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SOAH DOCKET NO. 473-23-21216
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APPLICATION OF ONCOR ELECTRIC DELIVERY LLC TO AMEND ITS CERTIFICATE OF CONVENIENCE AND NECESSITY FOR THE RAMHORN HILL – DUNHAM 345 KV TRANSMSSION LINE IN DENTON AND WISE COUNTIES	§	**BEFORE THE STATE OFFICE OF ADMINISTRATIVE HEARINGS**

ERRATA TO THE DIRECT TESTIMONY OF JOHN POOLE

The Staff (Staff) of the Public Utility Commission of Texas (Commission) files the following Errata to the Direct Testimony of John Poole, originally filed on August 14, 2023. The errata updates Mr. Poole's testimony to reflect Oncor Electric Delivery LLC's (Oncor) Notice of Errata filed on August 28, 2023, which updated cost estimates due to an error Oncor discovered in its cost calculations. A redlined and clean version of Mr. Poole's testimony is attached hereto.

Dated: August 28, 2023

Respectfully submitted,

PUBLIC UTILITY COMMISSION OF TEXAS
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SOAH DOCKET NO. 473-23-21216
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CERTIFICATE OF SERVICE

I certify that, unless otherwise ordered by the presiding officer, notice of the filing of this document was provided to all parties of record via electronic mail on August 28, 2023, in accordance with the Order Suspending Rules, issued in Project No. 50664.

/s/ Anthony Kanalas
Anthony Kanalas

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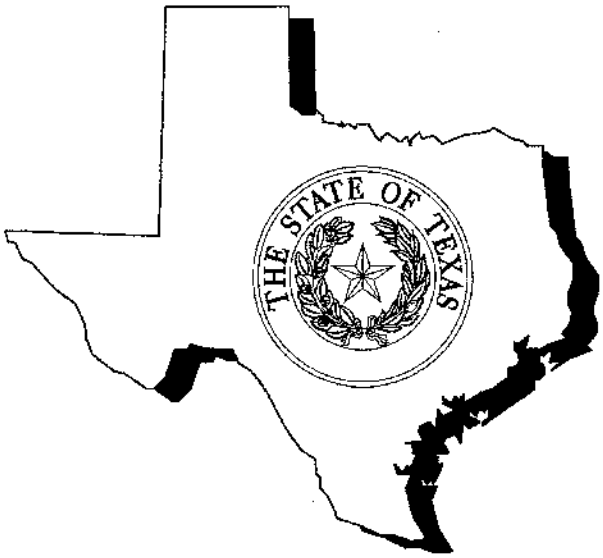
APPLICATION OF ONCOR ELECTRIC DELIVERY COMPANY LLC TO AMEND ITS CERTIFICATE OF CONVENIENCE AND NECESSITY FOR THE RAMHORN HILL TO DUNHAM 345 KV TRANSMISSION LINE IN DENTON AND WISE COUNTIES	§	BEFORE THE STATE OFFICE OF ADMINISTRATIVE HEARINGS



DIRECT TESTIMONY OF

JOHN POOLE, P.E.

INFRASTRUCTURE DIVISION

PUBLIC UTILITY COMMISSION OF TEXAS

AUGUST 14, 2023

TABLE OF CONTENTS

ATTACHMENTS

I. STATEMENT OF QUALIFICATIONS

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

A. My name is John Poole. I am employed by the Public Utility Commission of Texas (Commission) as an Engineer within the Infrastructure Division. My business address is 1701 North Congress Avenue, Austin, Texas 78701.

Q. Please briefly outline your educational and professional background.

A. I have a Bachelor of Science degree in Electrical Engineering. I completed my degree in December of 2014 and have been employed at the Commission since February of 2015. A more detailed resume is provided in Attachment JP-1.

Q. Are you a registered professional engineer?

A. Yes, I am a registered Professional Engineer in Texas. My member number is 133982.

Q. Have you previously testified as an expert before the Commission?

A. Yes. A list of previous testimony is provided in Attachment JP-2.

II. SCOPE OF TESTIMONY

Q. What is the purpose of your testimony in this proceeding?

A. The purpose of my testimony is to present Commission Staff's recommendations

concerning the application of Oncor Electric Delivery Company, LLC (Oncor) to amend its Certificate of Convenience and Necessity (CCN) to construct a new double-circuit 345 kilovolt (kV) transmission line to be built on triple-circuit capable steel monopole structures. The structures will initially support two 345-kV circuits, with two conductors per phase, with a vacant position to accommodate an additional 138-kV circuit in the future. The new transmission line will begin at the proposed Oncor Ramhorn Hill Switch, to be located approximately 2 miles south of the intersection of United States Highway ("US") 287 and State Highway 114 near Rhome, Texas in Wise County, Texas. The transmission line will then extend 20 to 23 miles, depending on the route, in an easterly direction terminating at the proposed Oncor Dunham Switch that will be located approximately 1.4 miles southeast of the intersection of US 377 and Farm-to-Market 1171 in Flower Mound, Texas in Denton County, Texas (Proposed Project).[1]

Q. What is the scope of your testimony?

A. The scope of my testimony is to provide Commission Staff's recommendation regarding the need for the project and regarding selection of routes from among the proposed alternative routes presented by Oncor.

Q. What are the statutory requirements that a utility must meet to amend its CCN to construct a new transmission line?

[1] Application of Oncor Electric Delivery LLC to Amend its Certificate of Convenience and Necessity for the Ramhorn Hill- Dunham 345-kV Transmission Line in Denton and Wise Counties at 4 (Jun. 8, 2023). (Application).

A. Section 37.056(a) of the Public Utility Regulatory Act (PURA)[2] states that the Commission may approve an application for a CCN only if the Commission finds that the CCN is necessary for the service, accommodation, convenience, or safety of the public. Further, PURA provides that the Commission shall approve, deny, or modify a request for a CCN after considering the factors specified in PURA § 37.056(c), which are as follows:

(1) The adequacy of existing service;

(2) The need for additional service;

(3) The effect of granting the certificate on the recipient of the certificate and any electric utility serving the proximate area; and

(4) Other factors, such as:

(A) Community values;

(B) Recreational and park areas;

(C) Historical and aesthetic values;

(D) Environmental integrity;

(E) the probable improvement of service or lowering of cost to consumers in the area if the certificate is granted, including any potential economic or reliability benefits associated with dual fuel and fuel storage capabilities in areas outside the ERCOT power region; and

(F) To the extent applicable, the effect of granting the certificate on the ability of this state to meet the goal established by

[2] Public Utility Regulatory Act, Tex. Util. Code Ann. §§ 11.001-66.016 (PURA).

PURA § 39.904(a).

Q. Do the Commission's rules provide any instruction regarding routing criteria?

A. Yes. 16 Texas Administrative Code (TAC) § 25.101(b)(3)(B) requires that an application for a new transmission line address the criteria in PURA § 37.056(c), and that upon considering those criteria, engineering constraints and costs, the line shall be routed to the extent reasonable to moderate the impact on the affected community and landowners unless grid reliability and security dictate otherwise. The following factors shall be considered in the selection of Oncor's proposed alternative routes:

(i) Whether the routes parallel or utilize existing compatible rights-of-way for electric facilities, including the use of vacant positions on existing multiple-circuit transmission lines;

(ii) Whether the routes parallel or utilize other existing compatible rights-of-way, including roads, highways, railroads, or telephone utility rights-of-way;

(iii) Whether the routes parallel property lines or other natural or cultural features; and

(iv) Whether the routes conform with the policy of prudent avoidance.

Q. What issues identified by the Commission must be addressed in this docket?

A. In the Order of Referral and Preliminary Order filed on June 9, 2023, the

Commission identified the following issues that must be addressed:

1. Is the applicant's application to amend its CCN adequate? Does the application contain an adequate number of reasonably differentiated alternative routes to conduct a proper evaluation? In answering this question, consideration must be given to the number of proposed alternatives, the locations of the proposed transmission line, and any associated proposed transmission facilities that influence the location of the line. Consideration may also be given to the facts and circumstances specific to the geographic area under consideration and to any analysis and reasoned justification presented for a limited number of alternative routes. A limited number of alternative routes is not in itself a sufficient basis for finding an application inadequate when the facts and circumstances or a reasoned justification demonstrates a reasonable basis for presenting a limited number of alternatives. If an adequate number of routes is not presented in the application, the ALJ must allow the applicant to amend the application and to provide proper notice to affected landowners; however, if the applicant chooses not to amend the application, then the ALJ may dismiss the case without prejudice.
2. Did the applicant provide notice of the application in accordance with 16 TAC § 22.52(a)(1), (2), and (3)?
3. Did the applicant provide notice of the public meeting in accordance with 16 TAC § 22.52(a)(4)?

4. What were the principal concerns expressed in the questionnaire responses received at or after any public meetings held by the applicant regarding the proposed transmission facilities?

5. Taking into account the factors set out in the Public Utility Regulatory Act (PURA) § 37.056(c), are the proposed transmission facilities necessary for the service, accommodation, convenience, or safety of the public within the meaning of PURA § 37.056(a)? In addition, please address the following issues:

   a. How do the proposed transmission facilities support the reliability and adequacy of the interconnected transmission system?

   b. Do the proposed transmission facilities facilitate robust wholesale competition?

   c. What recommendation, if any, has an independent organization, as defined in PURA § 39.151, made regarding the proposed transmission facilities?

   d. Are the proposed transmission facilities needed to interconnect a new transmission service customer?

6. In considering the need for additional service under PURA § 37.056(c)(2) for a reliability transmission project, please address the historical load, forecasted load growth, and additional load currently seeking interconnection.

7. Are the proposed transmission facilities the better option to meet this need when compared to using distribution facilities? If the applicant is not subject

to the unbundling requirements of PURA § 39.051, are the proposed transmission facilities the better option to meet the need when compared to a combination of distribution facilities, distributed generation, and energy efficiency? In answering this issue, if the proposed transmission facilities include a transmission line to address distribution load growth, please address the following:

a. The data used to calculate the applicant' s load-growth projections that support the need for a transmission-line solution;

b. The date, origin, and relevance of the data used to calculate the applicant's load-growth projections;

c. The assumptions made and relied on to generate the load-growth projections, including but not limited to the assumed rates of load growth, the factors (if any) applied to calculate forecasted loads for new developments in the need study area, and adjustments (if any) made to forecasted loads to account for customer load served by any other electric utilities also providing electric service within the applicant's need study area;

d. The location, described in writing and depicted on a map, of the boundaries of the need study area and all existing transmission facilities (including proposed substations or switching stations) within the need study area used for the load-growth projections;

e. If included in the applicant' s load-growth projections, the nature, scope, and location depicted on a map of the following loads:

i. the applicant' s current consumers,

ii. the applicant' s pending load request, and

iii. future development projects included in the applicant's load-growth projections;

f. The location depicted on a map of the existing load center, the load center including existing load and currently requested loads, and the load center including existing load, currently requested loads, and the applicants' projected load growth;

g. The location and identity of any existing transmission lines, whether inside or outside the need study area, that are as close as, or closer to, any load-serving substation proposed in this application compared to the existing transmission line or substation used for the proposed interconnection or tap;

h. The location and identity of any existing substations with remaining transformer capacity, whether inside or outside the need study area, that are as close as, or closer to, any load-serving substation proposed in this application compared to the existing transmission line or substation used for the proposed interconnection or tap;

i. If other utilities are providing distribution service within the applicant's need study area, the location and nature of the other utilities' distribution facilities described in writing and depicted on a map;

j. An analysis of the feasibility, design, and cost effectiveness of a distribution-voltage level alternative that uses the same point(s) of interconnection or tap and endpoint(s) and that is routed along the same

alternative routes as the transmission-level radial line that is requested to be approved;

k. The applicant's planning study or other reports reflecting the nature and scope of new-build distribution facilities or existing distribution-facility upgrades necessary for projected load growth anticipated before the projected load growth that is the basis for this application; and

l. A comparative cost analysis between all new-build distribution facilities or existing distribution-facility upgrades and the proposed radial transmission facilities that segregates the distribution-alternative costs to support the pending load requests and specific future development loads from general load growth in the need study area.

8. Weighing the factors set forth in PURA § 37.056(c) and 16 TAC § 25.101(b)(3)(B), which proposed transmission-line route is the best alternative?

9. Are there alternative routes or configurations of facilities that would have a less negative effect on landowners? What would be the incremental cost of those routes or configurations of facilities?

10. If alternative routes or configurations of facilities are considered because of individual landowners' preferences, please address the following issues:

a. Have the affected landowners made adequate contributions to offset any additional costs associated with the accommodations?

b. Have the accommodations to landowners diminished the electric efficiency of the line or reliability?

11. Are the proposed transmission facilities necessary to meet state or federal reliability standards?

12. What is the estimated cost of the proposed transmission facilities to consumers?

13. What is the estimated congestion cost savings for consumers that may result from the proposed transmission facilities considering both current and future expected congestion levels and the ability of the proposed transmission facilities to reduce those congestion levels?

14. Are the best management practices for construction and operating transmission facilities that are standard in the Commission's electric CCN orders adequate? If not, what additional practices should be required for the proposed transmission facilities?

15. For each additional practice proposed, please address the following:

a. What is the additional cost to design, construct, and operate the proposed transmission facilities, including the cost to consumers?

b. What benefit, if any, will the proposed practice provide?

c. What effect, if any, will the proposed practice have on the reliability of the transmission system?

d. What effect, if any, will the proposed practice have on the design, construction, or operation of the proposed transmission facilities?

e. What effect, if any, will the proposed practice have on the expected date to energize the proposed transmission facilities?

16. Did the Texas Parks and Wildlife Department provide any recommendations or informational comments regarding this application in accordance with section 12.0011(b) of the Texas Parks and Wildlife Code? If so, how should the Commission respond through its order?

17. What permits, licenses, plans, or permission will be required for construction and operation of the proposed transmission facilities? If any alternative route requires permission or an easement from a state or federal agency, please address in detail the following:

a. What agency is involved, and what prior communication has the applicant had with the agency regarding the proposed transmission facilities?

b. Has the agency granted the required permission or easement? If not, when is a decision by the agency expected?

c. What contingencies are in place if the agency does not grant the required permission or easement or if the process to obtain the required permission or easement would materially affect the estimated cost, proposed design plans, or anticipated timeline to construct the proposed transmission facilities?

18. Is any part of the proposed transmission facilities located within the coastal management program boundary as defined in 31 TAC § 27.1(a)? If so, please address the following issues:

a. Do the facilities comply with the goals and applicable policies of the Coastal Management Program in accordance with 16 TAC § 25.102(a)?

b. Will the facilities have any direct and significant effects on any of the applicable coastal natural resource areas specified in 31 TAC § 26.3(b)?

19. Are the circumstances for this line such that the seven-year limit discussed in section III of this Order should be changed?

20. Will anything occur during construction that will preclude or limit a generator from generating or delivering power or that will adversely affect the reliability of the ERCOT system?

21. If complete or partial agreement of the parties is reached on a route that relies on modifications to the route segments as noticed in the application, please address the following issues:

a. Did the applicant comply with the additional notice requirements of 16 TAC § 22.52(a)(2) and (a)(3)(C)?

b. Was written consent obtained from landowners directly affected by the proposed modifications to the route segments?

