changes to the preliminary alternative segments were made, and 104 preliminary alternative segments, as modified, were designated as primary alternative route segments connecting ETI's existing Cypress Substation to the new Legend 500 kV Substation. Using these 104 primary alternative route segments, ETI and POWER identified primary alternative routes for the Project, with each of the primary alternative segments incorporated in at least one route. Ultimately 24 primary routes were selected. Given the constraints and opportunities in the Project area including the BTNP, TPWD J.D. Murphree Wildlife Management Area ("WMA"), and TPWD Public Hunting Areas (including the Big Hill Unit, Latta Road Unit, and Bordegas Unit), and numerous oil and gas pipeline ROWs, the primary alternative routes represent an adequate number of reasonable and geographically differentiated primary alternative routes that reflect the previously discussed routing considerations. While additional alternative routes could be developed by combining the segments in different combinations, the alternative routes developed represent a set of geographically differentiated, logical, forward-progressing alternative routes that meet the Commission's routing guidelines and meet Project goals. These primary alternative routes were then specifically studied and evaluated by POWER's environmental staff.

Environmental/land use criteria data were collected for all the segments that were used to develop the 24 primary alternative routes. Additionally, potentially affected landowners along with the 24 primary alternative route segments are being notified of the proposed Project. Therefore, to the extent necessary, various additional alternative routes could be formulated.

Alternative Route Evaluation

In evaluating the primary alternative routes, a variety of environmental criteria were considered. These criteria were selected because of their relevance to public and regulatory environmental concerns associated with the construction of transmission lines. Many of these criteria are factors contained in PURA § 37.056(c)(4), 16 TAC § 22.52(a)(4), and 16 TAC § 25.101(b)(3)(B) for granting of a CCN, as well as relevant questions in the Commission's CCN Application form. The environmental criteria evaluated for this report are presented in Table 2-2 of the EA. The 24 primary alternative routes are shown in relation to environmental and other land use constraints on a topographic base map in Appendix C of the EA and in relation to habitable structures and other land use features on an aerial photographic base map in Appendix D, and constitute, for the purposes of this analysis, the only alternative routes addressed in this report. The analysis of each route involved inventorying and tabulating the number or quantity of each environmental criterion located along each alternative route (*e.g.*,

number of habitable structures within 500 feet, length parallel to roads). The number or amount of each factor was determined by POWER using GIS data layers, maps, recent aerial imagery, and field verification from publicly accessible areas where practical. Potential environmental impacts are addressed in Section 4.0 of the EA.

The advantages and disadvantages of each alternative route were then evaluated. POWER conducted an environmental evaluation that was a comparison of 24 primary alternative routes from a strictly environmental viewpoint based upon the measurement of land use, aesthetics, ecology, and cultural resource criteria addressed in Section 4.0. POWER used this information along with landowner and agency concerns to select a route for recommendation that provided the best balance between land use, aesthetics, ecology, and cultural resource factors. POWER's evaluation ranking is discussed in Section 7.1 of the EA.

After POWER conducted an evaluation and provided a ranking of the primary alternative routes from strictly an environmental perspective (including land use, aesthetics, ecology, and cultural resources), ETI undertook a further evaluation that considered the evaluation conducted by POWER in conjunction with a wide range of factors to select a route that is believed by ETI to be the route which best addresses the requirements of PURA and the Commission Substantive Rules. These additional factors not only included potential environmental and land use impacts, but also engineering and construction constraints, reliability issues, and estimated costs.

Selection of the Alternative Route the Applicant believes best addresses the requirements of PURA and Commission Substantive Rules

ETI used a consensus process to independently select Route 1 as the primary alternative route that ETI representatives believe best addresses the requirements of the PURA and Commission Substantive Rules for the Project. ETI initially reviewed POWER's evaluation and recommendations, followed by a review of each alternative route. This review included the consideration of the factors and criteria listed in PURA and the Commission Substantive Rules including potential environmental, cultural, and land use impacts, engineering and construction constraints, reliability issues, and estimated costs. ETI concluded, after reviewing the results of POWER's routing study and a wide range of factors including cost, that Route 1 is the route which overall best addresses the requirements of the PURA and the Commission Substantive Rules. Route 1 is POWER's third ranked route and therefore ranks very well from an environmental and land use perspective. As such, POWER supports ETI's route selection. Route 1 has the following advantages:

Route 1:

- is POWER's third ranked route from an environmental and land use perspective;
- has the sixth lowest overall cost of each of the alternative routes at $399,859,996 (including substation costs);
- is the fourth shortest route, at 40.7 miles;

- utilizes or parallels existing compatible ROWs, and apparent property lines (or other natural or cultural features) for approximately 21% of its length;
- is tied for the second shortest length of route across upland forest, at approximately 11.5 miles;
- uses the segment that has the least impact on the WMA and WMA office property;[5]
- has the second shortest length of route across FEMA mapped 100-year floodplains, at approximately 13.7 miles;
- crosses approximately 78.2 acres NWI mapped emergent wetlands;
- crosses approximately 51.0 acres NWI mapped forested or scrub/shrub wetlands;
- is tied for the second shortest length of route across bottomland/riparian forest, at approximately 3.6 miles; and
- has the shortest length of route across high archaeological/historical site potential, at approximately 13.9 miles.

In addition, Route 1:

- crosses no land irrigated by traveling systems;
- has no heliports within 5,000 feet of the route centerline;
- has no AM radio transmitters within 10,000 feet of the route;
- has no water wells within 200 feet of the route;
- crosses no open water (lakes, ponds, etc.);
- crosses no known critical habitat of federally endangered or threatened species (according to TxNDD and USFWS published data);
- crosses no known occupied red-cockaded woodpecker cluster habitat;
- no navigable waterway crossings;
- does not cross recorded historic or archeological resources; and
- does not cross or come within 1,000 feet of any sites listed or eligible for listing on the NRHP.

While ETI believes Route 1 best addresses the applicable requirements and criteria, all primary alternative routes and route segments identified in the application are viable and constructible, and ETI will build the proposed facilities along whichever route or combination of routes segments the Commission selects.

[5] Route 1 uses Segment 110, which crosses WMA office property.

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 16 TAC § 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.

Information pertaining to public involvement is provided in Sections 2.1.7 and 6.0 of the EA.

ETI developed a website for the proposed Project and hosted two public meetings to solicit comments, concerns, and input from residents, landowners, public officials, and other interested parties in the surrounding communities. The open house meetings were held from 4:00 p.m. – 7:00 p.m. on May 21 and May 22, 2024 at Courville's Event Venue in Beaumont.

The purpose of the public meetings were to:

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

Prior to the public meetings, a Project open house website was developed to provide landowners with information and encourage them to participate in the open house meetings. The Project open house website contained typical 500 kV structure types, a list of agencies contacted, land-use and environmental criteria for transmission lines, and an environmental and land use constraints map on aerial and topographic base. The open house website also provided an interactive map that allowed landowners to view more-detailed digital maps of preliminary alternative segments. Landowners were also able to submit questions and comments about the Project.

At the public meetings, engineers, GIS analysts, regulatory staff and biologists were available from ETI and POWER to answer questions regarding the Project. Staffed information stations were set up that provided typical 500 kV structure types, a list of agencies contacted, land-use and environmental criteria for transmission lines, and an environmental and land use constraints map on aerial base. POWER also provided interactive GIS stations operated by GIS analysts. These computer stations allowed attendees to view more-detailed digital maps of preliminary alternative route segments and submit comments digitally and spatially. The information station format is advantageous because it facilitates one-on-one discussions and encourages personalized landowner interactions.

Each individual in attendance was asked to sign their name on the sign-in sheet and was offered three handouts. The first handout was an informative brochure that provided general information about the proposed Project. The second handout was a questionnaire that solicited comments on the proposed Project and an evaluation of the information presented at the public meeting. Individuals were asked to fill out the questionnaire after visiting the information stations and speaking with POWER and ETI personnel. The third handout was a frequently asked questions document providing an overview of the proposed Project as well as a description of the regulatory process. Copies of the public notice letter with map, brochure, frequently asked questions, and questionnaire are in Appendix B of the EA.

In addition to hardcopy questionnaires, several digital comments were received at the GIS stations. Respondent digital comments assisted in identifying structures and other land use concerns.

ETI and POWER presented 125 preliminary alternative segments to the public on the public meeting website and during the open house meetings. Invitation letters were sent to landowners who owned property within 500 feet from a preliminary alternative segment. ETI mailed 629 invitation letters to landowners for the open house meetings. Due to the potential horizontal inaccuracies of the aerial imagery and county appraisal district data utilized, properties within 510 feet were identified. Each landowner that received an invitation letter also received a map of the study area depicting the preliminary alternative segments, a brochure, a list of frequently asked questions, and a questionnaire. A copy of the public notice letter and associated enclosures are provided in Appendix B of the EA.

A total of 71 individuals attended the two public meetings. Landowners submitted 23 questionnaire responses at the open house meeting. An additional 26 questionnaires were received from landowners after the public meetings. POWER reviewed and analyzed the responses from each of the 49 questionnaires received. Table 6-1 of the EA summarizes general response information from questionnaires.

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).

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.

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.

Constraints Map

A map titled *Primary Alternative Route Segments with Constraints (Topographic Base Map)*, produced at a scale of 1 inch = 4,200 ft, is provided in Appendix C of the EA. This map was produced using a USGS topographic base. This map depicts the study area for the Project, locations of radio transmitters and other electronic installations, airports/airstrips, parks and recreational areas, historical sites, environmentally sensitive areas, and other constraints where present. The map also depicts the alternative route segments for the Project. For protection of the archaeological sites, they are not shown on the map.

Maps titled *Habitable Structures and Other Land Use Features in the Vicinity of the Primary Alternative Routes,* which consists of aerial photography produced at a scale of 1 inch = 2,000 ft, are provided in Appendix D of the EA. The aerial photo-based map includes the locations of all known habitable structures located within 500 feet of the centerline of primary alternative routes on properties directly affected by the Project. This map also includes other land use features within the vicinity of the alternative routes. The habitable structures and other land use features map was produced using a 2023 aerial photographic base.

The maps provided in the EA include sufficient cultural and natural features to permit location of the alternative routes in the field, and they depict existing electric transmission lines and substations (based on information available to POWER), and major public roads located within the study area, as applicable.

Directly Affected Property Maps

Attachment 3 to this application includes maps that identify all parcels crossed or within 500 feet of an alternative route (including directly affected properties), tract IDs, and the location of habitable structures (including map ID labels) within 500 feet of the centerline of the primary alternative routes. Parcel boundary lines depicted are approximate as provided by the local county tax appraisal district. These maps show the location of each proposed alternative route with each route segment identified, and the locations of all major public roads including all federal and state roadways where present. Due to the potential horizontal inaccuracies of the aerial photography and county appraisal district data utilized, habitable structures measured within 510 feet were identified and identified.

Attachment 4 to this application includes a list of all owners of property crossed or within 500 feet of an alternative route centerline including the owners of directly affected properties and cross-references each habitable structure, or group of habitable structures, and properties identified on the map, provided in **Attachment 3**, with a list of parcel/tract IDs and

corresponding landowner names and addresses. Due to the potential horizontal inaccuracies of the aerial photography and county appraisal district data utilized, habitable structures measured within 510 feet were identified and notified. Landowner names and addresses were obtained from parcel data provided by the local county tax appraisal districts.

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.

Discussions regarding specific agency actions are provided in Section 1.5. of the EA.

1. Where the proposed transmission line crosses a state-maintained road or highway, ETI will obtain a permit from TxDOT. If any portion of the transmission line will be accessed from a state-maintained road or highway, ETI will obtain a permit from TxDOT.
2. Upon Commission selection of an approved transmission line route, ETI will identify and obtain any necessary permits or clearances from local counties and municipalities.
3. Where the proposed transmission line crosses through floodplains, ETI will obtain floodplain permits from local county floodplain administrators as needed prior to construction.
4. ETI will prepare a Storm Water Pollution Prevention Plan ("SWPPP") and implement erosion controls and Best Management Practices ("BMP") in order to minimize potential impacts associated with soil erosion, compaction, and off right-of-way sedimentation. A Notice of Intent ("NOI") will be submitted by ETI to the Texas Commission on Environmental Quality ("TCEQ"). The erosion controls and BMPs specified in the SWPPP will be monitored regularly and repaired in the field as needed. Refer to Sections 1.5.7 and 4.1.2 of the EA for further discussion regarding potential impacts on soils and storm water pollution prevention.
5. Upon Commission selection of an approved transmission line route, ETI will conduct an assessment of the approved route to determine the need for any permits, or regulatory approvals that may be required from the U.S. Army Corps of Engineers ("USACE"), Texas Historical Commission ("THC")/State Historic Preservation Officer ("SHPO"), and the USFWS.
6. ETI will report the Project to the Commission on ETI's Monthly Construction Progress Report, beginning with the first report following the filing of a CCN application, and in each subsequent monthly progress report until construction is completed and actual Project costs have been reported.
7. The Texas General Land Office ("TGLO") requires a miscellaneous easement for ROW across, through, and under state-owned riverbeds and beds of navigable streams or tidally influenced waters. ETI will coordinate with the TGLO as needed after Commission approval of a route.
8. ETI will coordinate with and obtain any necessary easements or permits from the TPWD for crossing TPWD owned land or the J.D Murphree WMA.

9. ETI submitted a SF 299 ROW application to NPS for authorization to use ETI's existing ROW across BTNP for the Project. NPS approved the application on March 6, 2025.

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.

Information pertaining to habitable structures is provided in Sections 3.2.1 and 4.2.1 of the EA. The locations of habitable structures within 500 feet of each of the alternative route centerlines are listed and described with the direction and approximate distance in Tables 7-2 through 7-25 of the EA and are shown on the Habitable Structures and Other Land Use Features in the Vicinity of the Primary Alternative Routes maps in Appendix D of the EA. The total numbers of habitable structures within 500 feet of each of the primary alternative routes are provided in Table 4-1 of the EA and also in the table below. Due to the potential horizontal inaccuracies of the aerial photography and data utilized, habitable structures measured within 510 feet were identified.

Primary Alternative Route	Total Number of Habitable Structures within 500 feet of the Route Centerline
1	58
2	36
3	28
4	59
5	37
6	29
7	51
8	29
9	21
10	52
11	30
12	22
13	54
14	36
15	55

16	23
17	26
18	24
19	50
20	19
21	36
22	35
23	28
24	24

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.

Information regarding communication facilities is provided in Section 3.2.3 and 4.2.3 of the EA. There were no AM radio transmitters identified within 10,000 feet of any of the alternative routes. All alternative routes are within 2,000 feet of multiple FM radio transmitters, microwave towers, or other similar electronic installations. The number ranges from three for Route 16, to 10 for Routes 1, 7, and 22 (see Table 4-1 of the EA). The distance of each electronic communication facility from the nearest segment was measured using GIS software and aerial photograph interpretation. The directions and approximate distances of each communication tower are listed in Tables 7-2 through 7-25 of the EA and are shown on the *Habitable Structures and Other Land Use Features in the Vicinity of the Primary Alternative Routes* map 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 100:1horizontal 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.

Information pertaining to aviation facilities is provided in Sections 1.5.2, 3.2.2, and 4.2.2 of the EA. All of the alternative routes have at least one FAA registered public-use airports with at least one runway longer than 3,200 feet located within 20,000 feet of the route centerline.

Route 24 has one, while 16 of the alternative routes have three each (see Table 4-1 of the EA). All of the alternative routes have one FAA registered public-use airport with at least one runway less than 3,200 feet located within 10,000 feet of the route centerline. All of the alternative routes have at least one private use airstrip located within 10,000 feet of the route centerline. Route 21 has two private use airstrips within 10,000 feet of the route centerline. The airstrip is for private use and is not subject to 14 C.F.R. 77.9 notification requirements. There are no private heliports located within 5,000 feet of the alternative routes. The distance for each airport/airstrip/heliport was measured from the nearest segment using GIS software and aerial imagery interpretation. The directions and approximate distances of each airport/airstrip/heliport in relation to each alternative route are listed in Tables 7-2 through 7-25 of the EA and are shown on the *Habitable Structures and Other Land Use Features in the Vicinity of the Primary Alternative Routes* maps in Appendix D of the EA.

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.

Information pertaining to agriculture is provided in Sections 3.2.1 and 4.2.1 of the EA. None of the primary alternative routes cross agricultural lands irrigated by traveling systems (rolling or pivot type).

