Control Number: 50410

Item Number: 281

Addendum StartPage: 0

SOAH DOCKET NO. 473-20-3470
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JOINT APPLICATION OF WIND ENERGY TRANSMISSION TEXAS, LLC AND ONCOR ELECTRIC DELIVERY COMPANY LLC TO AMEND THEIR CERTIFICATES OF CONVENIENCE AND NECESSITY FOR THE BEARKAT SWITCHING STATION TO LONGSHORE SWITCHING STATION 345-KV TRANSMISSION LINE IN GLASSCOCK AND HOWARD COUNTIES	§	**BEFORE THE STATE OFFICE OF ADMINISTRATIVE HEARINGS**

DIRECT TESTIMONY OF

MOHAMMED ALLY, P.E.

ON BEHALF OF

Glasscock Concerned Citizens Group

October 23, 2020

281

TABLE OF CONTENTS

I. STATEMENT OF QUALIFICATIONS

Q. Please state your name, occupation and business address.

A. My name is Mohammed Ally. I am a consultant testifying on behalf of Carl and Kara Hoelscher, Valeria and LeRoy Hoelscher, Nathan Halfmann, William Currie, C. Michael Hoch, and Dennis Seidenberger ("Glasscock Concerned Citizens Group" or "Intervenors"), and who are affected landowners in this docket. My mailing address for this docket is P. O. Box 154415, Waco, Texas 76715.

Q. Please briefly outline your educational and professional background.

A. I have a Bachelor of Science and a Master of Science Degree in Mechanical Engineering. My professional experience includes manufacturing of electronics products and semiconductor equipment, cost justifications, equipment specifications, maintenance, and installations, research in nuclear engineering, and utility regulation. In addition, I was employed with the Public Utility Commission of Texas (Commission) for over twelve years and during that time I evaluated and made recommendations on multiple certificate of convenience and necessity (CCN) applications, utility rate cases, and other utility filings. A more detailed resume is provided in Appendix A.

Q. Are you a registered professional engineer?

A. Yes, No. 84330 in the State of Texas.

Q. Have you previously filed testimony at the Commission?

A. Yes. A list of dockets in which I have filed testimony is provided in Appendix B.

II. PURPOSE OF TESTIMONY

Q. What is the purpose of this testimony?

A. The purpose of my testimony is to evaluate the application of Wind Energy Transmission Texas, LLC ("WETT") and Oncor Electric Delivery Company LLC ("Oncor") (collectively, "Applicants") for the proposed single-circuit, double circuit-capable transmission line designated as the Bearkat Switching Station to Longshore Switching Station 345-kV Transmission Line Project ("Project" or "Bearkat to Longshore Transmission Line Project") and to explain the adverse effects of the Application to the Intervenors and to present a recommendation regarding the routing of the Project.

Q. What statutes, rules, and Commission orders have you referred to in making your evaluation and arriving at your conclusions and recommendations?

A. For my evaluation, I have referred to Public Utility Regulatory Act (PURA) § 37.056, P. U. C. SUBST. R. 25.101 (b) (3), and the Order of Referral and Preliminary Order.

Q. How is my testimony organized?

A. My testimony begins in Section I with a brief statement of my qualifications. In Section II, I discuss the purpose of my testimony and the regulations that I have referred to in making my evaluation. Section III presents the summary of my conclusions and recommendations for this proceeding. In Section IV, I summarize the Proposed Project submitted by the Parties and the study area. In Section V, I briefly describe process used by the Applicants and KP Environmental Inc. ("KPE") to select Route 102. In Section VI, I discuss the public involvement activities. In Section VII, I discuss the Intervenors'

concerns. Finally, in Section VIII, I conclude my testimony with a presentation of an alternative route, Route 69, with a comparison to Route 102. This section also includes my conclusion and recommendations for the administrative law judges and the Commission.

Q. Have you prepared any exhibits related to your testimony?

A. Yes. The exhibits are attached to my testimony.

Q. Were these exhibits prepared by you or under your supervision?

A. Yes.

Q. What have you relied upon in making your evaluation of the Application and your recommendation?

A. I have relied upon the Application, Testimony and Responses to Request for Information (RFI) filed by the Parties and intervenors. Included in the Application as Attachment 2 is the Environmental Assessment and Routing Study for WETT and Oncor's Proposed Bearkat to Longshore 345 kV Transmission Line Project in Howard and Glasscock Counties ("EA") prepared for the Applicants by KPE. I have also relied on my discussions with the Intervenors I represent. In addition, I have relied on Texas Parks and Wildlife Department (TPWD) letter to the Commission and KPE.

III. SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS

Q. Please summarize the conclusions that you have reached as a result of your analysis.

A. I have reached the following conclusions for the Bearkat to Longshore 345-kV transmission line:

1. All 249 of the routes proposed by the Applicants utilize and are entirely dependent on only two route links – C-BB and W-W – which connects to the Bearkat Substation. While this may not affect the overall geographical diversity of the routes when considering the study area as a whole, it unreasonably restricts the routing options for the transmission line in the southern area of the study area and places an undue burden on a limited number of landowners in that the entire 249 routes impact them directly by affecting their property.

2. The Applicants in their opinion considered the routing criteria as defined by existing PURA and the Commission Substantive Rules in its route assessment for the proposed Bearkat to Longshore Transmission Line Project.

3. Route 69 (Route Links C-A, C-B, C-H, C-P, C-J, C-R, C-Y, C-Z, C-AF, C-AD, C-AN, E-AA, E-AB, E-AJ, E-AK, W-T, W-W) is a reasonable alternative route for the Bearkat to Longshore Transmission Line Project when considering intervenor concerns, environmental integrity and cost.

4. The Applicants did not consider Intervenors' use of precision-guided farm equipment and center-pivot irrigation system for their operations when they proposed certain Links for the proposed Project.

5. The Applicants also did not consider Intervenors' proactive method of water and soil conservation in their operations when they proposed certain Links for the proposed Project.