Q. Which issues in this proceeding have you addressed in your testimony?

A. I have addressed the issues from the Order of Referral and Preliminary Order and the requirements of PURA § 37.056 and 16 TAC § 25.101.

Q. If you do not address an issue or position in your testimony, should that be interpreted as Staff supporting any other party's position on that issue?

A. No. The fact that I do not address an issue in my testimony should not be considered as agreeing, endorsing, or consenting to any position taken by any other party in this proceeding.

Q. What have you relied upon or considered to reach your conclusions and make your recommendation?

A. I have relied upon my review and analysis of the data contained in Oncor's application and the application's accompanying attachments, including the *Environmental Assessment and Alternative Route Analysis* (EA) prepared by Halff Associates, Inc. (Halff).[3] I have also relied upon my review of the direct testimonies and statements of position filed in this proceeding by or on behalf of Oncor and the intervenors. I have also relied upon my review of the responses to requests for information, and the letters from the Texas Parks and Wildlife Department (TPWD) to Ms. Marisa Wagley, dated July 19, 2023.[4]

III. CONCLUSIONS AND RECOMMENDATIONS

Q. Based on your evaluation of Oncor's application and other relevant material, what conclusions have you reached regarding the application and the Proposed Project?

1. I conclude that the application is adequate and that Oncor's proposed alternative routes are adequate in number and geographic diversity.
2. I conclude that the application complies with the notice requirements in 16 TAC § 22.52(a).

[3] Application at Attachment 1.

[4] Attachment JP-3.

3. I conclude that, taking into account the factors set out in PURA § 37.056(c), the Proposed Project is necessary for the service, accommodation, convenience and safety of the public.

4. I conclude that the Proposed Project is the best option to meet the need when compared with other alternatives.

5. I conclude that Route 179-C is the best route when weighing, as a whole, the factors set forth in PURA § 37.056(c)(4) and in 16 TAC § 25.101(b)(3)(B).

6. I conclude that TPWD provided mitigation measures regarding the application, and that the mitigation measures provided on pages 18 through 20 of my testimony, as well as mitigation measures mentioned in the environmental concerns on pages 34 through 38 of my testimony, are sufficient to address TPWD's mitigation recommendations. I also conclude that Oncor has the resources and procedures in place in order to accommodate the mitigation recommendations.

Q. What recommendation do you have regarding Oncor's application?

A. I recommend that the Commission approve Oncor's application to amend its CCN in order to construct a new double-circuit 345-kV transmission line to be built on triple-circuit capable steel monopole structures along with the proposed Oncor Ramhorn Hill 345-kV Switch in Wise County and the proposed Oncor Dunham Switch in Denton County. I also recommend that the Commission order Oncor to construct the Proposed Project on Route 179-C (Segments A0, A4, B1, B61, B62, C1, C21, C23, C7, E2, E1, E6, G1, G3, H41, H42, H8, I8, J3, K1, L5, L4, L3, L2,

M1, M5, R2, R5, U3, V3, V4, and Z). I further recommend that the Commission include in its order approving Oncor's application the following paragraphs in order to mitigate the impact of the Proposed Project:

1. Oncor shall conduct surveys, if not already completed, to identify pipelines that could be affected by the transmission lines and coordinate with pipeline owners in modeling and analyzing potential hazards because of alternating-current interference affecting pipelines being paralleled.
2. If Oncor encounters any archeological artifacts or other cultural resources during project construction, work must cease immediately in the vicinity of the artifact or resource, and the discovery must be reported to the Texas Historical Commission. In that situation, Oncor must take action as directed by the Texas Historical Commission.
3. Oncor must follow the procedures to protect raptors and migratory birds as outlined in the following publications: *Reducing Avian Collisions with Power Lines: The State of the Art in 2012,* Edison Electric Institute and Avian Power Line Interaction Committee, Washington, D.C. 2012; *Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006,* Edison Electric Institute, Avian Power Line Interaction Committee, and the California Energy Commission, Washington, D.C. and Sacramento, CA 2006; and *Avian Protection Plan Guidelines*, Avian Power Line Interaction Committee and United States Fish and Wildlife Service, April 2005. Oncor must take precautions to avoid disturbing occupied nests and take steps to minimize the burden of construction on migratory birds

during the nesting season of the migratory bird species identified in the area of construction.

4. Oncor must exercise extreme care to avoid affecting non-targeted vegetation or animal life when using chemical herbicides to control vegetation within rights-of-way. Oncor must ensure that the use of chemical herbicides to control vegetation within the rights-of-way complies with rules and guidelines established in the Federal Insecticide Fungicide and Rodenticide Act and with Texas Department of Agriculture regulations.

5. Oncor must minimize the amount of flora and fauna disturbed during construction of the transmission line, except to the extent necessary to establish appropriate right-of-way clearance for the transmission line. In addition, Oncor must revegetate, using native species and must consider landowner preferences and wildlife needs in doing so. Furthermore, to the maximum extent practical, Oncor must avoid adverse environmental influence on sensitive plant and animal species and their habitats, as identified by the Texas Parks and Wildlife Department and the United States Fish and Wildlife Service.

6. Oncor must implement erosion control measures as appropriate. Erosion control measures may include inspection of the right-of-way before and during construction to identify erosion areas and implement special precautions as determined necessary. Oncor must return each affected landowner's property to its original contours and grades unless otherwise agreed to by the landowner or the landowner's representative. Oncor is not

required to restore the original contours and grades where a 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 lines.

7. Oncor must use best management practices to minimize the potential impacts to migratory birds and threatened or endangered species.

8. Oncor must cooperate with directly affected landowners to implement minor deviations from the approved route to minimize the burden of the transmission line. Any minor deviations from the approved route must only directly affect landowners who were sent notice of the transmission line in accordance with 16 TAC § 22.52(a)(3) and landowners that have agreed to the minor deviation.

9. Oncor must report the transmission line approved by the Commission on its monthly construction progress reports before the start of construction to reflect the final estimated cost and schedule in accordance with 16 TAC § 25.83(b). In addition, Oncor must provide final construction costs, with any necessary explanation for cost variance, after completion of construction when all costs have been identified.

Q. Does your recommended route differ from the route that Oncor believes best addresses the requirements of PURA and the Commission's rules?

A. Yes. Oncor identified Route 179 as the route that best addresses the requirements of PURA and the Commission's rules.[5]

[5] Application at 24.

IV. PROJECT JUSTIFICATION

A. DESCRIPTION OF THE PROJECT

Q. Please describe the Proposed Project.

A. The Proposed Project will consist of constructing a new double-circuit 345 kilovolt (kV) transmission line to be built on triple-circuit capable steel monopole structures. The structures will initially support two 345-kV circuits, with two conductors per phase, with a vacant position to accommodate an additional 138-kV circuit in the future. The new transmission line will begin at the proposed Oncor Ramhorn Hill Switch, to be located approximately 2 miles south of the intersection of United States Highway ("US") 287 and State Highway 114 near Rhome, Texas in Wise County, Texas. The transmission line will then extend 20 to 23 miles, depending on the route, in an easterly direction terminating at the proposed Oncor Dunham Switch that will be located approximately 1.4 miles southeast of the intersection of US 377 and Farm-to-Market 1171 in Flower Mound, Texas in Denton County, Texas.[6]

Q. Does Oncor's application contain a number of proposed alternative routes sufficient to conduct a proper evaluation?

A. Yes.

Q. Is the Proposed Project located within the incorporated boundaries of any

[6] Application at 4.

municipality?

A. Yes. Portions of all of the proposed alternative routes would be constructed within the incorporated boundaries of the City of Flower Mound, Texas and the City of Northlake, Texas.[7] Additionally, portions of some routes will be constructed within the incorporated boundaries of the City of Justin, Texas; the City of New Fairview, Texas; the City of Rhome, Texas; and the City of Fort Worth, Texas.[8]

B. TEXAS COASTAL MANAGEMENT PROGRAM

Q. Does any part of this project lie within the Texas Coastal Management Program (TCMP) boundary?

A. No. The study area is not located within the TCMP boundary.[9]

C. NEED FOR THE PROJECT

Q. Could you briefly summarize the need for the project?

A. Yes. As stated in the application, the Proposed Project is needed to address reliability issues in the Roanoke area.[10] The Roanoke area is located approximately 15 miles north of Fort Worth and is one of the highest growth areas in the Dallas-Fort Worth Metroplex.[11] The current power transfer and load-serving capabilities of the transmission system in the Roanoke area are approaching their operating limits

[7] Application at 8.

[8] *Id.*

[9] *Id.* at 33.

[10] *Id.* At 10-11.

[11] *Id.* at 10.

at current demand levels.[12] To address these issues, Oncor recommended the Roanoke Area Upgrades Project to the ERCOT Regional Planning Group (RPG) and ERCOT conducted its own independent review and confirmed the reliability issues Oncor identified.[13]

Q. Has an independent organization, as defined in PURA § 39.151, determined that there is a need for the Proposed Project?

A. Yes. ERCOT recommended the Proposed Project, as part of the Roanoke Area Upgrades Project.[14] The project was recommended as a Tier 1 transmission project that is critical to the reliability of the ERCOT system pursuant to 16 TAC § 25.101(b)(3)(D) by the ERCOT Regional Planning Group. A copy of ERCOT's independent review, dated July 19, 2022, is included with the application.[15]

Q. Are the proposed facilities necessary for the service, accommodation, convenience, or safety of the public within the meaning of PURA § 37.056(a)?

A. Yes. In the ERCOT Independent Review of Oncor Roanoke Area Upgrades Project, ERCOT determined that thermal overloads and low voltage issues were present under some contingencies and they evaluated four different options to address those issues.[16] Three of those options were found to satisfy the reliability issues ERCOT

[12] Application at 10.

[13] *Id.* at 13.

[14] *Id.* at 11.

[15] *Id.* at Attachment 4.

[16] *Id.*, Attachment 4 at 9-11.

identified and all three included the Proposed Project,[17] and the second option was found to best address those reliability issues.[18]

D. PROJECT ALTERNATIVES

Q. Did Oncor consider distribution and transmission alternatives to the Proposed Project?

A. ERCOT considered four different system improvement options to address the reliability issues in the Roanoke area.[19] ERCOT eventually selected the second option, which included the Proposed Project.[20]

Q. Do you agree that the Proposed Project is the best option when compared to other alternatives?

A. Yes. ERCOT carefully considered four different options but determined that the three options that resolved the reliability issues included the Proposed Project.[21]

V. ROUTING

A. STAFF RECOMMENDATION

Q. What routes do you recommend upon considering all factors, including the factors in PURA § 37.056(c) and 16 TAC § 25.101(b)(3)(B)?

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[17] Application, Attachment 4 at 12.

[18] *Id.*, Attachment 4 at 22.

[19] *Id.*, Attachment 4 at 11.

[20] *Id.*, Attachment 4 at 22.

[21] *Id.*, Attachment 4 at 12 and 14.

A. Based on my analysis of all the factors that the Commission must consider under PURA § 37.056 and 16 TAC § 25.101, I recommend that Route 179-C be approved for the Proposed Project. The basis for my recommendation is discussed in more detail in the remainder of my testimony.

Q. Which route did Oncor select as the route that best addresses the requirements of PURA and the Commission's rules?

A. Oncor identified Route 179 as the routes that they believe best address the requirements of PURA and the Commission's rules.[22]

B. COMMUNITY VALUES

Q. Has Oncor sought input from the local community regarding community values?

A. Yes. Oncor held public meetings as required by 16 TAC § 22.52(a)(4). The meetings were held on December 7, 2022 and December 8, 2022 from 4:00pm to 7:00pm at the Marriott Hotel & Golf Club Champions Circle in Fort Worth, Texas.[23] Oncor sent notice of the meeting to landowners owning property within 520 feet of each of the preliminary alternative route segment centerlines.[24] Oncor also posted notices of the meeting in the *Wise County Messenger* on November 23, 2022 and in the *Denton Record Chronicle* on November 26 and 27, 2022.[25] A total of 172 individuals

[22] Application at 24.

[23] *Id.*, Attachment 1 at Page 5-1.

[24] *Id.*, Attachment 1 at Page 2-11.

[25] *Id.*

attended the meetings and Oncor received 71 questionnaire responses during the meeting and Oncor received "many" questionnaires at a later date.[26]

Q. Did members of the community who attended the public meeting or intervene in this case express concerns about the Proposed Project?

A. Overall the respondents indicated an "overwhelming" preference for maximizing the distances relative to residences, schools, churches, and recreational areas.[27] Due to the many questionnaires and other feedback received by Oncor, Oncor grouped these together by topic:

1. Oncor received approximately 1,000 comments regarding avoiding the Liberty Christian School campus, which was crossed by preliminary Segment D2.[28]

2. Oncor received approximately 450 comments regarding avoiding the Cross Timbers Church, which was impacted by the preliminary Segments D1-D4.[29]

3. Oncor received approximately 550 comments regarding avoiding the Town of Argyle, which was impacted by the preliminary Segments D1-D4.[30]

4. Oncor received approximately 300 comments regarding segments along Farm-to-Market (FM) Road 407 in the Town of Northlake.[31]

5. Oncor received approximately 60 comments regarding segments near the

[26] Application, Attachment 1 at Page 5-1.

[27] *Id.*

[28] *Id.*, Attachment 1 at Pages 5-2 and 5-3.

[29] *Id.*, Attachment 1 at Page 5-3.

[30] *Id.*, Attachment 1 at Page 5-4.

[31] *Id.*, Attachment 1 at Pages 5-4 and 5-5.

community of Canyon Falls, particularly Segment E5.[32]

6. Oncor received approximately 10 comments regarding the Trailwood Subdivision located south of FM 1171, some recommended Segments C1-C2-C5-C7.[33]

7. Oncor received approximately 10 comments regarding the Legacy Ranch Subdivision opposed to any route utilizing Segment J3.[34]

8. Oncor received approximately 20 comments regarding the Avery Ranch Community regarding lines near their community and the Propwash Airport, north of Segment M8 and Sam Reynolds Road.[35]

9. Oncor received approximately 60 comments regarding the Northwest Regional Airport located 2500 feet south of FM 1171, south of Segments E6 and C6.[36]

Other comments regarding specific segments were made opposing Segments F2, F3, and F8; in support of Segments A0 and A4; opposing Segments M5, M4, R1, R2, R3, R6, and R5; opposing Segments T5, T4, T3, and T2; opposing Segments Q5, Q2, and Q1; opposing Segment O7; opposing Segment G9; and opposition to Segment D3's impact on oak trees.[37]

Other general comments concerned the possibility of the project utilizing United States Army Corps of Engineers land south of FM 1171,[38] a desire to keep the

[32] Application, Attachment 1 at Page 5-5.

[33] *Id.*

[34] *Id.*, Attachment 1 at Pages 5-5 and 5-6.

[35] *Id.*, Attachment 1 at Page 5-6.

[36] *Id.*, Attachment 1 at Pages 5-6 and 5-7.

[37] *Id.*, Attachment 1 at Pages 5-7, 5-8, and 5-10.

