

RECEIVED
2017 AUG 31 PM 4:37

JOINT APPLICATION OF AEP TEXAS §
NORTH COMPANY AND ELECTRIC §
TRANSMISSION TEXAS, LLC TO §
AMEND THEIR CERTIFICATES OF §
CONVENIENCE AND NECESSITY §
FOR THE AEP TNC HEARTLAND TO §
ETT YELLOWJACK 138-KV §
TRANSMISSION LINE IN §
MCCULLOCH AND MENARD §
COUNTIES §

PUBLIC UTILITY COMMISSION
OF TEXAS

ORDER

This Order addresses the joint application of AEP Texas North Company (AEP TNC) (now, AEP Texas)¹ (AEP Texas) and Electric Transmission Texas, LLC (ETT) (collectively, applicants) to amend their certificates of convenience and necessity (CCNs) for a proposed 138-kilovolt (kV) transmission line and a “cut-in” of an existing 69-kV line in McCulloch and Menard Counties (project). The application is approved, using route 16MR for the AEP Texas Heartland to ETT Yellowjacket 138-kV transmission line for the reasons discussed in this Order.

On July 13, 2017, the State Office of Administrative Hearings (SOAH) administrative law judges (ALJs) issued a proposal for decision, recommending that the Commission approve the application, and adopt route 16MR. On August 15, 2017, the ALJs filed a letter in response to the parties’ exceptions and replies, and declined to make any changes to the proposal for decision.

At the August 17, 2017 open meeting, the Commission heard oral argument of the parties. The Commission adds finding of fact 41A to the procedural history to reflect the oral argument. At the August 31 open meeting, the Commission voted to approve the application, and adopt the route recommended in the proposal for decision, route 16MR.

¹ AEP Texas North Company (AEP TNC) and its affiliate AEP Texas Central Company have merged with their immediate parent company, AEP Utilities, Inc. to become AEP Texas Inc. effective December 31, 2016. The merger was approved by the Public Utility Commission of Texas on December 12, 2016 in Docket No. 46050 – *Application of AEP Texas Central Company, AEP Texas North Company, and AEP Utilities, Inc. for Approval of Merger*. As of January 2017, the merged company is doing business as AEP Texas. AEP Texas is the successor in interest to and now holds the certificate of convenience and necessity formerly assigned to AEP TNC. Thus, AEP Texas is considered the joint applicant with Electric Transmission Texas, LLC in this proceeding.

219

The Commission also makes certain modifications to the proposal for decision. The Commission modifies finding of fact 66 to conform to the Commission's recent decision in Docket No. 45866,² in which the Commission held that evidence of an agreement among the cities of Leander, Cedar Park, and Round Rock was not a reflection of community values. Similarly, to the extent the proposal for decision's analysis equates the city manager and county judge's letter as an expression of "community values," the Commission declines to adopt the proposal for decision's analysis. In addition, the Commission modifies finding of fact 71 to delete references to newly affected habitable structures, and deletes finding of fact 152, as it is not supported by the record evidence and is an inaccurate reflection of the Commission's policy on prudent avoidance. Other than these modifications, the Commission adopts the proposal for decision, including findings of fact and conclusions of law.

The Commission adopts the following findings of fact and conclusions of law:

I. Findings of Fact

Project Background

1. On August 26, 2016, AEP Texas North Company (AEP TNC) (now, AEP Texas) and Electric Transmission Texas, LLC (ETT) (collectively, applicants) filed an application (application) to amend their certificates of convenience and necessity (CCN) for a proposed 138-kV transmission line in McCulloch and Menard Counties, Texas.
2. The area traversed by the alternative routes being evaluated for this project (study area) is oriented in an east to west direction from Brady in McCulloch County in the eastern portion of the study area to Menard in Menard County in the western portion. The eastern portion of the study area is located in the Central Texas Uplift region and includes the new AEP Texas Heartland Substation and the City of Brady. The western portion of the study area is located in the Edwards Plateau region and includes the existing ETT Yellowjacket Substation and the City of Menard. The Edwards Plateau is characterized by flat upper surfaces, interspersed by drainages that open up into larger draws or box canyons. The study area is primarily rural with residential development concentrated in the cities of

² Docket No. 45866, *Application of LCRA Transmission Services Corporation to Amend a Certificate of Convenience and Necessity for the Round Rock – Leander 138-kV Transmission Line in Williamson County*, Order on Rehearing (July 28, 2017).

Brady and Menard. The predominant land use within the study area is rangeland and pastureland. The majority of the study area has been impacted by land improvements associated with agriculture, residential structures, roadways, oil and gas activities, and various utility corridors.

3. In the application, applications depicted primary alternative route links and developed alternative routes for the project from a combination of those links. While applicants determined that Route 16 best addressed the requirements of the Public Utility Regulatory Act³ and the substantive rules of the Public Utility Commission of Texas (PUC or Commission), all routes and links shown in the application, as well as additional routes derived from links included in the application and noticed, are viable options for the PUC's selection in this docket. As a result of the parties' positions in the case and at the hearing, the main focus of the case became a comparison of Routes 16 and 5 (and potential variations of those routes).
4. Routes 16 and 5 as presented in the application share a series of routing links from the project's western terminus at the ETT Yellowjacket Substation until the routes reached a point near the eastern end of the project where US Hwy 190 turns in a northeasterly direction toward the City of Brady at the intersection of links G2, H2 and J2. While several landowners intervened along the western two-thirds of the alignment of routes 16 and 5, proposed routing adjustments satisfied their concerns as described in finding of fact No. 154. Those intervenors and one newly affected landowner find acceptable the adjustments that result in a variation of route 16 and referred to as "16R." An additional variation of route 16 was proposed by intervenors in the eastern portion of the route to accommodate a landowner's preference near the new AEP Texas Heartland Substation and was referred to as "16M." Finally, with regard to route 16, applicants formulated a combined version of the route 16R concept (containing landowner adjustments) and route 16M (containing the intervenor-formulated alternative eastern termination alignment into the new AEP Texas Heartland Substation) in order to form a "Route 16MR."

³ Public Utility Regulatory Act, Tex. Util. Code Ann. §§ 11.001-58.303 (West 2016), §§ 59.001-66.017 (West 2007 & Supp. 2016) (PURA).

5. Intervenor Staten Realty LLC (Staten) impacted by and opposed to the eastern third of route 16 (and its variants 16R, 16M and 16MR) advocated for the use of route 5. Applicants agreed to formulate and denote two variations of route 5: 1) “route 5R” incorporated the types of landowner adjustments used in route 16R, and 2) “route 5MR” that was described by intervenor Staten at the hearing on the merits, which incorporated landowner routing adjustments from route 16R and a different combination of routing links near the eastern terminus point at the AEP Texas Heartland Substation.

