APPLICATION OF THE CITY OF SAN ANTONIO, ACTING BY AND THROUGH THE CITY PUBLIC SERVICE BOARD (CPS ENERGY) TO AMEND ITS CERTIFICATE OF CONVENIENCE AND NECESSITY FOR THE PROPOSED SCENIC LOOP 138-KV TRANSMISSION LINE PROJECT IN BEXAR COUNTY, TEXAS

DOCKET NO. 51023

Submit seven (7) copies of the application and all attachments supporting the application. If the application is being filed pursuant to 16 Tex. Admin. Code § 25.101(b)(3)(D) (TAC) or 16 TAC § 25.174, include in the application all direct testimony. The application and other necessary documents shall be submitted to:

Public Utility Commission of Texas
Attn: Filing Clerk
1701 N. Congress Ave.
Austin, Texas 78711-3326

Note: As used herein, the term "joint application" refers to an application for proposed transmission facilities for which ownership will be divided. All applications for such facilities should be filed jointly by the proposed owners of the facilities.

1. Applicant (Utility) Name: City of San Antonio, acting by and through the City Public Service Board (CPS Energy)

Certificate Number: 30031

Street Address: 145 Navarro Street
San Antonio, TX 78205

Mailing Address: 145 Navarro Street
P.O. Box 1771
San Antonio, TX 78205

2. Please identify all entities that will hold an ownership interest or an investment interest in the proposed project but which are not subject to the Commission's jurisdiction.

CPS Energy will hold the sole ownership interest in the project that is the subject of this Application. No entities will hold an ownership or investment interest in the project that are not subject to the jurisdiction of the Public Utility Commission of Texas (PUC or Commission).

3. Person to Contact: Adam Marin
Title/Position: Regulatory Case Manager
Phone Number: (210) 353-2476
Mailing Address: 145 Navarro Street
San Antonio, Texas 78205
Email Address: armarin@cpsenergy.com

Alternate Contact: Ricardo Renteria
Title/Position: Director, Substation & Transmission Engineering
Phone Number: (210) 353-6108
Mailing Address: 145 Navarro Street
San Antonio, Texas 78205
Email Address: rrenteria@cpsenergy.com

Legal Counsel: Kirk Rasmussen
Phone Number: (512) 236-2310
Mailing Address: Jackson Walker LLP
100 Congress Avenue
Suite 1100
Austin, TX 78701
Email Address: krasmussen@jw.com

4. Project Description:
Name or Designation of Project

Scenic Loop 138-kV Transmission Line Project in Bexar County, Texas (the Proposed Project).

Provide a general description of the project, including the design voltage rating (kV), the operating voltage (kV), the CREZ Zone(s) (if any) where the project is located (all or in part), any substations and/or substation reactive compensation constructed as part of the project, and any series elements such as sectionalizing switching devices, series line compensation, etc. For HVDC transmission lines, the converter stations should be considered to be project components and should be addressed in the project description.

If the project will be owned by more than one party, briefly explain the ownership arrangements between the parties and provide a description of the portion(s) that will be owned by each party. Provide a description of the responsibilities of each party for implementing the project (design, Right-of-Way acquisition, material procurement, construction, etc.).

If applicable, identify and explain any deviation in transmission project components from the original transmission specifications as previously approved by the Commission or recommended by a PURA § 39.151 organization.

General Description of Project

The Proposed Project is a new double circuit 138 kilovolt (kV) transmission line located wholly in Bexar County, Texas. The Proposed Project consists of constructing one new substation (the Scenic Loop Substation) and a new double circuit 138-kV transmission line connecting the new Scenic Loop Substation to the electric grid from CPS Energy's existing Ranchtown to Menger Creek 138-kV transmission line. The new Scenic Loop Substation is proposed in the area of the intersection of Scenic Loop Road and Toutant Beauregard Road. The new transmission line will be approximately 4.6 to 6.9 miles long, depending on the route selected.

The Proposed Project will be constructed on double-circuit monopole structures. To connect the new transmission line to the existing electric transmission system, the Proposed Project will tap into the existing Ranchtown to Menger Creek 138-kV transmission line.

Please see Figure 1-1 in the *Scenic Loop 138 kV Transmission Line and Substation Project Environmental Assessment and Alternative Route Analysis Bexar County, Texas* (EA), incorporated herein by reference for all purposes and included as Attachment 1 to this Application, which shows the location of the Proposed Project end points.

The Proposed Project is not located, all or in part, within a Competitive Renewable Energy Zone (CREZ). No substation reactive compensation and no series elements such as sectionalizing switching devices or series line compensation will be constructed as part of the Proposed Project.

Ownership Arrangements

CPS Energy will design, procure, construct, operate, and maintain all transmission line facilities for the Proposed Project, including all conductors, wires, structures, hardware, and rights-of-way (ROW). CPS Energy will also design, operate, construct, and maintain the transmission facilities at the new proposed electric load-serving Scenic Loop Substation.

To connect the new transmission line to the existing electric grid, CPS Energy will loop into the existing Ranchtown to Menger Creek 138-kV transmission line.

Deviation from original PURA § 39.151 organization (ERCOT)

The Proposed Project has not been submitted to a PURA § 39.151 organization for review. The Proposed Project is a Tier 4 Neutral project pursuant to the classifications established by the Electric Reliability Council of Texas (ERCOT). Accordingly, the Proposed Project is not required to be submitted to the ERCOT Regional Planning Group for review and comment. CPS Energy has concluded that the Proposed Project will not result in any violation of North American Electric Reliability Corporation (NERC) or ERCOT performance requirements.

5. Conductor and Structures:

Conductor Size and Type:	795 kcmil ACSS/TW "Drake"
Number of conductors per phase:	Two conductors per phase
Continuous Summer Static Current Rating (A):	1848
Continuous Summer Static Line Capacity at Operating Voltage (MVA):	441

Continuous Summer Static Line Capacity at Design Voltage (MVA): 441

Type and Composition of Structures: CPS Energy proposes to use brown colored 138 kV double-circuit steel monopole structures for typical tangent, angle, and deadend structures.

Height of Typical Structures: The heights of typical structures proposed for the project range from 70 to 130 feet above ground.

Explain why these structures were selected; include such factors as landowner preference, engineering considerations, and costs comparisons to alternate structures that were considered. Provide dimensional drawings of the typical structures to be used in the project.

CPS Energy engineers selected steel monopoles as the structure type for the Proposed Project. Steel monopoles are the least-cost structure alternative, generally require a smaller footprint, and are typically the most favored structure type by landowners. Based on landowner preference expressed through questionnaire responses at and following the Open House for the Proposed Project, CPS Energy currently intends to use monopoles that are brown in color. For a detailed discussion of the proposed typical structures and their requirements please refer to Section 1.3.2 of the EA.

Please refer to Figures 1-2 through 1-5 in the EA for drawings of the typical structures proposed to be used for the Proposed Project.

For joint applications, provide and separately identify the above-required information regarding structures for the portion(s) of the project owned by each applicant.

This is not a joint application.

6. Right-of-way:

Miles of Right-of-Way: Approximately 4.6 to 6.9 miles of ROW will be required for the Proposed Project.

Miles of Circuit: Approximately 9.2 to 13.8 miles of circuit will be required for the Proposed Project.

Width of Right-of-Way: The typical ROW width for the Proposed Project is estimated to be 100 feet.

Percent of Right-of-Way Acquired/ Donated/Available for use: The percent of the ROW acquired/donated/ available for the Proposed Project at this time varies from 0 percent to approximately 8.51 percent. Routes B, D, G, I, J, M, T, Z and AA, which all use Segment 42, have approximately 2,059 feet of ROW available. The ROW available for use for these routes corresponds with an agreed landowner donation of approximately 2,059 feet of ROW for CPS Energy's use for a portion of Segment 42. Please see the table below for the percent of ROW available for each of the routes listed.

Primary Alternative Route	Percent of Right-of-Way Available/Donated	Segments Utilizing Available/Donated Right-of-Way
B	6.25 percent	42
D	7.40 percent	42
G	6.41 percent	42
I	7.57 percent	42
J	7.32 percent	42
M	6.61 percent	42
T	6.52 percent	42
Z	8.51 percent	42
AA	8.18 percent	42

For joint applications, provide and separately identify the above-required information for each route for the portion(s) of the project owned by each applicant.

This is not a joint application.

Provide a brief description of the area traversed by the transmission line. Include a description of the general land uses in the area and the type of terrain crossed by the line.

The new transmission line will connect the existing Ranchtown to Menger Creek 138-kV transmission line to the proposed Scenic Loop Substation in the area of the intersection of Scenic Loop Road and Toutant Beauregard Road. The area of the Proposed Project is located in the northwest quadrant of Bexar County, Texas, outside of the municipal boundaries of the City of San Antonio (City).

Land uses within the project area are primarily suburban, with some rural areas represented by pastureland and rangeland. Project area pastures and rangeland are used to support cattle, goats, sheep, horses, and wildlife operations.

The project area is situated along the transitional area between the Balcones Escarpment/Blackland Prairies and the Edwards Plateau physiographic region of Texas. The region's topography is characterized by flat upper surfaces, interspersed by drainages that open up into larger draws or box canyons. Elevations in the Edwards Plateau range between 3,000 feet above mean sea level (amsl) within the western and northern portions, to 450 feet amsl as you move towards the Gulf Coast. Elevations in the study area generally decrease from northwest to southeast and range between approximately 1,250 feet to about 1,400 feet amsl.

Specific discussion regarding natural, human, and cultural resources in the project area is set forth in the EA, Section 3.0, pages 3-1 through 3-57.

7. Substations or Switching Stations:

List the name of all existing HVDC converter stations, substations or switching stations that will be associated with the new transmission line. Provide documentation showing that the owner(s) of the existing HVDC converter stations, substations and/or switching stations have agreed to the installation of the required project facilities.

