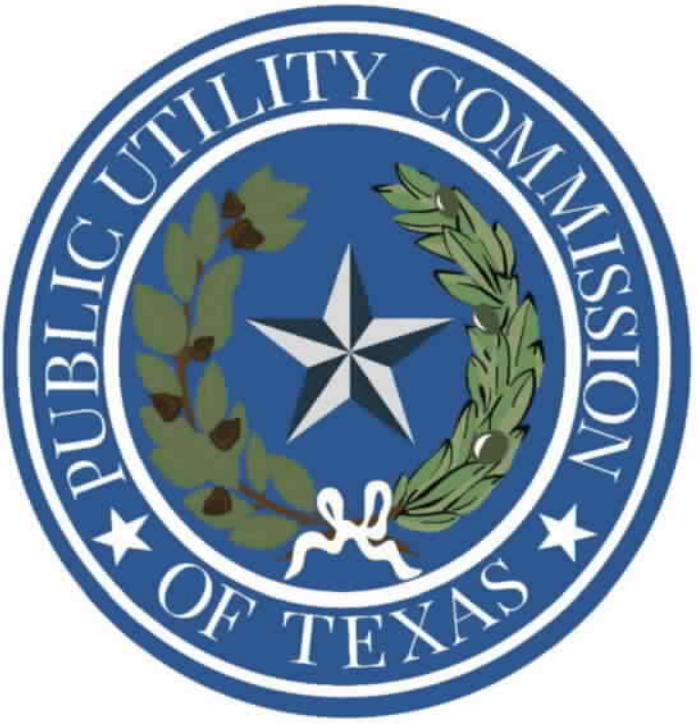

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P.U.C. DOCKET NO. 55365

APPLICATION OF CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC TO AMEND A CERTIFICATE OF CONVENIENCE AND NECESSITY FOR A PROPOSED 138 KV TRANSMISSION LINE WITHIN CHAMBERS COUNTY	§ § § § § §	**PUBLIC UTILITY COMMISSION OF TEXAS**

DIRECT TESTIMONY OF

BRADLEY J. DIEHL

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EXHIBITS

DIRECT TESTIMONY OF

BRADLEY J. DIEHL

I. QUALIFICATIONS AND EXPERIENCE

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Bradley J. Diehl. My business address is 1111 Louisiana Street, Houston, Texas 77002.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am employed by CenterPoint Energy Houston Electric, LLC ("CenterPoint Energy") as Manager, Transmission Policy.

Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND PROFESSIONAL EXPERIENCE.

A. I received a Bachelor of Science Degree in Electrical Engineering from Auburn University in 2009. I am a Professional Engineer, licensed in the state of Texas (License # 126151). I have held several roles with CenterPoint Energy, including Distribution Planning, System Reliability & Power Quality, Substation Operation Network, and currently Transmission Policy. Outside of CenterPoint Energy, I have held roles as a Civilian Design Engineer for the Department of Defense and a Consulting Engineer for AIM Electrical Consultants performing power system studies. My resume is attached as Exhibit BD-1.

II. SUMMARY OF TESTIMONY

Q. PLEASE SUMMARIZE YOUR TESTIMONY.

A. CenterPoint Energy is proposing to construct a 2.27 to 5.66-mile long 138 kV double circuit transmission line that will loop an existing 138 kV circuit in the CenterPoint Energy

transmission network and connect it to a new CenterPoint Energy Kilgore distribution substation (the "Project"). The new distribution substation is needed to support existing customers, area load growth, and multiple commercial and residential developments planned for the area. The substation is needed as well to support two existing 35kV substations and one existing 12kV substation, which are now serving the load in the same general area. CenterPoint Energy has included testimony from three witnesses to support its application to amend its Certificate of Convenience and Necessity ("CCN") to construct the Project ("Application") and the Routing Study and Environmental Assessment ("EA"). The CenterPoint Energy testimony provided by me and the other witnesses provides supporting evidence to CenterPoint Energy's Application and addresses issues such as the existing transmission system in the area, the need for the Project, alternatives to the Project that were considered, routing practices and processes of CenterPoint Energy, the development of the routes and the EA for the Project, engineering and construction of the Project, the schedule and estimated costs for the Project, and other technical aspects of the Project.

CenterPoint Energy worked with Halff Associates, Inc. ("Halff"), its environmental and routing consultant for this project, to develop proposed alternative routes in compliance with the Public Utility Regulatory Act ("PURA") and Commission Substantive Rules, including routing criteria under 16 Tex. Admin. Code ("TAC") § 25.101 and the public meeting and notice requirements under 16 TAC § 22.52. After careful consideration of the study area, preliminary transmission line segments, actual and potential environmental and land use impacts, engineering constraints, right-of-way ("ROW") requirements, maintenance and construction requirements, estimated costs, transmission system

operations, and estimated costs, CenterPoint Energy and Halff identified 20 proposed alternative routes for consideration by the Commission. Halff and CenterPoint Energy selected Proposed Alternative Route 10 as the route that best meets the criteria under the Public Utility Regulatory Act ("PURA") and the Commission's Substantive Rules.