6. Four variations of routes 16 and three variations of route 5 were considered in detail at the hearing on the merits. For purposes of complete description, the routes in contention are:

ROUTE 16 VARIATIONS

Route 16: A-B-E-F-H-V-W-X-Y-Z-M1-S1-A2-D2-G2-H2-I2-U2-V2-W2-A3-B3-G3-N3-Y3-Z3 (Route as originally filed in the application)

Route 16R: A-B-E-E5-V-W-X-Y-Z-M1MOD-S1-A2-D2-F5-I2-U2-V2-W2-A3-B3-G3-N3-Y3-Z3

Route 16M: A-B-E-F-H-V-W-X-Y-Z-M1-S1-A2-D2-G2-H2-I2-U2-V2-W2-A3-B3-F3-M3-L3-K3-P3

Route 16MR: A-B-E-E5-V-W-X-Y-Z-M1MOD-S1-A2-D2-F5-I2-U2-V2-W2-A3-B3-F3-M3-L3-K3-P3

ROUTE 5 VARIATIONS

Route 5: A-B-E-F-H-V-W-X-Y-Z-M1-S1-A2-D2-G2-J2-N2-P2-C3-D3-I3-P3 (Route as originally filed in the application)

Route 5R: A-B-E-E5-V-W-X-Y-Z-M1MOD-S1-A2-D2-G2-J2-N2-P2-C3-D3-I3-P3

Route 5MR: A-B-E-E5-V-W-X-Y-Z-M1MOD-S1-A2-D2-G2-J2-N2-P2-C3-D3-J3-K3-P3

Project Description

7. The proposed Heartland-to-Yellowjacket Project will be designed and constructed as a 138-kV transmission line and will be initially operated at 69-kV. The project will begin at the new AEP Texas Heartland Substation to be constructed near FM 2309 southeast of the

- City of Brady. The new transmission line will extend to the southwest and terminate at the existing ETT Yellowjacket Substation located on U.S. Highway 83 in the City of Menard.
8. In addition to the 138-kV transmission line, this application also includes a new extension of the existing AEP Texas Mason-to-North Brady 69-kV transmission line into the new Heartland Substation. This extension into the Heartland Substation is referred to as a “cut-in” of the existing line. This new cut-in of the existing Mason-to-North Brady 69-kV line will result in a Heartland-to-North Brady transmission line. The existing 69-kV extension of the Mason-to-North Brady 69-kV line into the South Brady Substation will become the South Brady-to-Heartland-to-Mason 69-kV transmission line. This cut-in configuration results in the creation of two separate 69-kV transmission sources into the new Heartland Substation.
 9. Applicants have agreed to each own one-half of the transmission line project. AEP Texas will own the eastern half of the new transmission line connected to the new AEP Texas Heartland Substation, and ETT will own the western half of the new transmission line connected to the existing ETT Yellowjacket Substation. Upon final approval of a route, the mid-point of the transmission line will be determined and that will be the change of ownership point. With regard to the cut-in of the North Brady segment of the existing AEP Texas Mason-to-North Brady 69-kV transmission line into the new AEP Texas Heartland Substation, this application seeks to amend only the certificate of AEP Texas for that cut-in segment.
 10. ETT is the owner of the only existing substation or switching station associated with the new transmission line. AEP Texas is the owner of the only new substation or switching station associated with the new transmission line.
 11. The project will be constructed using single-pole steel or concrete structures. Typical structures will range in height between 90 to 110 feet above grade. The miles of right-of-way (ROW) for all 25 alternative routes filed by applicants ranges from approximately 34.80 miles for route 5 to approximately 43.53 miles for route 18. The project will be single-circuit construction; therefore, the number of miles of circuit is the same as the number of miles of ROW. The typical ROW is 100 feet wide.

Procedural History

12. Applicants filed their application on August 26, 2016. Section 37.057 of PURA directs the Commission to act on such applications within one year, or by August 26, 2017. Applicants voluntarily extended this deadline to September 8, 2017.
13. In Commission Order No. 1 (August 30, 2016), the Commission's Administrative Law Judge (ALJ) acknowledged the one year deadline and established an intervention deadline of October 10, 2016, along with other deadlines. In accordance with and in response to Commission Order No. 1, applicants addressed certain issues related to project alternatives, and the Commission Staff addressed the sufficiency of the application, notice compliance, and a potential procedural schedule.
14. In Commission Order Nos. 2 (September 16, 2016), 4 (September 30, 2016), 5 (October 7, 2016), 7 (October 14, 2016), and 8 (October 25, 2016), the Commission's ALJ granted the interventions of affected landowners.
15. In Commission Order No. 3 (September 27, 2016), the Commission's ALJ deemed the application sufficient and materially complete, ordered republication of notice with a corrected intervention deadline (per Commission Staff's recommendation), and established a deadline for a Commission Staff's supplemental recommendation on notice.
16. In Commission Order No. 6 (October 12, 2016), the Commission's ALJ approved the applicants' provision of notice per the Commission Staff's supplemental recommendation.
17. Several parties filed requests for hearing on October 18 and 19, 2016. The director of Commission Advising and Docket Management issued the Commission's order of referral and preliminary order on October 27, 2016.
18. SOAH Order No. 1 (November 1, 2016) assumed jurisdiction, notified participants of certain procedural matters and set a prehearing conference for November 14, 2016. At the November 14, 2016 prehearing conference, the SOAH ALJ granted numerous pending interventions that were unopposed.
19. SOAH Order No. 2 (December 5, 2016) memorialized the prehearing conference, established the procedural schedule, including the convening of the hearing on the merits

- on April 11, 2017. SOAH Order No. 2 also notified the parties of certain procedural requirements, including document service and other important actions necessary for parties to take prior to and during the hearing on the merits.
20. Applicants filed direct testimony on December 14, 2016. No party filed a statement concerning the adequacy of routes proposed by applicants by the January 6, 2017 deadline established by SOAH in Order No. 2.
 21. Discovery was conducted and a protective order was implemented due to the nature of certain discovery requests.
 22. Nineteen testimonies were filed by intervening parties on or before February 8, 2017, and one testimony was filed on February 9, 2017; these testimonies included the testimony of two expert witnesses on behalf of certain intervening parties. Three statements of position were filed by four intervening parties. Cross-rebuttal testimony was filed by one expert witness on behalf of certain intervenors on March 1, 2017. Commission Staff filed testimony on March 1, 2017.
 23. Objections to certain testimony were filed by applicants and Commission Staff, which were ruled upon in SOAH Order No. 5 (March 1, 2017).
 24. Twelve intervenors were also dismissed from the SOAH docket under SOAH Order No. 5 for the failure to file testimony or a statement of position.
 25. Applicants filed rebuttal testimony on March 24, 2017.
 26. In accordance with SOAH Order No. 6 (March 31, 2017), applicants reported to the ALJ on efforts of the parties to establish procedural agreements for the hearing on the merits. As a result, applicants, all intervenors, and Commission Staff waived cross-examination on direct testimony submitted by intervenor landowners, except for the two direct and one cross rebuttal testimonies of expert witnesses submitted on behalf of certain intervenor landowners.
 27. Several parties filed joint position statements in advance of the hearing in order to aid the ALJ in the administration of the hearing. Eighteen parties filed a joint statement of position supporting route 16MR which uses links A-B-E-E5-V-W-X-Y7-Z-Modified M1-S1-A2-

D2-F5-I2-U2-V2-W2-A3-B3-F3-M3-L3-K3-P3. Three parties who did not join in the joint statement of position filed a statement of position supporting the use of links A, B, E, E5, V, W, X, y, Z, modified M1, S1, A2, and D, but did not agree as to the route after the eastern terminus of link D2.

28. The hearing on the merits convened on April 11, 2017, preceded that morning by a prehearing conference to establish procedures for the hearing. Applicants presented three witnesses on direct and two on rebuttal, with intervenors presenting the two expert witnesses and Commission Staff presenting one witness.
29. Following the hearing, the participants agreed on a briefing schedule and the filing of certain exhibits by applicants after the hearing on the merits. Because of the potential need to exceed the one-year time deadline for processing transmission line CCNs established by PURA § 37.057 and 16 Texas Administrative Code § 25.101(b), applicants agreed to extend that deadline to September 8, 2017.
30. In accordance with SOAH Order No. 7 (April 12, 2017), applicants filed post-hearing exhibits and motions to admit them on April 18 and 19, 2017 and a notice of the extension of the one-year deadline on April 21, 2017.
31. On April 26, 2017, the ALJs issued SOAH Order No. 8, admitting applicants' exhibits.
32. The parties submitted post-hearing briefing, and the record closed on May 16, 2017.