[38] *Id.*, Attachment 1 at Pages 5-8 and 5-9.

Proposed Project as short as possible,[39] compensation for loss of property values resulting from the Proposed Project,[40] aesthetic values,[41] impacts on natural resources,[42] impacts on farming and ranching,[43] and health and safety concerns.[44]

Q. In your opinion, would construction of the Proposed Project on Route 179-C mitigate the concerns expressed by members of the community at the open houses and in comments by intervenors?

A. To some extent 179-C can mitigate these concerns. Route 179-C's centerline is within 500 feet of 98 habitable structures which is tied for 4th least of the proposed alternative routes, 5 more than the route with the least habitable structures within 500 feet of its centerline Route 164.[45] Route 179-C does not cross any parks or recreational areas and has four parks or recreational areas within 1,000 feet of its centerline, just one more than the routes with the fewest within 1,000 feet of their centerline.[46]

In response to the specific routing concerns of the community, Route 179-C does not use Segments D1-D4 and along FM Road 407. However, none of the routes in the application use those preliminary segments as they were eliminated in response

[39] Application, Attachment 1 at Page 5-9.

[40] *Id.*

[41] *Id.*, Attachment 1 at Pages 5-9 and 5-10.

[42] *Id.*, Attachment 1 at Page 5-10.

[43] *Id.*, Attachment 1 at Pages 5-10 and 5-11.

[44] *Id.*, Attachment 1 at Page 5-11.

[45] *Compare id.*, Attachment 1 at Appendix E (Table 7-2) *with* Attachment JP-4 Part 1 at 000019-20.

[46] *Id.*

to the feedback received in the community involvement process.[47] Route 179-C avoids using most of the segments around the Canyon Falls community, in particular Segment E5.[48] Route 179-C utilizes Segments C1, C7 and C21. C21 was part of the preliminary Segment C2, which was split into Segments C21 and C22 in response to the community involvement process.[49] Route 179-C utilizes Segment L4 which is 6,000 feet from the Propwash Airport, this is 4,000 feet farther than Segment M8 which it does not utilize.[50] Route 179-C does utilize Segment L6 but not Segment C6.[51] Route 179-C does utilize Segment J3.[52]

In response to the other routing concerns by individuals, Route 179-C avoids Segments F2, F3, E8, M4, R1, R3, R6, T5, T4, T3, T2, Q5, Q2, Q1, O7, G9, and D3 which were segments specifically opposed by commenters. Route 179-C also utilizes both Segments A0 and A4 as requested by commenters. Route 179-C, however, does utilize Segments M5, R2, and R5 which were segments specifically opposed.[53]

In response to the general concerns, Route 179-C is the 29th shortest route of 84. Route 179-C is 5,249 feet longer than the shortest route, Route 16, but 10,596 shorter

[47] Application, Attachment 1 at Page 6-2.

[48] Attachment JP-4 Part 1 at 000019.

[49] Attachment JP-4 Part 1 at 000019 and Application, Attachment 1 at Page 6-3.

[50] Attachment JP-4 Part 1 at 000019 and Application, Attachment 1 at Appendix F (Table 7-6).

[51] Attachment JP-4 Part 1 at 000019.

[52] *Id.*

[53] *Id.*

than the longest route, Route 216.[54] Route 179-C crosses the 17th least amount of rangeland with 58,417 feet, 11,959 feet longer than the shortest length by Route 26 and 17,901 feet shorter than the longest length by Route 187.[55] However, Route 179-C crosses the 69th least amount of cropland and hay meadow land with 22,691 feet, 10,344 feet longer than the shortest length by Route 164R and 13,540 feet shorter than the longest length by Route 69.[56]

I will specifically address additional issues regarding recreational and park areas, historical values, aesthetic values, environmental integrity, engineering constraints, costs, moderation of impact on the affected community and landowners, and right-of-way later in my testimony.

Q. Are property values and the impact on future or potential development factors that are considered by the Commission in a CCN proceeding under PURA § 37.056(c)(4) or in 16 TAC § 25.101(b)(3)(B)?

A. No. PURA and the Commission's rules do not list these two issues as factors that are to be considered by the Commission in a CCN proceeding. However, these rules do require consideration of using or paralleling existing right-of-way, which may minimize concerns about the impact on property values or planned development.

Q. Are there any routes that did not receive specific opposition from intervenors?

[54] *Compare* Application, Attachment 1 at Exhibit E (Table 7-2) *with* Attachment JP-4 Part 1 at 000019.

[55] *Id.*

[56] *Id.*

A. No.

C. RECREATIONAL AND PARK AREAS

Q. Are any parks or recreational areas located within 1,000 feet of the centerline of any of the proposed alternative routes or a substation site?

A. Twenty parks and recreational areas are either crossed or within 1,000 feet of the centerline of the proposed alternative routes.[57] The number of parks or recreational areas either crossed or within 1,000 feet of the centerline of the proposed alternative routes ranges from 3 (Routes 29, 33, 36, 41, 42, 86, 207, 217, 218, and 29R) to 11 (Routes 117 and 119).[58] Routes range from crossing no parks or recreational areas (Routes 29, 33, 36, 41, 42, 43, 44, 54, 58, 71, 86, 87, 154, 175, 176, 178, 179, 184, 185, 207, 216, 221, 179-A, 179-B, 179-C, and 29R) to crossing 3,844 feet of parks and recreational areas (Routes 92, 94, 96, 103, 108, 143, and 146).[59] Route 179-C crosses no parks or recreational areas, and has four parks and recreational areas within 1,000 feet of its centerline.[60]

D. HISTORICAL VALUES

Q. Are there possible impacts from the Proposed Project on archeological and historical values, including known cultural resources crossed by any of the

[57] Application at Attachment 16.

[58] *Id.*, Attachment 1 at Exhibit E (Table 7-2) and Attachment JP-4 Part 3.

[59] Application, Attachment 1 at Exhibit E (Table 7-2) and Attachment JP-4 Part 1 at 000011, 000015 and 000019.

[60] Attachment JP-4 Part 1 at 000019.

proposed alternative routes or that are located within 1,000 feet of the centerline of any of the proposed alternative routes?

A. There is a cemetery, the Dunham Cemetery, that is approximately 610 feet from Segment A0, which is utilized by all the proposed alternative routes.[61] There is an additional cemetery, the City of Justin Cemetery, that is approximately 100 feet from Segment J4, which is utilized by Routes 1, 19, 65, 67, 68, 69, 72, 92, 94, 96, 103, 108, 142, 143, 146, 170, 191, 192, and 219.[62] A historically significant area, Bishop Park, is crossed by Segment J4, which is utilized by Routes 1, 19, 65, 67, 68, 69, 72, 92, 94, 96, 103, 108, 142, 143, 146, 170, 191, 192, and 219.[63] Two recorded archeological sites are within 1,000 feet of the centerline of the proposed alternative routes. A former schoolhouse is crossed by Segment M1, which is utilized by Routes 3, 5, 13, 14, 15, 16, 18, 22, 23, 24, 25, 26, 28, 29, 36, 43, 44, 58, 61, 63, 70, 78, 87, 108, 116, 119, 130, 132, 137, 146, 164, 179, 199, 200, 179-A. 179-B, 179-C, 22R, 29R, 116R, 130R, 132R, and 164.[64] A historic house is within 90 feet of the centerline of Segment L2, which is utilized by Routes 3, 5, 10, 11, 13, 14, 15, 16, 18, 19, 22, 23, 24, 25, 26, 28, 29, 33, 36, 43, 44, 58, 61, 63, 70, 78, 87, 92, 108, 116, 117, 119, 130, 132, 137, 146, 154, 164, 170, 178, 179, 186, 187, 199, 200, 216, 179-A, 179-B, 179-C, 22R, 29R, 116R, 130R, 132R, and 164R.[65]

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[61] Application, Attachment 1 at Page 7-26 and Attachment 7 Part 4. and Attachment JP-4 Part 1 at 000011. 000015, 000019 and 000036.

[62] *Id.*

[63] *Id.*

[64] *Id.*

[65] *Id.*

The proposed alternative routes have from one historic or archeological site within 1,000 feet of its centerline (for Routes 41, 42, 54, 71, 86, 138, 175, 176, 184, 185, 207, 217, 218, and 221) to five (for Route 108 and 146).[66] Route 179-C's centerline is within 610 feet of the Dunham Cemetery on Segment A0, within 90 feet of a historic house on Segment L2, and crosses the former school house on Segment M1.[67]

The length of the routes across areas of high archeological/historical site potential ranges from 28,161 feet for Route 186 to 64,206 feet for Route 28.[68] Route 179-C crosses 56,753 feet of areas of high archeological/historical site potential.[69]

If any further archeological or cultural resources are found during construction of the proposed transmission line, Oncor should immediately cease work in the vicinity of the archeological or cultural resources, and should immediately notify the Texas Historical Commission.

E. AESTHETIC VALUES

Q. In your opinion, which of the proposed alternative routes would result in a negative impact on aesthetic values, and which portions of the study area will be affected?

A. In my opinion, all of the proposed alternative routes would result in a negative

[66] Application, Attachment 1 at Exhibit E (Table 7-2) and Attachment JP-4 Part 1 at 000011, 000015, and 000019 and Attachment JP-4 Part 3.

[67] Application, Attachment 1 at 7-24 and Attachment JP-4 Part 1 at 000019.

[68] Application, Attachment 1 at Exhibit E (Table 7-2) and Attachment 7 Part 4, and Attachment JP-4 Part 1 at 000012, 000016, and 000020 and Attachment JP-4 Part 3.

[69] Attachment JP-4 Part 1 at 000020.

impact on aesthetic values, some routes more than others, depending on the visibility from homes and public roadways. Temporary effects would include views of the actual transmission line construction (e.g. assembly and erection of the structures) and of any clearing of right-of-way. Permanent effects would involve the visibility of the structures and the lines. I therefore conclude that aesthetic values would be impacted throughout the study area, and that these temporary and permanent negative aesthetic effects will occur on any proposed alternative routes approved by the Commission.

F. ENVIRONMENTAL INTEGRITY

Q. Please provide a general description of the area traversed by the proposed alternative routes.

A. The area traversed by the project is within the Grand Prairie Western Timbers Physiographic Region.[70] The Interior Coastal Plains consists of low stairstep hills with calcareous bedrock types to the east, and plains with sandier bedrock types to the west. The study area primarily consists of the Fort Worth Limestone, which incorporates limestone and clay deposits, and Duck Creek Formation, which incorporates limestone aphanitic that is in part bioclastic and has pyrite nodules and forms topographic benches.[71]

Q. What was involved in your analysis of the environmental impact of the

[70] Application, Attachment 1 at Page 3-1.

[71] *Id.*

Proposed Project?

A. I reviewed the information provided in the application and the EA, the direct testimonies and statements of position of the intervenors, responses to requests for information, and the letters from TPWD to Ms. Marisa Wagley, dated July 19, 2023.[72]

Q. Based on your review of the information identified above, in your opinion, will the Proposed Project present a significant negative impact to environmental integrity?

A. No. Transmission lines do not often create many long-term impacts on soils. Most of those impacts will be during initial construction and would be erosion and soil compaction; however, Oncor will employ erosion control during initial construction including development of a Storm Water Pollution Prevention Plan to minimize impacts.[73]

Primary impacts on vegetation would be the result of site preparation and clearing of existing woody vegetation in the right-of-way,[74] further disturbances would then occur during maintenance activities.[75] Oncor will attempt to minimize adverse impacts to vegetation and retain existing ground cover where possible, and to restore disturbed areas with native species where possible.[76] The length of upland

[72] Attachment JP-3.

[73] Application, Attachment 1 at Pages 7-1 and 7-2.

[74] *Id.*, Attachment 1 at Page 7-6.

[75] *Id.*, Attachment 1 at Page 7-2.

[76] *Id.*, Attachment 1 at Pages 7-6 and 7-7.

woodlands along the right-of-way of the proposed routes ranges from 8,022 feet for Route 217 to 15,125 feet for Route 26.[77] The length of riparian areas along the right-of-way of the proposed routes ranges from 4,579 feet for Route 187 to 15,690 feet for Route 26.[78] The length of upland woodlands along the right-of-way of Route 179-C is 11,311 feet and the length of riparian areas along the right-of-way of Route 179-C is 11,536 feet.[79]

While there are no federally listed endangered or threatened plant species known to occur in Denton and Wise Counties, TPWD county lists of rare species and Natural Diversity Database data suggest that the study area may contain rare plant species that require special consideration.[80] Oncor will avoid impacts to these rare plants, following TPWD recommendation, should specimens be found.[81] The estimated number of known rare or unique plant locations within the right-of-way ranges from zero for Routes 94, 96, 103, 108, 116, 117, 119, 130, 132, 137, 138, 142, 143, 146, 186, 187, 191, 192, 217, 218, 219, 116R, 130R, and 132R to four for Routes 33, 68, 69, 71, 175, 176, 178, 184, and 185.[82] Route 176-C has one known rare or unique plant location within its right-of-way.[83]

[77] Application, Attachment 1 at Exhibit E (Table 7-2) and Attachment JP-4 Part 1 at 000011, 000015, and 000019 and Attachment JP-3 Part 3.

[78] *Id.*

[79] Attachment JP-4 Part 1.

[80] Application, Attachment 1 at Pages 7-7 and 7-8.

[81] *Id.*, Attachment 1 at Page 7-8.

[82] *Id.*, Attachment 1 at Exhibit E (Table 7-2) and Attachment JP-4 Part 1 at 000011, 000015, and 000019 and Part 3.

[83] Attachment JP-4 Part 1 at 000019.

The length across potential wetlands ranges from Routes 36, 41, 42, 43, 44, 58, 71, 86, 87, 137, 138, 175, 176, 179, 184, 185, 207, 179-A, 179-B, and 179-C, which do not cross any wetlands at all, to Routes 92 and 218 which cross 849 feet of potential wetlands.[84] Oncor will attempt to span wetland areas whenever possible and use erosion controls mitigation measures to minimize impacts to aquatic systems should a route be selected which crosses wetland areas.[85]

While federally listed threatened or endangered species may occur within the study area, there are no designated critical habitat for any federally listed threatened or endangered species along any of the proposed alternative routes.[86]

However, construction of some of the proposed alternative routes could, at some locations, present a negative impact on the environment, particularly in sensitive areas such as wetlands, riparian areas, and woodlands.

Q. In your opinion, how would construction of the Proposed Project on Route 179-C compare from an environmental perspective to construction on the other routes?

A. Route 179-C has 11,311 feet of its length across upland woodlands, which is 3,289 feet longer than the shortest length of Route 217 and 4,379 feet shorter than the

[84] Application, Attachment 1 at Exhibit E (Table 7-2) and Attachment JP-4 Part 1 at 000011, 000015, and 000019 and Part 3.

[85] Application, Attachment 1 at Page 7-11.

