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DIRECT TESTIMONY OF OSCAR E. RODRIGUEZ, WITNESS FOR ONCOR ELECTRIC DELIVERY COMPANY LLC

DIRECT TESTIMONY OF OSCAR E. RODRIGUEZ

I. POSITION AND QUALIFICATIONS

Q. PLEASE STATE YOUR NAME, EMPLOYMENT POSITION, AND BUSINESS ADDRESS.

A. My name is Oscar E. Rodriguez. I am employed as a Manager of Line Design in the Transmission Engineering group at Oncor Electric Delivery Company LLC ("Oncor"). My business address is 777 Main St., Suite 1434-11, Fort Worth, Texas 76102.

Q. PLEASE DESCRIBE YOUR PROFESSIONAL QUALIFICATIONS.

A. I received a Bachelor's degree in civil engineering from Texas A&M University in 2016 and began working for Oncor as a transmission line engineer that same year. I assumed my current role in August 2021. I am a registered Professional Engineer in the State of Texas (License No. 135906). My educational and professional qualifications are more fully presented in my resume, which is attached hereto as Exhibit OER-1.

Q. HAVE YOU PREVIOUSLY SUBMITTED TESTIMONY BEFORE THE PUBLIC UTILITY COMMISSION OF TEXAS ("COMMISSION")?

A. Yes. I previously submitted testimony in Commission Docket No. 51737.

II. PURPOSE OF TESTIMONY

Q. WHAT IS THE PURPOSE OF YOUR DIRECT TESTIMONY?

A. The purpose of my direct testimony is to introduce, support, describe, and sponsor the project schedule, financing, and cost estimates related to the proposed routes included in the Application for a Certificate of Convenience and Necessity ("CCN") for a Proposed Transmission Line filed by Oncor on August 26, 2021 (the "Application") for the Old Country Switch 345 kV Tap transmission line project ("Proposed Transmission Line Project"). My testimony will also introduce, support, sponsor, and describe the structure selection and known engineering constraints associated with the Proposed Transmission Line Project.

I sponsor Oncor's responses to Application Question Nos. 1-13, 19-24, and 26-29, as well as Attachment No. 2 to the Application. The facts and statements set forth in the portions of the Application that I sponsor are true and correct to the best of my knowledge. The Application, as it may be amended and/or supplemented, will be offered into evidence by Oncor at the hearing on the merits.

III. DESCRIPTION OF PROPOSED TRANSMISSION LINE PROJECT

Q. PLEASE GENERALLY DESCRIBE THE PROPOSED TRANSMISSION LINE PROJECT.

A. The Proposed Transmission Line Project includes construction of (i) a new 345 kV single-circuit transmission line on double-circuit capable structures, and (ii) a new Oncor switching station, named Old Country Switch, which will be tapped into the east circuit of Oncor's Venus Switch – Navarro Switch 345 kV transmission line. When complete, the Proposed Transmission Line Project will provide a connection for Oystercatcher Solar's approximately 223 MW of new generation capacity to the Electric Reliability Council of Texas ("ERCOT") transmission grid.

The proposed transmission line will connect the planned Oystercatcher Solar substation, which will be built, owned, and operated by Oystercatcher Solar, LLC, to the proposed Old Country Switch, which will be built, owned, and operated by Oncor. The transmission line will be approximately 3.2 to 4.9 miles in length, depending on the route selected by the Commission.

The Proposed Transmission Line Project will be constructed on Oncor's standard steel lattice towers, with a typical height of 80-160 feet. A typical 345 kV tangent double-circuit "V" tower is shown in Figure 1-2 in the *Environmental Assessment and Alternative Route Analysis for the Proposed Old Country Switch 345-kV Tap Transmission Line Project in Ellis*

County, Texas ("Environmental Assessment and Routing Study"), which is included as Attachment No. 1 to the Application.

The first 345 kV circuit will be installed using bundled 1926.9 kcmil aluminum conductor steel supported, trapezoidal-shaped wire ("ACSS/TW") conductor. The normal peak operating current rating for this conductor is approximately 5,138 amperes, and the line capacity is 3,070 megavolt-amperes.