Notice

33. Applicants sent a notice of their application by priority mail on August 26, 2016 to the owners of land, as stated on the current county tax rolls in McCulloch and Menard Counties, Texas, who are directly affected by the alternative routing options.
34. Subsequent to filing its proof of notice, applicants determined that three owners of directly affected land had not received notice of the application. Applicants immediately provided them notice of the application on September 23, 2016 by priority mail with delivery confirmation.
35. Applicants caused notice of the application to be published in the Brady Standard Herald, on August 31, 2016. Applicants also caused notice of the application to be published in

the Menard News and Messenger, on September 1, 2016. Applicants republished notice due to an incorrect intervention deadline being reflected in the original newspaper notice. Republication occurred in the Brady newspaper on September 28, 2016 and in the Menard paper on September 29, 2016. The Brady Standard Herald is the newspaper having general circulation in McCulloch County, Texas. The Menard News and Messenger is the newspaper having general circulation in Mendard County, Texas.

36. Applicants sent notice of their application by priority mail on August 26, 2016 to the utilities providing similar service within five miles of the alternative routing options.
37. Applicants sent notice of their application by priority mail on August 26, 2016 to the county officials in McCulloch and Menard Counties and to the mayor of the City of Brady. In the process of preparing the proof of notice and publication, it was determined that notice of the application should have also been provided to the mayor of the City of Menard. Correcting that omission, notice of the application was sent to the mayor of the City of Menard on September 14, 2016.
38. Applicants sent notice of their application by priority mail on August 26, 2016 to the Office of Public Utility Counsel (OPUC).
39. Applicants sent a copy of their application, including all attachments, by first class mail on August 26, 2016, to the Texas Parks & Wildlife Department (TPWD). The application that was sent to TPWD included the environmental assessment and alternative route analysis (EA) as required by the Commission application for a CCN.
40. Applicants' text and provision of notice was approved in Order No. 6 (October 12, 2016).
41. Notice of the application was published in the Texas Register on September 9, 2016. 41 Tex. Reg. 7197-98.
- 41A. The Commission heard oral argument by the parties at the August 17, 2017 open meeting.

The Application

42. The application was deemed sufficient and materially complete by the Commission's ALJ in Order No. 6 (October 12, 2016), consistent with the Commission Staff recommendation.

43. No challenge was made to the adequacy of applicants' routes as contained in the application.
44. Twenty-five primary routes consisting of 111 different links were evaluated in the application's EA prepared by applicants' environmental consultant POWER Engineers, Inc. (POWER) for the proposed transmission line project.
45. The alternate routes, including the variations of routes 16 and 5, are acceptable and comply with the Commission's routing criteria.
46. The Commission was provided with an adequate number of reasonably differentiated routes to conduct a proper evaluation.

Need for the Proposed Project

47. Sound transmission system planning considers that "contingencies" (events that affect the availability and operation of major components of the electric transmission system) will occur. Within the Electric Reliability Council of Texas (ERCOT) (as with every other reliability council), a transmission system planner must consider whether the loss of a single transmission system element (such as a transmission line or transformer) in the area of study will cause (i) transmission system facility loadings in excess of emergency load carrying ratings or (ii) substation voltage levels that violate emergency operating limits (either maximum or minimum levels). These criteria are intended to ensure reliable operation of the transmission system under single contingency conditions, *i.e.*, when one component of the transmission system is not operational. The unavailability of various transmission system components (including outage of substation equipment) can cause transmission planning criteria violations.
48. Currently, the Brady area is served by a 96-mile network of 69-kV lines stretching across McCulloch, Mason, and Menard counties. This network is sourced from the 138-kV system at the ETT Yellowjacket and the LCRA Transmission Services Corporation (LCRA TSC) Fort Mason Substations.
49. The Brady area has seen significant load growth, which is due in large part to a water pumping project undertaken by the City of San Angelo and the increase in industrial load near Camp San Saba.

50. Based on historical load data, Brady area loads have increased steadily from 2005 to 2012. In 2012, the Brady area 69-kV transmission loop (Eden to Brady to Mason) peaked at 44 megawatts (MW). Certain transmission line reconfigurations were attempted as a result of this load growth, which mitigated some contingency overload problems in nearby lines.
51. Considering the load increase in the Brady area, ERCOT performed the 2012 west Texas sensitivity study (WTS Study) in 2013, and identified thermal overload issues. Additional studies conducted in 2014 that were similar to those performed by ERCOT in the WTS Study also showed the need to address overload and under-voltage issues during different contingency events. In ERCOT's independent review, it also determined that the existing 69-kV system in the Brady area is vulnerable to thermal overloads under certain contingency events.
52. The need for a third transmission source to the Brady area was clearly demonstrated during an area outage event in August 2013, when both 69-kV transmission line sources to the Brady area were out of service due to a weather-related event. The outage left approximately 9,000 customers without power for approximately 18 hours.
53. ERCOT examined eleven potential transmission options and concluded that the Yellowjacket – South Brady Project provided the best overall system performance because it:
 - Addresses the reliability need identified in the contingency analyses;
 - Provides a third source to the Brady area and minimized system impact on the Brady area under certain contingency conditions;
 - Allows expansion to meet future potential reliability issues in the Brady area;
 - Addresses all identified reliability concerns with a single line with the possibility of adding additional reactive support to resolve potential voltage collapse issues under multiple outage scenarios; and
 - Offers lowest costs among options that had similar near-term and long-term performance.
54. This project provides long-term growth opportunities at minimal cost. Since the proposed line is being designed at 138-kV construction, when the need arises it can easily be converted to 138-kV operation with minimal cost due to the existing 138-kV infrastructure

at ETT Yellowjacket Substation. It also provides the second of three sections required to complete a transmission loop around the City of Brady, which would provide the additional restoration and growth options in the area. The last section needed to complete the looped network is a 69-kV line from the South Brady station to the City of Brady station, which could be accomplished at some future date.

55. Relieving the anticipated overloading and under-voltage conditions on existing transmission facilities will improve system reliability in the area, which is served by several different electric utilities, including the City of Brady. In addition to addressing the reliability issues in the Brady area, the new transmission source will provide additional transmission capacity for future electrical load growth. Both the reliability improvements and the need for additional capacity are supported by ERCOT's independent review.
56. The project will eliminate the overloading and under-voltage conditions that the existing transmission facilities will be exposed to if this solution is not implemented.
57. The two transmission line additions are the best alternatives to address the current overloading and under-voltage conditions, to improve service reliability, and to meet the needs of future growth in the area.
58. Granting a CCN for the project will result in a cost effective solution to improve electrical service to current and future customers in this area.
59. Wholesale competition in ERCOT depends on the ability to move electric power from economical generation resources over the transmission grid to the load centers requiring such power. Currently, due to limited transmission capacity on the existing 69-kV transmission facilities in the Brady area, the ability to move power to new load is constrained. Connecting new load to a solid 138-kV source at the ETT Yellowjacket Substation will improve the ability to transfer power to the load in the Brady area, thus facilitating the flow of economic power.
60. ERCOT is responsible for identifying the necessary transmission system improvements to provide a reliable and adequate transmission network in most of Texas, including this area.

61. ERCOT conducted an independent review of the eight Brady area upgrade options submitted by AEP Texas, three options submitted by Sharyland Utilities (Sharyland), two options based on comments by LCRA TSC, and two additional options proposed by ERCOT staff. ERCOT also identified a number of low voltage issues and several transmission lines that would become overloaded during an outage of a single transmission line in the general area.
62. The ERCOT regional planning group (RPG) reviewed this project as a tier 2 project that does not require the endorsement of the ERCOT board of directors.
63. ERCOT determined that a new 138-kV capable transmission line (initially operated at 69-kV) from the existing ETT Yellowjacket Substation located in Menard is required to address reliability issues in the Brady area and to provide additional transmission capacity for future electrical load growth. On November 17, 2014, ERCOT's vice president of grid planning and operations provided a letter to AEP Texas and ETT that the project had been reviewed and accepted by the ERCOT RPG, which agreed with the need for the project and the solution.
64. The electric service issues addressed by this project are associated with large customer load impact when outages occur to current transmission facilities in the area. These transmission lines import the necessary electric supply to the area. The issue cannot be efficiently addressed by the addition of local distribution facilities. Distributed generation is not an option since neither AEP Texas nor ETT is a bundled utility.