[86] *Id.*, Attachment 1 at Pages 7-12 and 7-13. *See also. id.* at Exhibit E (Table 7-2) and Attachment JP-4 Part 1 at 000011, 000015, 000019 and Part 3.

longest length of Route 26.[87] The length of riparian areas along the right-of-way of Route 179-C is 11,536 feet, which is 6,957 feet longer than the shortest length of Route 187 and 4,182 feet shorter than the longest length of Route 28.[88] Route 179-C crosses no potential wetlands, but does have one location of known rare or unique plants within its right-of-way, while some routes have none.[89] In its letter dated July 19, 2023 TPWD selected Route 137 as the route having the least potential impact on environmental integrity.[90]

Q. Do you conclude that Route 179-C is acceptable from an environmental and land use perspective?

A. Yes, however I do not think any of the routes in this project are unacceptable from an environmental and land use perspective. I conclude that Route 179-C is acceptable from this perspective.

G. ENGINEERING CONSTRAINTS

Q. Are there any possible engineering constraints associated with this project?

A. There are no specific engineering constraints that are not present in a usual transmission line project. In my opinion, all of the possible constraints can be adequately addressed by using design and construction practices and techniques that

[87] *Compare* Application, Attachment 1 at Exhibit E (Table 7-2) and Attachment JP-4 Part 1 at 000011 and 000015 and Part 3 *with* Attachment JP-4 Part 1 at 000019.

[88] *Id.*

[89] *Id.*

[90] Attachment JP-3 at 5.

are usual and customary in the electric utility industry.

Q. Are there any special circumstances in this project that would warrant an extension beyond the seven-year limit for the energization of the lines?

A. No, Oncor has not described any special circumstances that would merit an extension of this limit for this project.

H. COSTS

Q. What are Oncor's estimated costs of constructing the Proposed Project on each of the proposed alternative routes?

A. Oncor's Notice of Errata Attachment 2 and Attachment 5 ~~Attachment 3 of the application and Attachment JP-4~~ list Oncor's revised estimated costs of constructing each proposed alternative route. The table below shows the total estimated cost for each of the routes from least expensive to the most expensive. Each listed cost includes $33,510,000 for the proposed Oncor Ramhorn Hill Switch and $41,348,000 for the proposed Oncor Dunham Switch.[91]

Route	Estimated Cost of the Route and Substation Upgrades
96~~29~~	$243,190,000.00 ~~$239,439,000.00~~
29~~191~~	$243,658,000.00 ~~$241,023,000.00~~
29R~~96~~	$243,667,000.00~~$241,684,000.00~~
191~~29R~~	$244,540,000.00 ~~$241,866,000.00~~
1~~1~~	$244,559,000.00 ~~$242,687,000.00~~
143~~103~~	$244,567,000.00 ~~$242,803,000.00~~
142~~143~~	$244,882,000.00 ~~$242,950,000.00~~
103~~192~~	$245,568,000.00 ~~$242,990,000.00~~
219~~42~~	$245,607,000.00 ~~$243,168,000.00~~
42~~142~~	$246,319,000.00 ~~$243,265,000.00~~

[91] Application at 9.

6765	$246,507,000.00 ~~$243,433,000.00~~
19294	$246,507,000.00 ~~$244,025,000.00~~
6572	$246,584,000.00 ~~$244,192,000.00~~
94219	$246,790,000.00 ~~$244,428,000.00~~
7267	$247,343,000.00 ~~$244,890,000.00~~
3619	$248,199,000.00 ~~$246,198,000.00~~
14636	$248,449,000.00 ~~$247,084,000.00~~
86146	$249,102,000.00 ~~$247,208,000.00~~
1668	$249,296,000.00 ~~$247,292,000.00~~
1986	$249,691,000.00 ~~$247,596,000.00~~
68179-C	$249,930,000.00 ~~$247,602,000.00~~
179-C41	**$251,143,000.00** ~~$248,257,000.00~~
4116	$251,408,000.00 ~~$248,672,000.00~~
13179	$251,950,000.00 ~~$250,066,000.00~~
207179-A	$252,014,000.00 ~~$250,269,000.00~~
15207	$253,312,000.00 ~~$250,508,000.00~~
21713	$253,476,000.00 ~~$251,326,000.00~~
179217	$253,607,000.00 ~~$252,451,000.00~~
179-A130R	$253,810,000.00 ~~$252,548,000.00~~
21815	$254,235,000.00 ~~$252,688,000.00~~
6943	$254,368,000.00 ~~$252,781,000.00~~
130R69	$254,520,000.00 ~~$253,103,000.00~~
61218	$254,657,000.00 ~~$253,210,000.00~~
43179-B	$254,898,000.00 ~~$253,360,000.00~~
20061	$254,991,000.00 ~~$253,542,000.00~~
14130	$255,042,000.00 ~~$254,031,000.00~~
1844	$255,233,000.00 ~~$254,143,000.00~~
10825	$255,690,000.00 ~~$254,337,000.00~~
130200	$256,003,000.00 ~~$254,370,000.00~~
7814	$256,095,000.00 ~~$254,421,000.00~~
44108	$256,260,000.00 ~~$254,449,000.00~~
2518	$256,454,000.00 ~~$254,612,000.00~~
179-B78	$256,901,000.00 ~~$255,474,000.00~~
54138	$256,933,000.00 ~~$255,710,000.00~~
170170	$256,973,000.00 ~~$255,732,000.00~~
22187	$257,073,000.00 ~~$255,880,000.00~~
199221	$257,645,000.00 ~~$256,048,000.00~~
8754	$257,681,000.00 ~~$256,096,000.00~~
2626	$258,420,000.00 ~~$256,303,000.00~~
13822R	$258,663,000.00 ~~$256,732,000.00~~
132R23	$258,732,000.00 ~~$256,991,000.00~~
22R199	$258,849,000.00 ~~$257,024,000.00~~
2271	$258,908,000.00 ~~$257,336,000.00~~
23132R	$259,108,000.00 ~~$257,471,000.00~~
7163	$260,101,000.00 ~~$258,137,000.00~~

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132~~22~~	$260,222,000.00 ~~$258,284,000.00~~
24~~24~~	$260,470,000.00 ~~$258,353,000.00~~
137~~137~~	$260,544,000.00 ~~$258,572,000.00~~
10~~186~~	$260,584,000.00 ~~$258,836,000.00~~
176~~132~~	$261,383,000.00 ~~$258,961,000.00~~
175~~10~~	$261,846,000.00 ~~$259,469,000.00~~
186~~176~~	$262,393,000.00 ~~$260,358,000.00~~
11~~116R~~	$262,551,000.00 ~~$260,682,000.00~~
116R~~175~~	$262,654,000.00~~$260,821,000.00~~
58~~58~~	$263,418,000.00 ~~$261,067,000.00~~
116~~11~~	$264,160,000.00 ~~$261,436,000.00~~
33~~116~~	$264,792,000.00 ~~$262,188,000.00~~
92~~23~~	$265,263,000.00 ~~$262,393,000.00~~
185~~185~~	$265,694,000.00 ~~$262,510,000.00~~
63~~92~~	$265,831,000.00 ~~$262,844,000.00~~
187~~184~~	$266,612,000.00 ~~$263,596,000.00~~
184~~187~~	$266,780,000.00 ~~$265,371,000.00~~
178~~178~~	$272,074,000.00 ~~$268,517,000.00~~
164~~70~~	$272,722,000.00 ~~$270,086,000.00~~
164R~~164R~~	$272,924,000.00~~$270,807,000.00~~
70~~164~~	$273,627,000.00 ~~$272,098,000.00~~
154~~154~~	$274,317,000.00 ~~$273,076,000.00~~
216~~216~~	$278,954,000.00 ~~$276,982,000.00~~
28~~28~~	$282,150,000.00 ~~$281,526,000.00~~
5~~5~~	$283,528,000.00 ~~$283,528,000.00~~
3~~3~~	$287,544,000.00 ~~$287,544,000.00~~
119~~119~~	$301,618,000.00 ~~$299,849,000.00~~
117~~117~~	$313,460,000.00 ~~$312,281,000.00~~

As the table illustrates, Route 179-C is the 22nd ~~21st~~-least expensive proposed alternative route.

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Q. Could you briefly discuss the routes that are less expensive and why Route 179-C is still preferred?

A. Yes. All the less expensive routes have more habitable structures within 500 feet of

their centerlines than Route 179-C.[92] Route 179-C makes better use of compatible right-of-way as a percentage of its total length than Routes 142, 103, 65, 19, 192, 42, 86, 96, 191, 143, 68, 146, 219, 1, 72, and 67.[93] Route 179-C is shorter than Routes 103, 94, 219, 65, 1, 191, 192, 72, 29R, 67, 19, 29, 68, 142, 143, and 146.[94] Routes 16, 142, 1, 19, 65, 67, 68, 72, 191, 192, 219, 94, 96, 103, 143, and 146 all cross parks and recreational areas while Route 179-C does not.[95]

Q. Do Oncor's estimated costs of constructing the Proposed Project appear to be reasonable?

A. After reviewing Oncor's estimates, the estimated costs for the proposed alternative routes are about what I would expect for a double-circuit 345-kV, triple-circuit capable, monopole project in this terrain. However, the reasonableness of the final installed cost of the completed project will be determined at a future date in the course of a transmission cost-of-service proceeding.

I. MODERATION OF IMPACT ON THE AFFECTED COMMUNITY AND LANDOWNERS

Q. Do the Commission's rules address routing alternatives intended to moderate

[92] *Compare* Attachment JP-4 Part 1 at 000019 *with* Application, Attachment 1 at Exhibit E (Table 7-2) and Attachment JP-4 Part 3.

[93] *Compare* Attachment JP-4 Part 1 at 000019 *with* Application, Attachment 1 at Exhibit E (Table 7-2).

[94] *Compare* Attachment JP-4 Part 1 at 000019 *with* Application, Attachment 1 at Exhibit E (Table 7-2) and Attachment JP-4 Part 3.

[95] *Compare* Attachment JP-4 Part 1 at 000019 *with* Application, Attachment 1 at Exhibit E (Table 7-2).

the impact on landowners?

A. Yes. Under 16 TAC § 25.101(b)(3)(B), "the line shall be routed to the extent reasonable to moderate the impact on the affected community and landowners unless grid reliability and security dictate otherwise."

Q. Subsequent to filing their application, has Oncor made or proposed any routing adjustments to accommodate landowners?

A. While new routing segments have been introduced, none of been included in any proposed routes at the time of my testimony, as they cannot be utilized until the requestor provides proof of written consent by directly affected landowners.[96] Oncor has introduced Routes 179-A, 179-B, 179-C, 22R, 29R, 116R, 130R, 132R, and 164R in response to a request for information request by intervenor Edgar Brent Watkins and Mary Ann Livengood.[97]

Q. Has Oncor proposed any specific means by which it will moderate the impact of the Proposed Project on landowners or the affected community other than adherence to the Commission's orders, the use of good utility practices, acquisition of and adherence to the terms of all required permits, and what you have discussed above?

A. No, not to my knowledge.

[96] Attachment JP-4 Part 1 at 000023.

[97] *See* Attachment JP-4 Part 1.

J. RIGHT-OF-WAY

Q. Do the Commission's rules address routing along existing corridors?

A. Yes. The following factors are to be considered under 16 TAC § 25.101(b)(3)(B):

(i) whether the routes utilize existing compatible rights-of-way, including the use of vacant positions on existing multiple-circuit transmission lines;

(ii) whether the routes parallel existing compatible rights-of-way;

(iii) whether the routes parallel property lines or other natural or cultural features; and

(iv) whether the routes conform with the policy of prudent avoidance.

1. USE AND PARALLELING OF EXISTING, COMPATIBLE RIGHT-OF-WAY (INCLUDING APPARENT PROPERTY BOUNDARIES)

Q. Describe how Oncor proposes to parallel or utilize compatible rights-of-way for the Proposed Project.

A. Each proposed alternative route parallels apparent property boundaries and parallels or utilizes existing compatible rights-of-way. The percentage of Route 179-C's length that parallels or utilizes existing compatible right-of-way and apparent property boundaries is approximately 23.25% of its length. The table below summarizes the overall length, the length parallel to compatible rights-of-way or to property boundaries, and the total percentage of parallel rights-of-way used by the proposed alternative routes. Existing pipeline rights-of-way are not listed as compatible rights-of-way under 16 TAC § 25.101(b)(3)(B).

Route	Length (Feet)	Length Parallel to Right-of-Way (Feet)	Percentage

117	119,593	47,414	39.65%
116R	118,307	44,465	37.58%
63	107,230	38,148	35.58%
132R	118,016	41,734	35.36%
130R	116,821	40,541	34.70%
154	119,463	40,543	33.94%
11	108,190	36,675	33.90%
116	119,030	40,204	33.78%
15	105,547	34,920	33.08%
61	106,109	34,948	32.94%
78	106,044	34,900	32.91%
10	107,966	35,263	32.66%
137	111,599	36,161	32.40%
164R	114,759	36,646	31.93%
13	108,924	34,587	31.75%
119	118,138	37,496	31.74%
3	108,960	34,445	31.61%
132	118,739	37,473	31.56%
184	117,406	36,732	31.29%
24	106,244	33,131	31.18%
130	117,544	36,281	30.87%
187	115,987	35,068	30.23%
23	109,621	32,798	29.92%
22R	109,621	32,798	29.92%
178	119,040	35,525	29.84%
199	110,007	32,658	29.69%
186	114,792	33,876	29.51%
216	120,969	35,590	29.42%
92	119,760	35,211	29.40%
71	116,232	34,121	29.36%
29R	113,597	32,501	28.61%
138	111,258	31,809	28.59%
18	111,183	31,685	28.50%
16	105,124	29,931	28.47%
33	116,619	32,991	28.29%

164	115,482	32,385	28.04%
26	106,045	29,554	27.87%
28	110,319	30,367	27.53%
5	108,537	29,455	27.14%
70	117,115	31,498	26.89%
14	111,501	29,931	26.84%
25	105,821	28,141	26.59%
179-A	114,174	30,322	26.56%
200	106,206	28,002	26.37%
175	117,796	30,635	26.01%
36	108,375	28,120	25.95%
185	117,146	30,321	25.88%
22	110,345	28,537	25.86%
29	114,320	28,240	24.70%
170	116,686	28,046	24.04%
218	111,817	26,298	23.52%
94	111,175	25,989	23.38%
179-C	**110,373**	**25,665**	**23.25%**
142	116,653	27,048	23.19%
103	110,806	25,646	23.14%
69	118,810	27,400	23.06%
217	112,061	25,480	22.74%
179	114,898	26,061	22.68%
108	118,176	26,791	22.67%
65	111,587	25,198	22.58%
54	111,219	25,023	22.50%
19	114,265	25,511	22.33%
44	106,411	23,690	22.26%
192	112,247	24,786	22.08%
41	110,686	24,374	22.02%
42	108,034	23,769	22.00%
179-B	116,750	25,665	21.98%
86	108,531	23,749	21.88%
43	109,788	23,357	21.27%
96	110,086	23,308	21.17%

176	118,808	25,145	21.16%
87	110,285	23,337	21.16%
191	112,023	23,374	20.87%
58	107,108	21,901	20.45%
143	116,661	23,724	20.34%
68	115,997	23,326	20.11%
207	109,117	21,840	20.02%
146	118,637	23,131	19.50%
219	111,226	20,193	18.15%
1	111,751	20,181	18.06%
72	112,248	20,161	17.96%
67	113,673	20,376	17.93%
221	111,588	19,253	17.25%

As the chart shows, Route 179-C is the 28th shortest route and has the 53rd highest percentage of compatible right-of-way compared to the other proposed alternative routes.