Q. What are your recommendations?

A. I recommend the Administrative Law Judges (ALJs) and the Commission:

1. Consider Route 69 as the route that best addresses the requirements when considering as a whole the factors set forth in PURA § 37.056(c)(4)(a), (4)(c), and (4)(d), and as set forth in P.U.C. SUBST. R. 25.101(b) (3) (B) as well as approval from many intervenors.

2. Consider landowner's request for accommodating their routing recommendation because they face the undue burden of having the substation and many transmission lines adjacent to the property as well as bisecting the property thereby destroying the movement of various farm equipment used in their operation to earn a livelihood. The routing recommendation will continue use of the new type of precision tractors on their property.

3. Consider landowner's request for the use of monopoles in their property because the smaller monopole foundation will enable the better use of the property, the monopole will prevent predator animals perch and prey on the baby livestock.

IV. PROJECT DESCRIPTION

Q. Please describe the Bearkat to Longshore Transmission Line Project of the Application.

A. Applicants propose to construct a new single-circuit, double-circuit capable, 345 kV transmission line that would be built primarily on lattice steel towers between a new 345 kV bay at WETT's existing Bearkat 345 kV high-voltage switching station (located

approximately 7.2 miles southwest of Garden City in Glasscock County) and a new 345 kV bay at Oncor's existing Longshore Switching Station (located approximately 4.8 miles west of the community of Forsan in Howard County).[1] Lattice steel towers were selected as the predominant structure but WETT and Oncor may use monopole structures within constrained ROW or for engineering-related reasons.[2] WETT's typical structure height is 172 feet and Oncor's typical structure height is 120 feet, but could vary depending upon terrain or other site-specific engineering requirements.[3] The permanent ROW width for this Project will typically be 160 feet (80 feet on both sides of the transmission line centerline).[4]

Q. Who was responsible for selecting the study area and recommending routes to the Applicants?

A. KPE, with input and assistance from the Applicants, delineated the study area within which to review the existing environment and eventually to locate geographically diverse alternative routes.

Q. What did KPE provide to the Applicants for its responsibility to this transmission line project?

A. The Applicants retained KPE to delineate and to select and evaluate an adequate number of geographically diverse/differentiated alternative transmission line routes that comply with Public Utility Regulatory Act ("PURA") § 37.056(c)(4)(A)-(D), 16 TAC §

[1] Application, page 2.
[2] Morton testimony, Page 21, lines 16-18.
[3] *Id.*
[4] *Id.*

22.52(a)(4), and 16 TAC § 25.101(b)(3)(B), including the Public Utility Commission of Texas policy of prudent avoidance. KPE developed the Bearkat to Longshore Transmission Line Project EA. KPE worked closely with Applicants to obtain information on the Project description, need, construction practices, and Right-of-Way (ROW) requirements.[5] Applicants also provided preliminary engineering and design requirements for the routing of the Project.[6] KPE evaluators with input from Applicants selected the proposed alternative routes that they believe best address the requirements of PURA and the PUC's Substantive Rules.

Q. What is the proposed study area in this Application?

A. KPE's first step in the identification of the alternative routes was to select a study area large enough to adequately evaluate the Project in support of the CCN and establish boundaries and limits for the information gathering process (i.e., identifying environmental and land use constraints).[7] This area needed to encompass the termination points within Howard and Glasscock counties and include an area large enough that a reasonable number of forward progressing, geographically diverse alternative routes could be identified.[8] The study area is an irregular shape with the longer axis (approximately 37 miles) aligned north-to-south and 25 miles wide east-to-west.[9]

Preliminary line segments selections were based on KPE reconnaissance and observations of the Project study area; review and analysis of the data included in the EA;

[5] EA, page 1-1.
[6] *Id.*
[7] *Id,* page 2-1.
[8] *Id.*
[9] *Id.*

involvement in the open house meeting as well as additional input received from interested parties; and other information.[10] The selections incorporated consideration of engineering feasibility, the estimated cost of alternative routes, construction limitations, and other information provided by WETT and Oncor.[11]

Numerous preliminary alternative route links were identified by KPE, prior to the open house meeting, that when combined formed many preliminary alternative routes to connect WETT's Bearkat Switching Station to Oncor's Longshore Switching Station.[12] Following the open house meeting, KPE conducted a reconnaissance survey to evaluate and identify in the field the input, comments, and information received at the open house meeting, as well as supplement their prior work, to determine whether that information would warrant modifications to the preliminary alternative route links and/or the identification of new preliminary alternative route links that were not presented at the open house meeting.[13]

In general, numerous links were modified to account for new construction identified during the September 2019 aerial reconnaissance, mostly related to oil and gas facilities, active excavation sites, and potential interference with a permitted, but unconstructed FAA-registered airport.[14] Following the preliminary alternative route link revisions, KPE identified approximately 249 alternative routes that were further evaluated.[15]

[10] Appendix G.
[11] *Id*
[12] *Id.*
[13] *Id.*
[14] *Id.*
[15] *Id.*

Due to the location of this Project's endpoints being on opposite sides of State Highway (SH) 158, all routes cross SH 158.[16] Forty-two geographically diverse alternative routes were selected to be filed with the Application to allow for an adequate number of alternative routes to conduct a proper evaluation.[17]

Q. What is the estimated cost of the transmission lines and upgrades to existing substations?

A. The estimated cost of the submitted 249 transmission lines is between $56,428,000 and $82,006,000 depending on the route selected by the Commission.[18] Additional costs associated with the proposed Project include upgrading WETT and Oncor Substations. This cost varied from $4,856,000 to $5,200,000. The total estimated cost of the 249 transmission lines is between $61,698,000 to $87,206,000.[19]

V. ROUTE SELECTION

Q. How many routes did KPE present in its Application?

A. KPE identified potential route links, from which it ultimately assembled 249 potential alternative routes for further evaluation.[20] While any combination of the proposed links could be approved, these potential routes were further refined to the 42 potential alternative routes for inclusion with this Application.

Q. Which route was selected by Applicants from the 42 routes?

[16] *Id.*
[17] *Id*
[18] Joint Applicants' Notice of Application Amendments filed on September 16, 2020
[19] *Id.*
[20] Pollio testimony, Page 8, lines 11-13.