The Proposed Transmission Line Project will be designed and constructed to meet or exceed the specifications and/or criteria set forth in the appropriate edition of the National Electrical Safety Code, the statutes of the State of Texas, the Commission's rules, and Oncor's standard design practices.

Q. WILL NEW PERMANENT RIGHT-OF-WAY BE REQUIRED FOR THE PROPOSED TRANSMISSION LINE PROJECT?

A. Yes. The Proposed Transmission Line Project will require a typical permanent right-of-way ("ROW") width of 160 feet, though the width may vary in some areas depending on design and construction considerations. The centerline of the Proposed Transmission Line Project will be located in approximately the center of the ROW. Oncor currently has not acquired any of the ROW for this project.

Q. WILL STATION CONSTRUCTION BE REQUIRED IN CONNECTION WITH THE PROPOSED TRANSMISSION LINE PROJECT?

A. Yes. The Proposed Transmission Line Project will require construction of Oystercatcher Solar's substation and Oncor's Old Country Switch station. Oncor has purchased the property rights required for the Old Country Switch.

IV. PROJECT SCHEDULE AND FINANCING

Q. WHAT IS THE CURRENT SCHEDULE FOR THE PROPOSED TRANSMISSION LINE PROJECT?

A. The schedule for the Proposed Transmission Line Project was developed based on an assumed one-year processing time for the Application. ROW acquisition and related ROW activities are currently anticipated to begin soon after a final order is issued in this docket, assuming Commission approval. The following schedule is premised on Commission approval of the Proposed Transmission Line Project by August 2022:

Description	Start	End
Right-of-way and Land Acquisition	August 2022	November 2023
Engineering and Design	August 2022	February 2023
Material and Equipment Procurement	February 2023	November 2023
Construction of Facilities	October 2023	April 2024
Energize Facilities	April 2024	April 2024

Q. HOW WILL THE PROPOSED TRANSMISSION LINE PROJECT BE FINANCED?

A. As explained in the Application, -Oncor proposes to finance the facilities included in the Proposed Transmission Line Project with a combination of debt and equity in compliance with its authorized capital structure, which is similar to the means used for previous construction projects. Oncor plans to utilize internally generated funds and proceeds received from the issuance of securities. Oncor will typically obtain short-term borrowings as needed for interim financing of its construction expenditures in excess of funds generated internally. These borrowings are then repaid through the issuance of long-term debt securities, the types and amounts of which are as of yet undetermined.

V. PROJECT ENDPOINTS

Q. DID ONCOR SELECT THE ENDPOINTS FOR THE PROPOSED TRANSMISSION LINE PROJECT?

A. Oncor selected the location for the proposed Old Country Switch. The location of the Oystercatcher Solar substation was chosen by Oystercatcher Solar, LLC.

Q. HOW DID ONCOR SELECT THE LOCATION FOR THE OLD COUNTRY SWITCH?

A. To choose a location for the Old Country Switch, Oncor sent a team of specialists to the project area to evaluate potential station sites. The team consisted of Oncor specialists in civil engineering, transmission services, substation development, and field construction, whose combined observations and feedback formed the basis of Oncor's decision of where to locate the Old Country Switch station.

Q. HOW MANY ALTERNATIVE STATION LOCATIONS WERE CONSIDERED?

A. Oncor considered four station locations, all of which were located within the Study Area identified in the Environmental Assessment and Routing Study and adjacent to Oncor's Venus Switch – Navarro Switch 345 kV transmission line. A map depicting these locations is included as Exhibit OER-2 to my direct testimony. This map also depicts the flood hazard zones located in the study area, which influenced Oncor's choice of station location.

Q. WHAT FACTORS LED ONCOR TO SELECT THE CHOSEN LOCATION FOR THE OLD COUNTRY SWITCH?

A. The key factors underlying Oncor's selection of the Old Country Switch station location were ease of access, reliability, availability, and cost. The chosen location has easy access to Farm-to-Market Road 876, which is a paved, public road. The site is mostly level, already cleared, and only one-quarter mile from the nearest distribution facilities, which will be used to power the station. And Oncor was able to purchase the land rights to the station site from the owner of the property through a negotiated transaction.