25. Notice:

Notice is to be provided in accordance with 16 TAC § 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.

Please see **Attachments 4 and 5** for these items.

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

Please see **Attachment 6** for this item.

C. Provide a copy of the written notice to county and municipal authorities, and the Department of Defense Siting Clearinghouse. Notice to the DoD Siting Clearinghouse should be provided at the email address found at http://www.acq.osd.mil/dodsc/.

Please see **Attachment 7 and 8** for these items.

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.

Please see **Attachment 9** for these items.

Additionally, please see **Attachment 10** for the notice to the Office of Public Utility Counsel.

For a CREZ application, in addition to the requirements of 16 TAC § 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.

Information pertaining to recreation and park areas is provided in Sections 3.3 and 4.3 of the EA. All of the alternative routes have lengths crossing a park or recreational area. All alternative routes cross through BTNP for approximately 0.5 mile each. Seventeen of the alternative routes cross the J.D. Murphree WMA. These lengths range from approximately 0.2 mile each for nine of the alternative routes, to 1.8 miles for Route 18. In addition, Routes 1, 4, 7, 10, 13, 15, and 19 cross TPWD WMA office property at approximately 0.1 mile. ETI is filing a separate pleading to address the applicability of Texas Parks and Wildlife Code Chapter 26 to the crossings.

None of the alternative routes cross through additional parks and recreational areas. All of the alternative routes have additional parks or recreation areas within 1,000 feet. The number of additional parks or recreational areas within 1,000 feet range from one for 15 of the alternative routes, to three for Routes 1, 2, 3, 7, 8, 9, 15, 20, and 21. The distance for each park/recreational area was measured from the nearest segment using GIS software and aerial imagery interpretation. The directions and approximate distances from each park/recreation area in relation to each alternative route are listed in Tables 7-2 through 7-25 of the EA and are shown on the *Habitable Structures and Other Land Use Features in the Vicinity of the Primary Alternative Routes* maps in Appendix E 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.

Information pertaining to cultural resources is provided in Section 1.5.8, Section 3.5, and Section 4.5 of the EA. Shapefiles containing the locations of archeological sites in and near

the study area were obtained from the Texas Archeological Research Laboratory. Information pertaining to cultural resources and surveys was obtained from the Texas Historical Commission's ("THC") online restricted-access Texas Archeological Sites Atlas ("TASA"). The locations of and information pertaining to State Antiquities Landmarks, NRHP properties, cemeteries, Historical Texas Cemeteries ("HTC"), and Official Texas Historical Markers ("OTHM") within the study area were obtained from the THC's online Texas Historical Sites Atlas and TASA. TxDOT's historic bridges database was reviewed for bridges that are listed or determined eligible for listing on the NRHP within the study area. At the national level, the NRHP database and NPS websites for National Historic Landmarks and National Historic Trails were reviewed as well.

As shown on Table 4-1 of the EA, none of the alternative routes cross recorded archeological sites, cemeteries, OTHMs, State Antiquities Landmarks, or sites listed on or eligible for listing on the NRHP. A total of four archeological sites and one cemetery are recorded within 1,000 feet of the alternative routes.

As with many of the sites located in the study area, sites 41JF11, 41JF34, 41JF52, and 41JF53 are pre-contact campsites with shell middens ceramics, debitage, and animal bone fragments (see Table 4-3 of the EA). Site 41JF11 and 41JF34 are approximately 773 feet and 623 feet, respectively, from Routes 1-12, 14-16, 20, and 21. Site 41JF52 is approximately 902 feet from Routes 18 and 23. Site 41JF53 is approximately 708 feet from Routes 13, 17, and 19. None of these sites have been formally evaluated for inclusion on the NRHP.

One cemetery is recorded within 1,000 feet of the alternative routes. The Lincoln-Broussard Cemetery (JF-C023) is not a designated HTC. The cemetery is approximately 119 feet from Routes 1, 2, 3, 7, 8, 9, 15, 20, and 21.

None of the alternative routes have been surveyed in their entirety for cultural resources. Thus, the potential for undiscovered cultural resources exists along all alternative routes. To assess this potential, a review of geological, soils, and topographical maps was undertaken by a professional archeologist to identify areas along the alternative routes where unrecorded archeological resources have a higher probability to occur. These HPAs for pre-contact archeological sites were identified along Little Pine Island Bayou, Bayou Din, Lovell Lake, Taylor Bayou, Big Hill Bayou and their tributaries; on terraces overlooking river and stream channels; on the edges of and high areas within swamps and bottomlands. Post-contact age resources are also likely to be found near water sources including man-made canals; however, they will also be near primary and secondary roads which provided access to the sites. Buildings and cemeteries are more likely to be located within or near post-contact communities.

To facilitate the data evaluation and alternative route comparison, each HPA was mapped using GIS and the length of each alternative route crossing these areas was tabulated. The length of HPAs crossed by each alternative route ranges from approximately 13.9 miles for Alternative Route 1 to approximately 23.4 miles for Alternative Route 19. The lengths of each alternative route crossing areas of archeological HPAs are presented in Table 4-1 of the EA.

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 TAC §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 TAC §19.2(a)(21). Using the designations in 31 TAC §501.3(b), identify the type(s) of Coastal Natural Resource Area(s) impacted by any part of the route and/or facilities.

Information regarding the Texas Coastal Management Program ("CMP") and Coastal Natural Resource Areas ("CNRA") are provided in Section 1.5.12, 3.1.4, and 4.1.4 of the EA. Portions of the proposed Project are located within the CMP boundary. According to 16 TAC § 25.102(a), the Commission may grant a certificate for the construction of transmission or generation facilities located, either in whole or in part, within the coastal management program boundary as defined in 31 TAC § 27.1 only when it finds that the proposed facilities are consistent with the applicable goals and policies of the CMP specified in 31 TAC § 26.16(a), or that the proposed facilities will not have any direct and significant impacts on any of the applicable CNRAs specified in 31 TAC § 26.3(b). The proposed Project will be constructed consistent with the applicable goals and policies of the CMP. Therefore, further coordination with the TGLO and Texas Land Commissioner is required to ensure minimal impacts to CNRAs are made by any of the alternative routes.

Potential CNRAs crossed by the alternative routes include special hazard areas (FEMA mapped floodplains) and coastal wetlands (NWI mapped wetlands). The length of each alternative route crossing potential CNRAs (FEMA mapped wetlands and NWI mapped wetlands) is described in Table 4-1 of the EA. Refer to Section 4.1.6 and Section 4.1.7 of the EA for additional information regarding FEMA mapped floodplains and NWI mapped wetlands. ETI proposes to construct the transmission line in accordance with the goals (31 TAC § 26.12) and policies (31 TAC § 26.16) of the CMP and to minimize any potential impacts to the listed CNRAs. Upon Commission approval of a route, on the ground CNRA and wetland verifications may be required.

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 applicant shall file an affidavit confirming that the letter of transmittal and studies/assessments were sent to TPWD.

Please see **Attachment 1** for a copy of the EA.
Please see **Attachment 11** for notice and letter of transmittal to TPWD.

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.

Please see **Attachment 12** for the Affidavit of Mario A. Contreras.

DOCKET NO. 58136

APPLICATION OF ENTERGY TEXAS, INC. TO AMEND ITS CERTIFICATE OF CONVENIENCE AND NECESSITY FOR THE CYPRESS TO LEGEND 500 KV TRANSMISSION LINE IN HARDIN AND JEFFERSON COUNTIES	§ § § § § § §	**BEFORE THE** **PUBLIC UTILITY COMMISSION** **OF TEXAS**

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See Attachment 5 for the Notice Attachments to Attachments 6 through 11.

May 2025

ENTERGY TEXAS, INC.

Cypress to Legend 500 kV Transmission Line Project

Environmental Assessment and Alternative Route Analysis
Hardin and Jefferson Counties, Texas

PROJECT NUMBER:
0242844

PROJECT CONTACT:
Scott Childress
EMAIL:
scott.childress@powereng.com
PHONE:
512-735-1811

POWER ENGINEERS
MEMBER OF WSP

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Cypress to Legend 500 kV Transmission Line Project
Environmental Assessment and Alternative Route Analysis
Hardin and Jefferson Counties, Texas

PREPARED FOR: *ENTERGY TEXAS, INC.*

PREPARED BY: *POWER ENGINEERS, INC.*

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TABLES:

FIGURES:

APPENDICES:

ACRONYMS AND ABBREVIATIONS

AM radio	amplitude modulation radio
BEG	Bureau of Economic Geology
BGEPA	Bald and Golden Eagle Protection Act
BMPs	Best Management Practices
BP	before present
BTNP	Big Thicket National Preserve
ca.	circa
CCN	Certificate of Convenience and Necessity
C.F.R.	Code of Federal Regulations
CLF	civilian labor force
CMP	Coastal Management Program
CNRA	Coastal Natural Resource Area
CWA	Clean Water Act
DD6	Jefferson County Drainage District No. 6
DD7	Jefferson County Drainage District No. 7
DoD	Department of Defense
EA	Environmental Assessment and Alternative Routing Analysis
EOR	Element occurrence records
ESA	Endangered Species Act
ESSS	Ecologically Significant Stream Segments
ETI	Entergy Texas, Inc.
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 System
HPAs	High Probability Areas
HTC	Historic Texas Cemeteries
IH	Interstate Highway
IPaC	Information, Planning, and Consultation
ISD	Independent School District
kV	kilovolt
MBTA	Migratory Bird Treaty Act
NCED	National Conservation Easement Database
NEPA	National Environmental Policy Act
NHD	National Hydrography Dataset
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places

NRI	Nationwide Rivers Inventory
NWI	National Wetland Inventory
NWP	Nationwide Permit
OTHM	Official Texas Historical Marker
PEM	palustrine emergent
PFO	palustrine forested
POWER	POWER Engineers, Inc.
Project	Cypress to Legend 500 kV Transmission Line Project
PSS	palustrine scrub-shrub
PUC	Public Utility Commission of Texas
PURA	Public Utility Regulatory Act
ROW	right-of-way
RRC	Railroad Commission of Texas
SAL	State Antiquities Landmark
SF	Standard Form
SH	State Highway
spp.	Species (plural)
SWPPP	Stormwater Pollution Prevention Plan
TAC	Texas Administrative Code
TARL	Texas Archeological Research Laboratory
TASA	Texas Archeological Sites Atlas
TCEQ	Texas Commission on Environmental Quality
TGLO	Texas General Land Office
THC	Texas Historical Commission
TPWD	Texas Parks and Wildlife Department
TSDC	Texas State Data Center
TWDB	Texas Water Development Board
TxDOT	Texas Department of Transportation
TXNDD	Texas Natural Diversity Database
TXR150000	Texas Pollution Discharge Elimination System General Construction Permit
US	United States
USACE	United States Army Corps of Engineers
U.S.C.	United States Code
USCB	United States Census Bureau
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
US Hwy	United States Highway
WOTUS	Waters of the US
WMA	Wildlife Management Area

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1.0 DESCRIPTION OF THE PROPOSED PROJECT

1.1 Scope of the Project

Entergy Texas, Inc. (ETI) is proposing to design and construct a new transmission line as a part of the Cypress to Legend 500 kV Transmission Project (Project). The Project will include a new single-circuit 500 kilovolt (kV) transmission line in Hardin and Jefferson Counties, Texas. The proposed transmission line would be routed from ETI's existing Cypress Substation to the new Legend 500 kV Substation. The existing Cypress Substation is located approximately 5 miles northwest of the intersection of United States Highway (US Hwy) 69 and Farm-to-Market (FM) 421. The new Legend 500 kV Substation is located approximately 1.5 miles southwest of the intersection of SH 73 and SH 82.

The new transmission line will have a length of approximately 40.4 to 48.4 miles depending on the final route approved by the Public Utility Commission of Texas (PUC). The locations of ETI's existing Cypress Substation and the new Legend 500 kV Substation, as well as existing transmission lines, are shown on Figure 1-1.

ETI retained POWER Engineers, Inc. (POWER) to delineate and evaluate alternative routes and to prepare this Environmental Assessment and Alternative Route Analysis (EA) to support ETI's application to the PUC to amend its Certificate of Convenience and Necessity (CCN). To assist POWER in its evaluation, ETI provided POWER with information concerning Project scope, purpose and need, the location of the proposed endpoints, construction practices, right-of-way (ROW) requirements, and maintenance procedures for the proposed Project.

The new single-circuit transmission line would be supported by H-frame or lattice structures within a ROW that would be approximately 225 feet wide, depending on location. Typical structure heights may range between 105 to 170 feet above ground. Approximate span lengths between structures would typically range between 800 to 1,200 feet. Typical structure types that would be used for this proposed Project are shown on Figures 1-2, 1-3, 1-4, 1-5, and 1-6.

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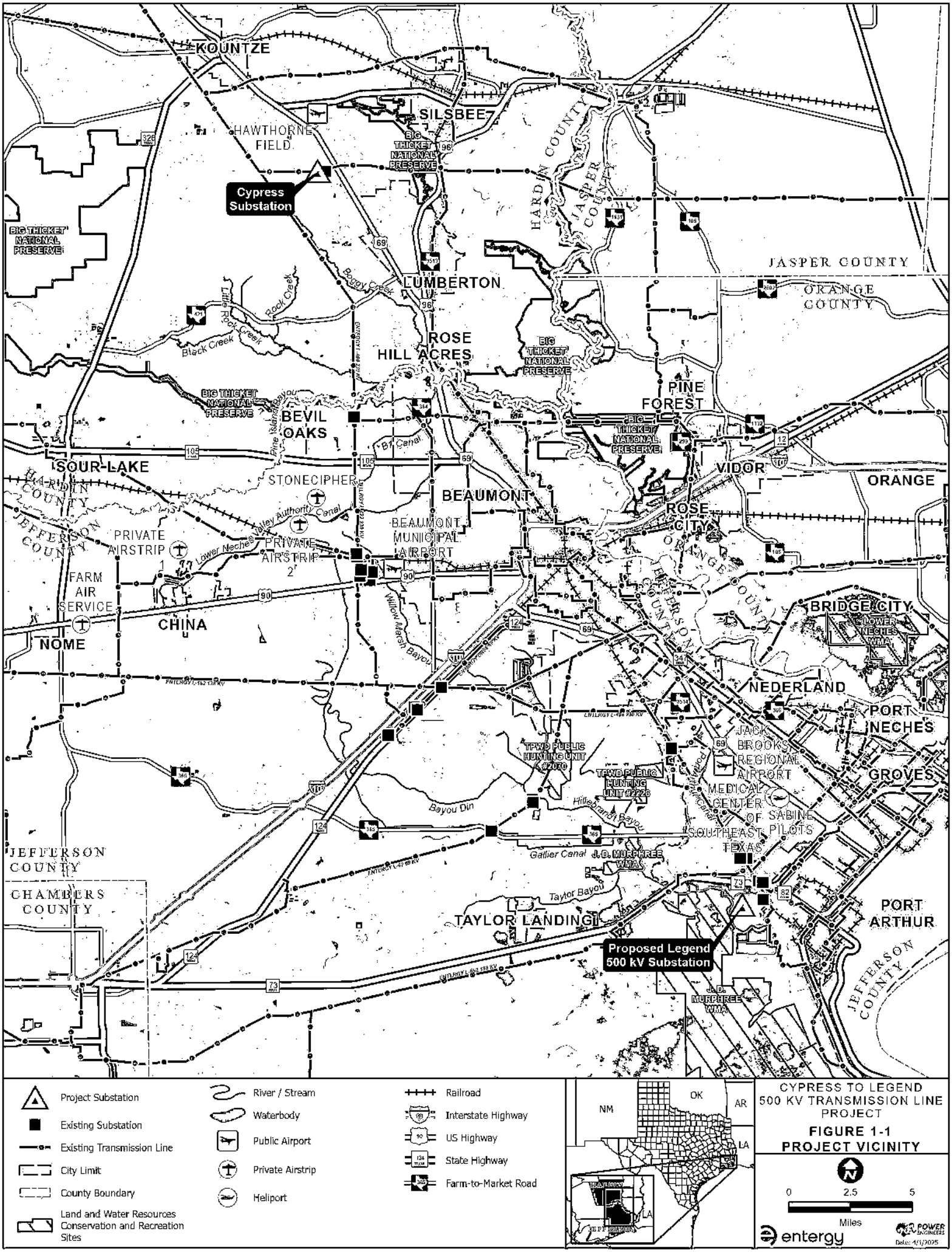
KOUNTZE
SILSBEE
HAWTHORNE FIELD
BIG THICKET NATIONAL PRESERVE
Cypress Substation
HARDIN COUNTY
JASPER COUNTY
JASPER COUNTY
ORANGE COUNTY
LUMBERTON
Boggy Creek
Little Rock Creek
Rock Creek
Black Creek
ROSE HILL ACRES
PINE FOREST
BEVIL OAKS
Pine Island Bayou
BIG THICKET NATIONAL PRESERVE
SOUR LAKE
STONECIPHER
BEAUMONT
VIDOR
ORANGE
ROSE CITY
BEAUMONT MUNICIPAL AIRPORT
PRIVATE AIRSTRIP 1
PRIVATE AIRSTRIP 2
Lower Neches Valley Authority Canal
FARM AIR SERVICE
NOME
CHINA
JEFFERSON COUNTY
ORANGE COUNTY
BRIDGE CITY
LOWER NECHES WMA
NEDERLAND
PORT NECHES
GROVES
JACK BROOKS REGIONAL AIRPORT
MEDICAL CENTER OF SOUTHEAST TEXAS
SABINE PILOTS
TPWD PUBLIC HUNTING UNIT #2070
TPWD PUBLIC HUNTING UNIT #2226
Willow Marsh Bayou
Hillebrandt Bayou
Bayou Din
Gallier Canal
J.D. MURPHREE WMA
Taylor Bayou
CHAMBERS COUNTY
TAYLOR LANDING
Proposed Legend 500 kV Substation
PORT ARTHUR
JEFFERSON COUNTY
Project Substation
Existing Substation
Existing Transmission Line
City Limit
County Boundary
Land and Water Resources Conservation and Recreation Sites
River / Stream
Waterbody
Public Airport
Private Airstrip
Heliport
Railroad
Interstate Highway
US Highway
State Highway
Farm-to-Market Road
NM
OK
AR
LA
TX
CYPRESS TO LEGEND 500 KV TRANSMISSION LINE PROJECT
FIGURE 1-1
PROJECT VICINITY
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2.5
5
Miles
entergy
POWER ENGINEERS
Date: 4/1/2025