There are no existing HVDC converter stations, substations, or switching stations associated with the Proposed Project. Attachment 2 to this Application provides documentation demonstrating that LCRA Transmission Services Corporation (TSC), the owner of the northern portion of the Ranchtown to Menger Creek 138-kV transmission

line, is aware of the Proposed Project with the existing Ranchtown to Menger Creek 138 kV transmission line.

8. Estimated Schedule:

Estimated Dates of:	**Start**	**Completion**
Right-of-way and Land Acquisition	October 2021	February 2023
Engineering and Design	September 2021	May 2023
Material and Equipment Procurement	March 2022	February 2024
Construction of Facilities	March 2022	June 2024
Energize Facilities	---	June 2024

9. Counties:
For each route, list all counties in which the route is to be constructed.

All of the 29 Primary Alternative Routes included in this Application would be constructed in Bexar County.

Please refer to Figures 2-3 and 4-1 in the EA for the location of Primary Alternative Route segments.

10. Municipalities:
For each route, list all municipalities in which the route is to be constructed.

None of the alternative routes would be constructed within an incorporated municipality.

For each applicant, attach a copy of the franchise, permit or other evidence of the city's consent held by the utility, if necessary or applicable. If franchise, permit, or other evidence of the city's consent has been previously filed, provide only the docket number of the application in which the consent was filed. Each applicant should provide this information only for the portion(s) of the project which will be owned by the applicant.

Authority for CPS Energy to provide transmission service within Bexar County is contained in, among other dockets, Docket No. 59.

11. Affected Utilities:

Identify any other electric utility served by or connected to facilities in this application.

LCRA TSC owns the northern portion of the existing Ranchtown to Menger Creek 138-kV transmission line that will be tapped by the Proposed Project. As indicated in response to Question No. 7, LCRA TSC is aware of the interconnection of the Proposed Project to that line. In addition, Bandera Electric Cooperative, Inc. and Pedernales Electric Cooperative, Inc. own facilities in the vicinity of the Proposed Project that will not be adversely affected by the Proposed Project.

Describe how any other electric utility will be affected and the extent of the other utilities' involvement in the construction of this project. Include any other electric utilities whose existing facilities will be utilized for the project (vacant circuit positions, ROW, substation sites and/or equipment, etc.) and provide documentation showing that the owner(s) of the existing facilities have agreed to the installation of the required project facilities.

See the response above.

12. Financing:

Describe the method of financing this project. For each applicant that is to be reimbursed for all or a portion of this project, identify the source and amount of the reimbursement (actual amount if known, estimated amount otherwise) and the portion(s) of the project for which the reimbursement will be made.

CPS Energy will finance the facilities included in the Application in a manner similar to that which has been used for projects previously constructed by CPS Energy. Such financing may include a combination of tax-exempt commercial paper, tax-exempt private revolving note, or taxable commercial paper, and, subsequent to project completion, fixed-rate debt. Interest on the debt may be capitalized until the project is in service, at which point it is intended that both the principal and interest will be serviced with Transmission Cost of Service revenues.

CPS Energy is the sole applicant, and, therefore, no other party will be reimbursed for any portion of the project.

13. Estimated Costs: Provide cost estimates for each route of the proposed project using the following table. Provide a breakdown of "Other" costs by major cost category and amount. Provide the information for each route in an attachment to this application.

	Transmission Facilities *	**Substation Facilities ***
Right-of-way and Land Acquisition		
Engineering and Design (Utility)		
Engineering and Design (Contract)		
Procurement of Material and Equipment (including stores)		
Construction of Facilities (Utility)		
Construction of Facilities (Contract)		
Other (all costs not included in the above categories)		
Estimated Total Cost	See Attach. 3	See Attach. 3

*Please refer to Attachment 3 to this Application for Transmission and Substation Facilities estimated costs for each alternative route presented in this Application.

14. Need for the Proposed Project:

For a standard application, describe the need for the construction and state how the proposed project will address the need. Describe the existing transmission system and conditions addressed by this application. For projects that are planned to accommodate load growth, provide historical load data and load projections for at least five years. For projects to accommodate load growth or to address reliability issues, provide a description of the steady state load flow analysis that justifies the project. For interconnection projects, provide any documentation from a transmission service customer, generator, transmission service provider, or other entity to establish that the proposed facilities are needed. For projects related to a Competitive Renewable Energy Zone, the foregoing requirements are not necessary; the applicant need only provide a specific reference to the pertinent portion(s) of an appropriate commission order specifying that the facilities are needed. For all projects, provide any documentation of the review and recommendation of a PURA §39.151 organization.

Describe the need for the construction and state how the proposed project will address the need. Describe the existing transmission system and conditions addressed by this application. For projects that are planned to accommodate load growth, provide historical load data and load projections for at least five years. For projects to accommodate load growth or to address reliability issues, provide a description of the steady state load flow analysis that justifies the project.

A need analysis for the Proposed Project was prepared for CPS Energy by Burns McDonnell. The *Scenic Loop Substation Analysis Report*, dated July 14, 2020 (the "Burns McDonnell Analysis Report"), is attached to this Application as Attachment 13 and is incorporated herein. The following discussion is based on the analysis and findings contained in the Burns McDonnell Analysis Report.

Limitations on the existing CPS Energy electrical infrastructure in the northwest area of Bexar County will be challenged by increasing load along the IH-10 corridor north of Loop 1604, including La Cantera, Camp Bullis, and the Rim multiuse shopping development area. Future load from the University of Texas at San Antonio (UTSA) associated with its Main Campus Master Plan (presented in February 2020) will significantly increase the current UTSA load. In addition, the larger geographic area of the City that includes the UTSA campus (described in the City's SA Tomorrow Comprehensive Plan (Comprehensive Plan) as the "UTSA Area") is targeted as a regional development center and is one of the fastest growing areas of the City.

As a result of the development in the area, CPS Energy is experiencing significant load growth in the northwest region of Bexar County, in some areas as high as 4-7 percent annually. The load in the northwest region of Bexar County at issue in this Application is currently served by the existing La Sierra and Fair Oaks Ranch substations. Historical and forecasted load growth for the area are shown in Tables 14-1 and 14-2 below.

Table 14-1 – Scenic Loop area substations historical load growth (KW)

SCENIC LOOP AREA SUBSTATIONS					
LOCATION	2014	2015	2016	2017	2018
LA SIERRA	80056	95378	105197	104395	105524
FAIR OAKS RANCH	37140	39767	41193	41907	44428
SUBTOTAL	117196	135144	146390	146302	149952

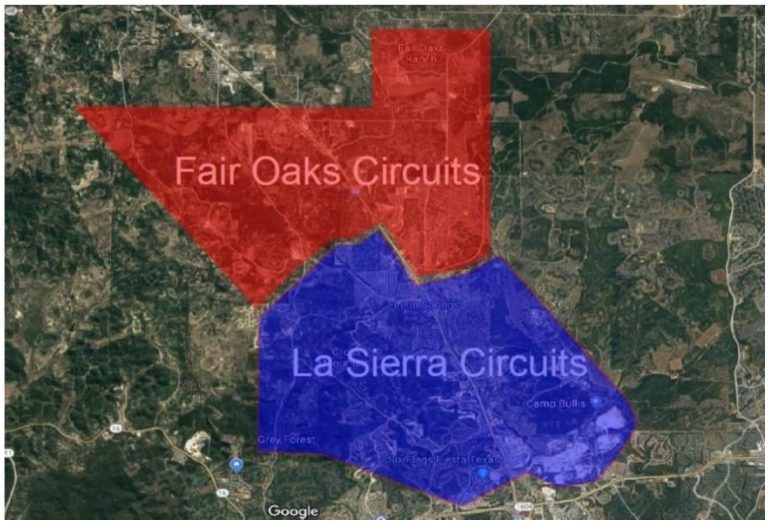
Table 14-2 – Scenic Loop area substations forecasted load growth (KW)

SCENIC LOOP AREA SUBSTATIONS													
LOCATION	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
LA SIERRA	119005	122382	129481	136991	144936	153342	159476	165855	172489	177664	182994	188484	194138
FAIR OAKS RANCH	44806	47980	49228	50508	51821	53168	54550	55969	57088	58230	59394	60582	61794
SUBTOTAL	163811	170363	178708	187498	196757	206510	**214026**	**221824**	**229577**	**235894**	**242388**	**249066**	**255932**

The geographic area served by the La Sierra and Fair Oaks Ranch substations is depicted in Figure 14-1 below. Because of the distance of these substations from much of the load

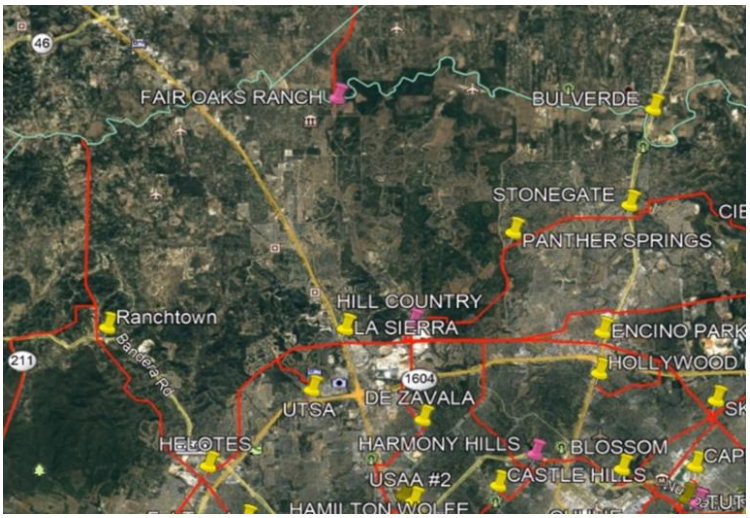
being served, the circuits serving many CPS Energy customers in this area are among the longest in the CPS Energy distribution system.