Q. Could you briefly discuss the routes that are shorter and utilize a higher percentage of compatible right-of-way and why Route 179-C is still preferred?

A. Yes. Route 179-C has less habitable structures within 500 feet of its centerline and is less expensive than Routes 44, 58, 207, 43, 87, 117, 116R, 63, 132R, 130R, 154, 11, 116, 15, 61, 78, 10, 137, 13, 119, 3, 132, 184, 24, 130, 187, 23, 22R, 178, 199, 186, 216, 92, 71, 138, 18~~, 16~~, 33, 26, 28, 5, 70, 14, 25, 179-A, 200, 175, 185, 22, 170, and 218.[98] Route 179-C is less expensive and shorter than Routes 164 and

[98] *Compare* Attachment JP-4 Part 1 at 000019 and Oncor's Notice of Errata at Attachment ~~521~~ *with* Application, Attachment 1 at Exhibit E (Table 7-2) and Oncor's Notice of Errata at Attachment 2 and Attachment 5~~Attachment 3~~ and Attachment JP-4 ~~Part 1 at 000013 and 000015, Part 2, and~~ Part 3.

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164R.[99] Route 179-C has fewer habitable structures within 500 feet of its centerline and is shorter than Routes 29R, 36, 29, and 94.[100] Routes 22R, 10, 11, 13, 14, 15, 16, 18, 22, 23, 24, 25, 26, 61, 63, 78, 199, 200, 130R, 132R, 130, 132, 137, 138, 116, 116R, 28, 3, 5, 164, 164R, 117, 119, 70, 186, 187, 218, 170, and 92 cross parks and recreational areas while Route 179-C does not.[101] Route 16 has more habitable structures within 500 feet of its centerline than Route 179-C.[102]

2. PARALLELING OF NATURAL OR CULTURAL FEATURES

Q. Describe how Oncor proposes to parallel natural or cultural features for the Proposed Project.

A. None of the proposed alternative routes parallel natural or cultural features.

K. PRUDENT AVOIDANCE

Q. Define prudent avoidance.

A. Prudent avoidance is defined by 16 TAC § 25.101(a)(6) as follows: "The limiting of exposures to electric and magnetic fields that can be avoided with reasonable investments of money and effort."

[99] *Compare* Attachment JP-4 Part 1 at 000019 and Oncor's Notice of Errata at Attachment ~~5~~21 *with* Application, Attachment 1 at Exhibit E (Table 7-2), Oncor's Notice of Errata at Attachment 2 and Attachment 5 ~~Attachment 3~~ and Attachment JP-4 ~~Part 2 and~~ Part 3.

[100] *Compare* Attachment JP-4 Part 1 at 000019 *with* Application, Attachment 1 at Exhibit E (Table 7-2) and Attachment JP-4 Part 3.

[101] *Id.*

[102] *Id.*

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Q. How can exposure to electric and magnetic fields be limited when routing transmission lines?

A. Primarily by proposing alternative routes that would minimize, to the extent reasonable, the number of habitable structures located in close proximity to the routes.

Q. How many habitable structures are located in close proximity to each of the proposed alternative routes?

A. The table below ranks the number of habitable structures that are within 500 feet of the centerline of the proposed alternative routes in this project.

Route	Number of habitable structures
164	93
164R	96
179	97
179-C	**98**
179-B	98
179-A	100
175	108
176	110
184	112
185	112
29	131
5	132
28	133
29R	134
154	145
178	145
71	146
3	151
36	155
42	158
86	158
207	160
41	168

33	183
1	188
65	188
72	188
14	191
16	191
61	191
13	193
18	193
200	193
199	195
22	197
43	197
87	197
25	198
23	200
146	200
22R	200
26	202
116	203
130	204
132	204
119	205
116R	206
130R	207
132R	207
15	210
78	210
44	214
24	217
63	217
143	220
221	220
58	221
142	223
218	226
137	228
138	231
69	234
68	240
67	252
216	261
117	263
70	266
54	267

108	271
170	282
103	287
96	290
217	293
94	294
92	319
19	320
219	327
10	348
11	352
186	364
187	364
191	396
192	400

There are 98 habitable structures that are within 500 feet of the centerline of Route 179-C which is tied for the 4th least of any route.

Q. Could you briefly discuss the routes with an equal or fewer number of impacted habitable structures and why Route 179-C is still preferred?

A. Yes. Routes 179, 179-B, 164R, and 164 are all longer and more expensive than Route 179-C.[103] Route 179-C makes better use of compatible right-of-way as a percentage of its total length than Routes 179 and 179-B. Routes 164 and 164R cross park and recreational areas while Route 179-C does not.[104]

Q. Do you conclude that Oncor's proposed alternative routes have minimized, to

[103] *Compare* Attachment JP-4 Part 1 at 000019 and Oncor's Notice of Errata at Attachment ~~5-21~~ *with* Application, Attachment 1 at Exhibit E (Table 7-2) and Oncor's Notice of Errata at Attachment 2 and Attachment 5,~~Attachment 2~~ and Attachment JP-4 Part 1 at 000015~~ and 000017, Part 2,~~ and Part 3.

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[104] *Compare* Attachment JP-4 Part 1 at 000019 *with* Application, Attachment 1 at Exhibit E (Table 7-2) and Attachment JP-4 Part 3.

the extent reasonable, the number of habitable structures located in close proximity to the routes?

A. Oncor has designed its proposed segments in such a way as to minimize, to the extent reasonable, the number of habitable structures located in close proximity to the routes. However, some routes perform better in this area than others.

VI. CONCLUSION

Q. In your opinion, is any one of the proposed alternative routes better than all of the other routes in all respects?

A. No.

Q. If no proposed alternative route is better than all of the others in all respects, why have you recommended Route 179-C instead of the other proposed alternative routes?

A. In summary, after analyzing all the factors that the Commission must consider under PURA § 37.056 and 16 TAC § 25.101, I conclude that Route 179-C best meets the criteria of PURA and the Commission's rules because:

(1) Route 179-C is the 22nd ~~21*~~ least expensive proposed route at $251,143,000.00~~247,602,000.00~~, a $7,485,000.00~~8,163,000.00~~ or 3.27~~3.41~~% difference from the least expensive route;

(2) Route 179-C is the 29th shortest route at 110,373 feet, a 5,249 feet or 5% difference from the shortest route;

(3) Route 179-C is tied for the 4th least amount of habitable structures within

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500 feet of its centerline with 98, five more than the route with the least number of habitable structures;

(4) Route 179-C has none of its length across parks or recreation areas; and

(5) Route 179-C has none of its length across potential wetlands.

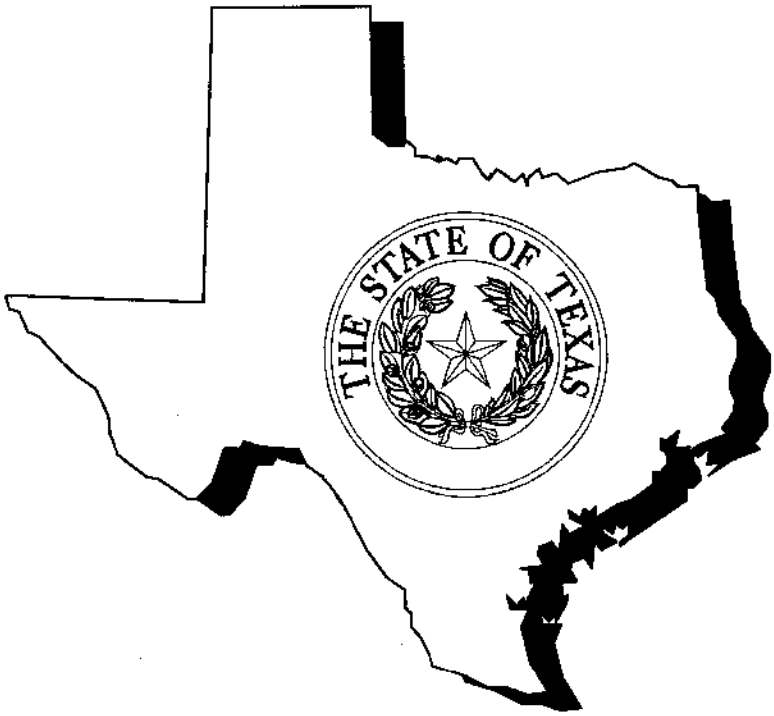
Route 179-C, like all of the proposed alternative routes, has some advantages and some disadvantages as I have discussed in my testimony. However, I consider Route 179-C overall to have the most advantages and to be superior to the other proposed alternative routes.

Q. Does this conclude your testimony?

A. Yes

SOAH DOCKET NO. 473-23-21216
PUC DOCKET NO. 55067

APPLICATION OF ONCOR ELECTRIC DELIVERY COMPANY LLC TO AMEND ITS CERTIFICATE OF CONVENIENCE AND NECESSITY FOR THE RAMHORN HILL TO DUNHAM 345 KV TRANSMISSION LINE IN DENTON AND WISE COUNTIES	§	**BEFORE THE STATE OFFICE OF ADMINISTRATIVE HEARINGS**



DIRECT TESTIMONY OF

JOHN POOLE, P.E.

INFRASTRUCTURE DIVISION

PUBLIC UTILITY COMMISSION OF TEXAS

AUGUST 14, 2023

TABLE OF CONTENTS

ATTACHMENTS

I. STATEMENT OF QUALIFICATIONS

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

A. My name is John Poole. I am employed by the Public Utility Commission of Texas (Commission) as an Engineer within the Infrastructure Division. My business address is 1701 North Congress Avenue, Austin, Texas 78701.

Q. Please briefly outline your educational and professional background.

A. I have a Bachelor of Science degree in Electrical Engineering. I completed my degree in December of 2014 and have been employed at the Commission since February of 2015. A more detailed resume is provided in Attachment JP-1.

Q. Are you a registered professional engineer?

A. Yes, I am a registered Professional Engineer in Texas. My member number is 133982.

Q. Have you previously testified as an expert before the Commission?

A. Yes. A list of previous testimony is provided in Attachment JP-2.

II. SCOPE OF TESTIMONY

Q. What is the purpose of your testimony in this proceeding?

A. The purpose of my testimony is to present Commission Staff's recommendations

concerning the application of Oncor Electric Delivery Company, LLC (Oncor) to amend its Certificate of Convenience and Necessity (CCN) to construct a new double-circuit 345 kilovolt (kV) transmission line to be built on triple-circuit capable steel monopole structures. The structures will initially support two 345-kV circuits, with two conductors per phase, with a vacant position to accommodate an additional 138-kV circuit in the future. The new transmission line will begin at the proposed Oncor Ramhorn Hill Switch, to be located approximately 2 miles south of the intersection of United States Highway ("US") 287 and State Highway 114 near Rhome, Texas in Wise County, Texas. The transmission line will then extend 20 to 23 miles, depending on the route, in an easterly direction terminating at the proposed Oncor Dunham Switch that will be located approximately 1.4 miles southeast of the intersection of US 377 and Farm-to-Market 1171 in Flower Mound, Texas in Denton County, Texas (Proposed Project).[1]

Q. What is the scope of your testimony?

A. The scope of my testimony is to provide Commission Staff's recommendation regarding the need for the project and regarding selection of routes from among the proposed alternative routes presented by Oncor.

Q. What are the statutory requirements that a utility must meet to amend its CCN to construct a new transmission line?

[1] Application of Oncor Electric Delivery LLC to Amend its Certificate of Convenience and Necessity for the Ramhorn Hill- Dunham 345-kV Transmission Line in Denton and Wise Counties at 4 (Jun. 8, 2023). (Application).

A. Section 37.056(a) of the Public Utility Regulatory Act (PURA)[2] states that the Commission may approve an application for a CCN only if the Commission finds that the CCN is necessary for the service, accommodation, convenience, or safety of the public. Further, PURA provides that the Commission shall approve, deny, or modify a request for a CCN after considering the factors specified in PURA § 37.056(c), which are as follows:

(1) The adequacy of existing service;

(2) The need for additional service;

(3) The effect of granting the certificate on the recipient of the certificate and any electric utility serving the proximate area; and

(4) Other factors, such as:

(A) Community values;

(B) Recreational and park areas;

(C) Historical and aesthetic values;

(D) Environmental integrity;

(E) the probable improvement of service or lowering of cost to consumers in the area if the certificate is granted, including any potential economic or reliability benefits associated with dual fuel and fuel storage capabilities in areas outside the ERCOT power region; and

(F) To the extent applicable, the effect of granting the certificate on the ability of this state to meet the goal established by

[2] Public Utility Regulatory Act, Tex. Util. Code Ann. §§ 11.001-66.016 (PURA).

PURA § 39.904(a).

Q. Do the Commission's rules provide any instruction regarding routing criteria?

A. Yes. 16 Texas Administrative Code (TAC) § 25.101(b)(3)(B) requires that an application for a new transmission line address the criteria in PURA § 37.056(c), and that upon considering those criteria, engineering constraints and costs, the line shall be routed to the extent reasonable to moderate the impact on the affected community and landowners unless grid reliability and security dictate otherwise. The following factors shall be considered in the selection of Oncor's proposed alternative routes:

(i) Whether the routes parallel or utilize existing compatible rights-of-way for electric facilities, including the use of vacant positions on existing multiple-circuit transmission lines;

(ii) Whether the routes parallel or utilize other existing compatible rights-of-way, including roads, highways, railroads, or telephone utility rights-of-way;

(iii) Whether the routes parallel property lines or other natural or cultural features; and

(iv) Whether the routes conform with the policy of prudent avoidance.

Q. What issues identified by the Commission must be addressed in this docket?

A. In the Order of Referral and Preliminary Order filed on June 9, 2023, the

Commission identified the following issues that must be addressed:

1. Is the applicant's application to amend its CCN adequate? Does the application contain an adequate number of reasonably differentiated alternative routes to conduct a proper evaluation? In answering this question, consideration must be given to the number of proposed alternatives, the locations of the proposed transmission line, and any associated proposed transmission facilities that influence the location of the line. Consideration may also be given to the facts and circumstances specific to the geographic area under consideration and to any analysis and reasoned justification presented for a limited number of alternative routes. A limited number of alternative routes is not in itself a sufficient basis for finding an application inadequate when the facts and circumstances or a reasoned justification demonstrates a reasonable basis for presenting a limited number of alternatives. If an adequate number of routes is not presented in the application, the ALJ must allow the applicant to amend the application and to provide proper notice to affected landowners; however, if the applicant chooses not to amend the application, then the ALJ may dismiss the case without prejudice.
2. Did the applicant provide notice of the application in accordance with 16 TAC § 22.52(a)(1), (2), and (3)?
3. Did the applicant provide notice of the public meeting in accordance with 16 TAC § 22.52(a)(4)?

4. What were the principal concerns expressed in the questionnaire responses received at or after any public meetings held by the applicant regarding the proposed transmission facilities?