Following the Commission's Procedural Rules, CenterPoint Energy has sent notice to directly affected landowners, the Department of Defense Military Aviation and Installation Assurance Siting Clearinghouse, applicable county and municipal governments, neighboring electric utilities within five miles of the routes, the Texas Parks and Wildlife Department, and the Office of the Public Utility Counsel ("OPUC"). CenterPoint Energy has also sent notice to the owners of pipelines with facilities paralleled or crossed by a route that it was able to identify within the study area.

III. PURPOSE AND SCOPE OF TESTIMONY

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to provide an overview of CenterPoint Energy's Application to construct a 2.27 to 5.66-mile long 138 kV double circuit transmission line that will loop an existing 138 kV circuit in the CenterPoint Energy transmission network and connect it to a new CenterPoint Energy Kilgore distribution substation. I will also discuss the need for the Project. I will then introduce other witnesses supporting the Application and discuss CenterPoint Energy's routing practices; discuss the land acquisition and ROW requirements associated with the Project; address the notice sent for the Project; and discuss CenterPoint Energy's coordination with other utilities affected by the Project.

Q. WHAT PORTIONS OF THE APPLICATION IN THIS DOCKET DO YOU SPONSOR?

A. I am sponsoring or co-sponsoring the answers to question(s) 1-4, 6, 9-11, 14-21, 25, and 29 in CenterPoint Energy's Application, as well as the associated Attachments.

Q. DID YOU, OR SOME OTHER KNOWLEDGEABLE PERSON UPON WHOSE EXPERTISE AND JUDGMENT YOU COULD REASONABLY RELY, PREPARE YOUR TESTIMONY AND THE INFORMATION YOU ARE SPONSORING?

A. Yes.

Q. IS THE INFORMATION CONTAINED IN YOUR TESTIMONY AND THE INFORMATION YOU ARE SPONSORING TRUE AND CORRECT TO THE BEST OF YOUR KNOWLEDGE AND BELIEF?

A. Yes.

IV. OVERVIEW OF AND NEED FOR THE PROJECT

Q. PLEASE DESCRIBE THE PROJECT.

A. CenterPoint Energy is asking the Commission to amend its CCN and approve the construction of a 2.27 to 5.66-mile long 138 kV double circuit transmission line that will loop an existing 138 kV circuit in the CenterPoint Energy transmission network and connect it to a new CenterPoint Energy Kilgore distribution substation. CenterPoint Energy would hold sole ownership interest in the proposed project. CenterPoint Energy would own, operate, and maintain all transmission line facilities, including conductors, wires, structures, hardware, and rights-of-way, and all substation facilities. CenterPoint Energy would implement all aspects of the project including design, right-of-way acquisition, material procurement, and construction. No entities that are not subject to the

Commission's jurisdiction will hold an ownership or investment interest in the Project. The Project would not be located in a Competitive Renewable Energy Zone. The Project would not serve another electric utility or connect with facilities owned by another electric utility.

Q. WHAT IS THE TIMELINE FOR COMPLETION OF THE PROJECT?

A. The Project is expected to be completed by June 2026. Depending upon the time needed to resolve this case, that schedule may need to be revised.

Q. WHAT ARE THE LEGAL AND REGULATORY STANDARDS FOR THE EVALUATION OF NEED FOR A TRANSMISSION LINE CCN APPLICATION?

A. Under PURA § 37.056(a), the Commission may approve an application to amend a CCN for a transmission facility only if it finds that the facilities are "necessary for the service, accommodation, and convenience or safety of the public." Further, under PURA § 37.056(c), the Commission is to approve an application to amend a CCN after considering "the adequacy of the existing service" and the "need for additional service," among other factors. PURA § 37.057 requires Commission approval or denial of an application not later than the 180th day after the date an application is filed.

Q. HAS ERCOT REVIEWED THE PROPOSED PROJECT?

A. No. The Project has not been reviewed by ERCOT because it loops the existing 138 kV CHEV – LNGSTN ckt 86 transmission line into a new load serving station and is therefore a Tier 4 "Neutral Project" pursuant to ERCOT Nodal Protocols section 3.11.4.3 (f)(vi). Neutral Projects are exempt from ERCOT review.

Q. PLEASE DESCRIBE HOW CENTERPOINT ENERGY IDENTIFIED THE NEED FOR THE PROJECT.

A. CenterPoint Energy has studied historical load data and forecast load projections for ten years and determined that the new Kilgore substation is needed to support existing customers, area load growth, and multiple commercial and residential developments planned for the area. The substation is needed as well to support two existing 35kV substations and one 12kV substation, which are now serving the load in the same general area. Attachment 4 to the Application, "New 138 kV Kilgore Substation," and its Addendum, detail the CenterPoint Energy analysis that justifies the Project.