Figure 14-1 - Geographic area served by the La Sierra and Fair Oaks Ranch substations



According to CPS Energy's established contingency planning practices, the total planning capacity of any substation on the system is limited by CPS Energy's ability to withstand the loss of a single substation transformer without shedding load (i.e., extended customer outages). The La Sierra Substation has a total transformer capacity of 200 MVA divided between two 100 MVA transformers (with no spare transformer available at the site). There are three other substations in the vicinity (Hill Country Substation to the east, DeZavala Substation to the south, and Ranchtown Substation to the west) that are interconnected sufficiently with La Sierra Substation circuits in a manner in which they can be utilized to serve load in the event of the loss of one of the La Sierra 100 MVA transformers. See Figure 14-2.

Figure 14-2 – CPS Energy substations in northwest Bexar County



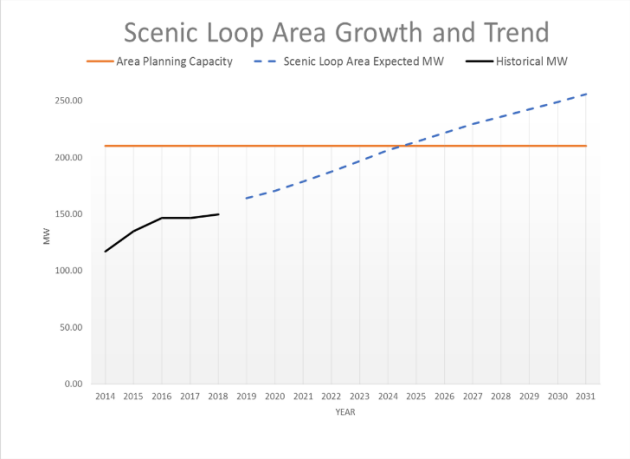
Based on CPS Energy's ability to shift load to other area substations in the event of the loss of one of the two La Sierra Substation transformers, the total planning capacity of the La Sierra Substation is 75 percent of the nameplate capacity (i.e., 150 MVA). Thus, even though the CPS Energy Distribution Planning Manual limits transformer loading to 80 percent of its normal rating (i.e., the nameplate capacity), the La Sierra transformers are further limited by CPS Energy's restricted ability to shift load in the event of the loss of one of the two La Sierra substation transformers.

The Fair Oaks Ranch Substation has a total transformer capacity of 100 MVA divided between two 50 MVA transformers (with no spare transformer available at the site). Fair Oaks Ranch has less support from other nearby stations because of the distance to any other substations, the terrain in the area, and the CPS Energy service territory boundary to the north. Thus, following the loss of one of the existing transformers, the Fair Oaks Ranch Substation is capable of being supported only from two circuits originating at the La Sierra Substation. Because of CPS Energy's limited ability to shift load from the Fair Oaks Ranch Substation, the total planning capacity of that substation is limited to 60 percent of the nameplate capacity (i.e., 60 MVA).

When the capacity for the region is evaluated, the total planning capacity for the loads served by the La Sierra and Fair Oaks Ranch substations is 75 percent of 200 MVA from La Sierra and 60 percent of 100 MVA from Fair Oaks Ranch for a total of 210 MVA for the overall area. As can be seen in Figure 14-3, the forecasted load for the La Sierra and Fair Oaks Ranch substations will exceed 210 MVA by 2025.

Figure 14-3 shows the forecasted load growth for the La Sierra and Fair Oaks Ranch substation against the current ability of distribution circuits to support load. The demand on the current system is expected to exceed the planning capacity for the area by 2025.

Figure 14-3 – Scenic Loop area substations historic and forecasted load growth



In conjunction with the load growth CPS Energy is experiencing in the northwest Bexar County area, the existing distribution circuits within the La Sierra Substation and some of the circuits originating at the Fair Oaks Ranch Substation are very long (up to eight times longer than the average distribution circuit within CPS Energy's system) and serve thousands of customers. These long, heavily loaded circuits have resulted in significant reliability concerns for the area.

Even with system reconfiguration improvements on the existing distribution system immediately prior to the filing of this Application, without a new substation in northwest Bexar County, the CPS Energy customers served from the La Sierra and Fair Oaks Ranch substations will continue to experience significantly lower reliability than CPS Energy's system averages.

The average length of the eight distribution circuits primarily serving the Scenic Loop area from the La Sierra and Fair Oaks Ranch substations is approximately 36.13 miles. When two very short circuits (U111 and U113) are removed from the average, the remaining six circuits average 47.48 miles in length, with the longest circuit (R014) at 97.13 miles in length. For comparison, the average circuit length in the CPS Energy system is approximately 12.8 miles in length. The length and loading on these eight La Sierra and Fair Oaks Ranch circuits have equated to lower reliability to the customers served by these circuits. Following the construction of the proposed Scenic Loop Substation, the average length of the circuits connected to La Sierra, Fair Oaks Ranch, and Scenic Loop would be about 24 miles.

Reliability of a distribution system can be evaluated by considering SAIDI (system average interruption duration index), SAIFI (system average interruption frequency index), and CMI (customer minutes of interruption). Also included in a reliability evaluation is a calculation of the customers affected or CA, which calculates the number of customers

whose outages are included in the calculation of the previously listed reliability indices. The reliability metrics for the La Sierra and Fair Oaks Ranch substation circuits for the past seven years indicate a much lower reliability as compared to the averages of the CPS Energy system. The La Sierra and Fair Oaks Ranch circuits have four to six times higher SAIDI and SAIFI values in comparison to the system average interruption indices for CPS Energy as a whole.

The reliability statistics on the La Sierra and Fair Oaks Ranch circuits indicate that the CMI from these circuits have accounted on average for approximately 11.2 percent of CPS Energy's total minutes of interruptions (as high as 20 percent in 2017), even though these circuits serve only approximately three percent of CPS Energy's entire load. This indicates a much lower reliability for the loads served by these substations.

Notably, from 2013 to 2019 the SAIDI and SAIFI indices have steadily risen (indicating declining reliability). This increase in the frequency and duration of interruptions experienced by customers served in the Scenic Loop area clearly evidences a steady decline in reliability and power quality. For comparative purposes, Table 14-3 presents the CPS Energy-wide SAIDI, SAIFI, CMI, and customers affected.

Table 14-3 – CPS Energy system-wide average reliability indices

YEAR	CMI	SAIDI	SAIFI	CA
2013	37,465,050	51.39	0.79	575,726
2014	35,449,090	47.55	0.73	547,023
2015	41,562,265	54.62	0.76	580,576
2016	44,120,730	57.4	0.8	616,000
2017	42,443,090	53.97	0.83	654,000
2018	44,311,290	54.49	0.84	686,000
2019	42,464,750	61	0.86	603,000
Total	**287,816,265**			**4,262,325**

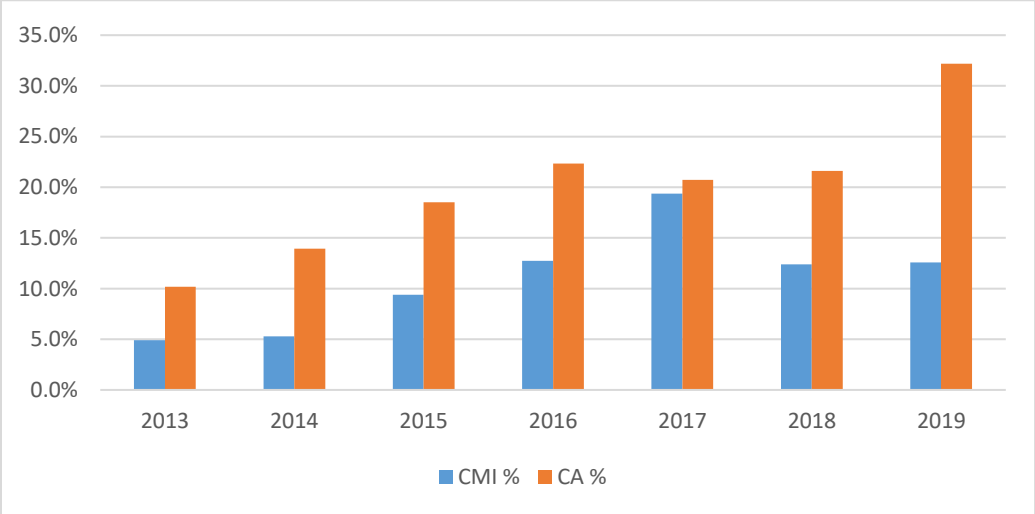
Table 14-4 presents the same reliability indices over the same period of time for the circuits served from the La Sierra and Fair Oaks Ranch substations. All of the reliability metrics measured show a significant decrease in reliability for the customers served from the La Sierra and Fair Oaks Ranch substations compared to the CPS Energy system. And, as stated above, in 2017 the interruptions on these circuits contributed nearly 20 percent of the total CMI for the entire CPS Energy system. Based on the outage data presented, the customers served from the La Sierra and Fair Oaks Ranch circuits have experienced approximately 8-10 times more outages compared to the entire CPS Energy system average.