5. Taking into account the factors set out in the Public Utility Regulatory Act (PURA) § 37.056(c), are the proposed transmission facilities necessary for the service, accommodation, convenience, or safety of the public within the meaning of PURA § 37.056(a)? In addition, please address the following issues:

   a. How do the proposed transmission facilities support the reliability and adequacy of the interconnected transmission system?

   b. Do the proposed transmission facilities facilitate robust wholesale competition?

   c. What recommendation, if any, has an independent organization, as defined in PURA § 39.151, made regarding the proposed transmission facilities?

   d. Are the proposed transmission facilities needed to interconnect a new transmission service customer?

6. In considering the need for additional service under PURA § 37.056(c)(2) for a reliability transmission project, please address the historical load, forecasted load growth, and additional load currently seeking interconnection.

7. Are the proposed transmission facilities the better option to meet this need when compared to using distribution facilities? If the applicant is not subject

to the unbundling requirements of PURA § 39.051, are the proposed transmission facilities the better option to meet the need when compared to a combination of distribution facilities, distributed generation, and energy efficiency? In answering this issue, if the proposed transmission facilities include a transmission line to address distribution load growth, please address the following:

a. The data used to calculate the applicant' s load-growth projections that support the need for a transmission-line solution;

b. The date, origin, and relevance of the data used to calculate the applicant's load-growth projections;

c. The assumptions made and relied on to generate the load-growth projections, including but not limited to the assumed rates of load growth, the factors (if any) applied to calculate forecasted loads for new developments in the need study area, and adjustments (if any) made to forecasted loads to account for customer load served by any other electric utilities also providing electric service within the applicant's need study area;

d. The location, described in writing and depicted on a map, of the boundaries of the need study area and all existing transmission facilities (including proposed substations or switching stations) within the need study area used for the load-growth projections;

e. If included in the applicant' s load-growth projections, the nature, scope, and location depicted on a map of the following loads:

i. the applicant' s current consumers,

ii. the applicant' s pending load request, and

iii. future development projects included in the applicant's load-growth projections;

f. The location depicted on a map of the existing load center, the load center including existing load and currently requested loads, and the load center including existing load, currently requested loads, and the applicants' projected load growth;

g. The location and identity of any existing transmission lines, whether inside or outside the need study area, that are as close as, or closer to, any load-serving substation proposed in this application compared to the existing transmission line or substation used for the proposed interconnection or tap;

h. The location and identity of any existing substations with remaining transformer capacity, whether inside or outside the need study area, that are as close as, or closer to, any load-serving substation proposed in this application compared to the existing transmission line or substation used for the proposed interconnection or tap;

i. If other utilities are providing distribution service within the applicant's need study area, the location and nature of the other utilities' distribution facilities described in writing and depicted on a map;

j. An analysis of the feasibility, design, and cost effectiveness of a distribution-voltage level alternative that uses the same point(s) of interconnection or tap and endpoint(s) and that is routed along the same

alternative routes as the transmission-level radial line that is requested to be approved;

k. The applicant's planning study or other reports reflecting the nature and scope of new-build distribution facilities or existing distribution-facility upgrades necessary for projected load growth anticipated before the projected load growth that is the basis for this application; and

l. A comparative cost analysis between all new-build distribution facilities or existing distribution-facility upgrades and the proposed radial transmission facilities that segregates the distribution-alternative costs to support the pending load requests and specific future development loads from general load growth in the need study area.

8. Weighing the factors set forth in PURA § 37.056(c) and 16 TAC § 25.101(b)(3)(B), which proposed transmission-line route is the best alternative?

9. Are there alternative routes or configurations of facilities that would have a less negative effect on landowners? What would be the incremental cost of those routes or configurations of facilities?

10. If alternative routes or configurations of facilities are considered because of individual landowners' preferences, please address the following issues:

a. Have the affected landowners made adequate contributions to offset any additional costs associated with the accommodations?

b. Have the accommodations to landowners diminished the electric efficiency of the line or reliability?

11. Are the proposed transmission facilities necessary to meet state or federal reliability standards?

12. What is the estimated cost of the proposed transmission facilities to consumers?

13. What is the estimated congestion cost savings for consumers that may result from the proposed transmission facilities considering both current and future expected congestion levels and the ability of the proposed transmission facilities to reduce those congestion levels?

14. Are the best management practices for construction and operating transmission facilities that are standard in the Commission's electric CCN orders adequate? If not, what additional practices should be required for the proposed transmission facilities?

15. For each additional practice proposed, please address the following:

a. What is the additional cost to design, construct, and operate the proposed transmission facilities, including the cost to consumers?

b. What benefit, if any, will the proposed practice provide?

c. What effect, if any, will the proposed practice have on the reliability of the transmission system?

d. What effect, if any, will the proposed practice have on the design, construction, or operation of the proposed transmission facilities?

e. What effect, if any, will the proposed practice have on the expected date to energize the proposed transmission facilities?

16. Did the Texas Parks and Wildlife Department provide any recommendations or informational comments regarding this application in accordance with section 12.0011(b) of the Texas Parks and Wildlife Code? If so, how should the Commission respond through its order?

17. What permits, licenses, plans, or permission will be required for construction and operation of the proposed transmission facilities? If any alternative route requires permission or an easement from a state or federal agency, please address in detail the following:

a. What agency is involved, and what prior communication has the applicant had with the agency regarding the proposed transmission facilities?

b. Has the agency granted the required permission or easement? If not, when is a decision by the agency expected?

c. What contingencies are in place if the agency does not grant the required permission or easement or if the process to obtain the required permission or easement would materially affect the estimated cost, proposed design plans, or anticipated timeline to construct the proposed transmission facilities?

18. Is any part of the proposed transmission facilities located within the coastal management program boundary as defined in 31 TAC § 27.1(a)? If so, please address the following issues:

a. Do the facilities comply with the goals and applicable policies of the Coastal Management Program in accordance with 16 TAC § 25.102(a)?

b. Will the facilities have any direct and significant effects on any of the applicable coastal natural resource areas specified in 31 TAC § 26.3(b)?

19. Are the circumstances for this line such that the seven-year limit discussed in section III of this Order should be changed?

20. Will anything occur during construction that will preclude or limit a generator from generating or delivering power or that will adversely affect the reliability of the ERCOT system?

21. If complete or partial agreement of the parties is reached on a route that relies on modifications to the route segments as noticed in the application, please address the following issues:

a. Did the applicant comply with the additional notice requirements of 16 TAC § 22.52(a)(2) and (a)(3)(C)?

b. Was written consent obtained from landowners directly affected by the proposed modifications to the route segments?

Q. Which issues in this proceeding have you addressed in your testimony?

A. I have addressed the issues from the Order of Referral and Preliminary Order and the requirements of PURA § 37.056 and 16 TAC § 25.101.

Q. If you do not address an issue or position in your testimony, should that be interpreted as Staff supporting any other party's position on that issue?

A. No. The fact that I do not address an issue in my testimony should not be considered as agreeing, endorsing, or consenting to any position taken by any other party in this proceeding.

Q. What have you relied upon or considered to reach your conclusions and make your recommendation?

A. I have relied upon my review and analysis of the data contained in Oncor's application and the application's accompanying attachments, including the *Environmental Assessment and Alternative Route Analysis* (EA) prepared by Halff Associates, Inc. (Halff).[3] I have also relied upon my review of the direct testimonies and statements of position filed in this proceeding by or on behalf of Oncor and the intervenors. I have also relied upon my review of the responses to requests for information, and the letters from the Texas Parks and Wildlife Department (TPWD) to Ms. Marisa Wagley, dated July 19, 2023.[4]

III. CONCLUSIONS AND RECOMMENDATIONS

Q. Based on your evaluation of Oncor's application and other relevant material, what conclusions have you reached regarding the application and the Proposed Project?

1. I conclude that the application is adequate and that Oncor's proposed alternative routes are adequate in number and geographic diversity.
2. I conclude that the application complies with the notice requirements in 16 TAC § 22.52(a).

[3] Application at Attachment 1.

[4] Attachment JP-3.

3. I conclude that, taking into account the factors set out in PURA § 37.056(c), the Proposed Project is necessary for the service, accommodation, convenience and safety of the public.

4. I conclude that the Proposed Project is the best option to meet the need when compared with other alternatives.

5. I conclude that Route 179-C is the best route when weighing, as a whole, the factors set forth in PURA § 37.056(c)(4) and in 16 TAC § 25.101(b)(3)(B).

6. I conclude that TPWD provided mitigation measures regarding the application, and that the mitigation measures provided on pages 18 through 20 of my testimony, as well as mitigation measures mentioned in the environmental concerns on pages 34 through 38 of my testimony, are sufficient to address TPWD's mitigation recommendations. I also conclude that Oncor has the resources and procedures in place in order to accommodate the mitigation recommendations.

Q. What recommendation do you have regarding Oncor's application?

A. I recommend that the Commission approve Oncor's application to amend its CCN in order to construct a new double-circuit 345-kV transmission line to be built on triple-circuit capable steel monopole structures along with the proposed Oncor Ramhorn Hill 345-kV Switch in Wise County and the proposed Oncor Dunham Switch in Denton County. I also recommend that the Commission order Oncor to construct the Proposed Project on Route 179-C (Segments A0, A4, B1, B61, B62, C1, C21, C23, C7, E2, E1, E6, G1, G3, H41, H42, H8, I8, J3, K1, L5, L4, L3, L2,

M1, M5, R2, R5, U3, V3, V4, and Z). I further recommend that the Commission include in its order approving Oncor's application the following paragraphs in order to mitigate the impact of the Proposed Project:

1. Oncor shall conduct surveys, if not already completed, to identify pipelines that could be affected by the transmission lines and coordinate with pipeline owners in modeling and analyzing potential hazards because of alternating-current interference affecting pipelines being paralleled.

2. If Oncor encounters any archeological artifacts or other cultural resources during project construction, work must cease immediately in the vicinity of the artifact or resource, and the discovery must be reported to the Texas Historical Commission. In that situation, Oncor must take action as directed by the Texas Historical Commission.

3. Oncor must follow the procedures to protect raptors and migratory birds as outlined in the following publications: *Reducing Avian Collisions with Power Lines: The State of the Art in 2012,* Edison Electric Institute and Avian Power Line Interaction Committee, Washington, D.C. 2012; *Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006*, Edison Electric Institute, Avian Power Line Interaction Committee, and the California Energy Commission, Washington, D.C. and Sacramento, CA 2006; and *Avian Protection Plan Guidelines*, Avian Power Line Interaction Committee and United States Fish and Wildlife Service, April 2005. Oncor must take precautions to avoid disturbing occupied nests and take steps to minimize the burden of construction on migratory birds

during the nesting season of the migratory bird species identified in the area of construction.

4. Oncor must exercise extreme care to avoid affecting non-targeted vegetation or animal life when using chemical herbicides to control vegetation within rights-of-way. Oncor must ensure that the use of chemical herbicides to control vegetation within the rights-of-way complies with rules and guidelines established in the Federal Insecticide Fungicide and Rodenticide Act and with Texas Department of Agriculture regulations.

5. Oncor must minimize the amount of flora and fauna disturbed during construction of the transmission line, except to the extent necessary to establish appropriate right-of-way clearance for the transmission line. In addition, Oncor must revegetate, using native species and must consider landowner preferences and wildlife needs in doing so. Furthermore, to the maximum extent practical, Oncor must avoid adverse environmental influence on sensitive plant and animal species and their habitats, as identified by the Texas Parks and Wildlife Department and the United States Fish and Wildlife Service.

6. Oncor must implement erosion control measures as appropriate. Erosion control measures may include inspection of the right-of-way before and during construction to identify erosion areas and implement special precautions as determined necessary. Oncor must return each affected landowner's property to its original contours and grades unless otherwise agreed to by the landowner or the landowner's representative. Oncor is not

required to restore the original contours and grades where a 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 lines.

7. Oncor must use best management practices to minimize the potential impacts to migratory birds and threatened or endangered species.

8. Oncor must cooperate with directly affected landowners to implement minor deviations from the approved route to minimize the burden of the transmission line. Any minor deviations from the approved route must only directly affect landowners who were sent notice of the transmission line in accordance with 16 TAC § 22.52(a)(3) and landowners that have agreed to the minor deviation.

9. Oncor must report the transmission line approved by the Commission on its monthly construction progress reports before the start of construction to reflect the final estimated cost and schedule in accordance with 16 TAC § 25.83(b). In addition, Oncor must provide final construction costs, with any necessary explanation for cost variance, after completion of construction when all costs have been identified.

Q. Does your recommended route differ from the route that Oncor believes best addresses the requirements of PURA and the Commission's rules?

A. Yes. Oncor identified Route 179 as the route that best addresses the requirements of PURA and the Commission's rules.[5]

[5] Application at 24.

IV. PROJECT JUSTIFICATION

A. DESCRIPTION OF THE PROJECT

Q. Please describe the Proposed Project.

A. The Proposed Project will consist of constructing a new double-circuit 345 kilovolt (kV) transmission line to be built on triple-circuit capable steel monopole structures. The structures will initially support two 345-kV circuits, with two conductors per phase, with a vacant position to accommodate an additional 138-kV circuit in the future. The new transmission line will begin at the proposed Oncor Ramhorn Hill Switch, to be located approximately 2 miles south of the intersection of United States Highway ("US") 287 and State Highway 114 near Rhome, Texas in Wise County, Texas. The transmission line will then extend 20 to 23 miles, depending on the route, in an easterly direction terminating at the proposed Oncor Dunham Switch that will be located approximately 1.4 miles southeast of the intersection of US 377 and Farm-to-Market 1171 in Flower Mound, Texas in Denton County, Texas.[6]

Q. Does Oncor's application contain a number of proposed alternative routes sufficient to conduct a proper evaluation?

A. Yes.

Q. Is the Proposed Project located within the incorporated boundaries of any

[6] Application at 4.

municipality?

A. Yes. Portions of all of the proposed alternative routes would be constructed within the incorporated boundaries of the City of Flower Mound, Texas and the City of Northlake, Texas.[7] Additionally, portions of some routes will be constructed within the incorporated boundaries of the City of Justin, Texas; the City of New Fairview, Texas; the City of Rhome, Texas; and the City of Fort Worth, Texas.[8]

B. TEXAS COASTAL MANAGEMENT PROGRAM

Q. Does any part of this project lie within the Texas Coastal Management Program (TCMP) boundary?

A. No. The study area is not located within the TCMP boundary.[9]

C. NEED FOR THE PROJECT

Q. Could you briefly summarize the need for the project?

A. Yes. As stated in the application, the Proposed Project is needed to address reliability issues in the Roanoke area.[10] The Roanoke area is located approximately 15 miles north of Fort Worth and is one of the highest growth areas in the Dallas-Fort Worth Metroplex.[11] The current power transfer and load-serving capabilities of the transmission system in the Roanoke area are approaching their operating limits

[7] Application at 8.

[8] *Id.*

[9] *Id.* at 33.

[10] *Id.* At 10-11.