Q. YOU MENTIONED LOAD GROWTH, WHAT DO CENTERPOINT ENERGY'S HISTORICAL LOAD DATA AND FORECAST LOAD PROJECTIONS SHOW?

A. Historical load data and forecast load projections for ten years are provided in Attachment 4 to CenterPoint Energy's Application. Over the last five years (2018-2022), the three existing substations in the area have experienced a 14.25% combined load growth. With the large industrial, commercial, and residential developments planned in the area, the distribution load in this area that is currently served from the three existing substations is forecast to grow by 39 MW between 2023 and 2032, a 20% increase. Further development is expected in the area following the completion of highway extensions for Grand Parkway and FM 1409. Given the level of growth, the existing area substations will not be able to adequately supply electric service to support the new load because of their distance from the load center. Locating a new substation closer to the load center will increase circuit capacity to better serve existing and new distribution customers and support the rapid load growth in this fast-growing area. In addition, this new substation will help to reduce distribution overhead feeder exposure, circuit customer counts, and average feeder loading in the area, which will improve circuit reliability for the distribution customers.

Q. PLEASE DESCRIBE CENTERPOINT ENERGY'S NEED STUDY PROCESS.

A. CenterPoint Energy based its study on the load forecast, generation pattern, and network topology projected for the 2025 and 2026 summer peak conditions contained in ERCOT Steady State Working Group base cases posted on October 15, 2020. For study purposes, CenterPoint Energy reduced a portion of the load at its existing Jordan and Trinity Bay substations and transferred that load to the new substations, and the Mont Belvieu load was updated based on ERCOT projections.

CenterPoint Energy evaluated four interconnection options, each of which require a CCN, each of which is described and diagramed on pp. 6-10 of Attachment 4 to the Application. They were:

Option 1: Loop the new Kilgore 138/35 kV substation via an approximately 2.6-mi long 138 kV double circuit line on ckt 86 between CHEV and LNGSTN.

Option 2: Double-tap the new Kilgore 138/35 kV substation via an approximately 3 mi long 138 kV double circuit line to ckt 52 EAGLE - WINFRE and ckt 86 LNGSTN to Mont Belvieu.

Option 3: Loop the new Kilgore 138/35 kV substation via an approximately 3.4-mi long 138 kV double circuit line on ckt 84 between Cedar Bayou Plant and HOPSON.

Option 4: Loop the new Kilgore 138/35 kV substation via an approximately 7.8-mi long 138 kV double circuit line on ckt 03 between Cedar Bayou Plant and Trinity Bay.

Because no interconnection option had been selected, and the substation site was not known at the time of the study, CenterPoint Energy added an additional 30% to the straight-line point-to-point distances discussed above to account for variations in routes.

CenterPoint Energy ran steady-state power flow analysis using these four interconnection options, testing them against the applicable North American Reliability Corporation ("NERC") Reliability Standard TPL-001-4, ERCOT Transmission Planning Criteria, and CenterPoint Energy Transmission System Design Criteria. CenterPoint Energy has developed planning events based on this reliability standard and performance criteria, which are described on pp. 10-11 of Attachment 4 to the Application. Cost estimates for each option were determined by CenterPoint Energy engineering personnel.

Q. WHAT DID THE CENTERPOINT ENERGY STUDY CONCLUDE?

A. After completing the study in July 2021, using the load forecast available at the time, CenterPoint Energy recommended Option 2 as the most cost-effective option. However, neither routing studies nor detailed engineering had taken place. Since then, CenterPoint Energy has added additional data and revised its load forecast. CenterPoint Energy's latest 2023 load forecast shows lower loads than the original 2021 forecast. For example, total 2026 peak load from the 2021 load forecast was 233 MW, but in the 2023 load forecast it is only 223 MW.

Taking this new forecast into account, as well as the routing study and detailed engineering estimates developed in support of proposed routes, CenterPoint Energy has determined that Option 1 is, on average, about 12% less expensive than Option 2. Accordingly, CenterPoint Energy recommends Option 1: construction of a new CenterPoint Energy 138/35 kV Kilgore Substation and its connection by looping ckt 86

between CHEV and LNGSTN, with construction of approximately 2.6 miles of new double circuit line. CenterPoint Energy estimates that Option 1 would be the most cost-effective option to interconnect the new Kilgore Substation and relieve capacity concerns on the existing Mont Belvieu, Jordan, and Trinity Bay substations and provide future area load growth.

Q. DID CENTERPOINT ENERGY CONSIDER ANY ALTERNATIVES TO THE PROJECT?

A. Yes. CenterPoint Energy considered distribution alternatives but the location of new development in the area meant none of the existing CenterPoint Energy substations (Mont Belvieu, Jordan, and Trinity Bay) have the capacity to support the expected rapid load growth. Similarly, upgrading voltage, bundling of conductors of existing facilities, or adding transformers would not provide the additional capacity necessary to serve projected load growth. CenterPoint Energy is an unbundled utility and therefore did not consider distributed generation as an alternative to the Project.