Table 14-4 - La Sierra and Fair Oaks Ranch substation circuits reliability indices

YEAR	CMI	CMI %	SAIDI	SAIFI	CA	CA%
2013	1,842,904	4.90%	83.77	2.67	58,633	10.2%
2014	1,868,883	5.30%	83.06	3.39	76,259	13.9%
2015	3,900,198	9.40%	169.57	4.67	107,463	18.5%
2016	5,614,911	12.70%	238.93	5.85	137,513	22.3%
2017	8,219,320	19.40%	342.47	5.65	135,583	20.7%
2018	5,483,364	12.40%	223.81	6.05	148,185	21.6%
2019	5,345,088	12.60%	215.53	7.82	194,027	32.2%
Total	**32,274,667**	**11.20%**			**857,663**	**20.1%**

Figure 14-4 shows the degree to which the low reliability on the La Sierra and Fair Oaks Ranch circuits (comprising approximately 3 percent of the CPS Energy overall load) contribute to the CPS Energy metrics for reliability in terms of CMI and CA. The number of customers affected for the year 2019 on the loads served on La Sierra and Fair Oaks Ranch circuits is more than 30 percent of the customers affected for the whole CPS Energy system.

Figure 14-4 Fair Oaks Ranch and La Sierra load contribution to CPS Energy reliability metrics from 2013-2019



Between 2010 and 2018, some of the La Sierra and Fair Oaks Ranch circuits have made CPS Energy's poor performing circuits (PPC) list for five different years (based on standards established by the Public Utility Commission of Texas), and a total of six of the 11 circuits have been on the list since 2010. Additionally, five circuits from La Sierra and Fair Oaks Ranch were on the PPC list in 2018, the most of any year within the past 10 years. A listing of the PPC statistics for the La Sierra and Fair Oaks Ranch circuits since

2010 is shown in Table 14-5**Error! Reference source not found.**. Note that circuit R014 was created just prior to the filing of this Application and is therefore not shown in the historical listing below. The Burns McDonnell Analysis Report provides further details regarding the load shifting associated with the creation of circuit R014 and reliability metrics for some of the poorest performing La Sierra and Fair Oaks Ranch circuits.

Table 14-5 – La Sierra and Fair Oaks Ranch poor performing circuits

Station	Circuit	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Fair Oaks	R011										
Fair Oaks	R012			PPC						PPC	
Fair Oaks	R013	PPC								PPC	
Fair Oaks	R034			PPC						PPC	
La Sierra	U111									PPC	
La Sierra	U112										
La Sierra	U113										
La Sierra	U114			PPC	PPC				PPC		
La Sierra	U133										
La Sierra	U134										
La Sierra	U132									PPC	PPC

In addition to the objective declining reliability metrics discussed above, CPS Energy has experienced subjective reliability complaints from numerous customers in the Scenic Loop area. On at least two occasions in 2019, CPS Energy representatives met with groups of customers in the area to address the frequent and sustained outages.

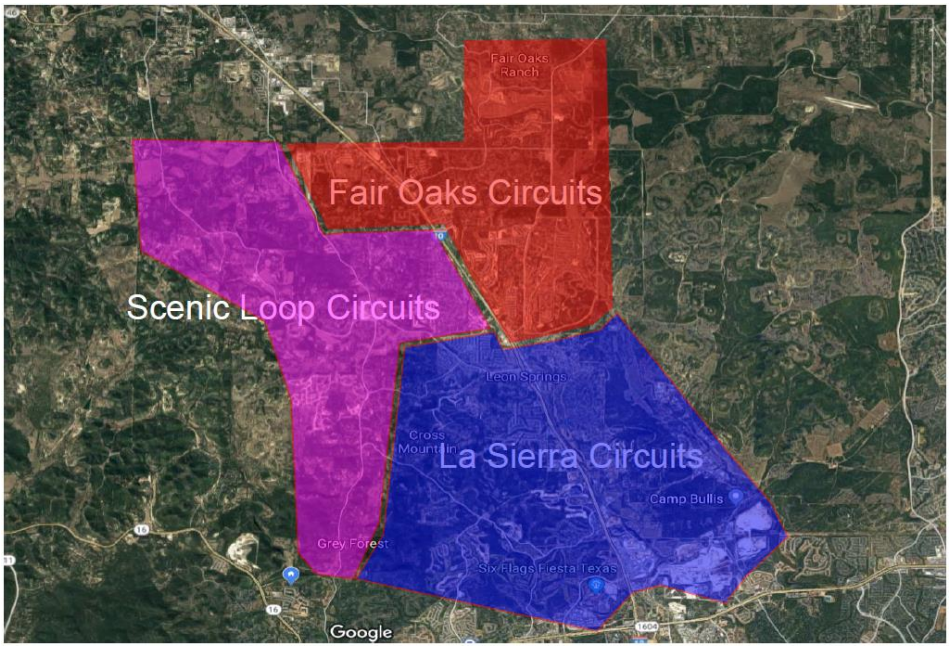
A primary root cause for the high number and duration of outages on the La Sierra and Fair Oaks Ranch circuits is the length of the circuits through areas of rough terrain. As discussed above, six of the eight circuits serving the Scenic Loop area from the La Sierra and Fair Oaks Ranch substations are on average four times longer than the CPS Energy system average and one of the circuits (R014) is now nearly eight times longer than the CPS Energy system average. The length and poor reliability of these circuits today, coupled with the additional load growth these circuits will experience in the next several years, will continue to further erode the reliability on these circuits through an increase in the number and duration of outages, as well as an increase in the number of customers experiencing these outages. Installation and maintenance of adequate numbers of reclosers to detect and interrupt momentary faults will help with reliability but cannot fully address the reliability issues associated with the length and loading of the circuits. Specifically, the La Sierra and Fair Oaks Ranch circuits already have adequate automation and sectionalization today, but due to the nature of the circuit topology related to the terrain, circuit length, and number of

customers, reliability is still an underlying issue that can best be resolved through the construction and operation of a new load serving substation in the Scenic Loop area.

The aerial image in Figure 14-2 shows the locations of the distribution substations owned and operated by CPS Energy in northwestern Bexar County. The La Sierra, Hill Country, De Zavala, and UTSA substations are all within three miles of each other. Similarly, the Stonegate, Panther Springs, and Bulverde substations are within three to six miles of each other and the circuits between these stations are not very long. In contrast, the La Sierra and Fair Oaks Ranch substations are approximately 11 miles apart and some of the circuits served by these substations are extremely long. Because of the distances, the loads at the downstream portions of the La Sierra and Fair Oaks Ranch circuits (such as U114) cannot be served by any other substations without building significant additional infrastructure from more than 10 miles away through hilly and wooded terrain, which further increases the length of the lines, resulting in a continued possibility of lower reliability to the downstream loads.

As can be seen in Figure 14-5, construction of the proposed Scenic Loop Substation will provide CPS Energy with a load serving substation geographically intermediate to the Fair Oak Ranch and La Sierra substations in a manner that will cut the average length and loading of distribution circuits serving end-use customers by 50 percent or more.

Figure 14-5 – Geographic area served by the La Sierra and Fair Oaks substations with the addition of the Scenic Loop Substation



The Burns McDonnell Analysis Report provides further details and data regarding modelling and power flow analysis that has been performed to assess the performance of the La Sierra and Fair Oaks Ranch substation circuits with and without the Scenic Loop Substation in operation. The report additionally presents discussion of the reliability benefits CPS Energy recently achieved with the construction of the Ranchtown Substation by shortening and decreasing the loading of a previously long circuit with poor reliability served from the Helotes Substation, which provides demonstrable support for the reliability benefits of construction and operation of the Scenic Loop Substation.

For interconnection projects, provide any documentation from a transmission service customer, generator, transmission service provider, or other entity to establish that the proposed facilities are needed.

Not applicable to the Proposed Project.

For projects related to a Competitive Renewable Energy Zone, the foregoing requirements are not necessary; the applicant need only provide a specific reference to the pertinent portion(s) of an appropriate commission order specifying that the facilities are needed.

Not applicable to the Proposed Project.

For all projects, provide any documentation of the review and recommendation of a PURA §39.151 organization.

As stated in response to Question No. 4, the Proposed Project is a Tier 4 Neutral project and was not submitted to ERCOT for review and recommendation.

15. Alternatives to Project:

For a standard application, describe alternatives to the construction of this project (not routing options). Include an analysis of distribution alternatives, upgrading voltage or bundling of conductors of existing facilities, adding transformers, and for utilities that have not unbundled, distributed generation as alternatives to the project. Explain how the project overcomes the insufficiencies of the other options that were considered.

Alternatives to the construction of this project (not routing options)

Six options were considered to address the reliability and capacity concerns associated with the CPS Energy distribution system in northwestern Bexar County. Option A involves shifting load from existing circuits identified as overloaded. Option B involves the construction of a new Scenic Loop Substation. Option C involves adding a distributed generation power source as a non-wire solution for the area. Option D describes an

alternative with inclusion of a simple cycle gas generating station within the footprint to relieve loadings on the transformers. Option E involves adding new circuits into the Fair Oaks Ranch Substation to pick up additional loads in the Scenic Loop region. Option F describes rebuilding existing low reliable circuits as underground circuits. These six options are described and analyzed below.

Distribution Alternatives

Option A involves designing tie points and shifting load from the La Sierra Substation to surrounding available circuits to create greater capacity on the La Sierra circuits to pick up growing loads in the Scenic Loop area. Because of the geographic relief and the existing CPS Energy service territory boundary, the Fair Oaks Ranch circuits can shift load only with La Sierra circuits, which would not enhance the capacity in the Scenic Loop area. Option A would involve shifting approximately 14.24 MW of load from La Sierra circuit U114 and Fair Oaks Ranch circuit R034 onto Fair Oaks Ranch circuit R014 to provide loading relief on those circuits. This would result in 13.22 MW of additional capacity on circuits U114 and R034. Of this additional capacity that is available, only 2.7 MW can be useful for planning purposes in accordance with the CPS Energy Distribution Planning Manual criteria of maintaining circuit loadings under 80 percent of their nominal rating. After the potential load shifts, circuit R014 would have a loading of 62 percent and can additionally accommodate 4 MW to keep the circuit loading under 80 percent. Thus, Option A would result in approximately 6.7 MW of additional capacity available for future load growth in the Scenic Loop area. Based on CPS Energy's current load forecasts, Option A would provide sufficient capacity for the area until approximately 2021. The cost for Option A is minimal as no additional equipment upgrades are needed but will not provide the desired capacity to meet the load forecast beyond 2021.