A. Applicants in coordination with KPE identified Route 102 as the primary alternative route that it believes best addresses the requirements of PURA and the PUC Substantive Rules.

Q. Are all of the proposed alternative routes constructible?

A. Yes. Oncor witness Mr. Andres S. Cook stated that based on the information available to Applicants at this time, none of the filed alternative routes present any known engineering constraints that cannot be resolved with additional consideration by Applicants during the design and construction phase following approval of this Proposed Transmission Line Project.[21]

VI. PUBLIC INVOLVEMENT ACTIVITIES

A. CORRESPONDENCE WITH AGENCIES AND OFFICIALS

Q. Did KPE contact federal, state, local agencies and officials for this Project before the Application was filed and what was the purpose of this correspondence?

A. Yes. Before the Application was filed, KPE also sent consultation letters by mail and email to various local officials and departments, and state and federal regulatory agencies.[22] The list of the contacts are presented at Appendix B in the EA, Attachment 2 to the Application.[23]

[21] Cook testimony, Page 10, lines 7-11.
[22] Pollio testimony, Page 14, lines 20-22.
[23] Pollio testimony, Page 16, lines 8-9.

B. PUBLIC MEETINGS

Q. Did Applicants and KPE conduct public open house meeting for this Project before the Application was filed and what was the purpose of this correspondence?

A. Yes. Applicants and KPE hosted a public open house meeting on September 11, 2019 at the Glasscock Community Center in Garden City, Texas.[24] The meeting was designed to solicit comments and input from residents, landowners, public officials, and other interested parties regarding the Project.[25] The objectives included advancing an understanding of the Project, including the purpose, need, and potential benefits and impacts; informing and educating the public with regard to the routing process and schedule; and gathering information about the values and concerns of the public and community leaders.[26]

Q. What areas of concerns were provided in response to the public meetings questionnaire?

A. Generally. the principal concerns expressed in the responses received and at the public meetings included: [27]

- Property owners expressed that they did not want the route on their property;
- Property owners identified their preliminary route link preference;
- Property owners expressed that they did not want the route to cross farm fields or disturb drip irrigation systems;

[24] Pollio testimony, Page 12, lines12-14.
[25] Pollio testimony, Page 12, lines 6-7
[26] Pollio testimony, Page 12, lines 7-11.
[27] Pollio testimony, Page14, lines1-13.

- One owner stated that he would like the route to cross his property;
- Property owners expressed their preference to avoid a portion of a large ranch where houses are located;
- Oil/gas company representatives indicated their preference to not interfere with oil and gas wells;
- Attendees expressed their preference for co-locating this Project on existing transmission structures.

Q. In your opinion, do you think that these factors should be incorporated into an evaluation of community values?

A. Yes. The economy and the culture of the community is heavily dependent on agriculture, oil and gas production and leasing the land for hunting

C. TPWD COMMENT AND RECOMMENDATION

Q. Did the Texas Parks and Wildlife Department (TPWD) recommend a route to this Project?

A. Yes. TPWD submitted a letter dated March 16, 2020 recommended Route 48 for the Bearkat to Longshore Transmission Line Project. [28]

Q. Did the Texas Parks and Wildlife Department (TPWD) provide any comments and recommendations to this Project?

A. Yes. TPWD's letter addressed issues relating to impacts on ecology and the environment. Few of their recommendation are mentioned here. The letter stated that the EA failed to

[28] TPWD letter dated March 16, 2020.

provide sufficient information based on surveys (aerial or field), remote sensing, modeling, or other available analysis techniques to determine which route would best minimize impacts to important, rare, and protected species.[29] TPWD recommends any PUC certificate preclude vegetation clearing activities during the general bird nesting season, March 15 through September 15, to avoid adverse impacts to birds. If clearing vegetation during the migratory bird nesting season is unavoidable, TPWD recommends surveying the proposed route for active nests (nests with eggs or young). TPWD recommends that a minimum 150-foot buffer of vegetation remain around any nests that are observed prior to disturbance and occupied nests and buffer vegetation not be disturbed until the eggs have hatched and the young have fledged.[30] TPWD recommends surveying the project area for the aforementioned rare plant species where suitable habitat may be present, prior to construction. The survey should be performed by a qualified biologist at the time of year when this species is most likely to be found, usually during the flowering period.[31] TPWD recommends that personnel involved in construction of the transmission line be informed of the potential occurrence of snakes in the project area and be advised to avoid impacts to these species.[32] TPWD recommends surveying the study area for prairie dog colonies and the species that depend on them. If prairie dog colonies are found in the study area, TPWD recommends the WETT and Oncor avoid these areas during siting and construction of the transmission line.[33]

[29] *Id*
[30] *Id*
[31] *Id.*
[32] *Id.*
[33] TPWD letter, EA Attachment 2, pages B-61-69.

VII. GLASSCOCK CONCERNED CITIZENS GROUP CONCERNS

Q. Did Glasscock Concerned Citizens Group (GCCG) Intervenors express their environmental integrity and their concerns?

A. Yes. GCCG intervenors utilize equipment and methods that provide soil and water conservation. The intervenors' experience and expertise in their operations are provided in this section.

Q. Please describe the operations and concerns of Intervenor Carl Hoelscher.

A. According to Intervenor Carl Hoelscher, the land is used for cotton and wheat production. He stated that there are few distribution lines and various gas lines on the property. The land is sometimes used for livestock such as goat or sheep and if the lattice towers are used then predatory birds such as mexican eagles usually perch on the towers and prey on the baby animals.

The tractors used for the crop production have precision guided systems with an accuracy of less than one inch. The reason for programming the tractors to such stringent operational condition is to ensure soil and water conservation. Mr. Hoelscher has experience with the effect of another transmission line on another property where he also uses these types of precision-guided tractor system. He said that at the end of the property where the 138-kV transmission line exist, the tractor gives misinformation and the tractor throws off-track when he is near the transmission line.