V. INTRODUCTION OF WITNESSES

Q. WHO ELSE WILL BE TESTIFYING IN SUPPORT OF CENTERPOINT ENERGY'S APPLICATION?

A. The table below identifies the witnesses supporting the Application and the subject of each witness's testimony.

Table of Witnesses Supporting Application

Witness	Subject of Testimony
Bradley J. Diehl CenterPoint Energy	Provides an overview of the Project and the need for it; introduces the other witnesses supporting the Application; describes CenterPoint Energy's routing practices and the Company's role in the development of adequate alternative routes; explains the role of Halff in performing the routing study; explains CenterPoint Energy's determination of a route that best meets the criteria in PURA and Commission Substantive Rules; describes the land acquisition and right-of-way requirements for the Project; explains the need for the Project; and supports the notices provided by CenterPoint Energy.
Jacob P. Tomczyszyn CenterPoint Energy	Describes engineering considerations in the design of the Project, including the type of structures and conductor to be used, substation requirements, project schedule, cost estimates, and financing for the Project.
Chris Sanderson Halff	Presents and explains the Environmental Assessment and Alternative Routing Analysis conducted by Halff for the Project.

VI. CENTERPOINT ENERGY'S ROUTING PRACTICES

Q. PLEASE PROVIDE A GENERAL DESCRIPTION OF CENTERPOINT ENERGY'S ROUTING PRACTICES FOR TRANSMISSION PROJECTS.

A. CenterPoint Energy works with an environmental and routing consultant (in this case, Halff) to determine preliminary transmission line segments based on the opportunities and constraints in an area, and to develop alternative routes that minimize the impact on the environment and each landowner's property, as well as meet the requirements of PURA § 37.056(c)(4) and the Commission's Substantive Rules. Once the Commission determines a final route, CenterPoint Energy will construct the transmission line consistent

with the Commission's order, while working with affected landowners to minimize impacts to the environment and community, including habitable structures.

Q. PLEASE DESCRIBE THE PROCESS THAT CENTERPOINT ENERGY USES TO DEVELOP THE PROPOSED ALTERNATIVE ROUTES FOR A TRANSMISSION PROJECT.

A. CenterPoint Energy begins route development by identifying the end points for the proposed transmission line project and then engaging an environmental and routing consultant to define the project study area based on those endpoints, determine constraints in the study area (which includes using input from state and federal agencies), determine preliminary transmission line segments for a transmission line, and, based on those segments, evaluate the potential routing options for the transmission line. The consultant develops preliminary transmission line segments, and CenterPoint Energy reviews the transmission line segments with regard to engineering constraints, ROW requirements, and other factors.

After this review, CenterPoint Energy and the consultant may make modifications and then will jointly determine the set of preliminary transmission line segments. Once the consultant develops the primary transmission line routes with agreement from CenterPoint Energy, the consultant will tabulate data related to environmental and routing criteria to further evaluate the routes. CenterPoint Energy will further evaluate engineering feasibility and provide construction and ROW estimates. At that point, the consultant will analyze the data and, through its own consensus process, make a recommendation to CenterPoint Energy for a geographically diverse set of alternative routes as well as the route it recommends as best meeting PURA and the Commission's Substantive Rules.

CenterPoint Energy and the consultant will review the consultant's recommendation and jointly determine the alternative routes to be included in a CCN application to the Commission, as well as identify the route that best meets the criteria set forth in PURA and the Commission's Substantive Rules.

Q. DOES THIS DESCRIPTION REPRESENT THE ROUTING PROCESS CENTERPOINT ENERGY EMPLOYED FOR THIS PROJECT?

A. Yes. CenterPoint Energy worked with Halff, the routing and environmental consultant for the Project, using the process I described above.

Q. HOW DID CENTERPOINT ENERGY IDENTIFY THE ORIGIN AND ENDPOINTS OF THE TRANSMISSION LINE PROPOSED IN THIS PROJECT?

A. CenterPoint Energy has identified four origin points along the existing transmission circuits located in the east-west transmission corridor in the area, and two endpoints representing proposed Kilgore Substation sites. The final origin points and endpoints will be based upon the site of the Kilgore Substation, which itself will be determined based on the route selected by the Commission.

Q. WHAT OTHER FACTORS DETERMINED THE STUDY AREA BOUNDARIES?

A. The study area was defined based on the locations of the proposed northern tap locations into existing CenterPoint Energy transmission facilities and southern proposed alternative locations for the Kilgore Substation. The western boundary of the study area is defined by an existing 345 kV transmission line which is paralleled for a portion of this boundary and is adjacent to the Chambers and Harris County line. The eastern boundary of the study area is defined by State Highway 99; a portion of this boundary parallels the western side of State Highway 99. The northern study boundary is located north of Interstate Highway

10 in the City of Mont Belvieu. The southern study area boundary is located south of Kilgore Parkway.