Although Option A would provide some temporary additional load serving capacity from the La Sierra Substation and possibly some short term reliability improvement, it will not significantly improve the reliability issues experienced in the Scenic Loop area (described in response to Question 14) over the longer planning horizon. Under the Option A scenario, the circuit lengths originating from the La Sierra and Fair Oaks Ranch substations will be the same or, in some cases, lengthened based on load shifts chosen. Further, Option A would not add additional capacity to the Scenic Loop area and any benefit provided by this is only operational flexibility and has a minor benefit in short term planning.

The La Sierra circuits currently serving the Scenic Loop area loads (current U114 circuit is an example) are already extremely long and heavily loaded. The length and loading configuration of these circuits have resulted in decreasing reliability performance. Although Option A is a low cost alternative, it will only temporarily decrease some of the circuit loading in the area and will not notably reduce circuit line length. Within a short period of time, Option A will exacerbate the poor reliability performance of the CPS Energy distribution system in the Scenic Loop area and will not be able to accommodate

load growth beyond the next few years. Regardless of cost, Option A is not a viable alternative to address the significant reliability and capacity problems CPS Energy is experiencing in northwest Bexar County.

An alternative distribution option to the Proposed Project that CPS Energy evaluated (Option E) would involve upgrading the existing transformers at the Fair Oaks Ranch Substation for 100 MVA operation and constructing two new distribution circuits from that substation. Consideration was also given to potential upgrade of the transformation at the Ranchtown Substation, but because of its further location from the Scenic Loop area through difficult terrain to the west, the better alternative for consideration was a transformation upgrade at the Fair Oaks Ranch Substation.

The Fair Oaks Ranch Substation is located on the east side of I-10 with more than a mile of underground conduit to terminate cables into the station. The distribution corridor in the Scenic Loop area is very limited and an upgrade would require converting the existing single circuit structures to double circuit structures and terminating the new circuits into Fair Oaks Ranch with additional undergrounding and utilizing existing trenching. The length of a new circuit would be anticipated to be 30 miles long to pick up portions of the Scenic Loop area load and is estimated to have a cost of more than $20M. Expansion of the capacity of the Fair Oaks Ranch Substation would provide some additional capacity for the distribution system in the Scenic Loop area. However, as can be seen on Figures 14-1 and 14-5, expansion of transformation capacity at Fair Oaks Ranch would still leave the Scenic Loop area served by long distribution circuits several miles from Fair Oaks Ranch and La Sierra. Thus, while there would be some benefit in the short term to reliability and capacity from upgrading the Fair Oaks Ranch transformers, the reliability to the Scenic Loop area would continue to deteriorate due to the distance from a strong substation in the vicinity. Further, at a total estimated cost of $45M (based on the construction of two distribution circuits with transformer and station upgrades), this option is nearly as costly as the Scenic Loop Substation alternative with significantly less improvement to the reliability and capacity flexibility for the area.

In order to address reliability of the existing distribution circuits serving the Scenic Loop area, an alternative was evaluated (Option F) that involved relocating existing poor performing circuits from overhead to underground. While undergrounding distribution circuits can significantly improve reliability, the cost to underground an entire circuit is typically 8-10 times more expensive than overhead circuits (approximately $40M). At least two of the existing circuits from the La Sierra and Fair Oaks Ranch substations (U114, R034) would need to be relocated underground to achieve the reliability benefits anticipated from construction of the proposed Scenic Loop Substation. An estimated cost of such undergrounding is reasonably estimated at approximately $80M.

In addition, the engineering and maintenance for underground distribution circuits is more complex and expensive and would take many years to complete (resulting in further

decreasing reliability in the interim of the conversion). In addition, the expanded capacity on the new underground ground distribution circuits would result in further needed upgrades to equipment at the Fair Oaks Ranch and La Sierra substations, resulting in additional costs for this alternative.

In order to achieve the same reliability and capacity benefits of the Scenic Loop Substation alternative, the undergrounding alternative would cost more than twice the cost of a new substation and will not provide the same operational flexibility as a third substation (Scenic Loop) for the region. This alternative was rejected based on its significant expense.

Transmission Alternatives

CPS Energy evaluated potential reasonable transmission options to interconnect the proposed Scenic Loop Substation with the existing transmission grid. CPS Energy's standard practice is to loop in 138-kV transmission lines for CPS Energy-owned load serving stations. After reviewing the location of the existing transmission lines in the area proposed for the Scenic Loop Substation, CPS Energy arrived at three potential transmission options to connect the proposed Scenic Loop Substation to the existing interconnected transmission grid. Although there are 345-kV transmission lines in the vicinity of the proposed Scenic Loop Substation, because CPS Energy does not serve the distribution system load from a 345 kV system, interconnection with such lines was not considered a viable alternative. Figure 15-1 provides an overview of the available transmission lines in the area.

Figure 15-1 – Transmission lines in the area surrounding the proposed Scenic Loop Substation

The following are the three transmission options considered for this analysis:

Option 1: Looping the Ranchtown to Menger Creek 138-kV transmission line into the Scenic Loop Substation.

Option 2: Looping the La Sierra to UTSA BTap 138-kV transmission line into Scenic Loop Substation.

Option 3: Looping Fair Oaks to Esperanza 138-kV transmission line into Scenic Loop Substation.

Figure 15-2 shows the three options considered and their possible connection to the general area proposed for the Scenic Loop Substation.

Figure 15-2 – Transmission options considered for analysis

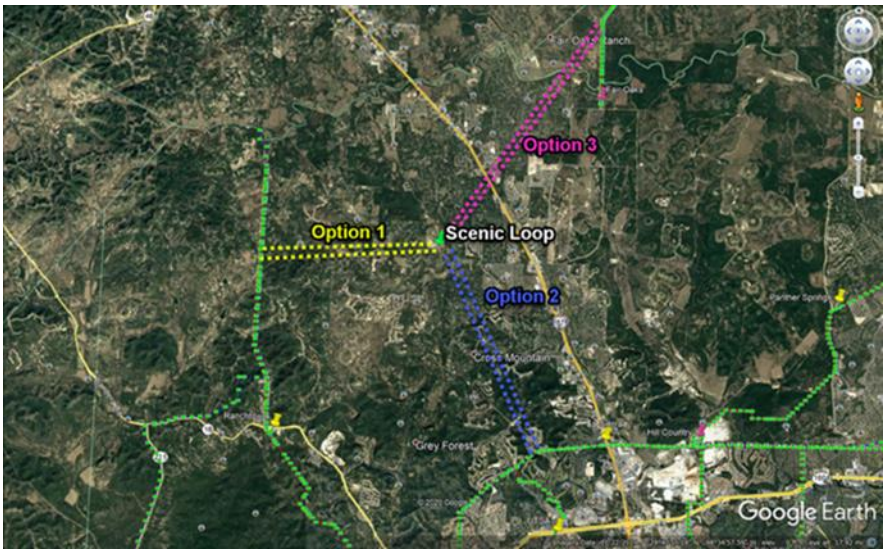


Table 15-1 provides the cost estimate comparisons utilized in the analysis. To estimate the length of ROW, a straight line length with a 30 percent adder was used to account for reasonable routing alternatives. For purposes of this analysis, CPS Energy's estimated cost per mile for looped 138-kV structure transmission line for the study area was $6.9 million/mile.

Table 15-1 – Transmission option cost estimates

Study Options	Description	Conductor Type Modeled	Mileage (miles)	Substation ($M)	Transmission ($M)	Total ($M)
Option 1	Looping Ranchtown to Menger Creek transmission line into Scenic Loop	795 Drake ACSR (2-Bundled)	4.27 Straight line length+ 30% adder= 5.55	$ 8.0	$ 38.3	**$ 46.3**
Option 2	Looping La Sierra to UTSA B Tap transmission line into Scenic Loop	1272 Narcissus AAC (2-Bundled)	5.28 Straight line length+ 30% adder= 6.86	$ 8.0	$ 47.3	**$ 55.3**
Option 3	Looping Fair Oaks to Esperanza transmission line into Scenic Loop	795 Drake ACSR (Single)	6.65 Straight line length+ 30% adder= 8.65	$ 8.0	$ 59.7	**$ 67.7**

To further evaluate the best option to interconnect the proposed Scenic Loop Substation to the existing transmission grid, a power flow analysis was conducted by the CPS Energy planning staff. This analysis, coupled with the cost estimates to construct a looped 138-kV transmission circuit on monopole structures, was used to determine the best alternative transmission option. The power flow analysis was conducted on a 2024 summer peak case published by ERCOT in March 2020. For this power flow case, the new Scenic Loop Substation was added along with the relevant transmission connections described above.

To evaluate the robustness of the transmission options, a power flow contingency analysis was also conducted to determine the impact of serving 25 MW from the Scenic Loop Substation. Contingency analysis (NERC TPL-001-4 P1 through P7 type contingencies) based on contingencies within Kendall Zone for LCRA TSC (submitted by LCRA TSC on March 19, 2020) along with CPS Energy contingencies and standard single element outage and double element outages and any ERCOT specific outages were simulated for the analysis and compared against both the ERCOT and CPS Energy planning criteria.

The results from the analysis indicate no thermal overloading problems for all three options. The screening of the voltages (Table 15-2) following contingency analysis indicates a few outages where Option 3 does not meet the planning criteria. Overall, the analysis indicates that Option 1 is a better performing option.

