APPLICATION OF

LONE STAR TRANSMISSION, LLC

TO AMEND ITS CERTIFICATE OF CONVENIENCE

AND NECESSITY FOR THE

LIBERTY TO WACO SOLAR 345-KV TRANSMISSION

LINE IN HILL AND LIMESTONE COUNTIES

DOCKET NO. 52853

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

1. **Applicant (Utility) Name:** Lone Star Transmission, LLC

Certificate Number: 30196

Street Address: 5920 W. William Cannon Dr., Bldg. 2
Austin, TX 78749

Mailing Address: 5920 W. William Cannon Dr., Bldg. 2
Austin, TX 78749

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.**

Not applicable. Lone Star Transmission, LLC (Lone Star) will construct and hold the sole ownership interest in the facilities associated with the proposed Liberty to Waco Solar 345 kilovolt (kV) Transmission Line in Hill and Limestone Counties (Project).

3. **Person to Contact:**

Primary Contact:	Stacie Bennett
Title/Position:	Director, Regulatory Affairs
Phone Number:	(512) 236-3135
Mailing Address:	5920 W. William Cannon Dr., Bldg. 2 Austin, TX 78749
Email Address:	stacie.bennett@lonestar-transmission.com
Alternate Contact:	David Turner
Title/Position:	Director, System Planning and Customer Operations
Phone Number:	(512) 236-3146
Mailing Address:	5920 W. William Cannon Dr., Bldg. 2 Austin, TX 78749
Email Address:	david.turner@lonestar-transmission.com
Legal Counsel:	Tracy Davis, Senior Attorney
Phone Number:	(512) 236-3141
Mailing Address:	5920 W. William Cannon Dr., Bldg. 2 Austin, TX 78749
Email Address:	tracy.davis@lonestar-transmission.com

4. **Project Description:**

Name or Designation of Project:

Liberty to Waco Solar 345-kV Transmission Line in Hill and Limestone Counties (Project)

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

Design Voltage Rating (kV): 345-kV

Operating Voltage (kV): 345-kV

CREZ Zone(s): Not applicable

Substation(s) Included: None

Series Element(s) Included: None

Lone Star is proposing to design and construct the Liberty to Waco Solar 345-kV Transmission Line in Hill and Limestone Counties, Texas (Project) in order to interconnect the Waco Solar project, a new, approximately 412-megawatt (MW) solar generation facility being constructed by Waco Solar, LLC (Waco Solar) in Hill and Limestone Counties, Texas.[1] Waco Solar is an indirect, wholly-owned subsidiary of NextEra Energy Resources, LLC.

Lone Star proposes to construct the Project as a single-circuit, 345-kV transmission line using primarily concrete monopoles, extending from Lone Star's Liberty Station, which Lone Star will begin constructing in Hill County in January 2022, approximately 3 miles to the southeast to Waco Solar's 345-kV collector station (Collector Station), located in Limestone County. The proposed transmission line from the Liberty Station to the Waco Solar Collector Station will be approximately 3 miles in length and will require a 150- to 200-foot right of way (ROW).[2]

Lone Star is proposing one route (Consensus Route) for the Project because all landowners crossed by the Project have granted agreements for easements to Waco Solar for the new transmission line. Waco Solar will transfer its transmission line easements to Lone Star following the Commission's approval of this Application. In addition, the Consensus Route is a forward-progressing and relatively direct path from the Waco Solar Collector Station to Lone Star's Liberty Station and meets the applicable criteria of the Public Utility Regulatory Act (PURA)[3] and the Commission's rules. Therefore, this Application sets forth a single proposed route for the Project.

For a more detailed description of the proposed Project, please see the *Liberty to Waco Solar 345-kV Transmission Line Project Environmental Assessment and Route Analysis* (EA), prepared by Lone Star's routing consultant, POWER Engineers, Inc. (POWER), which is included as Attachment 1 to this Application and incorporated herein by reference.

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.).

Not applicable. Lone Star will own 100 percent of the Project described in this Application.

[1] The Waco Solar project is also referred to in certain Electric Reliability Council of Texas (ERCOT) studies as the Mercury Solar I and II projects.

[2] Waco Solar requested interconnection to Lone Star's existing 345-kV transmission system near the existing Lone Star-owned Sam Switch to Hubbard Wind 345-kV transmission line in Hill County. Lone Star will be constructing an approximately 0.8-mile extension of its 345-kV Sam Switch to Hubbard Transmission Line and the Liberty Station, both of which are projects that do not require a CCN amendment under 16 TAC § 25.101(c). The proposed Project will extend approximately 3 miles from the Liberty Station to the Waco Solar-owned Waco Solar Collector Station.

[3] Public Utility Regulatory Act, Tex. Util. Code §§ 11.001–66.016 (PURA).

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.

Not applicable. The Commission has not previously approved, and ERCOT (a PURA § 39.151 organization) has not previously recommended, any transmission specifications applicable to this project. ERCOT Nodal Protocol Section 3.11 (relating to Transmission Planning) and the ERCOT RPG Charter and Procedures define a project that interconnects new generation as a "neutral project" that does not require ERCOT Regional Planning Group (RPG) review. Therefore, the proposed Project was not submitted for RPG review, and ERCOT did not provide any transmission specifications for the Project. Thus, there are no deviations from the original transmission specifications previously recommended by ERCOT.

In accordance with the Nodal Protocols, ERCOT performed a Generation Interconnect Screening Study, which concluded that the proposed generation facility could be interconnected to Lone Star's transmission system. Additionally, Lone Star completed the Full Interconnection Study process required by ERCOT, which included a Facility Study. The Facility Study describes the transmission facilities and associated costs required to interconnect the new generation project. The Facility Study was available to ERCOT and other transmission service providers (TSP) for review and comment for ten days, and Lone Star received no comments.

5. Conductor and Structures:

Conductor Size and Type

The conductor used for the Project will be a twin-bundled 1590 kcmil Falcon ACSR conductor with a single 0.530 Optical Ground Wire and 7#7 overhead shield wire.

Number of Conductors Per Phase

The Project will be constructed with two conductors per phase.

Continuous Summer Static Current Rating (A)

The nominal Continuous Summer Static Current Rating for the Project is 3000 Amps (A).

Continuous Summer Static Line Capacity at Operating Value (MVA)

The nominal Continuous Summer Static Line Capacity at Operating Voltage for the Project is approximately 1794 Megavolt Amps (MVA).

Continuous Summer Static Line Capacity at Design Voltage (MVA)

The nominal Continuous Summer Static Line Capacity at Design Voltage for the Project is approximately 1794 MVA.

Type and Composition of Structures

Lone Star proposes to construct the Project primarily using self-supporting, single-circuit concrete monopole structures. Alternative structure types, such as guyed dead-end monopole structures or single self-supported monopoles, may be used due to engineering constraints, such as crossing obstructions, turning large angles, or other constraints.

Height of Typical Structures

The typical structure height for the Project will be approximately 90 to 130 feet. However, the height may vary depending on the clearance requirements at a particular location due to the terrain, span lengths, overhead obstructions, and various other constraints.

Estimated Maximum Height of Structures

The estimated maximum height of structures is expected to be approximately 140 feet above ground.

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.

Lone Star selected pre-stressed concrete monopoles as the typical structure type for the Project for a number of reasons. In Lone Star's experience, pre-stressed concrete monopoles have shorter fabrication lead times and will be manufactured at a facility located in Texas, which minimizes shipping times and costs. In addition, in Lone Star's experience, construction using concrete monopoles has been efficient and cost-effective. Also, Lone Star's spare inventory includes pre-stressed concrete monopoles.

Further, based on Lone Star's general experience, many landowners prefer monopoles because they have a reduced structure footprint, which generally results in fewer impacts to land and reduces interference with current land uses, *e.g.*, ranching and farming. Consent was obtained from landowners based upon a design utilizing monopoles.

Dimensional drawings of the concrete monopole structures are included as Figures 1-2 and 1-3 of the EA included as Attachment 1 to this Application.

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

Not applicable. This is not a joint application.

6. Right-of-Way:

Miles of Right-of-Way

The total miles of ROW for the Consensus Route filed by Lone Star is approximately 3 miles in length.

Miles of Circuit

The Project will be a single-circuit transmission line, and the number of circuit miles is approximately 3 miles.

Width of Right-of-Way

The typical ROW for the Project will be 150 to 200 feet in width.

Percent of Right-of-Way Acquired

Waco Solar has acquired agreements for easements for 100 percent of the land rights needed for the proposed Project. The easements will be transferred to Lone Star following approval of this Application.

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. This is not a joint application.

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 is located within the Blackland Prairies Sub-province of the Gulf Coastal Plains Physiographic Province. Elevations within the study area range between approximately 450 to 1,000 feet above mean sea level (amsl) and generally increase northward and eastward.

The study area is primarily rural with little development. The predominant land use within the study area is rangeland/pastureland and croplands.

Specific discussion regarding natural, human, and cultural resources in the study area is presented in Section 3 of the EA (Attachment 1 to this Application).

7. Substations or Switching Stations:

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

The proposed Project will connect to Lone Star's Liberty 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.

The proposed transmission line will extend between Lone Star's Liberty Station and the new Waco Solar Collector Station. The generator, Waco Solar, will own the Waco Solar Collector Station. The point of interconnection for the Project will be located at a new Lone Star-owned dead-end structure located outside of the Waco Solar Collector Station.

8. Estimated Schedule:

Estimated Dates of:	**Start**	**Completion***
Right-of-way and Land Acquisition	April 2021	May 2022 or earlier depending on date of PUCT approval**
Engineering and Design	November 2021	March 2022
Material and Equipment Procurement	September 2021	June 2022
Construction of Facilities	May 2022 or earlier, depending on date of PUCT approval	October 2022
Energize Facilities	October 2022	October 2022

*With the Consensus Route and necessary easements obtained for the Project, this estimated schedule is based upon administrative approval of this Application pursuant to 16 Texas Administrative Code (TAC) § 25.101(b)(3)(C).

**Following approval of this Application, Waco Solar has agreed to assign all of Waco Solar's acquired ROW for the Project to Lone Star.

9. Counties:

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

The Consensus Route for the Project is located within Hill and Limestone Counties.

10. Municipalities:

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

The Consensus Route for the Project is not located within the incorporated boundaries of any municipality.

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

Not applicable.

11. Affected Utilities:

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

No other electric utility is served by or directly connected to this Project.

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

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.

Funds for the Project will come from Lone Star's existing cash on hand, existing debt facility, and owner equity.

13. Estimated Costs:

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

The estimated costs for the Consensus Route for the transmission line facilities and for the termination costs at the Liberty Station associated with this Project are provided in the table below. Because Lone Star is proposing only one Consensus Route, Lone Star is providing the required cost information in a table in this CCN Application. Lone Star also is providing a native version of this estimated cost table electronically with this Application package.

Consensus Route Costs	**Transmission Facilities**	**Substation Facilities**
Right-of-way and Land Acquisition	$300,000	$0
Engineering and Design (Utility)	$0	$0
Engineering and Design (Contract)	$80,000	$80,000
Procurement of Material and Equipment (including stores)	$810,000	$840,000
Construction of Facilities (Utility)	$0	$0
Construction of Facilities (Contract)	$2,700,000	$590,000
Other (all costs not included in the above categories)	$1,000,000	$150,000
Estimated Total Cost	**$4,890,000**	**$1,660,000**

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

Not applicable. This is not a joint application.

14. Need for the Proposed Project:

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

The proposed Project is necessary to interconnect and provide transmission service to a new transmission service customer, Waco Solar. Pursuant to 16 TAC §§ 25.191(d)(3) and 25.198(b), a TSP is required to provide service to a transmission service customer when certain conditions are met, including execution of

an interconnection agreement. Waco Solar requested interconnection to Lone Star's existing 345-kV transmission system, near the existing Lone Star-owned Sam Switch to Hubbard Wind 345-kV Transmission Line in Hill County. As a power generation company, Waco Solar will be a transmission service customer under 16 TAC § 25.5(140). Lone Star and Waco Solar executed the ERCOT Standard Generation Interconnection Agreement on October 18, 2021 (Interconnection Agreement), with an agreed upon in-service date for the transmission facilities of October 20, 2022 and an agreed upon commercial operation date for the Waco Solar generation facility of December 27, 2022.[4] The Interconnection Agreement was filed with the Commission in Project No. 35077 on October 23, 2021 and is included in this Application as Attachment 2.

Additionally, 16 TAC § 25.195(c)(1) provides as follows: "When an eligible transmission service customer requests transmission service for a new generation source that is planned to be interconnected with a TSP's transmission network, the transmission service customer shall be responsible for the cost of installing step-up transformers to transform the output of the generator to a transmission voltage level and protective devices at the point of interconnection capable of electrically isolating the generation source owned by the transmission service customer. The TSP shall be responsible, pursuant to paragraph (2) of this subsection, for the cost of installing any other interconnection facilities that are designed to operate at a transmission voltage level and any other upgrades on its transmission system that may be necessary to accommodate the requested transmission service." The Interconnection Agreement provided as Attachment 2 specifies and assigns these responsibilities pursuant to 16 TAC § 25.195(c)(1).

The ERCOT Nodal Protocols and ERCOT RPG Charter and Procedures define a project that is directly associated with the interconnection of new generation as a "neutral project," which is not required to be submitted for RPG review. Since the Project was not submitted for RPG review, there is no documentation of a review or recommendation of ERCOT, a PURA § 39.151 organization.

In accordance with the Nodal Protocols, ERCOT performed a Generation Interconnect Screening Study, which concluded that the proposed generation facility could be interconnected into Lone Star's Liberty Station. Additionally, Lone Star completed the Full Interconnection Study process required by ERCOT for all generation interconnection requests, which included a Facility Study. The Facility Study describes the transmission facilities and associated costs required to interconnect the new generation project. The Facility Study was available to ERCOT and other TSPs for review and comment for ten days, and Lone Star received no comments.

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.

Lone Star is proposing this Project in order to provide service to a transmission service customer, Waco Solar, which has requested to interconnect its approximately 412-MW solar generating facility to Lone Star's existing transmission facilities near the existing Lone Star-owned Sam Switch to Hubbard Wind 345-kV Transmission Line in Hill County. Other alternatives to the proposed Project would not provide a feasible or cost-effective solution to this identified project need.

[4] Under Exhibit B of the Lone Star-Waco Solar Interconnection Agreement, the first phase of the Waco Solar generation facility (350 MW) will be placed in service by December 27, 2022, and a second phase (an additional 62 MW) will be placed in service by March 31, 2023.

First, using distribution facilities to transfer approximately 412 MW from the solar generation facility to the existing 345-kV transmission system is not practical from an engineering or cost perspective. ERCOT typically requires generators larger than 10 MW to interconnect at transmission-level voltages (*i.e.*, above 60 kV). Second, there is no need for Lone Star to upgrade the voltage on its transmission facilities or add transformers. Waco Solar requested to interconnect at 345-kV, which is the voltage level of Lone Star's Liberty Station. Third, there are no existing transmission lines that could be bundled to interconnect the Waco Solar generation facility. Lone Star's transmission facilities already utilize bundled conductor. Finally, Lone Star is an unbundled, transmission-only utility, and therefore, distributed generation is not an alternative to the proposed Project.

16. Schematic or Diagram:

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

A schematic of Lone Star's transmission system in the proximate area of the Project is included as Attachment 3 to this Application.

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.

Lone Star retained POWER to prepare the EA. A copy of the complete EA for the Consensus Route is included as Attachment 1 to this Application. The EA presents the analysis that was conducted by POWER, as well as the land use and environmental data for the Consensus Route that was considered for this Project. The following summary is based on information provided in Section 2 of the EA.

The objective of the EA was to evaluate the proposed 345-kV transmission line location for compliance with PURA § 37.056(c)(4)(A)-(D), 16 TAC § 25.101(b)(3)(B), and 16 TAC § 22.52(a)(4), including the Commission's policy of prudent avoidance. POWER used a comprehensive transmission line evaluation methodology to evaluate the proposed route of the transmission line location. Methods used were governed by factors set forth in PURA § 37.056(c)(4) and 16 TAC § 25.101(b)(3).

Process of Selecting the Study Area: The first step in the assessment of the Project was to delineate a study area. The study area needed to encompass the endpoints for the proposed Project (the Liberty Station and the Waco Solar Collector Station) and include an area large enough to adequately evaluate the proposed transmission line Project in order to support Lone Star's Application. The purpose of delineating a study area for the Project was to establish boundaries and limits in which to identify environmental and land use constraints during the information gathering process to properly identify and map various items included within the Commission's CCN requirements and standard CCN application. The study area for the proposed Project (Study Area) was delineated at approximately 1.4 miles by approximately 3.6 miles, encompassing a total area of approximately 4 square miles in the southeastern portion of Hill County and the northwestern portion of Limestone County.

Identification of Routing Constraints: Data used in the evaluation of the Project were drawn from a variety of sources, including published literature, information from local, state, and federal agencies, recent aerial photography, and ground reconnaissance of the Study Area. In identifying constraints, POWER considered numerous land use, ecological, and cultural resources within the Study Area.

To quantify potential impacts to sensitive environmental and land use features, a constraints mapping process was used in evaluating the Project. The geographic locations of environmentally sensitive and other restrictive areas within the Study Area were identified and considered during the evaluation process. These constraints were mapped onto an aerial base map (Figure 4-2 of the EA) created using 2020 NAIP imagery. Section 2 of the EA describes POWER's process for identifying routing constraints in more detail.

Identification of the Consensus Route: The Consensus Route was developed by Waco Solar in coordination with landowners crossed by the transmission line and Lone Star's engineering and environmental teams, including POWER. Lone Star has determined that the Consensus Route complies with the requirements of PURA and the Commission's Substantive Rules.

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.

Not applicable. Pursuant to 16 TAC § 22.52(a)(4), because fewer than 25 persons are entitled to receive direct mail notice of the Application, no public meeting was held prior to filing of this Application. Lone Star has discussed the proposed Consensus Route with the five directly affected landowners and answered questions regarding the location, transmission structure type, and ROW width. These landowners have agreed to the location of the Consensus Route on their property.

In addition, consistent with 16 TAC § 22.52(a)(4), Lone Star sent a letter to the Department of Defense (DoD) Siting Clearinghouse on June 18, 2021 notifying it of the Project and that Lone Star was preparing an EA and CCN application. A sample copy of the written notice sent to the DOD Siting Clearinghouse notifying it of the Project is included in Appendix A of the EA (Attachment 1 to this Application).

19. Routing Maps:

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

Routing maps are provided in the EA (Attachment 1 to this Application). Figure 4-2 in the EA is an aerial-photograph-based map with a scale of 1 inch = 600 feet that shows the Study Area, the Consensus Route, existing transmission lines, and other environmental and land use features.

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.

An aerial-photograph-based property ownership map with a scale of 1 inch = 600 feet is included in this Application as Attachment 4. It shows the approximate boundaries of all properties that are directly affected by the proposed 345-kV transmission line (Consensus Route), according to the best information available from Hill County and Limestone County tax appraisal district records.

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

Landowner names, directly affected property identification, and map locations are included in a cross-reference table provided as Attachment 5 to this Application. As indicated in Table 4-1 of the EA (Attachment 1 to this Application), there are no habitable structures within 500 feet of the centerline of the proposed Consensus Route.

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.

Lone Star will coordinate with appropriate local, state, and federal agencies with jurisdiction regarding the construction of the transmission facilities associated with the Project. Lone Star and/or POWER have initiated contact with and provided information about the Project to various agencies. Input from these agencies has been incorporated in the Application and EA; however, requests for permits and/or approvals will not be submitted to the appropriate agencies until the alignment of the Consensus Route has been approved by the Commission. The following potential permits, approvals, requirements, easements, or clearances could be required, but have not been obtained at this time.

- Floodplain development permits and road crossing permits may be required by Hill and Limestone Counties, depending on the location of the transmission line structures. Coordination with the local floodplain administrator will be completed as necessary.
- Cultural resource clearance will be obtained from the Texas Historical Commission for the proposed Project ROW as necessary.
- A Storm Water Pollution Prevention Plan (SWPPP) may be required by the Texas Commission on Environmental Quality (TCEQ). Lone Star or its contractor will submit a Notice of Intent to the TCEQ at least 48 hours prior to the beginning of construction and will maintain the SWPPP on site at the initiation of clearing and construction activities.
- After alignments and structure locations/heights are adjusted and set, Lone Star will make a final determination of the need for Federal Aviation Administration (FAA) notification, based on structure locations and structure designs. In some areas, if necessary, Lone Star could use lower-than-typical structure heights or add marking and/or lighting to certain structures.
- Permits or other requirements associated with possible impacts to endangered/threatened species will be coordinated with the U.S. Fish and Wildlife Service as necessary.

- Coordination with Texas Parks & Wildlife Department (TPWD) may be necessary to determine the need for any surveys, and to avoid or minimize any potential adverse impacts to sensitive habitats, threatened or endangered species, and other fish and wildlife resources along the approved route.
- Permits or other requirements associated with possible impacts to waters of the U.S. under the jurisdiction of the U.S. Army Corps of Engineers (USACE) will be coordinated with the USACE as necessary.

No permits for the Project have been obtained at this time. Further discussion of permits that may be required for the Project is included in Section 1.6 of the EA.

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.

There are no habitable structures within 500 feet of the centerline of the proposed Consensus Route.

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.

As indicated in Table 4-1 of the EA, no AM radio transmitter was determined to be located within 10,000 feet of the Consensus Route. Also, no FM radio transmitter, microwave tower, or other electronic installations were determined to be located within 2,000 feet of the centerline of the Consensus Route.

23. Airstrips:

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

As indicated in Table 4-1 of the EA:

- No known private airstrips are located within 10,000 feet of the centerline of the Consensus Route;

- No airports registered with the FAA with at least one runway more than 3,200 feet in length located within 20,000 feet of the centerline of the Consensus Route;
- No airports registered with the FAA having no runway more than 3,200 feet in length located within 10,000 feet of the centerline of the Consensus Route; and
- No heliports located within 5,000 feet of the centerline of the Consensus Route.

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.

No pasture or cropland irrigated by traveling irrigation systems (rolling or pivot type) will be traversed by the Consensus Route.

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.

Sample copies of the written direct notice and enclosures that were mailed to the owners of directly affected land are provided in Attachments 6A through 6F. The list of the names and addresses of the owners of directly affected land receiving notice is provided in Attachment 6G.

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

A sample copy of the written notice to utilities that are located within five miles of the proposed Project is provided in Attachment 7A. The list of the names and addresses of these utilities is provided in Attachment 7B.

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/.

A sample copy of the written notice sent to Hill County, Limestone County, and City of Mount Calm officials and the Department of Defense Siting Clearinghouse is included in Attachment 8A.

In addition to the notices above, 16 TAC § 22.52 requires Lone Star to provide notice of this Application to the Office of Public Utility Counsel. The sample notice included in Attachment 8A was also sent to the Office of Public Utility Counsel.

The names of public officials to whom notice was sent is included in Attachment 8B.

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

A sample copy of the notice to be published in the newspaper of general circulation in the counties in which the proposed facilities are to be constructed is provided in Attachment 9A. The notice for this Application will be published in *The Hillsboro Reporter* in Hillsboro, Texas, which is a newspaper of

general circulation in Hill County, and in *The Mexia News* in Mexia, Texas, which is a newspaper of general circulation in Limestone County. These newspapers are listed in Attachment 9B.

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.

POWER performed a review of federal and state databases, county, and local maps to identify parks and/or recreational areas within the Study Area. Reconnaissance surveys were also conducted to identify any additional park or recreational area located within the Study Area. No park or recreational area is crossed by the Consensus Route centerline. Additionally, no park or recreation area is located within 1,000 feet of the Consensus Route's centerline. *See* Table 4-1 of the EA (Attachment 1 to this Application).

27. Historical and Archeological Sites:

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

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

Table 4-1 of the EA indicates that no known cultural resource sites are crossed by the Consensus Route centerline. No previously recorded cultural resource sites are located within 1,000 feet of the Consensus Route centerline.

No NRHP-listed or determined-eligible site is crossed by or within 1,000 feet of the Consensus Route centerline. One cemetery is located within 1,000 feet of the Consensus Route.

The length of right-of-way across high probability areas (HPA) for potential archeological sites or other prehistoric cultural resources for the Consensus Route is 1.2 miles.

General descriptions of the historical and archeological resources are provided in Section 4.4 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.

No part of the Consensus Route occurs within the coastal management program boundary as defined in 31 TAC § 503.1.

29. Environmental Impact:

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

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

The EA is included with this Application as Attachment 1. Data used by POWER in the evaluation of the proposed Consensus Route were drawn from a variety of sources, including, published literature (*e.g.*, documents, reports, maps, and aerial photography) and information from local, state, and federal agencies. An extensive list of resources is provided in Section 6 of the EA. Ground reconnaissance of the Study Area and computer-based evaluation of digital aerial imagery were used for the evaluation of the proposed Consensus Route. Environmentally sensitive areas are shown on Figure 4-1 of the EA.

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

A copy of the letter of transmittal providing a copy of the EA for this Project to the TPWD is included in this Application as Attachment 10. An affidavit verifying that the EA was sent to TPWD will be filed with the Commission.

30. Affidavit

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

The sworn affidavit of Stacie Bennett is included with this Application as Attachment 11.

Lone Star Transmission, LLC
CCN Application – List of Attachments

Attachment Number	Attachment Description
Attachment 1	Environmental Assessment of the Proposed Liberty to Waco Solar 345-kV Transmission Line in Hill and Limestone Counties, prepared by POWER Engineers, Inc. (EA)
Attachment 2	Interconnection Agreement between Lone Star Transmission, LLC and Waco Solar, LLC, dated October 18, 2021
Attachment 3	Schematic of the Lone Star Transmission, LLC System in the Proximate Area of the Proposed Project
Attachment 4	Aerial Photograph-Based Property Ownership Map
Attachment 5	Table Providing Landowner Names, Property Identification, and Map Locations
Attachment 6	Landowner Notice Materials: Attachment 6A Sample Notice Letter to Landowners Attachment 6B Map of Consensus Route Attachment 6C Consensus Route Description Attachment 6D Landowner Brochure Attachment 6E Comment/Protest Form Attachment 6F Intervenor Form Attachment 6G List of Landowners Receiving Notice
Attachment 7	Utility Notice Materials Attachment 7A Sample Notice Letter to Utilities[1] Attachment 7B List of Utilities Receiving Notice
Attachment 8	Public Official Notice Materials Attachment 8A Sample Notice Letter to Public Officials[1] Attachment 8B List of County and Municipal Officials, the Department of Defense Siting Clearinghouse, and the Office of Public Utility Counsel Contacts Receiving Notice

[1] Excluding attachments provided in Attachment 6.

Attachment Number	Attachment Description
Attachment 9	Newspaper Notice Materials Attachment 9A Sample Newspaper Notice Attachment 9B List of Newspapers of General Circulation
Attachment 10	Letter of Transmittal to the Texas Parks & Wildlife Department
Attachment 11	Sworn Affidavit of Stacie Bennett

December 2021

LONE STAR TRANSMISSION, LLC

Liberty to Waco Solar 345 kV Transmission Line Project
Environmental Assessment and Route Analysis

Hill and Limestone Counties, Texas

PROJECT NUMBER:
171555
PROJECT CONTACT:
Lisa Barko Meaux
EMAIL:
lisa.barko@powereng.com
PHONE:
281-765-5507

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Liberty to Waco Solar 345 kV Transmission Line Project

PREPARED FOR: LONE STAR TRANSMISSION, LLC

PREPARED BY: POWER ENGINEERS, INC.
HOUSTON, TEXAS

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FIGURES:

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ACRONYMS AND ABBREVIATIONS

AM radio	Amplitude modulation radio
amsl	above mean sea level
ANSI	American National Standards Institute
BEG	Bureau of Economic Geology
BGEPA	Bald and Golden Eagle Protection Act
BMP(s)	Best Management Practice(s)
BP	Before Present
ca.	circa
CCN	Certificate of Convenience and Necessity
CFR	Code of Federal Regulations
CLF	civilian labor force
CMP	Coastal Management Program
CR	County Road
CWA	Clean Water Act
DoD	Department of Defense
EA	Environmental Assessment and Route Analysis
ESA	Endangered Species Act
ESSS	Ecologically Significant Stream Segments
FAA	Federal Aviation Administration
FCC	Federal Communications Commission
FEMA	Federal Emergency Management Agency
FM	Farm-to-Market Road
FM radio	Frequency modulation radio
GIS	Geographic Information Systems
GLO	General Land Office
HPA	high probability area
HTC	Historic Texas Cemetery
IPaC	Information for Planning and Consultation
kV	kilovolt
Lone Star	Lone Star Transmission, LLC
MBTA	Migratory Bird Treaty Act
MW	megawatt
NAIP	National Agricultural Imagery Program
NCED	National Conservation Easement Database
NEPA	National Environmental Policy Act
NERC	North American Electric Reliability Corporation
NESC	National Electrical Safety Code
NHD	National Hydrology Dataset
NPS	National Park Service
NRCS	Natural Resource Conservation Service
NRHP	National Register of Historic Places
NWI	National Wetland Inventory

NWP	Nationwide Permit
OHGW	overhead ground wire
OPGW	optical ground wire
OTHM	Official Texas Historical Marker
PFO	palustrine forested
POWER	POWER Engineers, Inc.
Project	Liberty to Waco Solar 345 kV Transmission Line Project
PUC	Public Utility Commission of Texas
PURA	Public Utility Regulatory Act
ROW	right-of-way
RRC	Railroad Commission of Texas
RTHL	Registered Texas Historic Landmark
SAL	State Antiquities Landmark
SH	State Highway
SHPO	State Historic Preservation Office
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
THC	Texas Historical Commission
THSA	Texas Historical Sites Atlas
TNRIS	Texas Natural Resources Information System
TPWC	Texas Parks and Wildlife Code
TPWD	Texas Parks and Wildlife Department
TWDB	Texas Water Development Board
TxDOT	Texas Department of Transportation
TXNDD	Texas Natural Diversity Database
TXR150000	Texas Pollution Discharge Elimination System General Construction Permit
TXSDC	Texas State Data Center
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
Waco Solar	Waco Solar, LLC
WOTUS	waters of the United States

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1.0 DESCRIPTION OF THE CONSENSUS ROUTE

1.1 Scope of the Project

Lone Star Transmission, LLC (Lone Star) is proposing to construct a new single-circuit 345 kilovolt (kV) transmission line in Hill and Limestone counties, Texas (see Figure 1-1). The Liberty to Waco Solar 345 kV Transmission Line Project (Project) will begin at Lone Star's Liberty 345 kV Station (Liberty Station), which is located approximately 0.36 mile southwest of the city of Mount Calm, Texas, west of County Road (CR) 3278 and south of CR 3363. From the Liberty Station, the new 345 kV line will extend approximately three miles to the proposed Waco Solar Collector Station to serve the approximately 412 megawatt (MW) Waco Solar Energy Center, located southeast of the city of Mount Calm, Texas on Farm-to-Market Road (FM) 339.

Lone Star contracted POWER Engineers, Inc. (POWER) to prepare this Environmental Assessment and Route Analysis (EA). This EA will support Lone Star's application to amend its Certificate of Convenience and Necessity (CCN) to be submitted to the Public Utility Commission of Texas (PUC). This EA may also be used to support any additional federal, state, or local permitting activities that might be required prior to construction of the proposed Project.

This EA discusses the environmental and land use constraints identified within the Project study area as described in Section 2.1, documents routing methodologies, and provides an evaluation of the route from an environmental and land-use perspective.

To assist POWER in its evaluation of the proposed Project, Lone Star provided POWER with the Project endpoints, the proposed Consensus Route, information regarding the need for the Project, easement information, proposed construction practices, transmission line design, clearing methods, right-of-way (ROW) requirements, and maintenance procedures.

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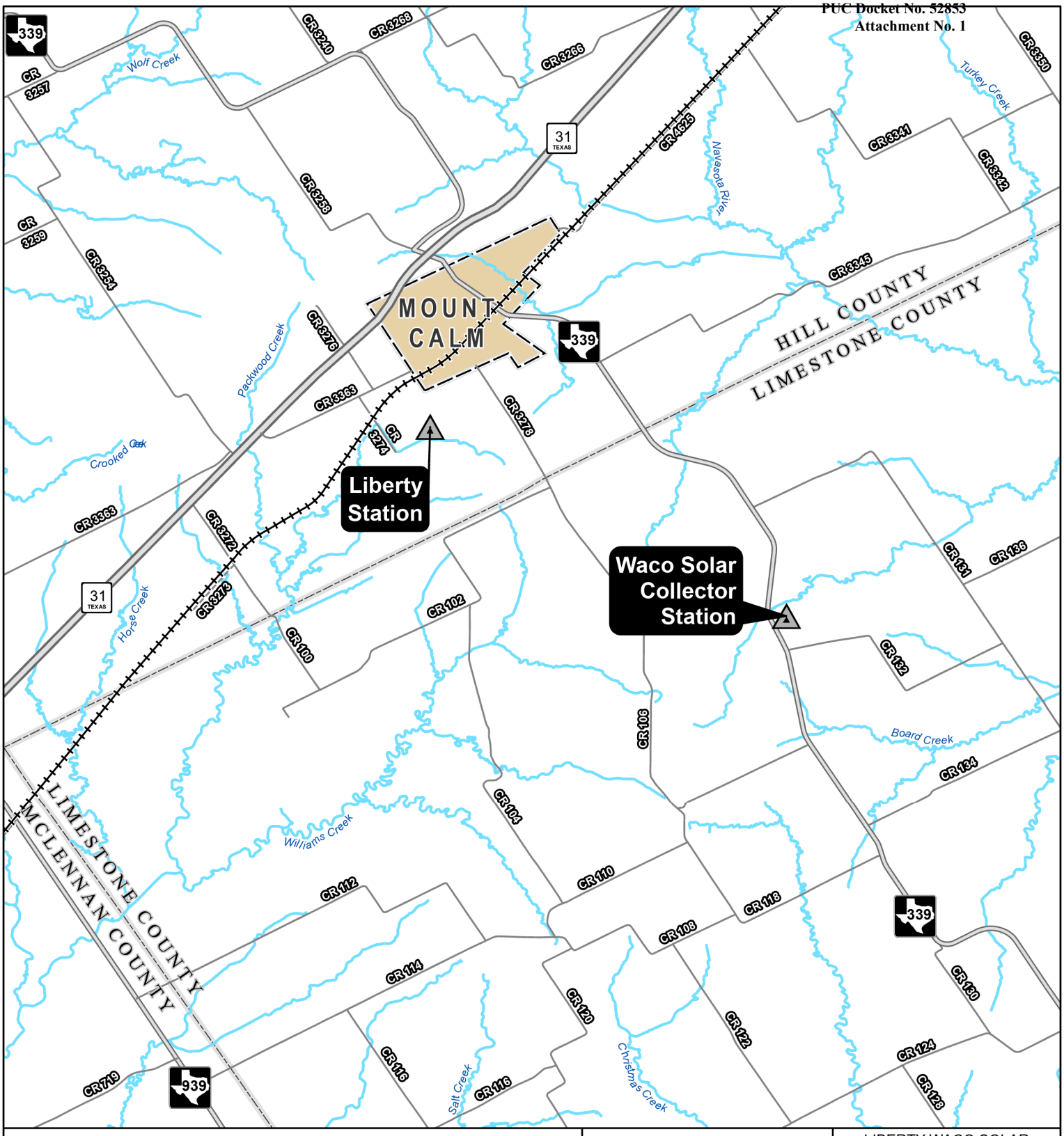

LIBERTY-WACO SOLAR
345 KV TRANSMISSION LINE PROJECT

FIGURE 1-1
PROJECT VICINITY

Date: 10/5/2021

Path: C:\Users\cskubal\OneDrive - POWER Engineers, Inc\Documents\171555_NextEra_Waco_Solar\DD\GIS\apps\NextEra_Waco_Solar\NextEra_Waco_Solar.aprx

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1.2 Purpose and Need

This proposed Project is necessary to directly interconnect a new transmission service customer, Waco Solar, LLC (Waco Solar),[1] into Lone Star's existing 345 kV transmission system. PUC Electric Substantive Rule 25.191(d) requires a transmission service provider to interconnect a transmission service customer once the other conditions are completed for transmission service as defined in 16 Texas Administrative Code (TAC) §25.195(c). Waco Solar has requested that Lone Star interconnect its proposed approximately 412 MW solar generation facility to Lone Star's 345 kV transmission system, near the existing Lone Star-owned Sam Switch to Hubbard Wind 345 kV transmission line in Hill County. In order to interconnect the Waco Solar project to its existing system, Lone Star is constructing a short, 0.8-mile extension of its Sam Switch to Hubbard Wind 345 kV line to a new 345 kV station, the Liberty Station, which Lone Star will begin constructing in January 2022.[2] The proposed Project will then extend approximately 3.0 miles from the Liberty Station to the Waco Solar-owned Waco Solar Collector Station.

1.3 Description of Proposed Design and Construction

1.3.1 Loading, Weather Data, and Design Criteria

Lone Star's proposed 345 kV single-circuit transmission line is located in the American National Standards Institute (ANSI) National Electrical Safety Code (NESC) Heavy Loading Zone and will be designed to meet or exceed NESC 2017 (ANSI C2-2017) and Lone Star's Transmission Line Design Criteria and Design Philosophy for Projects Requiring Compliance with the NESC loading criteria. Various combinations of unbalanced vertical, transverse (wind), and longitudinal loadings (with and without ice) will be analyzed during the design of the structures. The typical structure for this project will be a concrete monopole design and will typically vary between 90 to 120 feet in height. The new 345 kV single-circuit transmission line will utilize a double bundled 1590 kcmil ACSR (aluminum conductor steel reinforced) Falcon conductor with one optical ground wire (OPGW) and one overhead ground wire (OHGW).

[1] The Waco Solar project is also referred to in certain ERCOT studies as Mercury Solar.
[2] The 0.8-mile extension and the Liberty Station are not included within the scope of the proposed Project that is the subject of this EA.

1.3.2 Right-of-Way Requirements

Easements along the entirety of the Consensus Route have been obtained by Waco Solar. The new easements obtained by Waco Solar typically range from approximately 150 to 200 feet in width to accommodate spans that typically range from approximately 700 to 1,500 feet. In some areas, easement width and span length could be more or less than the typical range depending on engineering considerations. If the Commission approves the Project, Waco Solar will assign the new easements to Lone Star. Access easements and/or temporary construction easements may be needed in some areas.

1.3.3 Structural and Geotechnical

All structure components, conductors, and overhead ground wires will be designed using the appropriate overload factors, strength reduction factors, and tension limits as given in NESC 2017 and the manufacturer's recommended strength ratings. In conjunction with the NESC 2017, Lone Star's *Transmission Line Design Criteria and Design Philosophy for Projects Requiring Compliance* with the NESC standard will be used. The NESC Heavy Loading Zone design criteria, and extreme wind and ice loading conditions will be utilized to determine the sag and tension for all wires.

All structures will be designed to support conductors and shield wires as specified above. The configuration of the conductor and shield wires will provide appropriate lightning protection and clearances for operation of a 345 kV single-circuit transmission line. The geometry of a typical monopole single-circuit tangent structure and turning structure configuration are shown respectively on Figures 1-2 and 1-3. Geotechnical considerations will include soil borings and in-situ soils testing to provide the parameters for foundation design and/or the embedment depth as well as grounding analysis required for the new structures.

1.4 Construction Considerations

Projects of this type require surveying and ROW clearing, foundation installation, structure and insulator assembly, erection, conductor and shield wire installation, and overall site restoration when the Project is completed. The following information regarding these activities was provided to POWER by Lone Star.

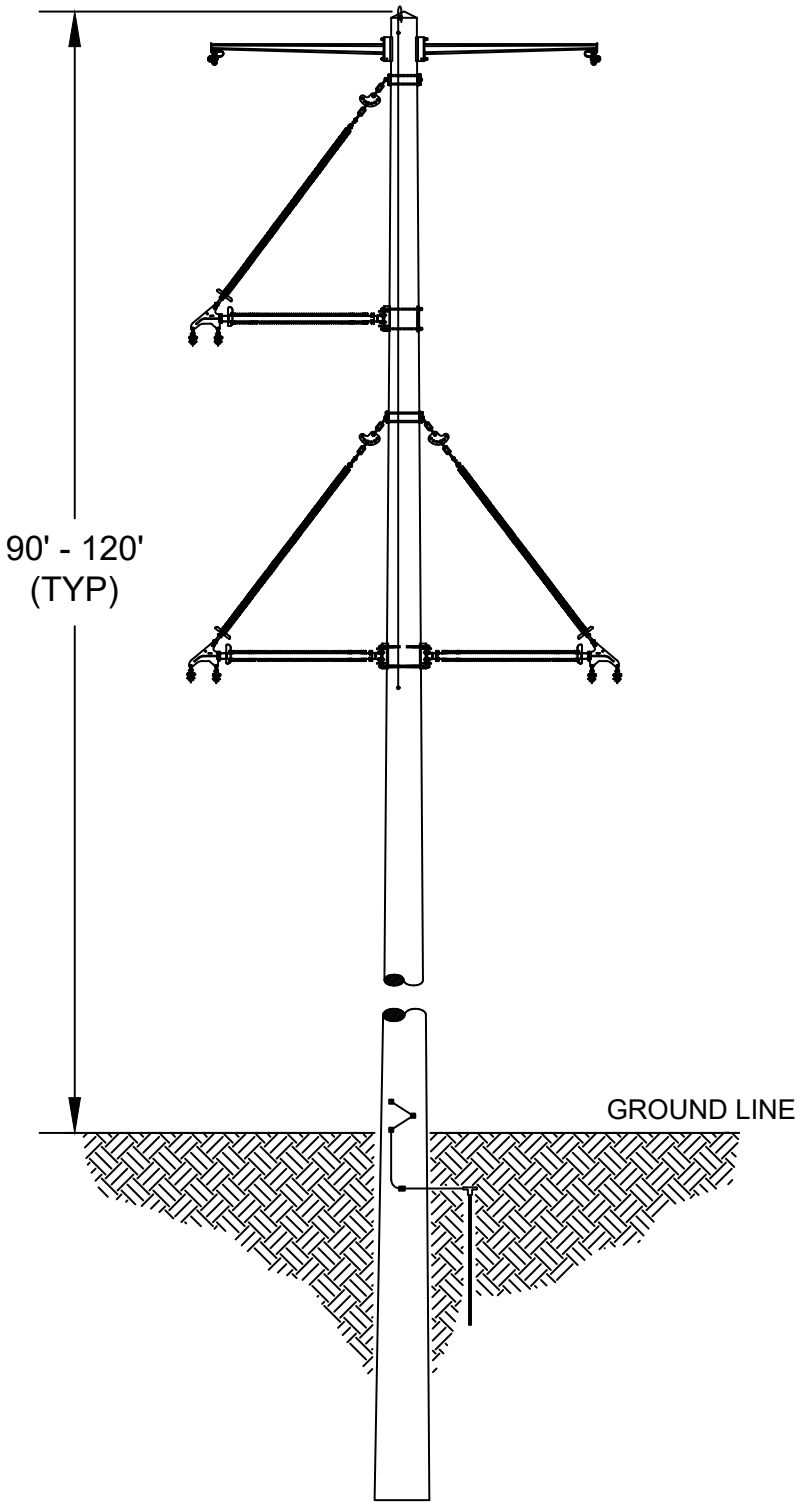
1.4.1 Clearing

After regulatory approval and design of the transmission line are final, the easements will be transferred to Lone Star, and ROW clearing activities will begin. Required clearing of the ROW will be performed by the construction contractor according to Lone Star clearing specifications under the direction of Lone Star. Available methods of disposal are mulching, brush piling, and salvaging. Trees in the ROW will be

cleared to permit safe construction and operation of the line. Clearing will be accomplished to comply with North American Electric Reliability Corporation (NERC) reliability standards and with vertical clearance requirements in the NESC and 16 TAC § 25.97. Stumps will be cut approximately to ground level and left in place. The ROW will be utilized for access during construction and operations. In some cases, ingress and egress through private property may be necessary to access the ROW. In these cases, existing private roads will be used where possible. Temporary or permanent culverts or other low water crossings may be installed to cross creeks and tributaries, where necessary.

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

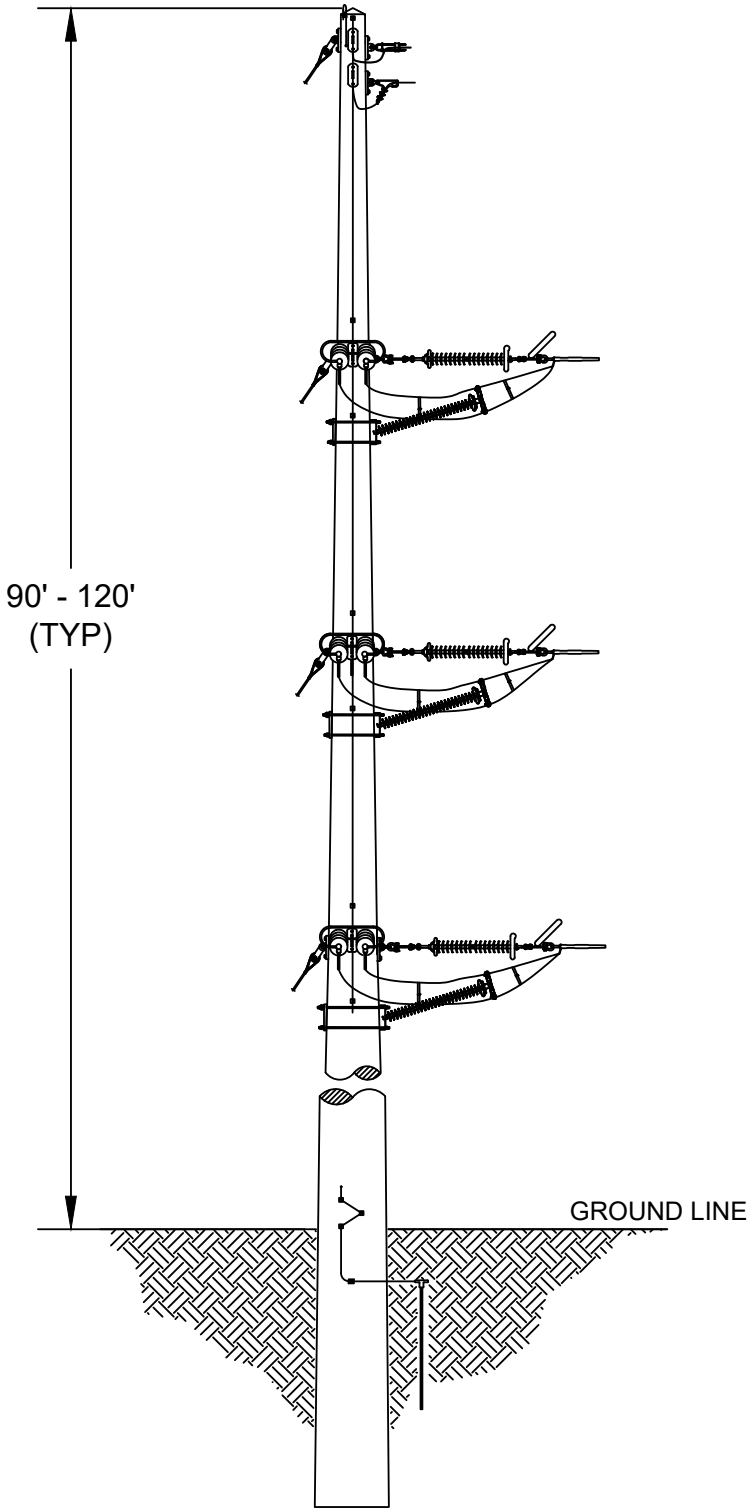
- The amount of flora and fauna disturbed during construction of the transmission line will be minimized, except to the extent necessary to establish appropriate ROW for clearance for the transmission line. In addition, re-vegetation will use native species and will consider landowner preferences and wildlife needs.
- To the maximum extent practicable, construction will avoid adverse environmental impact to sensitive plant and animal species and their habitats, as identified by the Texas Parks and Wildlife Department (TPWD) and the United States Fish and Wildlife Service (USFWS).
- Erosion control measures will be implemented as appropriate.
- The time and method of clearing ROW will take into account soil stability, the protection of natural vegetation and sensitive habitats, the protection of adjacent resources such as natural habitat for plants and wildlife, and the prevention or minimization of sedimentation in watercourses.
- Lone Star will exercise extreme care to avoid affecting non-targeted vegetation or animal life when using chemical herbicides to control vegetation within the ROW, and will ensure that such herbicide use complies with rules and guidelines established in the Federal Insecticide, Fungicide and Rodenticide Act and with Texas Department of Agriculture regulations.



LIBERTY TO WACO SOLAR 345 KV TRANSMISSION LINE PROJECT

Figure 1-2

Typical 345-kV Single Circuit
Tangent Structure



LIBERTY TO WACO SOLAR 345 KV TRANSMISSION LINE PROJECT

Figure 1-3

Typical 345-kV Single Circuit
Dead-end Structure

1.4.2 Construction

The following is a description of typical construction methods for transmission line projects. After regulatory approval and design of the transmission line is finalized, ROW is surveyed and marked off, and then cleared of trees and other vegetation, according to Lone Star ROW clearing specifications. Structure locations are marked for construction. Structures and associated line construction hardware are transported to the site, usually to each structure location; some structure assembly occurs on the ground, insulators and hardware are attached and structures are then lifted into place. Monopole structures can be either direct embedded or installed on foundations, depending on the soil conditions and design requirements. Once all of the structures have been erected, the process of conductor stringing begins. This is done by pulling the conductors through stringing blocks or pulleys, which are attached to the insulators on the structures. This process is repeated for all three conductor assemblies and ground wires (e.g., OPGW, OHGW). Once all of the wires have been pulled through, the wire is then tensioned based on wire sag design characteristics. The wire is then permanently "clipped" into hardware clamps located at the attachment end of the insulator or davit arm.

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

- Clearing and grading of construction areas such as storage areas, setup sites, and laydown yards will be minimal. These areas will be graded in a manner that will minimize erosion and conform as closely as possible to the natural topography.
- Lone Star will return each affected landowner's property to its original contours and grades unless otherwise agreed to by the landowner or the landowner's representative. In the event a different contour or grade is necessary to ensure the safety or stability of the structures or the safe operation and maintenance of the line, Lone Star will contour and grade the property as necessary to ensure safe and reliable operation and maintenance of its facilities. Erosion control devices will be constructed where necessary to reduce soil erosion in the ROW.
- Construction crews will take care to minimize damage to the ROW by reducing the number of pathways traveled.
- Roads will not be constructed on unstable slopes.

- Clearing and construction activities near streambeds will be performed in a manner to minimize damage to the natural condition of the area. Stream banks will be restored as necessary to their original contours to minimize erosion.
- Efforts will be made to prevent, and remediate, accidental oil spills and other types of incidental release, particularly while performing work near streams.
- Precautions will be taken to prevent the possibility of accidentally starting forest/range fires.
- Precautions will be taken to protect natural features and cultural resources identified along the ROW.
- If endangered species habitat is present, guidance from the USFWS will be obtained prior to all clearing and construction activities.
- Soil disturbance during construction will be kept to a minimum, and restorative measures will be taken in a reasonable length of time.
- Compliance with any applicable permit or regulatory approval.