Other locations that were considered were more difficult to access and/or would have required additional expense to ensure reliable access. Reliably accessing the Old Country Switch station for construction,

operation, and maintenance requires a minimum 20-foot-wide, smooth-uniform graded road. Generally, the further from an existing smooth-uniform graded roadway the station is located, the longer and more expensive the access road becomes. Local topography and water features can also affect the length and expense of an access road. A second station location Oncor considered was near Anderson Road, which is a mixed caliche and rough pavement road and would have presented access challenges. A third option, located near Bill Lewis Road, would have required Oncor to construct a circuitous access road to avoid a sizable valley that lies directly between Bill Lewis Road and the potential station site. The fourth option, located near Higgins Road in the far northwestern portion of the study area, could only be accessed by crossing two wooden bridges and was also much further from the Oystercatcher Solar Substation than the other options, which would have added significantly to the length and cost of the transmission line.

Moreover, much of the Study Area for the Proposed Transmission Line Project lies within Federal Emergency Management Agency ("FEMA") flood hazard zones. Due to the potential hazards flooding can pose to an electric station, including equipment failure and impeding station access, Oncor attempts to site electric switching stations above the 100-year flood plain and away from flood hazard areas to protect system reliability. Generally, areas near Chambers Creek are more prone to flooding than areas further away, as Chambers Creek is a FEMA regulatory floodway. The site of the Old Country Switch station is located further from Chambers Creek than two of the other three options and is more than 2,000 feet from any FEMA flood hazard zones. By contrast, the options near Higgins Road and Bill Lewis Road were in close proximity to FEMA flood hazard zones. Exhibit OER-2 to my direct testimony shows the station locations

considered in relation to the FEMA flood hazard zones located within the study area.

VI. STRUCTURE AND CONDUCTOR SELECTION

Q. WHAT STRUCTURES DID ONCOR SELECT FOR CONSTRUCTION OF THE PROPOSED TRANSMISSION LINE PROJECT?

A. Oncor's current standard for new double-circuit 345 kV construction is the steel lattice tower. After evaluating numerous factors relating to the study area, including but not limited to span length between structures, construction and maintenance issues, commodity and labor costs, and impacts to affected landowners, Oncor affirmed the use of this standard for the Proposed Transmission Line Project. The Environmental Assessment and Routing Study also discusses these factors and includes the typical tangent structure drawing I previously referenced.

Q. IS ONCOR'S CHOSEN CONDUCTOR THE MOST COST-EFFECTIVE AND RELIABLE OPTION FOR THIS PROJECT?

A. Yes. Although the Proposed Transmission Line Project could be constructed using a smaller 959 ACSS/TW conductor, Oncor had several economic and operational reasons for choosing the 1926.9 ACSS/TW conductor.

As explained above, the steel lattice tower is Oncor's standard structure for new 345 kV construction. These structures are designed for bundled 1926.9 ACSS/TW conductor. Consequently, Oncor primarily installs this conductor on its 345 kV projects, and therefore maintains a larger inventory of the 1926.9 ACSS/TW conductor than it does the 959 ACSS/TW conductor, making the 1926.9 ACSS/TW conductor more readily available for maintenance, repairs, or reconductoring when the need arises.

Further, the 1926.9 ACSS/TW conductor provides a carrying capacity that is 156% greater than the 959 ACSS/TW conductor while adding only 6.5% in project costs, making it significantly more cost-effective.

Finally, although the Proposed Transmission Line Project will initially be a radial line to Oystercatcher Solar's generating facilities, additional customers and generators may be interconnected to the transmission line in the future. Oncor is currently aware of at least one new solar generating project planned within the Study Area, which would need to connect to this transmission line to provide power to the ERCOT grid. Installing a higher-capacity conductor at the outset will obviate the need to reconductor the line to accommodate additional generating capacity for the foreseeable future.