Table 15-2 – Voltage performance of the transmission options

Contingency Type	Bus Number	Bus Name	KV	1st Con	Option1		Option2		Option3	
					V Init	V Con	V Init	V Con	V Init	V Con
P1	5363	SCENIC_LOOP	138	7169 L_FAIROA8_1Y - 7170 L_BERGHE8_1Y - 1*	0.987	0.986	0.997	0.996	0.993	**0.933**
	5470	FAIRRA	138	7169 L_FAIROA8_1Y - 7170 L_BERGHE8_1Y - 1*	1.001	0.977	1.001	0.978	0.997	**0.931**
P2	5363	SCENIC_LOOP	138	5470 - CAP* 5470 FAIRRA - 7169 L_FAIROA8_1Y - 1	0.987	0.986	0.997	0.996	0.993	**0.919**
	5470	FAIRRA	138	5470 - CAP* 5470 FAIRRA - 7169 L_FAIROA8_1Y - 1	1.001	0.957	1.001	0.957	0.997	**0.912**
ERCOT3	5363	SCENIC_LOOP	138	7770 L_BERGHE5_1Y - 7170 L_BERGHE8_1Y - 7771 L_BERGHE1_1Y – 1 Followed by 7152 L_KENDAL8_2Y - 7153 L_WELFAR8_1Y - 1 7770 L_BERGHE5_1Y - 7046 L_KENDAL5_1Y - 1	0.987	0.989	0.997	0.997	0.993	**0.879**
	5470	FAIRRA	138		1.001	0.935	1.001	0.935	0.997	**0.892**

Based on the cost and power flow analysis described above, CPS Energy determined that connection of the Scenic Loop Substation to the existing interconnected transmission grid is most viable and less impacting to the community from a tie point on the Ranchtown to Menger Creek 138-kV transmission line located approximately five miles west of the area proposed for the Scenic Loop Substation.

Analysis of (for utilities that have not unbundled), distributed generation as alternatives to the project.

Option C considers non-wire alternatives to traditional transmission and distribution facility investments. The concept behind Distributed Energy Resources (DER) is that these alternatives will ultimately result in savings for ratepayers as utilities are able to develop DER within communities to offset or relieve local grid needs at a potentially lower cost and lower impact to the community than installation of additional distribution or transmission infrastructure. Thus, for DER to be a viable alternative to the Scenic Loop Substation project, it will need to provide similar system improvements at a reasonable cost to CPS Energy customers.

To assess the relative costs of DER as an alternative to the Scenic Loop Substation project, Solar photovoltaic (PV) generation operated in conjunction with battery storage (BESS) was compared to the CPS Energy La Sierra Substation facilities as a potential solution to reduce peak and relieve capacity on circuits.

Figure 15-3 – Relative plots of MWh Comparing Energy Supplied by Source

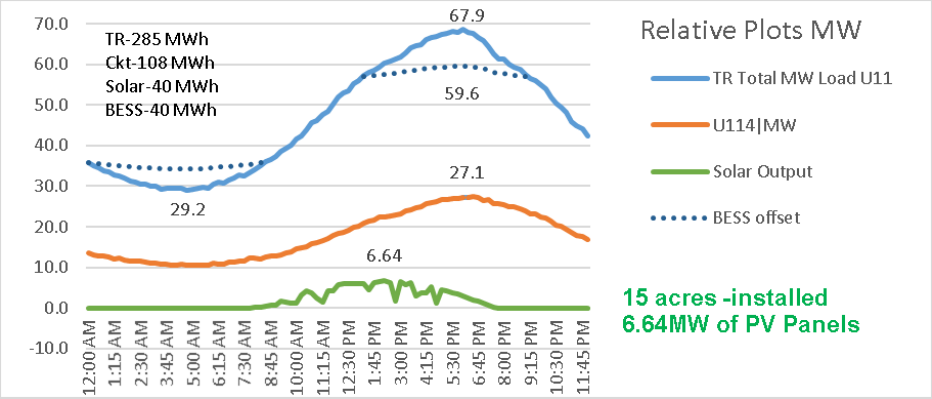


Figure 15-3 shows August 2019 Peak day demand of a transformer at La Sierra substation and one of the circuits (U114) to study the benefits and costs associated with a reduction of peak that is possible by including Solar PV and BESS as potential means to reduce circuit loadings. The plot shows an output of a 6.64 MW solar site and how including a 40 MWh BESS on one of the circuits could reduce peak load on the transformer and provide adequate demand reduction. In this example, solar provided 40 MWh of energy during the day available to reduce the demand on the station. Because the solar PV generates energy in the afternoon rather than at evening peak, energy storage is required to shift the power to the evening when demand is the highest. Storage could perform the demand reduction without solar nearby if the energy is stored using the distribution system's available capacity during low demand periods. BESS offset illustrates a demand reduction of 8.3 MW with 40 MWh of storage and the demand peak that may be flattened by applying a BESS.

Based on the example discussed above, the cost of providing a demand reduction of 8.3 MW is $15.2M ($0.38M/MWh (40 MWh). The Scenic Loop Substation is anticipated to provide a system capacity benefit of 20-25 MW initially and the cost of BESS to provide a similar benefit would be approximately $45M. In addition, the typical functional life-span of BESS is currently limited to approximately 15 years (compared to the extended lifespan of the proposed substation facilities).

The estimated cost for single axis tracking solar panels with the inverters to produce 40 MWh on a sunny day is approximately $7.5M. Replacing the 20-25 MW initial capacity of the Scenic Loop Substation would cost approximately three times that amount. In addition, using a conservative estimate of 2.5 acres per MW of solar, such a facility would require approximately 50-60 acres of available property for operation of the solar PV facility. Thus, the total cost of the installation of a 25 MW PV resource would be approximately $25M - $30M and would require at least ten times the acreage of the proposed substation. In addition to the significant $75M total cost of resources ($45M for

BESS and $30M for PV), it is also important to note that this solution will require additional station costs to interconnect the DER resources to the distribution system and will not fully alleviate existing reliability issues that are directly associated with line length and overhead line length through significant terrain and vegetation since the existing distribution circuits would remain unchanged.

Another DER option considered (Option D) was construction and operation of gas-fired generation within the project area to replace the capacity of the proposed Scenic Loop Substation. The nearest available gas pipeline to the Scenic Loop area capable of serving a gas-fired generating station is approximately five miles away. In addition, any new fossil-fueled generation would require significant water usage and environmental permits.

Based on the review of the load growth in the region, a new substation is needed in the Scenic Loop area by 2025. It is highly unlikely that any new fossil-fueled generation could be permitted and constructed in order to address the need for the area within this time frame.

Also, it should be noted that adding a generation resource to the existing circuits will still require additional switchgear and transformers and the cost would be similar to the cost of developing a new Scenic Loop Substation (in addition to the cost of the generation facility).

The cost to develop a new approximately 50 MW peaking plant (aeroderivative engine) would be approximately $60M without considering the costs to construct approximately five miles of natural gas pipeline to the plant and the costs to mitigate other constraints to make this option a viable alternative to the Scenic Loop Substation. In addition to the approximately $60M to construct the generation facility, plus the additional cost to construct the pipeline and the interconnection to the distribution system, it is also important to note that this solution will not fully alleviate existing reliability issues that are directly associated with distribution circuit line length and overhead line length through significant terrain and vegetation since the existing distribution circuits would remain significantly unchanged.

Explain how the project overcomes the insufficiencies of the other options that were considered.

As discussed above, each of the distribution, transmission, or distributed generation alternatives evaluated by CPS Energy that were considered as alternatives to the Scenic Loop Substation project either cost more than the Proposed Project or do not provide the same system capacity and reliability benefits that are achieved with the Proposed Project.

16. Schematic or Diagram:

For a standard application, provide a schematic or diagram of the applicant's transmission system in the proximate area of the project. Show the location and

voltage of existing transmission lines and substations, and the location of the construction. Locate any taps, ties, meter points, or other facilities involving other utilities on the system schematic.

Attachment 4 to the Application is a diagram of the CPS Energy transmission system in the proximate area of the Proposed Project.

17. Routing Study:

Provide a brief summary of the routing study that includes a description of the process of selecting the study area, identifying routing constraints, selecting potential line segments, and the selection of the routes. Provide a copy of the complete routing study conducted by the utility or consultant. State which route the applicant believes best addresses the requirements of PURA and P.U.C. Substantive Rules.

CPS Energy retained POWER Engineers, Inc. (POWER) to prepare the EA, included as Attachment 1 to the Application. The objective of the EA was to provide information in support of this Application in addressing the requirements of Public Utility Regulatory Act (PURA)[1] § 37.056(c)(4)(A)-(D), the PUC CCN Application form, and PUC Substantive Rule 25.101 (16 TAC § 25.101). By examining existing environmental conditions, including the human and natural resources that are located in the area of the Proposed Project, the EA evaluates the environmental effects that could result from the construction, operation, and maintenance of the Proposed Project. The EA will also be used in support of any additional local, state, or federal permitting activities that may be required for the Proposed Project.

To assist POWER in its evaluation, CPS Energy provided information regarding the project endpoints, the need for the project, engineering and design requirements, construction practices, and ROW requirements for the Proposed Project.

Selecting the Study Area

POWER, with input and assistance from CPS Energy, delineated the study area within which to review the existing environment and eventually to locate geographically diverse alternative routes. The boundaries of the study area were determined by the existing project endpoints (the possible locations of the proposed Scenic Loop Substation and the existing Ranchtown to Menger Creek 138-kV transmission line), other existing ROW (e.g., roadways and existing transmission lines), and existing cultural and land use features across the study area.

[1] Public Utility Regulatory Act, Tex. Util. Code §§ 11.001-66.016.

The final study area, shown in Figure 2-1 of the EA, is approximately 5.2 miles long by 6.1 miles wide, and encompasses an area of approximately 28 square miles (17,920 acres).