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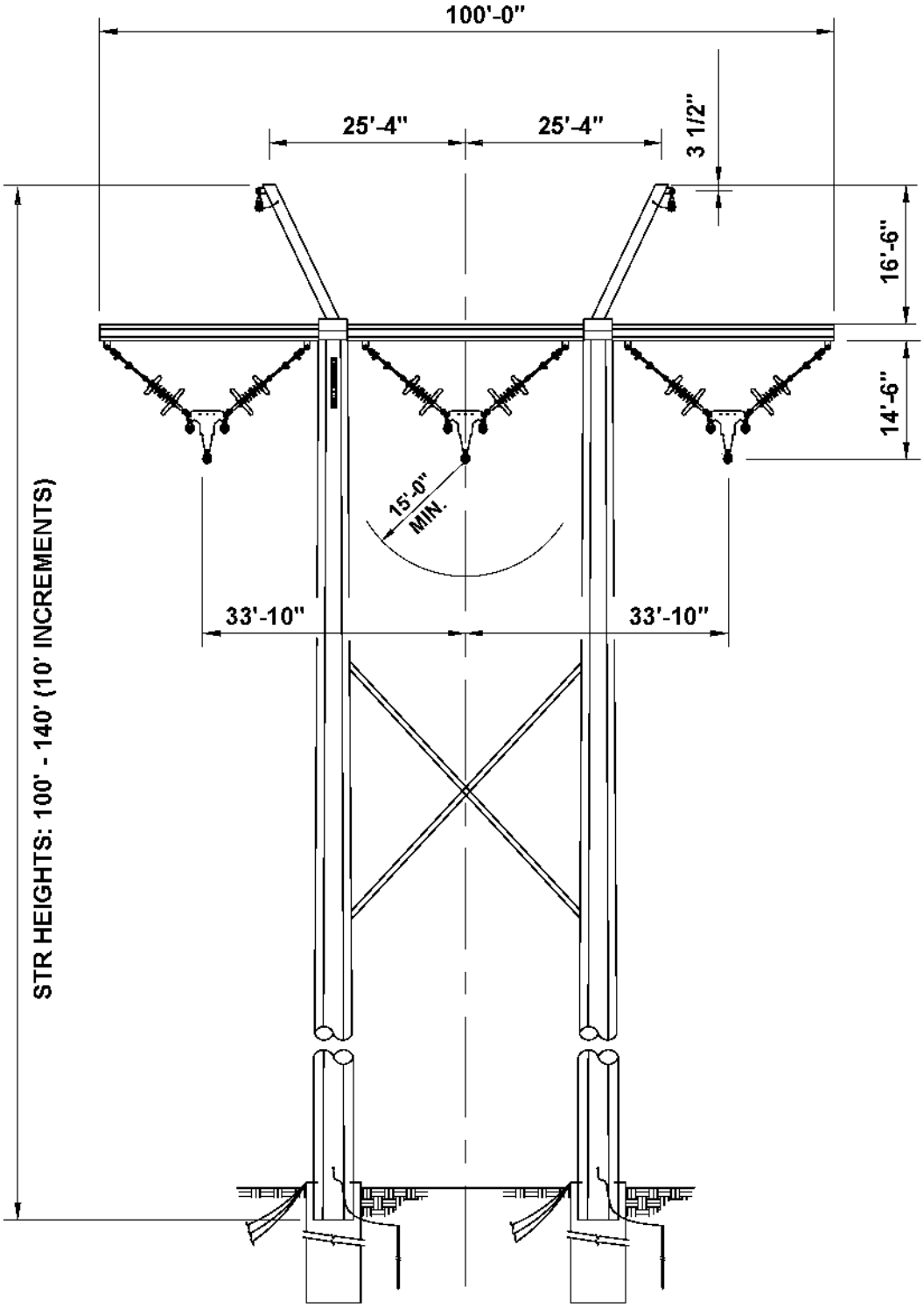

CYPRESS TO LEGEND 500 KV TRANSMISSION LINE PROJECT

FIGURE 1-2

TYPICAL 500KV H-FRAME TANGENT STRUCTURE

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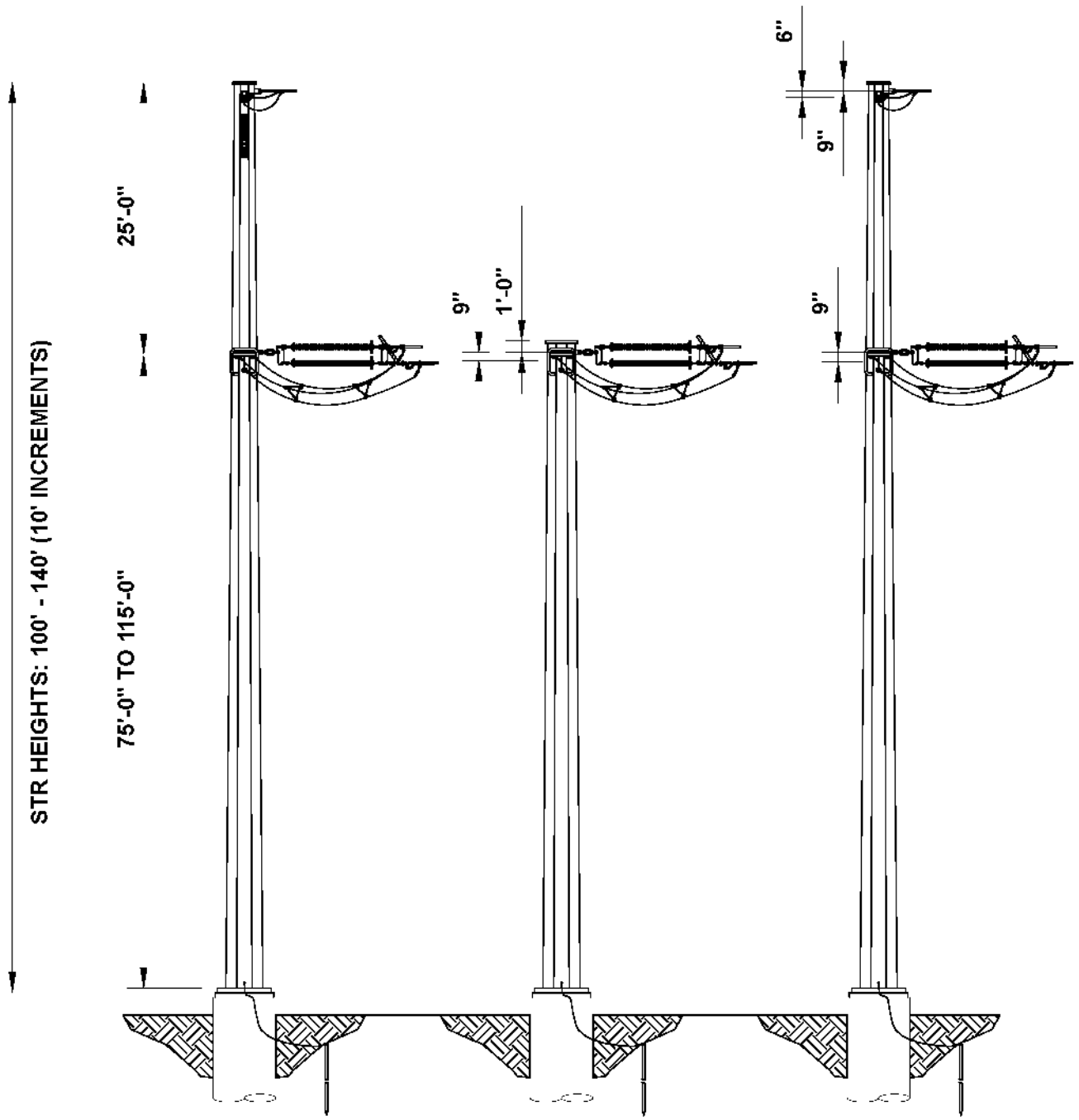

CYPRESS TO LEGEND 500 KV TRANSMISSION LINE PROJECT

FIGURE 1-3

TYPICAL 500KV 3-POLE DEADEND STRUCTURE

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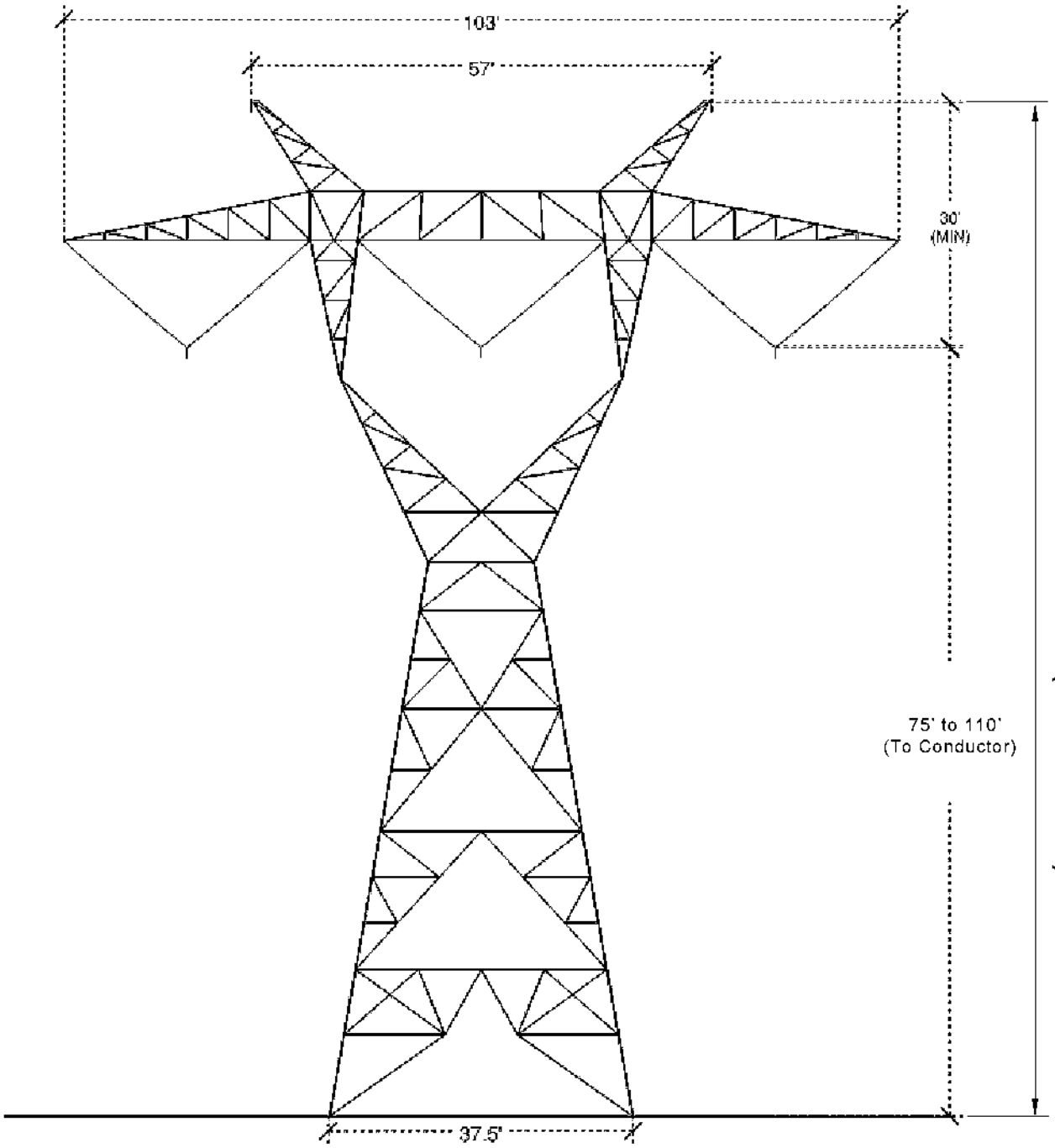

CYPRESS TO LEGEND 500 KV TRANSMISSION LINE PROJECT

FIGURE 1-4

TYPICAL 500KV HORIZONTAL LATTICE SELF-SUPPORTING TANGENT STRUCTURE

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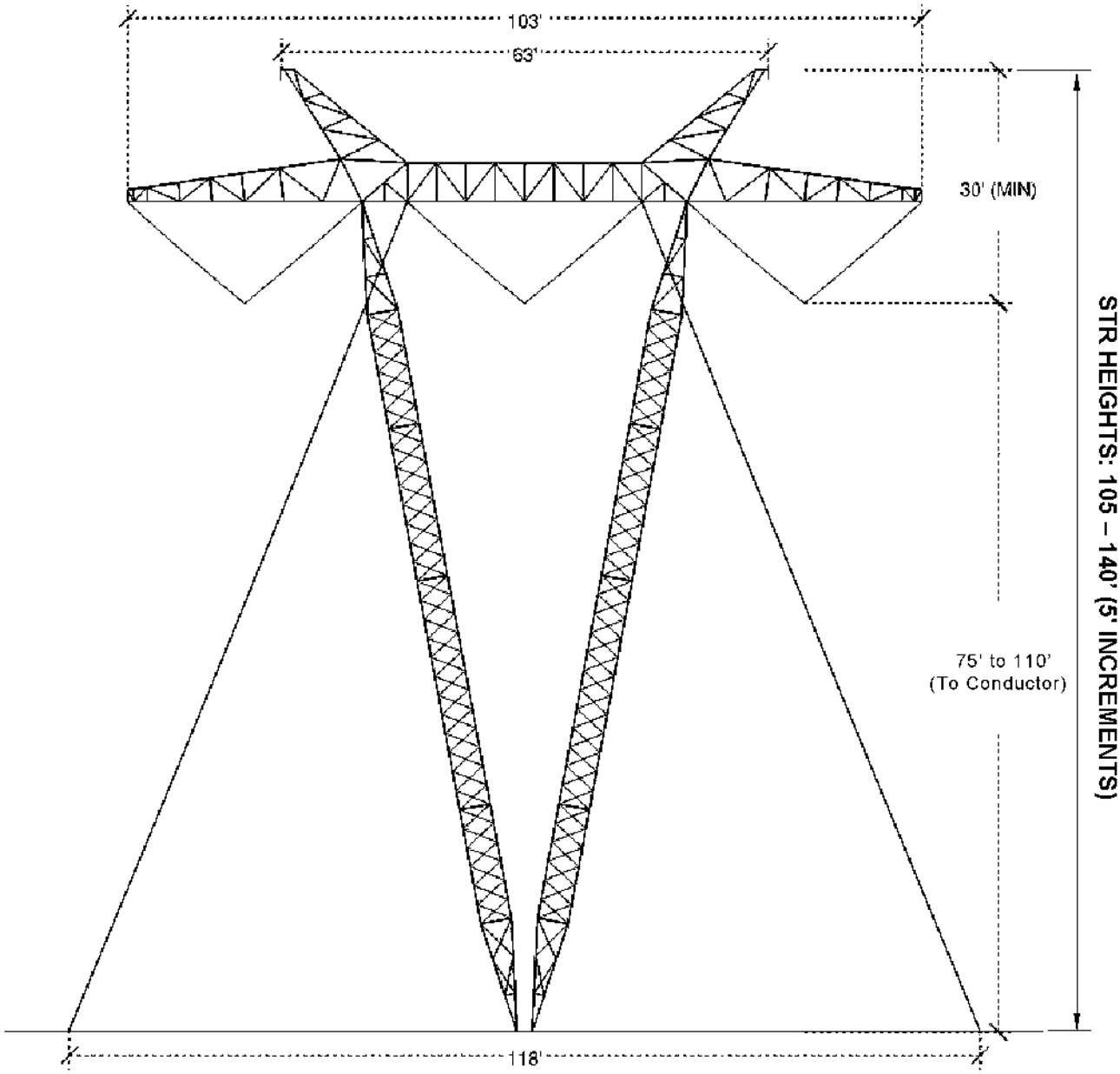