Routing

Community Values

65. The term "community values" is included as a factor for the consideration of transmission line route certification under Section 37.056(c)(4)(A-D) of PURA. Although the term "community values" is not formally defined by statute or in Commission rules, in several CCN dockets the Commission and Staff have recognized a working definition as "a shared appreciation of an area or other natural resource by a national, regional, or local community." Some items that may potentially be considered "community values" are also evaluated separately as required by statute and the Commission's application form.

66. On October 7, 2016, McCulloch County Judge Danny Neal filed a letter in this proceeding declaring support for a route using segments A2-D2-E2-F2-G-2H2-I2-U2-V2-W2-A3-B3. On October 11, 2016, the city manager of the City of Brady, Kim Lenoir, filed a letter in this proceeding declaring support for a route using segments U2-V2-W2-A3-B3-N3-Z3 for the project. Route 16 and its variations contain a majority of the links preferred by the City of Brady and the McCulloch County Judge.
67. With the assistance of POWER, applicants hosted two public open-house meetings within the community to solicit comments, concerns, and input from residents, landowners, and other interested parties. The meetings were held on February 1, 2016, at the Menard American Legion Hall in Menard Texas, and on February 2, 2016, at the Heart of Texas Event Center in Brady, Texas. A public open-house meeting notice was mailed to approximately 193 landowners who own property located within 300 feet of the preliminary alternative link centerlines.
68. A total of 31 individuals attended the Menard public open-house meeting with 15 submitting questionnaire responses at the meeting. A total of 37 individuals attended the Brady public open-house meeting with 22 submitting questionnaire responses at the meeting. A total of 16 questionnaires commenting on the proposed project were received by applicants after the public meetings.
69. Subsequent to the public meetings, POWER staff and applicants performed additional reviews to look at areas of concern discussed at the public meetings, met with individual landowners, evaluated the public comments, and considered revisions to the preliminary routes. In response to public and landowner concerns, several preliminary alternative routing links were modified to reduce impacts to habitable structures and other constraints to the greatest extent practicable. The project team, utilizing this input, considered a series of retained, modified and eliminated routing links and identified the preliminary alternative routes to be evaluated by POWER in the EA.
70. The open-house questionnaire solicited comments from the public concerning typical transmission lines routing issues such as land use, paralleling existing corridors, and community values/resources as well as service reliability. The concerns expressed by the

largest number of respondents were minimizing loss of trees, maximizing distances from residences, and maximizing length along highways or other roads, although maximizing electric service, minimizing impacts to archeological and historical sites, maximizing length along highways or other roads, minimizing length through grassland or pasture, and maximizing length along property boundaries were also important. Other general routing concerns and some property-specific concerns were also identified.

71. Between seven and 24 habitable structures are located within 300 feet of the centerlines of the proposed primary alternative routes, depending on the route.
72. Route 16 and the route 16 variants adequately consider community values. Route 16 has eight habitable structures within 300 feet, routes 16R, 16M and 16MR have seven, nine, and eight habitable structures within 300 feet, respectively. Impacts to the community in general are minimized by paralleling existing routing features (existing transmission lines, roads, and apparent property lines), with route 16 paralleling combined parallel criteria of 86.9% of its length, while routes 16R, 16M, and 16MR parallel combined parallel criteria for 88.5%, 84.9%, and 86.4%, respectively.

Recreational and Park Areas

73. Parks and recreational areas are defined by the Commission in its application form as areas being owned by a governmental body or an organized group, club, or church.
74. As a result of consent to a routing modification provided by the Menard Independent School District, route 16R and 16MR cross approximately 95 feet at the northeast corner of a recreational area owned by the Menard ISD (softball and baseball complex).
75. Route 16 in its original configuration is located within 1000 feet of the complex, along with 20 other routes.
76. Routes 11, 12, 14, and 15 cross approximately 264 feet of the Menard River Park.
77. No significant impacts to the use or enjoyment of the parks and recreation facilities located within the study area are anticipated from any of the primary alternative routes.
78. No adverse impacts are anticipated for any of the fishing or hunting areas from any of the primary alternative routes.

Historical and aesthetic Values

79. One recorded archeological site is crossed by eight alternative routes. The site is a scatter of prehistoric debitage and has not been formally assessed for inclusion on the National Register of Historic Places (NRHP). Route 16 and its variants cross the site.
80. Three additional recorded archeological sites are located within 1,000 feet of various alternative routes. Three alternative routes are within 1,000 feet of two of the sites, and four alternative routes are within 1,000 feet of the third site. All three sites recorded within 1,000 feet of the alternative routes have been determined ineligible for listing on the NRHP. None of these sites are located within 1,000 feet of route 16 or its variants.
81. Potential direct impacts to these sites could be mitigated through routing and/or engineering design and construction measures that will protect the archeological sites. Recorded archeological sites do not typically depend on visual and aesthetic qualities for their cultural significance, so no visual indirect effects are anticipated for the archeological sites.
82. No cemeteries are crossed by the proposed routes; however, there are two cemeteries that are located within 1,000 feet of various alternative routes. Neither one of the two cemeteries is designated as a historic Texas cemetery. None of the alternative routes cross or are located within 1,000 feet of any NRHP listed property.
83. The potential of impacting undiscovered cultural resources exists along many of the alternative routes. To assess this potential, high probability areas for additional, unrecorded prehistoric resources were identified by a professional archeologist by reviewing aerial, soil, and topographic maps. Topography, availability of water, and other natural resources are all taken into consideration to determine high probability areas, as well as the effects of geologic processes on archeological deposits.
84. The length of ROW crossing high probability areas ranges from 14.6 miles on Route 5 to 24.4 miles on route 15. Route 16 has 16.3 miles and routes 16R, 16M, and 16MR have 16.8 miles, 16.3 miles, and 16.8 miles of ROW crossing high probability areas, respectively.

85. For the purposes of applicants' application 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.
86. The study area is primarily rural with residential development concentrated in the cities of Brady and Menard. The predominant land use within the study area is rangeland. The majority of the study area has been impacted by land improvements associated with agriculture, residential structures, roadways, oil and gas activities, and various utility corridors. Overall, the study area viewscape consists of open rangeland/pastureland.
87. No known high quality aesthetic resources, designated views, or designated scenic roads or highways were identified within the study area. The study area is located within the Texas Forts Trail Region. The trail runs along US Hwy 190 within the study area, and sites of interest within the City of Menard include Club Victoria, Sacred Heart Catholic Church, Ditch Walk, Menard County Courthouse (in town), and Presidio de San Saba, west of the City of Menard. National Park Service information did not indicate any Wild and Scenic Rivers, National Parks, National Monuments, National Memorials, National Historic Sites, National Historic Trails, or National Battlefields within the study area.
88. 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; overall, the aesthetic quality of the study area is not distinguishable from that of other adjacent areas within the region.
89. Aesthetic impacts, or impacts to visual resources, exist when the ROW, lines 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 or enjoyment of an area, in the case of valued community resources and recreational areas.
90. 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.

91. 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 each alternative 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.
92. All of the alternative routes have some portion of the routes located within the foreground visual zone of U.S. and State highways. Alternative route 5 has the longest length of ROW within the foreground visual zone of U.S. and State highways, with approximately 33.5 miles, followed by alternative route 24 with approximately 31.9 miles. Alternative route 14 has the least, with approximately 5.1 miles, followed by alternative route 15 with approximately 5.7 miles. Alternate route 16 has approximately 30.0 miles and alternate routes 16R, 16M, and 16MR have approximately 29.7 miles, 30.0 miles, and 29.7 miles, respectively, within the foreground visual zone of U.S. and State highways, placing them in the higher end of the spectrum for this criterion.
93. All of the alternative routes have some portion of the routes located within the foreground visual zone of FM roads. Alternative route 15 has the longest length of ROW within the foreground visual zone of FM roads, with approximately 4.1 miles, followed by alternative route 12 with approximately 3.8 miles. Alternative routes 1, 5, and 21 have the least, each with approximately 0.7 mile, followed by alternative routes 8 and 10 each with approximately 0.8 mile. Alternate route 16 and alternate route 16R both have approximately 2.1 miles and alternate routes 16M and 16MR have approximately 2.4 miles in foreground visual zone of FM roads, placing them in the middle of the spectrum for this criterion.