VII. NEIGHBORING UTILITIES AND POLITICAL SUBDIVISIONS

Q. ARE ANY OTHER ELECTRIC UTILITIES INVOLVED WITH THE PROPOSED TRANSMISSION LINE PROJECT?

A. No.

Q. PLEASE IDENTIFY THE POLITICAL SUBDIVISIONS IN WHICH THE PROPOSED TRANSMISSION LINE PROJECT WILL BE LOCATED.

A. The routes filed for the Proposed Transmission Line Project are located wholly within Ellis County. None of the filed routes are located within the territorial or extra-territorial limits of any municipality, as stated in the Application.

VIII. COST ESTIMATE

Q. WHAT ARE THE ESTIMATED COSTS OF THE TRANSMISSION LINE WORK FOR THE PROPOSED TRANSMISSION LINE PROJECT?

A. I estimate that transmission line costs to construct the Proposed Transmission Line Project along Recommended Route 54 (as discussed in Attachment No. 6 to the Application) would be approximately $10,392,000, excluding station costs. The estimated costs of all 43 alternative routes filed with the Application, excluding station costs, ranges from approximately $10,392,000 to $13,695,000, as detailed in Application Attachment No. 2.

Q. WHAT ARE THE ESTIMATED COSTS OF THE STATION FACILITIES ASSOCIATED WITH THE PROPOSED TRANSMISSION LINE PROJECT?

A. There are approximately $7,825,000 in estimated costs associated with construction of Oncor's proposed Old Country Switch station at the proposed location. This estimate is the same for all filed routes. There are no estimated project costs associated with construction of the Oystercatcher Solar Substation, as this station will be financed, constructed, owned, and operated by Oystercatcher Solar, LLC.

Q. PLEASE EXPLAIN THE PRIMARY REASONS FOR VARIATION IN TRANSMISSION LINE COSTS BETWEEN THE VARIOUS ALTERNATIVE ROUTES FILED WITH THE APPLICATION.

A. The primary driver of variation in transmission line costs is the length of the proposed route. Longer lines may result in higher costs due to the increased need for engineering and design, procurement of additional materials and equipment, and construction activities requiring more time and labor. Using angle structures also increases the cost of the line. Generally, the larger the angle, the greater the associated cost. Another cost driver that creates variation is the terrain crossed by the route. Terrain mainly impacts the type and degree of access required to construct a transmission line in a particular location, which directly impacts the cost of that line. Terrain also impacts foundation requirements for transmission line structures, which in turn impact the cost of a transmission line. Foundation requirements vary based on the geology and climatic conditions where each structure is located. Each of these variables, and others, contribute to the estimated cost for each transmission line route.

IX. ENGINEERING CONSTRAINTS

Q. WHAT ARE SOME EXAMPLES OF ENGINEERING CONSTRAINTS?

A. Examples of engineering constraints may include, but are not limited to: oil, gas, or water wells; pipeline rights-of-way; highway crossings; uneven or unstable terrain; unfavorable soil conditions; or bodies of water.

Q. ARE THERE ANY KNOWN ENGINEERING CONSTRAINTS ASSOCIATED WITH THE PROPOSED ROUTE FOR THE PROPOSED TRANSMISSION LINE PROJECT?

A. Yes. Based on the information available to Oncor at this time, however, the filed routes do not present any known engineering constraints that cannot be resolved with additional consideration by Oncor during the design and construction phases following approval of this Proposed Transmission Line Project. However, Oncor does not have access to private property and has not performed on-the-ground surveys at this time. There may exist unknown engineering constraints that would require further adjustments if discovered through the survey process.

X. PROJECT PERMITTING

Q. WILL ANY PERMITS BE REQUIRED FOR THE PROPOSED TRANSMISSION LINE PROJECT IN ADDITION TO THE CCN SOUGHT IN THIS PROCEEDING?