Routing Constraints

Once the study area was defined, data related to land use, aesthetics, ecology, and cultural resources were collected by POWER through: conducting ground reconnaissance; reviewing available maps and aerial photography; reviewing previous studies conducted in the area; contacting a variety of local, state, and federal agencies; and considering criteria established in PURA § 37.056(c)(4)(A)-(D), the PUC's CCN Application form, PUC Substantive Rule 25.101, and input from a public open house meeting. Using this information, the locations of sensitive features and other constraints were identified.

Selection of Potential Routing Segments

Preliminary alternative route segments were identified by evaluation of the constraints mapped for the study area and then by identifying routing opportunity areas such as existing corridors and other linear features. Through application of the PUC's routing criteria, as described above, 48 primary alternative route segments were identified and developed into potentially viable alternative routes for comparative purposes. These primary alternative route segments were further evaluated based on information received from government agencies, the public meetings, and additional public input. Ultimately, 29 alternative routes were identified for comparison. These routes were evaluated using 48 land use and environmental criteria. Impacts were evaluated by POWER for each identified alternative route. Additional forward progressing alternative routes may also be formed by configuring the various segments proposed in this Application in different ways.

Specific discussion regarding selection of the study area, identification of constraints, the selection of potential preliminary alternative route segments, and the alternative route analysis is set forth in the EA in Sections 2.0, 3.0, 4.0, and 5.0.

Selection of the alternative route the applicant believes best addresses the requirements of PURA and P.U.C. Substantive Rules

CPS Energy identified Route Z as the alternative route that it believes best addresses the requirements of PURA and the PUC Substantive Rules. CPS Energy's response is informed by a number of considerations (listed below in no particular order), including that Route Z:

- Has the lowest estimated cost of any of the 29 alternative routes at $38,330,469;
- Is the shortest of any of the 29 alternative routes at 4.58 miles in length;

- Has a relatively high percentage of ROW parallel and adjacent to existing roadways and apparent property lines at 69 percent (which is within 14 percent of the highest percentage for any route at 83 percent);
- Utilizes Substation Site 7, which will allow for greater shielding of the substation from public roadways;
- Has the second shortest length across upland woodland/brushland at 3.59 acres (compared to 3.41 acres for the lowest);
- Has a moderate area of ROW across golden-cheeked warbler modeled habitat designated as a 3-Moderate High and 4-High Quality at 9.47 acres;
- Has a moderate number of habitable structures within 300 feet of the route centerline at 30; and
- Utilizes Segment 42, which has approximately 2,059 feet of ROW that the landowner has agreed to donate to CPS Energy if a route utilizing Segment 42 is approved by the Commission (approximately 8.51 percent of Route Z).

Apart from identifying Route Z as the route that best addresses PURA and the PUC Substantive Rules for the purpose of completing this portion of the Application, CPS Energy did not rank the other alternative routes.

18. Public Meeting or Public Open House:

Provide the date and location for each public meeting or public open house that was held in accordance with 16 TAC § 22.52. Provide a summary of each public meeting or public open house including the approximate number of attendants, and a copy of any survey provided to attendants and a summary of the responses received. For each public meeting or public open house provide a description of the method of notice, a copy of any notices, and the number of notices that were mailed and/or published.

CPS Energy held an open house meeting for the Proposed Project on October 3, 2019, from 5:30 p.m. to 7:30 p.m. at the Cross Mountain Church Student Center within the study area. CPS Energy mailed written notices of the meeting to all owners of property within 300 feet of each preliminary alternative route segment centerline. Additional letters were sent to elected officials, the Department of Defense Siting Clearinghouse, and other interested parties. In total, CPS Energy mailed 592 meeting notices for the open house. In addition, a public notice of the open house meeting was published on September 22 and 29, 2019 in the *San Antonio Express News*, a newspaper having circulation within Bexar County. The public notice announced the location, time, and purpose of the meeting. A copy of the published newspaper notice is located in Appendix B of the EA.

The meeting was intended to solicit comments from interested persons and public officials concerning the Proposed Project. The meeting had the following objectives:

- Promote a better understanding of the Proposed Project, including the purpose, need, potential benefits and impacts, and PUC certification process;
- Inform the public with regard to the routing procedure, schedule, and route approval process; and
- Gather the values and concerns of the public and community leaders.

The meeting was configured in an informal information station format rather than a formal speaker/audience format, with each station assigned to a particular aspect of the project or routing process and staffed with CPS Energy or POWER personnel. These stations included maps, illustrations, photographs, and text explaining each topic. In addition, CPS Energy and POWER provided GIS computer stations to show the extent of the project, the proposed preliminary alternative route segments, Bexar Appraisal District parcel boundaries, and recent aerial photography of the project area. GIS-trained staff members were also available to answer detailed questions, such as the approximate distance from a proposed preliminary route segment centerline to the nearest corner of a habitable structure or other features of interest to the public. Attendees were encouraged to visit each station so that the entire process could be explained in the logical sequence of project development. The information station format is typically advantageous because it allows attendees to process information in a more relaxed manner, to focus on their particular area of interest, and to ask specific questions. Furthermore, the ability to have one-to-one discussions with CPS Energy or POWER personnel typically encourages more interaction from those attendees who might be hesitant to participate in a more formal speaker-audience format.

A total of 172 people signed in at the open house meeting. In some cases, only one spouse or family member signed in when more than one may have been present. All attendees were offered a questionnaire, a preliminary segment map, and a frequently asked questions document (see Appendix B of the EA). CPS Energy's ROW guide, The State of Texas Landowner's Bill of Rights, and the PUC's brochure entitled "Landowners and Transmission Line Cases at the PUC" were also available at the open house. Some attendees handed in completed questionnaires at the meeting (totaling 72), while others took questionnaires with them, acquired questionnaires from neighbors, or accessed questionnaires from CPS Energy's Scenic Loop Project website. A total of 114 additional completed questionnaires were sent to CPS Energy following the open house meeting. Thus, a total of 186 questionnaires were received by CPS Energy at or following the public open house meeting. Additionally, CPS Energy received public comments in the form of letters or emails.

Additional information concerning the public involvement program and summarizing the questionnaire results is located in Section 6, pages 6-1 through 6-46, of the EA. A representative copy of the questionnaires provided for the Proposed Project is included in Appendix B of the EA.

19. Routing Maps:

Base maps should be a full scale (one inch = not more than one mile) highway map of the county or counties involved, or other maps of comparable scale denoting sufficient cultural and natural features to permit location of all routes in the field. Provide a map (or maps) showing the study area, routing constraints, and all routes or line segments that were considered prior to the selection of the routes. Identify the routes and any existing facilities to be interconnected or coordinated with the project. Identify any taps, ties, meter points, or other facilities involving other utilities on the routing map. Show all existing transmission facilities located in the study area. Include the locations of radio transmitters and other electronic installations, airstrips, irrigated pasture or cropland, parks and recreational areas, historical and archeological sites (subject to the instructions in Question 27), and any environmentally sensitive areas (subject to the instructions in Question 29).

Provide aerial photographs of the study area displaying the date that the photographs were taken or maps that show (1) the location of each route with each route segment identified, (2) the locations of all major public roads including, as a minimum, all federal and state roadways, (3) the locations of all known habitable structures or groups of habitable structures (see Question 19 below) on properties directly affected by any route, and (4) the boundaries (approximate or estimated according to best available information if required) of all properties directly affected by any route.

For each route, cross-reference each habitable structure (or group of habitable structures) and directly affected property identified on the maps or photographs with a list of corresponding landowner names and addresses and indicate which route segment affects each structure/group or property.

Base Maps

Figure 2-4 of the EA (Appendix D), titled *Primary Alternative Segments with Environmental and Land Use Constraints*, produced at a scale of 1 inch = 1,000 feet, is provided in map pockets in the EA. These maps were produced using a U.S. Geological Survey (USGS) topographic base. They depict the study area for the project, locations of radio transmitters and other electronic installations, airports/airstrips, parks and recreational areas, historical sites, environmentally sensitive areas and other constraints. The maps also contain the alternative routes for the project. For their protection, locations of archeological sites are not shown on the maps.

Figure 4-1 of the EA (Appendix E), titled *Habitable Structures and Other Land Use Features in the Vicinity of the Primary Alternative Routes*, which consists of aerial photography produced at a scale of 1 inch = 1,000 feet, is provided in map pockets in the EA. The aerial photo-based maps include parcel boundaries identified from a review of the tax appraisal district records and combined, as appropriate, to reflect instances where

multiple parcels are owned by a single individual or group in the study area. The locations of all known habitable structures located within 300 feet of the centerline of primary alternative routes on properties directly affected by the project are also identified on Figure 4-1. The habitable structures and other land use features map (Figure 4-1, Appendix E of the EA) was produced using recent aerial photography (January 2019).

Base maps include sufficient cultural and natural features to permit location of the alternative routes in the field, and they depict existing electric transmission lines (based on information available to POWER), and major public roads located within the study area, as applicable.

Maps showing the study area and all preliminary route segments in a format similar to EA Figure 2-1 was presented at the public open house meeting.

Directly Affected Property Maps

Attachments 5 and 6 to this Application include 18 maps (utilizing aerial photography) titled *Location of Directly Affected Parcels and Habitable Structures*, that identify directly affected properties, tract IDs, and the location of habitable structures (including labels) within at least 300 feet of the centerline of the transmission line alternatives and approximate parcel boundary lines (based on tax appraisal district records). These maps show the location of each proposed alternative route with each route segment identified, and the locations of all major public roads.

Attachment 8 to this Application is a list that cross-references each habitable structure, or group of habitable structures, and directly affected properties identified on the maps provided in Attachment 6 with a list of tract IDs and corresponding landowner names and addresses. Landowner names and addresses were obtained by review of information obtained from the Bexar County Appraisal District.