94. All of the alternative routes have some portion of their ROW length located within the foreground visual zone of parks or recreational areas. Alternative routes 11, 12, 14, and 15 have the longest length of ROW within the foreground visual zone of parks or recreational areas, each with approximately 2.5 miles, followed by alternative route 13, with approximately 2.4 miles. Alternative routes 3, 16, 17, and 18 have the least, each with approximately 1.4 mile, followed by alternative routes 7, 9, and 22, each with approximately 1.5 mile. Alternate routes 16 and 16MR have approximately 1.4 miles, alternate route 16R has approximately 1.3 miles and alternate route 16M has approximately 1.5 miles in the foreground visual zone or parks/recreational areas, placing them in the lower end of the spectrum for this criterion.
95. Overall, the character of the rural landscape within the study area includes gently rolling pasturelands with trees bordering the fence lines or along streams. The residential and commercial developments within the study area have already impacted the aesthetic quality within the region from public viewpoints. The construction of any of the alternative routes is not anticipated to significantly impact the aesthetic quality of the landscape.

Environmental Integrity

96. POWER used a project team, with expertise in different disciplines (geology/soils, hydrology, terrestrial ecology, wetland ecology, land use/aesthetics, socioeconomics, and cultural resources [archaeological and historical]) to delineate and evaluate potential alternative routes for the project based upon environmental and land use conditions present along each potential route, reconnaissance surveys, and the public involvement program. This process allowed for an evaluation of multiple Commission routing factors, including providing for a review of the overall impact on environmental integrity of the project.
97. Applicants (through POWER) engaged in an extensive multi-step process to determine potential environmental impacts, and used the information gathered to engage in substantial mitigation of potential impacts through that process. The environmental study process delineated a study area, made agency contacts, gathered data regarding the study area, performed constraints mapping, identified preliminary alternative routes, and reviewed and adjusted alternative routes following field reconnaissance. Applicants reviewed the preliminary alternative routes with regard to cost, construction, engineering,

ROW maintenance issues, and constraints. POWER and applicants solicited information and comments from a variety of local offices and officials with interest in the Project area.

98. Following these preliminary stages, POWER engaged in a process to identify the primary alternative routes. POWER considered a variety of information, including among other things: input received from the public; input from various correspondence with public officials and representatives of state and federal agencies; previously identified primary alternative routes that provide geographic diversity; as well as an inventory and tabulation of a number of routes addressing in various ways each environmental/land use criterion. Based on input, comments, and information received by applicants and POWER at and following the public open-house meetings, POWER identified modifications to portions of existing preliminary alternative route links and identified new links that were not delineated at the time of the public meeting. After the modifications to existing route links were made and new route links were added, primary alternative routes for the proposed transmission line Project were identified and analyzed in further detail by POWER.
99. In order to create a manageable analysis appropriate for the size of the project, POWER identified a total of 25 alternative routes for comparison. Each alternative route was examined from publicly accessible locations in the field and from aerial photography. They were evaluated considering variety of environmental/land use criteria. The evaluation of each route involved inventorying and tabulating the number or quantity of each criterion along each route. This process produced an acceptable number of alternatives, any of which would be acceptable for use under the Commission's routing criteria.
100. It is anticipated that any of the 25 routes filed in the application and any of their variants will have only short-term minimal impacts to soil, water and ecological resources.
101. 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 any of the alternative routes.

102. The magnitude of potential soil impacts are considered equivalent for all of the alternative routes. No conversions of prime or state important soils are anticipated related to project activities for any of the alternative routes.
103. Since all surface waters will be spanned and a stormwater pollution prevention plan will be implemented during construction, no significant impacts to these surface waters are anticipated for any of the alternative routes.
104. None of the surface waters crossed by any of the alternative routes exceed the typical span lengths of a 138-kV transmission line. Structure locations would be outside of the ordinary high water lines for any surface waters. Hand-cutting of woody vegetation within the ordinary high water lines may be implemented and limited to the removal of woody vegetation exceeding ten feet in height.
105. The construction, operation, and maintenance of the proposed transmission line are not anticipated to adversely affect groundwater resources within the study area. No construction activities are anticipated that would significantly impede the flow of water within watersheds. The construction of any of the alternative routes is not likely to significantly impact the overall function of a floodplain, or adversely affect adjacent or downstream properties.
106. 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 with some degree of prior clearing 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. Clearing would occur only where necessary to provide access, work space, and future maintenance access to the ROW.
107. In some instances, minimizing habitat fragmentation might also be achieved by paralleling a fence line, particularly in this case where links U2 and V2 in route 16 and its variants follow an existing high game fence and extensive amounts of fire-break clearing that has already resulted in habitat fragmentation.

108. All of the proposed alternative routes cross some length of upland woodlands/brushlands. Alternative route lengths crossing upland woodlands/brushlands ranges from approximately 26.7 miles for alternative 5, to approximately 37.5 miles each for alternative routes 18 and 20. Routes 16, 16R, and 16MR cross approximately 29.6, 29.4, and 29.5 miles of upland woodlands/brushlands, respectively.
109. All of the proposed alternative routes cross some length of bottomland/riparian woodlands. Alternative route lengths crossing bottomland/riparian woodlands range from approximately 0.1 miles each for alternative routes 5, 8, 17, 21, and 25, to approximately 0.4 mile for alternative route 15. These areas are primarily associated with vegetation near stream/creek crossings or other perennial surface waters. Routes 16 and 16R cross approximately 0.3 miles of bottomland/riparian woodlands, and route 16MR crosses approximately 0.2 miles of bottomland/riparian woodlands.
110. Due to the arid nature of the region, National Wetlands Inventory (NWI) mapped wetland areas are typically restricted to the floodplains of larger creeks, ponds, and the San Saba River. Other NWI wetlands are typically located within smaller depressions and/or associated with man-made ponds; in most instances the NWI wetlands could be spanned with impacts limited to clearing woody vegetation to achieve clearance requirements.
111. Applicants propose to implement best management practices as a component of their stormwater pollution prevention plan to prevent off ROW sedimentation and degradation of the wetland areas. With the use of these avoidance and minimization measures, none of the alternative routes are anticipated to have a significant impact on jurisdictional wetlands.
112. The lengths of each alternative route crossing NWI mapped wetlands range from 0.00 miles each for alternative routes 1, 2, 4, 8, 9, 10, 17, and 19, to approximately 0.08 miles for alternative route 24. Routes 16, 16R, and 16MR cross approximately 0.03, 0.06, and 0.05 miles of wetlands respectively.
113. The primary impacts of construction activities on terrestrial wildlife species are typically associated with temporary disturbances from construction activities; during the routing process, applicants, through their environmental consultant, POWER, attempted to

- minimize potential woodland habitat fragmentation by paralleling existing linear features and avoiding paralleling streams to the extent feasible.
114. Construction of the proposed transmission line is not anticipated to have significant impacts to wildlife and fisheries within the study area. Habitat fragmentation was minimized for all the alternative routes within woodland areas by paralleling existing linear features to the extent feasible. While highly mobile animals might temporarily be displaced from habitats near the ROW during the construction phase, normal movement patterns should return after project construction is complete.
 115. Construction of the proposed transmission line is not anticipated to have any significant adverse effects on any state or federally-listed threatened or endangered plant species. Construction of the proposed transmission line is not anticipated to have any significant adverse effects on sensitive vegetation communities in the area.
 116. Historically, the black-capped vireo has been present within the study area. Additional field reconnaissance and review of aerial photography identified many areas of potential suitable nesting habitat for this species within the study area. Alternative routes crossing historical occurrences of the black-capped vireo include alternative routes 10, 11, 12, 13, 14, and 15, at approximately 1.0 mile each, associated with link K1.
 117. None of routes 16, 16R, 16M, and 16MR crosses an area with known historical occurrences of the black-capped vireo.
 118. Minimization measures were taken during the routing process to parallel existing linear features to minimize black-capped vireo habitat fragmentation effects. If necessary, a field survey for potential suitable habitat for the black-capped vireo will be completed after Commission approval of an alternative route. Additional consultation with United States Fish and Wildlife Service (USFWS) for mitigation or avoidance may be required if suitable habitat is observed during the field survey of the Commission approved route.