1.4.3 Reclamation

The reclamation operation involves the leveling of all temporary disturbed areas as close to existing contours as practical, the removal of all construction debris, and the restoration of, or compensation for, any items damaged by Project construction.

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

- If site factors make it unusually difficult to establish a protective vegetative cover, other restoration procedures will be used, such as the use of gravel, rocks, and/or concrete.
- Sears, cuts, fills, or other aesthetically degraded areas will be allowed to seed naturally or might be reseeded with native species to reduce erosion, restore a natural appearance and to provide food and cover for wildlife.
- If temporary roads are removed, the original contours will be restored as closely as practical.
- Construction equipment and supplies will be removed from the ROW when construction is complete.

- Clearing down to the mineral soil might be required for road access. In this case, water diversion berms, velocity dissipaters, or other erosion-control devices will be used to reduce erosion potential.
- Construction waste will be removed prior to completion of the Project and disposed of properly.
- Replacement of soil adjacent to water crossing for access roads will be at slopes less than the normal angle of repose for the soil type involved and will be stabilized/ revegetated to avoid erosion.
- Compliance with any applicable permit or regulatory approval.

1.5 Maintenance Considerations

The following information regarding maintenance of the facilities was provided to POWER by Lone Star. Maintenance of the facilities will include periodic inspection of the line, vertical clearances, and ROW limits, as well as repair of damaged structures if required due to structural component failures, accidents, or natural phenomena such as wind or lightning. In areas where treatment of vegetation within the ROW is required, mowing, pruning, and/or application of United States Environmental Protection Agency (USEPA)-approved herbicides will be conducted as required. While maintenance activities will vary, aerial patrols and ground or foot patrols will be performed periodically. In cropland areas and properly managed grazing lands, little or no vegetation control will be required due to existing land-use practices. In areas where trees overhang the ROW, some trimming of these trees may be required periodically in order to provide a safe and reliable power line.

1.6 Agency Actions

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

1.6.1 Public Utility Commission of Texas

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

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

This EA has been prepared by POWER in support of Lone Star's CCN application for this project to be filed at the PUC for its consideration.

1.6.2 United States Army Corps of Engineers

The United States Army Corps of Engineers (USACE) is directed by Congress 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) to implement these statutes. Under Section 10 of the River and Harbors Act, the USACE regulates all work or structures in or affecting the course, condition, or capacity of navigable waters of the United States (WOTUS). The intent of this law is to protect the navigable capacity of waters important to 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 WOTUS and aquatic ecosystems from the indiscriminate discharge of material capable of causing pollution and to restore and maintain their chemical, physical, and biological integrity. The proposed Consensus Route is located within the jurisdiction of the USACE – Fort Worth District.

Review of the United States Geological Survey National Hydrography Dataset (NHD) and USFWS National Wetlands Inventory (NWI) maps indicated numerous surface waters and associated areas of potential wetlands within the study area. Upon PUC approval of the route, additional coordination, jurisdictional wetland verifications and permitting with the USACE – Fort Worth District for a Section 404 Permit may be required. Based on the Project footprint and construction techniques proposed, the construction of the Project will likely meet the criteria for the Nationwide Permit (NWP) No. 57 - Electric Utility Line and Telecommunication Activities if any impacts to jurisdictional features are required, which apply to activities required for the construction, maintenance, repair, and removal of electric utility

lines and associated facilities. Navigable WOTUS are not anticipated to occur within the study area; therefore, a Section 10 Permit is not anticipated for this Project.

1.6.3 United States Fish and Wildlife Service

The 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 federal laws including the Endangered Species Act (ESA), Migratory Bird Treaty Act (MBTA), and Bald and Golden Eagle Protection Act (BGEPA). POWER reviewed the USFWS Information for Planning and Consultation (IPaC) (Consultation Code: 02ETAR00-2021-SLI-2424 and 02ETTX00-2021-SLI-2543) 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 determined necessary to identify any potentially suitable habitat for federally and state-listed species. If suitable habitat is identified, then coordination with the USFWS – Arlington or Texas Coastal Ecological Services Field Offices might be completed to determine the need for any required species-specific surveys and/or permitting under Section 10 of the ESA.

1.6.4 Federal Aviation Administration

According to Federal Aviation Administration (FAA) regulations, Title 14 Code of Federal Regulations (CFR) Part 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 one 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 CFR Part 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 CFR Part 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 heliport described in paragraph (d) of 14 CFR Part 77.9.

Paragraph (d) of 14 CFR Part 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 Department of Defense (DoD), or an airport or heliport with at least one FAA-approved instrument approach procedure.

Notification 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 that will be located in a congested area of a city, town, or settlement where the shielded structure will not adversely affect safety in air navigation.

The PUC CCN application also requires listing private airports within 10,000 feet of any route centerline. Following PUC approval of a route for the proposed transmission line, Lone Star will make a final determination of the need for FAA notification, based on specific structure locations and design. If any of the FAA notification criteria are met for the approved route, 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 30 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. FAA notification is not anticipated to be necessary.

1.6.5 Military Aviation and Installation Assurance Siting Clearing House

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 transmission lines can impact critical DoD testing activities. Upon filing of the application, 16 TAC § 22.52 states that the DoD shall be notified and an affidavit attesting to the notification shall also be provided. 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 June 18, 2021, the DoD was contacted about the proposed Project to provide notification and to solicit any input from the DoD about the Consensus Route. The DoD Siting Clearinghouse responded to the letter and requested transmission structure heights. On July 7, 2021, Lone Star sent the requested information to the DoD. A notice of the filing of the CCN application will be sent to the DoD Military Aviation and Installation Assurance Siting Clearinghouse when the application is filed with the PUC.

1.6.6 Texas Parks and Wildlife Department

TPWD is the state agency with the primary responsibility for protecting the state's fish and wildlife resources in accordance with the Texas Parks and Wildlife Code (TPWC) Section 12.0011(b), 64.003, 68.015 and 1.011. POWER solicited comments from TPWD during the scoping phase of the Project, and a copy of this EA will be submitted to TPWD when the CCN application is filed with the PUC. 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. Following the PUC route approval, a field survey may be necessary to identify potential suitable habitat for state-listed species. If 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.

1.6.7 Floodplain Management

Floodplain maps published by the Federal Emergency Management Agency (FEMA) were reviewed for the study area and the mapped 100-year floodplains were identified. The mapped 100-year floodplains within the study area are associated with Williamson Creek and unnamed tributaries of the Navasota River. The 100-year floodplain represents a flood event that has a one percent chance of being equaled or exceeded for any given year. The construction of the proposed transmission line is not anticipated to create any significant permanent changes in the existing topographical grades and is not anticipated to significantly alter existing flow regimes within the floodplain. Coordination with the local floodplain administrator may be completed after the PUC route approval to determine if any permits are necessary.

1.6.8 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. More than five acres of land disturbance is anticipated during construction of the Project for the Consensus Route; therefore, the construction will be considered a "Large Construction Project" under the TXR150000 General Construction Permit. A Stormwater Pollution Prevention Plan (SWPPP) will be developed and implemented during construction activities, a site notice will be posted, and notification will be sent to the Municipal Separate Sewer System Operator (if applicable). The submittal of a Notice of Intent and Notice of Termination to the TCEQ is also required.

1.6.9 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 CFR Part 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) 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 (THSA) 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. Lone Star proposes to implement an unanticipated discovery procedure during construction activities. If artifacts are discovered during construction, activities will cease near the discovery, and Lone Star will notify the State Historic Preservation Office (SHPO) for additional consultation.

1.6.10 Texas Department of Transportation

The Texas Department of Transportation (TxDOT) has been notified of the proposed Project. Where the Consensus Route crosses TxDOT ROW, the Project will be constructed in accordance with the rules, regulations, and policies of TxDOT. Best Management Practices (BMPs) will be used as required to minimize erosion and sedimentation resulting from construction. Revegetation will occur as required under the "Revegetation Special Provisions" contained in TxDOT Form 1023 (Rev. 9-93). Traffic control measures will comply with applicable portions of the Texas Manual of Uniform Traffic Control Devices.

1.6.11 Texas General Land Office

The Texas General Land Office (GLO) requires a miscellaneous easement for ROWs within any state-owned riverbeds or navigable streams or tidally influenced waters. Lone Star has not identified any state-owned riverbeds or navigable streams crossed by the proposed Consensus Route. Following PUC approval of the route for the proposed transmission line, Lone Star will determine whether state-owned riverbeds or navigable streams are crossed by the approved routing and coordinate with the GLO as necessary.

The Texas Land Commissioner administers the Texas Coastal Management Program (CMP) under the GLO, which has the responsibility for implementing the Texas CMP. This program intends to help ensure

the environmental and economic well-being of the Texas coast through proper management of coastal natural resource areas. The Texas 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 Texas GLO 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 § 503.1, delineates the coastal zone of Texas. The Consensus Route is not located within the Coastal Management Zone, and no permitting action will be required under this program.

2.0 ROUTE STUDY METHODOLOGY

The objective of this EA was to evaluate the proposed Consensus Route for compliance with Section 37.056(c)(4)(A)-(D) of PURA, 16 TAC § 22.52 (a)(4), and 16 TAC § 25.101(b)(3)(B), including the PUC's policy of prudent avoidance. Upon receipt of the proposed transmission line route from Lone Star, POWER used a comprehensive evaluation method for this EA, which included study area delineation based on the Project endpoints; identification and characterization of existing land use and environmental constraints; and evaluation of the route and potential impacts in relation to the environmental constraints. POWER identified potentially affected resources and considered each during the route evaluation process. Regulatory agency and local officials' comments were also considered during the route development process. The route was analyzed using evaluation criteria to determine potential impacts to existing land use and environmental resources. In addition, Lone Star considered engineering and construction constraints, grid reliability and security issues, and estimated costs to evaluate the route as it relates to the requirements of PURA and PUC Substantive Rules. This route will be submitted to the PUC in the CCN application.

2.1 Study Area Boundary Delineation

The study area is just south of the city of Mount Calm in central Texas within Hill and Limestone counties. The study area boundaries for the data collection process needed to encompass the Project termination points and include a large enough area within which to adequately evaluate the proposed transmission line in support of Lone Star's application to amend its CCN.

The extent of the Project endpoints and the study area are described below and illustrated in Figure 2-1. The study area is oriented in a northwest to southeast direction with the proposed Liberty Station located in the northwestern portion of the study area and the proposed Waco Solar Collector Station located in the southeastern portion of the study area. More specifically, the Liberty Station is located approximately 0.36 mile southwest of the city of Mount Calm west of CR 3278 and south of CR 3363. The proposed Waco Solar Collector Station is to be constructed approximately three miles southeast of the Liberty Station, southeast of Mount Calm on FM 339.

The northern boundary of the study area is defined by the location of the proposed Liberty Station and CR 3363. The southern boundary of the study area is defined by the proposed location of the Waco Solar Collector Station. The eastern study area boundary is partially defined by FM 339. The western and eastern study area boundaries are also defined to provide adequate room for evaluation of the Consensus Route.

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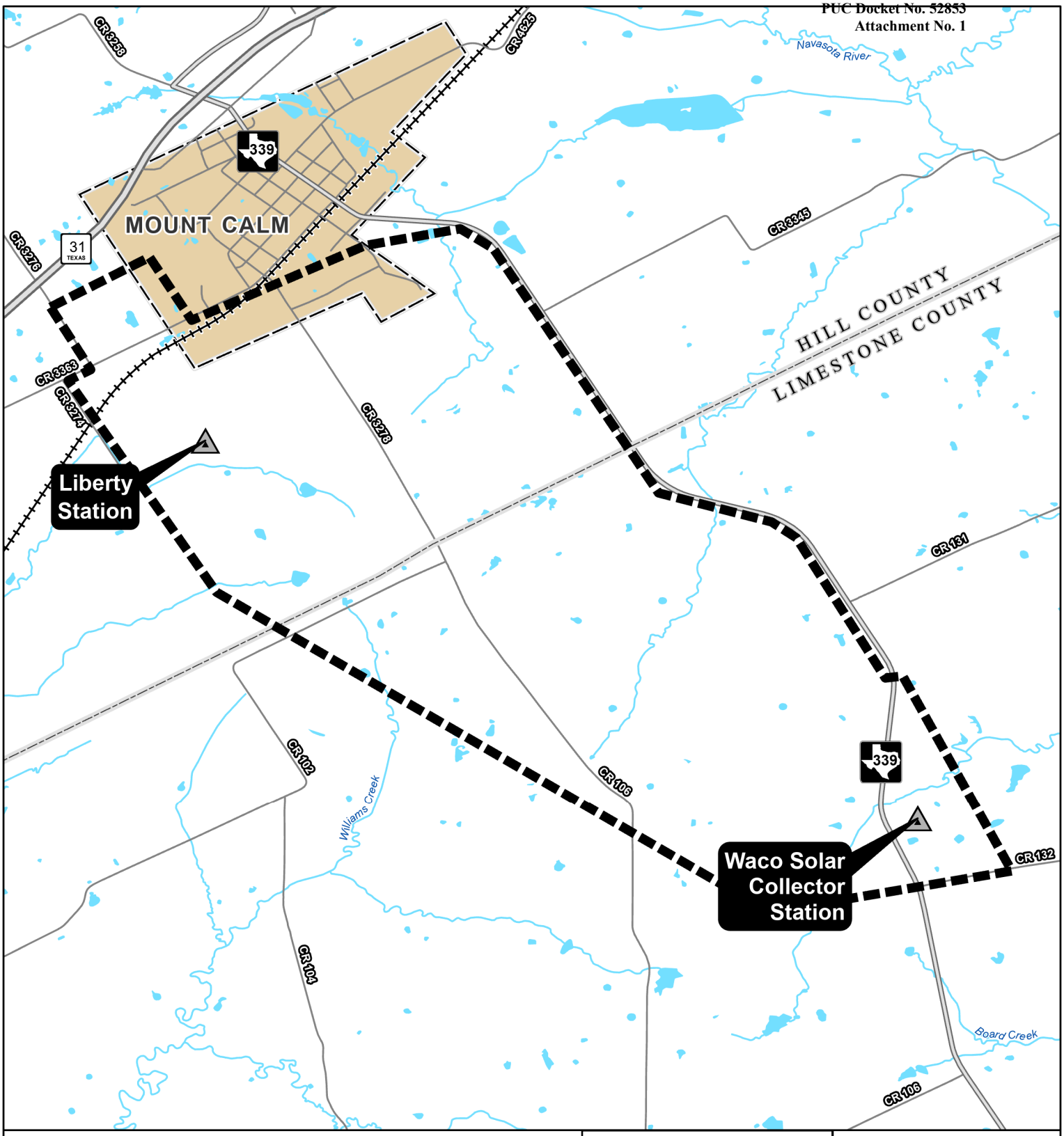

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2.2 Base Map Development

After delineation of the study area, a Project base map, overlain on United States Geological Survey (USGS) 7.5 minute topographic maps and aerial photography (NAIP 2020), was prepared and used to display resource data for the Project area. Resource data categories and factors that were determined appropriate for interpretation and analysis were selected and mapped. The base map provides a broad overview of various resource locations indicating obvious routing constraints and areas of potential routing opportunities.

Data typically displayed on the base map includes:

- Major land jurisdictions and uses.
- Major roads (including CRs, FMs, United States Highways [US Hwys], State Highways [SHs], and Interstate Highways).
- Existing transmission line and pipeline corridors.
- Airports, private airstrips, and communication facilities.
- Parks and wildlife management areas.
- Major political subdivision boundaries.
- Lakes, reservoirs, rivers, and ponds.

2.3 Data Collection and Constraints Mapping

Several methodologies were utilized to collect and review environmental and land use data, including incorporation of readily available Geographic Information System (GIS) coverage with associated metadata; review of maps and published literature; review of files and records from numerous federal, state, and local regulatory agencies; and a reconnaissance survey of the study area. Data collected for each resource area were mapped within the study area utilizing GIS layers. The conditions of the existing environment are discussed throughout Section 3.0. Section 2.4 and Appendix A provide information regarding correspondence with agencies and officials.

Maps and data layers reviewed include USGS 7.5 minute topographic maps (USGS 2021), NHD, NWI maps, Texas Natural Resources Information System (TNRIS), Railroad Commission of Texas ([RRC] 2021a), TXNDD, and TxDOT county highway maps. Appraisal district parcel boundary data were available for Hill and Limestone counties and were used to identify apparent property boundaries (Hill County 2021; Limestone County 2021). USGS 7.5 minute topographic maps and aerial photography (NAIP 2020) were used as the background for the environmental and land use constraints map.

2.4 Agency Consultation

A list of federal, state, and local regulatory agencies, elected officials, and organizations to receive a consultation letter regarding the proposed Project was developed. The purpose of the consultation 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. POWER used the Hill and Limestone county websites and telephone confirmations to identify local officials. Consultation letters were sent on June 18, 2021. Copies of correspondence with the various regulatory agencies, elected officials, and organizations are included in Appendix A.

Federal, state, and local agencies/officials contacted include:

- United States Army Corps of Engineers (USACE)
- United States Department of Defense Siting (DoD)
- United States Environmental Protection Agency (USEPA)
- United States Fish and Wildlife Service (USFWS)
- Federal Aviation Administration (FAA)
- Federal Emergency Management Agency (FEMA)
- National Parks Service (NPS)
- Natural Resource Conservation Service (NRCS)
- Texas Commission on Environmental Quality (TCEQ)
- Texas Department of Transportation (TxDOT) – Aviation Division, Environmental Affairs Division, Transportation Planning and Programming, and District Engineer
- Texas General Land Office (GLO)
- Texas Historical Commission (THC)
- Texas Parks and Wildlife Department (TPWD)
- Texas Water Development Board (TWDB)
- Hill County Historical Commission
- Hill County Officials (County Judge and Commissioners Court)
- Limestone County Historical Commission
- Limestone County Officials (County Judge and Commissioners Court)
- City of Mount Calm
- Mount Calm Independent School District
- Heart of Texas Council of Governments

- Texas Agricultural Land Trust
- Texas Land Conservancy
- Texas Land Trust Council
- The Nature Conservancy

In addition to letters sent to the agencies listed, POWER also reviewed TXNDD Element Occurrence Records from TPWD (TXNDD 2021). POWER reviewed previously recorded archeological site information from TARL and reviewed the THC's Texas Archeological Sites Atlas (THC 2021a) for additional cultural resource information. As of the date of this document, written responses to letters sent in relation to the study area that were received are listed and summarized below.

- FEMA responded with a letter dated June 7, 2021, requesting that the study area community floodplain administrator be contacted for the review of and possible permit requirements for the Project. Lone Star will coordinate with the appropriate floodplain administrator once the route is approved for construction.
- The DoD Military Aviation and Installation Assurance Siting Clearinghouse responded with an email dated July 2, 2021, requesting a range of structure heights or the height of the tallest structure. Lone Star provided the range of structure heights. On August 25, 2021, the DoD Military Aviation and Installation Assurance Siting Clearinghouse also responded with a letter stating that the proposed Project will have minimal impact on military operations conducted in the area.
- The USFWS responded with a letter dated July 21, 2021, stating that information on fish and wildlife resources of concern that may be present with in the Project area could be found by visiting the IPaC website at: https://ecos.fws.gov/ipac/ [ecos.fws.gov].
- The USFWS Arlington Ecological Services Field Office responded with a letter dated July 9, 2021. The USFWS provided a list of the federally-listed threatened and endangered species for the counties within the study area. The USFWS also provided the definitions of the affected determinations and referenced the MBTA and BGEPA.
- The USFWS Texas Coastal Ecological Services Field Office responded with a letter dated July 9, 2021. The USFWS provided a list of the federally-listed threatened and endangered species for the counties within the study area. The USFWS also provided the definitions of the affected determinations and referenced the MBTA and BGEPA.
- The THC responded with an email dated July 16, 2021, stating that they were unable to complete a review at this time based on insufficient documentation. Lone Star will coordinate with THC once the route is approved.

- Limestone County Historical Commission responded with an email dated July 17, 2021, stating that there are four cemeteries in the area. The proposed Consensus Route is avoiding the cemeteries.

2.5 Public Involvement

Pursuant to 16 TAC § 22.52, since the Project will directly affect fewer than 25 landowners, a public meeting was not held.

2.6 Route Development and Evaluation Criteria

The Consensus Route was identified based upon discussions with the landowners between the Project endpoints. The Consensus Route was reviewed by Lone Star to determine engineering requirements, constructability, and long-term maintenance considerations. The POWER planning team reviewed the route using the environmental and land use constraints map while considering resource sensitivity. The Consensus Route was also reviewed in accordance with Section 37.056(c)(4)(A)-(D) of PURA, the PUC CCN application, and 16 TAC § 25.101, including the PUC's policy of prudent avoidance, and consistency with Lone Star's transmission line routing guidelines. The route was reviewed 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.

Lone Star and POWER reviewed and refined the Consensus Route as more information became available. In evaluating the Consensus Route, land use and environmental evaluation criteria were developed to reflect accepted practices for routing electric transmission lines in the state of Texas (see Table 2-1). Evaluation criteria were further refined based on data collection and reconnaissance surveys.

The proposed Consensus Route is shown in relation to environmental and other land use constraints on topographic base in Figure 4-1 and on aerial photographic base in Figure 4-2. For the purposes of this analysis, only one route is addressed in this report. The analysis of the route involved inventorying and tabulating the number or quantity of each environmental criterion located along the route (e.g., number of habitable structures within 500 feet). The number or amount of each factor was determined by POWER using GIS layers, maps, recent aerial photography, and field verification from publicly accessible areas where practical. Potential environmental impacts are addressed in Section 4.0 of this document.

TABLE 2-1 LAND USE AND ENVIRONMENTAL EVALUATION CRITERIA

EVALUATION CRITERIA
Land Use
Length of consensus route (miles)
Number of habitable structures[1] within 500 feet of ROW centerline
Length of ROW using existing transmission line ROW
Length of ROW parallel and adjacent to existing transmission line ROW
Length of ROW parallel and adjacent to other existing ROW (roadways, highways, utilities, etc.)
Length of ROW parallel and adjacent to apparent property lines[2] or other natural or cultural features
Length of ROW across parks/recreational areas[3]
Number of additional parks/recreational areas[3] within 1,000 feet of ROW centerline
Length of ROW across cropland
Length of ROW across pasture/rangeland
Length of ROW across land irrigated by traveling systems (rolling or pivot type)
Length of ROW parallel and adjacent to existing pipeline ROW
Length of ROW parallel and adjacent to existing pipeline ROW <500 feet from ROW centerline
Number of pipeline crossings
Number of transmission line crossings
Number of highway (interstate, US and state) road crossings
Number of FM road crossings
Number of FAA registered airports[4] with at least one runway more than 3,200 feet in length located within 20,000 feet of ROW centerline
Number of FAA registered airports[4] having no runway more than 3,200 feet in length located within 10,000 feet of ROW centerline
Number of private airstrips within 10,000 feet of the ROW centerline
Number of heliports within 5,000 feet of the ROW centerline
Number of commercial AM radio transmitters within 10,000 feet of the ROW centerline
Number of FM radio transmitters, microwave towers, and other electronic installations within 2,000 feet of ROW centerline
Aesthetics
Estimated length of ROW within foreground visual zone[5] of interstate, US, and state highways
Estimated length of ROW within foreground visual zone[5] of FM roads
Estimated length of ROW within foreground visual zone[5][6] of parks/recreational areas[3]
Ecology
Length of ROW across upland woodlands/brushlands
Length of ROW across bottomland/riparian woodlands
Length of ROW across NWI mapped wetlands
Length of ROW across USFWS designated critical habitat of federally-listed endangered or threatened species
Length of ROW across open water (lakes, ponds) (feet)
Number of stream crossings
Length of ROW parallel (within 100 feet) to streams
Length of ROW across FEMA mapped 100-year floodplains
Cultural Resources
Number of cemeteries within 1,000 feet of the ROW centerline
Number of recorded cultural resource sites crossed by ROW
Number of additional recorded cultural resource sites within 1,000 feet of ROW centerline

TABLE 2-1 LAND USE AND ENVIRONMENTAL EVALUATION CRITERIA

EVALUATION CRITERIA
Number of National Register of Historic Places (NRHP) listed properties crossed by ROW
Number of additional NRHP listed properties within 1,000 feet of ROW centerline
Length of ROW across areas of high archeological site potential

[1]Single-family and multi-family dwellings, and related structures, mobile homes, apartment buildings, commercial structures, industrial structures, business structures, places of worship, 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 230 kilovolts or greater.
[2]Apparent property boundaries created by existing roads, highways, or railroad ROWs are not "double-counted" in the length of ROW parallel to apparent property boundaries 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 US (FAA 2021b formerly known as the Airport/Facility Directory South Central U.S.) and FAA 2021a.
[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.
All length measurements are shown in miles unless noted otherwise.

2.7 Reconnaissance Surveys

A reconnaissance survey of the study area, with a focus on the Consensus Route location, was conducted by POWER personnel on June 24, 2021 from publicly accessible areas to confirm the findings of the research and data collection activities, identify changes in land use occurring after the date of available aerial photography, and to identify potential unknown constraints that might not have been previously noted in the data. Lone Star and its contractors also conducted numerous reconnaissance trips to the study area and provided information back to POWER regarding their findings.

3.0 DESCRIPTION OF THE STUDY AREA

3.1 Community Values

The term "community values" is included as a factor for the consideration of transmission line route approval under Section 37.056(c)(4)(A-D) of PURA. The PUC CCN application requires information concerning the following items related to community values:

- Public meeting, if applicable.
- Approvals or permits required from other governmental agencies.
- Brief description of the area traversed.
- Habitable structures within 500 feet of the centerline for a 345 kV single-circuit transmission line.
- Amplitude modulation (AM) radio and frequency modulation (FM) radio, microwave, and other electronic installations in the area.
- FAA-registered airstrips, private airstrips, and heliports located in the area.
- Irrigated pasture or croplands utilizing center-pivot or other traveling irrigation systems.
- Parks and recreation areas.
- Historical and archeological sites.

In addition, POWER also evaluated the Consensus Route for community values and resources that might not be specifically listed by the PUC, but that might be of importance to a particular community as a whole. The term "community values" is not formally defined in PUC rules. However, in several proceedings, the PUC and PUC Staff have used the following as a working definition: the term "community values" is defined as *a shared appreciation of an area or other natural resource by a national, regional, or local community*. Examples of a community resource would be a park or recreational area, historical or archeological site, or a scenic vista (aesthetics). POWER mailed consultation letters to various local elected and appointed officials to identify and collect information regarding community values and community resources.

3.2 Land Jurisdiction

Jurisdiction does not necessarily represent land ownership. Potential conflicts that could arise from crossing jurisdictional boundaries were evaluated in this study. The study area is located within the jurisdictional boundary of Hill and Limestone counties and crosses the southern city limit of the city of Mount Calm.

3.3 Land Use

Land uses within the study area were identified and placed into the following categories: urban/developed, planned land use, agriculture, oil and gas facilities, transportation/aviation/utility features, communication towers,

and parks and recreation areas. The primary sources of land use information were obtained from interpretation of aerial photographs, USGS topographical maps, and vehicular reconnaissance surveys from accessible viewpoints. Planned land use features were limited to known features obtained from governmental entities and mobility authorities.

3.3.1 Urban/Developed

The urban/developed classification represents concentrations of surface disturbing land uses, which include habitable structures and other developed areas characterized with low, medium and high intensities. The various levels of development include a mix of institutional, commercial, and/or industrial land uses. Developed low, medium, and high intensity areas were identified using aerial photograph interpretation and reconnaissance surveys. These classifications are described below:

- **Developed Low Intensity** areas typically include rural settings with single-family housing units.
- **Developed Medium Intensity** areas typically include single-family housing units that are grouped in residential subdivisions and might include peripheral commercial structures.
- **Developed High Intensity** includes highly developed areas where people reside or work in high numbers. Examples include apartment complexes, row houses, and commercial/industrial parks. Areas with the highest concentration of development are typically located within or near the towns and communities in the study area.

The study area is in a rural setting. The entire area is predominantly rangeland/pastureland. Development in the study are is predominantly low intensity, associated with large parcels. No developed medium or high intensity areas are present within the study area. Habitable structures were identified using aerial photographs (Esri World Imagery 2017; NAIP 2020), Google Earth (2021), and reconnaissance surveys. The PUC definition of a habitable structure was used for this routing study. Title 16 TAC § 25.101(a)(3) defines habitable structures as “structures normally inhabited by humans or intended to be inhabited by humans on a daily or regular basis. Habitable structures include, but are not limited to, single-family and multi-family dwellings and related structures, mobile homes, apartment buildings, commercial structures, industrial structures, business structures, churches, hospitals, nursing homes, and schools.”

Schools

The study area is located within the Mount Calm Independent School District. No schools were identified within the study area in the city of Mount Calm (TEA 2021).

3.3.2. Planned Land Use

The planned land use component identifies objectives and/or policies regarding land use goals and plans, including conservation easements, managed lands, and proposed developments. Cities and counties typically prepare comprehensive land use plans to provide strategic direction by goals and objectives for the individual city or county. The county website was reviewed, and correspondence was submitted to local and county officials to identify potential planned land use conflicts. Neither the city of Mount Calm nor Hill or Limestone counties have a comprehensive land use plan. Hill and Limestone counties are within the Heart of Texas State Planning Region and are members of the Heart of Texas Council of Governments (Heart of Texas Council of Governments 2021).

Conservation Easements

A conservation easement is a restriction that property owners voluntarily place on specified uses of their property to protect natural, productive or cultural features. The property owner retains legal title to the property and determines the types of uses to allow or restrict. The property can still be bought, sold and inherited, but the conservation easement is tied to the land and binds all present and future owners to its terms and restrictions. Conservation easement language will vary as to the individual property owner's allowances for additional developments on the land. The land trusts facilitate the conservation easement and ensure compliance with the specified terms and conditions.

A review of numerous non-governmental groups (e.g., The Nature Conservancy, Texas Land Conservancy, and the National Conservation Easement Database) that provide land trusts and databases for conservation easements in Texas indicated no conservation easements within the study area (The Nature Conservancy 2021; Texas Land Conservancy 2021; National Conservation Easement Database 2021).

Mitigation Sites

A mitigation bank is a managed site where natural resources such as wetlands, streams, and habitats are restored, established, enhanced, and/or preserved for the purpose of providing compensatory mitigation. A review of the USACE Regulatory In-lieu Fee and Bank Information Tracking System did not indicate any mitigation banks/sites located within the study area (USACE 2021).

3.3.3 Agriculture

Agriculture is a significant segment of the economy throughout Texas, and the study area counties have active agricultural sectors. According to the United States Department of Agriculture's (USDA) National Agricultural Statistics Service's 2017 Census of Agriculture, the total market value for agricultural products sold within Hill County was $114,001,000, a five percent decrease from the 2012 market value of $119,939,000. The total market value for agricultural products sold within Limestone County in 2017 was $66,257,000, a 27 percent increase

from the 2012 market value of $48,284,000. Crop sales accounted for the majority of agricultural sales in Hill County at 57 percent in 2017 with grains, oilseeds, drybeans, and dry peas accounting for the majority of crop sales at $51,072,000. Livestock, poultry, and products accounted for the majority of agricultural sales in Limestone County at 85 percent in 2017 with cattle and calves accounting for the majority of livestock sales at $43,028,000. The number of farms in the Hill County increased from 1,884 in 2012 to 2,003 in 2017 (an increase of 6.0 percent); however, for Limestone County the number of farms decreased from 1,526 in 2021 to 1,284 (a decrease of 16.0 percent) (USDA 2012 and 2017).

3.3.4 Oil and Gas Facilities

Data was obtained from the RRC (RRC 2021a), which provided a GIS layer for existing oil and gas wells, pipelines, and supporting facilities. Data point categories were reviewed and included the following types: permitted locations, oil, gas, injection/disposal, shut-in, water supply, cancelled, and sidetrack well surface locations. The 2021 RRC dataset along with aerial photograph interpretation and field reconnaissance were used to identify and map existing oil and gas related facilities.

Oil and gas wells are scattered throughout the study area, the highest concentration is along the SH 31 corridor, north of the study area. Additionally, no pipelines were identified within the study area (RRC 2021a; Platts 2021).

3.3.5 Transportation/Aviation/Utility Features

Transportation Features

Federal, state, and local roadways were identified using TxDOT county transportation maps and field reconnaissance surveys. The roadway transportation system within the study area includes FM 339. Numerous county and local paved and unpaved roads are also present throughout the study area (TxDOT 2021a).

TxDOT's "Project Tracker," which contains detailed information by county for every project that is or could be scheduled for construction, was reviewed to identify any state roadway projects planned within the study area. The TxDOT Project Tracker indicated that there are no projects planned within the study area (TxDOT 2021b).

One abandoned railroad was identified within the northern portion of the study area through Mount Calm (United States Department of Transportation 2021; Google Earth 2021).

Aviation Features

POWER reviewed the San Antonio Sectional Aeronautical Chart (FAA 2021a) and the Chart Supplement for the South Central United States (US) (formerly the Airport/Facility Directory) (FAA 2021b) to identify FAA-registered facilities within the study area subject to notification requirements listed in 14 CFR Part 77.9. Facilities

subject to notification requirements listed in 14 CFR Part 77.9 include public-use airports listed in the Airport/Facility Directory (currently the Chart Supplement[1]), public-use or military airports under construction, airports operated by a federal agency or DoD, or an airport or heliport with at least one FAA-approved instrument approach procedure.

No public-use or military FAA-registered airports were identified within the study area or within the FAA notification buffer (FAA 2021b). Also, no public-use heliports or heliports with an instrument approach procedure are listed for the study area in the Chart Supplement for the South Central US (FAA 2021b).

In addition, POWER also reviewed the FAA database (FAA 2021c), USGS topographic maps, recent aerial photography, and field reconnaissance from publicly accessible areas to identify private-use airstrips and private-use heliports not subject to notification requirements listed in 14 CFR Part 77.9. There are no private-use airstrips identified within the study area.

Utility Features

Utility features reviewed include existing electrical transmission lines, distribution lines, water wells, and water storage tanks. Data sources used to identify existing electrical transmission and distribution lines include utility company and regional system maps, aerial imagery, USGS topographic maps, additional available planning documents, and field reconnaissance surveys. No existing transmission lines were identified within the study area (Platts 2021). Distribution lines may be prevalent throughout developed portions of the study area; however, these features were not mapped or inventoried.

One water well was identified with in the study area and is not categorized as a public supply water well (TWDB 2021a).

3.3.6 Communication Towers

Review of the Federal Communication Commission (FCC) database indicated that there are no AM radio transmitters identified within the study area boundary or within 10,000 feet of the study area boundary. No FM radio transmitters/microwave towers/other electronic installations were identified within the study area (FCC 2021).

[1] The Chart Supplement for the South Central US used in conjunction with the San Antonio Sectional Aeronautical Chart, contains all public-use airports, seaplane bases and public-use heliports, military facilities, and selected private-use facilities specifically requested by the DoD for which a DoD Instrument Approach Procedure has been published in the US Terminal Procedures Publication.

3.3.7 Parks and Recreation Areas

The PUC recognizes parks and recreational areas as those owned by a governmental body or an organized group, club, or church. Federal and state database searches and county/local maps were reviewed to identify any parks and/or recreational areas within the study area. A reconnaissance survey was also conducted to identify any additional park or recreational areas.

National/State/County/Local Parks

No national, state, or county parks were identified within the study area (NPS 2021a; TPWD 2021a).

No local parks were identified within the study area.

No TPWD public hunting areas or wildlife management areas were identified within the study area (TPWD 2021b and 2021c). Additional recreational activities such as hunting and fishing might occur on private properties throughout the study area but are not considered to be open to the general public.

Wildlife Viewing Trails

A review of the TPWD Great Texas Wildlife Trails indicates that the study area is located within the *Prairies and Pineywoods West Wildlife Trail*. No viewing loops were identified within the study area and no sites of interest are located within the study area (TPWD 2021d).

3.4 Socioeconomics

The study area covers approximately four square miles in Hill and Limestone counties. This section presents a summary of economic and demographic characteristics for this county and describes the socioeconomic environment of the study area. Literature sources reviewed include publications of the United States Census Bureau (USCB), and the Texas State Data Center (TXSDC).

3.4.1 Population Trends

Hill and Limestone counties experienced population increases between 2000 and 2010 of 8.6 percent and 6.0 percent, respectively. By comparison, population at the state level increased by 20.6 percent during the 2000s (USCB 2010 and 2021). According to TXSDC projections, Hill and Limestone counties is projected to experience population increase between 2010 and 2020 and population decrease between 2020 and 2040. For Hill County, the population increase between 2010 and 2020 are projected to be 1.7 percent, between 2020 and 2030 the population is projected to decrease by 1.6 percent, and between 2030 and 2040 population is projected to decrease by 4.6 percent. For Limestone County, the population increase between 2010 and 2020 are projected to be 0.7 percent, between 2020 and 2030 the population is projected to decrease by 1.3 percent, and between 2030 and

2040 population is projected to decrease by 4.3 percent. By comparison, the population of Texas is expected to experience increases of population increases of 18.0 percent, 17.6 percent, and 16.6 percent over the same time periods, respectively (TXSDC 2018). Table 3-1 presents the past population trends and projections for Hill and Limestone counties and for the state of Texas.

TABLE 3-1 POPULATION TRENDS

	PAST		PROJECTED		
STATE/COUNTY	2000	2010	2020	2030	2040
Texas	20,851,820	25,145,561	29,677,772	34,894,429	40,686,490
Hill County	32,321	35,089	35,673	35,117	33,493
Limestone County	22,051	23,384	23,544	23,243	22,255

Sources: USCB 2010 and 2021; TXSDC 2018.

3.4.2 Employment

From 2010 to 2019, the civilian labor force (CLF) in Hill and Limestone counties increased by 5.1 percent (793 people) and 10.5 percent (929 people), respectively. By comparison, the CLF at the state level grew by 20.9 percent (2,502,806 people) over the same time period (USCB 2010 and 2019).

Between 2010 and 2019, Hill County experienced a decrease in its unemployment rate from 6.7 percent in 2010, to 6.3 percent in 2019. Limestone County experienced an increase in its unemployment rate from 4.0 percent in 2010, to 6.7 percent in 2019. By comparison, the state of Texas experienced a decrease in the unemployment rate over the same period. The state's unemployment rate decreased from 7.0 percent in 2010, to 4.4 percent in 2019 (USCB 2010 and 2019). Table 3-2 presents the CLF, employment, and unemployment data for Hill and Limestone counties and the state of Texas for the years 2010 and 2019.

TABLE 3-2 CIVILIAN LABOR FORCE AND EMPLOYMENT

STATE/COUNTY	2010	2019
Texas		
Civilian Labor Force	11,962,847	14,465,653
Employment	11,125,616	13,830,576
Unemployment	837,231	635,077
Unemployment Rate	7.0%	4.4%
Hill County		
Civilian Labor Force	15,668	16,461
Employment	14,619	15,427
Unemployment	1,049	1,034
Unemployment Rate	6.7%	6.3%
Limestone County		

TABLE 3-2 CIVILIAN LABOR FORCE AND EMPLOYMENT

STATE/COUNTY	2010	2019
Civilian Labor Force	8,830	9,759
Employment	8,473	9,101
Unemployment	357	658
Unemployment Rate	4.0	6.7

Source: USCB 2010 and 2019.

3.4.3 Leading Economic Sectors

The major occupations in Hill and Limestone counties in 2019 are listed under the category of management, business, science, and arts occupations, followed by sales and office occupations (USCB 2019). Table 3-3 presents the number of persons employed in each occupation category during 2019 in Hill and Limestone counties.

TABLE 3-3 OCCUPATIONS IN THE STUDY AREA COUNTIES

OCCUPATION	HILL COUNTY	LIMESTONE COUNTY
Management, business, science, and arts occupations	3,821	2,347
Service occupations	2,734	1,757
Sales and office occupations	3,455	1,840
Natural resources, construction, and maintenance occupations	2,308	1,446
Production, transportation, and material moving occupations	3,109	1,711

Source: USCB 2019.

In 2010 and 2019, the industry group employing the most people in Hill and Limestone counties was educational services, and health care and social assistance (USCB 2019). Table 3-4 presents the number of persons employed in each of the industries in the Hill and Limestone counties for the years 2010 and 2019.

TABLE 3-4 INDUSTRIES IN THE STUDY AREA COUNTIES

INDUSTRY GROUP	HILL COUNTY		LIMESTONE COUNTY	
	2010	2019	2010	2019
Agriculture, forestry, fishing and hunting, and mining	836	991	810	992
Construction	1,766	1,470	585	904
Manufacturing	1,666	1,957	471	753
Wholesale trade	363	206	202	210
Retail trade	1,819	1,983	1,028	1,064
Transportation and warehousing, and utilities	1,229	1,210	531	551

TABLE 3-4 INDUSTRIES IN THE STUDY AREA COUNTIES

INDUSTRY GROUP	HILL COUNTY		LIMESTONE COUNTY	
	2010	2019	2010	2019
Information	105	169	76	40
Finance and insurance, and real estate and rental and leasing	662	673	232	355
Professional, scientific and management, and administrative and waste management services	712	964	455	484
Educational services, and health care and social assistance	2,930	3,281	2,678	2,373
Arts, entertainment, and recreation, and accommodation and food services	1,100	1,368	289	484
Other services, except public administration	788	608	420	294
Public administration	643	547	696	597

Source: USCB 2010 and 2019.

3.5 Cultural Resources

Section 37.056(c)(4)(A-D) of PURA incorporates historical and aesthetic values as a consideration when evaluating proposed electric transmission facilities. The PUC's Standard Application for a CCN further stipulates that known historical sites within 1,000 feet of an alternative route will be listed, mapped, and their distance from the centerline of the alternative route documented in the application filed for consideration. Archeological sites within 1,000 feet of a route will be listed and their distance from the centerline documented, but they need not be shown on maps for the protection of the site. Sources consulted to identify known sites (national, state, or local commission) shall also be listed.

The THC is the state agency for historic preservation. The THC, working in conjunction with TARL, maintains records of previously recorded cultural resources and records of previous field investigations. Information from the THC's restricted-access TASA and Texas Historical Sites Atlas (THC 2021a and 2021b) and GIS shapefiles were acquired from TARL to identify and map the locations of previously recorded cultural (archeological and historical) resources within the study area. TxDOT's historic bridges database (TxDOT 2021a) and Historic Districts & Properties of Texas database (TxDOT 2021b) were also reviewed for bridges, districts, and properties that are listed or determined eligible for listing on the NRHP. At the national level, NPS websites and data centers (NPS 2021a, 2021b, and 2021c) were reviewed to identify locations and boundaries for nationally designated historic landmarks, trails, and battlefield monuments.

Together, archeological and historical sites are often referred to as cultural resources. Under the NPS's standardized definitions, cultural resources include districts, sites, buildings, structures, or objects important to a culture, subculture, or community for scientific, traditional, religious, or other reasons. For this study, cultural resources have been divided into three major categories: archeological resources, historical resources, and

cemeteries. These three categories correlate to the organization of cultural resource records maintained by the THC and TARL.

Archeological resources are locations on the ground surface or buried within the earth where human activity has measurably altered or left deposits of physical remains (e.g., burned rock middens, stone tools, petroglyphs, house foundations, bottles). Archeological resources can date to either prehistoric times or the historic era.

Historical Resources typically include standing buildings (e.g., houses, barns, outbuildings), but can also include structures (e.g., dams, canals, bridges, roads, silos), and districts that are non-archeological in nature. In some instances, historical resources might be designated as Registered Texas Historic Landmarks (RTHLs), SALs or NRHP properties.

Cemeteries are places of intentional human interment and might include large public burial grounds with multiple burials, small family plots with only a few burials, or individual grave sites. In some instances, cemeteries might be designated as Historic Texas Cemeteries (HTCs) by the THC and might be recognized with an OTHM. Other cemeteries might also be documented as part of the THC's Record, Investigate, and Protect program.

3.5.1 Cultural Background

The study area is in the Eastern Planning Region as delineated by the THC (Kenmotsu and Perttula 1993) (see Figure 3-1), more specifically within the North-central Texas archeological region described by Perttula (2004). Three major physiographic regions converge near the study area; the Grand Prairie, the Blackland Prairie and the eastern Edwards Plateau (Bureau of Economic Geology [BEG] 1996), offering inhabitants access to varied resources from each province. Traditionally included in the Central Texas Archeological Region (Prewitt 1981, for instance), the region is now known to have been inhabited by groups over the last 2,000 years that interacted with central Texas and northeastern Texas groups including, after around A.D. 900, the Caddos (Perttula 2004: 13). The basic chronological framework of the region is broken up into three broad prehistoric periods that generally coincide with broad climatic conditions, and the Historic Period, which began with the arrival of Europeans. These periods are discussed below.

N

0 30 60 120 180 240

Miles

Source: Mercado- Allinger et. al., 1996

Legend

Cultural Resource Planning Region Boundary

County Boundary

LIBERTY-WACO SOLAR 345 KV TRANSMISSION LINE PROJECT

FIGURE 3-1

LOCATION OF THE STUDY AREA IN RELATION TO THE CULTURAL RESOURCE PLANNING REGIONS OF TEXAS

POWER ENGINEERS

Date: 10/5/2021

LONEstar

Prehistory

Archeologists have subdivided the prehistoric occupation in North-central Texas into three broad periods spanning at least the last 11,500 years: the Paleoindian Period (circa [ca.] 11,500 to 9,000 years before present (BP); the long-lasting Archaic Period (ca. 9,000 to 1,300 BP); and the Late Prehistoric Period (from ca. 1,300 to 400 years BP). These periods reflect changes observed in material culture in response to broad environmental changes. The historic period follows, after Europeans arrive in Texas.

Paleoindian (ca. 11,500 to ca. 9,000 years BP)

The Paleoindian period is the least represented period in North-central Texas. Corresponding with the waning years of the Pleistocene era, this period was characterized by a comparatively cooler, wetter environment. Despite the popular misconception that these early populations were primarily hunters, evidence from the Gault Site in central Texas and the Aubrey Site north of Dallas-Fort Worth, suggest that their diet was more generalized (Ferring 2001; Collins 2002). Archeological evidence indicates that these early hunting and gathering populations were highly mobile and subsisted on a well-diversified resource base that included not only the last of the mammoth, but also smaller mammals, fish, and a variety of reptiles (Ferring and Yates 1997; Story 1990). Site types dating to this period include kill, quarry/stone-working, cache, camp, ritual, and burial sites. When the Pleistocene era came to an end around 10,900 years ago and the mammoth populations had all but disappeared, prehistoric populations began to focus their hunting efforts on bison, one of the hallmarks of the later Paleoindian period (Collins 2004). Clovis and Folsom projectile point types are typical of the Paleoindian period, though it has been suggested that Dalton and Plainview point types are the most common in the region (Prikryl 1990). Many of the artifacts were made from exotic stone suggesting groups moved in wide-ranging hunting and gathering territories. Ritualistic and intentional burial practices date to this period as seen in interments in Bosque and Hill counties that contained both utilitarian and ornamental objects (Bousman et al. 2004).

Archaic Period (ca. 9,000 to 1,300 BP)

Archeologists have compartmentalized nearly two-thirds of the entire prehistoric era in North-central Texas into the Archaic period, which is subsequently subdivided into Early (9,000 to 6,000 BP), Middle (6,000 to 4,000 BP), and Late (4,000 to 1,300 BP) sub-periods.

Early Archaic (9,000 to 6,000 BP)

The transition from the late Paleoindian period to the early Archaic is subtle but has generally been characterized as a time of broad-ranged hunting and gathering similar to the previous Paleoindian period. During the Early Archaic, artifact assemblages began to show greater diversity and lanceolate points typical of the Paleoindian period are replaced by early split-stemmed types (Prikryl 1990), such as Gower and Hoxie. Angostura points and other lanceolate forms continue into the Early Archaic, although projectile points from the Early and Middle

Archaic are usually less carefully fashioned and are made from less exotic materials than those from the Paleoindian Period (Kenmotsu and Perttula 1993). Other small and widely distributed sites may indicate a subsistence strategy of highly mobile, generalized hunting and gathering within large, poorly defined territories (Prikryl 1990).

Middle Archaic (6,000 to 4,000 BP)

Like the earlier periods, the Middle Archaic in this region is also poorly understood. The bulk of Middle Archaic materials have been recorded on the ground surface in mixed contexts. Projectile point styles from the beginning of the Middle Archaic include Bell, Andice, and Calf Creek styles; thin, triangular forms that represent a shift in lithic technology from the Early Archaic point types (Jones 2009). Carrollton, Wells, and Bulverde points are also typical of the Middle Archaic (Prikryl 1990). Increasing temperatures and aridity characterized the Hypsithermal Interval from 8,000 to 4,000 BP, during which open grasslands came to characterize the central plains, and woodlands that had extended farther west than today, retreated to the east (Delcourt and Delcourt 1981). Sparse deer remains and aquatic resources have been identified at Middle Archaic sites in the region. Instead, it appears small game made up the majority of the diet, indicating a drier environment that lacked the wooded habitats preferred by deer (Ferring and Yates 1997).

Late Archaic (4,000 to 1,250 BP)

Faunal remains suggest populations began to exploit deer as principal game species but supplemented with other species of woodland and riparian habitats during the Late Archaic, as the climate cooled to resemble that of today. Diverse small game, turtles, fish, and mussels contributed to the continued strategy of generalized hunting and gathering, but with greater intensity. It can be deduced that sites were repeatedly occupied from the presence of rock-lined and unlined hearths, and that plant materials were processed in these features (Ferring and Yates 1997). Projectile point types indicative of this period include Marshall, Edgewood, Castroville, Dawson, Ellis, Trinity, Dallas, Palmillas, Yarbrough, Godley, Gary, and Elam (Jones 2009; Prikryl 1990). An increase in the number of sites and a greater distribution of sites over the landscape have led some to suggest that populations during this time increased in density and decreased in group mobility (Prikryl 1990).

Late Prehistoric Period (1,250 to 150 BP)

The onset of the Late Prehistoric period has been arbitrarily set by some archeologists around 1,250 years ago but may have started as recently as 800 years ago. Little changed in subsistence patterns during the early Late Prehistoric; the most notable shift from the Late Archaic to the Late Prehistoric was the introduction and subsequent prevalence of arrow points over dart and spear points in the archeological record and appearance of pottery in archeological assemblages.

Lynott (1981) suggests that the Late Prehistoric period may be divided into early and late phases. The early phase is characterized by sand- and grog-tempered ceramics, Scallorn and Alba arrow points, and a continuation of the foraging subsistence system of the Late Archaic period. The late phase reflects a Southern Plains influence with the appearance of shell-tempered Nocona Plain ceramics of the Henrietta Focus, Fresno, Harrell, Washita, and other unstemmed projectile points, and the Perdiz point.

There is debate as to whether maize agriculture was introduced to North-central Texas during this period. Domesticated plant remains at several sites in the region, and stable isotope analyses from a burial in Dallas County comparable to those of maize-consuming Caddo populations in Arkansas, suggest maize agriculture may have been introduced to North-central Texas during the latter half of the Late Prehistoric Period (Jones 2009; Cochran et al. 2012). However, it has been suggested that these similar ceramic traditions, including shell and grog tempering, were ubiquitous throughout the Southern Plains region (Ferring and Yates 1997), and there has not been sufficient isotopic analysis to confirm a general adoption of maize horticulture or agriculture (Jones 2009). Ancestral Caddo and Caddo ceramic sherds at numerous sites in Hill County suggest interaction with the East Texas groups throughout the Late Prehistoric Period (Perttula 2018). Almost 15 percent of the known sites or collections in central Texas with Caddo ceramics are in Hill County (Perttula 2018).