Mr. Hoelscher is in favor of monopoles, since it will not allow the predator birds to perch as well as having a smaller footprint of the monopoles on the property. Mr. Hoelscher is opposed to the Route Links: C-AZ, E-AL, W-P, W-O, W-S, C-BD as these route links

will affect his properties explained above. Finally, the land that has segment W-P was owned by his mother Ella Joy Hoelscher and was transferred to him this year. Mr. Hoelscher has agreed to allow Route 69 to include Links W-W and W-T. He recommends monopoles because the smaller monopole foundation will enable him to better use the property, the monopole will prevent predator animals perch and prey on the baby livestock and will ensure that the landowner's method of soil and water conservation is maintained.

Q. Please describe the operations and concerns of Intervenor Michael Hoch.

A. According to Intervenor Michael Hoch, his farm grows cotton and sometimes wheat due to crop rotation. He is opposed to Route Link C-BA as this link will subdivide his property and he opines that this route link should never have been proposed because of the farming process he uses to grow his crop. Route Link C-BA will block his towable center pivot irrigation system to the west, thereby making it impossible for his farming. The radius of his center pivot system is about ¼ of a mile. Similar to Mr. Hoelscher, Mr. Hoch's tractors used for the crop production have precision guided systems with an accuracy of less than one inch. The reason for programming the tractors to such stringent operational condition is to ensure soil and water conservation. Mr. Hoch has stated that he has experience with the effect of another transmission line on another property where he also uses these types of precision-guided tractor system. He said that at the end of the property where the 138-kV transmission line exist, the tractor gives misinformation and the tractor throws off-track when he is near the transmission line.

Mr. Hoch is also opposed to Link C-AY as it affects his farming operation. Similar to the above problems, the existing transmission line is affecting similarly to his programmed tractor. It will also affect the towable irrigation system.

Q. Please describe the operations and concerns of Intervenor Nathan Halfmann.

A. According to Intervenor Nathan Halfmann, the property is used for growing cotton. Similar to Mr. Hoelscher, Mr. Halfmann's tractors used for the crop production have precision guided systems with an accuracy of less than one inch. The reason for programming the tractors to such stringent operational condition is to ensure soil and water conservation. Mr. Halfmann states that if Mr. Hoelscher and Mr. Hoch has issues with the tractors due to the existing 138-kV transmission line, Mr. Nathan expresses that similar problem will happen for his tractors when the proposed 345-kV transmission line is constructed on his properties and the properties he leases. Mr. Halfmann is also opposed to Route Links E-U and W-N. He has four (4) houses on Route Link E-U. Mr. Halfmann lives on one of the houses and the other houses are occupied by his son and staff. Finally, Mr. Halfmann states that he has seen horny toads in his property. He also leases other properties and is concerned to lose his leases if he cannot farm the leased properties.

Q. Please describe the operations and concerns of Intervenor William Currie.

A. According to Intervenor William Currie, the ranch acreage consists of range and farmland located in Glasscock County. There are two dwellings on the property. One of the homes is occupied by the foreman of the ranch for over 50 years. The other dwelling is the main home of the ranch referred to by family as "the little house". Though for

several generations the Currie family made its money in commercial livestock production of black angus cattle, today the family currently make the majority of their income from oil and gas production on the land by mineral interest. The rest of the family income is made through farmland and hunting leasing. The farmland consists of 364 acres which is leased to a nearby neighbor, Intervenor Nathan Halfmann, for cotton production. The remainder of the land is arid rangeland consisting of some minor hills, several species of cacti and mesquite shrubs, along with finger printings of former comanche prevalence.

The ranch is home to many other selections of west Texas wildlife including whitetail deer, quail, rio grande turkey, rabbits, coyotes, bobcats. The family also produce honey from honeybees for personal consumption.

Mr. Currie expresses that the construction of the proposed 345-kV transmission line from will greatly impact not only the oil and gas production in significant areas of the family ranch but also drive out much of the wildlife that is leased to hunt on their property, thus destroying, if not all of it, the vast majority of their income.

Specifically, Route Links E-Z, E-AC and E-AE affects their properties. The route links will affect oil and gas production along with whitetail deer, quail, and varmint hunting. There is also a little house located on Link E-Z where hunters pay to live throughout the year. The building of Route Link E-Z will result in the Link to almost come right into the structure and will certainly destroy an established gun range that rests on the edge of the property. Mr. Currie hopes the transmission route links be built elsewhere so that his family's income will not be infringed upon.

Q. Please describe the issues on the property of Intervenor Leroy Hoelscher.

A. Intervenor Mr. Leroy Hoelscher leases his land because of his age. He is opposed to links that will affect his home which is located on CR125. His senior income is generated from the leases of his land to Mr. Nathan Halfmann. Mr. Leroy is concerned that his income will be affected if Mr. Halfmann could not get to use his programmed tractor and not be able to get the benefit of the soil and water conservation methods used by Mr. Halfmann.

Q. Please describe the operations and concerns of Intervenor Dennis Seidenberger.

A. According to Intervenor Dennis Seidenberger, the property is used for growing cotton. He is extremely opposed to Route Links C-BA, C-BC, and would like to recommend a slight modification for Links E-AB, E-AJ and E-AK. Route Link C-BA enters his property from the south after the link crossed Mr. Hoch's property and then the link traverses north to the middle of Mr. Seidenberger's property and from this middle position on his property the link traverses east, thereby completely dividing the property into odd-shaped segments. The entire property is irrigated with drip irrigation system which includes a network of sensors and many feeder lines. Mr. Seidenberger is concerned that any construction on his property will destroy these drip lines as well as damage the programmed irrigation schedule. Mr. Seidenberger's tractors are also programmed for the crop production and have precision guided systems with an accuracy of less than one inch. In addition, the tractor's GPS system is programmed to keep track of the irrigation drip lines and any interruption with the signals to the tractor will destroy the process of planting the crop and affecting the drip lines. The drip lines are 11-inch below the ground and can only be located by the tractor program. Mr. Seidenberger is

also concerned that the Links C-BA, C-BC presently proposed to traverse his property will destroy the feeder lines that connect to the pumps which are connected to a central computer system in the drip building.