Engineering Constraints

119. Design for the project meets or exceeds the requirements for construction as defined in the national electrical safety code. However, the national electrical safety code is a safety code and not a design guide, so additional design criteria will be used, including the American

National Standards Institute standards, AEP Texas, ETT, and American Electric Power Service Corporation standard practices, and such practices as required by federal, state, and local governments and agencies.

120. There is one commercial AM radio tower located within 10,000 feet of the centerlines of all alternative routes. There are no FM radio transmitters located within 2,000 feet of the alternative route centerlines. The number of other electronic installations located within 2,000 feet of the alternative route centerlines ranges from none on eight of the alternative routes to seven on Route 8. Route 16 has two and routes 16R and route 16MR have three other electronic installations within 2000 feet, falling in the lower to mid-range of all routes.
121. There are two FAA-registered airports with one runway more than 3,200 feet in length located within 20,000 feet of the centerline of all of the alternative routes. There are no private airstrips and no FAA-registered airports with no runway more than 3,200 feet in length located within 10,000 feet of any of the alternative routes. There are also no heliports located within 5,000 feet of any of the alternative routes.
122. Fourteen of the original alternative routes (and routes 16R, 16M and 16MR) do not cross any land with known traveling irrigation systems. Routes 6, 7, 8, 9, 10, 13, and 22 cross approximately 0.2 mile; and routes 11, 12, 14, and 15 cross approximately 0.3 mile of land with traveling irrigation systems. All routing links that cross land with known traveling irrigation systems are located on the edge of the irrigated property to minimize any potential impact to the irrigation systems.
123. The number of known pipelines crossed by the alternative routes ranges from zero pipeline crossings for 20 of the alternative routes, to two pipeline crossings each for alternative routes 1, 17, 18, 19, and 20. None of routes 16, 16R, 16M, and 16MR contains a pipeline crossing.
124. Oil and gas wells and associated treatment facilities and pipelines were identified within the study area. During the route development process, applicants and POWER applied a set-back distance of 200 feet from the alternative route centerlines to identified well heads using 2015 Railroad Commission of Texas data layers, aerial photo interpretation, and

Geographic Information System software generated measurements. In some instances, the set-back distance was reduced due to the need to traverse a particular area to connect the project endpoints while also considering other existing constraints in the area.

125. Pipelines that are crossed by the Commission approved alternative route will be indicated on engineering drawings and flagged prior to construction applicants will also notify and coordinate with pipeline companies as necessary during transmission line construction and operation.

Costs

126. The estimated cost of the project includes the costs of engineering, acquiring ROW, procurement of materials and supplies, construction labor and transportation, and administration. The estimated costs for all 25 alternative routes range from \$37.081 million (route 5) to \$43.146 million (route 18). The estimated cost of the new AEP Texas Heartland Substation is \$4.781 million and the new facilities required for the existing ETT Yellowjacket substation are estimated at \$1.030 million. The cost of the North Brady cut-in is estimated to be \$575,000 as a second circuit on a 69/138-kV double-circuit line into the AEP Texas Heartland Substation, or \$971,000 if constructed as a separate 69-kV line. Costs associated with the routes that were the principal ones discussed at the hearing, including modified routes, were:

Route 16	\$38,470,000
Route 16R	\$38,853,000
Route 16M	\$39,224,000
Route 16MR	\$39,648,000
Route 5	\$37,081,000
Route 5R	\$37,481,000
Route 5MR	\$37,562,000

127. A transmission line constructed on any of the alternative routes will be engineered so that the line itself will be as electrically efficient and reliable as possible taking into consideration a number of factors. Various factors, such as line length and number of angle

structures, will make lines located on some alternative routes less cost-efficient than others. However, any of the alternative routes can be engineered so that electrical efficiency and reliability will be adequate for that route.

128. Single-pole structures offer a smaller footprint at each structure location, provide a more compact design in comparison to lattice or H-frame structures, and are more desirable and economical for this application and historically more favorable to landowners because of the smaller footprint. Steel or concrete single-pole structures have been chosen since they require a smaller footprint and are generally in the same construction cost range as the other options.
129. The costs are only estimates as of the time of the filing of the application. Once the final routes have been approved by the Commission, applicants will survey the approved line routes and final engineering design will be performed. After the final engineering design is completed, costs to construct the approved routes will then be re-estimated based on bids for material and construction. At that time, the re-estimated project costs for each utility segment of the project will be updated in AEP Texas' and ETT's monthly construction reports submission to the Commission. Actual costs will be updated to the Commission once the transmission line construction has been completed. Until that time, the costs reflected in the application and testimony are only estimates.
130. Applicants' estimated costs are reasonable based on applicants experience with projects that require similar construction activities.
131. Route 16 and its variants are 3.4% to 6.5% higher in estimated costs than route 5 and its variants, mainly due to greater length. However, route 16 and its variants have fewer habitable structures than route 5 and its variants, while route 16 and its variants generally perform better in paralleling (transmission line, other ROW, property lines) than route 5 and its variants.
132. The habitable structures and paralleling criteria weigh more in favor of route 16 and its variants better meeting the Commission's overall routing criteria.

Moderation of Impact

133. Applicants have proposed various alternative routes that parallel existing transmission line ROW, parallel existing compatible ROW (roads), follow compatible routing features (“other natural or cultural features”) and parallel apparent property lines/parcel lines where reasonable. Applicants made routing adjustments based on public input where reasonable and practical prior to comparison of final routing alternatives. The adjustments were made for the following reasons:
- To further reduce the number of habitable structures directly affected by the centerline of the proposed links.
 - To improve the paralleling of apparent property lines or other physical features.
 - To improve the paralleling of compatible ROW.
 - To reduce potential land use impacts to ranching and farming operations.
134. Applicants will work with landowners to make minor routing modifications and adjust pole placement where reasonable to reduce the effects of the transmission line on farming or ranching features, including existing structures, irrigation systems, watering facilities, water wells, water tanks, windmills, livestock pens, or fencing. Once a final route has been chosen and approved by the Commission, it is common practice for utilities to make such minor route adjustments on landowners’ property to address landowner concerns where reasonable. Where feasible in the route development process for the application, applicants have paralleled existing transmission line ROW and other compatible routing features such as property boundaries or fence lines to reduce the impact to ranch and farming operations.
135. Applicants will work with landowners where reasonable to make minor routing adjustments to the transmission line in order to minimize the potential removal of oak trees. However, sometimes trees must be removed during construction, but lower growing brush and groundcover often remain intact to mitigate loss of vegetation that is still useful habitat for wildlife. Applicants will also work to re-vegetate affected areas as soon as possible after construction and will work with landowners to determine appropriate seed mixtures for coverage within ROW. Applicants will also work with landowners who prefer to reseed the area on their own.