Historic Period (ca. 400 to 50 BP)

The beginning of the Historic Period is marked by the first appearance of Europeans in Texas: the Spanish explorers, priests, and speculators who began moving into the state from colonies to the south and west in the sixteenth and seventeenth centuries. Documentary evidence from early European explorers in the region lists several groups, including the Tonkawa, Apache, Comanche, Wichita, Kitsai, Yojaunce, Caddo, Delaware, and Kickapoo (Kenmotsu and Perttula 1993).

Although the first explorers to reach the area arrived in the late 1700s, the native populations had already been decimated by diseases spread by Europeans, and pressures from other native groups moving south and west. French explorer Pedro Vial was commissioned by the Spanish government to establish a route from San Antonio to Santa Fe in 1786, and likely passed through or near modern day Hill and Limestone counties, as he reported staying at Tawakoni villages on the east side of the Brazos River (Austin 2021). In 1801, the first Anglo-American camp was established in the region of Hill County by Philip Nolan. He and several well-armed men built a small fort and corrals in an attempt to wrangle mustangs, but they were soon attacked and killed by Spanish soldiers sent from Nacogdoches (Jackson 2021).

Intensive occupation of this region began in the 1820s under the Mexican government. Sterling Clack Robertson, Stephen F. Austin, Haden Edwards, and Robert Leftwich were among the Americans who persuaded Mexican

officials to grant permission to colonize parts of Texas. In 1825, Robertson received the first land grant to include portions of modern-day Hill County, and Edwards and Leftwich received land grants in modern day Limestone County. Contemporaneously, Comanche and Taovaya groups migrated into this region. Treaties between the white colonists and the Comanche and Taovaya groups were attempted but were largely unsuccessful due to disputed territory between Robertson and Austin (Austin 2021). By 1835, white settlers had also established Fort Parker near the present-day city of Groesbeck in Limestone County. As the Comanches continued to expand their territory, approximately 500 to 700 Comanches and their allies attacked Fort Parker in Limestone County on May 19, 1836 (Maschino 2021). The attack and experiences of several of the survivors were recorded, notably by Rachel Plummer, who was liberated after 21 months of captivity and published her account in 1838 (Exley 2021). Cynthia Ann Parker was nine years old when she was captured during the Fort Parker raid and remained with the Comanches for the next 24 years until she was captured by Texas Rangers. Over the years, Cynthia Ann Parker assimilated with the Comanches and eventually married a leader of the Noconi band, Peta Nocona, and had three children. Their son, Quanah Parker, became a chief among the Comanches and became an influential warrior and negotiator with the United States (Hacker 2021). After the raid on Fort Parker and growing dominance of the Comanches in the region, white settlement was limited until a treaty was made in 1844 (Maschino 2021).

Conversely, settlement of the Hill County area was allowed throughout the 1830s and 1840s, likely because the area was used as a "council-spot" for discussions and treaties, and people were allowed to travel through the area safely (Austin 2021). Hasinai and Anadarko groups migrated from East Texas, and under Anadarko chief José María, settled in the Hill County area in 1844. Trading posts were established to serve the people of both the new Texas Republic and the aboriginal communities, as an official peace policy from President Sam Houston's administration (Armbruster 2021), and one such trading post was established amongst the newly settled Hasinai and Anadarko. A defensive line of outposts was built through the area for the protection of the inhabitants of this region, but some were abandoned in the 1850s (Austin 2021).

After the treaty in 1844, settlement of the Limestone County area increased slowly, and the county was officially formed on April 11, 1846 from portions of Robertson County. Portions of Limestone County were allocated to form other counties and the current boundaries were established on November 2, 1866. The town of Springfield was initially established as the county seat, but after the courthouse burned and the Houston and Texas Central Railway bypassed the town, Groesbeck became the county seat in 1873 and remains so (Maschino 2021). Hill County was officially formed in 1853 when Navarro County was divided. A petition began in 1852 to carve up Navarro County and encourage settlement of the region. Hill County was thus formed and named after Dr. George Washington Hill, secretary of war under President Sam Houston. Elections were held in 1853 to elect the county officials and by 1854 the county courthouse and county seat were established in Hillsboro (Austin 2021).

Limestone and Hill counties entered a tumultuous period beginning in the 1860s. The inhabitants overwhelmingly supported secession before the outbreak of the Civil War and during Reconstruction there was extreme resentment toward Governor E.J. Davis (Maschino 2021; Austin 2021). In 1871, martial law was declared in both counties. A resident of Limestone County publicly denounced the Texas State Police, an agency created from veterans of both the Confederate and Union armies and made up of racially diverse members. The State Police were assigned primarily to investigate racially based crimes in Texas (Johnson 2021). A riot then ensued between residents and the police. Moreover, a married couple, who were formerly slaves, were murdered in Hill County. One of the suspects was a son of the county's most prominent landowner, and the family prevented the State Police from investigating the suspect by inciting a mob to convince county officials to detain the troopers in what is known as the Hill County Rebellion (Dobbs 2021). Simultaneously, Texas State Police were hindered by residents of the county during their efforts to track down bands of outlaws. State militia had to be dispatched to restore order in Hill County (Austin 2021). Despite this violence, the Republican Party in Limestone County elected Ralph Long, a black man originally from Tennessee, to head the Party in 1871, and Kate Long High School in Springfield is named for his wife (Lucko 2021).

Many towns developed throughout Limestone County along railroad networks, starting with the Houston and Texas Central Railroad which came to the county in 1869. Other lines were laid throughout the late nineteenth century, which helped grow the local economy by facilitating the distribution of Limestone County's major products, including cotton, sweet potatoes, cattle, and eventually swine and sorghum. Manufacturing jobs and business also developed during this time (Maschino 2021). As the population of Limestone County increased and concentrated around towns, so too did the need for a dedicated public education system, and free education began in 1876. By 1900, Limestone County supported five successful independent school districts (Maschino 2021).

Hill County relied predominantly on the cattle industry during the 1870s. The Chisholm Trail, a massive route for livestock leading from South Texas to Kansas (Worcester 2021), crossed the northwest corner of the county (Austin 2021). The ranching industry gradually gave way to a greater investment in agriculture, and economic growth in Hill County was further stimulated by the introduction of the Missouri, Kansas and Texas Railroad in 1881 (Austin 2021). Later, in 1883, the St. Louis and Southwestern Railroad was constructed through the county. The community of Mount Calm was relocated from within the study area to its current location on the railroad, just north of the study area in Hill County. The Mount Calm Cemetery (LT-C058) in Limestone County was established near the original location of the town and is commemorated in OTHM 3487 describing the cemetery and the town's relocation (THC 2021b). Nearby, the Mt. Antioch Cemetery (LT-C063) was formally established in 1854 but was used as early as 1846 as a burial space for travelers and settlers passing through the area. These early graves are unmarked and the first marked grave dates to 1860. Mt. Antioch Cemetery is also commemorated in OTHM 3517 (THC 2021b).

Hill County also underwent an economic revival in the decades after the railroads were constructed until the Great Depression in 1929. The population nearly doubled during the 1880s and again in the 1890s, until it reached a peak in 1910, numbering 46,760. The town of Birome, northwest of the study area, was founded in 1910 as one of the stations for the International and Great Northern Railway. The number of farms increased proportionally with the population, reaching a peak of 5,539 in 1910. Crops consisted of corn, wheat, and oats, though the dominant crop by far was cotton (Austin 2021). After 1910, these numbers began to decline due to the boll weevil infestation, which were resistant to the anti-pest practices known at the time (Wagner 2021), and the imminent Great Depression (Austin 2021).

The residents of Limestone and Hill counties struggled to revive and stabilize the economy during and after the Great Depression by attempting to diversify the primary industries. Oil was first discovered in Limestone County in 1920 near Mexia and helped sustain the struggling economy during the Depression along with the cattle and swine industries, and production of wheat, hay, and forage. Additionally, the Work Projects Administration and Civilian Conservation Corps attempted to ease unemployment. However, the population of Limestone County continued to decline (Meschino 2021). Residents of Hill County faced similar challenges. The number of farms decreased as many were consolidated or land was repurposed for ranchland, and commodities expanded to include cattle, nursery crops, sorghum, dairies, wheat, hay, and turkey in addition to the already well-established cotton industry. Oil was also discovered in Hill County, but never in quantities great enough to revive the economy alone. Manufacturing also declined during the Great Depression and subsequent decades, and the economy continued to struggle through the 1950s. Plastic, copper, and furniture plants were established throughout Hill County in the 1950s, and many people left farms to fill these industrial roles (Austin 2021).

The population of both counties continued to decline, however, until reaching their lowest by 1980 in Limestone County and by 1970 in Hill County. Currently, both counties rely heavily on the retail industry that employs the majority of their residents. Limestone County also added jobs in construction, transportation, and public utilities. The number of cattle also increased in Limestone County and agricultural production expanded to include wheat, hay, corn, cotton, and peaches. Along with the retail industry, Hill County also supported the burgeoning medical industry in the 1980s (Austin 2021).

3.5.2 Literature and Records Review

Historical and archeological data for the study area were reviewed online through the TASA (THC 2021a), THSA (THC 2021b), and TARL. GIS shapefiles identifying the locations of previously recorded archeological sites were obtained from TARL on June 4, 2021. Previously recorded cultural resource site data available online from the THSA (THC 2021b) were obtained to identify locations of designated historical sites, State Antiquities Landmarks, cemeteries, Historic Texas Cemetery (HTCs), and OTHMs within the study area, as well as

previously conducted cultural resource investigations (THC 2021a). TxDOT's online historic bridges database (TxDOT 2021a) and Historic Districts & Properties of Texas database (TxDOT 2021b) were reviewed for resources listed or determined eligible for listing on the NRHP within the study area. At the national level, NRHP databases were reviewed to locate and define boundaries for historic properties (NPS 2021a, 2021b, and 2021c). The results of the review are summarized in Table 3-5.

TABLE 3-5 CULTURAL RESOURCES RECORDED WITHIN THE STUDY AREA

ARCHEOLOGICAL SITES	NRHP-LISTED RESOURCES	STATE ANTIQUITIES LANDMARKS	CEMETERIES	HTCs	OTHM
0	0	0	3	0	2

Source: THC 2021a and 2021b.

The review of the TASA and TARL data indicates that no archeological sites have been previously recorded in the study area, and no cultural resource investigations have been previously conducted within the study area (THC 2021a). The review of TxDOT and NPS databases indicates that no NRHP properties or districts are mapped within the study area boundaries (TxDOT 2021a and 2021b; NPS 2021a, 2021b, and 2021c)

Three cemeteries and two OTHMs are mapped within the study area (see Tables 3-6 and 3-7). None of the cemeteries are designated HTC, and none of the OTHMs are designated RTHLs (THC 2021b). Mount Calm Area Cemetery (HI-C061) was established in 1925 as a Black cemetery and is still in use (Find a Grave 2021). Mount Calm Cemetery (LT-C058) is still in use and dates to as early as 1870. It contains burials of residents from the original site of Mount Calm (THC 2021b). Mount Antioch Cemetery contains numerous unmarked graves of travelers and settlers from the Mount Calm area. The earliest marked grave is that of the infant son of George Kimmel, also named George, who was buried in 1860. The cemetery continues to be used by local residents and descendants of early settlers and is commemorated in an OTHM.

TABLE 3-6 CEMETERIES RECORDED WITHIN THE STUDY AREA

CEMETERY NUMBER	NAME	DESIGNATION	COUNTY
HI-C061	Mount Calm Area cemetery	--	Hill
LT-C058	Mount Calm cemetery	--	Limestone
LT-C063	Mount Antioch	--	Limestone

Source: THC 2021b.

TABLE 3-7 OTHMS RECORDED WITHIN THE STUDY AREA

MARKER NO.	NAME	DESIGNATION	COUNTY
3487	Mount Calm Cemetery	--	Limestone
3517	Mt. Antioch Cemetery	--	Limestone

Source: THC 2021b.

3.5.3 High Probability Areas

Review of the previously recorded cultural resource sites data indicates that the study area has not been examined during previous archeological and historical investigations. Consequently, the records review results do not include all possible cultural resources sites within the study area. To further assess and avoid potential impacts to cultural resources, high probability areas (HPAs) for prehistoric archeological sites were defined during the route analysis process. HPAs were designated based on a review of the site and survey data within the study area, as well as soils and geologic data, and topographic variables. Within the study area, the prehistoric HPAs typically occur near and along streams, at the heads of major draws, near springs and at outcroppings of chert gravels suited to stone tool manufacture. Terraces and topographic high points that would provide flats for camping and expansive landscape views as well as access to fresh water sources are also considered to have a high probability for containing prehistoric archeological sites.

Historic age resources are likely to be found near water sources. However, they will also be located in proximity to primary and secondary transportation routes (e.g., trails, roads, and railroads), which provided access to the sites. Buildings and cemeteries are also more likely to be located within or near historic communities.

3.6 Aesthetic Values

Section 37.056(c)(4)(C) of PURA incorporates aesthetics as a consideration when evaluating proposed electric transmission facilities. There are currently no formal guidelines provided for managing visual resources on private, state, or county owned lands. For the purposes of this study, the term aesthetics is defined by POWER to accommodate the subjective perception of natural beauty in a landscape and measure an area's scenic qualities. The visual analysis was conducted by describing the regional setting and determining a viewer's sensitivity. Related literature, aerial photograph interpretation, and field reconnaissance surveys were used to describe the regional setting and to determine the landscape character types for the area.

Consideration of the visual environment includes a determination of aesthetic values (where the major potential effect of a project on the resource is considered visual) and recreational values (where the location of a transmission line could potentially affect the scenic enjoyment of the area) that would help define a viewer's sensitivity. POWER considered the following aesthetic criteria that combine to give an area its aesthetic identity:

- Topographical variation (e.g., hills, valleys).
- Prominence of water in the landscape (e.g., rivers, lakes).
- Vegetation variety (e.g., woodlands, meadows).
- Diversity of scenic elements.
- Degree of human development or alteration.
- Overall uniqueness of the scenic environment compared with the larger region.

The study area is rural with little development. The predominant land use within the study area is rangeland/pastureland and croplands. The majority of the study area has been impacted by land improvements associated with agriculture, oil and gas activities, roadways, and other linear corridors. Overall, the study area viewscape consists of open rangeland/pastureland and croplands.

No known high-quality aesthetic resources, designated views, or designated scenic roads or highways were identified within the study area (America's Scenic Byways 2021; Federal Highway Administration 2021). The study area is located within both the 18-county Brazos Trail Region and the 31-county Lakes Trail Region; however, there were no sites of interest identified within the study area (THC 2021c and 2021d).

A review of the NPS website did not indicate any Wild and Scenic Rivers, National Parks, National Monuments, National Memorials, National Historic Sites, National Historic, Scenic, or Recreational Trails, or National Battlefields within the study area (National Wild and Scenic River System 2021; NPS 2021b, 2021c, and 2021d).

Based on these criteria, the study area exhibits a moderate degree of aesthetic quality for the region. The majority of the study area maintains the feel of a rural community. Although some portions of the study area might be visually appealing, the aesthetic quality of the study area overall is not distinguishable from that of other adjacent areas within the region.

3.7 Environmental Integrity

3.7.1 Physiography and Geology

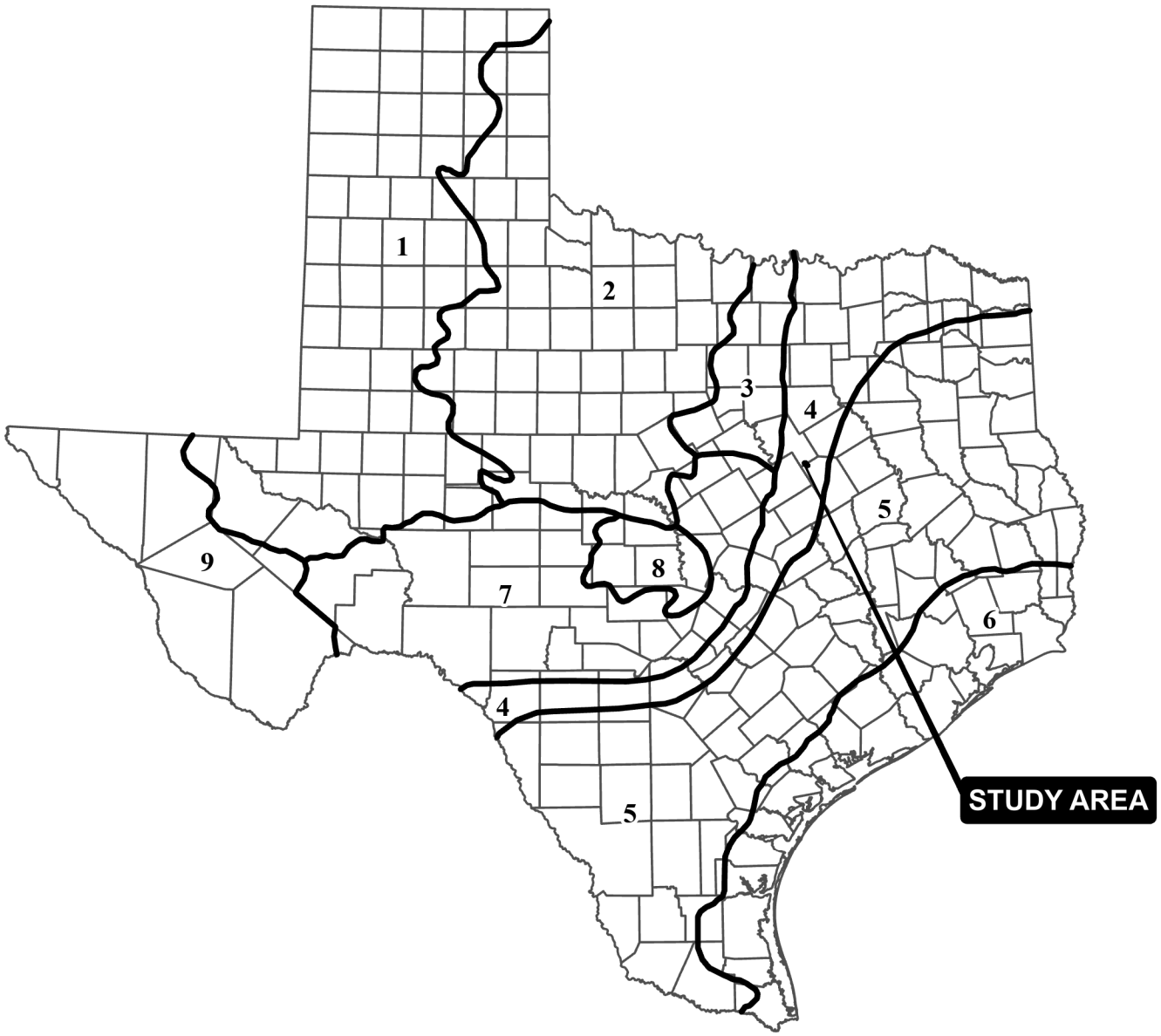
As shown in Figure 3-2, the study area is located within the Blackland Prairies Sub-province of the Gulf Coastal Plains Physiographic Province. The Blackland Prairies Sub-province contains bedrock composed of sands and marls that have weathered to develop an undulating terrain with fertile, black clay soils. Elevation within this sub-province ranges from 450 to 1000 feet above mean sea level (amsl) and generally increases northward and eastward (BEG 1996). Elevations within the study area range between approximately 600 feet amsl within stream floodplains to approximately 650 feet amsl on gently sloping hills (USGS 2019).

The geologic formation underlying the entirety of the study area is the Cretaceous-aged Wolfe City Formation. The Wolfe City Formation has a thickness of up to 300 feet and is composed of marl, sand, sandstone, and clay (BEG 1979).

Geological Hazards

Several potential geologic hazards affecting the construction and operation of a transmission line were evaluated within the study area. Hazardous areas reviewed included normal faults, active or abandoned mining locations, aggregate operation locations, and potential subsurface contamination. Subsurface contamination (soils or groundwater) from previous commercial activities or dumps/landfills may require additional considerations during routing and/or may create a potential hazard during construction activities.

No normal faults (BEG 1979), active (RRC 2021b, 2021c, and 2021d) or abandoned (RRC 2015) mining locations, aggregate operation locations (USGS 1956, 1957, and 2019; Google LLC 2020), state (TCEQ 2021a) or federal superfund sites (USEPA 2021a), and municipal waste facilities (TCEQ 2021b) were identified within the study area.



0 30 60 120 180 240

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

LIBERTY-WACO SOLAR 345 KV TRANSMISSION LINE PROJECT

FIGURE 3-2

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

POWER ENGINEERS

Date: 10/5/2021

LONEstar

3.7.2 Soils

Mapped Soil Units

The NRCS (2021) Web Soil Survey data was reviewed to identify and characterize mapped soils within the study area. Soil map units represent a collection of delineated areas defined and named the same in terms of their soil components (e.g., series). Mapped soils within the study area are listed in Table 3-8, including a brief description of the soil unit, landform of occurrence, and hydric and prime farmland classification status.

TABLE 3-8 MAPPED SOIL UNITS WITHIN THE STUDY AREA

MAP UNIT NAME	LANDFORM	HYDRIC STATUS	PRIME FARMLAND
Axtell fine sandy loam, 1 to 3 percent slopes	Stream terraces	No	Farmland of statewide importance
Crockett fine sandy loam, 1 to 3 percent slopes	Ridges	No	Farmland of statewide importance
Crockett loam, 0 to 1 percent slopes	Ridges	No	Farmland of statewide importance
Crockett loam, 1 to 3 percent slopes	Ridges	No	Farmland of statewide importance
Crockett loam, 2 to 5 percent slopes, eroded	Ridges	No	No
Ellis clay, 3 to 5 percent slopes, eroded	Ridges	No	No
Ferris clay, 5 to 12 percent slopes	Ridges	No	No
Ferris-Heiden complex, 2 to 5 percent slopes	Ridges	No	Yes
Ferris-Heiden complex, 2 to 5 percent slopes, eroded	Ridges	No	No
Gowen clay loam, frequently flooded	Floodplains	Yes	No
Heiden clay, 1 to 3 percent slopes	Ridges	No	Yes
Houston Black clay, 0 to 1 percent slopes	Plains	No	Yes
Houston Black clay, 1 to 3 percent slopes	Ridges	No	Yes
Mabank fine sandy loam, 0 to 2 percent slopes	Stream terraces	No	Farmland of statewide importance
Normangee clay loam, 1 to 3 percent slopes	Ridges	No	No
Normangee clay loam, 3 to 5 percent slopes	Ridges	No	No
Normangee gravelly clay loam, 3 to 8 percent slopes, eroded	Ridges	No	No
Whitesboro loam, frequently flooded	Floodplains	Yes	No
Wilson clay loam, 0 to 1 percent slopes	Stream terraces	No	Farmland of statewide importance
Wilson clay loam, 0 to 2 percent slopes	Stream terraces	No	Farmland of statewide importance
Wilson clay loam, 1 to 3 percent slopes	Stream terraces	No	Farmland of statewide importance

Source: NRCS 2021.

Hydric Soils

The National Technical Committee for Hydric Soils defines hydric soils as soils that were formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper horizons. These soils, under natural conditions, are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation (NRCS 2021).

Map units that are dominantly comprised of non-hydric soils might have small inclusions of hydric soils in higher positions on the landform, and map units dominantly comprised of hydric soils might have inclusions of non-

hydric soils in lower positions on the landform. According to NRCS (2021) Web Soil Survey data for the study area, hydric soils are mapped within the Gowen clay loam, frequently flooded and Whitesboro loam, frequently flooded map soil units.

Prime Farmland Soils

The US Secretary of Agriculture, within U.S.C. §7-4201(c)(1)(A), defines prime farmland soils as those soils that have the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops. They have the soil quality, growing season, and moisture supply needed to economically produce sustained high yields of crops when treated and managed, including water management, according to acceptable farming methods. Soils designated as farmland of statewide importance are potential prime farmlands with soils that meet most of the requirements of prime farmland but fail due to the absence of sufficient natural moisture or water management facilities. The USDA would consider these soils as prime farmland if such practices were installed and these soils are incorporated in Table 3-8. According to NRCS (2021) Web Soil Survey data for the study area, there are multiple soil map units designated as prime farmland and as farmland of statewide importance within the study area.

Transmission line projects are typically not subject to the requirements of the Farmland Protection Policy Act unless they are associated with federal funding, which the proposed Project is not. Additionally, transmission line construction is not typically considered a conversion of prime farmlands as the site can still be used for farming after construction is complete.

3.7.3 Water Resources

Surface Water

The study area is located within the Brazos River Basin (TWDB 2021a). The east half of the study area occurs within the Christmas Creek-Navasota River sub-basin and the west half of the study area occurs within the Tehuacana Creek sub-basin. One named surface water feature, Williamson Creek, occurs within the study area. Five unnamed tributaries and numerous small ponds are mapped throughout the study area (USEPA 2021b; NHD 2021). Within the east half of the study area, surface waters generally flow in a northeast direction. Within the west half of the study area, surface waters generally flow in west and south directions (USGS 2021). Additional unmapped surface water features may occur within the study area.

Under 31 TAC § 357.8, the TPWD has designated Ecologically Significant Stream Segments (ESSS) based on habitat value, threatened and endangered species, species diversity, and aesthetic value criteria. Review of the TPWD information did not indicate the presence of a designated ESSS within the study area (TPWD 2021e).

In accordance with Section 303(d) and 304(a) of the CWA, the TCEQ identifies surface waters for which effluent limitations are not stringent enough to meet water quality standards and for which the associated pollutants are suitable for measurement by maximum daily load. Review of the TCEQ (2021c) Texas Integrated Report of Surface Water Quality, lists did not indicate the occurrence of impaired surface waters within the study area.

Ground Water

The major ground water aquifer underlying the study area is the Trinity Aquifer. No minor aquifers are mapped within the study area (TWDB 2021b). The Trinity Aquifer consists primarily of limestone, sand, clay, gravel, and conglomerates. The average freshwater saturated thickness is about 600 feet with total dissolved solids, sulfates, and chloride increasing with the depth of the aquifer (TWDB 2011). One historical water well is mapped within the far south portion of the study area adjacent to Farm-to-Market Road 339 (TWDB 2021b). No known natural springs were identified within the study area (TWDB 1975 and 2021b).

Floodplains

The 100-year flood (one percent flood or base flood) represents a flood event that has a one percent chance of being equaled or exceeded for any given year. FEMA 100-year floodplain data are mapped within the northeast corner of the study area in association with an unnamed stream (FEMA 2021).

Future Surface Water Developments

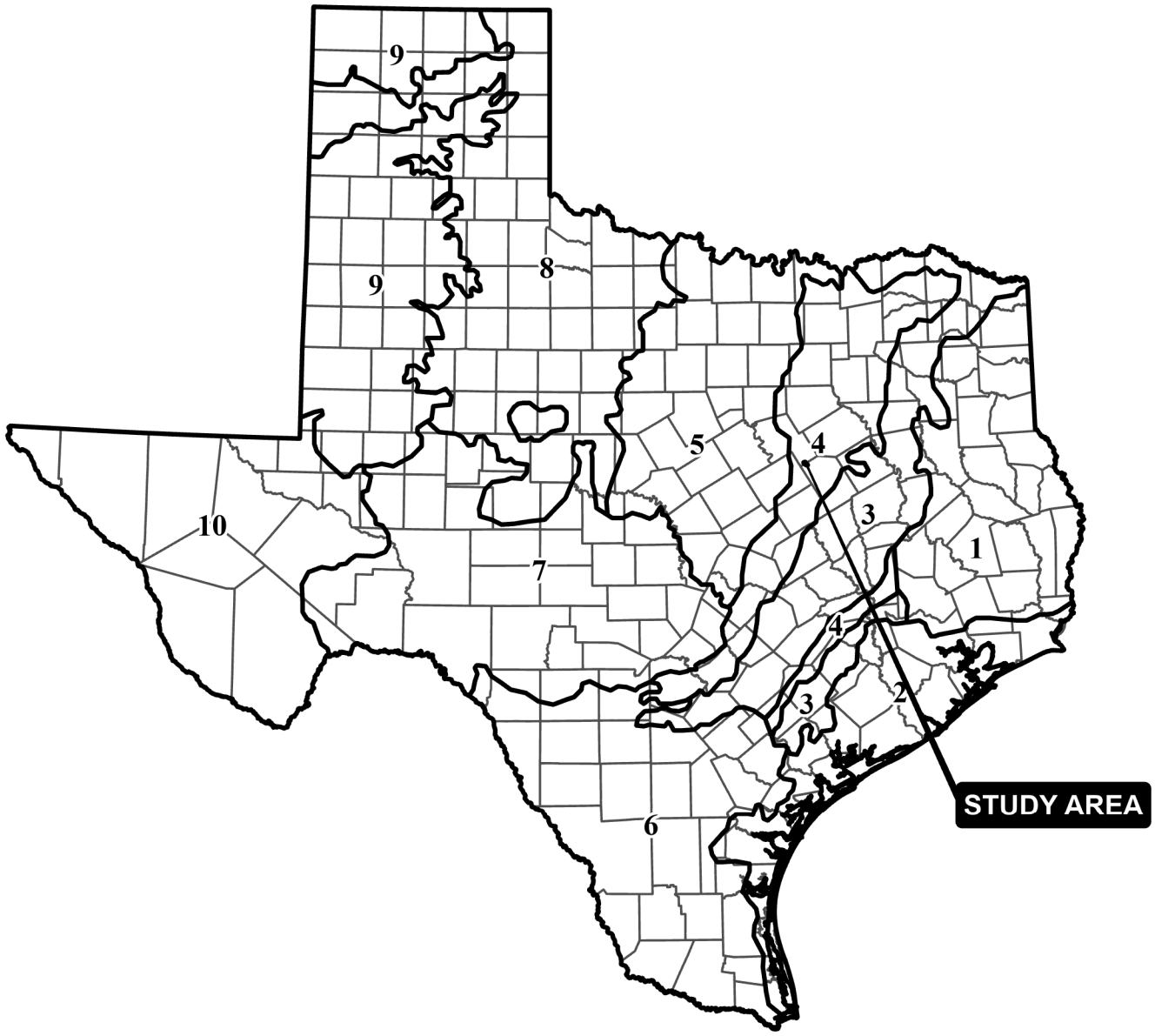
No reservoir or other future surface water development projects were identified within the study area (TWDB 2021c).

3.7.4 Ecological Resources

Data and information on ecological resources within the study area were obtained from a variety of sources, including aerial photograph interpretation, field reconnaissance surveys, correspondence with the USFWS, TPWD and published literature and technical reports.

Vegetational Area

The study area is mapped within the Blackland Prairie Vegetational Areas of Texas, also referred to as the Gould Ecoregions of Texas (Gould et al. 1960) (see Figure 3-3). The Blackland Prairie Vegetational Area, or Ecoregion, is characterized by tallgrass prairie vegetation on gently rolling plains with fertile dark clay soils. Soils are predominantly Vertisols in the blackland prairie ecoregion, but the region also contains Alfisols and Mollisols (Griffith et al. 2007). Much of the native blackland prairie vegetation type within the study area has been converted to cropland and pastureland or is used as rangeland (Google LLC 2021). Remnant blackland prairie vegetation may occur in areas of rangeland or on the fringes of pastureland and cropland.



N

0 30 60 120 180 240

Miles

Source: Gould, et. al., 1960.

Legend

Vegetational Areas Boundary

1 Pineywoods
2 Gulf Prairies and Marshes
3 Post Oak Savannah
4 Blackland Prairies
5 Cross Timbers and Prairies
6 South Texas Plains
7 Edwards Plateau
8 Rolling Plains
9 High Plains
10 Trans-Pecos

County Boundary

LIBERTY-WACO SOLAR 345 KV TRANSMISSION LINE PROJECT

FIGURE 3-3

LOCATION OF THE STUDY AREA IN RELATION TO THE VEGETATIONAL AREAS OF TEXAS

POWER ENGINEERS

Date: 10/5/2021

LONEstar

Vegetation Types

Review of the TPWD (2021f) Texas Ecosystem Analytical Mapper indicates that dominant vegetation types (vegetation types comprising one percent or more of the study area) mapped within the study area include row crops, Native Invasive: Deciduous Woodland, Native Invasive: Mesquite Shrubland, Southeastern Great Plains Floodplain Forest, Southeastern Great Plains Riparian Forest, and Texas Blackland Tallgrass Prairie. Based on a preliminary field survey, row crops are predominantly corn and located within the northwest quadrant of the study area.

Native Invasive: Deciduous Woodland

Native Invasive: Deciduous Woodland is a broadly defined vegetation community often mapped in disturbed and fire suppressed areas on soils from the Blackland Prairie region westward. Common species may include Ashe juniper (*Juniperus ashei*), cedar elm (*Ulmus crassifolia*), honey mesquite (*Prosopis glandulosa*), huisache (*Acacia farnesiana*), netleaf hackberry (*Celtis reticulata*), sugar hackberry (*C. laevigata*), sweetgum (*Liquidambar styraciflua*), water oak (*Quercus nigra*), winged elm (*U. alata*), and yaupon (*Ilex vomitoria*) (TPWD 2021f).

Native Invasive: Mesquite Shrubland

Native Invasive: Mesquite Shrubland is a broadly defined vegetation community which occurs throughout the state. It is often mapped in disturbed areas on prairie or savanna soils and is dominated by honey mesquite. Codominant species vary by region and may include agarito (*Mahonia trifoliata*), Ashe juniper, brasil (*Condalia hookeri*), cedar elm, common persimmon (*D. virginiana*), granjeno (*Celtis ehrenbergiana*), huisache, Lindheimaer pricklypear (*Opuntia engelmannii var. lindheimeri*), lotebush (*Ziziphus obtusifolia*), sugar hackberry, Texas persimmon (*Diospyros texana*), and winged elm (TPWD 2021f).

Southeastern Great Plains Floodplain Forest

Southeastern Great Plains Floodplain Forest occurs in low topographic positions along large streams with alluvial soils. A wide range of vegetation types occur within this community; however, they are linked by a common flooding regime and the underlying soils. Tree composition is dominated by deciduous hardwood species and may include American elm (*Ulmus americana*), American sycamore (*Platanus occidentalis*), black willow (*Salix nigra*), boxelder (*Acer negundo*), bur oak (*Q. macrocarpa*), cedar elm, coastal live oak (*Q. virginiana*), common honeylocust (*Gleditsia triacanthos*), eastern cottonwood (*Populus deltoides*), green ash (*F. pennsylvanica*), pecan (*Carya illinoinensis*), plateau oak (*Quercus fusiformis*), red mulberry (*Morus rubra*), sugar hackberry, water oak, and white ash (*Fraxinus americana*) (TPWD 2021f).

Southeastern Great Plains Riparian Forest

Southeastern Great Plains Riparian Forest occurs in valleys and drainages along headwater streams of larger rivers. This forest type occurs upstream of bottomlands and is mapped on soils of the surrounding uplands. Tree composition is dominated by deciduous hardwood species and may include American sycamore, black willow, cedar elm, common honeylocust, eastern cottonwood, green ash, honey mesquite, pecan, plateau live oak, sugar hackberry, water oak, western soapberry (*Sapindus saponaria var. drummondii*), white ash, and willow oak (*Quercus phellos*) (TPWD 2021f).

Texas Blackland Tallgrass Prairie

Texas Blackland Tallgrass Prairie is characterized by a flat to gently rolling topography with Cretaceous shales, marls, and limestones. Typical native plant species present within this vegetation type may include big bluestem (*Andropogon gerardii*), eastern gamagrass (*Tripsacum dactyloides*), hairy grama (*B. hirsuta*), Indiangrass (*Sorghastrum nutans*), little bluestem (*Schizachyrium scoparium*), sideoats grama (*Bouteloua curtipendula*), silver bluestem (*Bothriochloa laguroides*), switchgrass (*Panicum virgatum*), Texas wintergrass (*Nassella leucotricha*), and threeawn grasses (*Aristida* spp.). Today this vegetation type is highly disturbed and may consist of a mix of native and non-native vegetation. Typical non-native plant species potentially present within this vegetation type include bermudagrass (*Cynodon dactylon*), common broomweed (*Amphiachyris dracunculoides*), Johnsongrass (*Sorghum halapense*), King Ranch bluestem (*Bothriochloa ischaemum*), kleingrass (*Panicum coloratum*), and western ragweed (*Ambrosia psilostachya*). Dense stands of shrubs such as honey mesquite and huisache may also be present (TPWD 2021f).

Wetlands

Mapped wetlands information was incorporated for the study area from the USFWS NWI database (USFWS 2021a). NWI maps are based on topography and interpretation of infrared satellite data and color aerial photographs and are classified under the Cowardin System (Cowardin et al. 1979). Since the date of NWI data mapping, mapped wetland features within the study area may have changed, and actual site conditions may differ in wetland classification, size, or presence. The only wetland type mapped within the study area is palustrine forested (PFO) (USWFS 2021a). Unmapped wetlands may also potentially occur in association with riparian areas near any surface drainage or pond within the study area.

Palustrine Forested Wetland

PFO wetlands are mapped in the south half of the study area in association with an unnamed stream. Within the study area plant species potentially occurring in PFO wetlands may include broad-leaved deciduous (USFWS

2021a) species such as American elm, black willow, bur oak, cedar elm, common buttonbush (*Cephalanthus occidentalis*), green ash, possumhaw (*Ilex decidua*), sugar hackberry, swamp privet (*Forestiera acuminata*), sweetgum, and water oak (TPWD 2021f).

Wildlife and Fisheries

Wildlife

The study area is located within the Texan Biotic Province (see Figure 3-4) as described by Blair (1950). The following sections list species that may occur in and characterize the faunal diversity of the study area today.

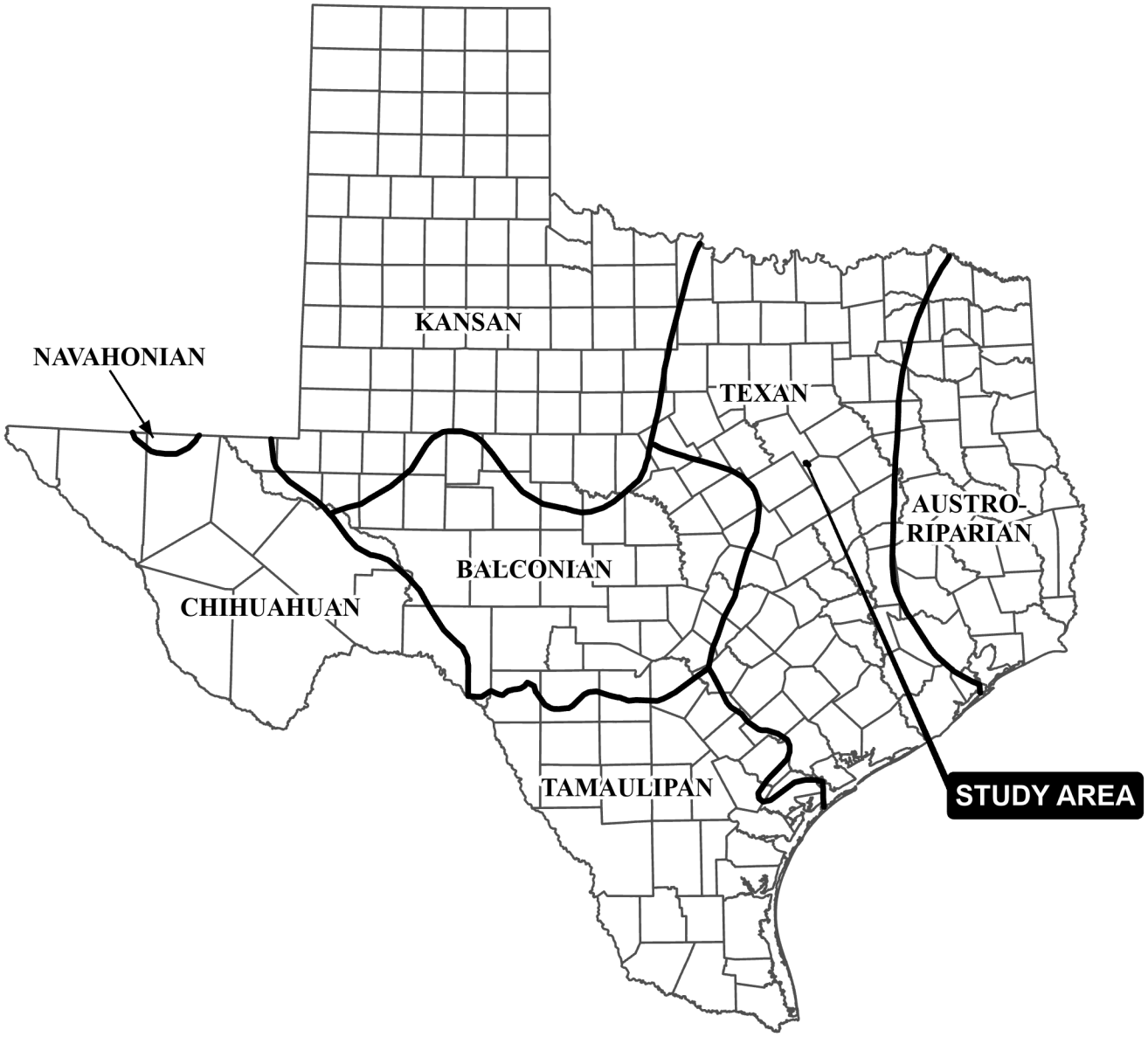
Amphibians

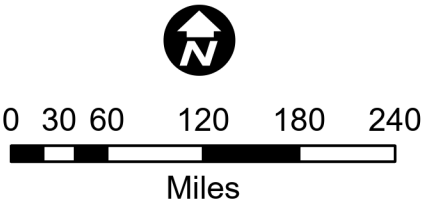
Amphibian species (frogs, toads, salamanders) that may occur within the study area are listed in Table 3-9. Frogs and toads may occur in all vegetation types and salamanders are typically restricted to moist habitats (Dixon 2013).

TABLE 3-9 AMPHIBIAN SPECIES POTENTIALLY OCCURRING WITHIN THE STUDY AREA

COMMON NAME	SCIENTIFIC NAME
American bullfrog	*Lithobates catesbeiana*
Couch's spadefoot	*Scaphiopus couchi*
Cope's gray treefrog	*Dryophytes chrysoscelis*
Gray treefrog	*Dryophytes versicolor*
Great Plains narrow-mouthed toad	*Gastrophryne olivacea*
Gulf Coast toad	*Incilius nebulifer*
Northern cricket frog	*Acris crepitans*
Rio Grande leopard frog	*Lithobates berlandieri*
Red-spotted toad	*Anaxyrus punctatus*
Small-mouthed salamander	*Ambystoma texanum*
Southern leopard frog	*Lithobates sphenocephalus*
Spotted chorus frog	*Pseudacris clarkii*
Texas toad	*Anaxyrus speciosus*

Sources: Dixon 2013.





Source: Blair, 1950, modified

Legend

Biotic Province Boundary

County Boundary

LIBERTY-WACO SOLAR
345 KV TRANSMISSION LINE PROJECT

FIGURE 3-4

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

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Date: 10/5/2021

Reptiles

Reptiles (turtles, lizards, and snakes) that may typically occur in the study area are listed in Table 3-10. These include those species that are more commonly observed near water (e.g., aquatic turtles) and those that are more common in terrestrial habitats (Dixon 2013).

TABLE 3-10 REPTILIAN SPECIES POTENTIALLY OCCURRING WITHIN THE STUDY AREA

COMMON NAME	SCIENTIFIC NAME
Turtles	
Eastern box turtle	*Terrapene carolina*
Eastern mud turtle	*Kinosternon subrubrum*
Ornate box turtle	*Terrapene ornata*
Pond slider	*Trachemys scripta*
Snapping turtle	*Chelydra serpentina*
Spiny softshell	*Apalone spinifera*
Texas river cooter	*Pseudemys texana*
Yellow mud turtle	*Kinosternon flavescens*
Lizards	
Common spotted whiptail	*Cnemidophorus gularis*
Common five-lined skink	*Eumeces fasciatus*
Eastern six-lined racerunner	*Cnemidophorus sexlineatus*
Green anole	*Anolis carolinensis*
Little brown skink	*Scincella lateralis*
Mediterranean gecko	*Hemidactylus turcicus*
Prairie lizard	*Sceloporus consobrinus*
Prairie skink	*Eumeces septentrionalis obtusirostris*
Slender glass lizard	*Ophisaurus attenuatus*
Texas spiny lizard	*Sceloporus olivaceus*
Snakes	
Coachwhip	*Masticophis flagellum*
Copperhead	*Agkistrodon contortrix*
Checkered gartersnake	*Thamnophis marcianus*
Common kingsnake	*Lampropeltis getula*
DeKay's brownsnake	*Storeria dekayi*
Diamond-backed watersnake	*Nerodia rhombifer*
Eastern hog-nosed snake	*Heterodon platirhinos*
Eastern yellow-bellied racer	*Coluber constrictor flaviventris*
Eastern ratsnake	*Pantherophis obsoletus*
Flat-headed snake	*Tantilla gracilis*
Gophersnake	*Pituophis catenifer*

TABLE 3-10 REPTILIAN SPECIES POTENTIALLY OCCURRING WITHIN THE STUDY AREA

COMMON NAME	SCIENTIFIC NAME
Lined snake	*Tropidoclonion lineatum*
Plain-bellied watersnake	*Nerodia erythrogaster*
Plains threadsnake	*Rena dulcis*
Prairie kingsnake	*Lampropeltis calligaster*
Rough earthsnake	*Haldea striatula*
Rough greensnake	*Opheodrys aestivus*
Western diamond-backed rattlesnake	*Crotalus atrox*
Western ribbonsnake	*Thamnophis proximus*

Source: Dixon 2013.

Birds

Numerous avian species may occur within the study area and include year-round residents, and summer and/or winter migrants as shown in Table 3-11. Additional transient bird species may migrate within or through the study area in the spring and fall and/or use the area to nest (spring/summer) or overwinter. The likelihood for occurrence of each species will depend upon suitable habitat and season.