A. Yes, assuming the Application is approved by the Commission, it is likely that additional permits will be necessary to construct the Proposed Transmission Line Project. Following approval, and prior to construction, Oncor will acquire all necessary permits/approvals and make all required notifications. At present, it is anticipated that a Texas Department of Transportation permit will be required for crossing state-maintained roadways. If required, a Storm Water Pollution Prevention Plan will be prepared and a Notice of Intent will be submitted to the Texas Commission on Environmental Quality under the Texas Pollutant Discharge Elimination System program. A cultural resources survey plan will be developed with the Texas Historical Commission for the approved project. Consultation with the United States Army Corps of Engineers will occur following Commission approval of the Application to determine appropriate permit requirements, including under Section 404 of the Clean Water Act.

Consultation with the U.S. Fish and Wildlife Service will occur following Commission approval of the Application to determine appropriate requirements under the Endangered Species Act, if necessary.

Q. IS ANY PART OF THE PROPOSED TRANSMISSION FACILITIES LOCATED WITHIN THE COASTAL MANAGEMENT PROGRAM BOUNDARY AS DEFINED IN 31 TEX. ADMIN. CODE § 25.102(A)?

A. No. The Proposed Transmission Line Project is entirely outside the coastal management program boundary.

XI. GENERATION IMPACTS

Q. DOES ONCOR EXPECT ANY GENERATOR TO BE PRECLUDED OR LIMITED FROM GENERATING OR DELIVERING ELECTRICITY TO THE ERCOT GRID DUE TO CONSTRUCTION OF THE PROPOSED TRANSMISSION LINE PROJECT, OR THAT ONCOR'S CONSTRUCTION WILL ADVERSELY AFFECT THE RELIABILITY OF THE ERCOT SYSTEM?

A. Oncor does not anticipate that construction of the Proposed Transmission Line Project will preclude or limit a generator from generating or delivering power, or adversely affect the reliability of the ERCOT system. Indeed, the Proposed Transmission Line Project will connect 223 MW of new generation capacity onto the grid, thereby increasing the reliability of the ERCOT system. The reliability benefits of the Proposed Transmission Line Project are discussed in greater detail in the direct testimony of Oncor witness Mr. Harsh Naik.

The Proposed Transmission Line Project will be constructed on new ROW and will only potentially cross one existing transmission line, so there should be no clearances necessary for the majority of the transmission line-related construction work.

It may be necessary to request a clearance to loop the Old Country Switch into Oncor's existing Venus Switch – Navarro Switch 345 kV

transmission line. However, the Old Country Switch station will be isolated from existing generation and transmission lines during construction, thus allowing generators to remain connected to the grid during construction of the Proposed Transmission Line Project.

XII. CONCLUSION

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes, it does.

AFFIDAVIT

STATE OF TEXAS §
§
COUNTY OF DALLAS §

BEFORE ME, the undersigned authority, on this day personally appeared Oscar E. Rodriguez who, having been placed under oath by me, did depose as follows:

"My name is Oscar E. Rodriguez. I am of legal age and a resident of the State of Texas. The foregoing testimony and exhibit offered by me are true and correct, and the opinions stated therein are, to the best of my knowledge and belief, accurate, true and correct."

Oscar E. Rodriguez

SUBSCRIBED AND SWORN TO BEFORE ME on this 16th day of December, 2021.

MICHELE M. GIBSON
Notary Public, State of Texas
Comm. Expires 06-30-2022
Notary ID 575631-8

Notary Public, State of Texas
My Commission Expires: 06-30-2022

Oscar Esteban Rodriguez, P.E.
Phone #: (682) 305-6722 Email: oscar.rodriguez@oncor.com

EDUCATION

Texas A&M University *August 2012 – May 2016*
Bachelor of Science in Civil Engineering, Specialized in Structural Engineering, May 2016

Arizona State University (Online) *October 2018 - Present*
Bachelor of Science of Electrical Engineering, Expected Graduation in December 2022

CERTIFICATIONS

Texas Professional Engineering (P.E.) License – ID 135906

SKILLS

Project management
Strong technical aptitude and problem-solving capabilities
PLS-CADD, PLS-POLE, PLS-TOWER, AutoCAD, Microstation
Fluent in Spanish