136. Applicants will make every reasonable effort to address and accommodate landowners concerns regarding the need to access their property for construction or maintenance purposes. Using best business practices, applicants will attempt to limit the impact of its construction activities and reduce the time spent on property as much as possible, particularly where gates or fencing are disturbed. Once construction is complete, applicants generally perform inspection and/or maintenance activities once every several years and will make arrangements with landowners to mitigate the impact of the infrequent activities and time spent on the property as much as reasonably possible.
137. Applicants will take several specific measures to minimize impacts to the quality or accessibility of existing water resources on landowners' property. Applicants plan to span surface water features wherever feasible to minimize impacts. Applicants will also employ qualified individuals during design and construction of this project to identify, avoid, and minimize impacts to groundwater features. After a route is selected, applicants will conduct surveys to identify any creeks, streams, rivers, wetlands, or other water features that might be in the planned ROW, and will implement avoidance and mitigation techniques consistent with best management practices. Applicants will also meet with landowners to identify any existing water wells, and will work with landowners on minor routing adjustments if necessary to minimize impacts on such wells.
138. Applicants utilize a number of design and construction techniques to prevent negative impacts to water sources. In compliance with state and federal regulations, the applicants will implement and follow a stormwater pollution prevention plan to minimize impacts to water sources. This plan could include the use of water diversion berms and velocity dissipaters. The placement of these rock berms, silt fencing, or hay bales, will help dissipate flow of runoff and help prevent silt from entering into area waters. Additional construction considerations will be used by the applicants to mitigate the impact of clearing and construction activities.
139. Applicants have extensive experience working in a variety of different types of soil in the Central and West Texas regions and will consider any existing or potential soil erosion issues that may be caused or exacerbated by construction activities and deal with the issues appropriately. Actual soil disturbance will also be kept to a minimum providing the benefit

of root stabilization to prevent erosion. On a daily basis during construction, an inspector will monitor the construction progress to ensure the stormwater pollution prevention plan is followed. The stormwater pollution prevention plan will also address re-vegetation of the property following completion of construction.

140. Applicants appreciate how important hunting is to the community on both a personal and commercial level and will work with the landowner to reduce the potential adverse impact the transmission line might have on hunting activities.
141. Transmission lines can be found crossing active hunting areas all over Texas, as well as this region in particular, with little to no impact to these activities. Hunting activity should be compatible with any transmission lines placed on landowners' property.
142. Sometimes trees must be removed during construction, but brush and groundcover that serve as habitat for wildlife often remains intact, which will mitigate the impact on wildlife. Applicants will also work to re-vegetate affected areas as soon as possible after construction and will work with landowners to determine appropriate seed mixtures for re-vegetation.
143. Applicants identify routes to avoid habitable structures to the greatest extent possible. This is a significant factor in applicants' identification of alternative routes that best satisfy the requirements of PURA and the Commission's substantive rules. Moreover, once the Commission chooses a route for this project, applicants will work with affected landowners to make minor route modifications to increase the distance between habitable structures and the approved route if reasonably possible.

Use of Compatible Rights-of-Way, Paralleling Existing Rights-of-Way, and Paralleling of Property Lines

144. All 25 primary routes and variants use or parallel existing transmission line ROW, other compatible rights of way and apparent property lines to some extent for some portion of their lengths.
145. All 25 routes and variants use existing transmission line ROW for either 0.1 or 0.3 mile, depending upon the configuration of that route in proximity to the AEP Texas Heartland Substation. The percentages of the routes paralleling existing transmission lines ranges

from 0.6% (route 5) to 26% (route 18). The percentages of the routes paralleling other compatible ROW range from 4.7% (route 15) to 79.6% (route 5). The percentages of the routes paralleling apparent property lines range from 4.9% (route 5) to 39.7% (route 20). Totals for all the paralleling criteria for the routes in contention are:

Route 16	86.9%
Route 16R	88.5%
Route 16M	84.9%
Route 16MR	86.4%
Route 5	85.2%
Route 5R	86.4%
Route 5MR	84.4%

- 146. Route 16MR parallels property lines for 6.1 miles or 16.3%, the highest among all routes in contention.
- 147. Maximizing length along property boundary lines was a strongly expressed community value.
- 148. Links C3 and D3 on route 5MR bisect a number of properties, instead of following property lines.

Prudent Avoidance

- 149. Prudent avoidance is defined in 16 Texas Administrative Code § 25.101 as “the limiting of exposures to electric and magnetic fields that can be avoided with reasonable investments of money and effort.” The Commission’s policy of prudent avoidance is that the process of routing a proposed transmission line with a reasonable amount of money considered to address such routing should include consideration of routing options that avoid population centers when reasonable.
- 150. Prudent avoidance does not mean that a proposed transmission line must avoid habitable structures at all costs, but that reasonable alternatives must be considered.
- 151. The routes and route links proposed in the project conform to the Commission’s policy of prudent avoidance in that they reflect reasonable investments of money and effort in order to limit exposure to electric and magnetic fields.

152. DELETED.

153. Applicants' routing complies with the Commission's rule regarding prudent avoidance to limit exposure to EMF, and applicants design their facilities to reduce the electromagnetic field effect that exists close to transmission lines.

Alternative Routes and Configurations

154. Applicants have formulated a variation of route 16, identified as route 16R, that attempts to accommodate the positions of four intervenors who are affected by route 16. The adjustments to route 16 to derive route 16R are:

- Utilization of Link E on Brenda Sides' property and the double-circuiting with that link of an existing 69kV line on that property;
- Creation of a new link (E5) mainly affecting the Alan and Phyllis Crawford property, to place the route of the proposed Project closer to the property boundary for most of its length. An additional property owner (Menard Independent School District) in the vicinity of the Crawford property and not previously affected has consented to the slight impact to its property to facilitate the adjustment on the Crawford property;
- Relocating a portion of link M1 to the south side of US Hwy 190 on the Anna Gretchen Noelke property from other property owned by Ms. Noelke and another non-party on the north side of US Hwy 190 (thus Ms. Noelke taking a greater portion of the routing of link M1 through the reroute onto her property); and
- Creation of a short new link (F5) in the vicinity of the intersection of US Hwy 190 and CR 102 on the Quinn Kids Ltd. property to facilitate the crossing of that property with increased paralleling of the south property line.

155. The use of route 16R instead of route 16 would result in an approximate 1% cost increase over route 16, and the environmental and land use impacts are comparable (with route 16R actually having one fewer habitable structure within 300 feet). The addition of route 16R adds an alternative that is reasonable and feasible from a land use and environmental perspective. Applicants are agreeable to the adjustments represented by route 16R, and support the use of route 16R as a replacement for route 16.

156. Applicants also formulated a route 16 MR, which combines characteristics of route 16R with characteristics of a variant of route 16 (16M) formulated by certain intervenors. This route utilizes route 16R but with a different set of links for the eastern terminus near the AEP Texas Heartland Substation. Use of route 16MR would result in an approximately 3% cost increase over route 16; other route characteristics are generally similar to route 16. Applicants urge approval of route 16MR if route 16M were considered for approval, as it would incorporate agreed landowner routing adjustments in the western portion of the route.
157. No contributions have been made to accommodate any additional costs of these adjustments. Applicants would note that, as to the adjustment on the Noelke property that is part of routes 16R and 16MR, intervenor Noelke has consented to having a greater length of line on her properties and that the adjustment removes the proposed route 16 for the project from the property of a non-intervening landowner.
158. No impact to electrical efficiency or reliability is anticipated as a result of use of routes 16, 16R, or 16MR.

TPWD's Comments and Recommendations

159. TPWD provided comments and recommendations in letters dated November 30, 2015 and October 16, 2016. These comments and recommendations regarding the project address potential impacts on sensitive fish/wildlife resources, habitats or other sensitive natural resources. TPWD did not intervene in this proceeding or participate in the hearing on the merits.
160. POWER and applicants have already taken into consideration much of the substance of the comments and recommendations offered by TPWD.
161. Applicants already propose to follow many of the recommendations of TPWD relating to use of existing ROW, avoiding conservation easements, avoiding public recreation areas, avoiding impacts to water resources, avoiding potential impacts to endangered species, and re-vegetation of disturbed areas.
162. As to TPWD's recommendations concerning state-listed species (avoid and permit them to leave the area on their own), applicants will comply with these recommendations to the

extent possible, consistent with the need to complete this project in a timely and cost-effective manner.