CYPRESS TO LEGEND 500 KV TRANSMISSION LINE PROJECT

FIGURE 1-5

TYPICAL 500KV HORIZONTAL LATTICE GUYED V TANGENT STRUCTURE

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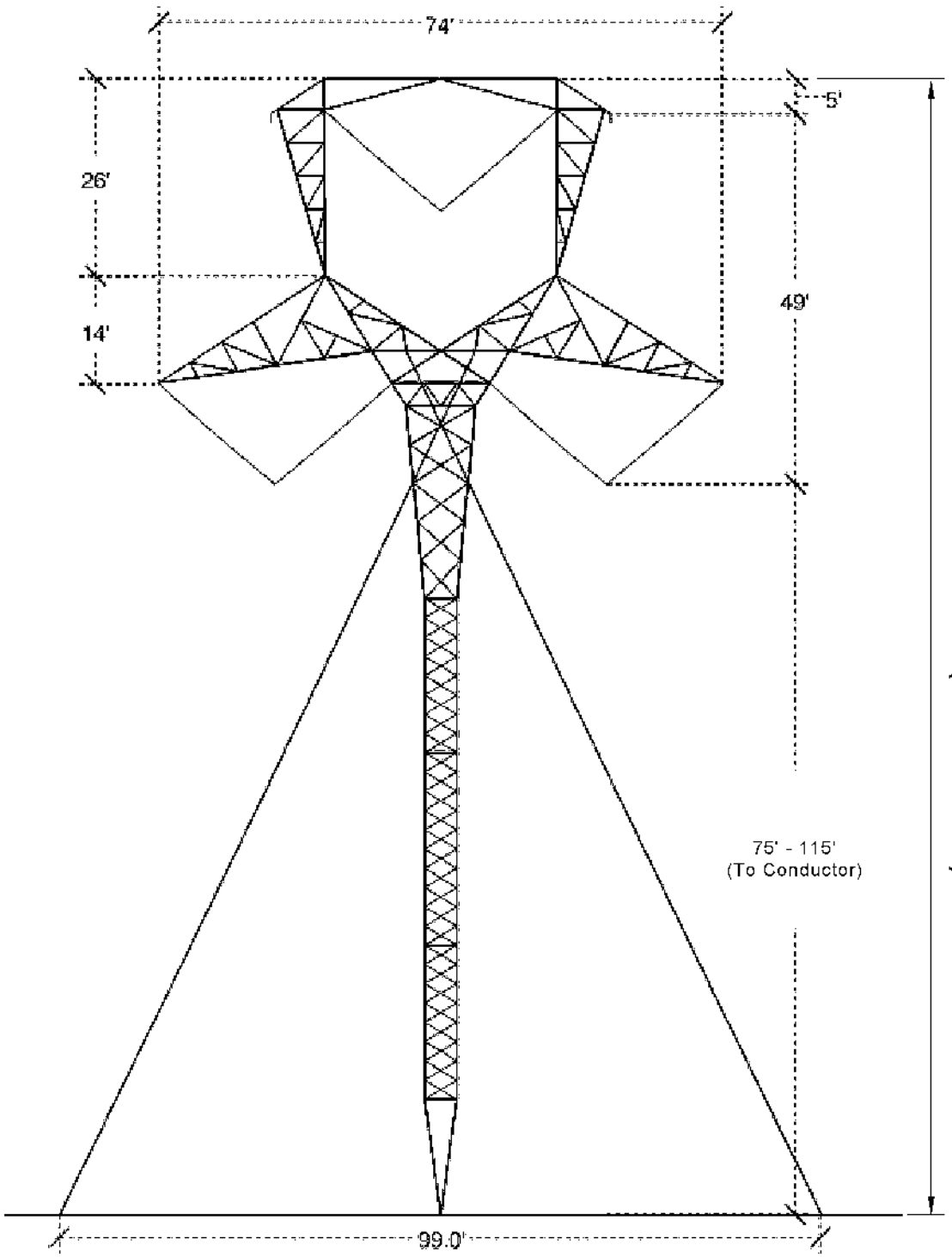

CYPRESS TO LEGEND 500 KV TRANSMISSION LINE PROJECT

FIGURE 1-6

TYPICAL 500KV HORIZONTAL-DELTA GUYED-BANJO LATTICE TANGENT STRUCTURE

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1.2 Purpose and Need of Project

The primary purpose of the Project is to provide electric service to support the load growth in Hardin, Jefferson, and Orange Counties in Southeast Texas and maintain compliance with North American Electric Reliability Corporation reliability standards. The new line will provide greater reliability and resiliency to the Southeast Texas region by adding a new transmission source into the growing area.

The proposed Project will require the following scopes of work:

1) Design and build the new Legend 500 kV Substation: The new Legend 500 kV Substation will be a 500/230 kV substation that will facilitate the installation of the proposed new 500 kV line extension.

(2) Design and build the new Cypress to Legend 500 kV Transmission Line: The connecting transmission line will be a single-circuit 500 kV transmission line, primarily using steel structures, that will extend from ETI's existing Cypress Substation and connect into the new Legend 500 kV Substation.

1.3 Description of Proposed Construction

ETI will contract the required surveying and geotechnical work. The construction contractor will then assemble and erect the structures and install the conductor and shield wires. The contractor is required to clean up as necessary when the proposed Project is completed. All phases of the contractor's work will be carefully monitored and inspected by the Entergy Services, LLC (ESL) Transmission Capital Projects Group or their designated inspectors.

1.3.1 Surveying and Soil Investigation

Using existing ETI alignment maps and United States (US) Coast and Geodetic survey data, ETI's contract survey crew will establish a controlled centerline as directed by ETI. This operation may require limited clearing for line-of-sight and distance measuring. ETI will contract the soil investigations to obtain soil parameters to be used for foundation designs. Survey and soil investigations will proceed during the pre-construction phase. Both operations involve only personnel, small equipment, and light trucks.

1.3.2 Right-of-Way Clearing and Access

A contractor will perform ROW clearing. Methods of disposal available are controlled burning and salvaging. Trees within the ROW that do not allow for sufficient clearance or that might present a threat to the line or structures (danger trees) will be removed to provide for safe operation of the line. With agreement from the property owner, existing private roads will be used to access the ROW where available. Gates with locks will be installed as required at fences along the ROW for ETI access.

1.3.3 Material Storage Yards and Temporary Construction Facilities

ETI proposes to use existing storerooms and leased properties for storing structures, wire, insulators, and hardware. The contractor will find a headquarters and storage yard(s) for construction equipment. The contractor's yard(s) will contain temporary buildings, line material, construction equipment, and vehicles.

1.3.4 Foundation Installation

The typical pole installation method will likely be direct embedment with or without concrete backfill. In the event soil conditions are poor the poles may require caisson, helical pile, or anchor-bolt foundation. The design engineer will provide detailed foundation drawings. For anchor-bolt foundations, the foundation contractor will stake the location, auger a circular hole, place the rebar and anchor bolt cage, and pour the concrete. The structure grounding system will be installed at a later time.

1.3.5 Structure Assembly and Erection

The transmission contractor will have crews transporting and assembling the steel or concrete structures on the ROW. If foundations are required, the erection of the structures will not be allowed until the foundations have cured sufficiently. Heavy equipment will be required to lift structures into place.

1.3.6 Conductor and Shield Wire Installation

The transmission line contractor will have crews installing the conductor and shield wire. Guard structures (temporary wood-pole structures) will be installed near crossings such as distribution powerlines, overhead telephone lines, roadways, and any other areas where there may be a safety hazard during wire installation.

The conductors and shield wires are installed with a tensioning system. A rope is first threaded through the stringing blocks or dollies for each conductor and shield wire. Conductor and shield wires are then pulled by the ropes and held tight by a tensioner. The tensioner essentially keeps the wires from contacting the ground and other objects that could be damaging to the wire. When the wire is tensioned to the required sag, the wire is taken out of the blocks and placed in the suspension and dead-end clamps for permanent attachment.

1.3.7 Cleanup

The cleanup operation involves the grading of disturbed areas, the removal of debris, and the restoration of items damaged by the construction of the proposed Project, as required. The transmission line contractor will restore affected areas as close to the original condition as is practical. ESL's Capital Projects Group will develop a restoration plan to restore the ROW after installation of the new transmission line and ETI's engineering, procurement, and construction contractor will implement the work. ETI's ROW agents and/or Claims Management will resolve all unavoidable damage claims.

1.4 Transmission Right-of-Way Maintenance

ETI will contract all major ROW maintenance work. Maintenance intervals will be determined by line performance and the results of routine quarterly aerial patrols. ETI employs an aerial inspection contractor to identify maintenance problems. ETI's system contractor then performs the actual line maintenance.

The maintenance contractor will access the transmission line from the line ROW where possible. The contractor may also gain access through private property and existing private roads. The contractor and/or ETI will be responsible for all property damages incurred during line maintenance. The maintenance contractor's equipment could range from helicopters to bucket trucks. The terrain and population levels will dictate the type of maintenance equipment required. All phases of the contractor's work will be carefully monitored and inspected by the ETI Capital Projects Group or their designated inspectors.

1.4.1 Vegetation Maintenance

Vegetation maintenance will be performed on existing ETI ROWs. The programs and procedures are performed utilizing tools and techniques of the vegetation management industry. All work will be supervised and developed by ETI professionals in the field of vegetation management. The following will address specific treatments.

Initial/Encroachment Clearing

Contract crews, specialized in clearing vegetation and supervised by ETI employees, will perform any required clearing of existing or new ROW. Mechanical mowing will be the preferred method, with manual clearing in those areas that are inaccessible to machines or where damage to the ROW may occur. All merchantable timber will be harvested at this stage. Native grasses will be left where practical.

Side Trimming

Mechanical side trimming will be the preferred method. A tracked Jarraff machine or air saw are two types of acceptable alternatives. The trimming refuse, brush, and debris should be bush-hogged and left as is, in low public-visibility areas. Chipping and blowing the refuse back onto the ROW is recommended in the high visibility areas, where practical. Bucket side trimming will be used where lines are next to manicured residential areas. Manual side trimming will be used where mechanical, or buckets are not practical or damage to the ROW may occur.

Danger Trees

All trees that have the potential to interfere with the line or that are leaning into the ROW, uprooted, dead, or dying will be removed. Trees located outside the ROW that meet one of these criteria will be removed with landowner's permission only. Most danger trees should be removed during the clearing and/or side trimming phase. Aerial and/or ground patrols should be performed to identify future problems from danger trees.

Future Maintenance

Future maintenance may include one or all the above stages of maintenance. Also, herbicides will be selectively used to reduce re-sprouting or eliminate potential tall-growing, woody brush. United States Environmental Protection Agency (USEPA)-approved herbicides will be carefully selected to have minimum effect on desirable plants and selective application will be used whenever appropriate to preserve the natural environment. In scenic areas, the impact of temporary discoloration of foliage will be minimized using the appropriate tools for those areas. Mechanical vegetation control or fall scheduling of the spray work are options. Herbicides will be applied by a licensed applicator in a manner fully consistent with the protection of the environment and its inhabitants.

1.5 Agency Actions

Numerous federal, state, and local regulatory agencies have developed rules and regulations regarding the routing and potential impacts associated with the construction of proposed transmission projects. This section describes the major regulatory agencies and additional issues that are involved in project planning and permitting. POWER solicited comments from various federal, state, and local agencies and officials during the development of this document. Records of all correspondence and additional discussions with agencies and officials are further summarized in Section 5.0 and are provided in Appendix A.

1.5.1 Public Utility Commission of Texas

The PUC regulates the routing of transmission lines in Texas under Public Utility Regulatory Act (PURA) § 37.056. The PUC regulatory requirements for routing transmission lines include:

- 16 Texas Administrative Code (TAC) § 25.101(b)(3)(B).
- 16 TAC § 22.52(a)(4).
- Policy of prudent avoidance.
- CCN amendment application requirements.

1.5.2 Federal Aviation Administration

According to Federal Aviation Administration (FAA) regulations, 14 Code of Federal Regulations (C.F.R.) § 77.9, the construction of a transmission line requires FAA notification if a transmission tower structure height will exceed 200 feet or the height of an imaginary surface extending outward and upward at any of the following slopes:

- A 100:1 slope for a horizontal distance of 20,000 feet from the nearest point of the nearest runway of each airport described in paragraph (d) of 14 C.F.R. § 77.9 having at least one runway longer than 3,200 feet, excluding heliports;
- A 50:1 slope for a horizontal distance of 10,000 feet from the nearest runway of a public or military airport described in paragraph (d) of 14 C.F.R. §77.9 where its longest runway is no longer than 3,200 feet in length, excluding heliports; or

» A 25:1 slope for a horizontal distance of 5,000 feet for heliports described in paragraph (d) of 14 C.F.R. § 77.9.

Paragraph (d) of 14 C.F.R. § 77.9 includes public-use airports listed in the Airport/Facility Directory (currently the Chart Supplement), public-use or military airports under construction, airports operated by a federal agency or US Department of Defense (DoD), or an airport or heliport with at least one FAA-approved instrument approach procedure.

Notification for construction is not required for structures that will be shielded by existing structures of a permanent and substantial nature or by natural terrain or topographic features of equal or greater height and will be located in the congested area of a city, town, or settlement where the shielded structure will not adversely affect safety in air navigation.

If any of the FAA notification criteria are met for the route approved for construction, a Notice of Proposed Construction or Alteration, FAA Form 7460-1, will be completed and submitted to the FAA Southwest Regional Office in Fort Worth, Texas at least 45 days prior to construction. The result of this notification, and any subsequent coordination with the FAA, could include changes in line design and/or potential requirements to mark and/or light the structures.

The PUC CCN application also requires listing private airports within 10,000 feet of any alternative route centerline.

1.5.3 United States Department of Defense Military Aviation and Installation Assurance Siting Clearinghouse

The DoD Military Aviation and Installation Assurance Siting Clearinghouse works with industry to overcome risks to national security while promoting compatible domestic energy development. Energy production facilities and transmission projects involving tall structures, such as electrical transmission towers, may degrade military testing and training operations. The electromagnetic interference from electric transmission lines can impact critical DoD testing activities. Title 16 TAC § 22.52 states that upon filing of the application, the DoD shall be notified and an affidavit attesting to the notification shall also be provided with the applicant's proof of notice. The DoD shall also be provided written notice of the public meeting and if a public meeting is not held, the DoD shall be noticed of the planned filing of the application prior to the completion of the routing study. On August 1, 2023, the DoD was contacted about the proposed Project to provide notification and to solicit any input from the DoD about the proposed Project. In addition, on January 31, 2024, and in accordance with 16 TAC § 22.52 (a)(4), notice was provided via email to the DoD Military Aviation and Installation Assurance Siting Clearinghouse of the public meeting that was held on May 21-22, 2024. A notice of the filing of the CCN application will be sent to the DoD Military Aviation and Installation Assurance Siting Clearinghouse when the CCN application is filed with the PUC.