CenterPoint Energy and Halff developed a study area large enough to develop an adequate set of geographically diverse alternative routes to provide the Commission with a sufficient number of options for its consideration and to minimize potential land use conflicts within the study area.

Q. DID YOU CONSIDER OTHER ISSUES RELATED TO THE ROUTING OF THE PROJECT?

A. Yes. CenterPoint Energy and Halff determined there are constraints throughout the study area and in the adjacent areas. After establishing the study area, initial reconnaissance surveys were conducted, and 52 evaluation criteria were developed. Data were collected pertaining to land use, recreational and park areas, historical and aesthetic values, and environmental integrity. Project scoping letters were sent to federal, state, and local agencies and officials to solicit additional information. Available 2022 aerial photography and geographic information system ("GIS") coverage with associated metadata were reviewed, and relevant resource data were selected and mapped. Halff conducted a resource analysis for development of an environmental and land use composite constraints map. The analysis conducted resulted in the identification of certain constraints including: habitable structures, parks/recreational area, water bodies, rivers/streams, railroads, pipelines, public roads, wells, airports/heliports, historical markers/sites, traveling irrigation, schools, communication towers, and cemeteries.

Q. WAS CENTERPOINT ENERGY AWARE OF FUTURE DEVELOPMENT IN THE STUDY AREA? IF SO, HOW WAS IT CONSIDERED?

A. Consistent with the Commission's prior decisions, CenterPoint Energy does not consider future development in the routing process unless actual construction activities are underway. However, as part of the routing process CenterPoint Energy and Halff carefully considered the impact of routes on land in the Study Area and tried to align proposed routes to minimize impact on land by paralleling property boundaries and existing rights of way to the extent practicable.

Q. HOW DID CENTERPOINT ENERGY AND HALFF COLLECT INPUT FROM THE PUBLIC REGARDING THE PROJECT?

A. A public meeting was held on October 13, 2022, from 5:00 p.m. to 8:00 p.m. at the Baytown Community Center, located at 2407 Market Street, Baytown, TX. A total of 15 people signed in and attended the public meeting. CenterPoint Energy personnel registered visitors and handed out a questionnaire and information packet. The questionnaire solicited comments on citizen concerns as well as an evaluation of the information presented in the public meeting. CenterPoint Energy also provided two manned GIS computer stations at the meeting. Landowners were provided the opportunity to view their properties or areas of interest in more detail at the GIS stations. Halff recorded their comments in a digital format and provided an annotated 8.5" X 11" color snapshot of the area of interest for the attendee to take home. Individual notification letters announcing the public meeting were directly mailed by CenterPoint Energy to 324 landowners whose property is located within 300 feet of the preliminary transmission line segments. An additional 44 notice letters were sent to local officials and government agencies. Because aerial photography and the county's parcel shapefile sometimes vary horizontally, CenterPoint Energy used a 320 foot distance in determining which properties to notify. In addition, CenterPoint Energy publicized the

public meeting through a public notice published in local newspapers, the Houston Chronical and The Baytown Sun on October 4, 2022. CenterPoint Energy also notified electric utilities located within five miles of an alternative route, and mailed written notice to owners of oil or gas pipelines with facilities paralleled or crossed by an alternative route.

Q. HOW DID CENTERPOINT ENERGY COLLECT INFORMATION FROM GOVERNMENTAL AGENCIES REGARDING THIS PROJECT?

A. The information that CenterPoint Energy considered from governmental agencies was collected by Halff. As discussed in more detail by Chris Sanderson, Halff solicited comments and information from local, state, and federal governmental agencies with responsibilities in the areas of natural and cultural resources. Contact letters dated in August 2022 were mailed to these entities. Halff also conducted research using the records of applicable agencies.

Q. WHAT FACTORS DID CENTERPOINT ENERGY CONSIDER IN EVALUATING ALTERNATIVE ROUTES?

A. In consideration of the routing criteria set forth in PURA and the Commission's Substantive Rules, CenterPoint Energy and Halff evaluated routes based on: actual and potential environmental and land use impacts and constraints, including proximity to and number of habitable structures affected; engineering constraints; ROW requirements; maintenance and construction requirements; estimated costs; transmission system operations; and input from governmental agencies.

Q. HOW DOES CENTERPOINT ENERGY CONSIDER IMPACTS TO HABITABLE STRUCTURES IN ITS EVALUATION OF ALTERNATIVE ROUTES?

A. CenterPoint Energy endeavors to minimize impacts to habitable structures from the transmission line routes to the extent practicable given other constraints and routing considerations, including costs.

Q. DID CENTERPOINT ENERGY CHOOSE A ROUTE THAT BEST ADDRESSES THE REQUIREMENTS OF PURA AND THE COMMISSION'S SUBSTANTIVE RULES?