TABLE 3-11 AVIAN SPECIES POTENTIALLY OCCURRING WITHIN THE STUDY AREA

COMMON NAME	SCIENTIFIC NAME	RESIDENT	SUMMER	WINTER
ACCIPITRIFORMES: Accipitridae				
Broad-winged hawk	*Buteo platypterus*		X	
Cooper's hawk	*Accipiter cooperii*			X
Harris's hawk	*Parabuteo unicinctus*	X		
Mississippi kite	*Ictinia mississippiensis*		X	
Northern harrier	*Circus cyaneus*			X
Red-shouldered hawk	*Buteo lineatus*	X		
Red-tailed hawk	*Buteo jamaicensis*			X
Swainson's hawk	*Buteo swainsoni*		X	
White-tailed hawk	*Geranoaetus albicaudatus*	X		
White-tailed kite	*Elanus leucurus*	X		
ACCIPITRIFORMES: Cathartidae				
Black vulture	*Coragyps atratus*	*X*		
Turkey vulture	*Cathartes aura*	X		
ACCIPITRIFORMES: Pandionidae				
Osprey	*Pandion haliaetus*	X		
ANSERIFORMES: Anatidae				
American wigeon	*Anas americana*			X
Black-bellied whistling-duck	*Dendrocygna autumnalis*		X	

TABLE 3-11 AVIAN SPECIES POTENTIALLY OCCURRING WITHIN THE STUDY AREA

COMMON NAME	SCIENTIFIC NAME	RESIDENT	SUMMER	WINTER
Blue-winged teal	*Anas discors*			X
Bufflehead	*Bucephala albeola*			X
Canada goose	*Branta canadensis*			X
Canvasback	*Aythya valisineria*			X
Gadwall	*Anas strepera*			X
Greater white-fronted goose	*Anser albifrons*			X
Green-winged teal	*Anas crecca*			X
Lesser scaup	*Aythya affinis*			X
Mallard	*Anas platyrhynchos*	X		
Mottled duck	*Anas fulvigula*	X		
Northern pintail	*Anas acuta*			X
Northern shoveler	*Anas clypeata*			X
Redhead	*Aythya americana*			X
Ring-necked duck	*Aythya collaris*			X
Ruddy duck	*Oxyura jamaicensis*			X
Snow goose	*Chen caerulescens*			X
Wood duck	*Aix sponsa*	X		X
APODIFORMES: Apodidae				
Chimney swift	*Chaetura pelagica*		X	
APODIFORMES: Trochilidae				
Black-chinned hummingbird	*Archilochus alexandri*		X	
Buff-bellied hummingbird	*Amazilia yucatanensis*		X	
Ruby-throated hummingbird	*Archilochus colubris*		X	
CAPRIMULGIFORMES: Caprimulgidae				
Common nighthawk	*Chordeiles minor*		X	
Lesser nighthawk	*Chordeiles acutipennis*		X	
CHARADRIIFORMES: Charadriidae				
Killdeer	*Charadrius vociferus*	X		
Semipalmated plover	*Charadrius semipalmatus*		X	
CHARADRIIFORMES: Laridae				
Black tern	*Chlidonias niger*		X	
Bonaparte's gull	*Chroicocephalus philadelphia*			X
Forster's tern	*Sterna forsteri*			X
Ring-billed gull	*Larus delawarensis*			X
CHARADRIIFORMES: Recurvirostridae				
Black-necked stilt	*Himantopus mexicanus*		X	
CHARADRIIFORMES: Scolopacidae				
Baird's sandpiper	*Calidris bairdii*		X	
Greater yellowlegs	*Tringa melanoleuca*		X	
Least sandpiper	*Calidris minutilla*	X		
Lesser yellowlegs	*Tringa flavipes*		X	

TABLE 3-11 AVIAN SPECIES POTENTIALLY OCCURRING WITHIN THE STUDY AREA

COMMON NAME	SCIENTIFIC NAME	RESIDENT	SUMMER	WINTER
Long-billed curlew	*Numenius americanus*			X
Long-billed dowitcher	*Limnodromus scolopaceus*		X	
Pectoral sandpiper	*Calidris melanotos*		X	
Short-billed dowitcher	*Limnodromus griseus*		X	
Semipalmated sandpiper	*Calidris pusilla*		X	
Spotted sandpiper	*Actitis macularius*			X
Stilt sandpiper	*Calidris himantopus*		X	
Western sandpiper	*Calidris mauri*		X	
Willet	*Tringa semipalmata*	X		
Wilson's phalarope	*Phalaropus tricolor*		X	
COLUMBIFORMES: Columbidae				
Common ground-dove	*Columbina passerina*	X		
Eurasian collared-dove	*Streptopelia decaocto*	X		
Inca dove	*Columbina inca*	X		
Mourning dove	*Zenaida macroura*	X		
Rock pigeon	*Columba livia*	X		
White-winged dove	*Zenaida asiatica*	X		
CORACIIFORMES: Alcedinidae				
Belted kingfisher	*Megaceryle alcyon*	X		
Green kingfisher	*Chloroceryle americana*	X		
CUCULIFORMES: Cuculidae				
Greater roadrunner	*Geococcyx californianus*	X		
FALCONIFORMES: Falconidae				
American kestrel	*Falco sparverius*			X
Crested caracara	*Caracara cheriway*	X		
GALLIFORMES: Odontophoridae				
Northern bobwhite	*Colinus virginianus*	X		
Scaled quail	*Callipepla squamata*	X		
GALLIFORMES: Phasianidae				
Wild turkey	*Meleagris gallopavo*	X		
GAVIFORMES: Gaviidae				
Common loon	*Gavia immer*			X
GRUIFORMES: Gruidae				
Sandhill crane	*Grus canadensis*			X
GRUIFORMES: Rallidae				
American coot	*Fulica americana*	X		
Sora	*Porzana carolina*			X
Virginia rail	*Rallus limicola*			X
PASSERIFORMES: Alaudidae				
Horned lark	*Eremophila alpestris*			X
PASSERIFORMES: Bombycillidae				

TABLE 3-11 AVIAN SPECIES POTENTIALLY OCCURRING WITHIN THE STUDY AREA

COMMON NAME	SCIENTIFIC NAME	RESIDENT	SUMMER	WINTER
Cedar waxwing	*Bombycilla cedrorum*			X
PASSERIFORMES: Calcariidae				
Lapland longspur	*Calcarius lapponicus*			X
McCown's longspur	*Rhynchophanes mccownii*			X
PASSERIFORMES: Cardinalidae				
Blue grosbeak	*Passerina caerulea*		X	
Dickcissel	*Spiza americana*		X	
Indigo bunting	*Passerina cyanea*		X	
Northern cardinal	*Cardinalis cardinalis*	X		
Painted bunting	*Passerina ciris*		X	
Summer tanager	*Piranga rubra*		X	
PASSERIFORMES: Corvidae				
American crow	*Corvus brachyrhynchos*	X		
Fish crow	*Corvus ossifragus*	X		
Blue jay	*Cyanocitta cristata*			
PASSERIFORMES: Emberizidae				
Chipping sparrow	*Spizella passerina*			X
Clay-colored sparrow	*Spizella pallida*			X
Field sparrow	*Spizella pusilla*			X
Grasshopper sparrow	*Ammodramus savannarum*	X		
Harris's sparrow	*Zonotrichia querula*			X
Lark bunting	*Calamospiza melanocorys*			X
Lark sparrow	*Chondestes grammacus*	X		
Lincoln's sparrow	*Melospiza lincolnii*			X
Savannah sparrow	*Passerculus sandwichensis*			X
Song sparrow	*Melospiza melodia*			X
Spotted towhee	*Pipilo maculatus*			X
Vesper sparrow	*Pooecetes gramineus*			X
White-crowned sparrow	*Zonotrichia leucophrys*			X
White-throated sparrow	*Zonotrichia albicollis*			X
PASSERIFORMES: Fringillidae				
American goldfinch	*Spinus tristis*			X
House finch	*Haemorhous mexicanus*	X		
PASSERIFORMES: Hirundinidae				
Bank swallow	*Riparia riparia*		X	
Barn swallow	*Hirundo rustica*		X	
Cave swallow	*Petrochelidon fulva*		X	
Cliff swallow	*Petrochelidon pyrrhonota*		X	
Northern rough-winged swallow	*Stelgidopteryx serripennis*		X	
Purple martin	*Progne subis*		X	
Tree swallow	*Tachycineta bicolor*		X	

TABLE 3-11 AVIAN SPECIES POTENTIALLY OCCURRING WITHIN THE STUDY AREA

COMMON NAME	SCIENTIFIC NAME	RESIDENT	SUMMER	WINTER
PASSERIFORMES: Icteridae				
Baltimore oriole	*Icterus galbula*		X	
Brewer's blackbird	*Euphagus cyanocephalus*			X
Brown-headed cowbird	*Molothrus ater*	X		X
Common grackle	*Quiscalus quiscula*	X		
Eastern meadowlark	*Sturnella magna*	X		
Great-tailed grackle	*Quiscalus mexicanus*	X		
Orchard oriole	*Icterus spurius*		X	
Red-winged blackbird	*Agelaius phoeniceus*	X		X
Western meadowlark	*Sturnella neglecta*			X
PASSERIFORMES: Laniidae				
Loggerhead shrike	*Lanius ludovicianus*			X
PASSERIFORMES: Mimidae				
Brown thrasher	*Toxostoma rufum*			X
Gray catbird	*Dumetella carolinensis*		X	
Long-billed thrasher	*Toxostoma longirostre*	X		
Northern mockingbird	*Mimus polyglottos*	X		
PASSERIFORMES: Motacillidae				
American pipit	*Anthus rubescens*			X
PASSERIFORMES: Passerellidae				
Dark-eyed junco	*Junco hyemalis*			X
PASSERIFORMES: Polioptilldae				
Blue-gray gnatcatcher	*Polioptila caerulea*		X	
PASSERIFORMES: Paridae				
Black-crested titmouse	*Baeolophus atricristatus*	X		
Carolina chickadee	*Poecile carolinensis*	X		
PASSERIFORMES: Parulidae				
American redstart	*Setophaga ruticilla*		X	
Black-and-white warbler	*Mniotilta varia*		X	
Common yellowthroat	*Geothlypis trichas*			X
Hooded warbler	*Setophaga citrina*		X	
Louisiana waterthrush	*Parkesia motacilla*		X	
Magnolia warbler	*Setophaga magnolia*		X	
Nashville warbler	*Oreothlypis ruficapilla*		X	
Northern parula	*Setophaga americana*		X	
Orange-crowned warbler	*Oreothlypis celata*			X
Pine warbler	*Septophaga pinus*	X		
Tennessee warbler	*Oreothlypis peregrina*		X	
Wilson's warbler	*Cardellina pusilla*			X

TABLE 3-11 AVIAN SPECIES POTENTIALLY OCCURRING WITHIN THE STUDY AREA

COMMON NAME	SCIENTIFIC NAME	RESIDENT	SUMMER	WINTER
Yellow warbler	*Setophaga petechia*		X	
Yellow-breasted chat	*Icteria virens*		X	
Yellow-rumped warbler	*Setophaga coronata*			X
Yellow-throated warbler	*Setophaga dominica*		X	
PASSERIFORMES: Passeridae				
House sparrow	*Passer domesticus*	X		
Blue-gray gnatcatcher	*Polioptila caerulea*	X		
PASSERIFORMES: Regulidae				
Ruby-crowned kinglet	*Regulus calendula*			X
Verdin	*Auriparus flaviceps*	X		
PASSERIFORMES: Sturnidae				
European starling	*Sturnus vulgaris*	X		
PASSERIFORMES: Troglodytidae				
Bewick's wren	*Thryomanes bewickii*	X		
Carolina wren	*Thryothorus ludovicianus*	X		
House wren	*Troglodytes aedon*			X
Marsh wren	*Cistothorus palustris*	X		
Sedge wren	*Cistothorus platensis*			X
PASSERIFORMES: Turdidae				
American robin	*Turdus migratorius*			X
Eastern bluebird	*Sialia sialis*			X
Hermit thrush	*Catharus guttatus*			X
Wood thrush	*Hylocichla mustelina*		X	
PASSERIFORMES: Tyrannidae				
Acadian flycatcher	*Empidonax virescens*		X	
Alder flycatcher	*Empidonax alnorum*		X	
Ash-throated flycatcher	*Myiarchus cinerascens*	X		
Brown-crested flycatcher	*Myiarchus tyrannulus*		X	
Couch's kingbird	*Tyrannus couchii*		X	
Eastern kingbird	*Tyrannus tyrannus*		X	
Eastern phoebe	*Sayornis phoebe*			X
Eastern wood-pewee	*Contopus virens*		X	
Great crested flycatcher	*Myiarchus crinitus*		X	
Least flycatcher	*Empidonax minimus*		X	
Say's phoebe	*Sayornis saya*			X
Scissor-tailed flycatcher	*Tyrannus forficatus*		X	
Vermilion flycatcher	*Pyrocephalus rubinus*			X
Western kingbird	*Tyrannus verticalis*		X	

TABLE 3-11 AVIAN SPECIES POTENTIALLY OCCURRING WITHIN THE STUDY AREA

COMMON NAME	SCIENTIFIC NAME	RESIDENT	SUMMER	WINTER
Willow flycatcher	*Empidonax traillii*		X	
PASSERIFORMES: Vireonidae				
White-eyed vireo	*Vireo griseus*		X	
PELECANIFORMES: Ardeidae				
Black-crowned night-heron	*Nycticorax nycticorax*	X		
Cattle egret	*Bubulcus ibis*		X	
Great blue heron	*Ardea herodias*	X		
Great egret	*Ardea alba*	X		
Green heron	*Butorides virescens*		X	
Little blue heron	*Egretta caerulea*		X	
Reddish egret	*Egretta rufescens*		X	
Snowy egret	*Egretta thula*		X	
Tricolored heron	*Egretta tricolor*	X		
Yellow-crowned night-heron	*Nyctanassa violacea*	X		
PELECANIFORMES: Threskiornithidae				
Roseate spoonbill	*Platalea ajaja*		X	
American white pelican	*Pelecanus erythrorhynchos*			X
PICIFORMES: Picidae				
Downy woodpecker	*Dryobates pubescens*	X		
Ladder-backed woodpecker	*Picoides scalaris*	X		
Northern flicker	*Colaptes auratus*			X
Red-bellied woodpecker	*Melanerpes carolinus*	X		
PODICIPEDIFORMES: Podicipedidae				
Pied-billed grebe	*Podilymbus podiceps*			X
STRIGIFORMES: Strigidae				
Eastern screech-owl	*Megascops asio*	X		
Great horned owl	*Bubo virginianus*	X		
STRIGIFORMES: Tytonidae				
Barn owl	*Tyto alba*	X		
SULIFORMES: Anhingidae				
Anhinga	*Anhinga anhinga*	X		
SULIFORMES: Phalacrocoracidae				
Double-crested cormorant	*Phalacrocorax auritus*		X	
Neotropic cormorant	*Phalacrocorax brasilianus*			X

Sources: Freeman 2012

Mammals

Mammals that may potentially occur in the study area are listed in Table 3-12. The occurrence of each species within the study area is dependent upon available suitable habitat.

TABLE 3-12 MAMMALIAN SPECIES POTENTIALLY OCCURRING WITHIN THE STUDY AREA

COMMON NAME	SCIENTIFIC NAME
American badger	*Taxidea taxus*
American beaver	*Castor canadensis*
American mink	*Vison vison*
American perimyotis	*Perimyotis subflavus*
Black-tailed jackrabbit	*Lepus californicus*
Bobcat	*Lynx rufus*
Brazilian free-tailed bat	*Tadarida brasiliensis*
Common gray fox	*Urocyon cinereoargenteus*
Common raccoon	*Procyon lotor*
Coyote	*Canis latrans*
Eastern cottontail	*Sylvilagus floridanus*
Eastern fox squirrel	*Sciurus niger*
Eastern mole	*Scalopus aquaticus*
Eastern red bat	*Lasiurus borealis*
Eastern woodrat	*Neotoma floridana*
Evening bat	*Nycticeius humeralis*
Feral pig	*Sus scrofa*
Fulvous harvest mouse	*Reithrodontomys fulvescens*
Hispid cotton rat	*Sigmodon hispidus*
Hispid pocket mouse	*Chaetodipus hispidus*
Hoary bat	*Lasiurus cinereus*
Least shrew	*Cryptotis parva*
Long-tailed weasel	*Mustela frenata*
North American deermouse	*Peromyscus maniculatus*
Northern pygmy mouse	*Baiomys taylori*
Nutria	*Myocastor coypus*
Plains harvest mouse	*Reithrodontomys montanus*
Red fox	*Vulpes vulpes*
Ringtail	*Bassariscus astutus*
Striped skunk	*Mephitis mephitis*
Swamp rabbit	*Sylvilagus aquaticus*
Thirteen-lined ground squirrel	*Ictidomys tridecemlineatus*
White-footed mouse	*Peromyscus leucopus*
White-tailed deer	*Odocoileus virginianus*

Source: Schmidly and Bradley 2016.

Fisheries

In Texas, the divisions of the biotic provinces were separated on the basis of terrestrial vertebrate distributions; however, the distribution of freshwater fishes generally corresponds with the terrestrial biotic province boundaries. Areas showing the greatest deviation from this general rule include northeast Texas and the coastal zone (Hubbs 1957). Review of the USGS (2019) topographic maps indicates that mapped surface waters within the study area include intermittent streams and perennial ponds. Additionally, unmapped surface waters may occur within the study area.

In general, intermittent and ephemeral flowing streams support aquatic species primarily adapted to ephemeral pool habitats. Aquatic species in these stream types are typically adapted to rapid dispersal and life cycle completion in pool habitats typically having fine-grained substrates. Because intermittent streams consist of small headwater drainages, persistent flow is unlikely to be sufficient to support any substantial fishery assemblage (Hubbs 1957). In stream reaches dominated by scoured, sandy-clay bottoms, accumulations of woody debris and leaf pack provide the most important feeding and refuge areas for invertebrates and forage fish. Softer muddy stream bottoms generally harbor substantial populations of burrowing invertebrates (e.g., larval diptera and oligochaetes) which can be an important food source for higher aquatic trophic levels (Thomas et al. 2007).

Perennial and large ponds provide consistent aquatic habitat for all trophic levels with fish being the most prominent. The relatively stable water levels of perennial ponds facilitate stable population growth. Species adapted for deeper waters will utilize pond environments (Hubbs 1957). Fish species potentially occur within the study area are listed in Table 3-13. The occurrence of each species within the study area is dependent upon available suitable habitat.

TABLE 3-13 FISH SPECIES POTENTIALLY OCCURRING WITHIN THE STUDY AREA

COMMON NAME	SCIENTIFIC NAME
ATHERINOPSIDAE: New World Silversides	
Inland silverside	*Menidia beryllina*
CATOSTOMIDAE: Suckers	
River carpsucker	*Ictiobus bubalus*
CENTRARCHIDAE: Sunfishes	
Bluegill	*Lepomis macrochirus*
Green sunfish	*Lepomis cyanellus*
Largemouth bass	*Micropterus salmoides*
Longear sunfish	*Lepomis megalotis*
Orangespotted sunfish	*Lepomis humilis*

TABLE 3-13 FISH SPECIES POTENTIALLY OCCURRING WITHIN THE STUDY AREA

COMMON NAME	SCIENTIFIC NAME
Redspotted sunfish	*Lepomis miniatus*
Redbreast sunfish	*Lepomis auritus*
Smallmouth bass	*Micropterus dolomieu*
Spotted bass	*Micropterus punctulatus*
Warmouth	*Lepomis gulosus*
White crappie	*Pomoxis annularis*
CLUPEIDAE: Herrings	
Gizzard shad	*Dorosoma cepedianum*
Threadfin shad	*Dorosoma petenense*
CYPRINIDAE: Carps and Minnows	
Blacktail shiner	*Cyprinella venusta*
Bullhead minnow	*Pimephales vigilax*
Central stoneroller	*Campostoma anomalum*
Fathead minnow	*Pimephales promelas*
Golden shiner	*Notemigonus crysoleucas*
Red shiner	*Cyprinella lutrensis*
FUNDULIDAE: Topminnows	
Blackstripe topminnow	*Fundulus notatus*
Gulf killifish	*Fundulus grandis*
Plains killifish	*Fundulus zebrinus*
ICTALURIDAE: North American Catfishes	
Black bullhead	*Ameiurus melas*
Channel catfish	*Ictalurus punctatus*
Flathead catfish	*Pylodictis olivaris*
Yellow bullhead	*Ameiurus natalis*
POECILIIDAE: Livebearers	
Western mosquitofish	*Gambusia affinis*

Source: Hendrickson and Cohen 2015.

Threatened and Endangered Species

For this study, emphasis was placed on obtaining documented occurrences of special status species and/or their designated critical habitat within the study area. Documented occurrences of unique vegetation communities within the study area were also reviewed. Special status species include those listed by the USFWS (2021b and 2021c) as threatened, endangered, or proposed for listing; and those species listed by TPWD (2021g) as threatened or endangered. POWER obtained a GIS data layer of documented observations for listed species and/or sensitive vegetation communities, identified as element occurrence records, from the TPWD Texas Natural Diversity Database (TXNDD 2021).

The USFWS regulates activities affecting plants and animals designated as endangered or threatened under the ESA (16 U.S.C. § 1531 *et seq.*). A USFWS IPaC report request was submitted and received on July 9, 2021 (Consultation Codes: 02ETTX00-2021-SLI-2543 and 02ETAR00-2021-SLI-2424). The IPaC report identifies federal listed threatened, endangered, and proposed species and designated critical habitat potentially occurring within the study area (USFWS 2021b and 2021c). By federal definition, an endangered species is in danger of extinction throughout all or a significant portion of its range. A threatened species is defined as likely to become endangered within the near foreseeable future throughout all or a significant portion of its range. Proposed species are those that have been proposed in the Federal Register to be listed under the ESA. Candidate species are those that have sufficient information on their biological vulnerability and threats to support listing as threatened or endangered and are likely to be proposed for listing in the near future. The ESA also provides for the conservation of "designated critical habitat," which is defined by the USFWS as the areas of land, water, and air space that an endangered species needs for survival. These areas include sites with food and water, breeding areas, cover or shelter sites, and sufficient habitat to provide for normal population growth and behavior for the species. The IPaC reports received for the Project state there are no designated critical habitats within the study area (USFWS 2021b and 2021c).

The TPWD also regulates plants and animals designated at the state level as endangered or threatened (Chapters 67 and 68 of the TPWC and § 65.171 - 65.176 of Title 31 of the TAC; and Chapter 88 of the TPWC and § 69.01 - 69.9 of the TAC). Under Texas law, endangered animal species are those deemed to be "threatened with statewide extinction" and endangered plant species are those "in danger of extinction throughout all or a significant portion of its range." Threatened animal and plant species are those deemed likely to become endangered within the foreseeable future.

Threatened and Endangered Plant Species and Sensitive Vegetation Communities

Plant species identified and reviewed for the study area include the federally- and state-listed Navasota ladies'-tresses (*Spiranthes parksii*) (USFWS 2021b and 2021c) and the state-threatened small-headed pipewort (*Eriocaulon koernickianum*) (TPWD 2021g). Review of TXNDD (2021) data did not identify any element occurrence records for federally- or state-listed species and sensitive vegetation communities within the study area.

The Navasota ladies'-tresses is endemic to Texas and has been documented in Bastrop, Brazos, Burleson, Fayette, Freestone, Grimes, Leon, Limestone, Madison, Milam, Robertson, and Washington counties in east central Texas,

as well as in a disjunct location in Jasper County. This species grows within post oak savannah woodlands on seasonally moist sandy loam soils in open areas (Poole et al. 2007). The Navasota ladies'-tresses often grows along naturally eroded slopes of headwater drainages and ephemeral streams, and occasionally near the margins of seeps, swales, and intermittent streams (USFWS 2009). This species may occur within the study area if potential suitable habitat is available.

The small-headed pipewort has been documented in Anderson, Henderson, Gillespie, Limestone, and Van Zandt counties. It historically occurred in Brazos County (Poole et al. 2007). This species grows on permanently moist to wet acidic sandy soils of upland seeps and hillside seepage bogs within post oak savannah woodlands and xeric sandhill habitats (TPWD 2021g). Small-headed pipewort is intolerant of shade and requires sparsely vegetated areas with little competition from other plants (NatureServe 2021). This species may occur within the study area if potential suitable habitat is available.

Threatened and Endangered Animal Species

The USFWS (2021b and 2021c) IPaC official species list identifies federally-listed animal species to consider for the study area. The TPWD (2021g) Rare, Threatened, and Endangered Species of Texas by County interactive web map identifies state-listed animal species to consider for the study area counties. Federally- and state-listed species are summarized in Table 3-14. A brief description of each species' life history, habitat requirements, and any documented occurrences within the study area are summarized below. Only USFWS listed threatened or endangered species are afforded federal protection under the ESA. Review of the TXNDD (2021) did not identify any mapped element occurrence records for federally- or state-listed species within the study area. For the purpose of this study, TXNDD information is not used as a substitute for a presence/absence survey, but as an indication of past observations of a species within suitable habitat. Only a site survey can determine whether a species or suitable habitat is extant.

The bald eagle (*Haliaeetus leucocephalus*), although federally delisted, is still afforded federal protection under the BGEPA and MBTA. The BGEPA prohibits knowingly, or with wanton disregard for the consequences of, taking bald eagles, including live or dead individuals, nests, eggs, or any part of an individual, without a valid permit (16 U.S.C. 668(a); 50 CFR Part 22). Under the BGEPA, "take" is defined as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb" (16 U.S.C. § 668(c); 50 CFR Part 22.3). Bald eagles nest and/or overwinter in Texas. Nesting occurs from October to July and nests are built in treetops or on cliffs typically near large bodies of water; however, they have been known to nest anywhere there is a suitable tree or

structure (Buehler 2000). Individuals and/or bald eagle nests may occur within the study area if potential suitable habitat is available.

TABLE 3-14 THREATENED AND ENDANGERED ANIMAL SPECIES FOR THE STUDY AREA

SPECIES		LEGAL STATUS	
Common Name	Scientific Name	USFWS[1]	TPWD[2]
Birds			
Golden-cheeked warbler	*Dendroica chrysoparia*	E	E
Piping plover	*Charadrius melodus*	T	T
Red knot	*Calidris canutus rufa*	T	T
Swallow-tailed kite	*Elanoides forficatus*	-	T
White-faced ibis	*Plegadis chihi*	-	T
Whooping crane	*Grus americana*	E	E
Wood stork	*Mycteria americana*	-	T
Fish			
Chub shiner	*Notropis potteri*	-	T
Mollusks			
Brazos heelsplitter	*Potamilus streckersoni*	-	T
Texas fawnsfoot	*Truncilla macrodon*	C	T
Reptiles			
Alligator snapping turtle	*Macrochelys temminckii*	-	T
Texas horned lizard	*Phrynosoma cornutum*	-	T

Status abbreviations: E – Endangered, T – Threatened, C – Candidate for listing
Sources: [1]USFWS 2021b and 2021c; [2]TPWD 2021g.

Federal-Listed Species

BIRDS

Golden-cheeked Warbler

The golden-cheeked warbler is an understory species that nests in central Texas and overwinters in southern Mexico and northern Central America. This species' entire nesting range is confined to habitat in 39 counties located in central Texas. Nesting typically occurs from March to May in mature oak-juniper woodland vegetation communities with a moderate to high density of mature Ashe juniper trees mixed with deciduous trees (e.g., oaks), creating a closed canopy (Pulich 1976; Campbell 2003). Suitable oak-juniper woodland habitat is typically located in moist areas along steep-sided slopes, drainages, and bottomlands; however, golden-cheeked warblers will also nest in upland oak-juniper woodlands on flat topography. Additionally, golden-cheeked warbler breeding pairs require contiguous foraging and nesting habitat of three to 20 acres (Pulich 1976). The study area occurs on the far eastern edge of the golden-cheeked warbler nesting range (USFWS 2021d). Based on aerial imagery interpretation (Google LLC 2021), within the southern portion of the study area located in Limestone County,

woodland vegetation occurs along unnamed streams. Imagery interpretation and a preliminary study area field survey indicated that the majority of woodland vegetation outside of riparian areas is patchy, fragmented, and does not possess mature Ashe juniper as a major component. Additionally, Limestone County is not included within this species' nesting range (USFWS 2021d). This species is not anticipated to occur within the study area due to the lack of potential suitable habitat.

Piping Plover

The piping plover is an uncommon to locally common winter resident along the Texas coastline and rarely seen inland during migration. They occupy sandy beaches and lakeshores, bayside mudflats, and salt flats. Piping plovers feed on small marine insects and other small invertebrates (Elliot-Smith and Haig 2020). This species is not anticipated to occur within the study area due to the lack of potential suitable habitat.

Red Knot

The red knot is a long-distance migrant that may travel up to 5,000 miles during migration without stopping. Red knots nest in the arctic tundra and overwinter along the Texas coastline. A significant spring migratory stopover site is located in Delaware Bay where the species gorges on horseshoe crab eggs to prepare for their long flight (NatureServe 2021). Winter foraging habitats include coastal beaches, tidal sand flats, mudflats, marsh, shallow ponds, and sand bars (Baker et al. 2020). This species is not anticipated to occur within the study area due to the lack of potential suitable habitat.

Whooping Crane

The whooping crane breeds at Wood Buffalo National Park in Canada and overwinters primarily in marshes at Aransas National Wildlife Refuge on the Texas coast from November through March (Pearse et al. 2015). Family groups of whooping cranes have also been documented overwintering further inland in Central Texas, south-central Kansas, and central Nebraska (Wright et al. 2014). Spring and fall migration primarily occur within a 200-mile-wide migratory corridor in which 95 percent of all whooping crane sightings occur. During migration, whooping cranes typically fly at altitudes greater than 1,000 feet but will roost and feed in areas away from human disturbance during nightly stopovers. Stopover areas include large rivers, lakes and associated wetlands, playa lakes, small surface waters with emergent vegetation cover, harvested grainfields, pastures, or burned upland fields (Urbanek and Lewis 2020). The study area is located within the portion of the migratory corridor

(Pearse et al. 2018) in which 75 percent of migration stopover sites occur (Pearse et al. 2015). This species may occur within the study area if potential suitable habitat is available.

Candidate Species

Texas Fawnsfoot

The Texas fawnsfoot is a freshwater mussel that inhabits silt, sand, and clay bottoms, in moderately flowing perennial channels and tributaries of the Colorado, Trinity, and Brazos rivers (Howells et al. 1996). It has also been documented in flowing rice irrigation canals and is likely intolerant of impoundments (NatureServe 2021). Recent presence and absence surveys for the Texas fawnsfoot within the Brazos River Basin indicate that this species is present within Yegua Creek, Navasota, Little, Leon, San Gabriel, and Clear Fork Brazos rivers (Randklev et al. 2013; Randklev et al. 2017; Tsakiris and Randklev 2016). Habitat preference includes the edge of river runs, and occasionally backwater, riffle, or point bar habitats (Randklev et al. 2014a). All streams within the study area are headwater drainages mapped as intermittent by the NHD (USGS 2021). This species is not anticipated to occur within the study area due to the lack of potential suitable habitat.

State-Listed Species

BIRDS

Swallow-tailed Kite

The swallow-tailed kite historically occurred along the coastal plains, interior lowlands, and riparian areas throughout the southeastern US and into central Texas. Today in Texas, the species is a rare to uncommon migrant throughout the eastern third of the state and a rare to locally uncommon summer resident in southeast Texas. The most recent breeding records exist from Chambers, Liberty, Orange, and Tyler counties (Lockwood and Freeman 2014). Habitats include lowland forested swampy areas ranging into open woodland, marshes, rivers, lakes, and ponds. Nesting occurs in tall trees within clearings or on forest woodland edge, usually in pine, baldcypress, or other deciduous trees (Meyer 1995). This species may occur within the study area as a rare migrant (Lockwood and Freeman 2014), if potential suitable habitat is available.

White-faced Ibis

The white-faced ibis breeds and winters along the Texas Gulf Coast. Other breeding populations occurring in the northwestern US migrate south to overwinter along the Gulf Coast and in Central America. Preferred habitats include swamps, ponds, rivers, sloughs, irrigated rice fields, freshwater marsh, and sometimes brackish and

saltwater marsh. This species is a colonial nester and forages on insects, newts, leeches, earthworms, snails, crayfish, frogs, and fish (Ryder and Manry 2020). This species may occur as a migrant within the study area (Lockwood and Freeman 2014) if potential suitable stopover habitat is available.

Wood Stork

The wood stork is a colonial bird that breeds in Florida, Georgia, South Carolina, and Mexico. Nesting occurs in mangrove or cypress trees within brackish or freshwater swamp habitat. Post breeding, storks from Mexico migrate northward along Mississippi River Valley. Migrating wood storks use prairie ponds, flooded pastures or fields, ditches, and other shallow standing water habitats to forage for fish and other small animals. This species usually roosts communally in tall snags and sometimes in association with other wading birds (Coulter et al. 1999). This species may occur as an uncommon migrant (Lockwood and Freeman 2014) within the study area, if potential suitable stopover habitat is available.

FISHES

Chub Shiner

The chub shiner is a small (up to 4.5 inches) species associated with sand and gravel substrates of large turbid perennial waters. Its current distribution in Texas includes the lower Brazos, Colorado, San Jacinto, and Trinity rivers and Galveston Bay (Perkin et al. 2009). It has also been collected from some smaller, less turbid tributaries of these surface waters (Hubbs and Bonham 1951). The chub shiner is highly susceptible to habitat fragmentation from the creation of impoundments and construction of dams that regulate water flow (Perkin et al. 2009). All streams within the study area are headwater drainages mapped as intermittent by the NHD (USGS 2021). This species is not anticipated to occur within the study area due to the lack of potential suitable habitat.

MOLLUSKS

Brazos Heelsplitter

The Brazos heelsplitter is a freshwater mussel endemic to the Brazos River basin (Smith et al. 2019). It inhabits silt, sand, or mud substrates, in standing to slow flowing perennial surface waters, primarily on banks and backwater pools and occasionally in riffles. It has also been occasionally documented in lakes (Randklev et al. 2014b and 2014c; Tsakiris and Randklev 2016). All streams within the study area are headwater drainages mapped as intermittent by the NHD (USGS 2021). This species is not anticipated to occur within the study area due to the lack of potential suitable habitat.

REPTILES

Alligator Snapping Turtle

The alligator snapping turtle inhabits perennial freshwater ecosystems, such as lakes, canals, rivers, creeks, bayous, and ponds, usually within muddy or thickly vegetated substrates. The species may also enter brackish waters near the coast and inhabit urban surface water environments. A seemingly viable urban population was recently documented in Buffalo Bayou within the city limits of Houston, Texas (Munscher et al. 2020). All streams within the study area are headwater drainages mapped as intermittent by the NHD (USGS 2021). This species is not anticipated to occur within the study area due to the lack of potential suitable habitat.

Texas Horned Lizard

The Texas horned lizard inhabits a variety of habitats including open desert, grasslands, and shrubland in arid and semiarid habitats on soils varying from pure sands and sandy loams to coarse gravels, conglomerates, and desert pavements. Texas horned lizards require soils with greater than 67 percent sand content, which allows for digging, nesting, and hibernating. Their primary prey item is the harvester ant (*Pogonomyrmex* spp.), but they may also consume grasshoppers, beetles, and grubs (Henke and Fair 1998). Historically the Texas horned lizard occurred throughout most of Texas but habitat loss and the spread of non-native fire ants (*Solenopsis invicta*) have caused population declines (Dixon 2013). According to Henke and Fair (1998), this species no longer occurs east of an imaginary line from Fort Worth to Corpus Christi, Texas, except for small isolated populations. According to the NRCS (2021) Soil Survey, the majority of map soil units within the study area are comprised of less than 67 percent sand. Additionally, the study area occurs east of the imaginary line as described by Henke and Fair (1998). This species is not anticipated to occur within the study area due to the lack of potential suitable habitat.

4.0 POTENTIAL IMPACTS OF THE CONSENSUS ROUTE

Potential impacts of the proposed Project that could occur from, and are unique to, the construction and operation of a transmission line are discussed in this section of the EA. POWER evaluated the potential impacts of the Consensus Route, identified in Section 2.0 by tabulating the data for each of the 40 environmental evaluation criteria in Table 2-1 (relating to community values, parks and recreation area, cultural resources, aesthetics, and environmental integrity). The results of the data tabulations are summarized in Table 4-1 for the Consensus Route.

TABLE 4-1 ENVIRONMENTAL DATA FOR CONSENSUS ROUTE

Evaluation Criteria		
Land Use		Route
1	Length of consensus route (miles)	3.0
2	Number of habitable structures[1] within 500 feet of ROW centerline	0
3	Length of ROW using existing transmission line ROW	0
4	Length of ROW parallel and adjacent to existing transmission line ROW	0
5	Length of ROW parallel and adjacent to other existing ROW (e.g., roadways, highways, utilities)	0
6	Length of ROW parallel and adjacent to apparent property lines[2] or other natural or cultural features	1.0
7	Length of ROW across parks/recreational areas[3]	0
8	Number of additional parks/recreational areas[3] within 1,000 feet of ROW centerline	0
9	Length of ROW across cropland	0.3
10	Length of ROW across pasture/rangeland	1.9
11	Length of ROW across land irrigated by traveling systems (rolling or pivot type)	0
12	Length of ROW parallel and adjacent to existing pipeline ROW	0
13	Length of ROW parallel to existing pipeline ROW <500 feet from ROW centerline	0
14	Number of pipeline crossings	0
15	Number of transmission line crossings	0
16	Number of highway (interstate, US, and state) road crossings	0
17	Number of FM road crossings	1
18	Number of FAA registered airports[4] with at least one runway more than 3,200 feet in length located within 20,000 feet of ROW centerline	0
19	Number of FAA registered airports[4] having no runway more than 3,200 feet in length located within 10,000 feet of ROW centerline	0
20	Number of private airstrips within 10,000 feet of the ROW centerline	0
21	Number of heliports within 5,000 feet of the ROW centerline	0
22	Number of commercial AM radio transmitters within 10,000 feet of the ROW centerline	0
23	Number of FM radio transmitters, microwave towers, and other electronic installations within 2,000 feet of ROW centerline	0
Aesthetics		
24	Estimated length of ROW within foreground visual zone[5] of interstate, US and state highways	0
25	Estimated length of ROW within foreground visual zone[5] of FM roads	0.9
26	Estimated length of ROW within foreground visual zone[5][6] of parks/recreational areas[3]	0
Ecology		
27	Length of ROW across upland woodlands/brushlands	0.7

TABLE 4-1 ENVIRONMENTAL DATA FOR CONSENSUS ROUTE

Evaluation Criteria		
28	Length of ROW across bottomland/riparian woodlands	0.1
29	Length of ROW across NWI mapped wetlands	0.03
30	Length of ROW across USFWS designated critical habitat of federally-listed endangered or threatened species	0
31	Length of ROW across open water (lakes, ponds)	0.01
32	Number of stream crossings	3
33	Length of ROW parallel (within 100 feet) to streams	0
34	Length of ROW across FEMA mapped 100-year floodplain	0
Cultural Resources		
35	Number of cemeteries within 1,000 feet of the ROW centerline	1
36	Number of recorded cultural resource sites crossed by ROW	0
37	Number of additional recorded cultural resource sites within 1,000 feet of ROW centerline	0
38	Number of NRHP listed properties crossed by ROW	0
39	Number of additional NRHP listed properties within 1,000 feet of ROW centerline	0
40	Length of ROW across areas of high archeological site potential	1.2

[1]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 500 feet of the centerline of a transmission project of 230 kV or greater.
[2] Apparent property boundaries created by existing roads, highways, or railroads ROWs are not "double-counted" in the length of ROW parallel to apparent property boundaries 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 US (FAA 2020b formerly known as the Airport/Facility Directory South Central US) and FAA 2020a.
[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.
All length measurements are shown in miles unless noted otherwise.

4.1 Impacts on Community Values

Adverse effects upon community values are defined as aspects of the Consensus Route that would significantly and negatively alter the use, enjoyment, or intrinsic value attached to an important area or resource by a community. This definition assumes that community concerns are applicable to this specific project’s location and characteristics, and do not include objections to electric transmission lines in general.

Potential impacts to community resources can be classified into direct and indirect effects. Direct effects are those that would occur if the location and construction of a transmission line and station result in the removal or loss of public access to a valued resource. Indirect effects are those that would result from a loss in the enjoyment or use of a resource due to the characteristics (primarily aesthetic) of the proposed transmission line, structures, or ROW.

4.2 Impacts on Land Use

The magnitude of potential impacts to land use resulting from the construction of a transmission line is determined by the amount of land (land use type) temporarily or permanently displaced by the actual ROW and by the compatibility of the facility with adjacent land uses. During construction, temporary impacts to land uses

within the ROW might occur due to the movement of workers, equipment, and materials through the area. Construction noise and dust, as well as temporary disruptions of traffic flow, might also temporarily affect local residents and businesses in the area immediately adjacent the ROW. Lone Star and its contractors will coordinate with landowners regarding ROW access and construction scheduling in order to minimize disruptions.

The evaluation criteria used to compare potential land use impacts include overall route length, route length parallel to existing linear features (including apparent property boundaries), route proximity to habitable structures, route proximity to park and recreational areas, and route length across various land use types. An analysis of the existing land use within and adjacent to the proposed ROW is required to evaluate the potential impacts. An analysis of compatibility with adjacent land use types was completed for the Consensus Route. Land use categories identified within the study area include cropland, pastureland/rangeland, and oil and gas facilities.

4.2.1 Route Length

The length of a proposed route can be an indicator of the relative magnitude of land use impacts. Generally, all other things being equal, the shorter the route, the less land is crossed, which usually results in the least amount of potential impacts. The total length of the Consensus Route is approximately 3.0 miles (see Table 4-1).

4.2.2 Compatible ROW

The PUC requires in 16 TAC § 25.101(b)(3)(B) that an applicant for a CCN, and ultimately the PUC, consider whether new transmission line routes are within existing compatible ROW and/or are parallel to existing compatible ROW, apparent property lines, or other natural or cultural features. Criteria were used to evaluate the use of existing transmission line ROW, length parallel and adjacent to existing transmission line ROW, length of route parallel to other existing linear ROW, and length of ROW paralleling apparent property lines. The Consensus Route does not parallel any existing transmission line ROW. The Consensus Route does not parallel and is not adjacent to other existing ROW (e.g., roadways, highways, utilities). The Consensus Route is parallel and adjacent to apparent property lines for approximately 1.0 mile (see Table 4-1). Additionally, all of the landowners crossed by the Consensus Route have granted easements for the proposed Project.

4.2.3 Impacts on Developed and Residential Areas

Typically, one of the most important measures of potential land use impacts is the number of habitable structures located in the vicinity of the route. Based on direction provided by the PUC, habitable structure identification is included in the CCN filing. POWER determined the number of habitable structures located within 500 feet of the centerline of the Consensus Route. The distance from the centerline was determined through the use of GIS

software, interpretation of aerial photography, and verification during reconnaissance surveys. The Consensus Route has zero habitable structures located within 500 feet of its centerline (see Table 4-1).

4.2.4 Impacts on Agriculture

Impacts to agricultural land uses can generally be ranked by degree of potential impact, with the least potential impact occurring in areas where cultivation is not the proposed use (pastureland/rangeland), followed by cultivated croplands, which have the highest degree of potential impact. Most existing agricultural land uses may be resumed within the ROW following construction. The Consensus Route crosses approximately 0.3 mile of cropland (see Table 4-1).

The Consensus Route crosses approximately 1.9 miles of pastureland/rangeland; however, because the ROW for this project will not be fenced or otherwise separated from adjacent lands, there will be no significant long-term displacement of farming or grazing activities. The Consensus Route does not cross any lands with known mobile irrigation systems (rolling or pivot type) (see Table 4-1).

4.2.5 Impacts on Lands with Conservation Easements

As discussed in Section 3.3.2, there are no properties within the study area with a known conservation easement. Therefore, the Consensus Route would have no direct impact on lands with conservation easements.

4.2.6 Impacts on Oil and Gas Facilities

Oil and gas wells are scattered throughout the study area and were mapped and avoided to the extent feasible.

No known pipelines are crossed by the Consensus Route (see Table 4-1). The Consensus Route does not parallel any known pipelines.

4.2.7 Impacts on Transportation, Aviation and Utility Features

Transportation Features

Potential impacts to transportation could include temporary disruption of traffic or conflicts with future proposed roadways and/or utility improvements. Traffic disruptions would include those associated with the movement of equipment and materials to the ROW, and slightly increased traffic flow and/or periodic congestion during the construction phase of the Consensus Route. In rural areas, these impacts are typically considered minor, temporary, and short-term. In urban areas, the temporary impacts to traffic flow can be significant during construction; however, the Consensus Route is not located in an area that is considered as urban. Lone Star will coordinate with the agencies in control of the affected roadways to address these traffic flow impacts. As

mentioned in Section 3.3.5, no roadway projects were identified within the study area. The Consensus Route crosses does not cross any interstate, state, or US highways. Additionally, the Consensus Route has one FM road crossings (see Table 4-1).

Aviation Features

According to FAA regulations, Title 14 CFR Part 77, the construction of a transmission line requires FAA notification if tower structure heights exceed the height of an imaginary surface extending outward and upward at a slope of 100:1 for a horizontal distance of 20,000 feet from the nearest point of the nearest runway of a public or military airport having at least one runway longer than 3,200 feet. The FAA also requires notification if tower structure heights exceed a 50:1 slope for a horizontal distance of 10,000 feet from the nearest runway of a public or military airport where no runway is longer than 3,200 feet in length, and if tower structure heights exceed a 25:1 slope for a horizontal distance of 5,000 feet for heliports.

No public FAA registered airports with at least one runway longer than 3,200 feet were identified within 20,000 feet of the Consensus Route. There were no FAA registered airports where no runway longer than 3,200 feet was identified within 10,000 feet of the Consensus Route (see Table 4-1). There were no heliports identified within 5,000 feet of the Consensus Route (see Table 4-1). There were no known private airstrips identified within 10,000 feet of the Consensus Route (see Table 4-1).

Utility Features

The Consensus Route does not cross any existing electrical transmission lines (see Table 4-1). Distribution lines were identified throughout the study area and may be crossed by the Consensus Route; however, these features were not mapped or inventoried. Potential impacts to oil and gas facilities and pipelines were discussed previously in Section 4.2.6. One water well was identified within the study area and avoided. If additional unidentified utility features are crossed by or are in close vicinity to the Consensus Route centerline approved by the PUC, Lone Star will coordinate with the appropriate entities to obtain necessary permits or permission as required.

4.2.8 Impacts on Electronic Communication Facilities

The Consensus Route would not have a significant impact on electronic communication facilities or operations in the study area. No commercial AM radio towers were identified within 10,000 feet of the Consensus Route centerline. No FM radio tower or other electronic communication facilities were identified within 2,000 feet of the Consensus Route centerline (see Table 4-1).

4.2.9 Impacts on Parks and Recreation Areas

Potential impacts to parks or recreation areas include the disruption or preemption of recreation activities. As previously mentioned in Section 3.3.7, no parks or recreational areas were identified within the study area. No significant impacts to the use of the parks and recreation facilities located within the study area are anticipated to result from the location of the Consensus Route.

No adverse impacts are anticipated for any of the fishing or hunting areas from the Consensus Route. The Consensus Route does not cross and is not located within 1,000 feet of any parks or recreation facilities (see Table 4-1).

4.3 Impacts on Socioeconomics

Construction and operation of the proposed transmission line is not anticipated to result in a significant change in the population or employment rate within the study area. For this project, some short-term employment may be generated during construction. Lone Star normally uses contract labor supervised by Lone Star employees during the clearing and construction phases of transmission line projects. Construction workers for the Project would likely commute to the work site on a daily or weekly basis instead of permanently relocating to the area. The temporary workforce increase would likely result in an increase in local retail sales due to purchases of lodging, food, fuel, and other merchandise for the duration of construction activities. No additional staff would be required for line operations and maintenance. Lone Star is also required to pay sales tax on purchases and is subject to paying local property tax on land or improvements as applicable.

4.4 Impacts on Cultural Resources

Methods for identifying, evaluating, and mitigating impacts to cultural resources have been established for federal projects or permitting actions, primarily for purposes of compliance with the National Historic Preservation Act. Similar methods are often used when considering cultural resources affected by state-regulated undertakings. In either case, this process generally involves identification of significant (i.e., national or state-designated) cultural resources within a project area, determining the potential impacts of the Project on those resources, and implementing measures to avoid, minimize, or mitigate those impacts.

Impacts associated with the construction, operation, and maintenance of transmission lines can affect cultural resources either directly or indirectly. Construction activities associated with any proposed project can adversely impact cultural resources if those activities alter the integrity of key characteristics that contribute to a property's significance as defined by the standards of the NRHP or the Antiquities Code of Texas. These characteristics

might include location, design, setting, materials, workmanship, feeling, or association for architectural and engineering resources or archeological information potential for archeological resources.

4.4.1 Direct Impacts

Typically, direct impacts could be caused by the actual construction of the line or through increased vehicular and pedestrian traffic during the construction phase. Absent BMPs, proper mitigation, and avoidance measures, historic buildings, structures, landscapes, and districts are among the types of resources that could be adversely impacted by the construction of a transmission line. Additionally, an increase in vehicular and/or pedestrian traffic might damage surficial or shallowly buried sites. Direct impacts might also include isolation of a historic resource from or alteration of its surrounding environment.

4.4.2 Indirect Impacts

Indirect impacts include those affects caused by the Project that are farther removed in distance or that occur later in time but are reasonably foreseeable. These indirect impacts might include introduction of visual or audible elements that are out of character with the resource or its setting. Indirect impacts might also occur as a result of alterations in the pattern of land use, changes in population density, accelerated growth rates, or increased pedestrian or vehicular traffic. Absent BMPs, proper mitigation, and avoidance measures, historic buildings, structures, landscapes, and districts are among the types of resources that could be adversely impacted by the indirect impact of a transmission line.

4.4.3 Mitigation

The preferred form of mitigation for direct and indirect impacts to cultural resources is avoidance through project modifications. Additional mitigation measures for direct impacts might include implementing a program for data recovery excavations if an archeological site cannot be avoided. Indirect impacts on historical properties and landscapes can be lessened through careful design and landscaping considerations, such as using vegetation screens or berms if practicable. Additionally, relocation might be possible for some historic structures.

4.4.4 Summary of Cultural Resource Impacts

A review of the TARL, THSA and TASA (THC 2020a and 2020b) records, described in Section 3.5, indicated that no National Historic Landmarks, NRHP-listed properties, State Antiquities Landmarks, or archeological sites have been recorded within 1,000 feet of the Consensus Route. One cemetery, the Mount Calm Cemetery, is mapped 305 feet from the Consensus Route centerline. The cemetery dates to as early as 1870 and is commemorated in an OTHM. No impacts to recorded cultural resources are anticipated.

The Consensus Route has not been systematically surveyed for cultural resources. Thus, the potential for undiscovered cultural resources exists along the Consensus Route. To assess this potential, a review of geological, soils, and topographical maps was undertaken by a professional archeologist to identify areas along the Consensus Route where unrecorded prehistoric and historic archeological resources have a higher probability to occur. The HPAs for prehistoric archeological sites were identified near major streams and their tributaries, and on terraces overlooking the streams. HPAs for historical resources were identified near previously recorded historic archeological sites and near structures identified on historic topographic maps. To facilitate the data evaluation, each HPA was mapped using GIS and the length of the Consensus Route crossing these areas was tabulated. As shown in Table 4-1, the Consensus Route crosses approximately 1.2 miles of HPA for cultural resources.

4.5 Impacts on Aesthetic Values

Aesthetic impacts, or impacts to visual resources, exist when the ROW, lines and/or structures of a transmission line system create an intrusion into, or substantially alter the character of the existing view. The significance of the impact is directly related to the quality of the view, in the case of natural scenic areas, or to the importance of the existing setting in the use and/or enjoyment of an area, in the case of valued community resources and recreational areas.

Construction of the proposed transmission project could have both temporary and permanent aesthetic impacts. Temporary impacts would include views of the actual assembly and erection of the tower structures. If wooded areas are cleared, the brush and wood debris could have an additional negative temporary impact on the local visual environment. Permanent impacts from the Project would involve the views of the cleared ROW, tower structures, and lines from public viewpoints including roadways, recreational areas and scenic overlooks.

Since no designated landscapes protected from most forms of development or legislation exist within the study area, potential visibility impacts were evaluated by estimating the length of the Consensus Route that would fall within the foreground visual zones (one-half mile with unobstructed views) of major highways, FM roads, and parks or recreational areas. There are no interstate highways located within the study area. The Consensus Route lengths within the foreground visual zone of US Hwys and SHs, FM roads, and parks or recreational areas were tabulated and are discussed below.

The Consensus Route does not have any portion of its ROW length located within the foreground visual zone of US Hwys and SHs. The Consensus Route has approximately 0.9 mile of length of its ROW located within the foreground visual zone of FM roads. The Consensus Route does not have any portion of its ROW length located within the foreground visual zone of parks or recreational areas (see Table 4-1).

Overall, the character of the rural landscape within the study area includes gently rolling pasturelands with trees bordering the fence lines or along the creek. The agricultural development within the study area has already impacted the aesthetic quality within the region from public viewpoints. The construction of the Consensus Route is not anticipated to significantly impact the aesthetic quality of the landscape further.

4.6 Impacts on Environmental Integrity

4.6.1 Impacts on Physiography and Geology

Construction of the proposed transmission line is not anticipated to have any significant adverse effects on the physiographic or geologic features and resources of the area. Erection of the structures will require the excavation and/or minor disturbance of small quantities of near surface materials but should have no measurable impacts on the geologic resources or features along the Consensus Route. No geologic hazards were identified within the study area and no geologic hazards are anticipated to be created by the Consensus Route.

4.6.2 Impacts on Soils

Potential impacts to soils from the construction of electric transmission lines include erosion and compaction. Such impacts can be minimized with the implementation of appropriate mitigation measures during the construction phase. No conversion of prime farmland soils is anticipated for the Project.

The highest risk for soil erosion and compaction is associated with the clearing and construction phases of the Project. Clearing of woody vegetation would be conducted within the ROW boundary as necessary to achieve the conductor to ground clearances of the transmission line. Areas with vegetation removed would have the highest potential for soil erosion and the movement of heavy equipment down the ROW creates the greatest potential for soil compaction. Prior to construction, Lone Star will develop a SWPPP in accordance with the TCEQ's stormwater Construction General Permit (TXR1500000) to minimize potential impacts associated with soil erosion, compaction, and off ROW sedimentation. Implementation of this plan would incorporate temporary and permanent BMPs to minimize soil erosion on the ROW during rainfall events. The SWPPP will also establish the criteria for mitigating soil compaction and re-vegetation to maintain soil stabilization during the construction and post construction phases. The native herbaceous layer of vegetation will be maintained, to the extent practical, during construction. Denuded areas will be seeded and/or further stabilized with the implementation of permanent BMPs (i.e., soil berms or interceptor slopes) if necessary, to stabilize disturbed areas and minimize soil erosion potential. As per the TXR1500000, the ROW will be inspected during and post construction to identify potential high erosion areas and that appropriate BMPs are implemented and maintained for construction activities.

4.6.3 Impacts on Water Resources

Impacts on Surface Water

The Consensus Route crosses multiple surface waters within the study area. Lone Star proposes to span all surface waters. Structures will be constructed outside of the ordinary high-water marks for any surface waters. Hand-clearing of woody vegetation within the ordinary high-water marks would be implemented and limited to the removal of woody vegetation as necessary to meet conductor to ground clearances. The shorter understory and herbaceous layers of vegetation would remain, where allowable, and BMPs would be implemented in accordance with the SWPPP to reduce the potential for sedimentation into surface waters. Since all surface waters are anticipated to be spanned and a SWPPP plan will be implemented during construction, no significant impacts to surface waters are anticipated for the Consensus Route. The number of stream crossings, length of the Consensus Route crossing open water (e.g., lakes, ponds), and length parallel (within 100 feet) to streams is provided in Table 4-1.

The Consensus Route has three stream crossings (there are no river crossings), crosses approximately 0.01 mile of open water (lakes, ponds), and does not parallel any streams.