1.5.4 United States Army Corps of Engineers

The United States Army Corps of Engineers (USACE) has jurisdiction over certain activities affecting waters of the US (WOTUS) under Section 10 of the Rivers and Harbors Act of 1899 (33 United States Code [U.S.C.] § 403) and Section 404 of the Clean Water Act (CWA) (33 U.S.C. § 1344). Under Section 10 of the Rivers and Harbors Act of 1899, the USACE regulates all work or structures in or affecting the course, condition, or capacity of navigable WOTUS. The intent of this law is to protect the navigable capacity of waters affecting interstate commerce.

Under Section 404 of the CWA, the USACE regulates the discharge of dredged and fill material into all WOTUS, including associated wetlands. The intent of this law is to protect the nation's waters from the discharge of material capable of causing pollution and to restore and maintain the chemical, physical, and biological integrity of the nation's waters. The proposed Project is located within the jurisdiction of the USACE – Galveston District.

The Intracoastal Waterway Tidal, Pine Island Bayou, Fish Box Gully, Rhodair Gully, Willow Marsh Bayou, Bayou Din, Hillebrandt Bayou, Taylor Bayou, and Big Hill Bayou may be considered navigable waters within the study area, and therefore, potentially subject to jurisdiction by the USACE. The USACE – Galveston District does not publish a list of navigable WOTUS, and conclusions presented herein are POWER's opinion on the expected USACE jurisdictional determination. POWER's opinion is based on USACE published protocols, USACE regulatory guidance, and POWER's extensive technical and regulatory experience with historical USACE – Galveston District determinations. A review of the National Wetland Inventory (NWI) maps indicated numerous emergent, scrub-shrub, and forested wetland areas which are mapped throughout the study area.

Upon PUC approval of a route, additional coordination, jurisdictional wetland verifications, and permitting with the USACE – Galveston District for a Section 404 and/or 10 Permit may be required if the approved route and associated facilities (i.e., substations, foundations, and access roads) are constructed within potential jurisdictional areas. If constructed within jurisdictional areas, the proposed Project will likely meet the conditions of Nationwide Permit (NWP) 57. NWPs are a type of general permit that is designed to regulate with little, if any, delay, or paperwork certain activities having minimal impacts on WOTUS, including wetlands. NWP 57 is specifically for activities required for the construction, maintenance, repair, and removal of electric utility lines, telecommunication lines and associated facilities (i.e., substations, foundations, and access roads) and authorizes (minor) discharges into WOTUS, provided activities do not result in the loss of anything greater than 0.5 acres of WOTUS. To qualify for an NWP 57, all general and regional conditions must be met.

1.5.5 United States Fish and Wildlife Service

The United States Fish and Wildlife Service (USFWS) is charged with the responsibility for enforcement of federal wildlife laws and providing comments on proposed construction projects with a federal nexus under the National Environmental Policy Act (NEPA) and within the framework of several other federal laws including the Endangered Species Act (ESA), Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA). POWER reviewed the USFWS Information for Planning and Consultation (IPaC) (Project Code: 2025-0033536) website for federally protected species and designated critical habitats within the study area.

Upon PUC approval of a route and prior to construction, surveys will be completed as necessary to identify any potential suitable habitat for federally listed species. If potential suitable habitat is identified, then consultation with the USFWS Texas Coastal and Central Plains Ecological Services Field Offices may be completed to determine the need for any required species-specific surveys, avoidance measures, and/or permitting under Section 10 of the ESA.

1.5.6 National Park Service

The National Park Service (NPS) is a bureau of the US Department of the Interior and is responsible for preserving unimpaired natural and cultural resource values of the National Park System for the enjoyment, education, and inspiration of this and future generations. The NPS cooperates with partners to extend the benefits of natural and cultural resource conservation and outdoor recreation throughout the US and the world.

NPS carries out its responsibilities in parks and programs under authority of Federal laws, regulations, and Executive Orders, and in accord with policies established by the Director of the NPS and the Secretary of the Interior. According to NPS regulations, 36 CFR 1 § 14, the construction of a transmission line requires a Standard Form (SF) 299 application (ROW permit) and a Special Use Permit (construction activities) would be required for new ROW or if proposing to rebuild within an existing ROW, respectively.

As a part of the Project, ETI is proposing to rebuild approximately 0.47 mile of existing 230 kV transmission line currently located on land administered by NPS, specifically, Big Thicket National Preserve (BTNP), as a 500/230 kV double-circuit configuration within the existing 100-foot-wide transmission line ROW for which ETI has an easement. Although construction of the new facilities would not require new ROW across lands administered by NPS, ETI submitted an SF 299 application to NPS for a ROW permit. In response to the application, NPS indicated that the requested work aligns with the allowances outlined in the easements and, as such, ETI does not require additional authorization from the NPS to proceed with the proposed activities (See Appendix F for ETI's SF 299 application and the NPS response). If ETI did not use its existing ROW to cross the BTNP, it would need to submit an SF 299 with alternatives for NPS to consider and go through NPS' NEPA review process, a process that could take approximately twelve to twenty four months, or more, depending upon the type of NEPA analysis necessary.

Additional seasonal constraints may be required during construction. ETI will coordinate with the NPS prior to construction of the selected route.

1.5.7 Texas Parks and Wildlife Department

The Texas Parks and Wildlife Department (TPWD) is the state agency with primary responsibility for protecting the state's fish and wildlife resources in accordance with Texas Parks and Wildlife Code Section 12.0011(b), 64.003, 68.015, and 1.011. POWER solicited comment from TPWD during the scoping phase of the Project, and a copy of this EA will be submitted to TPWD when the CCN amendment application is filed with the PUC. POWER and ETI have considered TPWD's recommendations during the route development phase of the Project and will further consider any additional TPWD recommendations during the construction phase.

POWER also reviewed the Texas Natural Diversity Database (TXNDD) records of state-listed species occurrences and sensitive vegetation communities. POWER considered these during the route development process. Once the PUC approves a route, the Applicants will complete a field review of the proposed ROW if it is determined to be necessary to identify potential suitable habitat for state-listed species. If potential suitable habitat is identified, additional coordination with TPWD may be necessary to determine avoidance or impact minimization measures to state-listed threatened or endangered species, and other state regulated fish and wildlife resources.

Because some of the route segments developed for the Project cross land owned and/or administered by TPWD, the requirements of Texas Parks and Wildlife Code Chapter 26 were also considered. In particular, Section 26.001 of the Code provides that "A department, agency, political subdivision, county, or municipality of this state may not approve any program or project that requires the use or taking of any public land designated and used prior to the arrangement of the program or project as a park, recreation area, scientific area, wildlife refuge, or historic site, unless the department, agency, political subdivision, county, or municipality, acting through its duly authorized governing body or officer, determines that: (1) there is no feasible and prudent alternative to the use or taking of such land; and (2) the program or project includes all reasonable planning to minimize harm to the land, as a park, recreation area, scientific area, wildlife refuge, or historic site, resulting from the use or taking." This requirement was taken into account when developing the alternative route segments for the Project.

ETI will coordinate with and obtain any necessary easements or permits from TPWD for crossing TPWD owned land or the J.D. Murphree WMA.

1.5.8 Texas Commission on Environmental Quality

The Texas Commission on Environmental Quality (TCEQ) is the state agency with the primary responsibility for protecting the state's water quality. The construction of the Project will require a Texas Pollution Discharge Elimination System General Construction Permit (TXR150000) as implemented by the TCEQ under the provisions of Section 402 of the CWA and Chapter 26 of the Texas Water Code. Construction activities will be compliant with the TXR150000 permit conditions.

1.5.9 Texas Historical Commission

Cultural resources are protected by federal and state laws if they have some level of significance under the criteria of the National Register of Historic Places (NRHP) (36 C.F.R. 60) or under state guidance [13 TAC § 2.26 (7-8)]. Chapter 26 of the TAC requires state agencies and political subdivisions of the state to notify the Texas Historical Commission (THC), the State Historic Preservation Office, of ground-disturbing activity on public land. POWER contacted THC to identify known cultural resource sites within the study area boundary. POWER also reviewed Texas Archeological Research Laboratory (TARL) records for known locations of cultural resource sites and the THC's online, restricted-access Texas Archeological Sites Atlas (TASA) and Texas Historical Sites Atlas for the locations of recorded cemeteries, NRHP properties, State Antiquities Landmarks (SALs), and Official Texas Historical Markers (OTHMs). Once a route is approved by the PUC, depending on a state or federal nexus, additional coordination with the THC might be required to determine the need for archeological surveys or additional permitting requirements.

1.5.10 Texas Department of Transportation

If the PUC approved route crosses or occupies Texas Department of Transportation (TxDOT) ROW, ETI will obtain any necessary road crossing permits from TxDOT. Construction will be in accordance with the rules, regulations, and policies of TxDOT and Best Management Practices (BMPs) will be used, as required, to minimize erosion and sedimentation resulting from the construction. If ETI proposes to place any structures of the transmission line within any highway ROW, ETI will comply with TxDOT Utility Accommodation Rules (43 TAC § 21.41) and obtain

the necessary Utility Installation Review permit. BMPs will be utilized, and revegetation will occur within existing TxDOT ROW as required under the "*revegetation special provisions*" contained in TxDOT Form 1082 (Rev. 12/09). Traffic control measures will comply with applicable portions of the Texas Manual of Uniform Traffic Control Devices.

1.5.11 County Floodplain Administrators

Work within the floodplains typically requires a floodplain permit from the Hardin and Jefferson Counties Floodplain Administrators. ETI will coordinate with Hardin and Jefferson Counties as needed to satisfy any permitting requirements prior to construction.

1.5.12 Texas General Land Office

The Texas General Land Office (TGLO) requires a miscellaneous easement on both coastal submerged lands and state-owned uplands for projects which requires a ROW on, across, under, or over state-owned riverbeds and beds of navigable streams or tidally influenced waters, pursuant to Texas Natural Resources Code § 51.291.

1.5.13 Texas Coastal Management Program

In 1997, the Texas Coastal Management Program (CMP), administered by the TGLO, became a federally approved member of the Coastal Zone Management program. The Texas CMP is a "networked program" that links together the existing regulations, programs, and local, state, and federal entities that manage various aspects of coastal resource uses (TGLO 2023a). This program intends to help ensure the environmental and economic well-being of the Texas coast through proper management of coastal natural resource areas (CNRAs). The CMP has federal and state project and permit action review processes to evaluate consistency with the program. As specified in the Coastal Coordination Act of 1991, the CMP of the TGLO must develop and implement a comprehensive plan for managing natural resources within the CMP boundary along the Texas coastline. The CMP boundary, as defined by 31 TAC § 27.1, delineates the coastal zone of Texas (TGLO 2023b).

As a state agency, the PUC is charged with complying with the policies of the CMP when approving CCNs for electric transmission lines located in the CMP boundary. The study area is located within the CMP boundary (TGLO 2023b). As such, the need to coordinate with the TGLO after PUC approval of a route is anticipated.

1.5.14 Jefferson County Drainage District No. 6

The Jefferson County Drainage District No. 6 (DD6) has easements for drainage facilities throughout the central and southern portions of the study area. ETI will coordinate with DD6 to satisfy any permitting requirements prior to construction.

1.5.15 Jefferson County Drainage District No. 7

The Jefferson County Drainage District No. 7 (DD7) has easements for drainage facilities throughout the southern portion of the study area, particularly in the vicinity of Taylor Bayou and

the Taylor Bayou Outfall Canal. ETI will coordinate with DD7 to satisfy any permitting requirements prior to construction.

2.0 SELECTION AND EVALUATION OF ALTERNATIVE TRANSMISSION LINE ROUTES

2.1 Routing Study Methodology

The objective of this EA was to develop and evaluate an adequate number of geographically differentiated alternative transmission line routes that comply with PURA § 37.056(c)(4)(A)-(D), 16 TAC § 22.52(a)(4), and 16 TAC § 25.101(b)(3)(B), including the PUC's policy of prudent avoidance. The approach utilized by POWER for this EA included study area delineation based on the proposed Project endpoints, identification and characterization of existing land use and environmental constraints, and identification of areas of potential routing possibilities located within the study area. POWER identified potentially affected resources and considered each during the route development process. Comments from regulatory agencies, local officials, and the public were also incorporated into the alternative route development process. Modifications, additions, or deletions of preliminary alternative segments (or links) were considered regarding environmental and land use resource sensitivities, governmental agency guidance, and public input and comments. Feasible and geographically differentiated alternative routes were then selected for analysis and comparison using evaluation criteria to determine potential impacts to existing land use and environmental resources. The EA development process culminated with the ranking of the primary alternative routes by POWER from an environmental and land use perspective. With this recommendation from POWER, ETI also considered engineering and construction constraints, reliability issues, and estimated costs to identify one alternative route that it believes best addresses the requirements of PURA and PUC Substantive Rules. This alternative route, as well as other alternative routes that provide geographic diversity and sufficient routing options, is included in the CCN application submittal to the PUC.

2.1.1 Study Area Delineation

The first step in the process was to delineate a study area that encompassed the proposed Project termination points and included a large enough area within which a geographically differentiated set of alternative routes could be located to connect the proposed Project endpoints while also considering potential land use constraints and routing opportunities. The delineation of a study area for this proposed Project was dictated largely by the locations of the proposed Project endpoints at the time, which included ETI's existing Cypress Substation and the new Legend 500 kV Substation. The study area for the proposed Project, as shown on Figure 2-1, is an irregularly shaped area approximately 10.1 miles east to west and approximately 38.1 miles north to south and encompasses approximately 382 square miles in Hardin and Jefferson Counties. POWER mailed a map of this study area location map (Figure 2-1) along with a letter to federal, state, and local agencies soliciting information (Appendix A).