WORK EXPERIENCE

Oncor Electric Delivery, Fort Worth, TX *August 2021 – Present*
Transmission Engineering, Manager I

- Manage and train a team of 9 engineers with civil, mechanical, and electrical engineering backgrounds to successfully design and project manage overhead transmission line projects in a timely manner
- Manage portfolio of projects that the team members are assigned to which include ensuring project finances and schedules are updated

Oncor Electric Delivery, Fort Worth, TX *June 2016 – August 2021*
Transmission Engineering, Senior Engineer

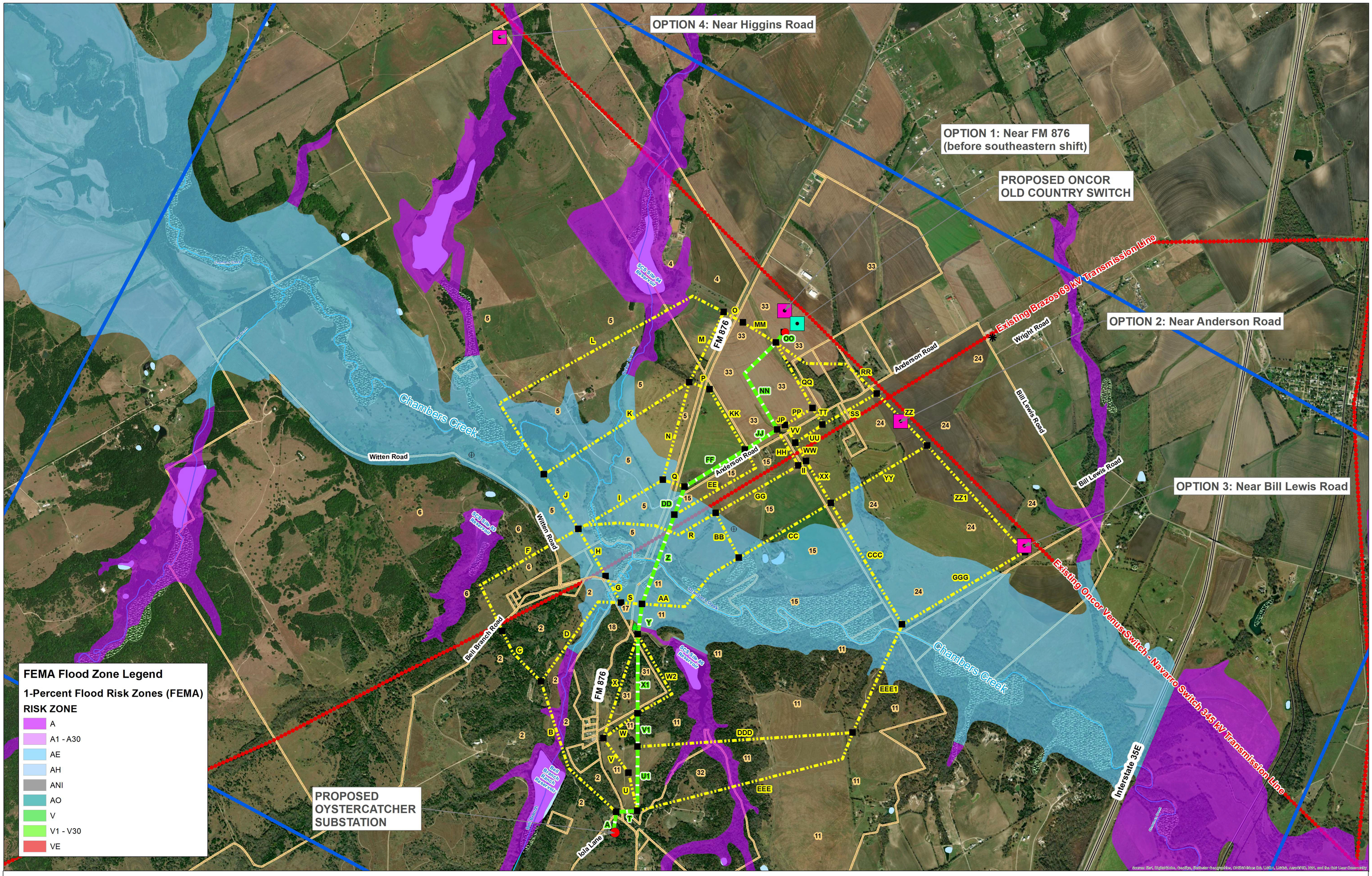
- Design and/or project manage 69/138/345 kV overhead and underground transmission line projects including greenfield, rebuild, relocation, retermination, new station cut-in, customer interconnect, generator interconnect, and other capital maintenance projects
- Project management duties includes coordinating with all project stakeholders and update engineering schedules and cost estimates
- Train new engineering staff and create training material and processes
- Engineer witness for greenfield transmission line condemnation hearings
- Provide project scoping for transmission line projects which included of creating cost estimates, project scopes, and providing preliminary engineering review