Impacts on Ground Water

The construction, operation, and maintenance of the proposed transmission line is not anticipated to adversely affect groundwater resources within the study area. During construction activities, a potential impact for groundwater resources is related to fuel and/or other chemical spills. Avoidance and minimization measures of potential contamination of water resources will be identified in the SWPPP. Lone Star will take necessary precautions to avoid the occurrence of these spills. If an unauthorized discharge occurs during construction, Lone Star will comply with TCEQ notification and remediation requirements.

Impacts on Floodplains

The construction of the Consensus Route is not anticipated to impact the overall function of the floodplains within the study area, or adversely affect adjacent or downstream properties. Engineering design should alleviate the potential of the transmission line to adversely impact flood channels and proper structure placement will minimize any flow impedance during a major flood event. Typically, the footprint of a structure does not significantly alter the flow of water within a floodplain.

The Consensus Route does not cross any FEMA-mapped 100-year floodplains. Prior to construction Lone Star will coordinate with the county floodplain administrator to acquire any required permits.

Impacts on Future Surface Water Developments

Review of the TWDB State Water Plan (TWDB 2021) did not indicate any planned future surface water development projects proposed within the study area. As a result, no impacts are anticipated to occur to future surface water development projects.

4.6.4 Impacts on Ecological Resources

Impacts on Vegetation Types

As indicated in Table 4-1, the Consensus Route crosses approximately 0.7 mile of upland woodlands/brushlands and approximately 0.1 mile of bottomland/riparian woodlands. Potential impacts to vegetation would result from clearing the ROW of woody vegetation and/or mowing/clearing of herbaceous vegetation. These activities facilitate ROW access for transmission line construction and future maintenance activities. Impacts to vegetation would be limited to the transmission ROW, potential temporary access roads, and additional workspaces required for construction activities. The clearing activities will be completed while minimizing the impacts to existing groundcover vegetation when practical. Future ROW maintenance activities might include periodic mowing and/or herbicide applications to maintain an herbaceous vegetation layer within the ROW.

Clearing trees and shrubs from woodland areas typically generates a degree of habitat fragmentation. The magnitude of habitat fragmentation is typically minimized by paralleling an existing linear feature such as a transmission line, roadway, railway, or pipeline. During the route development process, consideration was given to avoid wooded areas and/or to maximize the length of the routes parallel to existing linear features.

Impacts on Wetlands

As indicated in Table 4-1, the Consensus Route crosses approximately 0.03 mile of NWI-mapped wetlands. Wetland areas provide habitat to numerous wildlife species and are often used as migration corridors. Removal of vegetation in wetlands increases the potential for erosion and sedimentation, which can be detrimental to downstream plant communities and aquatic life.

The temporary and/or permanent placement of fill material within jurisdictional waterways and wetlands may require a permit from the USACE under Section 404 of the CWA. If necessary, Lone Star will perform a delineation of potential wetlands crossed by the Consensus Route and consult with the USACE – Fort Worth District to determine permit requirements.

Removal of woody vegetation within forested or scrub-shrub wetlands may be conducted using hand-clearing methods and temporary construction matting may be used within all wetland types to minimize disturbance of the

soil profile. If hand-clearing of forested or scrub-shrub wetlands is unachievable, a pre-construction notification and compensatory mitigation may be required. Spanning wetland areas and implementing mitigation measures with BMPs as appropriate during construction activities will also avoid and minimize impacts to wetlands.

Lone Star proposes to implement BMPs as a component of their SWPPP to prevent off-ROW sedimentation and potential degradation of surface waters and associated wetland areas. If wetland areas are traversed by equipment during construction, equipment matting will be utilized to minimize soil disturbances.

Impacts on Wildlife and Fisheries

The primary impacts of construction activities on wildlife species are typically associated with temporary disturbances, and with the removal of vegetation. Increased noise and equipment movement during construction might temporarily displace mobile wildlife species from the immediate workspace area. These impacts are typically considered short-term and normal wildlife movements would be expected to resume after construction is completed. Potential long-term impacts include those resulting from habitat modifications and/or fragmentation. The Consensus Route crosses areas of upland and bottomland/riparian woodlands which can represent the highest degree of habitat fragmentation by converting the area within the ROW to an herbaceous habitat. During the routing process, POWER and Lone Star attempted to minimize potential woodland habitat fragmentation by paralleling existing linear features and avoiding paralleling streams to the extent feasible.

Construction activities might also impact small, immobile, or fossorial (living underground) animal species through incidental impacts or from the alteration of local habitats. Disturbances to these species might occur due to equipment or vehicular movement on the ROW by direct impact or due to the compaction of the soil if the species is fossorial. Potential impacts of this type are not typically considered significant and are not likely to have an adverse effect on any species population dynamics.

If ROW clearing occurs during bird nesting season, potential direct impacts could occur related to bird eggs and/or nestlings. Increases in noise and equipment activity levels during construction could also potentially indirectly impact breeding, nesting, and or foraging activities in areas immediately adjacent to the ROW. If ROW clearing activities are necessary during the migratory bird nesting season (generally known to be March 15 to September 15), Lone Star will comply with state (TPWC Chapter 64) and federal (MBTA) regulations regarding avian species by having a qualified biologist conduct surveys for active nests prior to vegetation clearing.

Transmission lines can also present additional hazards to birds from electrocutions and collisions with the infrastructure. While the conductors are typically thick enough to be visible and avoided by birds in flight, shield wires are thinner, which reduces visibility, and can present a risk for avian collision. The electrocution risk to

birds should not be significant since the engineering design distance between conductors, conductor to structure, and conductor to ground wire for the proposed transmission line is greater than the wingspan of any bird potentially utilizing the area (i.e., distance is greater than eight feet).

Potential impacts to aquatic ecosystems include effects resulting from erosion, siltation, and sedimentation. Vegetation clearing of the ROW may result in temporary increase of suspended solids in surface waters crossed by the transmission line. Increases in suspended solids might adversely affect aquatic organisms that require relatively clear water for foraging and/or reproduction. Increased levels of siltation or sedimentation might also potentially impact downstream areas primarily affecting filter feeding benthic and other aquatic invertebrates. Implementation of a SWPPP and BMPs will minimize these potential impacts. No significant adverse impacts are anticipated to aquatic habitats crossed by the Consensus Route.

Construction of the proposed transmission line is not anticipated to have significant impacts to wildlife and fisheries within the study area. Direct impacts would be associated with the loss of woodland habitat. While highly mobile wildlife might temporarily be displaced from habitats near the ROW during the construction phase, normal movement patterns typically return after Project construction is complete. Implementation of a SWPPP utilizing BMPs will minimize potential impacts to aquatic habitats.

Impacts to Threatened and Endangered Species

In order to determine potential impacts to threatened and endangered species, a review using readily available information was completed. A USFWS (2021b and 2021c) IPaC consultation, TPWD (2021g) county listings, and USFWS (2021d) designated critical habitat locations were included in the review. Known occurrence data from the TXNDD (2021) for the study area (see Appendix A) was also reviewed.

The TXNDD data provides past records of state-listed, rare, and federally threatened/endangered species and sensitive vegetation communities that have been documented within a given area. Review of the TXNDD did not indicate any element occurrence records of federally- or state-listed species within the study area. The absence of listed species within the TXNDD database is not a substitute for a species-specific field survey and does not preclude the need for additional habitat evaluations for the Consensus Route. Prior to construction, a field survey will be completed of the Consensus Route to determine if suitable habitat for threatened and endangered species is present. Additional consultation with USFWS and TPWD might be required if suitable habitat is observed during field surveys.

Plant Species and Sensitive Vegetation Communities

No federally-listed plant species were identified for the study area and construction of the Consensus Route is not anticipated to impact any threatened or endangered plant species. The Navasota ladies'-tresses and small-headed pipewort vegetation community types may occur along the Consensus Route. Potential direct impacts to this vegetation community type may occur from equipment/vehicle traffic crushing vegetation or compacting soil. These impacts will be minimized to the greatest extent practicable by implementing a SWPPP that will establish criteria for mitigating soil compaction during construction and re-vegetation post construction.

Threatened and Endangered Animal Species

As indicated in Table 4-1, the Consensus Route does not cross any USFWS designated critical habitat of federally-listed endangered or threatened species.

Federally-listed and Candidate Species

Potential federally-listed avian species in the study area include the golden-cheeked warbler, piping plover, red knot, and whooping crane. The USFWS only requires consideration of impacts to the piping plover and red knot for wind energy projects within their migratory route; however, for due diligence, they have been included in this impact evaluation. Although these avian species may occur as migrants within the study area, no significant impacts to nesting or foraging habitat is anticipated from the Consensus Route.

Based on aerial imagery interpretation and field reconnaissance surveys, woodland vegetation within the study area is not anticipated to support the golden-cheeked warbler due to the fragmented state and lack of a major mature Ashe juniper component. No impacts from the Consensus Route are anticipated to occur to this species.

The whooping crane may occur temporarily within the study area as non-breeding migrant, if potential suitable stopover habitat is available. This species may be susceptible to minor temporary disturbance during construction efforts; however, no impacts from the Consensus Route are anticipated to occur to this species' nesting or foraging habitat. Prior to construction, additional consultation with USFWS might be required to determine appropriate mitigation practices, if any.

The Texas fawnsfoot is not anticipated to occur within the study area due to the modified hydrology of surface waters. Lone Star proposes to span all surface waters and implement a SWPPP to prevent off-ROW sedimentation and degradation of surface waters. No impacts from the Consensus Route are anticipated to occur to this species.

State-listed Species

The swallow-tailed kite, white-faced ibis, and wood stork may occur as possible migrants or transient species within the study area and potentially occupy habitats temporarily or seasonally. These species may be susceptible to collisions with the transmission line, which can be minimized using line markers. These species may also be susceptible to minor temporary disturbances during construction efforts. No impacts from the Consensus Route are anticipated to occur to these species' breeding or foraging habitat.

The chub shiner, the Brazos heelsplitter, and the alligator snapping turtle are not anticipated to occur within the study area due to the lack of suitable habitat. Lone Star proposes to span all surface waters and implement a SWPPP to prevent off-ROW sedimentation and degradation of surface waters. No impacts from the Consensus Route are anticipated to occur to these species.

The Texas horned lizard is not anticipated to occur within the study area due to the lack of suitable habitat. No impacts from the Consensus Route are anticipated to occur to this species.

The Consensus Route is illustrated on Figures 4-1 (topographic based) and 4-2 (aerial based).

TABLE 4-2 LAND USE FEATURES IN THE VICINITY OF THE CONSENSUS ROUTE

MAP NUMBER	STRUCTURE OR FEATURE	APPROXIMATE DISTANCE FROM ROUTE CENTERLINE (FEET)
1	Mount Calm Cemetery	270

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5.0 LIST OF PREPARERS

This EA and Route Analysis was prepared for Lone Star by POWER. A list of the POWER employees with primary responsibilities for the preparation of this document is presented below.

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Appendix A

Agency Correspondence

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Liberty to Waco Solar 345 kV Transmission Line Project
Federal, State and Local Agencies/Officials Contact List

FEDERAL

Mr. Rob Lowe
Southwest Regional Administrator
Federal Aviation Administration
10101 Hillwood Parkway
Fort Worth, TX 76177

Mr. Tony Robinson
Region 6 Regional Administrator
Federal Emergency Management Agency
FRC 800 N. Loop 288
Denton, TX 76209-3698

Mr. Mike Reynold
Regions 6, 7, and 8 Director
National Parks Service
IMRextrev@nps.gov

Ms. Kristy Oates
State Conservationist
NRCS Texas State Office
101 South Main Street
Temple, TX 76501

Colonel Kenneth N. Reed
District Commander
U.S. Army Corps of Engineers – Fort Worth District
CESWF-Permits@usace.army.mil

Mr. Jason Story
Section 408 Coordinator
U.S. Army Corps of Engineers – Fort Worth District
jason.e.story@usace.army.mil

Mr. Ron Tickle
Executive Director
U. S. Department of Defense Siting Clearinghouse
3400 Defense Pentagon, Room 5C646
Washington, DC 20301-3400

Mr. Andrew Wheeler
Region 6 Administrator
U.S. Environmental Protection Agency
1201 Elm Street, Suite 500
Dallas, TX 75270

Ms. Debra Bills
Field Supervisor
U.S. Fish and Wildlife Service
Arlington Ecological Services Field Office
2005 Northeast Green Oaks Boulevard, Suite 140
Arlington, Texas 76006

STATE

Mr. David Van Soest
Region 9 Director
Texas Commission on Environmental Quality
6801 Sanger Ave, Suite 2500
Waco, TX 76710-7826

Mr. Dan Harmon
Director, Aviation Division
Texas Department of Transportation
125 E. 11th Street
Austin, TX 78701-2483

Mr. Carlos Swonke, P.E.
Director, Environmental Affairs Division
Texas Department of Transportation
125 E. 11th Street
Austin, TX 78701-2483

Ms. Jessica Butler, P.E.
Director, Transportation Planning & Programming
Texas Department of Transportation
125 E. 11th Street
Austin, TX 78701-2483

Mr. Stanley Swiatek, P.E.
Waco District Engineer
Texas Department of Transportation
100 S. Loop Drive
Waco, TX 76704-2858

Mr. George P. Bush
Commissioner
Texas General Land Office
1700 N. Congress Ave., Suite 935
Austin, TX 78701-1495

Liberty to Waco Solar 345 kV Transmission Line Project
Federal, State and Local Agencies/Officials Contact List

Mr. Mark Wolfe
Executive Director/Historic Preservation Officer
Texas Historical Commission
P.O. Box 12276
Austin, TX 78711

Ms. Laura Zebehazy
Program Leader
Wildlife Habitat Assessment Program
Texas Parks and Wildlife Department
WHAB@tpwd.texas.gov

Mr. Jeff Walker
Executive Administrator
Texas Water Development Board
P.O. Box 13231
Austin, TX 78711-3231

COUNTY

Mr. Russell Devorsky
Executive Director
Heart of Texas Council of Governments
1514 South New Road
Waco, TX 76711

The Honorable Justin W. Lewis
Hill County Judge
P. O. Box 457
Hillsboro, TX 76645

The Honorable Scotty Hawkins
Hill County Commissioner, Precinct 3
P. O. Box 457
Hillsboro, TX 76645

Mr. Bob McGregor
Chairperson
Hill County Historical Commission
P.O. Box 366
Hillsboro, TX 76645

Mr. James Wright II
Superintendent
Mount Calm Independent School District
P.O. Box 105
Mount Calm, TX 76673

The Honorable Richard Duncan
Limestone County Judge
200W State St, Suite 101
Groesbeck, TX 76642

The Honorable WA (Sonny) Baker
Limestone County Commissioner Precinct 2
200 W State St, Suite 101
Groesbeck, TX 76642

Mr. William Reagan
Limestone County Historical Commission
P.O. Box 860
Groesbeck, TX 76642

Mr. Jimmy Tucker
Mayor
City of Mount Calm
P.O. Box 85
Mount Calm, TX 76673

NON-GOVERNMENTAL ORGANIZATION

Mr. Chad Ellis
Chief Executive Officer
Texas Agricultural Land Trust
P.O. Box 6152
San Antonio, TX 78209

Mr. Mark Steinbach
Executive Director
Texas Land Conservancy
P. O. Box 162481
Austin, TX 78716

Ms. Lori Olson
Texas Land Trust Council
Executive Director
P.O. Box 2677
Wimberley, TX 78676

Ms. Suzanne Scott
State Director
The Nature Conservancy, Texas
200 E. Grayson, Suite 202
San Antonio, TX 78215

POWER ENGINEERS, INC.
16825 NORTHCHASE DRIVE
SUITE 1200
HOUSTON, TX 77060 USA

PHONE 281-765-5500
FAX 281-765-5599

June 18, 2021
(Via Mail)

Mr. Rob Lowe
Southwest Regional Administrator
Federal Aviation Administration
10101 Hillwood Parkway
Fort Worth, TX 76177

Re: Proposed Liberty to Waco Solar 345 kV Transmission Line Project
Hill and Limestone Counties, Texas
POWER Engineers, Inc. Project No. 171555

Dear Mr. Lowe,

Lone Star Transmission, LLC (Lone Star), a transmission service provider regulated by the Public Utility Commission of Texas (PUC), has retained POWER Engineers, Inc. (POWER) to evaluate the construction of a potential new 345 kV transmission line in Hill and Limestone Counties, Texas that will interconnect a new solar generation project.

The proposed 345 kV line will begin at the proposed Liberty Station, located southwest of Mount Calm, Texas, west of County Road 3278 and south of County Road 3363. From the proposed Liberty Station, the new 345 kV line will extend approximately three to four miles in length to the proposed 400 megawatt Waco Solar Project located southeast of Mount Calm, Texas on Farm to Market 339. The preliminary study area is shown on the enclosed map.

If Lone Star moves forward with this project, it will file an application with the PUC to amend its Certificate of Convenience and Necessity (CCN) to add the new transmission line to its CCN. POWER is preparing an Environmental Assessment (EA) to support Lone Star's CCN application with the PUC. POWER is gathering data on the existing environment and identifying environmental, cultural, and land use constraints within the study area. POWER will evaluate the route between the end points that consider identified constraints and the need to serve the increasing electrical load in the area.

We are requesting that your agency/office provide information concerning environmental and land use constraints or other issues of interest to your agency/office within the study area. Your input will be an important consideration in the evaluation of the route and in the assessment of potential impacts of the route. In addition, we would appreciate receiving information about any permits, easements, or other approvals by your agency/office that you believe could affect this project, or if you are aware of any major proposed development or construction in the study area. Upon certification of a route for the proposed project, Lone Star will identify and obtain necessary permits, if required, from your agency/office.

June 18, 2021

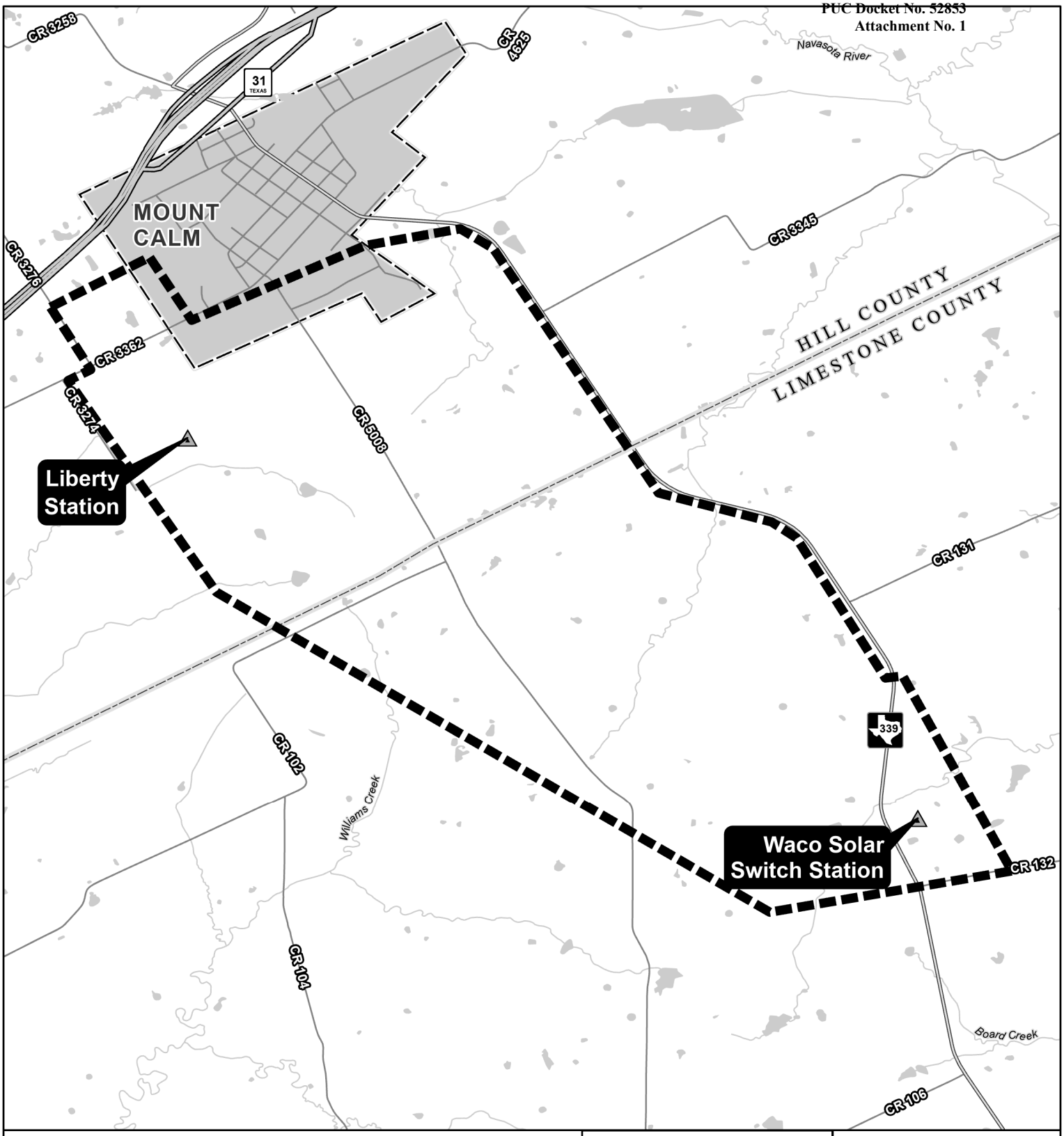
Thank you for your assistance with this proposed electric transmission line project. Please contact me by phone at 281-765-5507, or by e-mail at lisa.barko@powereng.com if you have any questions or require additional information. We would appreciate receiving your reply by July 16, 2021.

Sincerely,

Lisa Barko Meaux
Project Manager

Enclosure(s):
Preliminary Study Area Map

Sent via Mail
ProjectWise 171555



Project Station
Study Area
State Highway
FM Road
County / Local Road
River / Stream
Waterbody
City Limit
County Boundary

LIBERTY-WACO SOLAR
345 KV TRANSMISSION LINE PROJECT

STUDY AREA

0 0.25 0.5
Miles

LONESTAR POWER ENGINEERS

Date: 6/16/2021

Path: N:\Projects\171555_NextEra_Waco_Solar\DD\GIS\apps\NextEra_Waco_Solar\NextEra_Waco_Solar.aprx

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From:	Meaux, Lisa
To:	Teta, Sairah
Cc:	Williams, Denise
Subject:	FW: Proposed Liberty to Waco Solar 345kv Transmission Line Project Power Engineers, Inc Project No. 171555
Date:	Wednesday, July 07, 2021 12:51:58 PM
Attachments:	Enviromental Review_Mount_Calm_TX.docx Hill and Limestone Counties TX.pdf

FYI...

LISA BARKO MEAUX
PROJECT MANAGER
ENVIRONMENTAL DEPARTMENT MANAGER
16825 Northchase Drive, Suite 1200
Houston, Texas 77060

281-765-5507 direct
713-962-8476 cell
lisa.barko@powereng.com

POWER Engineers, Inc.
www.powereng.com

From: Williams, Loukisha <loukisha.williams@fema.dhs.gov>
Sent: Wednesday, July 07, 2021 7:43 AM
To: Meaux, Lisa <lisa.barko@powereng.com>
Cc: cityofmtcalm@gmail.com; themrick@co.hill.tx.us; Matt.groveton@co.limestone.tx.us
Subject: [EXTERNAL] Proposed Liberty to Waco Solar 345kv Transmission Line Project Power Engineers, Inc Project No. 171555

Power Engineer, INC
Lisa Barko Meaux
Project Manager
16825 Northchase Dr, Suite 1200
Houston, TX 77060

RE: Power Engineers, Inc Project No. 171555

Dear Ms. Barko Meaux:

Thank you for contacting FEMA for information in reference to your questions pertaining to the Proposed Liberty to Waco Solar 345kv Transmission Line Project Power Engineers, Inc Project No. 171555. Please review our attached response.

Loukisha Williams
Program Support Assistant|Floodplain Management & Insurance| Mitigation-Region 6
O: 940-383-7228 Mobile: (202) 258-3794
Loukisha.Williams@fema.dhs.gov

FEMA

U. S. Department of Homeland Security
FEMA Region 6
800 North Loop 288
Denton, TX 76209-3698

FEMA

FEDERAL EMERGENCY MANAGEMENT AGENCY
REGION 6
MITIGATION DIVISION

RE: Proposed Liberty to Waco Solar 345kv Transmission Line Project Power Engineers, Inc Project No. 171555

NOTICE REVIEW/ENVIRONMENTAL CONSULTATION

☐ We have no comments to offer. ☒ We offer the following comments:

WE WOULD REQUEST THAT THE COMMUNITY FLOODPLAIN ADMINISTRATOR BE CONTACTED FOR THE REVIEW AND POSSIBLE PERMIT REQUIREMENTS FOR THIS PROJECT. IF FEDERALLY FUNDED, WE WOULD REQUEST PROJECT TO BE IN COMPLIANCE WITH EO11988 & EO 11990.

City of Mount Calm, TX
Maggie Martinez
City Secretary
122 North Allyn Ave East
Mount Calm, TX 76673
cityofmtcalm@gmail.com
(254) 993-4211

Hill County, TX
Tom Hemrick
Emergency Management Coordinator
200 E. Franklin St
Hillsboro, TX 76645
themrick@co.hill.tx.us
(254) 582-2023
(254) 582-2026

Limestone County, TX
Matt Groveton
Emergency Manager
1225 E Yeager Street
Groesbeck, TX 76642
Matt.groveton@co.limestone.tx.us
(254) 747-0641
(254) 729-2133

REVIEWER:

Loukisha Williams
Floodplain Management and Insurance Branch
Mitigation Division
(940) 383-7228

DATE: 7/7/2021

21·6·66181

Date Rec'd: 6/24/21		
Rec'd by: KL		
	Action	Info
RA		X
Deputy RA		X
XA		
Analyst		
RES		
REC		
MIT	X	
MSD		
NP		
Grants		
File		X
Suspense Date: 7/8/21		

POWER ENGINEERS, INC.
16825 NORTHCHASE DRIVE
SUITE 1200
HOUSTON, TX 77060 USA

PHONE 281-765-5500
FAX 281-765-5599

June 18, 2021
(Via Mail)

Mr. Tony Robinson
Region 6 Regional Administrator
Federal Emergency Management Agency
FRC 800 N. Loop 288
Denton, TX 76209-3698

Re: Proposed Liberty to Waco Solar 345 kV Transmission Line Project
Hill and Limestone Counties, Texas
POWER Engineers, Inc. Project No. 171555

Dear Mr. Robinson,

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June 18, 2021

Thank you for your assistance with this proposed electric transmission line project. Please contact me by phone at 281-765-5507, or by e-mail at lisa.barko@powereng.com if you have any questions or require additional information. We would appreciate receiving your reply by July 16, 2021.

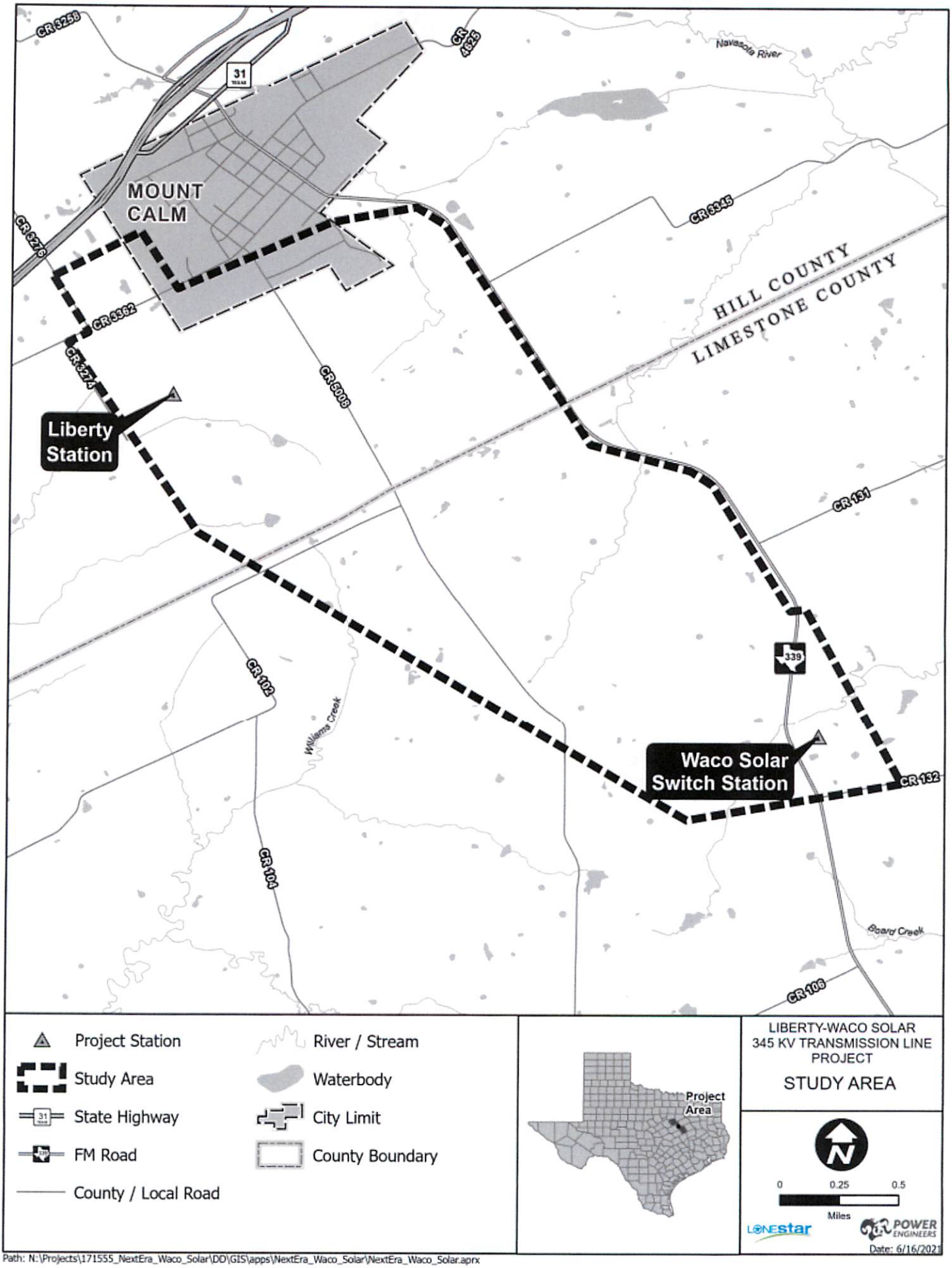
Sincerely,

Lisa Barko Meaux

Lisa Barko Meaux
Project Manager

Enclosure(s):
Preliminary Study Area Map

Sent via Mail
ProjectWise 171555



Path: N:\Projects\171555_NextEra_Waco_Solar\DD\GIS\apps\NextEra_Waco_Solar\NextEra_Waco_Solar.aprx

Meaux, Lisa

From: Townes, Daniel W CTR OSD OUSD A-S (USA) <daniel.w.townes.ctr@mail.mil>
Sent: Friday, July 02, 2021 8:22 AM
To: Meaux, Lisa
Subject: [EXTERNAL] Liberty to Waco Solar 345kV Transmission Line Project
Attachments: 00010.jpg; 00020.jpg

Good morning Ms. Barko Meaux

My name is Dan Townes with the Department of Defense (DoD) Military Aviation and Installation Assurance Siting Clearinghouse. Thank you for the opportunity to review your project.

Do you have a range of structure heights for the Liberty to Waco Solar 345kV Transmission Line Project? Or, can you provide the height of the tallest structure please? Thank you.

Respectfully,

Dan Townes
Military Aviation and Installation Assurance Siting Clearinghouse
Office of the Assistant Secretary of Defense (Sustainment)
Desk: 571-372-8414 *(temporarily unavailable)*
NIPR: daniel.w.townes.ctr@mail.mil

From: Townes, Daniel W CTR OSD OUSD A-S (USA)
To: Williams, Denise
Cc: Meaux, Lisa
Subject: [EXTERNAL] RE: [Non-DoD Source] Liberty to Waco Solar 345 kV Transmission Line Project
Date: Wednesday, July 07, 2021 3:30:51 PM
Attachments: image001.jpg

Ms. Williams,

This works! Thank you for your assistance.

Respectfully,

Dan Townes
Military Aviation and Installation Assurance Siting Clearinghouse
Office of the Assistant Secretary of Defense (Sustainment)
Desk: 571-372-8414 *(temporarily unavailable)*
NIPR: daniel.w.townes.ctr@mail.mil

From: denise.williams@powereng.com <denise.williams@powereng.com>
Sent: Wednesday, July 7, 2021 4:21 PM
To: Townes, Daniel W CTR OSD OUSD A-S (USA) <daniel.w.townes.ctr@mail.mil>
Cc: lisa.barko@powereng.com
Subject: [Non-DoD Source] Liberty to Waco Solar 345 kV Transmission Line Project

Mr. Townes,
Attached are typical structure drawings similar to what will be used for the Liberty to Waco Solar project. We are still in the preliminary design phase but the drawings show a height range of 90-120 feet. There is a potential that we may need taller structures in certain locations based on site specific requirements. Please let us know if you need any additional information.
Thank you,

Denise M. Williams
Project Lead I
16825 Northchase Drive
Suite 1200
Houston, TX 77060

281-765-5511 Office
281-794-6885 Cell

POWER Engineers, Inc.
Caution-www.powereng.com < Caution-http://www.powereng.com/ >

< Caution-http://www.powereng.com/currents-subscribe?utm_source=emailsig&utm_medium=button&utm_campaign=currents_sp18 >

Meaux, Lisa

From: Arlington ES, FW2 <arles@fws.gov>
Sent: Thursday, July 01, 2021 10:17 AM
To: Meaux, Lisa
Subject: [EXTERNAL] Liberty to Waco Solar

Hello Ms. Barko Meaux,

We have received your letter dated June 18, 2021, regarding the proposed Liberty to Waco Solar 345 kV transmission line project. For information on fish and wildlife resources of concern that may be present within the project area, please visit our Information for Planning and Consultation website at: https://ecos.fws.gov/ipac/ [ecos.fws.gov]. Please note that Limestone County falls within our Texas Coastal Field Office's area of responsibility.

Thank you.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Arlington Ecological Services Field Office
2005 Ne Green Oaks Blvd
Suite 140
Arlington, TX 76006-6247
Phone: (817) 277-1100 Fax: (817) 277-1129
http://www.fws.gov/southwest/es/arlingtontexas/
http://www.fws.gov/southwest/es/EndangeredSpecies/lists/

In Reply Refer To: July 09, 2021
Consultation Code: 02ETAR00-2021-SLI-2424
Event Code: 02ETAR00-2021-E-05374
Project Name: Liberty to Waco Solar

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed, and candidate species, as well as proposed and final designated critical habitat, which may occur within the boundary of your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under section 7(a)(1) of the Act, Federal agencies are directed to utilize their authorities to carry out programs for the conservation of threatened and endangered species. Under and 7(a)(2) and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to determine whether their actions may affect threatened and endangered species and/or designated critical habitat. A Federal action is an activity or program authorized, funded, or carried out, in whole or in part, by a Federal agency (50 CFR 402.02).

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For Federal actions other than major construction activities, the Service suggests that a biological evaluation (similar to a Biological Assessment) be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

After evaluating the potential effects of a proposed action on federally listed species, one of the following determinations should be made by the Federal agency:

1. *No effect* - the appropriate determination when a project, as proposed, is anticipated to have no effects to listed species or critical habitat. A "no effect" determination does not require section 7 consultation and no coordination or contact with the Service is necessary. However, the action agency should maintain a complete record of their evaluation, including the steps leading to the determination of affect, the qualified personnel conducting the evaluation, habitat conditions, site photographs, and any other related information.
2. *May affect, but is not likely to adversely affect* - the appropriate determination when a proposed action's anticipated effects to listed species or critical habitat are insignificant, discountable, or completely beneficial. Insignificant effects relate to the size of the impact and should never reach the scale where "take" of a listed species occurs. Discountable effects are those extremely unlikely to occur. Based on best judgment, a person would not be able to meaningfully measure, detect, or evaluate insignificant effects, or expect discountable effects to occur. This determination requires written concurrence from the Service. A biological evaluation or other supporting information justifying this determination should be submitted with a request for written concurrence.
3. *May affect, is likely to adversely affect* - the appropriate determination if any adverse effect to listed species or critical habitat may occur as a consequence of the proposed action, and the effect is not discountable or insignificant. This determination requires formal section 7 consultation.

The Service has performed up-front analysis for certain project types and species in your project area. These analyses have been compiled into *determination keys*, which allows an action agency, or its designated non-federal representative, to initiate a streamlined process for determining a proposed project's potential effects on federally listed species. The determination keys can be accessed through IPaC.

The Service recommends that candidate species, proposed species, and proposed critical habitat be addressed should consultation be necessary. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at: http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.), and projects affecting these species may require development of an eagle conservation plan (https://www.fws.gov/birds/management/managed-species/eagle-management.php). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds/collisions/communication-towers.php.

For additional information concerning migratory birds and eagle conservation plans, please contact the Service's Migratory Bird Office at 505-248-7882.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Arlington Ecological Services Field Office
2005 Ne Green Oaks Blvd
Suite 140
Arlington, TX 76006-6247
(817) 277-1100

This project's location is within the jurisdiction of multiple offices. Expect additional species list documents from the following office, and expect that the species and critical habitats in each document reflect only those that fall in the office's jurisdiction:

Texas Coastal Ecological Services Field Office
4444 Corona Drive, Suite 215
Corpus Christi, TX 78411
(281) 286-8282

Project Summary

Consultation Code: 02ETAR00-2021-SLI-2424
Event Code: 02ETAR00-2021-E-05374
Project Name: Liberty to Waco Solar
Project Type: TRANSMISSION LINE
Project Description: Transmission line siting and routing study.
Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@31.7365038,-96.86968434787676,14z

Counties: Hill and Limestone counties, Texas

Endangered Species Act Species

There is a total of 5 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 2 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

---

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Birds

NAME	STATUS
Golden-cheeked Warbler (=wood) *Dendroica chrysoparia* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/33	Endangered
Piping Plover *Charadrius melodus* Population: [Atlantic Coast and Northern Great Plains populations] - Wherever found, except those areas where listed as endangered. There is **final** critical habitat for this species. The location of the critical habitat is not available. This species only needs to be considered under the following conditions: ▪ Wind Energy Projects Species profile: https://ecos.fws.gov/ecp/species/6039	Threatened
Red Knot *Calidris canutus rufa* No critical habitat has been designated for this species. This species only needs to be considered under the following conditions: ▪ Wind Energy Projects Species profile: https://ecos.fws.gov/ecp/species/1864	Threatened
Whooping Crane *Grus americana* Population: Wherever found, except where listed as an experimental population There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/758	Endangered

Clams

NAME	STATUS
Texas Fawnsfoot *Truncilla macrodon*	Candidate

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/8965

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Texas Coastal Ecological Services Field Office
4444 Corona Drive, Suite 215
Corpus Christi, TX 78411
Phone: (281) 286-8282 Fax: (281) 488-5882
http://www.fws.gov/southwest/es/TexasCoastal/
http://www.fws.gov/southwest/es/ES_Lists_Main2.html

In Reply Refer To: July 09, 2021
Consultation Code: 02ETTX00-2021-SLI-2543
Event Code: 02ETTX00-2021-E-05720
Project Name: Liberty to Waco Solar

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The U.S. Fish and Wildlife Service (Service) field offices in Clear Lake, Tx, and Corpus Christi, Tx, have combined administratively to form the Texas Coastal Ecological Services Field Office. A map of the Texas Coastal Ecological Services Field Office area of responsibility can be found at: http://www.fws.gov/southwest/es/TexasCoastal/Map.html. All project related correspondence should be sent to the field office responsible for the area in which your project occurs. For projects located in southeast Texas please write to: Field Supervisor; U.S. Fish and Wildlife Service; 17629 El Camino Real Ste. 211; Houston, Texas 77058. For projects located in southern Texas please write to: Field Supervisor; U.S. Fish and Wildlife Service; P.O. Box 81468; Corpus Christi, Texas 78468-1468. For projects located in six counties in southern Texas (Cameron, Hidalgo, Starr, Webb, Willacy, and Zapata) please write: Santa Ana NWR, ATTN: Ecological Services Sub Office, 3325 Green Jay Road, Alamo, Texas 78516.

The enclosed species list identifies federally threatened, endangered, and proposed to be listed species; designated critical habitat; and candidate species that may occur within the boundary of your proposed project and/or may be affected by your proposed project.

New information from updated surveys, changes in the abundance and distribution of species, changes in habitat conditions, or other factors could change the list. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. The Service recommends that verification be completed by visiting the ECOS-IPaC website http://ecos.fws.gov/ipac/ at regular intervals during project planning and implementation for updates to species list and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

Candidate species have no protection under the Act but are included for consideration because they could be listed prior to the completion of your project. The other species information should help you determine if suitable habitat for these listed species exists in any of the proposed project areas or if project activities may affect species on-site, off-site, and/or result in "take" of a federally listed species.

"Take" is defined as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. In addition to the direct take of an individual animal, habitat destruction or modification can be considered take, regardless of whether it has been formally designated as critical habitat, if the activity results in the death or injury of wildlife by removing essential habitat components or significantly alters essential behavior patterns, including breeding, feeding, or sheltering.

Section 7

Section 7 of the Act requires that all Federal agencies consult with the Service to ensure that actions authorized, funded or carried out by such agencies do not jeopardize the continued existence of any listed threatened or endangered species or adversely modify or destroy critical habitat of such species. It is the responsibility of the Federal action agency to determine if the proposed project may affect threatened or endangered species. If a "may affect" determination is made, the Federal agency shall initiate the section 7 consultation process by writing to the office that has responsibility for the area in which your project occurs.

Is not likely to adversely affect - the project may affect listed species and/or critical habitat; however, the effects are expected to be discountable, insignificant, or completely beneficial. Certain avoidance and minimization measures may need to be implemented in order to reach this level of effects. The Federal agency or the designated non-Federal representative should seek written concurrence from the Service that adverse effects have been eliminated. Be sure to include all of the information and documentation used to reach your decision with your request for concurrence. The Service must have this documentation before issuing a concurrence.

Is likely to adversely affect - adverse effects to listed species may occur as a direct or indirect result of the proposed action or its interrelated or interdependent actions, and the effect is not discountable, insignificant, or beneficial. If the overall effect of the proposed action is beneficial to the listed species but also is likely to cause some adverse effects to individuals of that species, then the proposed action "is likely to adversely affect" the listed species. An "is likely to adversely affect" determination requires the Federal action agency to initiate formal section 7 consultation with this office.

No effect - the proposed action will not affect federally listed species or critical habitat (i.e., suitable habitat for the species occurring in the project county is not present in or adjacent to the action area). No further coordination or contact with the Service is necessary. However, if the project changes or additional information on the distribution of listed or proposed species becomes available, the project should be reanalyzed for effects not previously considered.

Regardless of your determination, the Service recommends that you maintain a complete record of the evaluation, including steps leading to the determination of affect, the qualified personnel conducting the evaluation, habitat conditions, site photographs, and any other related articles.

Please be advised that while a Federal agency may designate a non-Federal representative to conduct informal consultations with the Service, assess project effects, or prepare a biological assessment, the Federal agency must notify the Service in writing of such a designation. The Federal agency shall also independently review and evaluate the scope and contents of a biological assessment prepared by their designated non-Federal representative before that document is submitted to the Service.

The Service's Consultation Handbook is available online to assist you with further information on definitions, process, and fulfilling Act requirements for your projects at: http://www.fws.gov/endangered/esa-library/pdf/esa_section7_handbook.pdf

Section 10

If there is no federal involvement and the proposed project is being funded or carried out by private interests and/or non-federal government agencies, and the project as proposed may affect listed species, a section 10(a)(1)(B) permit is recommended. The Habitat Conservation Planning Handbook is available at: http://www.fws.gov/endangered/esa-library/pdf/HCP_Handbook.pdf

Service Response

Please note that the Service strives to respond to requests for project review within 30 days of receipt, however, this time period is not mandated by regulation. Responses may be delayed due to workload and lack of staff. Failure to meet the 30-day timeframe does not constitute a concurrence from the Service that the proposed project will not have impacts to threatened and endangered species.

Proposed Species and/or Proposed Critical Habitat

While consultations are required when the proposed action may affect listed species, section 7(a)(4) was added to the ESA to provide a mechanism for identifying and resolving potential conflicts between a proposed action and proposed species or proposed critical habitat at an early planning stage. The action agency should seek conference from the Service to assist the action agency in determining effects and to advise the agency on ways to avoid or minimize adverse effect to proposed species or proposed critical habitat.

Candidate Species

Candidate species are species that are being considered for possible addition to the threatened and endangered species list. They currently have no legal protection under the ESA. If you find you have potential project impacts to these species the Service would like to provide technical assistance to help avoid or minimize adverse effects. Addressing potential impacts to these species at this stage could better provide for overall ecosystem healh in the local area and ay avert potential future listing.

Several species of freshwater mussels occur in Texas and four are candidates for listing under the ESA. The Service is also reviewing the status of six other species for potential listing under the ESA. One of the main contributors to mussel die offs is sedimentation, which smothers and suffocates mussels. To reduce sedimentation within rivers, streams, and tributaries crossed by a

project, the Service recommends that that you implement the best management practices found at: http://www.fws.gov/southwest/es/TexasCoastal/FreshwaterMussels.html.

Candidate Conservation Agreements (CCAs) or Candidate Conservation Agreements with Assurances (CCAAs) are voluntary agreements between the Service and public or private entities to implement conservation measures to address threats to candidate species. Implementing conservation efforts before species are listed increases the likelihood that simpler, flexible, and more cost-effective conservation options are available. A CCAA can provide participants with assurances that if they engage in conservation actions, they will not be required to implement additional conservation measures beyond those in the agreement. For additional information on CCAs/CCAAs please visit the Service's website at http://www.fws.gov/endangered/what-we-do/cca.html.

Migratory Birds

The Migratory Bird Treaty Act (MBTA) implements various treaties and conventions for the protection of migratory birds. Under the MBTA, taking, killing, or possessing migratory birds is unlawful. Many may nest in trees, brush areas or other suitable habitat. The Service recommends activities requiring vegetation removal or disturbance avoid the peak nesting period of March through August to avoid destruction of individuals or eggs. If project activities must be conducted during this time, we recommend surveying for active nests prior to commencing work. A list of migratory birds may be viewed at http://www.fws.gov/migratorybirds/regulationspolicies/mbta/mbtandx.html.

The bald eagle (*Haliaeetus leucocephalus*) was delisted under the Act on August 9, 2007. Both the bald eagle and the goden eagle (*Aquila chrysaetos*) are still protected under the MBTA and BGEPA. The BGEPA affords both eagles protection in addition to that provided by the MBTA, in particular, by making it unlawful to "disturb" eagles. Under the BGEPA, the Service may issue limited permits to incidentally "take" eagles (e.g., injury, interfering with normal breeding, feeding, or sheltering behavior nest abandonment). For more information on bald and golden eagle management guidlines, we recommend you review information provided at http://www.fws.gov/midwest/eagle/pdf/NationalBaldEagleManagementGuidelines.pdf.

The construction of overhead power lines creates threats of avian collision and electrocution. The Service recommends the installation of underground rather than overhead power lines whenever possible. For new overhead lines or retrofitting of old lines, we recommend that project developers implement, to the maximum extent practicable, the Avian Power Line Interaction Committee guidelines found at http://www.aplic.org/.

Meteorological and communication towers are estimated to kill millions of birds per year. We recommend following the guidance set forth in the Service Interim Guidelines for Recommendations on Communications Tower Siting, Constructions, Operation and Decommissioning, found online at: http://www.fws.gov/habitatconservation/communicationtowers.html, to minimize the threat of avian mortality at these towers. Monitoring at these towers would provide insight into the effectiveness of the minimization measures. We request the results of any wildlife mortality monitoring at towers associated with this project.

We request that you provide us with the final location and specifications of your proposed towers, as well as the recommendations implemented. A Tower Site Evaluation Form is also available via the above website; we recommend you complete this form and keep it in your files. If meteorological towers are to be constructed, please forward this completed form to our office.

More information concerning sections 7 and 10 of the Act, migratory birds, candidate species, and landowner tools can be found on our website at: http://www.fws.gov/southwest/es/TexasCoastal/ProjectReviews.html.

Wetlands and Wildlife Habitat

Wetlands and riparian zones provide valuable fish and wildlife habitat as well as contribute to flood control, water quality enhancement, and groundwater recharge. Wetland and riparian vegetation provides food and cover for wildlife, stabilizes banks and decreases soil erosion. These areas are inherently dynamic and very sensitive to changes caused by such activities as overgrazing, logging, major construction, or earth disturbance. Executive Order 11990 asserts that each agency shall provide leadership and take action to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial value of wetlands in carrying out the agency's responsibilities. Construction activities near riparian zones should be carefully designed to minimize impacts. If vegetation clearing is needed in these riparian areas, they should be re-vegetated with native wetland and riparian vegetation to prevent erosion or loss of habitat. We recommend minimizing the area of soil scarification and initiating incremental re-establishment of herbaceous vegetation at the proposed work sites. Denuded and/or disturbed areas should be re-vegetated with a mixture of native legumes and grasses. Species commonly used for soil stabilization are listed in the Texas Department of Agriculture's (TDA) Native Tree and Plant Directory, available from TDA at P.O. Box 12847, Austin, Texas 78711. The Service also urges taking precautions to ensure sediment loading does not occur to any receiving streams in the proposed project area. To prevent and/or minimize soil erosion and compaction associated with construction activities, avoid any unnecessary clearing of vegetation, and follow established rights-of-way whenever possible. All machinery and petroleum products should be stored outside the floodplain and/or wetland area during construction to prevent possible contamination of water and soils.

Wetlands and riparian areas are high priority fish and wildlife habitat, serving as important sources of food, cover, and shelter for numerous species of resident and migratory wildlife. Waterfowl and other migratory birds use wetlands and riparian corridors as stopover, feeding, and nesting areas. We strongly recommend that the selected project site not impact wetlands and riparian areas, and be located as far as practical from these areas. Migratory birds tend to concentrate in or near wetlands and riparian areas and use these areas as migratory flyways or corridors. After every effort has been made to avoid impacting wetlands, you anticipate unavoidable wetland impacts will occur; you should contact the appropriate U.S. Army Corps of Engineers office to determine if a permit is necessary prior to commencement of construction activities.

If your project will involve filling, dredging, or trenching of a wetland or riparian area it may require a Clean Water Act Section 404 permit from the U.S. Army Corps of Engineers (COE).

For permitting requirements please contact the U.S. Corps of Engineers, District Engineer, P.O. Box 1229, Galveston, Texas 77553-1229, (409) 766-3002.

Beneficial Landscaping

In accordance with Executive Order 13112 on Invasive Species and the Executive Memorandum on Beneficial Landscaping (42 C.F.R. 26961), where possible, any landscaping associated with project plans should be limited to seeding and replanting with native species. A mixture of grasses and forbs appropriate to address potential erosion problems and long-term cover should be planted when seed is reasonably available. Although Bermuda grass is listed in seed mixtures, this species and other introduced species should be avoided as much as possible. The Service also recommends the use of native trees, shrubs, and herbaceous species that are adaptable, drought tolerant and conserve water.