[11] *Id.* at 10.

at current demand levels.[12] To address these issues, Oncor recommended the Roanoke Area Upgrades Project to the ERCOT Regional Planning Group (RPG) and ERCOT conducted its own independent review and confirmed the reliability issues Oncor identified.[13]

Q. Has an independent organization, as defined in PURA § 39.151, determined that there is a need for the Proposed Project?

A. Yes. ERCOT recommended the Proposed Project, as part of the Roanoke Area Upgrades Project.[14] The project was recommended as a Tier 1 transmission project that is critical to the reliability of the ERCOT system pursuant to 16 TAC § 25.101(b)(3)(D) by the ERCOT Regional Planning Group. A copy of ERCOT's independent review, dated July 19, 2022, is included with the application.[15]

Q. Are the proposed facilities necessary for the service, accommodation, convenience, or safety of the public within the meaning of PURA § 37.056(a)?

A. Yes. In the ERCOT Independent Review of Oncor Roanoke Area Upgrades Project, ERCOT determined that thermal overloads and low voltage issues were present under some contingencies and they evaluated four different options to address those issues.[16] Three of those options were found to satisfy the reliability issues ERCOT

[12] Application at 10.

[13] *Id.*at 13.

[14] *Id.* at 11.

[15] *Id.* at Attachment 4.

[16] *Id.*, Attachment 4 at 9-11.

identified and all three included the Proposed Project,[17] and the second option was found to best address those reliability issues.[18]

D. PROJECT ALTERNATIVES

Q. Did Oncor consider distribution and transmission alternatives to the Proposed Project?

A. ERCOT considered four different system improvement options to address the reliability issues in the Roanoke area.[19] ERCOT eventually selected the second option, which included the Proposed Project.[20]

Q. Do you agree that the Proposed Project is the best option when compared to other alternatives?

A. Yes. ERCOT carefully considered four different options but determined that the three options that resolved the reliability issues included the Proposed Project.[21]

V. ROUTING

A. STAFF RECOMMENDATION

Q. What routes do you recommend upon considering all factors, including the factors in PURA § 37.056(c) and 16 TAC § 25.101(b)(3)(B)?

[17] Application, Attachment 4 at 12.

[18] *Id.*, Attachment 4 at 22.

[19] *Id.*, Attachment 4 at 11.

[20] *Id.*, Attachment 4 at 22.

[21] *Id.*, Attachment 4 at 12 and 14.

A. Based on my analysis of all the factors that the Commission must consider under PURA § 37.056 and 16 TAC § 25.101, I recommend that Route 179-C be approved for the Proposed Project. The basis for my recommendation is discussed in more detail in the remainder of my testimony.

Q. Which route did Oncor select as the route that best addresses the requirements of PURA and the Commission's rules?

A. Oncor identified Route 179 as the routes that they believe best address the requirements of PURA and the Commission's rules.[22]

B. COMMUNITY VALUES

Q. Has Oncor sought input from the local community regarding community values?

A. Yes. Oncor held public meetings as required by 16 TAC § 22.52(a)(4). The meetings were held on December 7, 2022 and December 8, 2022 from 4:00pm to 7:00pm at the Marriott Hotel & Golf Club Champions Circle in Fort Worth, Texas.[23] Oncor sent notice of the meeting to landowners owning property within 520 feet of each of the preliminary alternative route segment centerlines.[24] Oncor also posted notices of the meeting in the *Wise County Messenger* on November 23, 2022 and in the *Denton Record Chronicle* on November 26 and 27, 2022.[25] A total of 172 individuals

[22] Application at 24.

[23] *Id.*, Attachment 1 at Page 5-1.

[24] *Id.*, Attachment 1 at Page 2-11.

[25] *Id.*

attended the meetings and Oncor received 71 questionnaire responses during the meeting and Oncor received "many" questionnaires at a later date.[26]

Q. Did members of the community who attended the public meeting or intervene in this case express concerns about the Proposed Project?

A. Overall the respondents indicated an "overwhelming" preference for maximizing the distances relative to residences, schools, churches, and recreational areas.[27] Due to the many questionnaires and other feedback received by Oncor, Oncor grouped these together by topic:

1. Oncor received approximately 1,000 comments regarding avoiding the Liberty Christian School campus, which was crossed by preliminary Segment D2.[28]

2. Oncor received approximately 450 comments regarding avoiding the Cross Timbers Church, which was impacted by the preliminary Segments D1-D4.[29]

3. Oncor received approximately 550 comments regarding avoiding the Town of Argyle, which was impacted by the preliminary Segments D1-D4.[30]

4. Oncor received approximately 300 comments regarding segments along Farm-to-Market (FM) Road 407 in the Town of Northlake.[31]

5. Oncor received approximately 60 comments regarding segments near the

[26] Application, Attachment 1 at Page 5-1.

[27] *Id.*

[28] *Id.*, Attachment 1 at Pages 5-2 and 5-3.

[29] *Id.*, Attachment 1 at Page 5-3.

[30] *Id.*, Attachment 1 at Page 5-4.

[31] *Id.*, Attachment 1 at Pages 5-4 and 5-5.

community of Canyon Falls, particularly Segment E5.[32]

6. Oncor received approximately 10 comments regarding the Trailwood Subdivision located south of FM 1171, some recommended Segments C1-C2-C5-C7.[33]

7. Oncor received approximately 10 comments regarding the Legacy Ranch Subdivision opposed to any route utilizing Segment J3.[34]

8. Oncor received approximately 20 comments regarding the Avery Ranch Community regarding lines near their community and the Propwash Airport, north of Segment M8 and Sam Reynolds Road.[35]

9. Oncor received approximately 60 comments regarding the Northwest Regional Airport located 2500 feet south of FM 1171, south of Segments E6 and C6.[36]

Other comments regarding specific segments were made opposing Segments F2, F3, and E8; in support of Segments A0 and A4; opposing Segments M5, M4, R1, R2, R3, R6, and R5; opposing Segments T5, T4, T3, and T2; opposing Segments Q5, Q2, and Q1; opposing Segment O7; opposing Segment G9; and opposition to Segment D3's impact on oak trees.[37]

Other general comments concerned the possibility of the project utilizing United States Army Corps of Engineers land south of FM 1171,[38] a desire to keep the

[32] Application, Attachment 1 at Page 5-5.

[33] *Id.*

[34] *Id.*, Attachment 1 at Pages 5-5 and 5-6.

[35] *Id.*, Attachment 1 at Page 5-6.

[36] *Id.*, Attachment 1 at Pages 5-6 and 5-7.

[37] *Id.*, Attachment 1 at Pages 5-7, 5-8, and 5-10.

[38] *Id.*, Attachment 1 at Pages 5-8 and 5-9.

Proposed Project as short as possible,[39] compensation for loss of property values resulting from the Proposed Project,[40] aesthetic values,[41] impacts on natural resources,[42] impacts on farming and ranching,[43] and health and safety concerns.[44]

Q. In your opinion, would construction of the Proposed Project on Route 179-C mitigate the concerns expressed by members of the community at the open houses and in comments by intervenors?

A. To some extent 179-C can mitigate these concerns. Route 179-C's centerline is within 500 feet of 98 habitable structures which is tied for 4th least of the proposed alternative routes, 5 more than the route with the least habitable structures within 500 feet of its centerline Route 164.[45] Route 179-C does not cross any parks or recreational areas and has four parks or recreational areas within 1,000 feet of its centerline, just one more than the routes with the fewest within 1,000 feet of their centerline.[46]

In response to the specific routing concerns of the community, Route 179-C does not use Segments D1-D4 and along FM Road 407. However, none of the routes in the application use those preliminary segments as they were eliminated in response

[39] Application, Attachment 1 at Page 5-9.

[40] *Id.*

[41] *Id.*, Attachment 1 at Pages 5-9 and 5-10.

[42] *Id.*, Attachment 1 at Page 5-10.

[43] *Id.*, Attachment 1 at Pages 5-10 and 5-11.

[44] *Id.*, Attachment 1 at Page 5-11.

[45] *Compare id.*, Attachment 1 at Appendix E (Table 7-2) *with* Attachment JP-4 Part 1 at 000019-20.

[46] *Id.*

to the feedback received in the community involvement process.[47] Route 179-C avoids using most of the segments around the Canyon Falls community, in particular Segment E5.[48] Route 179-C utilizes Segments C1, C7 and C21. C21 was part of the preliminary Segment C2, which was split into Segments C21 and C22 in response to the community involvement process.[49] Route 179-C utilizes Segment L4 which is 6,000 feet from the Propwash Airport, this is 4,000 feet farther than Segment M8 which it does not utilize.[50] Route 179-C does utilize Segment E6 but not Segment C6.[51] Route 179-C does utilize Segment J3.[52]

In response to the other routing concerns by individuals, Route 179-C avoids Segments F2, F3, E8, M4, R1, R3, R6, T5, T4, T3, T2, Q5, Q2, Q1, O7, G9, and D3 which were segments specifically opposed by commenters. Route 179-C also utilizes both Segments A0 and A4 as requested by commenters. Route 179-C, however, does utilize Segments M5, R2, and R5 which were segments specifically opposed.[53]

In response to the general concerns, Route 179-C is the 29th shortest route of 84. Route 179-C is 5,249 feet longer than the shortest route, Route 16, but 10,596 shorter

[47] Application, Attachment 1 at Page 6-2.

[48] Attachment JP-4 Part 1 at 000019.

[49] Attachment JP-4 Part 1 at 000019 and Application, Attachment 1 at Page 6-3.

[50] Attachment JP-4 Part 1 at 000019 and Application, Attachment 1 at Appendix F (Table 7-6).

[51] Attachment JP-4 Part 1 at 000019.

[52] *Id.*

[53] *Id.*

than the longest route, Route 216.[54] Route 179-C crosses the 17th least amount of rangeland with 58,417 feet, 11,959 feet longer than the shortest length by Route 26 and 17,901 feet shorter than the longest length by Route 187.[55] However, Route 179-C crosses the 69th least amount of cropland and hay meadow land with 22,691 feet, 10,344 feet longer than the shortest length by Route 164R and 13,540 feet shorter than the longest length by Route 69.[56]

I will specifically address additional issues regarding recreational and park areas, historical values, aesthetic values, environmental integrity, engineering constraints, costs, moderation of impact on the affected community and landowners, and right-of-way later in my testimony.

Q. Are property values and the impact on future or potential development factors that are considered by the Commission in a CCN proceeding under PURA § 37.056(c)(4) or in 16 TAC § 25.101(b)(3)(B)?

A. No. PURA and the Commission's rules do not list these two issues as factors that are to be considered by the Commission in a CCN proceeding. However, these rules do require consideration of using or paralleling existing right-of-way, which may minimize concerns about the impact on property values or planned development.

Q. Are there any routes that did not receive specific opposition from intervenors?

[54] *Compare* Application, Attachment 1 at Exhibit E (Table 7-2) *with* Attachment JP-4 Part 1 at 000019.

[55] *Id.*

[56] *Id.*

A. No.

C. RECREATIONAL AND PARK AREAS

Q. Are any parks or recreational areas located within 1,000 feet of the centerline of any of the proposed alternative routes or a substation site?

A. Twenty parks and recreational areas are either crossed or within 1,000 feet of the centerline of the proposed alternative routes.[57] The number of parks or recreational areas either crossed or within 1,000 feet of the centerline of the proposed alternative routes ranges from 3 (Routes 29, 33, 36, 41, 42, 86, 207, 217, 218, and 29R) to 11 (Routes 117 and 119).[58] Routes range from crossing no parks or recreational areas (Routes 29, 33, 36, 41, 42, 43, 44, 54, 58, 71, 86, 87, 154, 175, 176, 178, 179, 184, 185, 207, 216, 221, 179-A, 179-B, 179-C, and 29R) to crossing 3,844 feet of parks and recreational areas (Routes 92, 94, 96, 103, 108, 143, and 146).[59] Route 179-C crosses no parks or recreational areas, and has four parks and recreational areas within 1,000 feet of its centerline.[60]

D. HISTORICAL VALUES

Q. Are there possible impacts from the Proposed Project on archeological and historical values, including known cultural resources crossed by any of the

[57] Application at Attachment 16.

[58] *Id.*, Attachment 1 at Exhibit E (Table 7-2) and Attachment JP-4 Part 3.

[59] Application, Attachment 1 at Exhibit E (Table 7-2) and Attachment JP-4 Part 1 at 000011, 000015 and 000019.

[60] Attachment JP-4 Part 1 at 000019.

proposed alternative routes or that are located within 1,000 feet of the centerline of any of the proposed alternative routes?

A. There is a cemetery, the Dunham Cemetery, that is approximately 610 feet from Segment A0, which is utilized by all the proposed alternative routes.[61] There is an additional cemetery, the City of Justin Cemetery, that is approximately 100 feet from Segment J4, which is utilized by Routes 1, 19, 65, 67, 68, 69, 72, 92, 94, 96, 103, 108, 142, 143, 146, 170, 191, 192, and 219.[62] A historically significant area, Bishop Park, is crossed by Segment J4, which is utilized by Routes 1, 19, 65, 67, 68, 69, 72, 92, 94, 96, 103, 108, 142, 143, 146, 170, 191, 192, and 219.[63] Two recorded archeological sites are within 1,000 feet of the centerline of the proposed alternative routes. A former schoolhouse is crossed by Segment M1, which is utilized by Routes 3, 5, 13, 14, 15, 16, 18, 22, 23, 24, 25, 26, 28, 29, 36, 43, 44, 58, 61, 63, 70, 78, 87, 108, 116, 119, 130, 132, 137, 146, 164, 179, 199, 200, 179-A. 179-B, 179-C, 22R, 29R, 116R, 130R, 132R, and 164.[64] A historic house is within 90 feet of the centerline of Segment L2, which is utilized by Routes 3, 5, 10, 11, 13, 14, 15, 16, 18, 19, 22, 23, 24, 25, 26, 28, 29, 33, 36, 43, 44, 58, 61, 63, 70, 78, 87, 92, 108, 116, 117, 119, 130, 132, 137, 146, 154, 164, 170, 178, 179, 186, 187, 199, 200, 216, 179-A, 179-B, 179-C, 22R, 29R, 116R, 130R, 132R, and 164R.[65]

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[61] Application, Attachment 1 at Page 7-26 and Attachment 7 Part 4, and Attachment JP-4 Part 1 at 000011, 000015, 000019 and 000036.

[62] *Id.*

[63] *Id.*

[64] *Id.*

[65] *Id.*

The proposed alternative routes have from one historic or archeological site within 1,000 feet of its centerline (for Routes 41, 42, 54, 71, 86, 138, 175, 176, 184, 185, 207, 217, 218, and 221) to five (for Route 108 and 146).[66] Route 179-C's centerline is within 610 feet of the Dunham Cemetery on Segment A0, within 90 feet of a historic house on Segment L2, and crosses the former school house on Segment M1.[67]

The length of the routes across areas of high archeological/historical site potential ranges from 28,161 feet for Route 186 to 64,206 feet for Route 28.[68] Route 179-C crosses 56,753 feet of areas of high archeological/historical site potential.[69]

If any further archeological or cultural resources are found during construction of the proposed transmission line, Oncor should immediately cease work in the vicinity of the archeological or cultural resources, and should immediately notify the Texas Historical Commission.