A. Yes. Based on the considerations discussed above, CenterPoint Energy determined that Route 10 is the route that best addresses the requirements of PURA and the Commission's Substantive Rules.

Q. WHY DID CENTERPOINT ENERGY CHOOSE ROUTE 10 AS THE ROUTE THAT BEST ADDRESSES THE REQUIREMENTS OF PURA AND THE COMMISSION'S SUBSTANTIVE RULES?

A. Route 10 was selected as the best option based on CenterPoint Energy's assessment of the costs, the information presented in the routing analysis done by Halff, and the criteria set forth in PURA and the Commission's Substantive Rules. In particular, Route 10:

- Is the third shortest in overall length of all alternative routes;
- Has only 39 habitable structures within 300 feet of the ROW, of which 30 are industrial/commercial buildings;
- Does not cross any park/recreational areas;
- Has the shortest length crossing upland forests;
- Does not parallel any streams and has the fewest number of stream crossings;
- Has the second shortest distance across a 100-year floodplain;
- Has the second fewest pipeline crossings and shortest length parallel to pipeline ROW;

- Has the shortest lengths within the foreground visual zone of U.S. and state highways, farm-to-market and county roads, and park and recreational areas when compared to all alternative routes;
- Does not cross an area of high archeological/historic site potential;
- Does not cross any recorded archeological sites;
- 53% of the length of the route is parallel to apparent features, including existing ROW and property lines.

Q. HOW DOES THE TOTAL ESTIMATED PROJECT COST FOR ROUTE 10 COMPARE WITH THE COST FOR THE OTHER ROUTES?

A. The estimated total project cost proposed in CenterPoint Energy's Application range from approximately $59,741,000 to $98,779,000 depending upon the route approved by the Commission. Route 10 has a total project cost of $59,741,000. CenterPoint Energy witness Mr. Tomczyszyn discusses the estimated cost of the Project in more detail.

VII. ROW REQUIREMENTS

Q. WILL NEW ROW BE REQUIRED FOR THE PROJECT?

A. Yes. All 20 of the proposed alternative routes will require new ROW for their length. Proposed Alternative Route 10 will require approximately 2.49 miles of new ROW. Alternative Route 16, will require the least amount of new ROW at approximately 1.95 miles of new ROW. Alternative Route 1, will require the most amount of new ROW at approximately 3.27 miles of new ROW.

Q. PLEASE DESCRIBE THE NEW ROW REQUIREMENTS FOR THE PROJECT.

A. CenterPoint Energy proposes to predominantly use double-circuit steel lattice towers with a vertical phase configuration in an 80-foot-wide ROW and transitioning to a 180-foot-wide ROW when approaching and crossing below existing transmission lines for all of the proposed alternative routes for the Project. CenterPoint Energy may need wider ROW at

corner structures if the route contains a line angle greater than 90 degrees which may require the installation of tubular steel poles. In addition, CenterPoint Energy may need wider ROW to the extent alternate structure types are required if clearance requirements dictate the need for a structure taller than 181 feet tall or shorter than 151 feet tall. For example, tubular steel poles with a vertical configuration require an 80-foot-wide ROW and flat-tap steel lattice towers with a horizontal configuration require a 180-foot-wide ROW. ROW widths may also vary depending on Federal Aviation Administration determination. Permanent and temporary easements/access/laydown yards will be needed to increase project efficiency. In addition, temporary construction easements will be needed to assist with conductor installation. The exact location or extent of the different ROW widths cannot be determined until the Commission approves a route, surveys are conducted, and more detailed engineering designs are completed.

Q. HAS CENTERPOINT ENERGY ACQUIRED ANY ROW FOR THE PROJECT?

A. The amount of ROW acquired varies from 0% to 56%, depending on the proposed route. Alternative routes 15-20 utilize existing ROW and the percent acquired varies from 23% acquired for Alternative Route 20 to 56% acquired for Alternative Route 16.

Q. HAS CENTERPOINT ENERGY CONDUCTED ANY SURVEYING FOR THE PROJECT?

A. No. Surveying of the transmission line ROW is required to locate the centerline, the structure locations, obstacles above and below ground, and the edges of both new and existing ROW.

Q. PLEASE EXPLAIN THE PORTIONS OF THE PROPOSED ALTERNATIVE ROUTES THAT ARE WITHIN EXISTING COMPATIBLE ROW.

A. Only Alternative Routes 15-20 utilize existing transmission line ROW. The proposed alternative routes with lengths that utilize existing transmission line ROW ranges from approximately 4,554 feet for proposed Alternative Route 20 to approximately 12,870 feet for proposed Alternative Routes 15-19. However, proposed Alternative Routes 5-7 run parallel to existing transmission line ROW for 202 feet.

Even though it is not generally treated as a routing opportunity, Halff and CenterPoint Energy considered paralleling pipeline ROW where it paralleled other compatible ROW, or where an area is otherwise undisturbed except for an existing pipeline ROW. The proposed alternative routes with lengths parallel to existing pipeline ROW ranges from approximately 372 feet for proposed Alternative Routes 10 and 14 to approximately 12,870 feet for proposed Alternative Routes 15-19.