State Listed Species

The State of Texas protects certain species. Please contact the Texas Parks and Wildlife Department (Endangered Resources Branch), 4200 Smith School Road, Austin, Texas 78744 (telephone 512/389-8021) for information concerning fish, wildlife, and plants of State concern or visit their website at: http://www.tpwd.state.tx.us/huntwild/wild/wildlife_diversity/texas_rare_species/listed_species/.

If we can be of further assistance, or if you have any questions about these comments, please contact 281/286-8282 if your project is in southeast Texas, or 361/994-9005, ext. 246, if your project is in southern Texas. Please refer to the Service consultation number listed above in any future correspondence regarding this project.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Texas Coastal Ecological Services Field Office
4444 Corona Drive, Suite 215
Corpus Christi, TX 78411
(281) 286-8282

This project's location is within the jurisdiction of multiple offices. Expect additional species list documents from the following office, and expect that the species and critical habitats in each document reflect only those that fall in the office's jurisdiction:

Arlington Ecological Services Field Office
2005 Ne Green Oaks Blvd
Suite 140
Arlington, TX 76006-6247
(817) 277-1100

Project Summary

Consultation Code: 02ETTX00-2021-SLI-2543
Event Code: 02ETTX00-2021-E-05720
Project Name: Liberty to Waco Solar
Project Type: TRANSMISSION LINE
Project Description: Transmission line siting and routing study.
Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@31.7365038,-96.86968434787676,14z

Counties: Hill and Limestone counties, Texas

Endangered Species Act Species

There is a total of 6 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 2 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Birds

NAME	STATUS
Golden-cheeked Warbler (=wood) *Dendroica chrysoparia*	Endangered
No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/33	
Piping Plover *Charadrius melodus*	Threatened
Population: [Atlantic Coast and Northern Great Plains populations] - Wherever found, except those areas where listed as endangered. There is **final** critical habitat for this species. The location of the critical habitat is not available. This species only needs to be considered under the following conditions: ▪ Wind related projects within migratory route. ▪ Wind Energy Projects Species profile: https://ecos.fws.gov/ecp/species/6039	
Red Knot *Calidris canutus rufa*	Threatened
No critical habitat has been designated for this species. This species only needs to be considered under the following conditions: ▪ Wind related projects within migratory route. ▪ Wind Energy Projects Species profile: https://ecos.fws.gov/ecp/species/1864	
Whooping Crane *Grus americana*	Endangered
Population: Wherever found, except where listed as an experimental population There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/758	

Clams

NAME	STATUS
Texas Fawnsfoot *Truncilla macrodon*	Candidate

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/8965

Flowering Plants

NAME	STATUS
Navasota Ladies-tresses *Spiranthes parksii*	Endangered

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/1570

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

Meaux, Lisa

From: noreply@thc.state.tx.us
Sent: Friday, July 16, 2021 2:42 PM
To: Meaux, Lisa; reviews@thc.state.tx.us
Subject: [EXTERNAL] Section 106 Submission

TEXAS HISTORICAL COMMISSION
real places telling real stories

Re: Project Review under Section 106 of the National Historic Preservation Act
THC Tracking #202111757
Date: 07/16/2021
Lone Star Transmission, LLC

,TX

Description: proposed Liberty to Waco Solar 345 kV transmission line

Dear Client:
Thank you for your submittal regarding the above-referenced project. This response represents the comments of the State Historic Preservation Officer, the Executive Director of the Texas Historical Commission (THC), pursuant to review under Section 106 of the National Historic Preservation Act.

The review staff, led by Rebecca Shelton, Caitlin Brashear, has completed its review and has made the following determinations based on the information submitted for review:

Archeology Comments

- THC/SHPO unable to complete review at this time based on insufficient documentation. A supplemental review must be submitted, and the 30-day review period will begin upon receipt of adequate documentation.

We have the following comments: Please provide more information and maps of the proposed and alternative routes. According to our maps, there are several cemeteries within or immediately adjacent to your area of interest. It does not appear that the area has ever been systematically surveyed for cultural resources, therefore we recommend you have a professional archeologist conduct a detailed desktop review to identify recorded cultural resources in your proposed areas of impact, high potential areas for unidentified cultural resources, and to develop a recommended survey strategy.

We look forward to further consultation with your office and hope to maintain a partnership that will foster effective historic preservation. Thank you for your cooperation in this review process, and for your efforts to preserve the irreplaceable heritage of Texas. If the project changes, or if new historic properties are found, please contact the review staff. If you have any questions concerning our review or if we can be of further assistance, please email the following reviewers: rebecca.shelton@thc.texas.gov, caitlin.brashear@thc.texas.gov.

This response has been sent through the electronic THC review and compliance system (eTRAC). Submitting your project via eTRAC eliminates mailing delays and allows you to check the status of the review, receive an electronic response, and generate reports on your submissions. For more information, visit http://thc.texas.gov/etrac-system [thc.texas.gov].

Sincerely,

for Mark Wolfe, State Historic Preservation Officer
Executive Director, Texas Historical Commission

Please do not respond to this email.

From: Meaux, Lisa
To: Williams, Denise
Cc: Schubert, Darren; Skubal, Chris
Subject: FW: Liberty to Waco Transmission Line
Date: Monday, July 19, 2021 8:34:14 AM
Attachments: Screen Shot 2021-07-17 at 1.36.58 PM.png

This email contains information regarding cemeteries on the Lone Star Liberty project for your consideration in the EA and mapping.
Thanks,
Lisa

LISA BARKO MEAUX
PROJECT MANAGER
ENVIRONMENTAL DEPARTMENT MANAGER
16825 Northchase Drive, Suite 1200
Houston, Texas 77060

281-765-5507 direct
713-962-8476 cell
lisa.barko@powereng.com

POWER Engineers, Inc.
www.powereng.com

From: William Reagan <wfreagan@embarqmail.com>
Sent: Saturday, July 17, 2021 1:54 PM
To: Meaux, Lisa <lisa.barko@powereng.com>
Subject: [EXTERNAL] Liberty to Waco Transmission Line

Lisa,

In regards to your letter dated June 18, 2021 concerning the proposed Liberty to Waco Solar Transmission Line Project in Hill and Limestone Counties, we have reviewed the map that you included. Concerning any possible cultural and historic sites in the area that are located in Limestone County, we want to make sure that you are aware of the locations of four cemeteries. They are the Ruyle Cemetery, the Mount Calm Cemetery, the Antioch Church Cemetery, and the Williams-Pitt Cemetery. Attached is a map showing their locations. We can probably send you the GPS for each if that is needed.

Thank you,

William F. Reagan, Chair
Limestone County Historical Commission

OFFICE OF THE ASSISTANT SECRETARY OF DEFENSE
3500 DEFENSE PENTAGON
WASHINGTON, DC 20301-3500

SUSTAINMENT

August 25, 2021

Lisa Barko Meaux
POWER Engineers, Inc.
16825 Northchase Dr Suite 1200
Houston, TX 77060

Dear Ms. Barko Meaux,

As requested, the Military Aviation and Installation Assurance Siting Clearinghouse coordinated within the Department of Defense (DoD) an informal review of the Liberty to Waco Solar 345kV Transmission Line Project. The results of our review indicated that the transmission line project, located in Hill and Limestone Counties, Texas, as proposed, will have minimal impact on military operations conducted in the area.

Please note that this informal review by the DoD Military Aviation and Installation Assurance Siting Clearinghouse does not constitute an action under 49 United States Code Section 44718 and that the DoD is not bound by the conclusion arrived at under this informal review. To expedite our review in the Obstruction Evaluation Airport Airspace Analysis (OE/AAA) process, please add the project number 2021-07-T-DEV-02 in the comments section of the filing. If you have any questions, please contact me at scott.e.kiernan.civ@mail.mil or at 571-255-9507.

Sincerely,

Scott E. Kiernan
Deputy Director
Military Aviation and Installation
Assurance Siting Clearinghouse

Figure 4-1

Consensus Route with Environmental and Land Use Constraints (Topographic Base with Constraints)

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Project Features
- Consensus Route
- Waco Solar Collector Station
- Liberty Station
- Study Area

Existing Land Use Features
- Church
- Communication Tower
- Wind Turbine
- Water Well
- Oil/Gas Well
- Oil/Gas Pipeline

Transportation Features
- State Highway
- FM Road
- County / Local Road
- Abandoned / Removed Railroad

Hydrologic Features
- NHD River / Stream
- NHD Waterbody
- FEMA Floodplain

NWI Mapped Wetland
- PEM
- PSS

Cultural Features
- Historical Marker
- Cemetery

Administrative Boundaries
- Parcel Boundary
- City Limit
- County Boundary

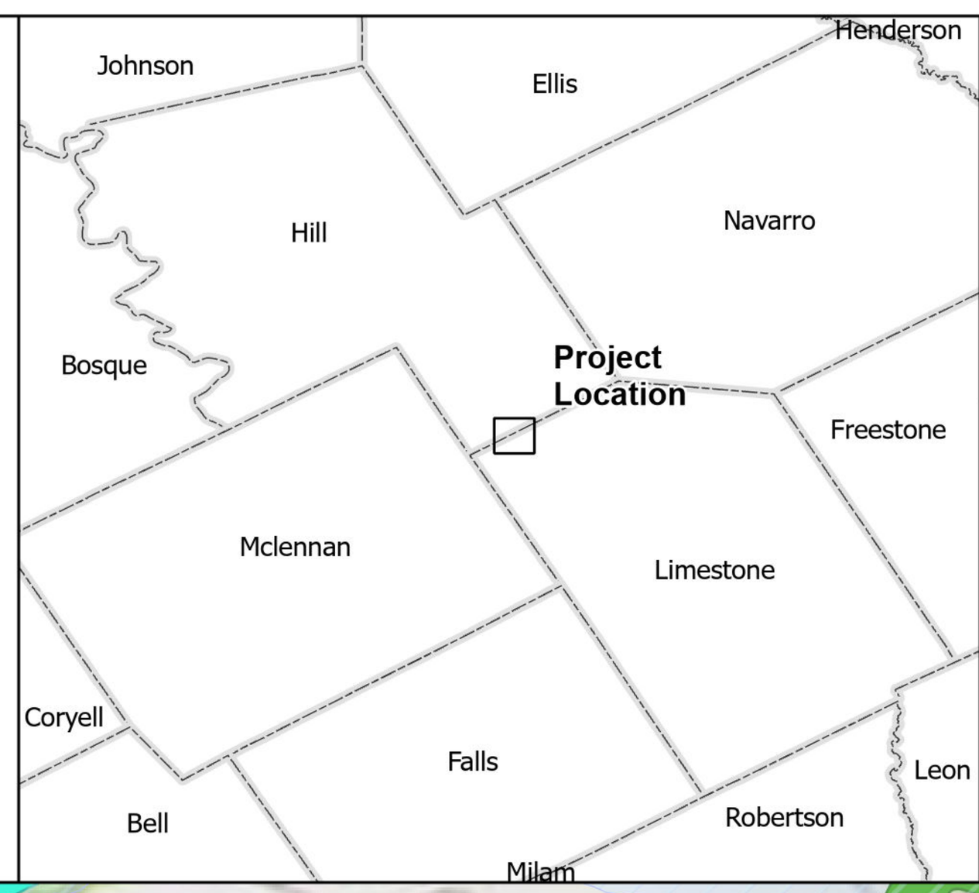
Topographic Map: Provided by US Geological Survey
Date: 2021

Accuracy for USGS Topo is approximately ±20 feet.

Some data layers including tract boundaries, roads, and oil/gas pipelines obtained from third-party sources may be inaccurate to varying degrees. These data have not been corrected in all locations and should be used as a general guide to feature locations only. Digitization of proposed transmission line segments was performed based on aerial interpretation of these features.

Some legend symbols are enlarged for easier identification.

Some features are exaggerated to better identify paralleling opportunities.



LIBERTY-WACO SOLAR 345 KV TRANSMISSION LINE PROJECT

FIGURE 4-1

CONSENSUS ROUTE WITH ENVIRONMENTAL AND LAND USE CONSTRAINTS

0 600 1,200 1,800
Feet

Date: 10/14/2021

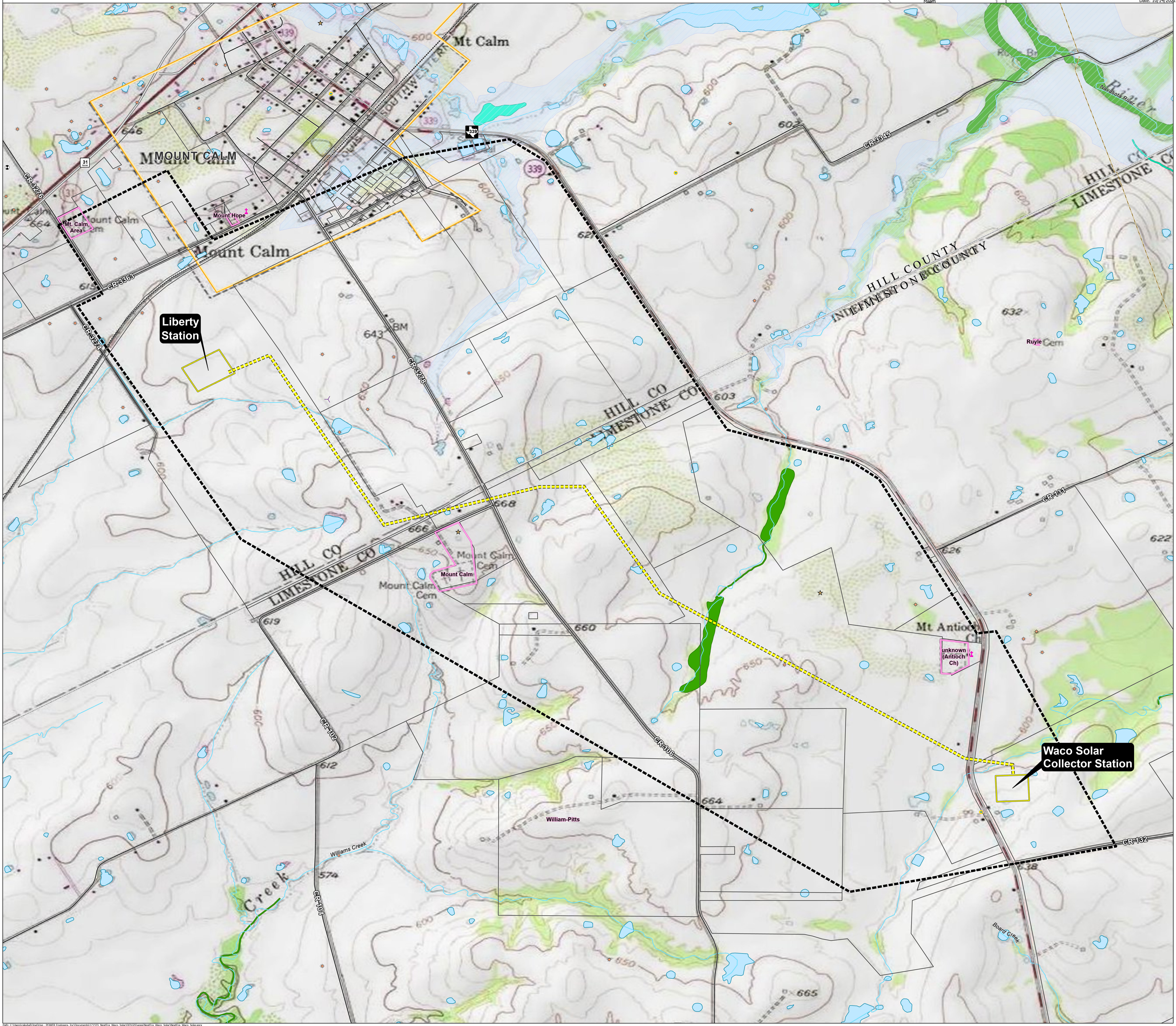


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Figure 4-2

Land Use Features in the Vicinity of the Consensus Route (Aerial Photograph Base with CCN Inventory Items)

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Project Features
- Consensus Route
- Waco Solar Collector Station
- Liberty Station
- Study Area

Existing Land Use Features
- Church
- Communication Tower
- Wind Turbine
- Water Well
- Oil/Gas Well
- Oil/Gas Pipeline

Transportation Features
- State Highway
- FM Road
- County / Local Road
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Hydrologic Features
- NHD River / Stream
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- FEMA Floodplain

NWI Mapped Wetland
- PEM
- PSS

Cultural Features
- Historical Marker
- Cemetery

Administrative Boundaries
- Parcel Boundary
- City Limit
- County Boundary

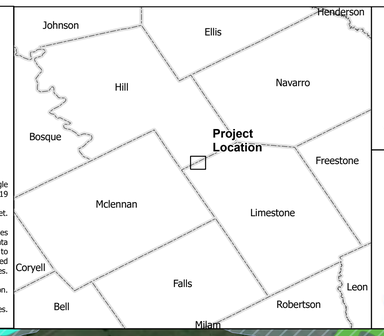
Aerial Photography: Provided by Google
Date: 2019

Accuracy for Google imagery is approximately ±20 feet.

Some data layers including tract boundaries, roads, and oil/gas pipelines obtained from third-party sources may be inaccurate to varying degrees. These data have not been corrected in all locations and should be used as a general guide to feature locations only. Digitization of proposed transmission line segments was performed based on aerial interpretation of these features.

Some legend symbols are enlarged for easier identification.

Some features are exaggerated to better identify paralleling opportunities.



LIBERTY-WACO SOLAR 345 KV TRANSMISSION LINE PROJECT

FIGURE 4-2

LAND USE FEATURES IN THE VICINITY OF THE CONSENSUS ROUTE

0 600 1,200 1,800
Feet

LONEstar

POWER ENGINEERS

Date: 11/10/2021

MOUNT CALM
Mt. Calm Area
Mount Hope
Liberty Station
Mount Calm
William-Pitts
unknown (Antioch Ch)
Ruyle
Waco Solar Collector Station
Navasota River
Williams Creek
Board Creek
HILL COUNTY
LIMESTONE COUNTY
CR-3276
CR-3363
CR-3224
CR-3278
CR-3345
CR-131
CR-102
CR-106
CR-104
CR-132
31
339

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ERCOT STANDARD GENERATION

INTERCONNECTION AGREEMENT

Between

Waco Solar, LLC

and

Lone Star Transmission, LLC

for the

Waco Solar Project (also known as Mercury Solar and Mercury II Solar)

Date: October 18, 2021

TABLE OF CONTENTS

ERCOT STANDARD GENERATION INTERCONNECTION AGREEMENT

This Standard Generation Interconnection Agreement is made and entered into this 18th day of October, 2021 ("Effective Date"), between Lone Star Transmission, LLC ("Transmission Service Provider") and Waco Solar, LLC ("Generator"), hereinafter individually referred to as "Party," and collectively referred to as "Parties." In consideration of the mutual covenants and agreements herein contained, the Parties hereto agree as follows:

Transmission Service Provider is a public utility that owns and operates facilities for the transmission of electricity. Generator will own, operate, and maintain the Plant (as defined in Exhibit "A"). Pursuant to the terms and conditions of this Agreement, Transmission Service Provider shall interconnect Generator's Plant with Transmission Service Provider's System consistent with the Interconnection Study Agreement executed between the Parties on March 5, 2021 and pursuant to the ERCOT generation interconnection request #21INR0257 and #23INR0153 for the Waco Solar project (also known as the Mercury Solar and Mercury II Solar projects).

This Agreement applies only to the Plant and the Parties' interconnection facilities as identified in Exhibit "C".

This Agreement shall become effective as of the Effective Date, subject to Governmental Authority approval, if required, and shall continue in full force and effect until terminated in accordance with Exhibit "A".

This Agreement will be subject to the following, all of which are incorporated herein:

A. The "Terms and Conditions of the ERCOT Standard Generation Interconnection Agreement" attached hereto as Exhibit "A";

B. The ERCOT Requirements (unless expressly stated herein, where the ERCOT Requirements are in conflict with this Agreement, the ERCOT Requirements shall prevail);

C. The PUCT Rules (where the PUCT Rules are in conflict with this Agreement, the PUCT Rules shall prevail);

D. The Time Schedule attached hereto as Exhibit "B";

E. The Interconnection Details attached hereto as Exhibit "C";

F. The notice requirements attached hereto as Exhibit "D"; and

G. The Security Arrangement Details attached hereto as Exhibit "E".

IN WITNESS WHEREOF, the Parties have executed this Agreement in duplicate originals, each of which shall constitute and be an original effective Agreement between the Parties.

Lone Star Transmission, LLC

By: _____

Aundrea Williams

Title: President
Date: Click here to enter a date.

Waco Solar, LLC

By: _____

Matthew S. Handel

Title: Vice President
Date: 10/21/2021

Exhibit "A"
Terms and Conditions of the ERCOT Standard Generation Interconnection Agreement

ARTICLE 1. DEFINITIONS

Capitalized terms shall have the meanings as set forth below, except as otherwise specified in the Agreement:

1.1 "CCN" shall mean a Certificate of Convenience and Necessity issued by the PUCT.

1.2 "Commercial Operation" shall mean the date on which Generator declares that the construction of the Plant has been substantially completed, Trial Operation of the Plant has been completed, and the Plant is ready for dispatch.

1.3 "Control Area" shall have the meaning ascribed thereto in PUCT Rule 25.5 or its successor.

1.4 "ERCOT" shall mean the Electric Reliability Council of Texas, Inc.

1.5 "ERCOT Requirements" means the ERCOT Nodal Operating Guides, ERCOT Generation Interconnection Procedures, and ERCOT Nodal Protocols, as well as any other documents adopted by ERCOT relating to the interconnection and operation of generators and transmission systems in ERCOT as amended from time to time, and any successors thereto. Any requirement in the foregoing documents imposed upon generation entities or generation facilities shall become the responsibility of the Generator, and any requirements imposed on transmission providers or transmission facilities shall become the responsibility of the TSP.

1.6 "Facilities Study" shall have the meaning as described in PUCT Rule 25.198(d) or its successor.

1.7 "GIF" shall mean Generator's interconnection facilities as described in Exhibit "C."

1.8 "Good Utility Practice" shall have the meaning described in PUCT Rule 25.5 or its successor.

1.9 "Governmental Authority(ies)" shall mean any federal, state, local or municipal body having jurisdiction over a Party.

1.10 "In-Service Date" shall be the date, as reflected in Exhibit "B," that the TIF will be ready to connect to the GIF.

1.11 "Interconnection Study Agreement" shall mean an agreement executed by the Parties relating to the performance of interconnection studies.

1.12 "Plant" shall mean the electric generation facility owned and operated by the Generator, as specified in Exhibit "C."

1.13 "Point of Interconnection" shall mean the location(s) where the GIF connects to the TIF as negotiated and defined by the Parties and as shown on Exhibit "C" of this Agreement.

1.14 "PUCT" shall mean the Public Utility Commission of Texas.

1.15 "PUCT Rules" shall mean the Substantive Rules of the PUCT.

1.16 "Reasonable Efforts" shall mean the use of Good Utility Practice and the exercise of due diligence pursuant to PUCT Rule 25.198(e) or its successor.

1.17 "System Protection Equipment" shall mean those facilities located within the TIF and the GIF as described in Section 5.6 and Exhibit "C."

1.18 "System Security Study" shall have the meaning as described in PUCT Rule 25.198(c) or its successor.

1.19 "TCOS" shall mean the TSP's transmission cost of service as allowed by the applicable Governmental Authority.

1.20 "TIF" shall mean the TSP's interconnection facilities as described in Exhibit "C" to this Agreement.

1.21 "Trial Operation" shall mean the process by which the Generator is engaged in on-site test operations and commissioning of the Plant prior to Commercial Operation.

1.22 "TSP" shall mean the Transmission Service Provider.

1.23 "TSP System" shall mean the electric transmission facilities, including the TIF, and all associated equipment and facilities owned and/or operated by the TSP.

ARTICLE 2. TERMINATION

2.1 Termination Procedures. This Agreement may be terminated as follows:

A. the Generator may terminate this Agreement after giving the TSP thirty (30) days' advance written notice; or

B. the TSP may terminate this Agreement (subject to Governmental Authority approval, if required) on written notice to the Generator if the Generator's Plant has not achieved Commercial Operation within one (1) year after the scheduled Commercial Operation date reflected in Exhibit "B"; or

C. either Party may terminate this Agreement in accordance with Section 10.6.

2.2 Termination Costs. If a Party elects to terminate the Agreement pursuant to Section 2.1 above, then Generator shall promptly pay, or reimburse TSP for, all costs that are the responsibility of the Generator under this Agreement and incurred, or committed to be incurred, by TSP as of the date of the notice of termination. In the event of termination by a Party, each Party shall use Reasonable Efforts to mitigate the damages and charges that it may incur as a consequence of such termination.

2.3 Disconnection. Upon termination of this Agreement, the Parties will disconnect the GIF from the TIF. The provisions of Section 2.2 and Section 2.3 shall survive termination of the Agreement.

ARTICLE 3. REGULATORY FILINGS

3.1 Filing. The TSP shall file this executed Agreement with the PUCT. Each Party will cooperate reasonably with each other in connection with such filings. Any portion of this Agreement asserted by Generator to contain competitively sensitive commercial or financial information shall be filed by the TSP identified as "confidential" under seal stating, for the TSP's showing of good cause, that Generator asserts such information is confidential information and has requested such filing under seal. If requested by the TSP, Generator shall provide the TSP, in writing, with the Generator's basis for asserting that the information referred to in this Section 3.1 is competitively sensitive information, and the TSP may disclose such writing to the appropriate Governmental Authority.

3.2 Regulatory Approvals. Unless exempt, the TSP shall timely request from ERCOT and any other Governmental Authority all regulatory approvals necessary for it to carry out its responsibilities under this Agreement. Such approvals shall include any CCN required for the construction of the TIF.

ARTICLE 4. INTERCONNECTION FACILITIES ENGINEERING, PROCUREMENT, AND CONSTRUCTION

4.1 Options. The Generator shall select one of the following options (subsection A or subsection B) and include the selected option in Exhibit "B" for completion of the TIF:

A. The TSP shall design, procure, and construct the TIF, using Reasonable Efforts to complete the TIF by the In-Service Date reflected in Exhibit "B." The TSP will utilize its own resources and will contract for additional resources, as reasonably necessary, to meet the In-Service Date. Such resources shall include, as the TSP believes is reasonable, use of other contractors, other equipment suppliers, other material suppliers, additional contract personnel, additional payments to contractors for expedited work, and premiums paid to equipment and material suppliers for expedited delivery. The TSP shall not be required to undertake any initiative which is inconsistent with its standard safety practices, its material and equipment specifications, its design criteria and construction procedures, its labor agreements, applicable laws and regulations, and ERCOT Requirements. In the event the TSP reasonably expects that it will not be able to complete the TIF by the In-Service Date, the TSP will promptly provide written notice to the Generator and will undertake Reasonable Efforts to meet the earliest date thereafter.

B. (i) The TSP shall design, procure, and construct the TIF by the In-Service Date reflected in Exhibit "B". The Parties acknowledge that the In-Service Date was either agreed upon through good faith negotiations or designated by the Generator upon failure of the Parties to agree. In the process of negotiating the In-Service Date, Generator will request a date upon which it reasonably expects it will be ready to begin use of the TIF and upon which it reasonably expects to begin doing so. Any date designated by the Generator shall in no event be less than fifteen months from the date that all conditions of Sections 4.2 and 4.3 have been satisfied. The designated In-Service Date will be extended day for day for each day that ERCOT refuses to grant clearances

to install equipment. If the TSP fails to complete the TIF by the In-Service Date reflected in Exhibit "B", the TSP shall pay the Generator liquidated damages in accordance with this Section 4.1.B.

(ii) The Parties agree that actual damages to the Generator, in the event the TIF are not completed by the In-Service Date, may include Generator's fixed operation and maintenance costs and lost opportunity costs. Such actual damages are uncertain and impossible to determine at this time. The Parties agree that, because of such uncertainty, any liquidated damages paid by the TSP to the Generator shall be an amount equal to ½ of 1% of the actual cost of the TIF, per day. However, in no event shall the total liquidated damages exceed 20% of the actual cost of the TIF. The Parties agree that such liquidated damages are less than the Generator's actual damages. The Parties agree that the foregoing payments will be made by the TSP to the Generator as just compensation for the damages caused to the Generator, which actual damages are uncertain and impossible to determine at this time, and as reasonable liquidated damages, but not as a penalty or a method to secure performance of this Agreement.

(iii) The TSP shall apply to have the full costs of the TIF included in TCOS. If the PUCT issues a final, appealable order excluding from TCOS any portion of the TIF costs, including higher contractor and vendor costs due to liquidated damage provisions in those contracts and insurance costs to cover liquidated damages, which costs may have been reasonably incurred but which the PUCT finds should not be recovered through TCOS, the Generator shall reimburse the TSP for such costs in an amount not to exceed the difference between the TSP's estimate of the cost of the TIF under section 4.1.A and the TSP's estimate of the cost of the TIF under Section 4.1.B as reflected in Exhibit "C". Such costs shall be estimated using Good Utility Practice.

(iv) No liquidated damages shall be paid to Generator if the Generator is not ready to commence use of the TIF for the delivery of power to the Plant for Trial Operation or export of power from the Plant on the In-Service Date, unless the Generator would have been able to commence use of the TIF for the delivery of power to the Plant for Trial Operation or export of power from the Plant but for TSP's delay.

(v) If the In-Service Date has been designated by the Generator upon a failure of the Parties to agree on the In-Service Date, the TSP may, at its option, require the Generator to subcontract with the TSP for all or part of the design, procurement and construction of the TIF in accordance with the TSP's standard subcontractor agreements. In such event, the TSP shall be subject to the payment of liquidated damages to the Generator only if the In-Service Date is not met solely due to the TSP's failure to complete the portion of the TIF for which the TSP has retained responsibility. It is the intent of this subsection to give the TSP full control of the contents and quality of the TIF. To the extent the Generator acts as a subcontractor to the TSP, the following will apply: 1) The Generator shall engineer, procure equipment, and construct the TIF (or portions thereof) using Good Utility Practice and using standards and specifications provided in advance by the TSP; 2) In its engineering, procurement and construction of the TIF, the Generator shall comply with all requirements of law to which the TSP would be subject in the engineering, procurement or construction of the TIF; 3) The TSP shall review and approve the engineering design, acceptance tests of equipment, and the construction of the TIF; 4) The TSP shall have the right to approve, and accept for operation, the TIF in accordance with the standards and

IN WITNESS WHEREOF, the Parties hereto, intending to be legally bound, have executed this Agreement as of the day written above.

COMPANY

Lone Star Transmission, LLC

By: Aundrea Williams
Name: Aundrea Williams
Title: President

specifications provided in advance by the TSP, such approval and acceptance shall not be unreasonably withheld, conditioned, or delayed; 5) Should any phase of the engineering, equipment procurement, or construction of the TIF, including selection of subcontractors, not meet the standards and specifications provided by the TSP, and therefore be deemed unacceptable, then the Generator shall be obligated to remedy that portion of the TIF or selection of subcontractors that is deemed unacceptable, the TSP's approval of the Generator's selection of subcontractors will not be unreasonably withheld, conditioned or delayed; and 6) Once the TIF is accepted for operation by the TSP, then the TSP shall reimburse the Generator for the reasonable and necessary costs incurred by the Generator to complete the TIF, not to exceed the amount specified in the subcontract. Such reimbursement shall be made within thirty (30) days after receipt of the invoice, unless otherwise agreed to by the Parties.

4.2 Equipment Procurement. If responsibility for construction of the TIF is borne by the TSP, then the TSP shall commence design of the TIF and procure necessary equipment within a reasonable time after all of the following conditions are satisfied:

A. The TSP has completed the Facilities Study pursuant to the Interconnection Study Agreement;

B. The TSP has received written authorization to proceed with design and procurement from the Generator by the date specified in Exhibit "B"; and

C. The Generator has provided security to the TSP in accordance with Section 8.3 by the dates specified in Exhibit "B".

4.3 Construction Commencement. The TSP shall commence construction of the TIF as soon as practicable after the following additional conditions are satisfied:

A. Approval of the appropriate Governmental Authority has been obtained for any facilities requiring regulatory approval;

B. Necessary real property rights, if any, have been obtained;

C. The TSP has received written authorization to proceed with construction from the Generator by the date specified in Exhibit "B"; and

D. The Generator has provided security to the TSP in accordance with Section 8.3 by the dates specified in Exhibit "B."

4.4 Work Progress. The Parties will keep each other advised periodically as to the progress of their respective design, procurement, and construction efforts. If, at any time, the Generator becomes aware that the completion of the TIF will not be required until after the specified In-Service Date, the Generator will promptly provide written notice to the TSP of a new, later In-Service Date.

4.5 Conditions Precedent Delay. To the extent this Agreement incorporates a specified In-Service Date and the Generator fails to satisfy conditions precedent under Sections 4.2 and 4.3,

the Parties agree to negotiate in good faith to establish a new schedule for completion of the TIF, and the In-Service Date shall be extended accordingly.

ARTICLE 5. FACILITIES AND EQUIPMENT

5.1 Information Exchange. The Parties shall exchange information and mutually agree upon the design and compatibility of the Parties' interconnection facilities. The Parties shall work diligently and in good faith to make any necessary design changes to ensure compatibility of the GIF to the TSP System.

5.2 GIF Construction. Generator agrees to cause the GIF to be designed and constructed in accordance with Good Utility Practice, ERCOT Requirements, and the National Electrical Safety Code in effect at the time of construction. Within one-hundred and twenty (120) days after Commercial Operation, unless the Parties agree on another mutually acceptable deadline, the Generator shall deliver to the TSP the following "as-built" drawings, information, and documents for the GIF: a one-line diagram, a site plan showing the Plant and the GIF, plan and elevation drawings showing the layout of the GIF, a relay functional diagram, relaying AC and DC schematic wiring diagrams, and relay settings for all facilities associated with the Generator's main-power transformers, the facilities connecting the Generator to the main power transformers and the GIF, and the impedances (determined by factory tests) for the associated main power transformers and the generators and, if applicable, the impedance of any transmission voltage lines that are part of the GIF.

5.3 TIF Construction. The TSP agrees to cause the TIF to be designed and constructed in accordance with Good Utility Practice, ERCOT Requirements, and the National Electrical Safety Code in effect at the time of construction.

5.4 Equipment Changes. For facilities not described in Exhibit "C," if either Party makes equipment changes to the Plant, the GIF, the TIF, or the TSP System which it reasonably believes will affect the operation or performance of the other Party's interconnection facilities, such Party agrees to notify the other Party, in writing, of such changes. Such changes shall be made in accordance with ERCOT Requirements and coordinated between the Parties.

5.5 Metering, Telemetry and Communications Requirements.

A. Metering and telemetry of data will be accomplished in accordance with ERCOT Requirements. The specific metering, telemetry and communications equipment to be installed and data to be telemetered are described in Exhibit "C."

B. At the Point of Interconnection, the metering and telemetry equipment shall be owned by the TSP. However, the TSP shall provide the Generator with metering and telemetry values in accordance with ERCOT Requirements.

C. A minimum set of inputs to the telemetry equipment are specified in Exhibit "C." Additional sets of inputs may be subsequently mutually agreed upon.

D. The TSP will notify the Generator at least five (5) business days in advance of any planned maintenance, inspection, testing, or calibration of the metering equipment, unless

otherwise agreed to in writing. The Generator, or its designated representative, shall have the right to be present for these activities and to receive copies of any documents related to the procedures and results.

E. Prior to the connection of the GIF to the TIF, acceptance tests will be performed by the owning Party to ensure the proper functioning of all metering, telemetry, and communications equipment associated with the Point of Interconnection and both Parties' interconnection facilities, and to verify the accuracy of data being received by the TSP, ERCOT, and the Generator. All acceptance tests will be performed consistent with ERCOT Requirements.

F. The TSP shall, in accordance with Good Utility Practice and ERCOT Requirements, specify communications facilities, including those necessary to transmit data from the metering equipment to the TSP, that are necessary for the effective operation of the Plant and the GIF with the TSP System. Such communication facilities shall be included in Exhibit "C." The Generator shall make arrangements to procure and shall be responsible for the costs of such facilities.

G. Any changes to the meters, telemetry equipment, voltage transformers, current transformers, and associated panels, hardware, conduit, and cable, that will affect the data being received by a Party must be mutually agreed to by the Parties.

H. Each Party will promptly advise the other Party if it detects or is otherwise aware of any metering, telemetry, or communications equipment errors or malfunctions that require the attention and/or correction by the other Party. The Party owning such equipment shall correct such error or malfunction as soon as reasonably practical in accordance with ERCOT Requirements.

5.6 System Protection and Other Controls Requirements.

A. Each Party's facilities shall be designed to isolate any fault, or to correct or isolate any abnormality, that would negatively affect the other Party's system or other entities connected to the TSP System.

B. The Generator shall be responsible for protection of its facilities and the Plant consistent with ERCOT Requirements.

C. Each Party's protective relay design shall incorporate the necessary test switches to perform the tests required in Section 5.6.F. The required test switches will be placed such that they allow operation of lockout relays while preventing breaker failure schemes from operating and causing unnecessary breaker operations and tripping the Generator's units.

D. Recording equipment shall be installed to analyze all system disturbances in accordance with ERCOT Requirements.

E. Each Party will test, operate, and maintain System Protection Equipment in accordance with ERCOT Requirements. Each Party will provide reasonable notice to the other Party of any testing of its System Protection Equipment allowing such other Party the opportunity to have representatives present during testing of its System Protection Equipment.

F. Prior to the In-Service Date, and again prior to Commercial Operation, each Party or its agent shall perform a complete calibration test and functional trip test of the System Protection Equipment. At intervals suggested by Good Utility Practice or at intervals described in the ERCOT Requirements (if so defined therein), and following any apparent malfunction of the System Protection Equipment, each Party shall perform both calibration and functional trip tests of its System Protection Equipment. These tests do not require the tripping of any in-service generation unit. These tests do, however, require that all protective relays and lockout contacts be activated.

5.7 No Annexation. Any and all equipment placed on the premises of a Party shall be and remain the property of the Party providing such equipment regardless of the mode and manner of annexation or attachment to real property, unless otherwise mutually agreed by the Parties.

ARTICLE 6. OPERATION AND MAINTENANCE

6.1 Operation and Maintenance of Interconnection Facilities. The Parties agree to operate and maintain their systems in accordance with Good Utility Practice, National Electrical Safety Code, the ERCOT Requirements, PUCT Rules, and all applicable laws and regulations. In addition, Generator agrees to operate and maintain its system in accordance with the National Electrical Safety Code. Subject to any necessary ERCOT approval, each Party shall provide necessary equipment outages to allow the other Party to perform periodic maintenance, repair, or replacement of its facilities. Such outages shall be scheduled at mutually agreeable times, unless conditions exist which a Party believes, in accordance with Good Utility Practice, may endanger persons or property. No changes will be made in the normal operation of the Point of Interconnection without the mutual agreement of the Parties, except as otherwise provided herein. All testing of the Plant that affects the operation of the Point of Interconnection shall be coordinated between the TSP, ERCOT, and the Generator and will be conducted in accordance with ERCOT Requirements.

6.2 Control Area. The Point of Interconnection shall be located within the ERCOT Control Area. The Control Area within ERCOT is a single Control Area, with ERCOT assuming authority as the Control Area operator in accordance with ERCOT Requirements.

6.3 Land Rights and Easements. Terms and conditions addressing the rights of the TSP and the Generator regarding any facilities located on the other Party's property shall be addressed in a separate, duly executed, and recorded easement agreement between the Parties. Prior to Commercial Operation, the Parties will mutually agree upon procedures to govern access to each other's property as necessary for the Parties to fulfill their obligations hereunder.

6.4 Service Interruption. The Parties recognize that the interruption of service provisions of the PUCT Rules give TSP the right to disconnect the TSP System from the Plant under the conditions specified therein. The Generator will promptly disconnect the Plant from the TSP System when required by and in accordance with the PUCT Rules and ERCOT Requirements.

6.5 Switching and Clearance.

A. Any switching or clearances needed on the TIF or the GIF will be done in accordance with ERCOT Requirements.

B. Any switching and clearance procedure necessary to comply with Good Utility Practice or ERCOT Requirements that may have specific application to the Plant shall be addressed in Exhibit "C."

6.6 Start-Up and Synchronization. Consistent with ERCOT Requirements and the Parties' mutually acceptable procedure, the Generator is responsible for the proper synchronization of the Plant to the TSP System.

6.7 Routine Operational Communications. On a timely basis, the Parties shall exchange all information necessary to comply with ERCOT Requirements.

6.8 Blackstart Operations. If the Plant is capable of blackstart operations, Generator will coordinate individual Plant start-up procedures consistent with ERCOT Requirements. Any blackstart operations shall be conducted in accordance with the blackstart criteria included in the ERCOT Requirements and the TSP blackstart plan on file with ERCOT. Notwithstanding this section, the Generator is not required to have blackstart capability by virtue of this Agreement. If the Generator will have blackstart capability, then Generator shall provide and maintain an emergency communication system that will interface with the TSP during a blackstart condition.

6.9 Power System Stabilizers. The Generator shall procure, install, maintain, and operate power system stabilizers if required to meet ERCOT Requirements and as described in Exhibit "C."

ARTICLE 7. DATA REQUIREMENTS

7.1 Data Acquisition. The acquisition of data to realistically simulate the electrical behavior of system components is a fundamental requirement for the development of a reliable interconnected transmission system. Therefore, the TSP and the Generator shall be required to submit specific information regarding the electrical characteristics of their respective facilities to each other as described below in accordance with ERCOT Requirements.

7.2 Initial Data Submission by TSP. The initial data submission by the TSP shall occur prior to Trial Operation and shall include transmission system data necessary to allow the Generator to select equipment and meet any system protection and stability requirements.

7.3 Initial Data Submission by Generator. The initial data submission by the Generator, including manufacturer data, shall occur no later than ninety (90) days prior to the Trial Operation and shall include a completed copy of the following forms contained in the ERCOT Generation Interconnection Procedure: (1) Plant Description/Data; and (2) Generation Stability Data. It shall also include any additional data provided to ERCOT for the System Security Study. Data in the initial submissions shall be the most current Plant design or expected performance data. Data submitted for stability models shall be compatible with ERCOT standard models. If there is no compatible model, the Generator will work with an ERCOT-designated consultant to develop and supply a standard model and associated data.

7.4 Data Supplementation. Prior to Commercial Operation, the Parties shall supplement their initial data submissions with any and all "as-built" Plant data or "as-tested" performance data which differs from the initial submissions or, alternatively, written confirmation that no such

differences exist. Subsequent to Commercial Operation, the Generator shall provide the TSP any data changes due to equipment replacement, repair, or adjustment. The TSP shall provide the Generator any data changes due to equipment replacement, repair, or adjustment in the directly connected substation or any adjacent TSP-owned substation that may affect the GIF equipment ratings, protection or operating requirements. The Parties shall provide such data no later than thirty (30) days after the date of the actual change in equipment characteristics. Also, the Parties shall provide to each other a copy of any additional data later required by ERCOT concerning these facilities.

7.5 Data Exchange. Each Party shall furnish to the other Party real-time and forecasted data as required by ERCOT Requirements. The Parties will cooperate with one another in the analysis of disturbances to either the Plant or the TSP's System by gathering and providing access to any information relating to any disturbance, including information from oscillography, protective relay targets, breaker operations, and sequence of events records.

ARTICLE 8. PERFORMANCE OBLIGATION

8.1 Generator's Cost Responsibility. The Generator will acquire, construct, operate, test, maintain, and own the Plant and the GIF at its sole expense. In addition, the Generator may be required to make a contribution in aid of construction in the amount set out in and for the facilities described in Exhibit "C," if any, in accordance with PUCT Rules.

8.2 TSP's Cost Responsibility. The TSP will acquire, own, operate, test, and maintain the TIF at its sole expense, subject to the provisions of Section 4.1.B and the contribution in aid of construction provisions of Section 8.1 of this Agreement.

8.3 Financial Security Arrangements. The TSP may require the Generator to pay a reasonable deposit or provide another means of security, to cover the costs of planning, licensing, procuring equipment and materials, and constructing the TIF. The required security arrangements are specified in Exhibit "E." Within five (5) business days after TSP has received notice from the Generator that the Plant has achieved Commercial Operation, and TSP has verified the same, the TSP shall return the deposit(s) or security to the Generator. However, the TSP may retain an amount to cover the incremental difference between the TSP's actual out of pocket costs associated with the choice of Section 4.1.B over Section 4.1.A, pending a final PUCT Order as contemplated in Section 4.1.B(iii). If the Plant has not achieved Commercial Operation within one (1) year after the scheduled Commercial Operation date identified in Exhibit "B" or if the Generator terminates this Agreement in accordance with Section 2.1 and the TIF are not required, the TSP may, subject to the provisions of Section 2.2, retain as much of the deposit or security as is required to cover the costs it incurred in planning, licensing, procuring equipment and materials, and constructing the TIF. If a cash deposit is made pursuant to Exhibit "E," any repayment of such cash deposit shall include interest at a rate applicable to customer deposits as established from time to time by the PUCT or other Governmental Authority.

ARTICLE 9. INSURANCE

9.1 Each Party shall, at its own expense, maintain in force throughout the period of this Agreement, and until released by the other Party the following minimum insurance coverages, with insurers authorized to do business in Texas:

A. Employers Liability and Worker's Compensation Insurance providing statutory benefits in accordance with the laws and regulations of the State of Texas. The minimum limits for the Employer's Liability insurance shall be One Million Dollars ($1,000,000) each accident bodily injury by accident, One Million Dollars ($1,000,000) each employee bodily injury by disease, and One Million Dollars ($1,000,000) policy limit bodily injury by disease.

B. Commercial General Liability Insurance including premises and operations, personal injury, broad form property damage, broad form blanket contractual liability coverage (including coverage for the contractual indemnification) products and completed operations coverage, coverage for explosion, collapse and underground hazards, independent contractors coverage, coverage for pollution to the extent normally available and punitive damages to the extent normally available and a cross liability endorsement, with minimum limits of One Million Dollars ($1,000,000) per occurrence/One Million Dollars ($1,000,000) aggregate combined single limit for personal injury, bodily injury, including death and property damage.

C. Comprehensive Automobile Liability Insurance for coverage of owned, non-owned, and hired vehicles, trailers, or semi-trailers designed for travel on public roads, with a minimum combined single limit of One Million Dollars ($1,000,000) per occurrence for bodily injury, including death, and property damage.

D. Excess Public Liability Insurance over and above the Employer's Liability, Commercial General Liability, and Comprehensive Automobile Liability Insurance coverage, with a minimum combined single limit of Twenty Million Dollars ($20,000,000) per occurrence/Twenty Million Dollars ($20,000,000) aggregate.

E. The Commercial General Liability Insurance, Comprehensive Automobile Liability Insurance, and Excess Public Liability Insurance policies shall name the other Party, its parent, associated and affiliated companies, and their respective directors, officers, agents, servants, and employees ("Other Party Group") as additional insured. All policies shall contain provisions whereby the insurers waive all rights of subrogation in accordance with the provisions of this Agreement against the Other Party Group. Each Party shall provide thirty (30) days' advance written notice to Other Party Group prior to cancellation or any material change in coverage or condition.

F. The Commercial General Liability Insurance, Comprehensive Automobile Liability Insurance, and Excess Public Liability Insurance policies shall contain provisions that specify that the policies are primary and shall apply to such extent without consideration for other policies separately carried and shall state that each insured is provided coverage as though a separate policy had been issued to each, except the insurer's liability shall not be increased beyond the amount for which the insurer would have been liable had only one insured been covered. Each Party shall be responsible for its respective deductibles or retentions.

G. The Commercial General Liability Insurance, Comprehensive Automobile Liability Insurance, and Excess Public Liability Insurance policies, if written on a Claims First Made basis, shall be maintained in full force and effect for two (2) years after termination of this Agreement, which coverage may be in the form of tail coverage or extended reporting period coverage if agreed by the Parties.

H. The requirements contained herein as to the types and limits of all insurance to be maintained by the Parties are not intended to and shall not in any manner, limit or qualify the liabilities and obligations assumed by the Parties under this Agreement.

I. Within ten (10) days following execution of this Agreement, and as soon as practicable after the end of each fiscal year or at the renewal of the insurance policy and in any event within ninety (90) days thereafter, each Party shall provide certification of all insurance required in this Agreement, executed by each insurer or by an authorized representative of each insurer.

J. Notwithstanding the foregoing, each Party may self-insure to the extent it maintains a self-insurance program; provided that, such Party's senior secured debt is rated at investment grade, or better, by Standard & Poor's. For any period of time that a Party's senior secured debt is unrated by Standard & Poor's or is rated at less than investment grade by Standard & Poor's, such Party shall comply with the insurance requirements applicable to it under Sections 9.1.A through 9.1.I. In the event that a Party is permitted to self-insure pursuant to this Section 9.1.J, it shall not be required to comply with the insurance requirements applicable to it under Sections 9.1.A through 9.1.I.

K. The Parties agree to report to each other in writing as soon as practical all accidents or occurrences resulting in injuries to any person, including death, and any property damage arising out of this Agreement.

ARTICLE 10. MISCELLANEOUS

10.1 Governing Law and Applicable Tariffs.

A. This Agreement for all purposes shall be construed in accordance with and governed by the laws of the State of Texas, excluding conflicts of law principles that would refer to the laws of another jurisdiction. The Parties submit to the jurisdiction of the federal and state courts in the State of Texas.

B. This Agreement is subject to all valid, applicable rules, regulations and orders of, and tariffs approved by, duly constituted Governmental Authorities.

C. Each Party expressly reserves the right to seek changes in, appeal, or otherwise contest any laws, orders, rules, or regulations of a Governmental Authority.

10.2 No Other Services. This Agreement is applicable only to the interconnection of the Plant to the TSP System at the Point of Interconnection and does not obligate either Party to provide, or entitle either Party to receive, any service not expressly provided for herein. Each Party is responsible for making the arrangements necessary for it to receive any other service that it may desire from the other Party or any third party. This Agreement does not address the sale or purchase of any electric energy, transmission service, or ancillary services by either Party, either before or after Commercial Operation.

10.3 Entire Agreement. This Agreement, including all Exhibits, Attachments, and Schedules attached hereto, constitutes the entire agreement between the Parties with reference to the subject

matter hereof, and supersedes all prior and contemporaneous understandings or agreements, oral or written, between the Parties with respect to the subject matter of this Agreement. There are no other agreements, representations, warranties, or covenants which constitute any part of the consideration for, or any condition to, either Party's compliance with its obligations under this Agreement. Notwithstanding the other provisions of this Section, the Interconnection Study Agreement, if any, is unaffected by this Agreement.

10.4 Notices. Except as otherwise provided in Exhibit "D," any formal notice, demand or request provided for in this Agreement shall be in writing and shall be deemed properly served, given or made if delivered in person, or sent by either registered or certified mail, postage prepaid, overnight mail or fax to the address or number identified on Exhibit "D" attached to this Agreement. Either Party may change the notice information on Exhibit "D" by giving five (5) business days' written notice prior to the effective date of the change.

10.5 Force Majeure.

A. The term "Force Majeure" as used herein shall mean any cause beyond the reasonable control of the Party claiming Force Majeure, and without the fault or negligence of such Party, which materially prevents or impairs the performance of such Party's obligations hereunder, including but not limited to, storm, flood, lightning, earthquake, fire, explosion, failure or imminent threat of failure of facilities, civil disturbance, strike or other labor disturbance, sabotage, war, national emergency, or restraint by any Governmental Authority.