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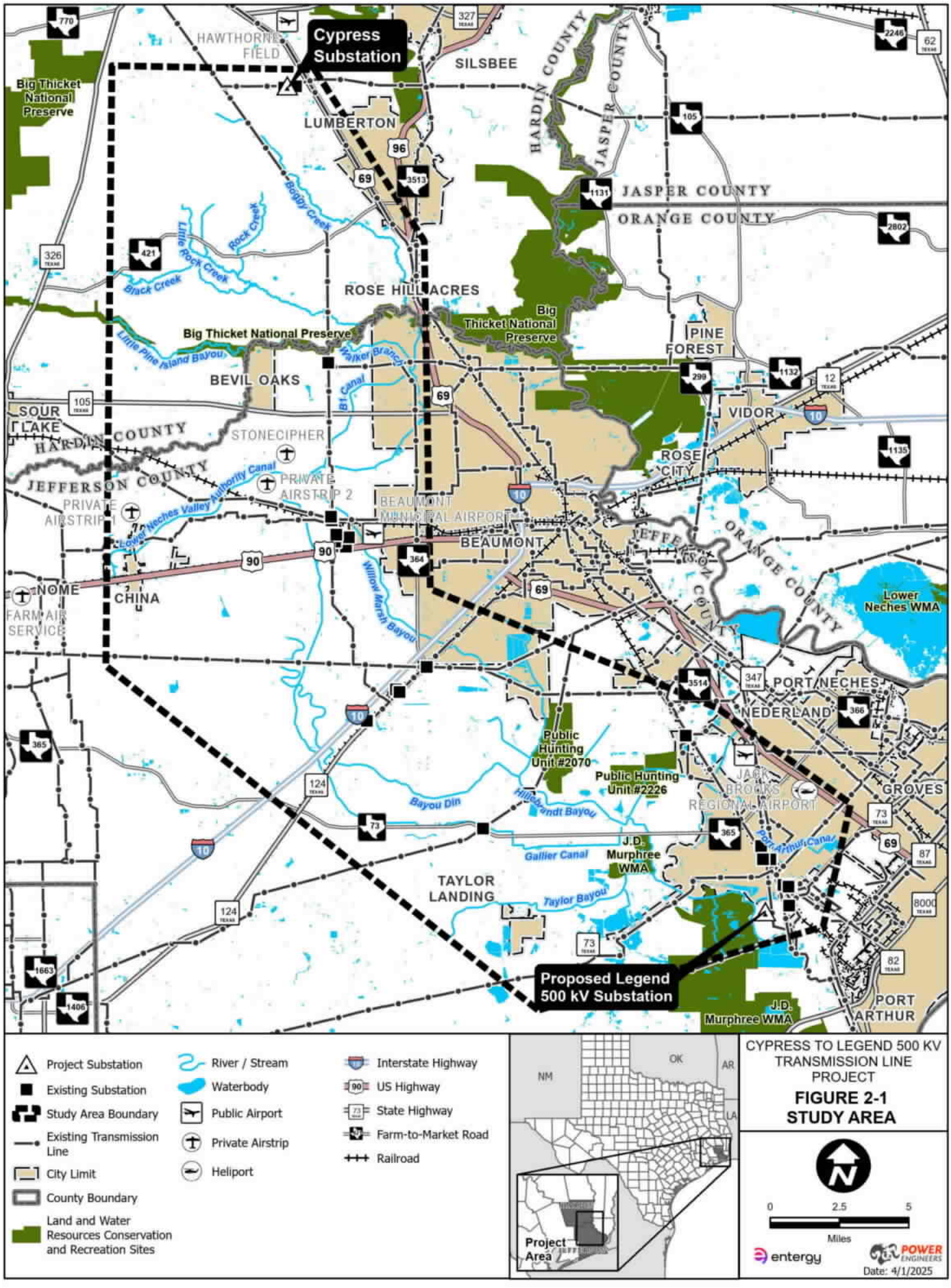
Cypress Substation
Proposed Legend 500 kV Substation
HAWTHORNE FIELD
SILSBEE
LUMBERTON
ROSE HILL ACRES
BEVIL OAKS
SOUR LAKE
STONECIPHER
PRIVATE AIRSTRIP 2
PRIVATE AIRSTRIP 1
BEAUMONT MUNICIPAL AIRPORT
BEAUMONT
NOME
CHINA
FARM AIR SERVICE
PINE FOREST
VIDOR
ROSE CITY
PORT NECHES
NEDERLAND
GROVES
JACK BROOKS REGIONAL AIRPORT
TAYLOR LANDING
PORT ARTHUR
Big Thicket National Preserve
Lower Neches WMA
Public Hunting Unit #2070
Public Hunting Unit #2226
J.D. Murphree WMA
HARDIN COUNTY
JASPER COUNTY
ORANGE COUNTY
JEFFERSON COUNTY
Lower Neches Valley Authority Canal
Willow Marsh Bayou
Bayou Din
Hillebrandt Bayou
Gallier Canal
Port Arthur Canal
Taylor Bayou
Big Thicket National Preserve
Little Pine Island Bayou
Walker Branch
B1 Canal
Little Rock Creek
Rock Creek
Boggy Creek
Black Creek
Project Substation
Existing Substation
Study Area Boundary
Existing Transmission Line
City Limit
County Boundary
Land and Water Resources Conservation and Recreation Sites
River / Stream
Waterbody
Public Airport
Private Airstrip
Heliport
Interstate Highway
US Highway
State Highway
Farm-to-Market Road
Railroad
NM
OK
AR
LA
Project Area
CYPRESS TO LEGEND 500 KV TRANSMISSION LINE PROJECT
FIGURE 2-1
STUDY AREA
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POWER ENGINEERS
Date: 4/1/2025

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2.1.2 Data Collection and Constraints Mapping

After delineating a study area, a constraint map was prepared and used to initially display resource data and constraints within the study area. The constraints map provides a broad overview of various resource data locations indicating obvious routing constraints and areas of potential routing opportunities. Information was regularly updated, and the constraints map was revised accordingly.

Several methodologies were utilized to collect and review environmental and land use data including the incorporation of readily available Geographic Information System (GIS) data with associated metadata; review of maps and published literature; and review of files and records from numerous federal, state, and local agencies. Data collected for each resource area was mapped within the study area utilizing GIS layers. The conditions of the existing environment are discussed throughout Section 3.0 of this document. Section 4.0 discusses the environmental impacts of the alternative routes and Section 5.0, and Appendix A provides information regarding correspondence with agencies and officials.

Maps and/or GIS data layers reviewed include (but were not limited to) United States Geological Survey (USGS) 7.5-minute topographic maps, USFWS NWI maps, TxDOT county highway maps, and recent aerial imagery. USGS topographic maps and recent aerial imagery were used as the background for the environmental and land use constraints maps (Appendix C and D [map pockets]).

Data typically displayed on the constraints map includes, but is not limited to:

- Major land jurisdictions and uses.
- Major roads including local roads, county roads, FM Roads, US Hwys, SHs, and Interstate Highways (IH).
- Existing transmission line and pipeline corridors.
- Airports, private airstrips, heliports, and communication facilities.
- Parks and recreational areas.
- Major political subdivision boundaries.
- Lakes, reservoirs, rivers, streams, canals, and ponds.
- Federal Emergency Management Agency (FEMA) 100-year floodplains.
- NWI mapped wetlands.
- Mobile irrigation systems.
- Wells (including water and oil and gas).

2.1.3 Agency Consultation

A list of federal, state, and local regulatory agencies, elected officials, and organizations was developed to receive a consultation letter and study area location map regarding the proposed Project. The purpose of the letter was to inform the various agencies and officials of the proposed Project and provide them with an opportunity to provide information regarding resources and potential issues within the study area. Various federal, state, and local agencies and officials that may have potential concerns and/or regulatory permitting requirements for the

proposed Project were contacted. POWER utilized websites and telephone confirmations to identify local officials. A list of agencies contacted, and a summary of responses are included in Section 5.0. Copies of all correspondence with the various federal and state regulatory agencies and local/county officials and departments are included in Appendix A.

2.1.4 Field Reconnaissance

Field reconnaissance surveys of the study area (from public viewpoints) were conducted by POWER personnel to confirm the findings of the research and data collection activities, to identify changes in land use occurring after the date of the aerial imagery, and to identify potential unknown constraints that may not have been previously noted in the data. Field reconnaissance surveys of the study area were conducted by POWER on December 11, 2023 and September 11, 2024.

2.1.5 Opportunities and Constraints Evaluation

To identify preliminary alternative route segments, information gathered included a review of agency comments, agency management plans, and internal review and discussions with the Project team were used to determine routing opportunities and constraints within the study area. Routing opportunities were generally located within open, undeveloped areas, or parallel to existing linear corridors. For example, existing electric facilities, roadways, and apparent property boundaries and other natural or cultural features provided routing opportunities.

Existing Linear Corridors

POWER identified existing linear corridor features as potential paralleling opportunities in accordance with 16 TAC § 25.101(b)(3)(B)(i-iii). Existing electrical facility ROWs, other compatible ROWs, apparent property boundaries, and other natural and cultural features were evaluated for potential utilization and paralleling opportunities where practical and feasible. Data sources used to identify existing linear ROWs include utility company regional system maps, aerial imagery, USGS topographical maps, Hardin and Jefferson County Appraisal District parcel data (records verified and provided by Transglobal), additional available planning documents, and field reconnaissance surveys.

Existing Electric Facility ROWs

POWER identified several existing transmission line corridors in the area. These existing lines include ETI's existing transmission lines. In addition, the study area has ETI distribution lines. POWER paralleled existing electric facility ROW where practical and feasible.

Other Compatible ROWs

POWER evaluated paralleling other compatible ROWs such as US Hwy 287, FM 421, US Hwy 96, SH 105, US Hwy 90, IH 10, SH 124, and SH 73 as well as other numerous county and local roads where practical and feasible.

Apparent Property Boundaries and Other Natural and Cultural Features

Apparent property boundaries and other natural and cultural features (e.g., fence lines, field lines, edges of timber) were initially identified using recent aerial imagery in conjunction with Hardin and Jefferson County Appraisal District parcel data that was provided to POWER by Transglobal. POWER considered paralleling apparent property boundaries and other natural and cultural features where practical and feasible.

Existing Pipeline ROWs

POWER reviewed aerial imagery and Railroad Commission of Texas (RRC) data to identify pipeline ROWs within the study area. Pipeline locations were verified, where possible, during field reconnaissance surveys. POWER identified multiple existing pipeline ROWs traversing the study area. The PUC rulemaking Project No. 42740 regarding paralleling of pipelines was also taken into consideration.

However, in its order adopting amendments to 16 TAC § 25.101 issued in April 2015 in PUC Project No. 42740, the Commission explained that (1) the amendments remove any presumption that the Commission has a preference for transmission line routes to parallel natural gas or other pipelines by identifying types of ROWs that generally may be compatible with transmission lines, (2) the list of compatible ROWs does not include pipelines, and (3) this intentional omission of pipelines from the list of compatible ROWs is intended to remove any preference for paralleling or utilizing pipeline ROWs while not prohibiting such consideration.

Although not specifically included in TAC § 25.101(b)(3)(B)(ii) as compatible, pipeline ROWs are linear cultural features and paralleling them when practical to do so minimizes impacts to the landowner's existing and planned property uses and, in some instances, reduces wildlife habitat fragmentation. By paralleling existing utility corridors such as pipeline ROW, adverse impacts to ecological resources and land uses may be reduced by avoiding and/or minimizing the impacts to undisturbed habitats.

2.1.6 Preliminary Alternative Route Segments

Preliminary alternative route segments were identified by the POWER planning team by using the environmental and land use constraints map while considering land use and environmental resource sensitivity (Figure 2-2). The preliminary alternative route segments were developed based upon maximizing the use of opportunity areas while avoiding areas of higher environmental constraint or conflicting land uses. Existing aerial imagery and USGS topographic maps were used in conjunction with constraints superimposed to identify optimal locations of preliminary alternative route segments.

The preliminary alternative route segments were presented to ETI for review and comment. The preliminary alternative route segments were reviewed in accordance with PURA § 37.056 (c)(4)(A)-(D), 16 TAC § 22.52(a)(4), 16 TAC § 25.101, the PUC's policy of prudent avoidance, and consistency with ETI's transmission line routing guidance. It was POWER's intent to identify an adequate number of environmentally acceptable and geographically differentiated preliminary alternative route segments while considering such factors as community values, parks and recreational areas, historical and aesthetic values, environmental integrity, route length utilizing and parallel to existing compatible corridors or parallel to apparent property boundaries or other natural and cultural features, and prudent avoidance. ETI and POWER

continually reviewed the preliminary alternative route segments throughout development and the preliminary alternative route segments were refined as more information became available.

2.1.7 Public Meeting

ETI hosted two in-person public meetings in accordance with 16 TAC § 22.52(a)(4) and developed a website for the proposed Project for the surrounding communities to solicit comments, concerns, input from residents, landowners, public officials, and other interested parties. Based on input, comments, and information received by ETI and POWER from the Project public meeting website or by mail, POWER conducted a public meeting analysis. The purpose of the public meeting analysis was to identify and evaluate the comments and additional information received prior, during, and following the public meeting. Information obtained during the analysis was used to determine any issues that would warrant modifications to the preliminary alternative segments presented during the public meeting and/or the identification of new segments that were not presented during the public meeting. ETI and POWER made several revisions to the preliminary alternative route segments after the public meetings in an attempt to further lessen the potential environmental and land use impacts. As a result, some segments were added, some were modified, and some were eliminated. A summary of the responses obtained from the Project website or by mail is presented in Section 6.0. Copies of the public notice letters with maps, brochures, frequently asked questions, and questionnaires are in Appendix B.

2.1.8 NPS Coordination

In addition to the public meetings, ETI engaged NPS early in the routing process to solicit input from NPS BTNP resource management regarding NPS NEPA and ROW application process. In addition, BTNP primary stakeholders participated in meetings and provided input. ETI and POWER made several revisions to the preliminary alternative route segments after meeting with NPS and BTNP stakeholders to further reduce impacts to NPS owned and/or administered lands. In particular, NPS and BTNP stakeholders expressed strong preference that ETI utilize its existing easement for the Bevil to Cypress 230 kV transmission line as the corridor for the new 500 kV transmission line as well. POWER concurs that the use of ETI's existing easement minimizes environmental impacts of the Project on the NPS BTNP. Based on that input, ETI submitted a SF 299 application with NPS to use the existing easement for the new 500 kV transmission line. The request was approved by NPS on March 6, 2025 (See Appendix F for ETI's SF 299 application and the NPS response).

If the use of ETI's existing ROW to cross the NPS BTNP for this Project is not approved by the Commission, then ETI would need to acquire a new easement across the NPS BTNP by submitting an SF 299 with alternatives for NPS to consider and go through NPS' NEPA review process, a process that could take approximately twelve to twenty four months, or more, depending upon the type of NEPA analysis necessary.

2.1.9 Modifications to the Preliminary Alternative Route Segments

ETI and POWER initially identified 125 preliminary alternative route segments that were presented to the public at the public meetings. After the public meetings, some segments were added, modified, or deleted. The following summarizes significant additions, modifications, and deletions to the preliminary segments after the public meetings:

- Segments 126, 127, 128, were added to provide additional geographic diversity and connect existing segments by paralleling property boundary this resulted in splitting Segment 11 into Segments 11A and 11B.
- Segments 129 and 130 were added to provide a segment connection to Segment 19 which split the Segments 18 and 19 into Segments 18A and 18B, and Segment 19A and Segment 19B.
- Segments 131, 132, 133, 134, and 135 were added to provide additional geographic diversity resulted in splitting Segment 50 into Segments 50A and 50B, and Segment 54 into Segments 54A and 54B.
- Segments 136 and 137 were added to provide additional geographic diversity which resulted in the splitting of Segment 54 into Segments 54C and 54D, and Segment 59 into Segments 59A and 59B.
- Segment 138 was added to provide additional geographic diversity.
- Segment 56 was modified minimize land use impacts due to a private airstrip that was identified.
- Segments 69, 70, 72, and 78 were modified to minimize land use impacts.
- Segment 89 was modified to minimize land use impacts.
- Segment 42 was modified to minimize land use impacts.
- Segment 51 was modified to minimize land use impacts.
- Segment 94 was modified to minimize land use impacts.
- Segments 103 and 106 were modified to improve parallelling existing transmission ROW.
- Segment 97 was removed to minimize land use impacts.
- Segments 108, 109, and 112 were modified to adhere to TxDOT's bridge abutment requirement.
- Segment 22 was removed to minimize land use impacts.
- Segment 114 was removed to minimize land use impacts.
- Segment 113 was modified to improve parallelling existing transmission ROW.
- Segment 118 was removed to minimize land use impacts.
- Segments 12 and 21 were removed to minimize land use impacts.
- As discussed in Sections 1.5.6, 2.1.8, and 5.0, in coordination and engagement with NPS and NPS BTNP stakeholders, NPS approved ETI's request to construct within ETI's existing easement along Segment 42. ETI does not require any additional authorization from NPS to proceed with the proposed activities on ETI's existing easement on Segment 42. For this reason, Segments 25, 38, 39 ,40, and 41 were removed from further consideration, which also resulted in removing Segments 4B, 4C, 12, 13, 14, 18, 20, 21, 28, 30, 32, 33, 39, 44, 45, 46, 47, 48, 49, 50, 55, 56, 58, 60, 61, 62, 63, 73, 75, and 83.

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If approved, only one route (consisting of multiple route segments) will be selected by the PUC.

All routes and route segments included in this notice are available for selection and approval by the Public Utility Commission of Texas (PUC).