Mr. Seidenberger hires an airplane service to spray chemicals evenly on crop to eliminate insects and weeds. The airplane flies about 3 feet from the top of the plants and a maximum altitude of 5 feet above the ground. The airplane cannot go higher than this low height, because at a higher altitude the crop will not get good coverage of the chemicals. In addition spraying chemicals from higher altitude is not acceptable because the wind will cause extreme drift of the chemicals to the neighboring property, thereby damaging their crops.

With respect to the Route Links E-AB, E-AJ and E-AK, Mr. Seidenberger has concerns the transmission line will make it difficult for aerial spraying of his property similar to the problem in his other property. In addition, the signal to his tractor's GPS may be affected and create problems to his crop production. He is recommending the links be moved to the east of the FM 33 since that property on the east of FM 33 is pastureland and there are no habitable structures. He also recommends that monopoles are the best option.

As already mentioned earlier, the reason for programming the tractors to such stringent operational condition is to ensure soil and water conservation. Mr. Seidenberger stated that if the above Intervenors has issues with the tractors due to the existing 138-kV transmission line, Mr. Seidenberger expressed that similar problem will happen for his tractors when the proposed 345-kV transmission line is constructed on his properties. .

Q. What is meant by the term "prudent avoidance"?

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

Q. Do you believe that the Applicants' proposed alternative routes comply with the Commission's policy of prudent avoidance?

A. All the proposed alternative routes considered in the EA seem to conform to the Commission's policy of prudent avoidance in that they reflect reasonable investments of money and effort to minimize exposure to EMF. The number of habitable structures within 500 (+/-30) feet of the centerline of Route 102 is 8; however, Applicants claim 5 of them are mobile units that appear to be temporarily in place and appear to lack permanent foundation. Using the Table 7-4, Attachment 2 it appears that 13 of the habitable structures are mobile units that appear to be temporarily in place and appear to lack permanent foundation and that gives Route 69 the number of habitable structures to 8.

VIII. ALTERNATIVE ROUTE

Q. Is there an alternative route that is proposed in this Application that is more favorable for this Project?

A. Yes. Landowners attending the public open house meeting expressed that the makeup of their economy should be not disturbed. That economy is based on agriculture, oil and gas

and hunting leases. Based on discussions with intervenors in this proceeding, Route 69 is the most favorable route for this Project for the intervenors as well as it best addresses the requirements when considering as a whole the factors set forth in PURA § 37.056(c)(4)(a), (4)(c), and (4)(d), and as set forth in P.U.C. SUBST. R. 25.101(b) (3) (B). Route 69 is one of the routes out of the 249 routes proposed in this Application, but it is not one of the routes proposed in the 42 routes for consideration. Route 69 utilizes the following Route Links: C-A, C-B, C-H, C-P, C-J, C-R, C-Y, C-Z, C-AF, C-AD, C-AN, E-AA, E-AB, E-AJ, E-AK, W-T, W-W. In addition, all the route links in Route 69 are also the route links that have been utilized for the 42 proposed routes.

Q. Which route was selected by Applicants from the 42 routes that they believe best addresses the requirements of PURA and PUC Substantive Rules?

A. Applicants in coordination with KPE identified Route 102 as the primary alternative route that they believe best addresses the requirements of PURA and PUC Substantive Rules.

Q. Why do you think that Route 102 was not reasonable using all available data?

A. I will provide my explanation in this section below using the information provided in the EA and also from Intervenors farming operations. These information will be in a series of questions and answers below with a final summary of my opinion in the last question.

Q. How did KPE define prime farmland soils in the EA and how much area does it cover in the Study Area?

A. KPE identified prime farmland soils based on the definition in 7 Code of Federal Regulations [CFR] § 657.5[34]. According to the Code, prime farmland soils are those soils that have the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops, and are also available for these uses (the soil's use could be cropland, pasture, forest land, or other land, but not urban built-up or water).[35] These soils have the quality, growing season, and moisture supply needed to economically produce sustainable high yields of crops when treated and managed, including water management, according to acceptable farming methods.[36] In general, prime farmland soils have adequate and dependable precipitation, a favorable temperature and growing season, acceptable acidity or alkalinity, permeability to water and air, and few or no surface stones.[37] Prime farmland soils are not excessively erodible or saturated with water for a long period of time, and they either do not flood frequently or are protected from flooding.[38] Additional potential prime farmlands are areas with soils that meet most of the requirements of prime farmland but fail, because they lack water management facilities, such as irrigation systems, or they lack sufficient natural moisture.[39] Such areas would be regarded as prime farmland if these areas were irrigated.[40] When land does not meet the classification for prime farmland, it may be considered a farmland of statewide importance as determined by the significance in "the

[34] EA, Page 3-5.
[35] EA, Page 3-5.
[36] EA, Page 3-5.
[37] EA, Page 3-5
[38] EA, Page 3-5.
[39] EA, Page 3-5.
[40] EA, Page 3-5.

production of food, feed, fiber, forage, and oilseed crops."[41] These areas produce high yields of crops, yet do not meet all necessary criteria for prime farmland designation (NRCS, 1997).[42] Based on Table 3-2,[43] prime farmland is about 358,639 acres or about 64% of the Study Area.

Q. Please explain the groundwater/aquifers in the Study Area.

A. The majority of the study area is located above the Edwards Trinity Aquifer which is a major aquifer that extends across much of the southwestern portion of Texas.[44] More than two-thirds of groundwater pumped from this aquifer is used for irrigation, with the remainder used for municipal and livestock supplies.[45] Water levels have remained relatively stable because recharge has generally kept pace with the relatively low amounts of pumping over the extent of the aquifer (TWDB 2011).[46]

Unlike the Edwards, the Trinity Aquifer recharges very slowly.[47] Only 4-5% of water that falls as rain over the area ends up recharging the Aquifer, and water also moves through the Trinity much more slowly than through the Edwards. The Trinity contributes a significant amount of water as recharge for the Edwards.