E. AESTHETIC VALUES

Q. In your opinion, which of the proposed alternative routes would result in a negative impact on aesthetic values, and which portions of the study area will be affected?

A. In my opinion, all of the proposed alternative routes would result in a negative

[66] Application, Attachment 1 at Exhibit E (Table 7-2) and Attachment JP-4 Part 1 at 000011, 000015, and 000019 and Attachment JP-4 Part 3.

[67] Application, Attachment 1 at 7-24 and Attachment JP-4 Part 1 at 000019.

[68] Application, Attachment 1 at Exhibit E (Table 7-2) and Attachment 7 Part 4, and Attachment JP-4 Part 1 at 000012, 000016, and 000020 and Attachment JP-4 Part 3.

[69] Attachment JP-4 Part 1 at 000020.

impact on aesthetic values, some routes more than others, depending on the visibility from homes and public roadways. Temporary effects would include views of the actual transmission line construction (e.g. assembly and erection of the structures) and of any clearing of right-of-way. Permanent effects would involve the visibility of the structures and the lines. I therefore conclude that aesthetic values would be impacted throughout the study area, and that these temporary and permanent negative aesthetic effects will occur on any proposed alternative routes approved by the Commission.

F. ENVIRONMENTAL INTEGRITY

Q. Please provide a general description of the area traversed by the proposed alternative routes.

A. The area traversed by the project is within the Grand Prairie Western Timbers Physiographic Region.[70] The Interior Coastal Plains consists of low stairstep hills with calcareous bedrock types to the east, and plains with sandier bedrock types to the west. The study area primarily consists of the Fort Worth Limestone, which incorporates limestone and clay deposits, and Duck Creek Formation, which incorporates limestone aphanitic that is in part bioclastic and has pyrite nodules and forms topographic benches.[71]

Q. What was involved in your analysis of the environmental impact of the

[70] Application, Attachment 1 at Page 3-1.

[71] *Id.*

Proposed Project?

A. I reviewed the information provided in the application and the EA, the direct testimonies and statements of position of the intervenors, responses to requests for information, and the letters from TPWD to Ms. Marisa Wagley, dated July 19, 2023.[72]

Q. Based on your review of the information identified above, in your opinion, will the Proposed Project present a significant negative impact to environmental integrity?

A. No. Transmission lines do not often create many long-term impacts on soils. Most of those impacts will be during initial construction and would be erosion and soil compaction; however, Oncor will employ erosion control during initial construction including development of a Storm Water Pollution Prevention Plan to minimize impacts.[73]

Primary impacts on vegetation would be the result of site preparation and clearing of existing woody vegetation in the right-of-way,[74] further disturbances would then occur during maintenance activities.[75] Oncor will attempt to minimize adverse impacts to vegetation and retain existing ground cover where possible, and to restore disturbed areas with native species where possible.[76] The length of upland

[72] Attachment JP-3.

[73] Application, Attachment 1 at Pages 7-1 and 7-2.

[74] *Id.*, Attachment 1 at Page 7-6.

[75] *Id.*, Attachment 1 at Page 7-2.

[76] *Id.*, Attachment 1 at Pages 7-6 and 7-7.

woodlands along the right-of-way of the proposed routes ranges from 8,022 feet for Route 217 to 15,125 feet for Route 26.[77] The length of riparian areas along the right-of-way of the proposed routes ranges from 4,579 feet for Route 187 to 15,690 feet for Route 26.[78] The length of upland woodlands along the right-of-way of Route 179-C is 11,311 feet and the length of riparian areas along the right-of-way of Route 179-C is 11,536 feet.[79]

While there are no federally listed endangered or threatened plant species known to occur in Denton and Wise Counties, TPWD county lists of rare species and Natural Diversity Database data suggest that the study area may contain rare plant species that require special consideration.[80] Oncor will avoid impacts to these rare plants, following TPWD recommendation, should specimens be found.[81] The estimated number of known rare or unique plant locations within the right-of-way ranges from zero for Routes 94, 96, 103, 108, 116, 117, 119, 130, 132, 137, 138, 142, 143, 146, 186, 187, 191, 192, 217, 218, 219, 116R, 130R, and 132R to four for Routes 33, 68, 69, 71, 175, 176, 178, 184, and 185.[82] Route 176-C has one known rare or unique plant location within its right-of-way.[83]

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[77] Application, Attachment 1 at Exhibit E (Table 7-2) and Attachment JP-4 Part 1 at 000011, 000015, and 000019 and Attachment JP-3 Part 3.

[78] *Id.*

[79] Attachment JP-4 Part 1.

[80] Application, Attachment 1 at Pages 7-7 and 7-8.

[81] *Id.*, Attachment 1 at Page 7-8.

[82] *Id.*, Attachment 1 at Exhibit E (Table 7-2) and Attachment JP-4 Part 1 at 000011, 000015, and 000019 and Part 3.

[83] Attachment JP-4 Part 1 at 000019.

The length across potential wetlands ranges from Routes 36, 41, 42, 43, 44, 58, 71, 86, 87, 137, 138, 175, 176, 179, 184, 185, 207, 179-A, 179-B, and 179-C, which do not cross any wetlands at all, to Routes 92 and 218 which cross 849 feet of potential wetlands.[84] Oncor will attempt to span wetland areas whenever possible and use erosion controls mitigation measures to minimize impacts to aquatic systems should a route be selected which crosses wetland areas.[85]

While federally listed threatened or endangered species may occur within the study area, there are no designated critical habitat for any federally listed threatened or endangered species along any of the proposed alternative routes.[86]

However, construction of some of the proposed alternative routes could, at some locations, present a negative impact on the environment, particularly in sensitive areas such as wetlands, riparian areas, and woodlands.

Q. In your opinion, how would construction of the Proposed Project on Route 179-C compare from an environmental perspective to construction on the other routes?

A. Route 179-C has 11,311 feet of its length across upland woodlands, which is 3,289 feet longer than the shortest length of Route 217 and 4,379 feet shorter than the

[84] Application, Attachment 1 at Exhibit E (Table 7-2) and Attachment JP-4 Part 1 at 000011, 000015, and 000019 and Part 3.

[85] Application, Attachment 1 at Page 7-11.

[86] *Id.*, Attachment 1 at Pages 7-12 and 7-13. *See also, id.* at Exhibit E (Table 7-2) and Attachment JP-4 Part 1 at 000011, 000015, 000019 and Part 3.

longest length of Route 26.[87] The length of riparian areas along the right-of-way of Route 179-C is 11,536 feet, which is 6,957 feet longer than the shortest length of Route 187 and 4,182 feet shorter than the longest length of Route 28.[88] Route 179-C crosses no potential wetlands, but does have one location of known rare or unique plants within its right-of-way, while some routes have none.[89] In its letter dated July 19, 2023 TPWD selected Route 137 as the route having the least potential impact on environmental integrity.[90]

Q. Do you conclude that Route 179-C is acceptable from an environmental and land use perspective?

A. Yes, however I do not think any of the routes in this project are unacceptable from an environmental and land use perspective. I conclude that Route 179-C is acceptable from this perspective.

G. ENGINEERING CONSTRAINTS

Q. Are there any possible engineering constraints associated with this project?

A. There are no specific engineering constraints that are not present in a usual transmission line project. In my opinion, all of the possible constraints can be adequately addressed by using design and construction practices and techniques that

[87] *Compare* Application, Attachment 1 at Exhibit E (Table 7-2) and Attachment JP-4 Part 1 at 000011 and 000015 and Part 3 *with* Attachment JP-4 Part 1 at 000019.

[88] *Id.*

[89] *Id.*

[90] Attachment JP-3 at 5.

are usual and customary in the electric utility industry.

Q. Are there any special circumstances in this project that would warrant an extension beyond the seven-year limit for the energization of the lines?

A. No, Oncor has not described any special circumstances that would merit an extension of this limit for this project.

H. COSTS

Q. What are Oncor's estimated costs of constructing the Proposed Project on each of the proposed alternative routes?

A. Oncor's Notice of Errata Attachment 2 and Attachment 5 list Oncor's revised estimated costs of constructing each proposed alternative route. The table below shows the total estimated cost for each of the routes from least expensive to the most expensive. Each listed cost includes $33,510,000 for the proposed Oncor Ramhorn Hill Switch and $41,348,000 for the proposed Oncor Dunham Switch.[91]

Route	Estimated Cost of the Route and Substation Upgrades
96	$243,190,000.00
29	$243,658,000.00
29R	$243,667,000.00
191	$244,540,000.00
1	$244,559,000.00
143	$244,567,000.00
142	$244,882,000.00
103	$245,568,000.00
219	$245,607,000.00
42	$246,319,000.00
67	$246,507,000.00
192	$246,507,000.00

[91] Application at 9.

65	$246,584,000.00
94	$246,790,000.00
72	$247,343,000.00
36	$248,199,000.00
146	$248,449,000.00
86	$249,102,000.00
16	$249,296,000.00
19	$249,691,000.00
68	$249,930,000.00
179-C	**$251,143,000.00**
41	$251,408,000.00
13	$251,950,000.00
207	$252,014,000.00
15	$253,312,000.00
217	$253,476,000.00
179	$253,607,000.00
179-A	$253,810,000.00
218	$254,235,000.00
69	$254,368,000.00
130R	$254,520,000.00
61	$254,657,000.00
43	$254,898,000.00
200	$254,991,000.00
14	$255,042,000.00
18	$255,233,000.00
108	$255,690,000.00
130	$256,003,000.00
78	$256,095,000.00
44	$256,260,000.00
25	$256,454,000.00
179-B	$256,901,000.00
54	$256,933,000.00
170	$256,973,000.00
221	$257,073,000.00
199	$257,645,000.00
87	$257,681,000.00
26	$258,420,000.00
138	$258,663,000.00
132R	$258,732,000.00
22R	$258,849,000.00
22	$258,908,000.00
23	$259,108,000.00
71	$260,101,000.00
132	$260,222,000.00
24	$260,470,000.00

137	$260,544,000.00
10	$260,584,000.00
176	$261,383,000.00
175	$261,846,000.00
186	$262,393,000.00
11	$262,551,000.00
116R	$262,654,000.00
58	$263,418,000.00
116	$264,160,000.00
33	$264,792,000.00
92	$265,263,000.00
185	$265,694,000.00
63	$265,831,000.00
187	$266,612,000.00
184	$266,780,000.00
178	$272,074,000.00
164	$272,722,000.00
164R	$272,924,000.00
70	$273,627,000.00
154	$274,317,000.00
216	$278,954,000.00
28	$282,150,000.00
5	$283,528,000.00
3	$287,544,000.00
119	$301,618,000.00
117	$313,460,000.00

As the table illustrates, Route 179-C is the 22nd least expensive proposed alternative route.

Q. Could you briefly discuss the routes that are less expensive and why Route 179-C is still preferred?

A. Yes. All the less expensive routes have more habitable structures within 500 feet of their centerlines than Route 179-C.[92] Route 179-C makes better use of compatible

[92] *Compare* Attachment JP-4 Part 1 at 000019 *with* Application, Attachment 1 at Exhibit E (Table 7-2) and Attachment JP-4 Part 3.

right-of-way as a percentage of its total length than Routes 142, 103, 65, 19, 192, 42, 86, 96, 191, 143, 68, 146, 219, 1, 72, and 67.[93] Route 179-C is shorter than Routes 103, 94, 219, 65, 1, 191, 192, 72, 29R, 67, 19, 29, 68, 142, 143, and 146.[94] Routes 16, 142, 1, 19, 65, 67, 68, 72, 191, 192, 219, 94, 96, 103, 143, and 146 all cross parks and recreational areas while Route 179-C does not.[95]

Q. Do Oncor's estimated costs of constructing the Proposed Project appear to be reasonable?

A. After reviewing Oncor's estimates, the estimated costs for the proposed alternative routes are about what I would expect for a double-circuit 345-kV, triple-circuit capable, monopole project in this terrain. However, the reasonableness of the final installed cost of the completed project will be determined at a future date in the course of a transmission cost-of-service proceeding.

I. MODERATION OF IMPACT ON THE AFFECTED COMMUNITY AND LANDOWNERS

Q. Do the Commission's rules address routing alternatives intended to moderate the impact on landowners?

A. Yes. Under 16 TAC § 25.101(b)(3)(B), "the line shall be routed to the extent

[93] *Compare* Attachment JP-4 Part 1 at 000019 *with* Application, Attachment 1 at Exhibit E (Table 7-2).

[94] *Compare* Attachment JP-4 Part 1 at 000019 *with* Application, Attachment 1 at Exhibit E (Table 7-2) and Attachment JP-4 Part 3.

[95] *Compare* Attachment JP-4 Part 1 at 000019 *with* Application, Attachment 1 at Exhibit E (Table 7-2).

reasonable to moderate the impact on the affected community and landowners unless grid reliability and security dictate otherwise."

Q. Subsequent to filing their application, has Oncor made or proposed any routing adjustments to accommodate landowners?

A. While new routing segments have been introduced, none of been included in any proposed routes at the time of my testimony, as they cannot be utilized until the requestor provides proof of written consent by directly affected landowners.[96] Oncor has introduced Routes 179-A, 179-B, 179-C, 22R, 29R, 116R, 130R, 132R, and 164R in response to a request for information request by intervenor Edgar Brent Watkins and Mary Ann Livengood.[97]

Q. Has Oncor proposed any specific means by which it will moderate the impact of the Proposed Project on landowners or the affected community other than adherence to the Commission's orders, the use of good utility practices, acquisition of and adherence to the terms of all required permits, and what you have discussed above?

A. No, not to my knowledge.

J. RIGHT-OF-WAY

Q. Do the Commission's rules address routing along existing corridors?

[96] Attachment JP-4 Part 1 at 000023.

[97] *See* Attachment JP-4 Part 1.

A. Yes. The following factors are to be considered under 16 TAC § 25.101(b)(3)(B):

(i) whether the routes utilize existing compatible rights-of-way, including the use of vacant positions on existing multiple-circuit transmission lines;

(ii) whether the routes parallel existing compatible rights-of-way;

(iii) whether the routes parallel property lines or other natural or cultural features; and

(iv) whether the routes conform with the policy of prudent avoidance.

1. USE AND PARALLELING OF EXISTING, COMPATIBLE RIGHT-OF-WAY (INCLUDING APPARENT PROPERTY BOUNDARIES)

Q. Describe how Oncor proposes to parallel or utilize compatible rights-of-way for the Proposed Project.

A. Each proposed alternative route parallels apparent property boundaries and parallels or utilizes existing compatible rights-of-way. The percentage of Route 179-C's length that parallels or utilizes existing compatible right-of-way and apparent property boundaries is approximately 23.25% of its length. The table below summarizes the overall length, the length parallel to compatible rights-of-way or to property boundaries, and the total percentage of parallel rights-of-way used by the proposed alternative routes. Existing pipeline rights-of-way are not listed as compatible rights-of-way under 16 TAC § 25.101(b)(3)(B).

Route	Length (Feet)	Length Parallel to Right-of-Way (Feet)	Percentage
117	119,593	47,414	39.65%
116R	118,307	44,465	37.58%
63	107,230	38,148	35.58%