Cypress Substation

Proposed Legend 500 kV Substation

Proposed Legend 500 kV Substation

SILSBEE
LUMBERTON
ROSE HILL ACRES
BEVIL OAKS
CHINA
PINE FOREST
PORT ARTHUR
PORT NECHES
NEDERLAND
TAYLOR LANDING
BEAUMONT MUNICIPAL AIRPORT
PRIVATE AIRSTRIP, STONECIPHER
PRIVATE AIRSTRIP
JACK BROOKS REGIONAL AIRPORT
MEDICAL CENTER OF SOUTHEAST TEXAS
SABINE PILOTS
HARDIN COUNTY
JASPER COUNTY
ORANGE COUNTY
JEFFERSON COUNTY
BIG THICKET NATIONAL PRESERVE
TPWD J D MURPHREE WMA OFFICE
J.D. MURPHREE WMA
TPWD PUBLIC HUNTING UNIT #2070
TPWD PUBLIC HUNTING UNIT #2226
ENTERGY L-488 230 KV
ENTERGY L-422 230 KV
ENTERGY L-496 230 KV
ENTERGY L-152 138 KV
ENTERGY L-62 69 KV
ENTERGY L-552 138 KV
Bear Creek
Rock Creek
Boggy Creek
Black Creek
Sallie Branch
Walker Branch
Bg Canal
Lower Neches Valley Authority Canal
Willow Marsh Bayou
Jefferson Canal
Garner Canal
Bayou Din
Galtier Canal
Taylor Bayou
Tiger Bayou
Port Arthur Canal
Carlton Creek

Project Substation
Existing Substation
Preliminary Alternative Route Node, Segment, and Label
Proposed Substation Site Boundary
Existing Transmission Line
City Limit
County Boundary
Land and Water Resources Conservation and Recreation Sites
River / Stream
Waterbody
Public Airport
Private Airstrip
Heliport
Railroad
Interstate Highway
US Highway
State Highway
Farm-to-Market Road

CYPRESS TO LEGEND
500 KV TRANSMISSION LINE PROJECT

FIGURE 2-2
PRELIMINARY ALTERNATIVE ROUTE SEGMENTS

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POWER ENGINEERS
Date: 5/21/2025

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2.1.10 Primary Alternative Routes

Following the public meetings, changes to the preliminary alternative segments were made, and 104 preliminary alternative segments, as modified, were designated as primary alternative route segments. Using these 104 primary alternative route segments, ETI and POWER identified primary alternative routes for the Project, with each of the primary alternative route segments incorporated in at least one route. Ultimately 24 primary alternative routes were designated. Given the constraints and opportunities in the Project area including the BTNP, TPWD WMA and TPWD Public Hunting Areas (including the Big Hill Unit, Latta Road Unit, and Bordegas Unit), and numerous oil and gas pipeline ROWs, the primary alternative routes represent an adequate number of reasonable and geographically differentiated primary alternative routes that reflect the previously discussed routing considerations. While additional alternative routes could be developed by combining the segments in different combinations, the alternative routes developed represent a set of geographically differentiated, logical, forward-progressing alternative routes that meet the PUC's routing guidelines and meet Project goals. These primary alternative routes were then specifically studied and evaluated by POWER's environmental staff.

Environmental and land use criteria data were collected for all the segments that were used to develop the 24 primary alternative routes. Additionally, potentially affected landowners along the 104 primary alternative route segments would be notified of the proposed Project. Therefore, to the extent necessary, various additional alternative routes could be formulated. The 104 primary alternative route segments are depicted on Figure 2-3, and in Appendices C and D. Primary alternative route segment composition is presented in Table 2-1. Potential impacts for each of the evaluation criteria were tabulated for each of the primary alternative routes (Table 4-1).

TABLE 2-1 ALTERNATIVE ROUTE COMPOSITION AND APPROXIMATE LENGTH

ROUTE	ROUTE COMPOSITION	LENGTH (MILES)
Route 1	1-2-10-16-17-24-29-35-42-51-53-66-69-78-79-96-107-110-124-125	40.7
Route 2	1-2-10-16-17-24-29-35-42-51-53-66-69-78-79-96-107-111-120-124-125	40.5
Route 3	1-2-10-16-17-24-29-35-42-51-53-66-69-78-79-96-107-111-121-123-125	40.5
Route 4	1-2-10-16-17-24-29-35-42-51-53-66-69-78-80-82-89-96-107-110-124-125	40.6
Route 5	1-2-10-16-17-24-29-35-42-51-53-66-69-78-80-82-89-96-107-111-120-124-125	40.4
Route 6	1-2-10-16-17-24-29-35-42-51-53-66-69-78-80-82-89-96-107-111-121-123-125	40.4
Route 7	1-3-6-9-15-17-24-29-35-42-51-53-66-69-78-79-96-107-110-124-125	43.7
Route 8	1-3-6-9-15-17-24-29-35-42-51-53-66-69-78-79-96-107-111-120-124-125	43.6
Route 9	1-3-6-9-15-17-24-29-35-42-51-53-66-69-78-79-96-107-111-121-123-125	43.6
Route 10	1-3-6-9-15-17-24-29-35-42-51-53-66-69-78-80-82-89-96-107-110-124-125	43.6
Route 11	1-3-6-9-15-17-24-29-35-42-51-53-66-69-78-80-82-89-96-107-111-120-124-125	43.5
Route 12	1-3-6-9-15-17-24-29-35-42-51-53-66-69-78-80-82-89-96-107-111-121-123-125	43.5
Route 13	1-3-6-9-15-17-24-29-35-42-51-53-65-68-71-77-86-90-91-93-95-108-109-110-124-125	45.0
Route 14	1-2-10-16-17-24-29-35-42-43A-43B-52-53-65-68-70-78-80-82-89-96-107-111-120-124-125	40.7
Route 15	1-2-10-16-17-24-29-35-42-43A-131-132-135-54B-54C-54D-70-78-79-96-107-110-124-125	42.3
Route 16	1-2-10-16-17-24-29-35-42-43A-131-132-135-54B-54C-137-74-76-86-87-88-89-96-107-111-120-124-125	44.6

TABLE 2-1 ALTERNATIVE ROUTE COMPOSITION AND APPROXIMATE LENGTH

ROUTE	ROUTE COMPOSITION	LENGTH (MILES)
Route 17	1-2-7-8-11A-19A-19B-23-27-31-34-42-43A-131-132-135-54B-54C-54D-70-78-80-82-94-95-108-112-119-120-124-125	45.6
Route 18	1-2-7-8-11A-19A-19B-23-26-36-37-42-51-53-66-69-78-80-82-94-101-105-113-117-122-123-125	46.5
Route 19	1-3-4A-126-129-130-19B-23-27-31-34-42-51-53-65-68-71-77-86-90-91-93-95-108-109-110-124-125	46.2
Route 20	1-3-4A-126-129-130-19B-23-26-36-37-42-51-53-65-67-69-78-79-96-107-111-121-123-125	45.8
Route 21	1-2-10-16-17-24-29-35-42-43A-131-132-133-134-57-59A-59B-64-72-78-79-96-107-111-120-124-125	45.7
Route 22	1-3-5-11A-19A-19B-23-27-31-34-42-51-53-66-69-78-80-81-92-99-100-102-105-113-116-119-120-124-125	48.4
Route 23	1-2-10-16-17-24-29-35-42-43A-43B-52-53-66-69-78-80-82-94-101-104-106-115	43.8
Route 24	1-2-10-16-17-24-29-35-42-43A-131-132-135-54B-136-59B-74-84-85-90-98-100-103-106-115	47.9

If approved, only one route (consisting of multiple route segments) will be selected by the PUC.

All routes and route segments included in this notice are available for selection and approval by the Public Utility Commission of Texas (PUC).

Cypress Substation

Proposed Legend 500 kV Substation

Proposed Legend 500 kV Substation

SILSBEE
LUMBERTON
ROSE HILL ACRES
BEVIL OAKS
STONECIPHER
BEAUMONT MUNICIPAL AIRPORT
CHINA
PORT ARTHUR
PINE FOREST
PORT NECHES
NEDERLAND
TAYLOR LANDING
HARDIN COUNTY
JASPER COUNTY
ORANGE COUNTY
JEFFERSON COUNTY
BIG THICKET NATIONAL PRESERVE
TPWD J D MURPHREE WMA OFFICE
TPWD PUBLIC HUNTING UNIT #2070
TPWD PUBLIC HUNTING UNIT #2226
JACK BROOKS REGIONAL AIRPORT
SABINE PILOTS MEDICAL CENTER OF SOUTHEAST TEXAS
PRIVATE AIRSTRIP 1
PRIVATE AIRSTRIP 2
ENTERGY L-488 230 KV
ENTERGY L-422 230 KV
ENTERGY L-496 230 KV
ENTERGY L-62 69 KV
ENTERGY L-152 138 KV
ENTERGY L-552 138 KV
Lower Neches Valley Authority Canal
Bear Creek
Rock Creek
Black Creek
Boggy Creek
Walker Branch
B1 Canal
Willow Marsh Bayou
Bayou Din
Jefferson Canal
Gallier Canal
Taylor Bayou
Tiger Bayou
Port Arthur Canal
J.D. MURPHREE WMA

Project Substation
Existing Substation
Primary Alternative Route Node, Segment, and Label
Proposed Substation Site Boundary
Existing Transmission Line
City Limit
County Boundary
Land and Water Resources Conservation and Recreation Sites
River / Stream
Waterbody
Public Airport
Private Airstrip
Heliport
Railroad
Interstate Highway
US Highway
State Highway
Farm-to-Market Road

CYPRESS TO LEGEND 500 KV TRANSMISSION LINE PROJECT

FIGURE 2-3
PRIMARY ALTERNATIVE ROUTE SEGMENTS

0 2.5 5
Miles

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POWER ENGINEERS

Date: 5/21/2025

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2.2 Alternative Route Evaluation

In evaluating the primary alternative routes, a variety of environmental criteria were considered. These criteria were selected because of their relevance to public and regulatory environmental concerns associated with the construction of transmission lines. Many of these criteria are factors contained in PURA § 37.056(c)(4), 16 TAC § 22.52(a)(4), and 16 TAC § 25.101(b)(3)(B) for granting of a CCN, as well as relevant questions in the PUC's CCN application form. The environmental criteria evaluated for this report are presented in Table 2-2. The 24 primary alternative routes are shown in relation to environmental and other land use constraints on topographic base map in Appendix C and in relation to habitable structures and other land use features on an aerial imagery base map in Appendix D, and constitute, for the purposes of this analysis, the only alternative routes addressed in this report. The analysis of each route involved inventorying and tabulating the number or quantity of each environmental criterion located along each alternative route (e.g., number of habitable structures within 500 feet, length parallel to roads). The number or amount of each factor was determined by POWER using GIS data layers, maps, recent aerial imagery, and field verification from publicly accessible areas where practical. Potential environmental impacts are addressed in Section 4.0 of this document.

The advantages and disadvantages of each alternative route were then evaluated. POWER conducted an environmental evaluation that was a comparison of 24 primary alternative routes from a strictly environmental viewpoint based upon the measurement of land use, aesthetics, ecology, and cultural resource criteria addressed in Section 4.0. POWER used this information along with landowner and agency concerns to select a route for recommendation that provided the best balance between land use, aesthetics, ecology, and cultural resource factors. POWER's evaluation ranking is discussed in Section 7.1.

After POWER conducted an evaluation and provided a ranking of the primary alternative routes from strictly an environmental perspective (including land use, aesthetics, ecology, and cultural resources), ETI undertook a further evaluation that considered the evaluation conducted by POWER in conjunction with a wide range of factors to select a route that is believed by ETI to be the route which best addresses the requirements of PURA and the PUC Substantive Rules. These additional factors not only included potential environmental and land use impacts, but also engineering and construction constraints, reliability issues, and estimated costs. Section 7.2 of this report summarizes ETI's evaluation and selection of a route that best addresses the requirements of PURA and the PUC Substantive Rules.

TABLE 2-2 ENVIRONMENTAL CRITERIA FOR ALTERNATIVE ROUTE EVALUATION

LAND USE	
1	Length of alternative route
2	Number of habitable structures[1] within 500 feet of the route centerline
3	Length of route utilizing existing electric facility right-of-way (ROW)
4	Length of route parallel to existing electric facility ROW
5	Length of route parallel to other existing compatible ROW (roads, highways, railway, or telephone utility ROW, etc.)
6	Length of route parallel to apparent property lines[2] (or other natural or cultural features)
7	Sum of evaluation criteria 3, 4, 5, and 6
8	Percent of evaluation criteria 3, 4, 5, and 6

TABLE 2-2 ENVIRONMENTAL CRITERIA FOR ALTERNATIVE ROUTE EVALUATION

9	Length of route parallel to pipeline ROW
10	Length of route across TPWD WMA office property
11	Length of route across J.D. Murphree WMA property
12	Length of route across National Park Service property
13	Length of route across additional parks/recreational areas[3]
14	Number of additional parks/recreational areas[3] within 1,000 feet of the route centerline
15	Length of route across cropland
16	Length of route across pasture/rangeland (includes open fields)
17	Length of route across land irrigated by traveling systems (rolling or pivot type)
18	Length of route across gravel pits, mines, or quarries
19	Number of pipeline crossings
20	Number of electric transmission line crossings
21	Number of Interstate (IH), US Highway (US Hwy), and State Highway (SH) crossings
22	Number of Farm-to-Market (FM) or Ranch-to-Market (RM) road crossings
23	Number of private use airstrips within 10,000 feet of the route centerline
24	Number of heliports within 5,000 feet of the route centerline
25	Number of Federal Aviation Administration (FAA) registered airports[4] (runways >3,200 feet) within 20,000 feet of the route centerline
26	Number of FAA registered airports[4] (runways <3,200 feet) within 10,000 feet of the route centerline
27	Number of commercial Amplitude Modulation radio (AM radio) transmitters within 10,000 feet of the route centerline
28	Number of Frequency Modulation radio (FM radio) transmitters, microwave towers, etc., within 2,000 feet of the route centerline
29	Number of existing water wells within 200 feet of the route centerline
30	Number of oil and gas wells within 200 feet of the route centerline
AESTHETICS	
31	Estimated length of route within foreground visual zone[5] of US and SHs
32	Estimated length of route within foreground visual zone[5] of FM/RM roads
33	Estimated length of route within foreground visual zone[6] of parks/recreational areas[3]
ECOLOGY	
34	Length of route across bottomland/riparian forest
35	Length of route across upland forest (including pine silviculture)
36	Acreage of route across National Wetland Inventory (NWI) mapped forested or scrub/shrub wetlands
37	Acreage of route across NWI mapped emergent wetlands
38	Length of route across known critical habitat of federally-listed threatened or endangered species
39	Length of route across known occupied red-cockaded woodpecker cluster habitat
40	Length of route across open water (lakes, ponds, etc.)
41	Number of stream/canal crossings
42	Number of navigable waterway crossings
43	Length of route parallel (within 100 feet) to natural streams or rivers
44	Length of route across FEMA mapped 100-year floodplains
45	Length of route across Coastal Management Zone

TABLE 2-2 ENVIRONMENTAL CRITERIA FOR ALTERNATIVE ROUTE EVALUATION

CULTURAL RESOURCES	
46	Number of cemeteries within 1,000 feet of the route centerline
47	Number of recorded historic or archeological resources crossed by route
48	Number of additional recorded historic or archeological resources within 1,000 feet of route centerline
49	Number of resources determined eligible for or listed on the National Register of Historic Places crossed by route
50	Number of additional resources determined eligible for or listed on the National Register of Historic Places within 1,000 feet of route centerline
51	Length of route across high archaeological/historical site potential

[1]Single-family and multi-family dwellings, and related structures, etc., 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 500 feet of the centerline of a transmission project of 345 kV or more.
[2]Apparent property lines created by existing roads, highway, or railroad ROW are not "double-counted" in the length of route parallel to apparent property lines criteria.
[3]Defined as parks and recreational areas owned by a governmental body or an organized group, club, or church within 1,000 feet of the centerline of the project.
[4]As listed in the Chart Supplement South Central U.S. (FAA 2023b formerly known as the Airport/Facility Directory South Central U.S.), FAA 2023a.
[5]One-half mile, unobstructed. Lengths of ROW within the foreground visual zone of Interstates, US and state highway criteria are not "double-counted" in the length of ROW within the foreground visual zone of FM roads criteria.
[6]One-half mile, unobstructed. Lengths of ROW within the foreground visual zone of parks/recreational areas may overlap with the total length of ROW within the foreground visual zone of interstates, US and state highway criteria and/or with the total length of ROW within the foreground visual zone of FM roads criteria.

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3.0 EXISTING ENVIRONMENT

3.1 Environmental Integrity

Resource inventory data were collected for physiography, geology, soils, surface waters, wetlands, and ecological resource areas. These data were obtained from readily available sources and mapped within the study area utilizing GIS layers. Additional data collection activities consisted of file and record reviews conducted with the various state and federal regulatory agencies, a review of published literature, and review of various maps and aerial imagery interpretation. Maps and data layers reviewed include USGS 7.5-minute topographic maps, aerial imagery, Bureau of Economic Geology (BEG) Geologic Atlas, NWI maps, TxDOT county highway maps, county appraisal district land parcel boundary maps.