All of the proposed alternative routes parallel apparent property lines to the extent feasible in the absence of other existing linear features. The length of proposed alternative routes that parallel apparent property lines ranges from approximately 393 feet for Proposed Alternative Route 5, to approximately 8,615 feet for Proposed Alternative Route 15.

VIII. NOTICE

Q. IS CENTERPOINT ENERGY PROVIDING NOTICE OF THE FILING OF THIS APPLICATION AS REQUIRED BY 16 TAC § 22.52?

A. Yes. CenterPoint Energy will provide written notice of the Application by first-class mail to directly affected landowners, county governments, utilities that are located within five miles of the routes, the Office of the Public Utility Counsel, and the Department of Defense Military Aviation and Installation Assurance Siting Clearinghouse. As noted above,

CenterPoint Energy will also provide written notice of the Application to owners of pipelines that it was able to identify within the study area. Copies of these notices are provided as Attachment 7 (notice to landowners), Attachment 8 (notice to utilities), Attachment 9 (notice to pipeline companies), Attachment 10 (notice to county and municipal authorities), Attachment 11 (notice to the Office of the Public Utility Counsel); and Attachment 12 (notice to the Department of Defense Military Aviation and Installation Assurance Siting Clearinghouse) to the Application. Within seven days of the filing of the Application, CenterPoint Energy will provide the Environmental Assessment and Alternative Route Analysis, included as Attachment 1 to the Application, to the Texas Parks and Wildlife Department (Attachment 14 is the transmittal letter). CenterPoint Energy will publish notice of its Application in newspapers with general circulation in Chambers County. This notice is included as Attachment 13 to the Application.

CenterPoint Energy will mail direct notice to approximately 327 owners of land and 48 local officials and government agencies, as stated on the current county tax rolls, who would be directly affected by the Application either because the proposed routes cross their property, or because the centerline is within 300 feet of their habitable structure(s). Instead of 300 feet, 320 feet was used to account for the ±20 feet horizontal margin-of-error based on the horizontal accuracy of the aerial photography used to identify the habitable structures. A list of the names and addresses of the landowners who are receiving notice is provided in Attachment 6 to the Application. CenterPoint Energy will send the landowners a notice letter, a written description of the segments comprising the proposed alternative routes, a map showing CenterPoint Energy's proposed alternative routes, the Commission brochure entitled "Landowners and Transmission Line Cases at the PUC,"

the Commission comment form, the Commission intervenor form, and the State of Texas Landowner's Bill of Rights.

IX. AFFECTED COUNTIES AND MUNICIPALITIES

Q. WHAT ARE THE COUNTIES THAT ARE AFFECTED BY THE PROJECT?

A. The Project will be constructed entirely within Chambers County.

Q. HAS CENTERPOINT ENERGY HAD COMMUNICATIONS WITH RELEVANT COUNTY OFFICIALS AND ORGANIZATIONS?

A. Yes. As discussed above, CenterPoint Energy conducted outreach efforts to relevant county officials and organizations regarding the Project. A copy of the written notice to county authorities and a list of officials notified are provided as Attachment 10 to the Application.

Q. WHAT ARE THE MUNICIPALITIES THAT ARE POTENTIALLY AFFECTED BY THE PROJECT?

A. All the Alternative Routes originate in the city of Mont Belvieu and terminate in the City of Baytown.

Q. DID CENTERPOINT ENERGY CONSIDER INPUT FROM THE COUNTY IN ITS EVALUATION OF THE PROPOSED ALTERNATIVE ROUTES?

A. Yes. CenterPoint Energy considered all public input and feedback in its analysis of the proposed alternative routes.

X. AFFECTED UTILITIES

Q. ARE ANY OTHER ELECTRIC UTILITIES AFFECTED BY THE PROJECT?

A. No. None of the proposed routes run parallel or cross and transmission lines owned by other electric utilities.

XI. CONCLUSION

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes, it does.

STATE OF TEXAS §
§
COUNTY OF HARRIS §

AFFIDAVIT OF BRADLEY J. DIEHL

BEFORE ME, the undersigned authority, on this day personally appeared Bradley J. Diehl, who being by me first duly sworn, on oath, deposed and said the following:

1. "My name is Bradley J. Diehl. I am of sound mind and capable of making this affidavit. The facts stated herein are true and correct based on my personal knowledge. My current position is Manager, Transmission Policy, for CenterPoint Energy Houston Electric, LLC.

2. The foregoing direct testimony and the attached exhibits have been prepared by me or under my direct supervision and are true and correct to the best of my knowledge."

Further affiant sayeth not.

Bradley J. Diehl

SUBSCRIBED AND SWORN TO BEFORE ME on this 28th day of August 2023.