163. The comments and recommendations expressed by TPWD will be addressed by the implementation of the mitigation measures and best management practices best management practices set forth in the EA, and those typically included in the recommendations of Commission Staff and the Commission's final order.
164. The mitigation measures and best management practices recommended by Commission Staff, combined with applicants' mitigation practices set out in the application, are intended to minimize the impact of transmission line construction on wildlife, including following certain procedures for protecting raptors, using extreme care in the application of chemical herbicides, minimizing disruption of flora and fauna, and revegetating with native species following completion of construction.
165. TPWD's recommendation to approve route 5 is based solely on potential impacts to natural resources and does not take into account numerous additional routing criteria as required by PURA and Commission rules.
166. If construction activities are anticipated to impact federally listed species or their habitats or impact jurisdictional waters of the US, applicants would coordinate with the USFWS and the US Army Corps of Engineers respectively regarding permitting and any required mitigation.

II. Conclusions of Law

1. Applicants are electric utilities as defined in PURA §§ 11.004 and 31.002(6).
2. The Commission has jurisdiction over this matter in accordance with PURA §§ 14.001, 37.001, 37.051, 37.053, 37.054, 37.056, and 37.057.
3. SOAH has jurisdiction over this proceeding in accordance with PURA § 14.053 and Texas Government Code § 2003.049.⁴

⁴ Tex. Gov't Code Ann. § 2003.049 (West 2016).

4. This docket was processed in accordance with the requirements of PURA, the Administrative Procedure Act,⁵ Texas Government Code Chapter 2001, and the Commission's rules.
5. Proper notice of the hearing on the application was provided in accordance with the APA § 2001.051.
6. Under 16 TAC § 25.101(b)(3)(A)(ii)(I), ERCOT's recommendation shall be given "great weight" in determining the need for a proposed transmission line project.
7. Applicants provided proper notice of the application in compliance with PURA § 37.054 and 16 TAC § 22.52(a).
8. The application is sufficient and notice was adequate.
9. Applicants' 25 routes in the application present an adequate number of routes to conduct a proper evaluation.
10. Applicants are entitled to approval of the application as described in the findings of fact, taking into consideration the factors set out in PURA § 37.056(c)(4)(A)-(D) and (F).
11. All of the routes under consideration comply with the routing factors in PURA § 37.056 and 16 TAC § 25.101, including the Commission's policy of prudent avoidance.
12. The project is necessary for the service, accommodation, convenience or safety of the public within the meaning of PURA § 37.056(a), taking into consideration the applicable factors set out in PURA § 37.056(c) and 16 TAC § 25.101.
13. The project is necessary for the service, accommodation, convenience, or safety of the public, consistent with PURA § 37.056(a).
14. Route 16MR and link Z3 for the cut-in best addresses the requirements of PURA § 37.056 and 16 TAC § 25.101.

⁵ Tex. Gov't Code Ann. §§ 2001.001-.902 (West 2016) (APA).

III. Ordering Paragraphs

In accordance with these findings of fact and conclusions of law, the Commission issues the following orders:

1. Applicants' application to amend their CCNs is hereby approved, using route 16MR for the AEP Texas Heartland to ETT Yellowjacket 138-kV transmission line.
2. AEP Texas's CCN is hereby amended for the extension (cut-in) of the existing AEP Texas Mason to North Brady 69-kV transmission line into the AEP Texas Heartland Substation, using link Z3.
3. AEP Texas's CCN No. 30170 and ETT's CCN Nos. 30193 and 30194 are amended to include construction of the transmission and substation facilities requested in the application and described as:

The Heartland to Yellowjacket Project. The facilities include construction of a new single-circuit 138-kV transmission line (initially operated at 69-kV) on single-pole steel structures. The line will extend from the new AEP Texas Heartland Substation near Brady, Texas to the existing ETT Yellowjacket Substation in Menard, Texas. The Project also includes an extension (cut-in) of the existing AEP Texas Mason to North Brady 69-kV transmission line into the AEP Texas Heartland Substation.

4. Applicants shall conduct surveys to identify pipelines that could be affected by the proposed transmission line, if not already completed, and coordinate with pipeline owners in modeling and analyzing potential hazards because of alternating-current interference affecting pipelines being paralleled.
5. In the event applicants or their contractors encounter any archaeological artifacts or other cultural resources during project construction, work shall cease immediately in the vicinity of the resource and the discovery shall be reported to the THC. Applicants will take action as directed by the THC.
6. Applicants shall follow the procedures outlined in the following publication for protecting raptors: *Suggested Practices for Avian Protection on Power Lines, the State of the Art in 2006*, Avian Power Line Interaction Committee (APLIC), 2006 and the *Avian Protection Plan Guidelines* published by the APLIC in April, 2005. Also, applicants should consult *Reducing Avian Collisions with Power Lines: State of the Art in 2012*. Applicants shall

take precautions to avoid disturbing occupied nests and will take steps to minimize the impact of construction on migratory birds, particularly during nesting season.

7. Applicants shall exercise extreme care to avoid affecting non-targeted vegetation or animal life when using chemical herbicides to control vegetation within the ROW, and such herbicide shall comply with rules and guidelines established in the *Federal Insecticide, Fungicide and Rodenticide Act* and with the Texas Department of Agriculture regulations.
8. Applicants shall minimize the amount of flora and fauna disturbed during construction of the transmission project, except to the extent necessary to establish appropriate ROW clearance for the transmission line. In addition, applicants shall revegetate using native species and shall consider landowner preferences in doing so. Furthermore, to the maximum extent practicable, applicants shall avoid adverse environmental impacts to sensitive plant and animal species and their habitats as identified by TPWD and the USFWS.
9. Applicants shall implement erosion control measures as appropriate. Applicants shall return each affected landowner's property to its original contours and grades unless otherwise agreed to by the landowner. Applicants shall not be required to restore original contours and grades where different contour or grade is necessary to ensure the safety or stability of the project's structures or the safe operation and maintenance of the line.
10. Applicants shall cooperate with the directly-affected landowners to implement minor deviations in the approved route to minimize the impact of the transmission line. Any minor deviation to the approved route shall only directly affect landowners that received notice of the transmission line in accordance with 16 TAC § 22.52(a)(3) and that have agreed to the minor deviation.
11. Applicants shall be permitted to deviate from the approved route in any instance in which the deviation would be more than a minor deviation, but only if the following two conditions are met. First, applicants shall receive consent from all landowners who would be affected by the deviation regardless of whether the affected landowner received notice of or participated in this proceeding. Second, the deviation shall result in a reasonably direct path towards the terminus of the line and not cause an unreasonable increase in cost

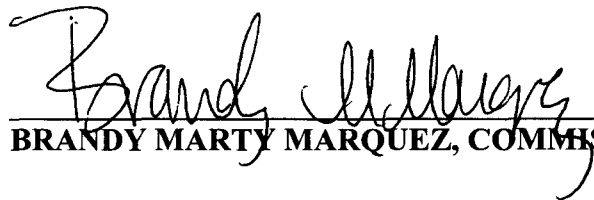
or delay the project. Unless these two conditions are met, this paragraph does not authorize applicants to deviate from the approved route except as allowed by the other ordering paragraphs in this Order.

12. Applicants shall use best management practices to minimize the potential impact to migratory birds and threatened or endangered species.
13. Applicants shall comply with the reporting requirements of 16 TAC § 25.83.
14. Applicants shall update the reporting of this project on their monthly construction progress report before the start of construction to reflect final estimated cost and schedule, in accordance with 16 TAC § 25.83(b).
15. All other motions, requests for entry of specific findings of fact or conclusions of law, and any other requests for general or specific relief, if not expressly granted, are denied.

Signed at Austin, Texas the 31st day of August 2017.

PUBLIC UTILITY COMMISSION OF TEXAS


KENNETH W. ANDERSON, JR., COMMISSIONER


BRANDY MARTY MARQUEZ, COMMISSIONER