3.1.1 Physiography and Geology

As shown in Figure 3-1, the study area is located within the Coastal Prairies sub-province of the Gulf Coastal Plains Physiographic Region of Texas. The Coastal Prairies are nearly level grasslands over deltaic sand and a mud bedrock type, with elevations ranging from sea level to 300 feet (BEG 1996). Elevations in the study area range from sea level to approximately 130 feet above mean sea level (USGS 2019).

Geologic formations underlying the study area include the Beaumont formation, Lissie formation, and alluvium (BEG 1992a).

The Beaumont Formation is approximately 100 feet thick and composed of mostly clay, silt, and sand. The Lissie Formation is approximately 200 feet thick and composed of clay, silt, sand, and gravel. Alluvium is composed of clay, silt, and organic matter and includes point-bar, natural levee, stream channel, backswamp, coastal marsh, mud flat, and narrow beach deposits (BEG 1992a).

Geological Hazards

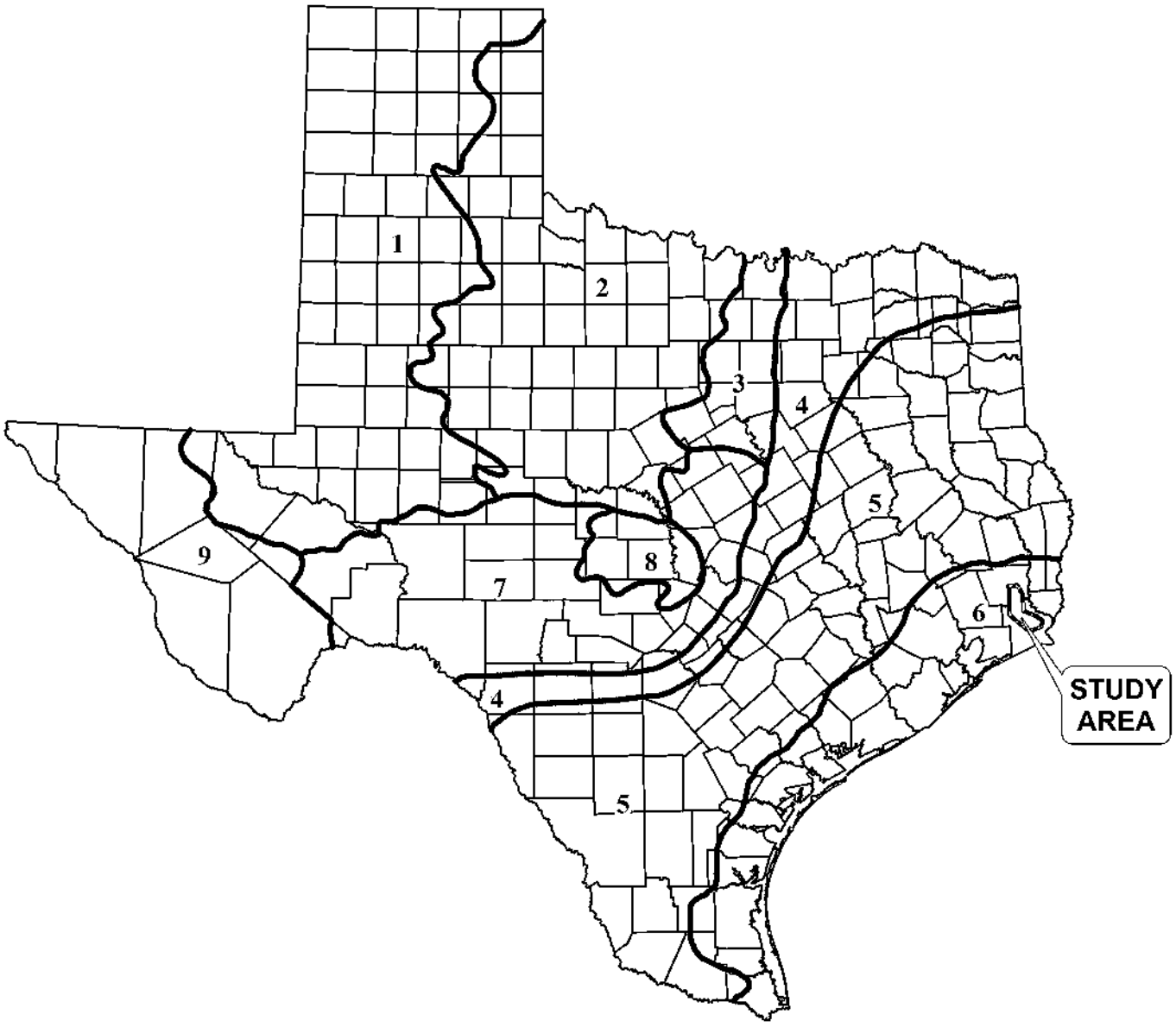
Several potential geologic hazards affecting the construction and operation of a transmission line were evaluated within the study area. Hazardous areas reviewed include normal fault locations, subsidence, active or historical coal and uranium mining locations, aggregate quarries, oil/gas wells, potential subsurface contamination, and landfills.

The study area occurs within the Gulf-margin normal faults region in Texas. Faults in this region are characterized as having a slip-rate category of less than 0.2 millimeter per year (Wheeler 1999). No quaternary faults were identified within in the study area (BEG 1992a). Groundwater withdrawals from the Gulf Coast Aquifer exacerbates land subsidence issues in portions of southeast Texas (USGS 2004). The hazards of land subsidence include flooding, fault movement, infrastructure damage, and changes in drainage patterns.

No historical or current coal or uranium mining (RRC 2023a, 2023b, 2023c, and 2023d) were identified within the study area. Numerous aggregate quarry operations were identified within the study area in Hardin County. Four aggregate quarry operations were identified within the study area in Jefferson County (TCEQ 2023a; Google Earth 2024). Numerous oil and gas wells

are mapped across the study area. Most wells are mapped within four clusters of oil and gas exploration (RRC 2023a).

The presence of subsurface contamination of soils or groundwater from commercial activities, such as dumps or landfills, can require additional considerations during routing and may create a potential hazard during construction activities. A review of USEPA Superfund/National Priority List Sites (USEPA 2023a) and the TCEQ - State Superfund Sites (TCEQ 2023b) did not indicate any sites within the study area. Review of TCEQ records identified two landfills within the study area, and a third landfill within one mile of the study area boundary (TCEQ 2023c).



0 50 100 150 200

Miles

Source: Texas Bureau of Economic Geology, 1996

Legend

Physiographic Region Boundary

1 High Plains
2 North-Central Plains
3 Grand Prairie
4 Blackland Prairies
5 Interior Coastal Plains
6 Gulf Coastal Prairies
7 Edwards Plateau
8 Central Texas Uplift
9 Trans-Pecos Basin and Range

County Boundary

CYPRESS TO LEGEND 500 KV TRANSMISSION LINE PROJECT

FIGURE 3-1

LOCATION OF THE STUDY AREA IN RELATION TO THE PHYSIOGRAPHIC PROVINCES OF TEXAS

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POWER ENGINEERS

Date: 3/26/2025

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3.1.2 Soils

Soil Associations

The Natural Resources Conservation Service (NRCS) Web Soil Survey (NRCS 2023a) was used to identify and characterize mapped soils within the study area. Soil map units represent an area dominated by one or more major type of soil (NRCS 2023a). Mapped soils within the study area are listed in Table 3-1, including a brief description of the soil unit, landform of occurrence, and hydric and prime farmland classification status.

TABLE 3-1 MAPPED SOIL ASSOCIATIONS WITHIN THE STUDY AREA

MAP UNIT NAME	LANDFORM	HYDRIC STATUS	PRIME FARMLAND
Allemands mucky peat, 0 to 0.5 percent slopes, tidal	Marshes	Yes	Not prime farmland
Anahuac very fine sandy loam, 0 to 2 percent slopes	Point Bars	No	All areas prime farmland
Anahuac very fine sandy loam, 0 to 2 percent slopes, rarely flooded	Point Bars	No	All areas prime farmland
Anahuac-Aris complex, 0 to 1 percent slopes	Point Bars	No	Prime farmland if drained
Anahuac-Aris complex, 0 to 1 percent slopes, rarely flooded	Point Bars	No	Prime farmland if drained
Anahuac-Urban land complex, 0 to 2 percent slopes	Point Bars	No	Not prime farmland
Aris-Levac complex, 0 to 1 percent slopes	Flats	Yes	Not prime farmland
Aris-Spindletop complex, 0 to 1 percent slopes	Flats	Yes	Not prime farmland
Aris-Spindletop complex, 0 to 1 percent slopes, rarely flooded	Flats	Yes	Not prime farmland
Barbary mucky clay, 0 to 1 percent slopes, frequently flooded	Flood plains	Yes	Not prime farmland
Barnett mucky peat, 0 to 1 percent slopes, frequently flooded, tidal	Marshes	Yes	Not prime farmland
Beaumont clay, 0 to 1 percent slopes	Flats	Yes	Not prime farmland
Beaumont silty clay, 0 to 1 percent slopes, rarely flooded	Flats	Yes	Not prime farmland
Beaumont-Urban land complex, 0 to 1 percent slopes	Flats	Yes	Not prime farmland
Belrose loamy fine sand, 0 to 3 percent slopes	Terraces	No	Not prime farmland
Bevil clay, 0 to 1 percent slopes	Depressions	Yes	Not prime farmland
Camptown silt loam, 0 to 1 percent slopes, frequently ponded	Meanders	Yes	Not prime farmland
Caplen mucky peat, 0 to 1 percent slopes, frequently flooded, tidal	Marshes	Yes	Not prime farmland
China clay, 0 to 1 percent slopes	Flats	No	All areas prime farmland
China clay, 0 to 1 percent slopes, rarely flooded	Flats	No	All areas prime farmland
China-Urban land complex, 0 to 1 percent slopes	Flats	No	Not prime farmland
Cowmarsh mucky silty clay, 0 to 1 percent slopes, frequently flooded, frequently ponded	Oxbows	Yes	Not prime farmland
Evadale silt loam, 0 to 1 percent slopes	Flats	Yes	Not prime farmland
Evadale-Aldine complex, 0 to 1 percent slopes	Flats	Yes	Not prime farmland
Evadale-Gist complex, 0 to 1 percent slopes	Flats	Yes	Not prime farmland

TABLE 3-1 MAPPED SOIL ASSOCIATIONS WITHIN THE STUDY AREA

MAP UNIT NAME	LANDFORM	HYDRIC STATUS	PRIME FARMLAND
Franeau clay, 0 to 1 percent slopes, occasionally flooded	Flats	Yes	Not prime farmland
Harris clay, 0 to 1 percent slopes, frequently flooded, tidal	Marshes	Yes	Not prime farmland
Ijam clay, 0 to 2 percent slopes, frequently flooded, tidal	Flats	Yes	Not prime farmland
Jasco silt loam, 0 to 1 percent slopes, frequently ponded	Open depressions	Yes	Not prime farmland
Jayhawker silt loam, 0 to 1 percent slopes, frequently ponded	Open depressions	Yes	Not prime farmland
Kenefick very fine sandy loam, 0 to 3 percent slopes	Terraces	No	All areas prime farmland
Kenefick-Caneyhead frequently ponded complex, 0 to 1 percent slopes	Terraces	No	Prime farmland if drained
Kirbyville fine sandy loam, 0 to 2 percent slopes	Interfluves	No	All areas prime farmland
Kirbyville-Niwana complex, 0 to 2 percent slopes	Flats	No	Not prime farmland
Kountze very fine sandy loam, 0 to 2 percent slopes	Interfluves	No	Not prime farmland
Labelle clay loam, 0 to 1 percent slopes	Flats	No	All areas prime farmland
Labelle clay loam, 0 to 1 percent slopes, rarely flooded	Flats	No	All areas prime farmland
Labelle-Levac complex, 0 to 1 percent slopes	Flats	No	All areas prime farmland
Labelle-Levac complex, 0 to 1 percent slopes, rarely flooded	Flats	No	All areas prime farmland
Labelle-Spindletop complex, 0 to 1 percent slopes	Flats	No	All areas prime farmland
Labelle-Urban land complex, 0 to 1 percent slopes	Flats	No	Not prime farmland
Labelle-Urban land complex, 0 to 1 percent slopes, rarely flooded	Flats	No	Not prime farmland
Larose mucky peat, 0 to 1 percent slopes, frequently flooded	Marshes	Yes	Not prime farmland
League clay, 0 to 1 percent slopes	Flats	No	All areas prime farmland
League clay, 0 to 1 percent slopes, rarely flooded	Flats	No	All areas prime farmland
League-Urban land complex, 0 to 1 percent slopes	Flats	No	Not prime farmland
League-Urban land complex, 0 to 1 percent slopes, rarely flooded	Flats	No	Not prime farmland
Leerco muck, 0 to 1 percent slopes, frequently flooded, tidal	Marshes	Yes	Not prime farmland
Leton loam, 0 to 1 percent slopes, occasionally flooded, frequently ponded	Meandering channels	Yes	Not prime farmland
Meaton-Levac complex, 0 to 1 percent slopes, rarely flooded	Flats	Yes	Not prime farmland
Meaton-Spindletop complex, 0 to1 percent slopes, rarely flooded	Flats	Yes	Not prime farmland
Meaton-Urban land complex, 0 to 1 percent slopes, rarely flooded	Flats	Yes	Not prime farmland

TABLE 3-1 MAPPED SOIL ASSOCIATIONS WITHIN THE STUDY AREA

MAP UNIT NAME	LANDFORM	HYDRIC STATUS	PRIME FARMLAND
Mollco frequently ponded-Craigen complex, 0 to 1 percent slopes, rarely flooded	Open depressions on strand plains	Yes	Not prime farmland
Morey loam, 0 to 1 percent slopes	Flats	No	Farmland of statewide importance
Morey-Levac complex, 0 to 1 percent slopes	Flats	No	Farmland of statewide importance
Morey-Spindletop complex, 0 to 1 percent slopes	Flats	No	Farmland of statewide importance
Morey-Urban land complex, 0 to 1 percent slopes	Flats	No	Not prime farmland
Neches coarse sand, 2 to 5 percent slopes	Flats	No	Not prime farmland
Neel clay, 2 to 5 percent slopes, occasionally flooded, tidal	Depressions	Yes	Not prime farmland
Neel-Urban land complex, 2 to 5 percent slopes, rarely flooded, tidal	Mound	No	Not prime farmland
Nona-Dallardsville complex, 0 to 1 percent slopes	Flats	Yes	Not prime farmland
Oil-waste land	-	No	Not prime farmland
Olive frequently ponded-Dallardsville complex, 0 to 1 percent slopes	Open depressions	Yes	Not prime farmland
Olive silt loam, 0 to 1 percent slopes, frequently ponded	Open depressions	Yes	Not prime farmland
Orcadia silt loam, 0 to 2 percent slopes	Flats	No	Farmland of statewide importance
Orcadia-Anahuac complex, 0 to 1 percent slopes	Flats	No	Farmland of statewide importance
Orcadia-Aris complex, 0 to 1 percent slopes	Flats	No	Farmland of statewide importance
Orcadia-Aris complex, 0 to 1 percent slopes, rarely flooded	Flats	Yes	Farmland of statewide importance
Orcadia-Urban land complex, 0 to 2 percent slopes	Flats	No	Not prime farmland
Otanya very fine sandy loam, 1 to 3 percent slopes	Interfluves	No	Farmland of statewide importance
Pits	-	No	-
Plank silt loam, 0 to 1 percent slopes	Flats	Yes	Not prime farmland
Silsbee loamy fine sand, 5 to 12 percent slopes	Interfluves	No	Not prime farmland
Simelake clay, 0 to 1 percent slopes, frequently flooded	Flood plains	Yes	Not prime farmland
Simelake-Pluck complex, 0 to 1 percent slopes, frequently flooded	Flats	Yes	Not prime farmland
Sorter-Dallardsville complex, 0 to 1 percent slopes	Flats	Yes	Not prime farmland
Sourlake loam, 0 to 1 percent slopes, frequently flooded	Flood plains	Yes	Not prime farmland
Spurger very fine sandy loam, 0 to 3 percent slopes	Terraces	No	Not prime farmland
Spurger-Caneyhead frequently ponded complex, 0 to 1 percent slopes	Terraces	No	Not prime farmland
Texla silt loam, 0 to 2 percent slopes	Flats	No	Not prime farmland
Texla-Urban land complex, 0 to 2 percent slopes	Flats	No	Not prime farmland
Urban land	-	No	Not prime farmland