B. Neither Party shall be considered to be in Default (as hereinafter defined) with respect to any obligation hereunder (including obligations under Article 4), other than the obligation to pay money when due, if prevented from fulfilling such obligation by Force Majeure. A Party unable to fulfill any obligation hereunder (other than an obligation to pay money when due) by reason of Force Majeure shall give notice and the full particulars of such Force Majeure to the other Party in writing or by telephone as soon as reasonably possible after the occurrence of the cause relied upon. Telephone notices given pursuant to this Section shall be confirmed in writing as soon as reasonably possible and shall specifically state full particulars of the Force Majeure, the time and date when the Force Majeure occurred, and when the Force Majeure is reasonably expected to cease. The Party affected shall exercise due diligence to remove such disability with reasonable dispatch, but shall not be required to accede or agree to any provision not satisfactory to it in order to settle and terminate a strike or other labor disturbance.

10.6 Default

A. The term "Default" shall mean the failure of either Party to perform any obligation in the time or manner provided in this Agreement. No Default shall exist where such failure to discharge an obligation (other than the payment of money) is the result of Force Majeure as defined in this Agreement or the result of an act or omission of the other Party. Upon a Default, the non-defaulting Party shall give written notice of such Default to the defaulting Party. Except as provided in Section 10.6.B, the defaulting Party shall have thirty (30) days from receipt of the Default notice within which to cure such Default; provided however, if such Default is not capable of cure within thirty (30) days, the defaulting Party shall commence such cure within thirty (30) days after notice and continuously and diligently complete such cure within ninety (90) days from

receipt of the Default notice; and, if cured within such time, the Default specified in such notice shall cease to exist.

B. If a Default is not cured as provided in this Section, or if a Default is not capable of being cured within the period provided for herein, the non-defaulting Party shall have the right to terminate this Agreement by written notice at any time until cure occurs, and be relieved of any further obligation hereunder and, whether or not that Party terminates this Agreement, to recover from the defaulting Party all amounts due hereunder, plus all other damages and remedies to which it is entitled at law or in equity. The provisions of this Section will survive termination of this Agreement.

10.7 Intrastate Operation. The operation of the Plant by Generator shall not cause there to be a synchronous or an asynchronous interconnection between ERCOT and any other transmission facilities operated outside of ERCOT unless ordered by the Federal Energy Regulatory Commission under Section 210 of the Federal Power Act. The Parties recognize and agree that any such interconnection will constitute an adverse condition giving the TSP the right to immediately disconnect the TIF from the GIF, until such interconnection has been disconnected. The Generator will not be prohibited by this Section from interconnecting the Plant with facilities operated by the Comisión Federal de Electricidad of Mexico, unless such interconnection would cause ERCOT utilities that are not "public utilities" under the Federal Power Act to become subject to the plenary jurisdiction of the Federal Energy Regulatory Commission.

10.8 No Third-Party Beneficiaries. This Agreement is not intended to and does not create rights, remedies, or benefits of any character whatsoever in favor of any persons, corporations, associations, or entities other than the Parties, and the obligations herein assumed are solely for the use and benefit of the Parties, their successors in interest and, where permitted, their assigns.

10.9 No Waiver. The failure of a Party to this Agreement to insist, on any occasion, upon strict performance of any provision of this Agreement will not be considered a waiver of obligations, rights, or duties imposed upon the Parties. Termination or Default of this Agreement for any reason by the Generator shall not constitute a waiver of the Generator's legal rights to obtain an interconnection from the TSP under a new interconnection agreement.

10.10 Headings. The descriptive headings of the various articles and sections of this Agreement have been inserted for convenience of reference only and are of no significance in the interpretation or construction of this Agreement.

10.11 Multiple Counterparts. This Agreement may be executed in two or more counterparts, each of which is deemed an original but all constitute one and the same instrument.

10.12 Amendment. This Agreement may be amended only upon mutual agreement of the Parties, which amendment will not be effective until reduced to writing and executed by the Parties.

10.13 No Partnership. This Agreement shall not be interpreted or construed to create an association, joint venture, agency relationship, or partnership between the Parties or to impose any partnership obligation or liability upon either Party. Neither Party shall have any right, power, or authority to enter into any agreement or undertaking for, or act on behalf of, or to act as or be an agent or representative of, or to otherwise bind, the other Party.

10.14 Further Assurances. The Parties agree to (i) furnish upon request to each other such further information, (ii) execute and deliver to each other such other documents, and (iii) do such other acts and things, all as the other Party may reasonably request for the purpose of carrying out the intent of this Agreement and the documents referred to in this Agreement. Without limiting the generality of the foregoing, the TSP shall, at the Generator's expense, when reasonably requested to do so by the Generator at any time after the execution of this Agreement, prepare and provide such information in connection with this Agreement (including, if available, resolutions, certificates, opinions of counsel, or other documents relating to the TSP's corporate authorization to enter into this Agreement and to undertake the obligations set out herein) as may be reasonably required by any potential lender to the Generator under a proposed loan agreement. The TSP will use commercially reasonable efforts to obtain any opinion of counsel reasonably requested by Generator, but the TSP shall not be in Default of any obligation under this Agreement if the TSP is unable to provide an opinion of counsel that will satisfy any potential lender to the Generator. Specifically, upon the written request of one Party, the other Party shall provide the requesting Party with a letter stating whether or not, up to the date of the letter, that Party is satisfied with the performance of the requesting Party under this Agreement.

10.15 Indemnification and Liability. The indemnification and liability provisions of the PUCT Rule 25.202(b)(2) or its successor shall govern this Agreement.

10.16 Consequential Damages. OTHER THAN THE LIQUIDATED DAMAGES HERETOFORE DESCRIBED, IN NO EVENT SHALL EITHER PARTY BE LIABLE UNDER ANY PROVISION OF THIS AGREEMENT FOR ANY LOSSES, DAMAGES, COSTS OR EXPENSES FOR ANY SPECIAL, INDIRECT, INCIDENTAL, CONSEQUENTIAL, OR PUNITIVE DAMAGES, INCLUDING BUT NOT LIMITED TO LOSS OF PROFIT OR REVENUE, LOSS OF THE USE OF EQUIPMENT, COST OF CAPITAL, COST OF TEMPORARY EQUIPMENT OR SERVICES, WHETHER BASED IN WHOLE OR IN PART IN CONTRACT, IN TORT, INCLUDING NEGLIGENCE, STRICT LIABILITY, OR ANY OTHER THEORY OF LIABILITY; PROVIDED, HOWEVER, THAT DAMAGES FOR WHICH A PARTY MAY BE LIABLE TO THE OTHER PARTY UNDER ANOTHER AGREEMENT WILL NOT BE CONSIDERED TO BE SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES HEREUNDER.

10.17 Assignment. This Agreement may be assigned by either Party only with the written consent of the other; provided, that either Party may assign this Agreement without the consent of the other Party to any affiliate of the assigning Party with an equal or greater credit quality and with the legal authority and operational ability to satisfy the obligations of the assigning Party under this Agreement; and provided further that the Generator shall have the right to assign this Agreement, without the consent of the TSP, for collateral security purposes to aid in providing financing for the Plant; provided, that the Generator will require any secured party, trustee, or mortgagee to notify the TSP of any such assignment. Any financing arrangement entered into by the Generator pursuant to this Section will provide that prior to or upon the exercise of the secured party's, trustee's, or mortgagee's assignment rights pursuant to said arrangement, the secured creditor, the trustee, or mortgagee will notify the TSP of the date and particulars of any such exercise of assignment right(s). Any attempted assignment that violates this Section is void and ineffective. Any assignment under this Agreement shall not relieve a Party of its obligations, nor shall a Party's

obligations be enlarged, in whole or in part, by reason thereof. Where required, consent to assignment will not be unreasonably withheld, conditioned, or delayed.

10.18 Severability. If any provision in this Agreement is finally determined to be invalid, void, or unenforceable by any court having jurisdiction, such determination shall not invalidate, void, or make unenforceable any other provision, agreement, or covenant of this Agreement; provided that if the Generator (or any third party, but only if such third party is not acting at the direction of the TSP) seeks and obtains such a final determination with respect to any provision of Section 4.1.B, then none of the provisions of Section 4.1.B. shall thereafter have any force or effect and the Parties' rights and obligations shall be governed solely by Section 4.1.A.

10.19 Comparability. The Parties will comply with all applicable comparability and code of conduct laws, rules, and regulations, as amended from time to time.

10.20 Invoicing and Payment. Unless the Parties otherwise agree (in a manner permitted by applicable PUCT Rules and as specified in writing in an Exhibit "E" attached hereto), invoicing and payment rights and obligations under this Agreement shall be governed by PUCT Rules or applicable Governmental Authority. Invoices shall be rendered to the paying Party at the address specified on, and payments shall be made in accordance with the requirements of, Exhibit "D."

10.21 Confidentiality.

A. Subject to the exception in Section 10.21.B, any information that a Party claims is competitively sensitive, commercial, or financial information under this Agreement ("Confidential Information") shall not be disclosed by the other Party to any person not employed or retained by the other Party, except to the extent disclosure is: (i) required by law; (ii) reasonably deemed by the disclosing Party to be required to be disclosed in connection with a dispute between or among the Parties, or the defense of litigation or dispute; (iii) otherwise permitted by consent of the other Party, such consent not to be unreasonably withheld; or (iv) necessary to fulfill its obligations under this Agreement or as a transmission service provider or a Control Area operator including disclosing the Confidential Information to ERCOT. The Party asserting confidentiality shall notify the other Party in writing of the information it claims is confidential. Prior to any disclosures of the other Party's Confidential Information under this subsection, or if any third party or Governmental Authority makes any request or demand for any of the information described in this subsection, the disclosing Party agrees to promptly notify the other Party in writing and agrees to assert confidentiality and cooperate with the other Party in seeking to protect the Confidential Information from public disclosure by confidentiality agreement, protective order or other reasonable measures.

B. This provision shall not apply to any information that was or is hereafter in the public domain (except as a result of a breach of this provision).

Exhibit "B"
Time Schedule

1) Interconnection Option chosen by Generator (check one):
☒ Section 4.1.A. or ☐ Section 4.1.B

   A. If Section 4.1.B is chosen by Generator, the In-Service Date(s) was determined by (check one): (1) ☐ good faith negotiations, or (2) ☐ designated by Generator upon failure to agree.

2) November 1, 2021 is the date ("NTP Need Date") by which Generator must provide a written Notice to Proceed with design, procurement, and construction of the TIF and provide security, as specified in Exhibit "A", Section 4.2 and 4.3, so that TSP may maintain schedule to meet the In-Service Date identified below. The NTP date shall be the date Generator provides written Notice to Proceed to TSP:

   A. If Generator does not provide a written Notice to Proceed to TSP by the above NTP Need Date, the designated TIF In-Service Date, Scheduled Generation Trial Operation Date, and Scheduled Generation Commercial Operation Date, identified below, will each be extended day for each day after the NTP Need Date that the Notice to Proceed is delayed.

   B. If Generator does not provide a written Notice to Proceed and provide security in accordance with Exhibit "E" to TSP by eighteen (18) months after the NTP Need Date ("NTP Deadline"), such non-provision of the Notice to Proceed shall constitute a Default, in accordance with Section 10.6.A of Exhibit "A", by the Generator and written notice of Default shall be deemed to have been given by TSP to Generator on the NTP Deadline. If such Default is not cured in accordance with Section 10.6 of Exhibit "A", then TSP may terminate this Agreement in accordance with the provisions of Section 10.6.B of Exhibit "A".

   Generator Main Transformer Tap Position Communication to TSP Date: (If Generator Main Transformer(s) is equipped with a no-load tap changer)
   August 10, 2022

   TIF In-Service Date (Backfeed):
   October 20, 2022

   Scheduled Generation Trial Operation Date (Synchronization):
   November 11, 2022

   Phase 1 Scheduled Generation Commercial Operation Date (COD) for approximately 350 MW:
   December 27, 2022

   Phase 2 Scheduled Generation Commercial Operation Date (COD) for an additional 62 MW:
   March 31, 2023

Nothing in the definitions of the dates above shall preclude either Party from taking measures or actions that allow the actual Generation Trial Operation Date or the actual Generation Commercial Operation Date to be earlier than the scheduled dates above.

3) Due to the nature of the subject of this Agreement, the Parties may mutually agree to change the dates and times of this Exhibit B.

Exhibit "C"
Interconnection Details

1 Name: Waco Solar Project (also known as Mercury Solar and Mercury II Solar)

2 Point of Interconnection ("POI") Location: The POI between the GIF and TIF will be located at a new Transmission Service Provider ("TSP") owned dead-end structure at the end of the TSP's new approximately 3-mile 345 kV transmission line connecting from the TSP Liberty Station to a location adjacent to the GIF step up station (shown on Attachment "C-1" and "C-2"). The POI shall be the physical point where the TIF connects to the GIF. This point is more specifically defined as being located at the 4-hole pad terminals between the dead-end insulator and TSP owned jumper and the connection of the dead-end insulator to the TSP owned dead-end structure where the TSP's 345 kV transmission line connects to Generator owned slack span connection to the GIF. The POI of the OPGW (Fiber Optic Ground Wire) is defined as the splice contained within a TSP owned splice case mounted near the base of the TSP owned dead-end structure. The TSP and Generator OPGW will both be trained up the TSP owned dead-end structure using OPGW clamps and each span will be dead-ended to the top of the TSP owned dead-end structure. The Generator will own the OPGW from the splice in the TSP owned splice case including the deadend hardware on the Generator owned station. The TSP will own the fiber/OPGW from the splice in the TSP owned splice case including the OPGW clamps and dead-end hardware on the TSP side of the splice. The POI of the OHGW (Overhead Ground Wire) will be the connection of the OHGW dead-end to the TSP owned dead-end structure.

3 Delivery Voltage: 345 kV

4 Type of Generating Unit: The project is comprised of one hundred fourteen TMEIC Ninja 5xPVU-L0840GR 4.2MVA inverters.

The Parties will amend this Exhibit "C" as necessary to reflect any changes Generator makes to the manufacturer, model, or type of generating units.

5 Metering and Telemetry Equipment: Metering (voltage, location, losses adjustment due to metering location and other), telemetry, and communications requirements shall be as follows:

5.1 TSP shall, in accordance with ERCOT Requirements and Good Utility Practice, install, own, operate, inspect, test, calibrate, and maintain 345 kV metering accuracy potential and current transformer and associated metering and telemetry equipment (including communications and an RTU) located in the TIF. A one-line diagram showing TSP's ERCOT-polled settlement ("EPS") metering location is attached to this Exhibit "C" as **Attachment C-2**. If requested by Generator, and if available from the TSP RTU equipment, TSP will make Primary EPS metering data available to

Generator via a communication link at Generator's expense. If such metering data are not available from TSP RTU equipment, they may be available by alternate means at Generator's expense. Such data, if provided to Generator, will be for Generator's informational purposes only. Generator shall not rely on such data, as the primary source, for the metering data addressed in Section 6.2 of this Exhibit "C" below, or for any other scheduling or operational purposes. TSP makes no guarantee of the quality or availability of such data. The provision of Section 5.5(G) of Exhibit "A" shall not apply to TSP's RTU.

5.2 Generator shall, in accordance with Good Utility Practice, install, own, operate, inspect, test, calibrate, and maintain the necessary metering potential and current transformers and associated check metering and telemetry equipment in the GIF and/or Plant.

5.3 Generator shall, in accordance with ERCOT Requirements and Good Utility Practice, install, own, operate, inspect, test, calibrate, and maintain the metering and telemetry equipment (including an RTU or other equipment acceptable to TSP) to supply all electrical parameters of the Plant and GIF, as specified in Section 11 to this Exhibit "C", to TSP at a location designated by TSP.

5.4 Prior to the In-Service Date, acceptance tests will be performed by TSP and Generator to ensure the proper functioning of all metering, telemetry, and communications equipment, and to verify the accuracy of data being received by TSP.

5.5 Following the Commercial Operation date, each Party shall test its metering, telemetry, and communications equipment in accordance with ERCOT Requirements and Good Utility Practice. Each Party shall give the other Party reasonable advance notice of such testing. Each Party shall have the right to observe testing performed by the other Party.

5.6 Any changes to Generator's metering, telemetry, and communication equipment, including meters, voltage transformers, current transformers, and associated RTU, panels, hardware, conduit and cable, that will affect the data being received by TSP hereunder must be mutually agreed to by the Parties.

5.7 Each Party will promptly advise the other Party if it detects or otherwise learns of any metering, telemetry, or communications equipment or related situation that requires attention and/or correction by the other Party.

6 Generator Interconnection Facilities:

Generator will be responsible for the construction and ownership of the below:

6.1 A 345 kV interconnection station(s) and all facilities within it. Specifically, Generator's interconnection station(s) may include control building(s), 345

kV step-up transformer(s), transformer protection package(s), 345 kV circuit breaker(s), 345 kV line disconnect switch(es), the necessary metering potential and current transformers and associated metering and telemetry equipment, and protective relaying panels for the Generator's 345 kV line(s) that will coordinate with the TSP's line panels at the TSP Liberty Station for the Generator line protection;

6.2 345 kV line(s) with all necessary material to interconnect to TSP owned dead-end structure(s) located right adjacent to the GIF.

6.3 Fiber optic cable (Alcoa Fujikura or equivalent 48 fiber, single-mode, fiber optic OPGW) from GIF's control building to TSP's OPGW cable splice box located at the base of the TSP's interconnecting structure(s) at the Point of Interconnection;

6.4 Multi-ported RTU(s) and panels to provide breaker status, telemetry and energy data from the GIF to the Plant, the TSP, Generator and ERCOT; and

6.5 Associated structures, buswork, conductor, connectors, grounding, conduit, control cable, foundation work, perimeter fencing, grading/dirt work and any appurtenances necessary for construction and operation of GIF.

7 Line Protection Requirements at Customer Facilities:

7.1 Customer 345 kV breaker failure protection to send direct transfer trip via fiber optic communications to trip TSP's news station 345 kV breakers.

The GIF also includes the communication facilities described in Section 10.1 below.

8 Transmission Service Provider Interconnection Facilities:

8.1 In order for TSP to interconnect the Generator at the new Liberty Station, the following new equipment will be required to be in place prior to energization. TSP's obligation to construct the transmission line scope of the TIF are contingent upon TSP's receipt of PUCT approval of an TSP's CCN and other necessary approvals from Governmental Authorities.

8.1.1 Transmission Line:

- Approximately 3 miles of 345 kV transmission line running from Customer step up facilities (the Waco Solar Collector Station) to the new TSP owned 345 kV Liberty Station and will primarily be built using 90- to 120-foot concrete and steel monopoles. Liberty Station will be connected with a new approximately 0.8-mile, 345 kV transmission line extending from the end of the existing TSP owned 345 kV transmission line currently connecting to Hubbard Wind (aka Aquilla Lake

Wind) Collector Station and will primarily be built using 90- to 120-foot concrete and steel monopoles.

8.1.2 Station Electrical:

- (3) – 345 kV, 5000 A, 63kA Gas Circuit Breaker (GCB)
- (14) – 345 kV, Motor operated GCB Isolation Switch
- (3) – 345 kV, Motor Operated Line Isolation Switch
- (3) – 345 kV, Motor Operated Grounding Switch
- (1) – 345 kV, Line Trap with Tuner
- (9) – 345 kV, Surge Arrester
- (8) – 345 kV, Capacitive Coupling Voltage Transformer
- (1) – 345 kV, Capacitive Coupling Voltage Transformer with Carrier
- (3) – 345 kV, Extended Range Metering Current Transformer
- (3) – 345 kV, Metering Voltage Transformer
- (4) – 345kV, SSVT
- (1) – 24' x 48' Relay Control Enclosure
- (1 Lot) – Conduit and Grounding
- (1 Lot) – Aluminum Bus, Stranded Jumpers, and Connectors

8.1.3 Station Civil & Structural:

- (1 Lot) – Site Work/Water Diversion
- (1 Lot) – Ground Grid
- (1 Lot) – Security Fence
- (1 Lot) – Lot Final Surfacing (Crushed Limestone)
- (1 Lot) – Foundations
- (1 Lot) – Structural Steel
  - A-frames
  - Bus supports
  - Equipment supports
  - Static Masts

8.1.4 Relay & Control:

The new TSP Relay Control Enclosure will have room to install the metering and relaying panels, and any other equipment as needed:

- (1) – ERCOT Polled Settlement Metering Panel
  - (1) – Primary ERCOT Polled Settlement Meter
  - (1) – Backup ERCOT Polled Settlement Meter
- (1 Lot) – Relays & panels, load centers and batteries
- (1 Lot) – Control Cable Installation and Termination

8.1.5 Line protection transfer trip requirements and control system requirements are as follows:

- Line Protection Requirements at TSP's station:
  - 345 kV Transmission Lines
    - Compatible (SEL421) Line Distance protection
    - Compatible (SEL311L) Line Current Differential protection
    - Compatible Pulsar ULPC
    - Compatible Multifunction Recorder (DFR- APP)
  - Customer 345 kV Generator Tie Lines
    - Compatible (SEL 411L) Primary Line Current Differential Protection
    - Compatible (SEL 311L) Backup Line Current Differential Protection
  - Compatible (SEL451) breaker failure protection with direct transfer trip via fiber optic communications to trip Customer 345 kV breaker
  - In the case where both line terminal breakers are open, an anti-islanding transfer trip via fiber optic communications to trip Customer breaker(s) or Generator Step Up 345 kV breaker (should open at the synchronizing breaker)
  - No automatic reclosing; use dead line, hot bus permissive controls for closing line breakers

- Line Protection Requirements at Customer Facilities:
  - Customer 345 kV breaker failure protection to send direct transfer trip via fiber optic communications to trip TSP's news station 345 kV breakers

9. Communications Facilities:

9.1 Generator shall, in accordance with ERCOT Requirements and Good Utility Practice, provide communications facilities that are, or may in the future be, necessary for effective interconnected operation of the Generator's Plant with the transmission system.

9.2 Generator shall, in accordance with ERCOT Requirements and Good Utility Practice, provide communications facilities that are, or may in the future be, necessary for effective interconnected operation of the Generator's Plant with the transmission system.

9.3 TSP will bear the costs of its communications facilities at the new TSP Liberty Station.

10. System Protection Equipment:

Protection of each Party's system shall meet the following TSP requirements in addition to ERCOT Requirements. If there is a conflict

between the TSP requirements below and ERCOT Requirements, the ERCOT Requirements shall prevail.

10.1 Generator and TSP shall design, install, operate, maintain and test system protection equipment consistent with the applicable criteria as described in the ERCOT Requirements and any applicable requirements of Governmental Authorities, including NERC Reliability Standards. Generator shall, at its expense, provide modifications or additions to its control and protective equipment required to comply with changes in ERCOT Requirements or requirements of Governmental Authorities, including NERC Reliability Standards.

10.2 TSP assumes no responsibility for the protection of the Plant and GIF for any or all operating conditions. Generator is solely responsible for protecting its equipment in such a manner that faults, Sub-Synchronous Oscillations ("SSO"), or other disturbances on the TSP System or other interconnected system do no cause damage to the Plant and GIF.

10.3 It is the sole responsibility of the Generator to protect its Plant and GIF from excessive negative sequence currents.

10.4 The GIF shall be designed to isolate any fault, or to disconnect from or isolate any abnormality that would negatively affect the TSP's system. The Generator shall be responsible for protection of its facilities. TSP reserves the right to isolate the Plant and GIF consistent with ERCOT Requirements and NERC Reliability Standards for any of the following reasons:

- The Plant or GIF, upon TSP's determination, cause objectionable interference with other customers' service or with the secure operation of the TSP System.
- The Plant output as determined by TSP exceeds the operating boundaries outlined above.
- Generator's control and protective equipment causes or contributes to a hazardous condition. TSP reserves the right to verify all protective equipment including, but not limited to including relays, circuit breakers, at the inter-tie location. Verification by TSP may include the tripping of the tiebreaker by the protective relays.
- In TSP's opinion, continued parallel operation is hazardous to Generator, the TSP System or to the general public.
- To provide TSP or TSP personnel the clearances for dead line or live line maintenance.

TSP shall notify Generator before disconnection, except for an emergency situation requiring immediate action. TSP will attempt to notify Generator before upon disconnection, but notification may not be possible in emergency situations that require immediate action.

10.5 Automatic reclosing is normally applied to transmission circuits. When TSP's source breakers trip and isolate the Plant and GIF, Generator shall ensure the Plant and GIF are disconnected from the TSP circuit prior to automatic reclosure by TSP. Automatic reclosing out-of-phase with the Plant may cause damage to Generator's equipment. Generator is solely responsible for the protection of his equipment from automatic reclosing by TSP.

10.6 TSP shall specify system protection and control schemes for the Point of Interconnection. Generator shall have the right to review and comment on such schemes and TSP shall consider Generator's comments when determining such schemes. Generator will install and maintain System Protection Equipment that is compatible with TSP's System Protection Equipment. TSP will work with the Generator to coordinate the establishment of the relay settings for System Protection Equipment owned by both Generator and TSP associated with the Point of Interconnection.

10.7 Documentation of all protective device settings shall be provided to TSP. The setting documentation shall also include relay type, model/catalog number, and setting range. If automatic transfer schemes or unique or special protective schemes are used, a description of their operation should be included. TSP must review and approve the settings of all protective devices and automatic control equipment which: i) serve to protect the TSP System from hazardous currents and voltages originating from the Plant; or ii) must coordinate with System Protection Equipment or control equipment located on the TSP System.

11. Inputs to Telemetry Equipment:

11.1 Generator shall comply with ERCOT Requirements for telemetry and will coordinate with TSP for additional points if telemetry is deemed necessary by TSP.

12. Supplemental Terms and Conditions:

12.1 Additional Studies – If it is necessary for TSP to perform any additional generation interconnection studies associated with the Plant in accordance with ERCOT Requirements, the Parties will enter an agreement, in form and substance reasonably acceptable to the Parties, to perform those studies and Generator shall pay TSP for the studies pursuant to that agreement.

12.2 Switching Procedures – Each Party will adopt formal switching procedures that govern safety related issues concerning the operation of its switches connected to these Points of Interconnection and will provide a copy of those procedures to the other Party prior to In-Service Date. Each Party will agree to comply with the aforementioned switching procedures of the other Party applicable to the Point of Interconnection and will notify the other Party in writing of any changes to its procedures relating to the Point of Interconnection.

12.3 Facility Connection Requirements – Generator will construct its facilities in accordance with the version of LST-FAC-001-PRO-Facility_Connection_Requirements that is in effect at the time the Generator gives its notice to proceed with design and procurement, as referenced in Exhibit "B".

12.4 Generator shall submit drawings of the GIF to TSP for review. TSP will review only those portions of the drawings that affect the TSP System. Any changes required by TSP shall be made prior to final issue of drawings and TSP shall be provided with final copies of the revised drawings. TSP will review only those portions of the drawings which apply to protection, metering and monitoring of the TSP System. To aid Generator, TSP may make suggestions on other areas. TSP's review of Generator's drawings shall not be construed as confirming or endorsing the design or as any warranty of safety, durability, or reliability of the facility or equipment. Generator shall provide copies of the following:

- One-line and three-line diagrams indicating the following:
  - equipment names and/or numerical designations for all circuit breakers, contactors, air switches, transformers, generators, etc., associated with the generation as required by TSP to facilitate switching
  - power transformers – nameplate or designation, nominal kVA, nominal primary, secondary, tertiary voltages, vector diagram showing winding connections, tap setting and transformer impedances (transformer test report showing the positive sequence, zero sequence, test voltages and MVA base for each winding)
  - station service transformers – phase(s) connected and estimated kVA load
  - instrument transformers – voltage and current, phase connections
  - surge arresters/gas tubes/metal oxide varistors/avalanche diode/spill gaps/surge capacitors, etc. – type and ratings
  - capacitor banks – kVAR rating and reactive (static and dynamic) device operation capability
  - reactive device capability (required for wind generation only) – kVAR rating and reactive device operation capability for static and dynamic devices for each generation collection feeder
  - disconnect switches – status if normally open (N.O.), manual or motor operated including switch voltage, continuous and interrupting ratings
  - circuit breakers and/or contactors – interrupting rating, continuous rating, operating times
  - generator(s) – nameplate, test report, type, connection, kVA, voltage, current, rpm, power factor, impedances, time constants, etc.
  - Point of Interconnection and phase identification
  - fuses – manufacturer, type, size, speed, and location

- transmission structure geometry (phase-to-phase, phase-to-ground, and shield-to-phase), phase conductor data, shield wire data, transmission line ratings, positive and zero sequence impedances and mileage

- Potential and current drawings associated with the protection and control schemes for the Plant and GIF and control drawings of the Plant and interconnection circuit breaker indicating the following:
  - terminal designation of all devices – relay coils and contacts, switches, transducers, etc.
  - relay functional designation – per latest ANSI Standard where the same functional designation shall be used on all drawings showing the relay
  - complete relay type (such as CV-2, SEL321-1, REL-301, IJS51A, etc.)
  - switch contact as referenced to the switch development if development is shown on a separate drawing
  - switch developments and escutcheons where the majority of contacts are used. Where contacts of a switch are used on a separate drawing, that drawing should be referenced adjacent to the contacts in the switch development. Any contacts not used should be referenced as spare.
  - all switch contacts shown open with each labeled to indicate the positions in which the contact will be closed with explanatory notes defining switch coordination and adjustment where misadjustment could result in equipment failure or safety hazard
  - auxiliary relay contacts as referenced to the coil location drawing if coil is shown on a separate drawing where all contacts of auxiliary relays should be shown and the appropriate device auxiliary switches (circuit breakers, contactor) as referenced to the drawing where they are used.
  - any interlocks – electromechanical, key, etc., associated with the generation or interconnection station
  - ranges of all timers and setting if dictated by control logic
  - all target ratings; on dual ratings note the appropriate target tap setting
  - complete internal for electromechanical protective relays where microprocessor type relays may be shown as a "black box", with manufacturer's instruction book number referenced and terminal connections shown
  - isolation points (states links, PK-2 and FT-1 blocks), etc. including terminal identification
  - all circuit elements and components, with device designation, rating and setting where applicable and where coil voltage is shown only if different from nominal control voltage
  - size, type, rating and designation of all fuses
  - phase sequence designation as ABC or CBA

- potential transformers – nameplate ratio, polarity marks, rating, primary and secondary connections
- current transformers (including auxiliary CT's) – polarity marks, rating, tap ratio and connection

12.5 Generator may not commence parallel operation of the Plant until consent has been given by TSP. TSP reserves the right to inspect the GIF and witness testing of any equipment or devices associated with the Point of Interconnection.

12.6 The Plant and GIF shall not cause objectionable interference with the electric service provided to other customers of TSP nor jeopardize the security of the ERCOT power system. In order to minimize objectionable interference of the Plant and GIF, the Plant and GIF shall meet the following criteria as described in TSP's LST-FAC-001-PRO-Facility_Connection_Requirements for the below:

- Voltage,
- Flicker,
- Frequency,
- Harmonics, telephone interference, carrier interference,
- Fault and line clearing,
- Excitation system and Automatic Voltage Regulation, and
- Governor system.

12.7 The dynamic MVAR capability at the current MW generation amount shall be provided in real time. If this dynamic MVAR capability is not available in real time, a dynamic capability curve plotted as a function of MW output shall be provided. The shunt static reactive available, but not in service, shall be provided in sufficient detail to determine the amount of dynamic and static reactive reserve available.

12.8 Generator shall provide Voltage Support Service and Reactive Power Requirements as required by ERCOT Nodal Protocols Section 3.15.

12.9 Certain generators are susceptible to Sub-Synchronous Oscillations (SSO) when interconnected within electrical proximity of series capacitor banks on the transmission system. Prior to the In-Service Date, the Generator will provide complete and accurate studies which analyze the potential of SSO and will coordinate with TSP and ERCOT regarding the scope of such studies. Generator is responsible for mitigation to protect itself from SSO risks. TSP will work with Generator and their selected turbine-generator or inverter manufacturer on any system data required for such studies. Prior to and following the In-Service Date, TSP may utilize models of the Plant as may be required to perform SSO analysis for the Plant and future projects as necessary to comply with ERCOT Requirements.

12.10 TSP considers the energy and power that the Plant and GIF may from time to time consume from the transmission grid through the Point of Interconnection to be a retail transaction and as such, TSP does not intend to be the provider of this retail service. Generator shall make necessary arrangements with the appropriate retail supplier for the energy and power that the Plant and GIF may consume from the transmission grid through the Point of Interconnection.

12.11 Generator shall notify TSP in writing as to which initial ERCOT Qualified Scheduling Entity the Plant will be scheduling through and any changes made thereafter.

12.12 Upon written request from TSP, Generator shall supply notification to TSP identifying their retail service provider.

12.13 Generator shall use commercially reasonable efforts to change the GIF as may be reasonably required by TSP to meet future changes in the TSP System. Generator shall be given reasonable notice by TSP prior to the date that any such required change in the GIF must be made.

12.14 Each Party will comply with NERC Reliability Standards applicable to its facilities identified in this Exhibit "C". Each Party shall provide to the other Party all information related to its interconnection facilities that may reasonably be required by the other Party to comply with NERC Reliability Standards applicable to its interconnection facilities, if any. "NERC Reliability Standards" means the mandatory electric reliability standards established and enforced by the North American Electric Reliability Corporation or its successor electric reliability organization.

12.15 Encroachment – Generator must submit a written request to TSP (using a form of request acceptable to TSP) and obtain prior written authorization from TSP prior to conducting any activities within any portion of TSP's transmission line right of way and/or station property. Such Generator activities shall include, but are not limited to: i) constructing transmission lines, communication facilities, roads, water lines, sewer lines, gas pipelines, or any other facilities; ii) storing any equipment or materials; or iii) changing the grade, elevation, or contour of the land, for such encroachment prior to Generator installing such facilities or conducting such activities. TSP RESERVES THE RIGHT TO DELAY THE ENERGIZATION FOR THE POINT OF INTERCONNECTION UNTIL GENERATOR OBTAINS ALL REQUIRED WRITTEN AUTHORIZATIONS FROM TSP FOR SUCH ENCROACHMENTS, IF ANY. The Generator will be responsible for the cost of all modifications necessary on property or facilities owned by TSP that are affected by such encroachment. The provision of overall site plans by Generator shall not relieve Generator from the obligation to submit all encroachment requests in accordance with this subsection.

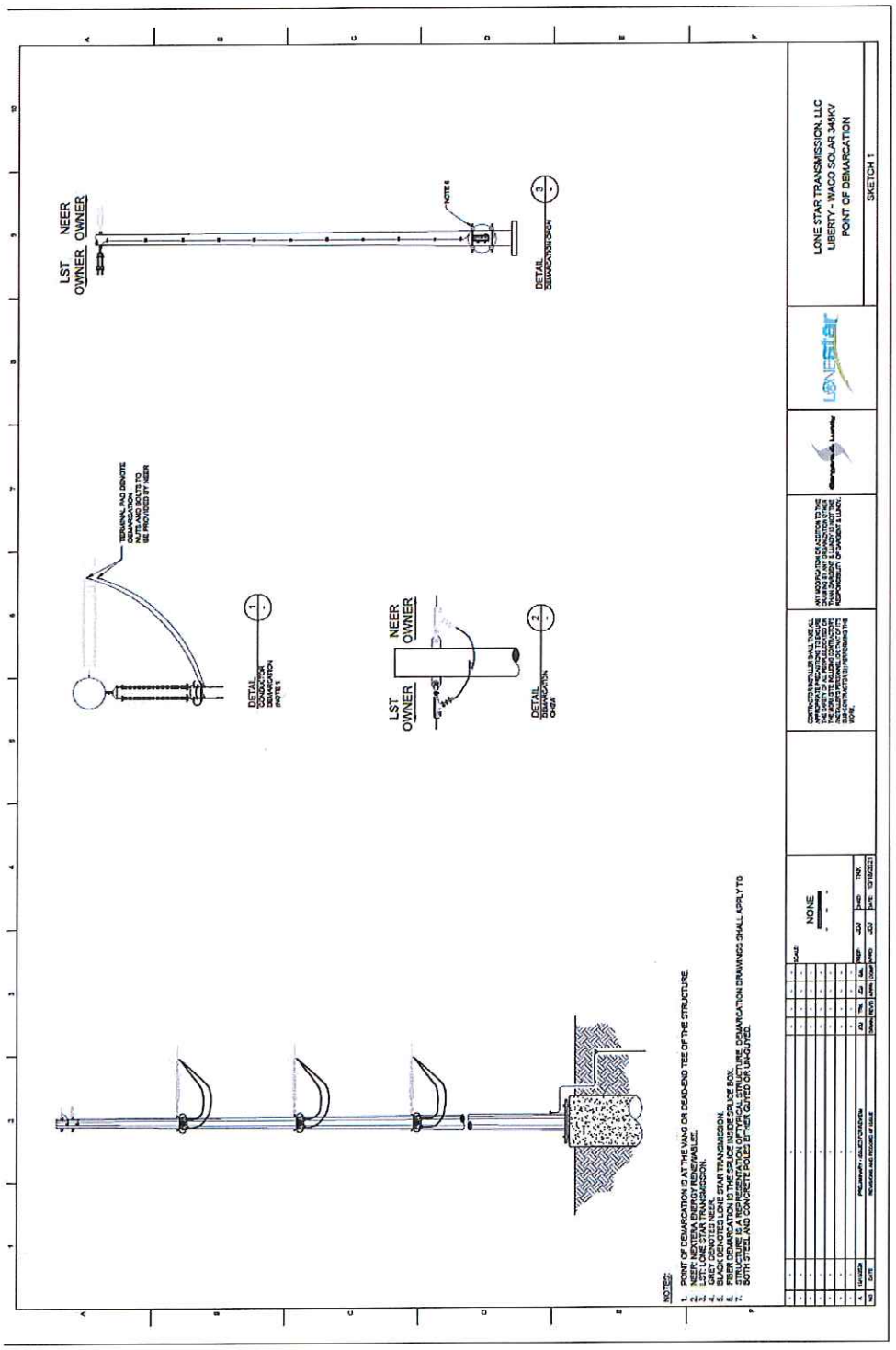
13. Special Operating Conditions, if any, attached:

13.1 If Generator's main power transformer(s) is equipped with a no-load tap changer, in accordance with ERCOT Requirements, Generator will work with TSP to select the tap position on the no-load tap changer of the Generator's main power transformer(s). Generator will initiate contact with TSP to select such tap position no later than the date specified in Exhibit B. notwithstanding TSP's obligations in the remainder of this Agreement, TSP shall have no obligation to establish an electrical interconnection with the GIF until Generator and TSP have selected the tap position.

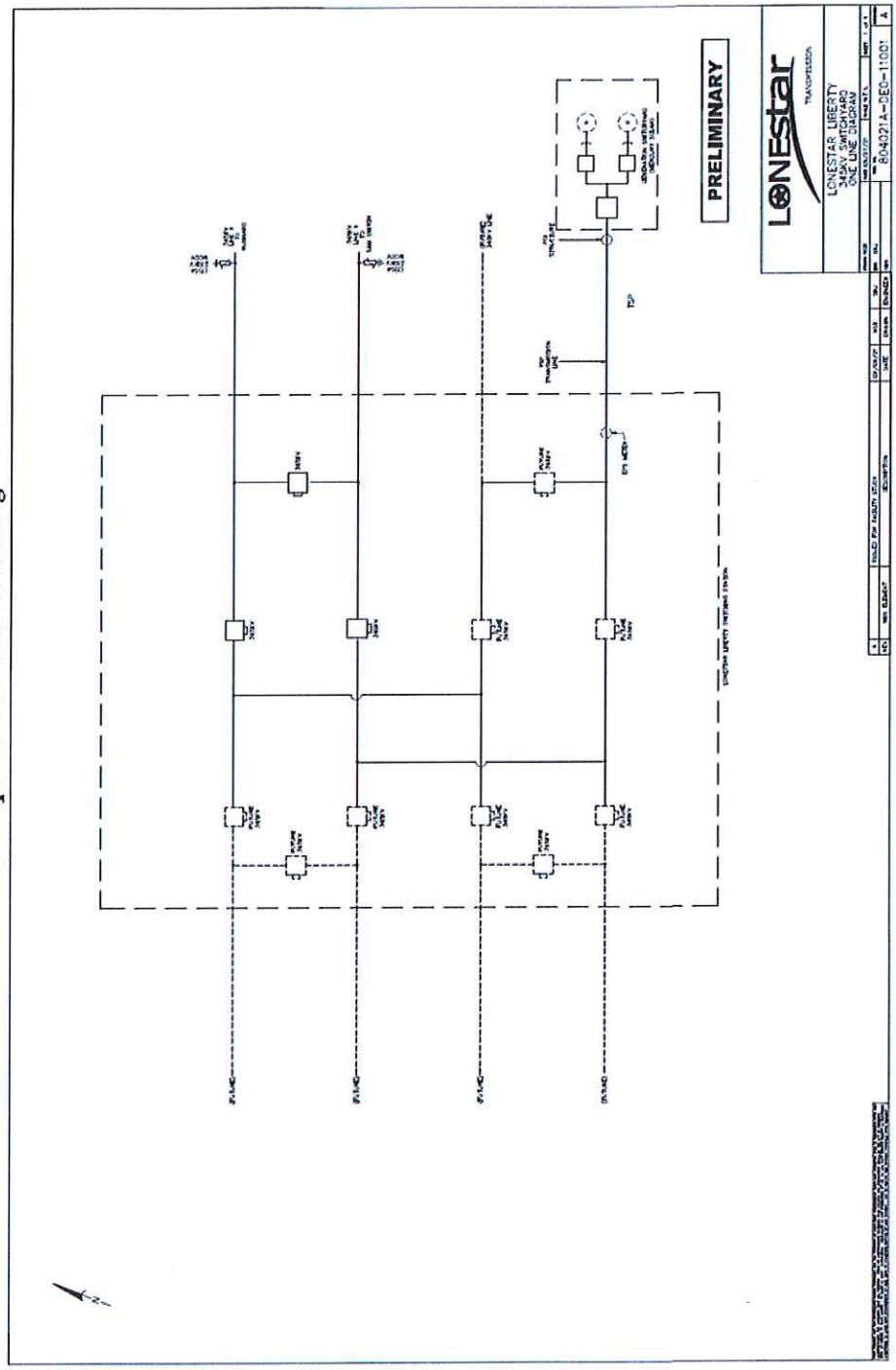
Generator shall design, construct, operate and maintain GIF with accordance with all applicable ERCOT Requirements and NERC Reliability Standards.

For thermal powered generation, Generator will provide TSP at least thirty (30) minutes' prior notice before coming on-line or off-line so TSP can adjust reactive resources.

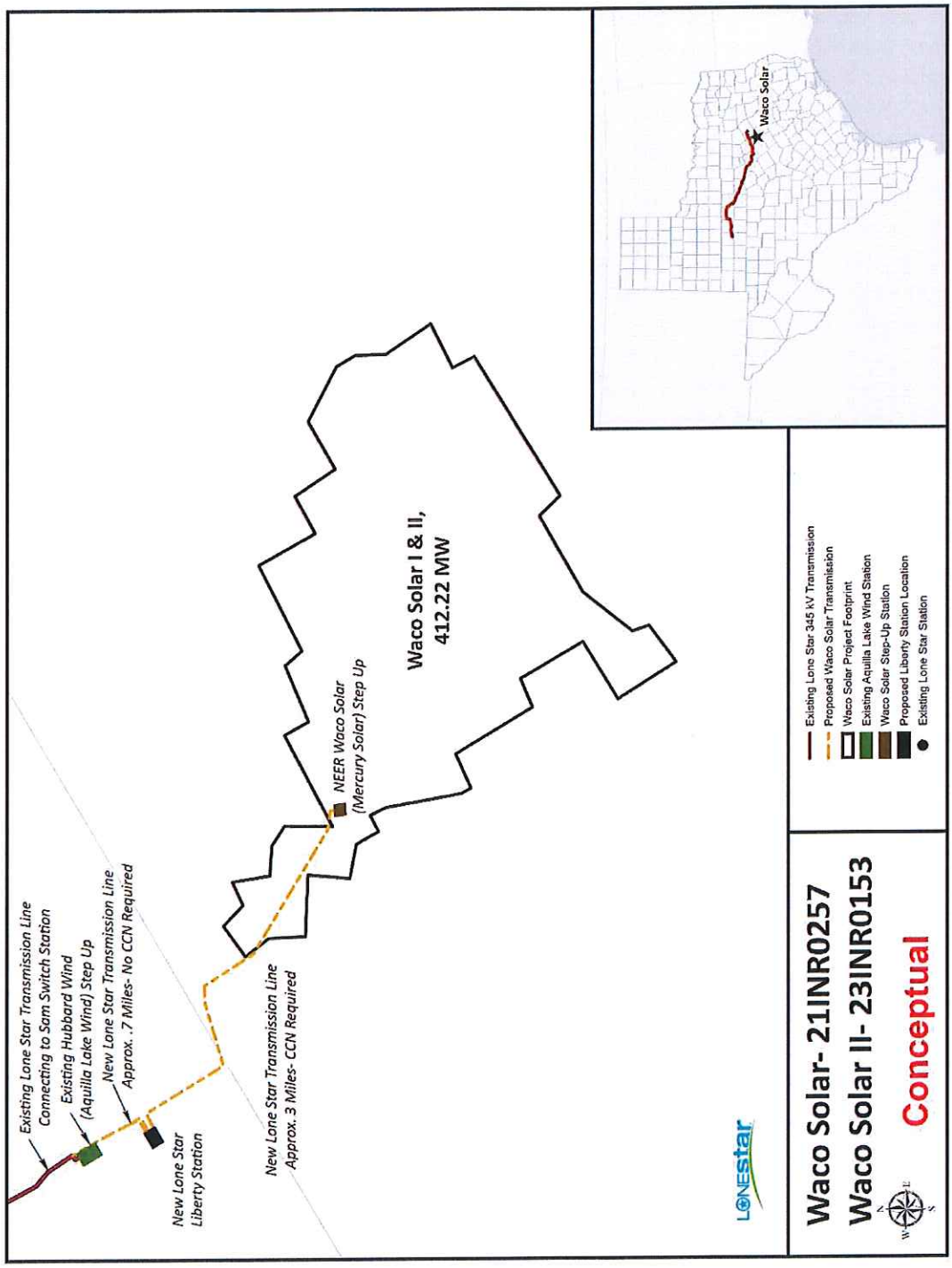
Attachment C-1
Conceptual Drawing of Point of Interconnection



Attachment C-2
Conceptual One-Line Drawing



Attachment C-3
Project Overview Map



DATE: 10/18/2021

Exhibit "D"
Notice and EFT Information of the ERCOT Standard Generation Interconnection Agreement

(a) All notices of an operational nature shall be in writing and/or may be sent between the Parties via electronic means including facsimile as follows:	
If to Generator: Company Name: Attn: Address: 24 Hour Telephone: Operational/Confirmation Fax: Email:	If to Transmission Service Provider: Company Name: Lone Star Transmission, LLC Attn: David Turner, Director of Planning Address: 5920 W. William Cannon Dr., Bldg. 2, Austin, TX 78749 24 Hour Telephone: (512) 949-2600 Operational/Confirmation Fax: (512) 949-2626 Email: David.Turner@lonestar-transmission.com
(b) Notices of an administrative nature:	
If to Generator: Company Name: Attn: Address: 24 Hour Telephone: Operational/Confirmation Fax: Email:	If to Transmission Service Provider: Company Name: Lone Star Transmission, LLC Attn: Aundrea Williams, President of Lone Star Transmission Address: 5920 W. William Cannon Dr., Bldg. 2, Austin, TX 78749 24 Hour Telephone: (281)-726-4520 Operational/Confirmation Fax: (512) 949-2626 Email: Aundrea.Williams@lonestar-transmission.com
(c) Notice for statement and billing purposes:	
If to Generator: Company Name: Attn: Address: 24 Hour Telephone: Operational/Confirmation Fax: Email:	If to Transmission Service Provider: Company Name: Lone Star Transmission, LLC c/o NextEra Energy Transmission, LLC Address: 700 Universe Blvd. (UST/JB), Juno Beach, FL 33408 Email: customerservice@lonestar-transmission.com
(d) Information concerning electronic funds transfers:	

If to Generator:	If to Transmission Service Provider:
ACH Instructions	ACH Instructions
Bank Name: City, State: ABA No.: Swift: For credit to: Account No.:	Bank Name: Bank of America Global Finance City, State: Dallas, TX ABA No: 111-000-012 Swift: BOFAUS3N For credit to: Lone Star Transmission, LLC Account No.: 4426849087
Wire Instructions	Wire Instructions
Bank Name: City, State: ABA No.: Swift: For credit to: Account No.:	Bank Name: Bank of America City, State: New York, NY ABA No.: 0260-0959-3 Swift: BOFAUS3N For credit to: Lone Star Transmission, LLC Account No.: 4426849087

Exhibit "E"
Security Arrangement Details

On or before the date that Generator issues the written Notice to Proceed, Generator shall cause to be established (the date of such establishment shall be the "Security Effective Date"), and shall at all times through the earlier of (i) five (5) business days after the date upon which TSP receives written notification from Generator that Commercial Operation has been achieved or (ii) ninety (90) days after the termination of the Agreement in accordance with its terms (the earlier of which shall be the "Final Expiration Date"), cause to be maintained in full force and effect a form of Security for the benefit of TSP in a commercially acceptable form consistent with this Exhibit E and otherwise acceptable to TSP and Generator, which acceptance shall not be unreasonably withheld, in the amount set forth in Table 1below.

Table 1: Financial Security Milestones		**Dollars**	**Date Due**
Milestone I: Full financial security	$	$23,150,000	Upon IA execution
	$		
Total	**$**	$23,150,000	

Depending on the creditworthiness of the proposed guarantor, Generator may propose a Corporate Guaranty, which may or may not be acceptable Security. TSP requires that a guarantor providing any Corporate Guaranty on behalf of Generator shall maintain a senior unsecured credit rating of BBB- or the equivalent by Standard & Poor's, Moody's Investor Service, or Fitch Ratings, Inc. If Generator chooses to provide a Corporate Guaranty, it shall provide any financial reports requested by TSP upon execution of this Agreement and agrees to provide financial information concerning the guarantor as may be requested from time to time by TSP. If the creditworthiness of the proposed guarantor is acceptable to TSP, the Corporate Guaranty shall be in a form acceptable to TSP. If rated by one or more rating agencies and the ratings are split, the lowest rating should be the applicable standard.

Generator alternatively may provide Security through an "Irrevocable Standby Letter of Credit, which" shall mean an irrevocable, transferable letter of credit, issued by a Generator-selected and TSP-approved (which approval shall not be unreasonably withheld), major U.S. commercial bank, or a U.S. branch office of a major foreign commercial bank, with a credit rating of at least "A-" by Standard & Poor's or "A3" by Moody's Investor Services ("Bank"). The Irrevocable Standby Letter of Credit shall be transferable, more than one time, in whole but not in part, in favor of any party whom TSP certifies has succeeded to TSP's right, title, and interest in and to this Agreement. Should TSP transfer such Irrevocable Standby Letter of Credit as stated above, Generator shall reimburse TSP for any costs it incurs from the Bank associated with such transfers.