The northwestern portion of the study area is located above the Ogallala Aquifer.[48] The Ogallala Aquifer, which consists of sand, gravel, clay, and silt, is the largest aquifer in the

[41] EA, Page 3-6.
[42] EA, Page 3-6.
[43] EA, Page 3-5.
[44] EA, Page 3-8.
[45] EA, Page 3-8.
[46] EA, Page 3-8.
[47] The Edwards Aquifer website, https://www.edwardsaquifer.net/trinity.html
[48] EA, Page 3-8.

U.S. and has a maximum thickness of 800 feet.[49] The freshwater saturated thickness averages 95 feet.[50]

All groundwater resources within the study area are located within the TWDB Groundwater Management Areas #2 and #7 (TWDB 2015).[51] The TWDB Groundwater Database recorded multiple wells within the study area.[52] The Ogallala Aquifer provides significantly more water for users than any other aquifer in the state.[53] The availability of this water is critical to the economy of the region, as approximately 95 percent of groundwater pumped is used for irrigated agriculture (TWDB 2011).[54] Throughout much of the aquifer, groundwater withdrawals exceed the amount of recharge, and water levels have declined fairly consistently over time.[55] Although annual water level declines in excess of 300 feet have occurred in several areas over the last 50 to 60 years, the annual rates of decline have slowed and water levels have risen in a few areas.[56] In their 2006 Regional Water Plans, the regional water planning groups for the Panhandle and Llano Estacado regions recommended numerous water management strategies for the Ogallala Aquifer, including drilling new wells, developing well fields, over-drafting, and reallocating supplies (TWDB 2007).[57]

Q. What did KPE say with regards to affecting the transmission line in the Project?

[49] EA, Page 3-8.
[50] EA, Page 3-8.
[51] EA, Page 3-8.
[52] EA, Page 3-8.
[53] EA, Page 3-8.
[54] EA, Page 3-8.
[55] EA, Page 3-8.
[56] EA, Page 3-8.
[57] EA, Page 3-9.

A. KPE stated that the construction, operation and maintenance of the Project is not expected to adversely affect groundwater resources in the study area because no measurable alteration of recharge capacity is expected to occur within the underlying Ogallala and Edwards-Trinity Aquifers.[58] Specifically, construction of the proposed transmission structures and associated foundations would only disturb very limited and shallow areas of soil.[59]

Q. Please reemphasize the Intervenors concerns regarding the farm operations.

A. According to the Intervenors, the tractors used for the crop production have precision guided systems with an accuracy of less than one inch. The reason for programming the tractors to such stringent operational condition is to ensure soil and water conservation. Intervenors stated that they have experience with the effect of a transmission line on property where they use these types of precision-guided tractor system. They said that at the end of the property where the 138-kV transmission line exist, the tractor gives misinformation and the tractor throws off-track when the tractors are near the transmission line.

Q. Please summarize the above information regarding the lack of environmental integrity for selecting Route 102.

A. My summary will only focus on the Intervenors land and how Route 102 is lacking information to be the best route, especially in terms of environmental integrity.

[58] EA, Page 7-5.
[59] EA, Page 7-5.

First, Texas economy will definitely benefit with increasing or at least maintaining prime farmlands. Since over 64% of the Study Area is prime farmland, bisecting or not allowing existing irrigation system to operate normally is not acceptable. Intervenor Mr. Hoch's land will be bisected and his towable center-pivot will not be able to operate if Route Links C-BA and C-AY is approved. These Links should not have been proposed in the Application as the Links will definitely hurt the use of the prime farmland.

Second, KPE is aware of the water resources within the Study Area as I have presented above. KPE did not take into consideration of the soil and water conservation measures utilized by the Intervenors when they have spent large sums of money to buy equipment in their operations. If KPE had done the homework on environmental integrity, the Links on the Holeschers, Halfmann, Hoch and Currie properties would not have been used.

Farmers acknowledge that the State of Texas is losing farmland and associated agricultural products to new cities, old city expansion and industries.

Texas is already in an uncertain water situation. Water is an important and valuable resource and the state will almost certainly face water availability issues in the near future. Increased water conservation will almost certainly be required to ensure that all Texans have access to enough water in the coming years. The state currently uses groundwater to fulfill about 60% of water needs, and surface water is used to fulfill the other 40%.

In its own study KPE mentioned that the water level has been decreasing. In that situation, KPE needs to evaluate other links to ensure that any type of water conservation that has been implemented by the intervenor farmers are preserved in the prime

farmlands. In addition, KPE stated that the construction, operation and maintenance of the Project is not expected to adversely affect groundwater resources in the study area because no measurable alteration of recharge capacity is expected to occur within the underlying Ogallala and Edwards-Trinity Aquifers.[60] Specifically, construction of the proposed transmission structures and associated foundations would only disturb very limited and shallow areas of soil.[61] This is very short-sighted for KPE. Equipment utilized and processes implemented to soil and water conservation efforts will be damaged. KPE was only thinking of the construction, operation and maintenance of the line and never thought of the long-term effects of the transmission line on the landowners.

Third, let us review the principal concerns expressed in the responses received and at the public meetings. Landowners attending the public open house meeting expressed that the makeup of their economy be not disturbed. That economy is based on agriculture, oil and gas and hunting lease and hunting privileges. From the concerns expressed at the public meeting, it seems that KPE forgot to incorporate the concerns of the community. If KPE had done so, then the statutory criteria of environmental integrity would have been met. I believe that incomplete environmental data was presented to select Route 102 and that Route 102 is not the route that takes into consideration the issues explained above that includes environmental integrity.

Q. Do you want to provide the information provided in the environmental data in support of Route 69?

[60] EA, Page 7-5.
[61] EA, Page 7-5.