Oncor Electric Delivery, Fort Worth, TX *June 2015 – May 2016*
Transmission Engineering, Intern

- Assist with drafting of structure and plan and profile drawings
- Create drawings for new steel links for insulator assemblies in order to accommodate larger insulators

ACTIVITIES AND HONORS

AEIC Cable Engineering Committee, Member *April 24, 2021 - Present*
NESC, Subcommittee 5, Member *January 2021 - Present*
IEEE-ICC, HPFF Pipe Type Systems Committee Member *May 2017 – Present*
American Society of Civil Engineers, Member *January 2013 – Present*



OLD COUNTRY SWITCH 345 kV TAP TRANSMISSION LINE PROJECT
EVALUATED STATION SITES

Feet
0 500 1,000 2,000 3,000 4,000

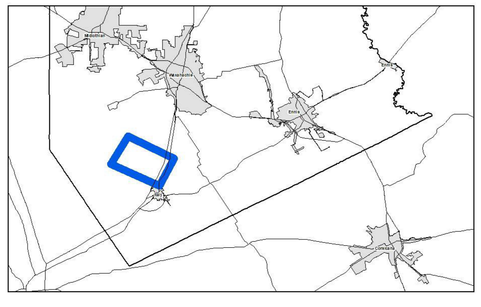
Notes:
1. Some legend symbols are enlarged for easier identification.
2. Aerial photography is from the most recent USDA NAIP imagery (USDA, 2020b).
3. Sensitive cultural resource data are not shown on this map as these data are not to be reproduced, distributed, or released to the public.
4. Data are for display purposes only. All features and boundaries have been approximated based on information gathered from review of public resources and field reconnaissance.
5. This map contains county appraisal data. Property lines shown are approximate and are not verified by field survey.
6. Legend items indicated by as asterisk (*) represent features that were researched, verified, and recorded but are otherwise beyond the map extents or study area.

N W E S

Legend

- Evaluated Station Sites
- Selected Station Site
- Water Well*
- Historical Marker*
- Cemetery
- Airport/Airstrips*
- Helicopter Pad*
- Traveling Irrigation*
- Project Endpoints
- Proposed Alternative Route Links
- Recommended Route 54 (A-T-U1-V1-X1-Y-Z-DD-FF-JJ-NN-OO)
- Existing Transmission Line
- Major Roads
- Minor Roads
- Rivers and Streams
- Waterbody/Open Water
- 6 Tract Boundary and Number
- Potential wetland areas (USFWS, 2020)
- City Limits*
- Study Area

Extent Map



Vicinity Map

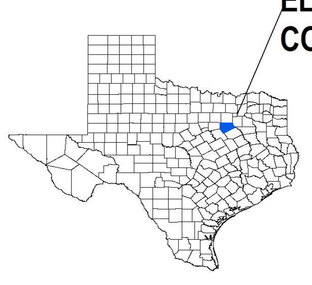


EXHIBIT OER-2
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