Notary Public in and for the State of Texas

KRISTY ABEL
NOTARY ID #12511334-0
My Commission Expires
September 04, 2026

BRAD DIEHL, P.E.

4715 Brook Shadow Drive Kingwood, Texas – (713) 417-3325
bradley.diehl@centerpointenergy.com

SUMMARY OF QUALIFICATIONS

- 3+ years of experience serving as a Reliability/Power Quality Engineer for the Baytown/Humble Area
- 2 years of experience as Distribution Planning Engineer with a focus on Distributed Energy Resource (DER) analysis.
- 3.5 years of experience as a short circuit coordination/arc flash specialist for AIM Electrical Consultants.
- 3 years as a Design Engineer for the United States Department of Defense.
- Competent in CYME, ProVision, PowerBase, RTS, SKM Powertools, ETAP software, PC Windows (Word, Excel, PowerPoint)

PROFESSIONAL ACHIEVEMENTS

Manager (CenterPoint Energy) *May 2023 - Present*

Transmission Policy

- Direct and oversee team's preparation of company responses and activities for CCN applications including preparation of testimony.
- Lead, direct, and manage team's coordination with Electric Engineering and Operations to prepare PUCT-required monthly construction progress reporting in support of Transmission and Substation projects.
- Lead, direct, and manage team's coordination and preparation of Requests for Proposal (RFPs) and management of contractors preparing PUCT Certificates of Convenience and Necessity (CCN) applications including transmission line routing studies, environmental assessments, and other associated documents.
- Direct and oversee team's review of legislative bills for impact to Electric Operations and prepare recommendations for action.
- Lead a wide range of compliance and policy activities related to PUCT Transmission line Certification and Licensing regulations.
- Support the preparation of expert testimony, discovery requests, written comments, related filings in rate case proceedings, and other regulatory proceedings, as needed.
- Collaborate with Regulatory, Legal, and other internal stakeholders to monitor, track, assess, and selectively seek to influence related regulation, as needed.

Staff Engineer (CenterPoint Energy) *July 2016 – April 2023*

Substation Operations & Compliance

- Worked alongside Field Techs to resolve RTS testing issues in Substation relaying.
- Completed compliance document review and reporting.
- Performed scheduled firmware updates to meet compliance standards.

Reliability/Power Quality

- Led the initiative for a full revision on the CenterPoint Energy Primary Service Specification.
- Led the CenterPoint Team and worked directly with customers and the Service Center on Primary Metered Services.
- Evaluated and helped resolve various Power Quality concerns across the Humble/Baytown Areas. This included installing Power Quality Monitors at the service and writing technical reports analyzing the results.
- Met with and communicated directly with customers to build relationships and educate them on the CenterPoint Distribution System and set expectations regarding reliability.
- Conducted motor start studies for customer with large motors to ensure sufficient starting capacity.
- Assisted the Service Centers on various requests regarding Reliability/Power Quality. This helped form relationships with both the PDS group and Operations group.
- Field inspected circuits to identify existing issues contributing to Power Quality complaints.

Planning/DER

- Evaluated and produced 30 Impact Studies for customer Distributed Energy Resources (DERs), that were paralleling with CNPs distribution circuits. These studies evaluated the impact that the DERs would have on the utility and ensured that CenterPoint could safely and reliably serve both the DER and the surrounding customers.
- Analyzed the need for Transfer Trip (distribution) and 3V0 (transmission) protection schemes for DER locations. These protection schemes ensure that the DERs cannot back feed a portion of the utility network (islanding).
- Evaluated the impact of New Load Requests (300kW and above) on the utility grid and checked for CNP design criteria failures (low voltage, overloading, etc.) due to the new load being added to the system.
- Produced Distribution Development Plans (DDPs), which analyzes the future growth and potential construction for an area/substation. DDPs ensure that the infrastructure and capacity is available for growth 3-5 years in the future.

Electrical Specialist (AIM Electrical Consultants) *July 2012 July 2016*

- Conducted short circuit coordination, device evaluation and arc flash analysis using SKM Powertools and ETAP.
- Used the analysis gathered from the modeling software to produce technical reports for customers.
- Used the National Electrical Code (NEC) to identify code violations for existing facility reports.
- Conducted load flow analysis, harmonic analysis, motor starting studies and transient stability studies.

Design Engineer (AIM Electrical Consultants/U.S. Army Garrison) *August 2009 – July 2012*

- Worked within an engineering design team on both new construction and renovation projects.

WORK HISTORY

7/2016 – Present, Staff Engineer – CenterPoint Energy (Houston, TX)
7/2012 – 7/2016, Electrical Specialist – AIM Electrical Consultants (Houston, TX)
8/2009 – 7/2012, Electrical Engineer – U.S. Army Garrison (Redstone Arsenal, AL)

EDUCATION

B.S., Electrical Engineering, Auburn University, Auburn, AL 2009

PERSONAL

Professional Engineer (October 2016)
E.I.T. (October 2013)
Eagle Scout