A. Yes. Additional factors which led to the selection of Route 69 include the following:[62]

• the cost of the transmission line for Route 69 is $57,873,000 whereas for Route 102 the cost is $58,679,000. Route 69 is $806,000 cheaper than Route 102;

• the length of Route 69 is approximately 31.4 miles whereas Route 102 is approximately 30.8 miles, which is about 0.6 miles longer;

• the length of Route 69 paralleling existing road/highways is approximately 4.5 miles, whereas Route 102 is approximately 1.7 miles, a difference of 2.8 miles favoring Route 69;

• the length of Route 69 across riparian areas is approximately 0.1 miles whereas Route 102 is 0.2 miles, since less miles is better for riparian areas;

• the length of Route 69 paralleling streams within 100 feet is approximately 1.4 miles, whereas Route 102 has 1.5 miles;

• the length of Route 69 across lakes or ponds is approximately 20 feet whereas Route 102 is approximately 213 feet;

• number of recorded cultural resources within 1,000 feet on Route 69 is zero whereas Route 102 has one;

• length of route across areas of high archaeological/historical site potential is approximately 4.3 miles whereas Route 102 has 5.2 miles;

Our primary reasons for objecting to the Project is the interference Intervenors experience with high voltage power lines they already have. In their farming operations they use

[62] Application, Appendix G, Table 2.

GPS receivers that track satellites as well as towers that give corrections to the receivers on their tractors. The farms are mapped and contoured as to how they place their rows for maximum water conservation. All of their rows are stored in the GPS equipment and it subsequently gives them sub inch repeatability when placing or cultivating their rows though the growing season. One Intervenor currently have two farms #117 and #828 in Glasscock County with high voltage lines and on both experience total signal loss when near or around the lines. The GPS can run without a signal for short periods of time so signal loss is not instantly noticeable by operator but normally takes longer to pass than it can store signal. This disturbance is not 100% of the time however it is greater than 90% and after it happens it throws off the guidance in the tractor and they must manually farm the remainder of the field for that year. For the next year the old rows must be destroyed and replaced, this adds much time and expense to their farming operations. Intervenors have tried many options to alleviate this problem including adding signal repeaters to minimize disruptions. These costly remedies have yielded unsatisfactory success and have helped only minimally at best.

Q. Does this conclude your testimony?

A. Yes.

Appendix A

Statement of Qualifications

I received a Bachelor of Science and a Master of Science Degree in Mechanical Engineering from the University of Texas (UT) at Austin. I have attended seminars on nuclear topics, automation, electronic products, and wafer manufacturing processes. I have presented papers on preconcentration methods for uranium and other transition elements determination using neutron activation analysis and x-ray spectrometry.

During my graduate studies at the UT, I was a research assistant at the UT Nuclear Research Reactor Laboratory performing research activities related to nuclear engineering. After receiving my MS degree, I was employed with the University of Texas Center for Earth Sciences as a Research Engineer/Scientist Assistant performing activities related to oil and gas exploration and drilling.

After UT, I joined American Greetings Corporation (Bardstown, Kentucky) as a Mechanical Engineer. I was responsible for all engineering processes and equipment acquisitions for a Just-In-Time cell, improving productivity, process control, long range planning and training.

After American Greetings, I was employed by Black & Decker (Asheboro, North Carolina) in 1993 in several positions: Manufacturing Engineer, Lead Supervisor, Plant Productivity Engineer (Kwikset plant at Denison, Texas). I was responsible for manufacturing engineering projects, upgrading and acquiring state-of-the-art stamping presses, maintenance, cost justifications, implement processes to improve productivity, transfer new technology to existing process and establish engineering standards. As a supervisor, I was responsible for the production of stamped parts, forecasting of equipment needs, production personnel, capital justification, implement process control and standards. In addition, I was in a team who was successful in the plant being certified with ISO 9000 quality certification.

I joined the Trane Company (Waco, Texas) as a Manufacturing Engineer in 1997. I was responsible for all fabrication of sheet metal parts, acquisition of new equipment, process control, training, ensuring maintenance of production equipment and increased productivity. In this plant, I was in a team who was successful in the plant being certified with ISO 9000 quality certification

I moved to Austin to join Applied Materials as Manufacturing Engineer in 2000. Responsibilities included engineering projects relating to semiconductor equipment manufacturing, testing, troubleshooting, engineering changes and process controls.

In March 2002, I started my employment with the Commission as an Electric Utility Engineer and then was promoted to Director of Engineering. My responsibilities included supervising between five to seven engineers or staff, reviewing electric utility applications for Certificates of Convenience and Necessity for transmission facilities, performing field investigations of transmission line routes, reviewing and evaluating operation of the ERCOT transmission grid, making recommendations concerning proposed rules and amendments to the Public Regulatory Act, reviewing the service quality of utilities, and evaluating and recommending transmission and distribution rates.

In 2015, I started working at Texas Commission on Environmental Quality as Engineer VI. I conducted engineering reviews of state air permit applications, registrations and certifications for facilities that may emit air pollutants ensuring federal and state requirements.

From 2016-17, I was employed as the Maintenance and Repair Division Manager at Travis County, responsible for maintaining over 80 facilities and over 3.2 million square feet of space with a staff of 35 technicians.

From 2017-2020, I was employed as the Assistant Director, Maintenance and Construction, Texas Health and Human Services Commission responsible for managing a team of engineers and architects in construction and renovations projects of 24 state facilities ensuring health and safety of the residents

Presently, I am employed as an adjunct faculty with Austin Community College.

I am a registered Professional Engineer in the State of Texas (Serial Number 84330).