If, at any time during the Term of this Agreement, the Bank suffers a credit rating reduction to less than "A-" by Standard & Poor's or "A3" by Moody's Investor Service, Generator shall replace that Irrevocable Standby Letter of Credit with another Irrevocable Standby Letter of Credit of the same amount and with the same beneficiary from another TSP-approved bank of Generator's

choice within fifteen (15) business days of the date of such event. In the event of a failure to provide a substitute Irrevocable Standby Letter of Credit within the time period specified above, TSP may draw upon the Irrevocable Standby Letter of Credit to secure a cash deposit as security under this Agreement.

The Irrevocable Standby Letter of Credit may consist of one or more consecutive terms (each, a "Term"), the first of which shall be effective on or before the Security Effective Date and the last of which shall expire no earlier than the Final Expiration Date; provided, that, the Irrevocable Standby Letter of Credit shall automatically renew from Term to Term without amendment such that there shall be no interruption of surety provided by the Irrevocable Standby Letter of Credit from the Security Effective Date through the Final Expiration Date.

To the extent that the Bank has the unilateral right not to renew the Irrevocable Standby Letter of Credit for a successive Term, the Bank shall give notice to TSP and Generator in writing by certified mail, return receipt requested, or via a courier service, of the exercise of its right not to renew the Irrevocable Standby Letter of Credit for a successive term (an "Expiring Term") not less than ninety (90) days prior to the expiration date of any Expiring Term. Generator hereby agrees that in the event that the Bank gives such notice and Generator does not provide TSP with a substitute Irrevocable Standby Letter of Credit in substantially the same form as the expiring Irrevocable Standby Letter of Credit at least forty-five (45) days prior to the expiration date of any Expiring Term, TSP shall have the right to retain as security the full amount (as specified in the Irrevocable Standby Letter of Credit) of the expiring Irrevocable Standby Letter of Credit. The substitute Irrevocable Standby Letter of Credit shall meet the requirements of this Exhibit E and be otherwise acceptable to TSP and Generator, which acceptance shall not be unreasonably withheld. In the event of a failure to provide a substitute Irrevocable Standby Letter of Credit within the time period specified above, TSP may draw upon the Irrevocable Standby Letter of Credit to secure a cash deposit as security under this Agreement.

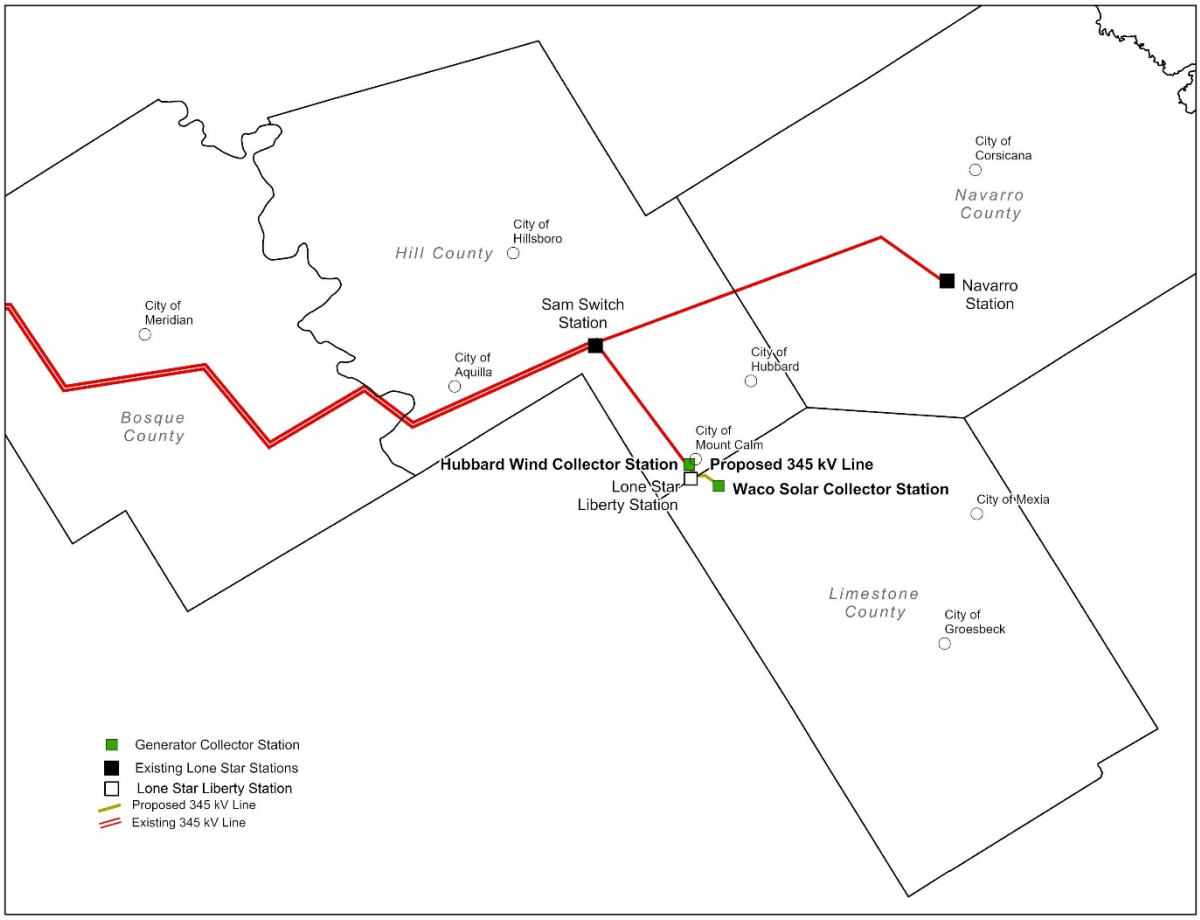
In the event that an Irrevocable Standby Letter of Credit is set to expire on a date prior to the Final Expiration Date and Generator has not provided to TSP a substitute Irrevocable Standby Letter of Credit at least forty-five (45) days in advance of such expiration, TSP shall have the right to retain as security the full amount (as specified in the Irrevocable Standby Letter of Credit) of the expiring Irrevocable Standby Letter of Credit. The substitute Irrevocable Standby Letter of Credit shall meet the requirements of this Exhibit E and be otherwise acceptable to TSP and Generator, which acceptance shall not be unreasonably withheld. In the event of a failure to provide a substitute Irrevocable Standby Letter of Credit within the time period specified above, TSP may draw upon the Irrevocable Standby Letter of Credit to secure a cash deposit as security under this Agreement.

Except to the extent that the Bank has the unilateral right not to renew the Irrevocable Standby Letter of Credit for a successive Term, the Irrevocable Standby Letter of Credit to be issued in connection herewith shall have no provision for termination by the Bank or Generator.

Per Exhibit "A" Section 8.3, TSP shall release the portion of the Security, and any renewed Security thereafter, for the TIF within five (5) business days after TSP has received notice from the Generator that the Plant has achieved Commercial Operation, and TSP has verified the same. Within five (5) business days after the Final Expiration Date, TSP shall (i) mark the Irrevocable Standby Letter of Credit, if any, then held by TSP as "CANCELLED" and shall return the

cancelled Irrevocable Standby Letter of Credit to the Bank with instructions to cancel the Irrevocable Standby Letter of Credit, and shall send to Generator a copy of such cancelled Irrevocable Standby Letter of Credit and instructions for cancellation, and (ii) return all cash deposit(s), if any, then held by TSP to Generator.

Schematic of Lone Star Transmission, LLC System
In the Proximate Area of the Proposed Project



LIBERTY-WACO SOLAR 345 KV TRANSMISSION LINE PROJECT

DIRECTLY AFFECTED LANDOWNERS

Project Features
- Consensus Route
- Waco Solar Collector Station
- Liberty Station

Existing Land Use Features
- Church
- Communication Tower
- Wind Turbine
- Water Well
- Oil/Gas Well
- Oil/Gas Pipeline

Transportation Features
- State Highway
- FM Road
- County / Local Road
- Abandoned / Removed Railroad

Hydrologic Features
- NHD River / Stream
- NHD Waterbody
- FEMA Floodplain

NWI Mapped Wetland
- PEM
- PSS

Cultural Features
- Historical Marker
- Cemetery

Administrative Boundaries
- Directly Affected Landowner Parcel
- Parcel Boundary
- City Limit
- County Boundary

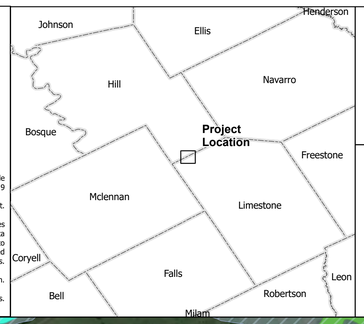
Aerial Photography: Provided by Google
Date: 2019

Accuracy for Google imagery is approximately ±20 feet.

Some data layers including tract boundaries, roads, and oil/gas pipelines obtained from third-party sources may be inaccurate to varying degrees. These data have not been corrected in all locations and should be used as a general guide to feature locations only. Digitization of proposed transmission line segments was performed based on aerial interpretation of these features.

Some legend symbols are enlarged for easier identification.

Some features are exaggerated to better identify paralleling opportunities.



0 600 1,200 1,800
Feet

LONESTAR

POWER ENGINEERS

Date: 11/17/2021

Path: N:\Projects\171555_NextEra_Waco_Solar\GIS\apps\NextEra_Waco_Solar\NextEra_Waco_Solar.aprx

Landowner Names, Property Identification, and Map Locations
Cross-Reference Table

Map ID	HS ID	Property ID	Landowner Name	Address	City	State	Zip
1, 2, 3, 4		122933, 122960, 123260, 123268	Jack Hawkins Farms LLC	311 Schoolhouse Ave.	Mt. Calm	TX	76643
5		3916	Bond, P.D.	401 N. 3rd	Hubbard	TX	76648
6, 7		3909, 3246	Gloff, Barbara	1740 LCR 106	Mt. Calm	TX	76643
8, 9, 10, 11, 13		2933, 3206, 3298, 133823	Farmland Reserve	Attn: Tax Division P.O. Box 511196	Salt Lake City	UT	84151
12		3299	McGinnis, Gerald Mac & Kathleen Anne	8360 FM 339 N	Mt. Calm	TX	76673

December 1, 2021

<Landowner Name>
<Address>
<City, State, Zip>

RE: PUC Docket No. 52853; *Application of Lone Star Transmission, LLC to Amend Its Certificate of Convenience and Necessity for the Liberty to Waco Solar 345-kV Transmission Line in Hill and Limestone Counties*

Dear [Landowner]:

Lone Star Transmission, LLC (Lone Star) gives notice of its intent to amend its Certificate of Convenience and Necessity (CCN) to construct a proposed 345-kV single-circuit transmission line in Hill and Limestone Counties, Texas. Lone Star has filed its application to amend its CCN with the Public Utility Commission of Texas (Commission or PUC) in Docket No. 52853 – *Application of Lone Star Transmission, LLC to Amend Its Certificate of Convenience and Necessity for the Liberty to Waco Solar 345-kV Transmission Line in Hill and Limestone Counties*.

Lone Star is filing a single routing option (Consensus Route) for this project. The new transmission line will be constructed between Lone Star's Liberty Station, which is located approximately 0.36 mile southwest of the city of Mount Calm, Texas, west of County Road (CR) 3278 and south of CR 3363, and the Waco Solar Collector Station, which will be located southeast of Mount Calm, Texas on FM 339. The proposed Consensus Route is approximately 3 miles in length. All necessary rights of way for the Consensus Route have been obtained. The estimated cost of the transmission line is approximately $4.9 million with approximately $1.7 million in additional substation interconnection costs. The project will be constructed using primarily concrete and steel monopole structures.

Your land may be directly affected in this docket. If Lone Star's route is approved by the PUC, Lone Star will have the right to build a facility that may directly affect your land. The PUC docket will not determine the value of your land or the value of an easement if one is needed by the applicant to build the facility. If you have questions about the transmission line, you may contact Kelly Wells at (512) 236-3151 (office) or (512) 810-5561 (mobile).

A map illustrating Lone Star's Consensus Route is enclosed for your review. Also enclosed is a written description of the Consensus Route that has been filed with the Commission in the Lone Star CCN application. A more detailed routing map may be downloaded from Lone Star's website at https://www.lonestartransmission.com/liberty-to-waco-solar/regulatory.html.

All routes and route segments included in this notice are available for selection and approval by the Public Utility Commission of Texas. Additionally, the PUC may modify any proposed route or segment into different configurations than those proposed.

The enclosed brochure entitled "Landowners and Transmission Line Cases at the PUC" provides basic information about how you may participate in this docket, and how you may contact the PUC. Please read this brochure carefully. The brochure includes sample forms for making comments and for making a request to intervene as a party in this docket. The PUC's brochure emphasizes: ***The only way to fully participate in the PUC's decision on where to locate the transmission line is to intervene in the docket. It is important for an affected person to intervene because Lone Star is not obligated to keep affected persons informed of the PUC's proceedings and cannot predict which route may or may not be approved by the PUC.***

In addition to the contacts listed in the brochure, you may call the PUC's Customer Assistance Hotline at (888) 782-8477. Hearing- and speech-impaired individuals with text telephones (TTY) may contact the PUC's Customer Assistance Hotline at (512) 936-7136 or toll free at (800) 735-2989. If you wish to participate in this proceeding by becoming an intervenor, the deadline for intervention in the proceeding is January 18, 2022.

Due to the COVID-19 pandemic, your request for intervention should be filed electronically by that date, and you will be required to serve the request on other parties by email. Therefore, please include your own email address on the intervention form. Instructions for electronic filing via the "PUC Filer" on the Commission's website can be found here: https://interchange.puc.texas.gov/filer. Instructions for using the PUC Filer are available at http://www.puc.texas.gov/industry/filings/New_PUC_Web_Filer_Presentation.pdf. Once you obtain a tracking sheet associated with your filing from the PUC Filer, you may email the tracking sheet and the document you wish to file to: centralrecords@puc.texas.gov. For assistance with your electronic filing, please contact the Commission's Help Desk at (512) 936-7100 or helpdesk@puc.texas.gov. You can review materials filed in this docket on the PUC Interchange at: http://interchange.puc.texas.gov/.

Alternatively, you may file your request for intervention by mailing a hard copy of your request to the PUC. The PUC should receive a letter from you requesting intervention by the intervention date (January 18, 2022). Mail the request for intervention and 10 copies of the request to:

Public Utility Commission of Texas
Central Records
Attn: Filing Clerk
1701 N. Congress Ave.
P.O. Box 13326
Austin, Texas 78711-3326

Persons who wish to intervene in the docket must also mail a copy of their request for intervention to all parties in the docket and all persons that have pending motions to intervene, at or before the time the request for intervention is mailed to the PUC.

In addition to the intervention deadline, other important deadlines may already exist that affect your participation in this docket. You should review the orders and other filings already made in the docket. The enclosed brochure explains how you can access these filings.

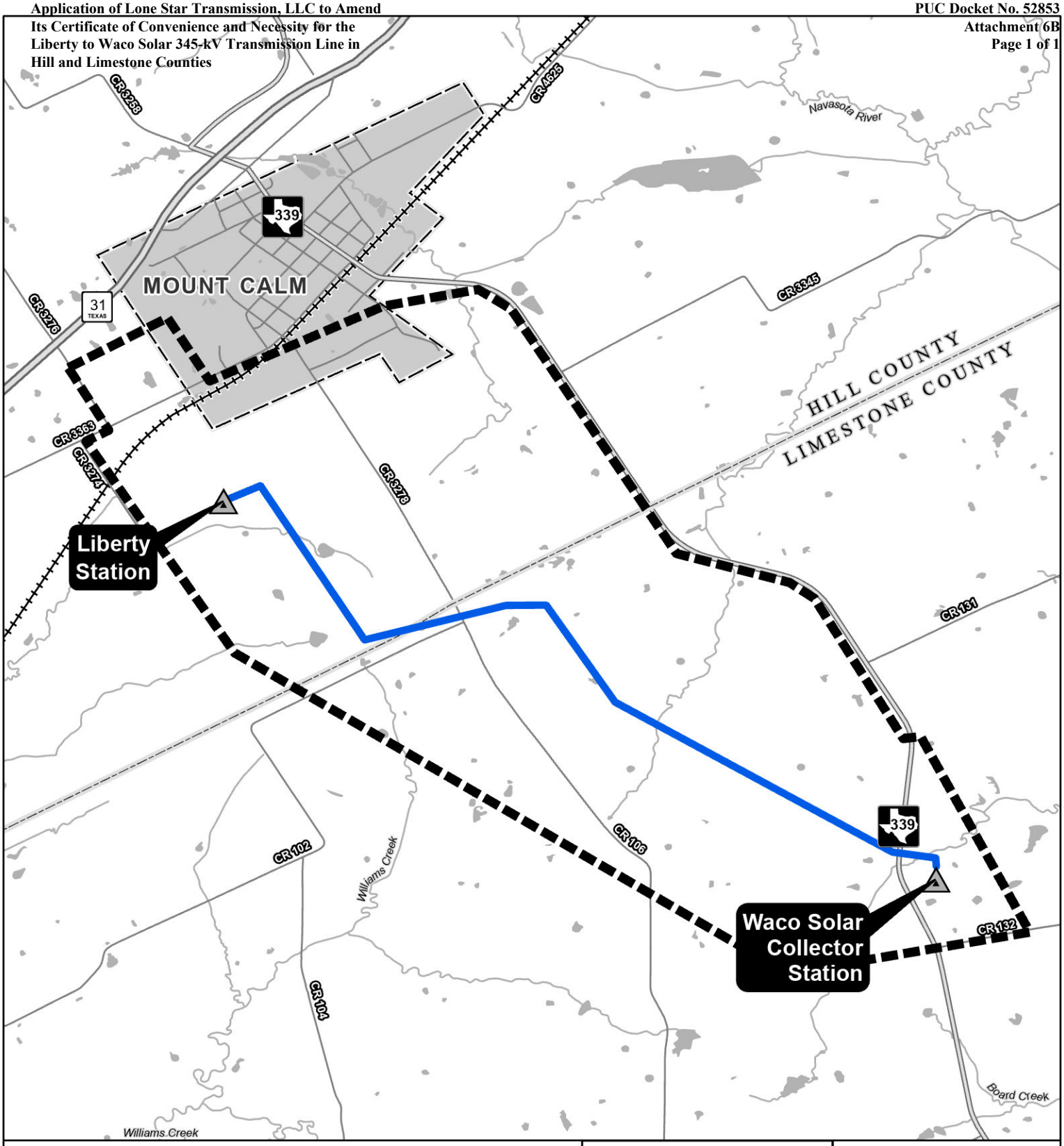
Addressee First Name Last Name
December 1, 2021
Page 3

Sincerely,

Kelly Wells
Director, Land Strategy and Community Relations
Lone Star Transmission, LLC
Office: (512) 236-3151
Mobile: (512) 810-5561
Email: kelly.wells@lonestar-transmission.com

Enclosures:

- Map of Consensus Route
- Consensus Route Description
- Landowner Brochure
- Comment/Protest Form
- Intervenor Form



Project Station
Consensus Route
Study Area
State Highway
Farm-to-Market Road
County / Local Road
Abandoned / Removed Railroad
River / Stream
Waterbody
City Limit
County Boundary

Project Area

LIBERTY-WACO SOLAR
345 KV TRANSMISSION LINE
PROJECT

CONSENSUS ROUTE

0 0.25 0.5
Miles

Date: 10/14/2021

Path: C:\Users\cskubal\OneDrive - POWER Engineers, Inc\Documents\171555_NextEra_Waco_Solar\DD\GIS\apps\NextEra_Waco_Solar\NextEra_Waco_Solar.aprx

Lone Star Transmission, LLC
Proposed Liberty to Waco Solar 345-kV Transmission Line in Hill and Limestone Counties, Texas

Lone Star Transmission, LLC (Lone Star) has filed an application with the Public Utility Commission of Texas (PUC) to amend its Certificate of Convenience and Necessity (CCN) to construct the proposed single circuit 345-kV Liberty to Waco Solar transmission line. In its CCN application for this project, Lone Star has presented a single route composed of one segment for consideration by the PUC (Consensus Route). The following narrative describes the proposed Consensus Route, along with the enclosed map that shows the proposed Consensus Route.

SEGMENT

The Consensus Route composed of one segment begins in the Liberty Station, located approximately 0.36 mile southwest of the city of Mount Calm, Texas, west of County Road (CR) 3278 and south of CR 3363. The segment proceeds northeast for approximately 0.13 mile exiting the east side of the Liberty Station. The segment then angles southeast for approximately 0.66 mile, crossing an unnamed stream. The segment then angles northeast for approximately 0.47 mile, crossing the Hill and Limestone County line and CR 3278, and then angles east for approximately 0.13 mile. The segment then angles southeast for approximately 0.42 mile, then angles east-southeast for approximately 1.05 miles, crossing an unnamed stream. The segment then angles southeast for approximately 0.15 mile, crossing Farm-to-Market (FM) 339 and an unnamed stream, and then angles south for approximately 0.03 mile. The segment terminates at the proposed Waco Solar Collector Station located southeast of the Mount Calm, Texas on FM 339.

Landowners and Transmission Line Cases at the PUC

Public Utility Commission of Texas

1701 N. Congress Avenue
P.O. Box 13326
Austin, Texas 78711-3326
(512) 936-7260
www.puc.state.tx.us

Effective: June 1, 2011

Purpose of This Brochure

This brochure is intended to provide landowners with information about proposed new transmission lines and the Public Utility Commission's ("PUC" or "Commission") process for evaluating these proposals. At the end of the brochure is a list of sources for additional information.

The following topics are covered in this brochure:

- How the PUC evaluates whether a new transmission line should be built,
- How you can participate in the PUC's evaluation of a line, and
- How utilities acquire the right to build a transmission line on private property.

You are receiving the enclosed formal notice because one or more of the routes for a proposed transmission line may require an easement or other property interest across your property, or the centerline of the proposed project may come within 300 feet of a house or other habitable structure on your property. This distance is expanded to 500 feet if the proposed line is greater than 230 kilovolts (kV). For this reason, your property is considered **directly affected land.** This brochure is being included as part of the formal notice process.

If you have questions about the proposed routes for a transmission line, you may contact the applicant. The applicant also has a more detailed map of the proposed routes for the transmission line and nearby habitable structures. The applicant may help you understand the routing of the project and the application approval process in a transmission line case but cannot provide legal advice or represent you. ***The applicant cannot predict which route may or may not be approved by the PUC. The PUC decides which route to use for the transmission line, and the applicant is not obligated to keep you informed of the PUC's proceedings. The only way to fully participate in the PUC's decision on where to locate the transmission line is to intervene, which is discussed below.***

The PUC is sensitive to the impact that transmission lines have on private property. At the same time, transmission lines deliver electricity to millions of homes and businesses in Texas, and new lines are sometimes needed so that customers can obtain reliable, economical power.

The PUC's job is to decide whether a transmission line application should be approved and on which route the line should be constructed. The PUC values input from landowners and encourages you to participate in this process by intervening in the docket.

PUC Transmission Line Case

Texas law provides that most utilities must file an application with the PUC to obtain or amend a Certificate of Convenience and Necessity (CCN) in order to build a new transmission line in Texas. The law requires the PUC to consider a number of factors in deciding whether to approve a proposed new transmission line.

The PUC may approve an application to obtain or amend a CCN for a transmission line after considering the following factors:

- Adequacy of existing service;
- Need for additional service;
- The effect of approving the application on the applicant and any utility serving the proximate area;
- Whether the route utilizes existing compatible rights-of- way, including the use of vacant positions on existing multiple-circuit transmission lines;
  Whether the route parallels existing compatible rights-of-way;
  Whether the route parallels property lines or other natural or cultural features;
  Whether the route conforms with the policy of prudent avoidance (which is defined as the limiting of exposures to electric and magnetic fields that can be avoided with reasonable investments of money and effort); and
  Other factors such as community values, recreational and park areas, historical and aesthetic values, environmental integrity, and the probable improvement of service or lowering of cost to consumers in the area.

If the PUC decides an application should be approved, it will grant to the applicant a CCN or CCN amendment to allow for the construction and operation of the new transmission line.

Application to Obtain or Amend a CCN:

An application to obtain or amend a CCN describes the proposed line and includes a statement from the applicant describing the need for the line and the impact of building it. In addition to the routes proposed by the applicant in its application, the possibility exists that additional routes may be developed, during the course of a CCN case, that could affect property in a different manner than the original routes proposed by the applicant.

The PUC conducts a case to evaluate the impact of the proposed line and to decide which route should be approved. Landowners who would be affected by a new line can:

- informally file a protest, or
- formally participate in the case as an intervenor.

Filing a Protest (informal comments):

If you do not wish to intervene and participate in a hearing in a CCN case, you may file **comments.** An individual or business or a group who files only comments for or against any aspect of the transmission line application is considered a "protestor."

Protestors make a written or verbal statement in support of or in opposition to the utility's application and give information to the PUC staff that they believe supports their position.

Protestors are ***not*** parties to the case, however, and *do **not** have the right to*:

- Obtain facts about the case from other parties;
- Receive notice of a hearing, or copies of testimony and other documents that are filed in the case;
- Receive notice of the time and place for negotiations;
- File testimony and/or cross-examine witnesses;
- Submit evidence at the hearing; or
- Appeal P.U.C. decisions to the courts.

If you want to make comments, you may either send written comments stating your position, or you may make a statement on the first day of the hearing. If you have not intervened, however, you will not be able to participate as a party in the hearing. Only parties may submit evidence and ***the PUC must base its decision on the evidence.***

Intervening in a Case:

To become an intervenor, you must file a statement with the PUC, no later than the date specified in the notice letter sent to you with this brochure, requesting intervenor status (also referred to as a party). This statement should describe how the proposed transmission line would affect your property. Typically, intervention is granted only to directly affected landowners. However, any landowner may request to intervene and obtain a ruling on his or her specific fact situation and concerns. A sample form for intervention and the filing address are attached to this brochure, and may be used to make your filing. A letter requesting intervention may also be used in lieu of the sample form for intervention.

If you decide to intervene and become a party in a case, you will be required to follow certain procedural rules:

- You are required to timely respond to requests for information from other parties who seek information.
- If you file testimony, you must appear at a hearing to be cross-examined.
- If you file testimony or any letters or other documents in the case, you must send copies of the documents to every party in the case and you must file multiple copies with the PUC.
  If you intend to participate at the hearing and you do not file testimony, you must at least file a statement of position, which is a document that describes your position in the case.
  Failure to comply with these procedural rules may serve as grounds for you to be dismissed as an intervenor in the case.
  If you wish to participate in the proceedings it is very important to attend any prehearing conferences.

Intervenors may represent themselves or have an attorney to represent them in a CCN case. If you intervene in a case, you may want an attorney to help you understand the PUC's procedures and the laws and rules that the PUC applies in deciding whether to approve a transmission line. The PUC encourages landowners to intervene and become parties.

Stages of a CCN Case:

If there are persons who intervene in the case and oppose the approval of the line, the PUC may refer the case to an administrative law judge (ALJ) at the State Office of Administrative Hearings (SOAH) to conduct a hearing, or the Commission may elect to conduct a hearing itself. The hearing is a formal proceeding, much like a trial, in which testimony is presented. In the event the case is referred to SOAH, the ALJ makes a recommendation to the PUC on whether the application should be approved and where and how the line should be routed.

There are several stages of a CCN case:

- The ALJ holds a prehearing conference (usually in Austin) to set a schedule for the case.
- Parties to the case have the opportunity to conduct discovery; that is, obtain facts about the case from other parties.
- A hearing is held (usually in Austin), and parties have an opportunity to cross-examine the witnesses.
- Parties file written testimony before the date of the hearing. Parties that do not file written testimony or statements of position by the deadline established by the ALJ may not be allowed to participate in the hearing on the merits.
  Parties may file written briefs concerning the evidence presented at the hearing, but are not required to do so.
  In deciding where to locate the transmission line and other issues presented by the application, the ALJ and Commission rely on factual information submitted as evidence at the hearing by the parties in the case. In order to submit factual information as evidence (other than through cross-examination of other parties' witnesses), a party must have intervened in the docket and filed written testimony on or before the deadline set by the ALJ.
  The ALJ makes a recommendation, called a **proposal for decision**, to the Commission regarding the case. Parties who disagree with the ALJ's recommendation may file exceptions.
  The Commissioners discuss the case and decide whether to approve the application. The Commission may approve the ALJ's recommendation, approve it with specified changes, send the case back to the ALJ for further consideration, or deny the application. The written decision rendered by the Commission is called a **final order**. Parties who believe that the Commission's decision is in error may file motions for rehearing, asking the Commission to reconsider the decision.
  After the Commission rule on the motion for rehearing, parties have the right to appeal the decision to district court in Travis County.

Right to Use Private Property

The Commission is responsible for deciding whether to approve a CCN application for a proposed transmission line. If a transmission line route is approved that impacts your property, the electric utility must obtain the right from you to enter your property and to build, operate, and maintain the transmission line. This right is typically called an easement.

Utilities may buy easements through a negotiated agreement, but they also have the power of eminent domain (condemnation) under Texas law. Local courts, not the PUC, decide issues concerning easements for rights-of-way. The PUC does not determine the value of property.

The PUC final order in a transmission case normally requires a utility to take certain steps to minimize the impact of the new transmission line on landowners' property and on the environment. For example, the order normally requires steps to minimize the possibility of erosion during construction and maintenance activities.

HOW TO OBTAIN MORE INFORMATION

The PUC's online filings interchange on the PUC website provides free access to documents that are filed with the Commission in Central Records. The docket number, also called a control number on the PUC website, of a case is a key piece of information used in locating documents in the case. You may access the Interchange by visiting the PUC's website home page at www.puc.state.tx.us and navigate the website as follows:

- Select "Filings."
  Select "Filings Search."
  Select "Filings Search."
  Enter 5-digit Control (Docket) Number. *No other information is necessary*.
  Select "Search." *All of the filings in the docket will appear in order of date filed.*
  Scroll down to select desired filing.
  Click on a blue "Item" number at left.
  Click on a "Download" icon at left.

Documents may also be purchased from and filed in Central Records. For more information on how to purchase or file documents, call Central Records at the PUC at 512-936-7180.

PUC Substantive Rule 25.101, Certification Criteria, addresses transmission line CCNs and is available on the PUC's website, or you may obtain copies of PUC rules from Central Records.

Always include the docket number on all filings with the PUC. You can find the docket number on the enclosed formal notice. Send documents to the PUC at the following address.

Public Utility Commission of Texas
Central Records
Attn: Filing Clerk
1701 N. Congress Avenue
P.O. Box 13326
Austin, TX 78711-3326

The information contained within this brochure is not intended to provide a comprehensive guide to landowner rights and responsibilities in transmission line cases at the PUC. This brochure should neither be regarded as legal advice nor should it be a substitute for the PUC's rules. However, if you have questions about the process in transmission line cases, you may call the PUC's Legal Division at 512-936-7260. The PUC's Legal Division may help you understand the process in a transmission line case but cannot provide legal advice or represent you in a case. You may choose to hire an attorney to decide whether to intervene in a transmission line case, and an attorney may represent you if you choose to intervene.

Communicating with Decision-Makers

Do not contact the ALJ or the Commissioners by telephone or email. They are not allowed to discuss pending cases with you. They may make their recommendations and decisions only by relying on the evidence, written pleadings, and arguments that are presented in the case.

Comments in Docket No. 52853

If you want to be a PROTESTOR only, please complete this form. Although public comments are not treated as evidence, they help inform the PUC and its staff of the public concerns and identify issues to be explored. The PUC welcomes such participation in its proceedings.

For USPS, send one copy to:

Public Utility Commission of Texas
Central Records
P.O. Box 13326
Austin, TX 78711-3326

For all other delivery or courier services, send one copy to:

Public Utility Commission of Texas
Central Records
1701 N. Congress Ave.
Austin, TX 78701

First Name: _____ Last Name: _____

Phone Number: _____ Fax Number: _____

Address, City, State: _____

I am NOT requesting to intervene in this proceeding. As a PROTESTOR, I understand the following:

- I am NOT a party to this case;
- My comments are not considered evidence in this case; and
- I have no further obligation to participate in the proceeding.

Please check one of the following:

☐ I own property with a habitable structure located near one or more of the utility's proposed routes for a transmission line.

☐ One or more of the utility's proposed routes would cross my property.

☐ Other. Please describe and provide comments. You may attach a separate page, if necessary. _____

_____

_____

_____

_____

Signature of person submitting comments:

_____ Date: _____

Request to Intervene in PUC Docket No. 52853

The following information must be submitted by the person requesting to intervene in this proceeding. This completed form will be provided to all parties in this docket. **If you DO NOT want to be an intervenor, but still want to file comments, please complete the "Comments" page.**

Mail this completed form and 10 copies to:

Public Utility Commission of Texas
Central Records
Attn: Filing Clerk
1701 N. Congress Ave.
P.O. Box 13326
Austin, TX 78711-3326

First Name: _____ Last Name: _____

Phone Number: _____ Fax Number: _____

Address, City, State: _____

Email Address: _____

I am requesting to intervene in this proceeding. As an INTERVENOR, I understand the following:

- I am a party to the case;
- I am required to respond to all discovery requests from other parties in the case;
- If I file testimony, I may be cross-examined in the hearing;
- If I file any documents in the case, I will have to provide a copy of that document to every other party in the case; and
- I acknowledge that I am bound by the Procedural Rules of the Public Utility Commission of Texas (PUC) and the State Office of Administrative Hearings (SOAH).

Please check one of the following:

☐ I own property with a habitable structure located near one or more of the utility's proposed routes for a transmission line.
☐ One or more of the utility's proposed routes would cross my property.
☐ Other. Please describe and provide comments. You may attach a separate page, if necessary.

_____

_____

_____

Signature of person requesting intervention:

_____ Date: _____

List of Directly Affected Landowners Receiving Notice

Map ID(s)[1]	Landowner Name	Address	City	State	Zip
1, 2, 3, 4	Jack Hawkins Farms LLC	311 Schoolhouse Ave.	Mt. Calm	TX	76643
5	Bond, P.D.	401 N. 3rd	Hubbard	TX	76648
6, 7	Gloff, Barbara	1740 LCR 106	Mt. Calm	TX	76643
8, 9, 10, 11, 13	Farmland Reserve	Attn: Tax Division P.O. Box 511196	Salt Lake City	UT	84151
12	McGinnis, Gerald Mac & Kathleen Anne	8360 FM 339 N	Mt. Calm	TX	76673

[1] Map IDs refer to the numbers identified on the map in Attachment No. 4.

December 1, 2021

<Name>
<Title>
<Utility Provider Name >
<Address>
<City, State, Zip>

RE: PUC Docket No. 52853; *Application of Lone Star Transmission, LLC to Amend Its Certificate of Convenience and Necessity for the Liberty to Waco Solar 345-kV Transmission Line in Hill and Limestone Counties*

Dear [Contact Name]:

Lone Star Transmission, LLC (Lone Star) gives notice of its intent to amend its Certificate of Convenience and Necessity (CCN) to construct a proposed 345-kV single-circuit transmission line in Hill and Limestone Counties, Texas. Lone Star has filed its application to amend its CCN with the Public Utility Commission of Texas (Commission or PUC) in Docket No. 52853 – *Application of Lone Star Transmission, LLC to Amend Its Certificate of Convenience and Necessity for the Liberty to Waco Solar 345-kV Transmission Line in Hill and Limestone Counties*.

Lone Star is filing a single routing option (Consensus Route) for this project that is approximately 3 miles in length. The estimated cost of the transmission line is approximately $4.9 million with approximately $1.7 million in additional substation interconnection costs. The project will be constructed using primarily concrete and steel monopole structures.

A map illustrating Lone Star's proposed Consensus Route is enclosed for your review. Also enclosed is a written description of the Consensus Route that has been filed with the Commission in the Lone Star CCN application. A detailed routing map may be downloaded from Lone Star's website at https://www.lonestartransmission.com/liberty-to-waco-solar/regulatory.html.

If you have questions about this transmission line project or Lone Star's CCN application, you may contact Lone Star's representative, Kelly Wells at (512) 236-3151 (office) or (512) 810-5561 (mobile).

Persons who wish to intervene in the proceeding or comment upon the action must submit a request to intervene to the PUC. The deadline for intervention in the proceeding is January 18, 2022, and a letter requesting intervention should be received by the PUC by that date.

Due to the COVID-19 pandemic, the preferred method for you to file your request for intervention is electronically, and you will be required to serve the request on other parties by email. Therefore, please include your own email address on the intervention form. Instructions for electronic filing via the "PUC Filer" on the Commission's website can be found here: https://interchange.puc.texas.gov/filer. Instructions for using the PUC Filer are available at http://www.puc.texas.gov/industry/filings/New_PUC_Web_Filer_Presentation.pdf. Once you

obtain a tracking sheet associated with your filing from the PUC Filer, you may email the tracking sheet and the document you wish to file to: centralrecords@puc.texas.gov. For assistance with your electronic filing, please contact the Commission's Help Desk at (512) 936-7100 or helpdesk@puc.texas.gov. You can review materials filed in this docket on the PUC Interchange at: http://interchange.puc.texas.gov/.

If you are unable to file your request for intervention electronically, you may file your request for intervention by mailing a hard copy of your request to the PUC. The PUC should receive your request to intervene by the intervention date (January 18, 2022). Mail the request for intervention (along with 10 copies of the request) to the following address:

Public Utility Commission of Texas
Central Records
Attn: Filing Clerk
1701 N. Congress Ave.
P.O. Box 13326
Austin, Texas 78711-3326

All routes and routing links included in this notice are available for selection and approval by the Public Utility Commission of Texas.

The Commission has developed a brochure titled "Landowners and Transmission Line Cases at the PUC." Copies of the brochure are available from Lone Star by calling Kelly Wells or may be downloaded from the PUC's website at www.puc.state.tx.us. To obtain additional information about this case, contact the PUC at (512) 936-7120 or toll free at (888) 782-8477. Hearing- and speech-impaired individuals with text telephones (TTY) may contact the PUC at (512) 936-7136 or toll free at (800) 735-2989.

Sincerely,

Kelly Wells
Director, Land Strategy and Community Relations
Lone Star Transmission, LLC
Office: (512) 236-3151
Mobile: (512) 810-5561
Email: kelly.wells@lonestar-transmission.com

Enclosures:

- Map of Consensus Route
- Consensus Route Description

List of Utilities Receiving Notice of Application

Hilco Electric Cooperative, Inc.

Debra Cole
General Manager/CEO
Hilco Electric Cooperative, Inc.
P.O. Box 127
Itasca, TX 76055-0127

Navasota Valley Electric Cooperative, Inc.

James Calhoun
General Manager/CEO
Navasota Valley Electric Cooperative, Inc.
P.O. Box 848
Franklin, TX 77856-0848

December 1, 2021

<Office Holder Name, County/City or DoD or OPUC>
<Address>
<City, State, Zip>

RE: PUC Docket No. 52853; *Application of Lone Star Transmission, LLC to Amend Its Certificate of Convenience and Necessity for the Proposed Liberty to Waco Solar 345 kV Transmission Line in Hill and Limestone Counties*

Dear [Contact Name]:

Lone Star Transmission, LLC (Lone Star) gives notice of its intent to amend its Certificate of Convenience and Necessity (CCN) to construct a proposed 345-kV single-circuit transmission line in Hill and Limestone Counties, Texas. Lone Star has filed its application to amend its CCN with the Public Utility Commission of Texas (Commission or PUC) in Docket No. 52853 – *Application of Lone Star Transmission, LLC to Amend Its Certificate of Convenience and Necessity for the Proposed Liberty to Waco Solar 345 kV Transmission Line in Hill and Limestone Counties*.

Lone Star is filing a single routing option (Consensus Route) for this project that is approximately 3 miles in length. The estimated cost of the transmission line is approximately $4.9 million with approximately $1.7 million in additional substation costs. The project will be constructed using primarily concrete and steel monopole structures.

A map illustrating Lone Star's proposed Consensus Route is enclosed for your review. Also enclosed is a written description of the Consensus Route that has been filed with the Commission in the Lone Star CCN application. A detailed routing map may be downloaded from Lone Star's website at https://www.lonestartransmission.com/liberty-to-waco-solar/regulatory.html.

If you have questions about this transmission line project or Lone Star's CCN application, you may contact Lone Star's representative, Kelly Wells at (512) 236-3151 (office) or (512) 810-5561 (mobile).

Persons who wish to intervene in the proceeding or comment upon the action must submit a request to intervene to the PUC. The deadline for intervention in the proceeding is January 18, 2022, and a letter requesting intervention should be received by the PUC by that date.

Due to the COVID-19 pandemic, the preferred method for you to file your request for intervention is electronically, and you will be required to serve the request on other parties by email. Therefore, please include your own email address on the intervention form. Instructions for electronic filing via the "PUC Filer" on the Commission's website can be found here: https://interchange.puc.texas.gov/filer. Instructions for using the PUC Filer are available at http://www.puc.texas.gov/industry/filings/New_PUC_Web_Filer_Presentation.pdf. Once you obtain a tracking sheet associated with your filing from the PUC Filer, you may email the tracking

sheet and the document you wish to file to: centralrecords@puc.texas.gov. For assistance with your electronic filing, please contact the Commission's Help Desk at (512) 936-7100 or helpdesk@puc.texas.gov. You can review materials filed in this docket on the PUC Interchange at: http://interchange.puc.texas.gov/.

If you are unable to file your request for intervention electronically, you may file your request for intervention by mailing a hard copy of your request to the PUC. The PUC should receive your request to intervene by the intervention date (January 18, 2022). Mail the request for intervention (along with 10 copies of the request) to the following address:

Public Utility Commission of Texas
Central Records
Attn: Filing Clerk
1701 N. Congress Ave.
P.O. Box 13326
Austin, Texas 78711-3326

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

The Commission has developed a brochure titled "Landowners and Transmission Line Cases at the PUC." Copies of the brochure are available from Lone Star by calling Kelly Wells or may be downloaded from the PUC's website at www.puc.state.tx.us. To obtain additional information about this case, contact the PUC at (512) 936-7120 or toll free at (888) 782-8477. Hearing- and speech-impaired individuals with text telephones (TTY) may contact the PUC at (512) 936-7136 or toll free at (800) 735-2989.

Sincerely,

Kelly Wells
Director, Land Strategy and Community Relations
Lone Star Transmission, LLC
Office: (512) 236-3151
Mobile: (512) 810-5561
Email: kelly.wells@lonestar-transmission.com

Enclosures:

- Map of Consensus Route
- Consensus Route Description
- Comment/Protest Form
- Intervenor Form

List of Public Officials Receiving Notice of Application

Hill County Officials

The Honorable Justin W. Lewis
Hill County Judge
P. O. Box 457
Hillsboro, TX 76645

The Honorable Scotty Hawkins
Hill County Commissioner, Precinct 3
P. O. Box 457
Hillsboro, TX 76645

Limestone County Officials

The Honorable Richard Duncan
Limestone County Judge
200 W State St., Suite 101
Groesbeck, TX 76642

The Honorable WA (Sonny) Baker
Limestone County Commissioner, Precinct 2
200 W State St., Suite 101
Groesbeck, TX 76642

Municipal Officials

Mr. Jimmy Tucker
City of Mount Calm Mayor
PO Box 85
Mount Calm, TX 76673-0085

Department of Defense Siting Clearinghouse

Department of Defense Military Aviation and Installation Assurance Siting Clearinghouse
3400 Defense Pentagon
Room 5C646
Washington, D.C. 20301-3400
osd.dod-siting-clearinghouse@mail.mil

Office of Public Utility Counsel

Mr. Chris Ekoh
Office of Public Utility Counsel
P.O. Box 12397
Austin, Texas 78711-2397

PUBLIC NOTICE

Application of Lone Star Transmission, LLC to Amend its Certificate of Convenience and Necessity for the Liberty to Waco Solar 345-kV Transmission Line in Hill and Limestone Counties, Texas

PUBLIC UTILITY COMMISSION OF TEXAS (PUC) DOCKET NO. 52853

Lone Star Transmission, LLC (Lone Star) gives notice that it is requesting approval from the Public Utility Commission of Texas (PUC) to amend its Certificate of Convenience and Necessity (CCN) to construct the Liberty to Waco Solar 345-kV Transmission Line in Hill and Limestone Counties, Texas. Lone Star has filed an application with the PUC for this purpose in Docket No. 52853.

Lone Star is filing a single routing option (Consensus Route) for this project that is approximately 3 miles in length. The estimated cost of the transmission line is approximately $4.9 million with approximately $1.7 million in additional substation interconnection costs. The project will be constructed using primarily concrete and steel monopole structures.

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

Persons who are affected by the transmission line and wish to intervene in the docket or comment on the applicant's application should submit a request for intervention or comments to the PUC. Due to the COVID-19 pandemic, the preferred method for you to file your request for intervention or comments is electronically, and you will be required to serve the request on other parties by email. Therefore, please include your own email address on the intervention form. Instructions for electronic filing via the "PUC Filer" on the Commission's website can be found here: https://interchange.puc.texas.gov/filer. Instructions for using the PUC Filer are available at http://www.puc.texas.gov/industry/filings/New_PUC_Web_Filer_Presentation.pdf. Once you obtain a tracking sheet associated with your filing from the PUC Filer, you may email the tracking sheet and the document you wish to file to: centralrecords@puc.texas.gov. For assistance with your electronic filing, please contact the Commission's Help Desk at (512) 936-7100 or helpdesk@puc.texas.gov. You can review materials filed in this docket on the PUC Interchange at: http://interchange.puc.texas.gov/.

If you are unable to file your request for intervention or comments electronically, you may file your request for intervention or comments by mailing the original and 10 copies to:

Public Utility Commission of Texas
Central Records
Attn: Filing Clerk
1701 N. Congress Ave.
P.O. Box 13326
Austin, Texas 78711-3326

The deadline for intervention in the docket is January 18, 2022, and the PUC should receive a letter from anyone requesting intervention by that date.

Persons who wish to intervene in the docket must also mail a copy of their request for intervention to all parties in the docket and all persons that have pending motions to intervene, at or before the time the request for intervention is mailed to the PUC. In addition to the intervention deadline, other important deadlines may already exist that affect your participation in this docket. You should review the orders and other filings already made in the docket.

The only way to fully participate in the PUC's decision on where to locate the transmission line is to intervene in the docket. It is important for an affected person to intervene because the utility is not obligated to keep affected persons informed of the PUC's proceedings and cannot predict which route may or may not be approved by the PUC.

The PUC has a brochure entitled "Landowners and Transmission Line Cases at the PUC" which provides basic information about how you may participate in this docket, and how you may contact the PUC. Copies of the brochure are available from Kelly Wells at (512) 236-3151 or may be downloaded from the PUC's website at www.puc.state.tx.us. The brochure includes sample forms for making comments and for making a request to intervene as a party in this docket. In addition to the contacts listed in the brochure, you may call the PUC's Customer Assistance Hotline at (888) 782-8477. Hearing- and speech-impaired individuals with text telephones (TTY) may contact the PUC's Customer Assistance Hotline at (512) 936-7136 or toll free at (800) 735-2989.

A detailed routing map may be downloaded from Lone Star's website at https://www.lonestartransmission.com/liberty-to-waco-solar/regulatory.html.

If you have questions about the transmission line you may contact Lone Star representative Kelly Wells at (512) 236-3151.

Consensus Route Description

For this project as previously stated, only a Consensus Route is filed in Lone Star's CCN. The following narrative, along with the map that follows which shows the route, provides a detailed description of the proposed Consensus Route.

The proposed Consensus Route composed of one segment begins in the Liberty Station, located approximately 0.36 mile southwest of the city of Mount Calm, Texas, west of County Road (CR) 3278 and south of CR 3363. The segment proceeds northeast for approximately 0.13 mile exiting the east side of the Liberty Station. The segment then angles southeast for approximately 0.66 mile, crossing an unnamed stream. The segment then angles northeast for approximately 0.47 mile, crossing the Hill and Limestone County line and CR 3278, and then angles east for approximately 0.13 mile. The segment then angles southeast for approximately 0.42 mile, then angles east-southeast for approximately 1.05 miles, crossing an unnamed stream. The segment then angles southeast for approximately 0.15 mile, crossing Farm-to-Market (FM) 339 and an unnamed stream, and then angles south for approximately 0.03 mile. The segment terminates at the proposed Waco Solar Collector Station located southeast of Mount Calm, Texas on FM 339.

Newspaper Publication List

Notice of the CCN Application will be published in the following newspapers of general circulation in Hill County and Limestone County:

Hill County
The Hillsboro Reporter
335 Country Club Road
Hillsboro, Texas 76645-2318
(254) 582-3431

Limestone County
The Mexia News
214 N. Railroad
Mexia, TX 76667
(214) 562-2868

December 1, 2021

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

RE: PUC Docket No. 52853; *Application of Lone Star Transmission, LLC to Amend Its Certificate of Convenience and Necessity for the Liberty to Waco Solar 345-kV Transmission Line in Hill and Limestone Counties*

Lone Star Transmission, LLC (Lone Star) gives notice that it has filed an application with the Public Utility Commission of Texas (PUC) to amend its Certificate of Convenience and Necessity (CCN) in the above-referenced docket. In its Application, Lone Star proposes to construct a 345-kV single-circuit transmission line connecting Lone Star's Liberty 345-kV Station in Hill County to the Waco Solar Collector Station in Limestone County. Lone Star is filing a single routing option (Consensus Route) for this project that is approximately 3 miles in length.

In accordance with the requirements of 16 Texas Administrative Code (TAC) § 22.52 and the PUC's CCN Application form, I have enclosed a copy of Lone Star's *Environmental Assessment for the Liberty to Waco Solar 345-kV Transmission Line Project*, which was prepared by POWER Engineers, Inc. and is Attachment 1 to Lone Star's CCN Application.

If you have questions about this project or Lone Star's CCN Application or Environmental Assessment, you may contact me at (512) 236-3151 (office) or (512) 810-5561 (mobile).

Sincerely,

Kelly Wells
Director, Land Strategy and Community Relations
Lone Star Transmission, LLC
Office: (512) 236-3151
Mobile: (512) 810-5561
Email: kelly.wells@lonestar-transmission.com

Enclosures:

- Lone Star's Environmental Assessment

AFFIDAVIT

STATE OF TEXAS

COUNTY OF TRAVIS

I, Stacie Bennett, being duly sworn, file this application as Director, Regulatory Affairs for Lone Star Transmission, LLC (Lone Star), that, in such capacity, I am qualified and authorized on behalf of Lone Star to file and verify such application, am personally familiar with the maps and attachments filed with this application, and have complied with all the requirements contained in the application; and that all statements made and matters set forth therein and all attachments thereto are true and correct. I further state that the application is made in good faith and that this application does not duplicate any filing presently before the Public Utility Commission of Texas.

Stacie Bennett
Director, Regulatory Affairs
Lone Star Transmission, LLC

SUBSCRIBED AND SWORN TO BEFORE ME,
a Notary Public in and for the State of Texas, this
the 22 day of Nov., 2021.

NOTARY PUBLIC STATE OF TEXAS
Cecilia Turcotte
My Commission Expires
02/12/2025
ID No. 132925626

Notary Public State of Texas
My Commission Expires: 02.12.2025