Appendix B

List of Dockets Containing Testimony of Mohammed Ally

PUC Docket Number	Description
28556	Texas-New Mexico Power Company's Compliance Filing To Provide Competitive Metering Credit Pursuant to Subst. R. 25.311 [Direct Testimony – November 14, 2003]
28559	Compliance Filing Of AEP Texas Central Company to Provide Competitive Metering Credit [Direct Testimony - November 14, 2003]
28560	Compliance Filing Of AEP Texas North Company to Provide Competitive Metering Credit [Direct Testimony - November 14, 2003]
28562	Compliance Filing And Petition Of Centerpoint Energy Houston Electric, LLC To Provide Competitive Metering Service Credit Pursuant To PUC Subst. R. 25.311 [Direct Testimony - November 14, 2003]
28563	Compliance Filing Of Oncor Electric Delivery Company Pursuant To Subst. R. 25.311 Regarding Competitive Meter Ownership [Direct Testimony - November 14, 2003]
28906	Application of LCRA Transmission Services Corporation to Change Rates [Direct Testimony – May 11, 2004]
28450	Application of LCRA Transmission Services Corporation to Amend Its Certificate of Convenience and Necessity for a 138 kV Transmission Line In Williamson County [Direct Testimony - July 26, 2004]
29833	Application of LCRA Transmission Services Corporation to Amend Its Certificate of Convenience and Necessity for a 138 kV Transmission Line In Llano County [Direct Testimony - February 25, 2005]
30168	Application of TXU Electric Delivery Company to Amend a Certificate of Convenience and Necessity (CCN) For a Proposed Transmission Line within Jack, Wise, and Denton Counties [Direct Testimony - April 22, 2005]
33734	Application of Electric Transmission Texas, LLC for a Certificate of Convenience and Necessity for Regulatory Approvals and Initial Rates [Direct Testimony – June 18, 2007]

33800	Application of Brazos Electric Power Cooperative Inc. to Amend its Certificate of Convenience and Necessity For A Proposed Transmission Line in Johnson And Hood Counties, Texas [Direct Testimony – August 16, 2007]
34800	Application of Entergy Gulf States, Inc. For Authority to Change Rates and Reconcile Fuel Costs [Direct Testimony – April 18, 2008]
34611	Application of Kelson Transmission Company, LLC for a Certificate of Convenience and Necessity For The Proposed Canal-to- Deweyville 345 kV Transmission Line Within Chambers, Hardin, Jasper, Jefferson, Liberty, Newton and Orange Counties, Texas [Direct Testimony – October 17, 2008]
35996	Application of Oncor Electric Delivery Company to Amend a Certificate of Convenience and Necessity for a Proposed Transmission Line within Kaufman County [Direct Testimony- April 24, 2009]
37119	Application for a Certificate of Convenience and Necessity for a Proposed Transmission Line Pursuant to P.U.C.SUBST. R. 25.174 [Direct Testimony- September 25, 2009]
37408	Application of Oncor Electric Delivery Company LLC to Amend a Certificate of Convenience and Necessity (CCN) For the Riley – Bowman 345 kV CREZ Transmission Line (Formerly Oklaunion – Bowman Line) Within Archer, Wichita, and Wilbarger Counties [Direct Testimony- December 1, 2009]
37778	Application of LCRA Transmission Services Corporation to Amend Its Certificate of Convenience and Necessity for the Twin Buttes to McCamey D 345 kV CREZ Transmission Line in Tom Green, Irion, and Schleicher Counties, Texas [Direct Testimony- March 29, 2010]
38230	Application of Lone Star Transmission, LLC for a Certificate of Convenience and Necessity for the Central A to Central C to Sam Switch/Navarro Proposed CREZ Transmission Line [Direct Testimony- August 26, 2010]
38354	Application Of LCRA TSC Services Corporation To Amend Its Certificate of Convenience And Necessity For The McCamey D To Kendall To Gillespie 345 kV CREZ Transmission Line in Schleicher, Sutton, Menard, Kimble, Mason, Gillespie, Kerr, and Kendall Counties, Texas [Direct Testimony- October 11, 2010]

38597	Application of Oncor Electric Delivery Company LLC to Amend its Certificate of Convenience and Necessity for a Proposed CREZ 345 kV Transmission Line in Collin, Cooke, Denton, and Grayson Counties, Texas [Direct Testimony – December 3, 2010]
39298	Application of South Texas Electric Cooperative, Inc. to Amend its Certificate of Convenience and Necessity For the Odessa To North McCamey To Bakersfield 345-kV CREZ Transmission Line in Ector, Midland, Crane, Upton, Crockett, and Pecos Counties, Texas [Direct Testimony – July 5, 2011]
40020	Application of Lone Star Transmission, LLC for Authority to Establish Interim and Final Rates and Tariffs [Direct Testimony – June 28, 2012]
46042	Application of Southwestern Public Service Company to Amend a Certificate of Convenience and Necessity for a 345-KV Transmission Line within Hale, Hockley, Lubbock, Terry, and Yoakum Counties (TUCO to Yoakum) [Direct Testimony – December 6, 2016] [Cross Rebuttal Testimony – December 19, 2016]
47462	Application of Entergy Texas, Inc. to Amend its Certificate of Convenience and Necessity for a 230-KV Transmission Line in Montgomery and Walker Counties [Direct Testimony on Route Adequacy– November 14, 2017]
47368	Application of Oncor Electric Delivery Company LLC to Amend its Certificate of Convenience and Necessity for a 345/138-KV Transmission Line in Loving, Reeves, and Ward Counties [Direct Testimony – December 22, 2017]
47379	Application Of The City Of Garland To Amend A Certificate Of Convenience And Necessity For The Dent Road To Shelby 138-Kv Transmission Line In Hunt County [Direct Testimony – January 12, 2018
48909	Joint Application of Sharyland Utilities, L. P. And City Of Lubbock, Acting by And Through Lubbock Power & Light For A Certificate Of Convenience And Necessity For The Proposed Wadsworth To New Oliver To Farmland 345-Kv Transmission Line In Lubbock And Lynn Counties And The Proposed Southeast To New Oliver To Oliver 115-Kv Transmission Line In Lubbock County [Direct Testimony on Route Adequacy– March 15, 2019] [Cross Rebuttal Testimony – June 21, 2019]
48629	Application of CenterPoint Energy Houston LLC to Amend A Certificate Of Convenience And Necessity For A 345-KV Transmission Line In Brazoria, Matagorda, and Wharton Counties [Direct Testimony – March 20, 2019]

49523	Application of LCRA Transmission Services Corporation to Amend Its Certificate of Convenience And Necessity For The Proposed Mountain Home 138-KV Transmission Line Project In Gillespie, Kerr & Kimble Counties, Texas [Direct Testimony – November 4, 2019]

Appendix C

Work papers

The only work papers for the testimony are documents that have been filed in this docket and are specifically referenced in the testimony.