20. Permits:

List any and all permits and/or approvals required by other governmental agencies for the construction of the proposed project. Indicate whether each permit has been obtained.

Upon approval of the Application by the PUC, the following permits/approvals would be required and obtained prior to the commencement of construction:

- Where the approved route of the transmission line crosses a state-maintained road or highway, CPS Energy will obtain a permit from the Texas Department of Transportation (TxDOT). If any portion of the transmission line will be accessed

from a state-maintained road or highway, CPS Energy will obtain a permit from TxDOT.

- Where the transmission line crosses a state-owned riverbed or navigable stream, CPS Energy will obtain a Miscellaneous Easement (ME) from the General Land Office (GLO).

- Since more than one acre will be disturbed during construction of the project, a Storm Water Pollution Prevention Plan (SWPPP) will be necessary. Further, because more than five acres will be disturbed, a Notice of Intent (NOI) will be prepared by CPS Energy for the Texas Commission on Environmental Quality (TCEQ). The controls specified in the SWPPP will be monitored in the field.

- Upon approval of the Application and prior to construction, a detailed Natural Resources Assessment (NRA) and Cultural Resources Assessment (CRA) will be performed on the approved route. Depending on the results of these assessments, permits or regulatory approvals may be required from the U.S. Army Corps of Engineers (USACE), U.S. Fish and Wildlife Service (USFWS), TCEQ, or Texas Historical Commission/State Historic Preservation Officer. Such permits or regulatory approvals will be obtained by CPS Energy prior to construction.

- After alignments and structure locations/heights are designed and engineered, CPS Energy will make a final determination of the need for Federal Aviation Administration (FAA) notification, based on structure locations and designs. In some areas, if necessary, CPS Energy could use lower-than-typical structure heights and could add marking and/or lighting to certain structures to avoid or accommodate FAA requirements.

- CPS Energy will report the status of the Proposed Project to the PUC on CPS Energy's Monthly Construction Progress Report, beginning with the first report following the filing of a CCN application, and in each subsequent monthly progress report until construction is completed and actual project costs have been reported. As required by the PUC, CPS Energy will submit locational and attribute data for the new facilities along the approved route after it is constructed.

21. Habitable structures:

For each route list all single-family and multi-family dwellings and related structures, mobile homes, apartment buildings, commercial structures, industrial structures, business structures, churches, hospitals, nursing homes, schools, or other structures normally inhabited by humans or intended to be inhabited by humans on a daily or regular basis within 300 feet of the centerline if the proposed project will be constructed for operation at 230kV or less, or within 500 feet of the centerline if the proposed project will be constructed for operation at greater than 230kV. Provide a general description of each habitable structure and its distance from the centerline of the route. In cities, towns or rural subdivisions, houses can be identified in groups. Provide the number of habitable structures in each group and list the distance from the centerline of the route to the closest and the farthest habitable structure in the group. Locate all listed habitable structures or groups of structures on the routing map.

The locations of habitable structures within 300 feet of the centerline of each route segment are listed and described with the approximate distance from the route segment centerline in Appendix C, Tables 4-6 through 4-34 of the EA and are shown on Figure 4-1 in Appendix E of the EA. The total numbers of habitable structures for the 29 alternative routes are provided in the table below. Column two designates the number of habitable structures within 300 feet of the ROW centerline.

Alternative Route	Total number of habitable structures within 300 feet of the centerline
A	69
B	62
C	48
D	43
E	60
F	9
G	52
H	61
I	42
J	40
K	34
L	34
M	43
N	8
O	29
P	10
Q	4
R	4
S	25
T	34

U	4
V	31
W	25
X	41
Y	38
Z	30
AA	28
BB	22
CC	52

22. Electronic Installations:

For each route, list all commercial AM radio transmitters located within 10,000 feet of the center line of the route, and all FM radio transmitters, microwave relay stations, or other similar electronic installations located within 2,000 of the center line of the route. Provide a general description of each installation and its distance from the center line of the route. Locate all listed installations on a routing map.

There are no known commercial AM radio transmitters located within 10,000 feet of any of the 29 alternative routes. There are two known communication towers (FM radio transmitters, microwave towers, or other electronic communications towers) that are located within 2,000 feet of the alternative routes. A listing, description, and approximate distance from the centerline of each of the alternative routes are presented in Table 4-3 and in Appendix C, Tables 4-6 through 4-34 of the EA, and the locations of these electronic installations are shown on Figures 2-4 (Appendix D) and 4-1 (Appendix E) of the EA.

For additional information on electronic installations, see Section 3.2.4 and Section 4.2.4 of the EA. None of the alternative routes filed in this Application are anticipated to have any impact on the existing communication towers.

23. Airstrips:

For each route, list all known private airstrips within 10,000 feet of the center line of the project. List all airports registered with the Federal Aviation Administration (FAA) with at least one runway more than 3,200 feet in length that are located within 20,000 feet of the center line of any route. For each such airport, indicate whether any transmission structures will exceed a 100:1 horizontal slope (one foot in height for each 100 feet in distance) from the closest point of the closest runway. List all listed airports registered with the FAA having no runway more than 3,200 feet in length that are located within 10,000 feet of the center line of any route. For each such airport, indicate whether any transmission structures will exceed a 50:1 horizontal slope from the closest point of the closest runway. List all heliports located within 5,000 feet of the center line of any route. For each such heliport, indicate whether any transmission structures will exceed a 25:1 horizontal slope from the closest point of the closest landing and takeoff area of the heliport. Provide a general description of each listed private airstrip, registered airport, and heliport; and state the distance of each from the center line of each route. Locate and identify all listed airstrips, airports, and heliports on a routing map.

POWER's review of federal and state aviation/airport maps and directories, aerial photo interpretation and reconnaissance surveys, as well as information received from the TxDOT Division of Aviation, identified no FAA registered heliports located within 5,000 feet of the centerline of any of the 29 alternative routes, one FAA registered public or military airport with a runway longer than 3,200 feet within 20,000 feet of the routes, and no FAA registered public or military airports with runways shorter than 3,200 feet within 10,000 feet of the routes. No private airstrips were identified within 10,000 feet of the centerline of any of the alternative routes. No private heliports were identified within 5,000 feet of the centerline of any of the alternative routes.

Each airport/airstrip/heliport is listed and described with the approximate distance from the centerline of each of the alternative routes in Appendix C, Tables 4-6 through 4-34 of the EA. These facilities are shown on Figures 2-4 (Appendix D) and 4-1 (Appendix E) of the EA.

For additional information on airports/airstrips, see Section 3.2.3 and Section 4.2.3 of the EA. No significant impacts to these airports/airstrips/heliports are anticipated from construction of the Proposed Project. Following approval of a route by the PUC, CPS Energy will make a final determination of the need for FAA notification, based on specific route location and structure design. The result of this notification, and any subsequent coordination with FAA, could include changes in the line design and/or potential requirements to mark and/or light the structures.

24. Irrigation Systems:

For each route identify any pasture or cropland irrigated by traveling irrigation systems (rolling or pivot type) that will be traversed by the route. Provide a description of the irrigated land and state how it will be affected by each route (number and type of structures etc.). Locate any such irrigated pasture or cropland on a routing map.

Based on POWER's review of aerial photography and field reconnaissance, none of the 29 alternative routes for the Proposed Project cross any known cropland or pastureland irrigated by traveling irrigation systems, either rolling or pivot type.

25. Notice:

Notice is to be provided in accordance with 16 TAC 22.52.

A. Provide a copy of the written direct notice to owners of directly affected land. Attach a list of the names and addresses of the owners of directly affected land receiving notice.

A copy of the written notice, with attachments, mailed to owners of directly-affected land is included as Attachment 7 to the Application. A list of the names and addresses of those owners of directly affected land to whom notice was mailed by first-class mail is included as Attachment 8 to this Application. Landowners of record and their mailing addresses were determined by review of information obtained from the Bexar County Appraisal District.

B. Provide a copy of the written notice to utilities that are located within five miles of the routes.

A copy of the written notice sent to utilities located within five miles of the Proposed Project is included as Attachment 9 to this Application. The names and addresses of utilities to whom written notice was sent are included in Attachment 10 to this Application.

C. Provide a copy of the written notice to county and municipal authorities, and the Department of Defense Siting Clearinghouse. Notice to the DoD Siting Clearinghouse should be provided at the email address found at http://www.acq.osd.mil/dodsc/.

A copy of the written notice sent to county and municipal authorities and the Department of Defense Siting Clearinghouse is included as Attachment 9 to this Application. The names and addresses of county and municipal authorities and the Department of Defense Siting Clearinghouse to whom the written notices were sent are included in Attachment 10 to this Application. The same notice was sent

to utilities, counties, municipal authorities, and the Department of Defense Siting Clearinghouse. CPS Energy additionally sent notification of the application to independent school districts within the study area, state and federal elected officials, and TxDOT Area Engineers. A listing of all officials and agencies sent notice of the Application is included in Attachment 10. The Texas Office of Public Utility Counsel was hand delivered a notice of the Application in accordance with the provisions of 16 TAC 22.74(b).

D. Provide a copy of the notice that is to be published in newspapers of general circulation in the counties in which the facilities are to be constructed. Attach a list of the newspapers that will publish the notice for this application. After the notice is published, provide the publisher's affidavits and tear sheets.

A copy of the public notice that will be published in the *San Antonio Express News* (a newspaper of general circulation in Bexar County where the transmission facilities are to be constructed) once for one week after the Application is filed with the PUC is included as Attachment 11 to the Application. Publisher's affidavits and tear sheets will be filed with the PUC showing proof of notice as soon as available after filing of the Application.

For a CREZ application, in addition to the requirements of 16 TAC § 22.52 the applicant shall, not less than twenty-one (21) days before the filing of the application, submit to the Commission staff a "generic" copy of each type of alternative published and written notice for review. Staff's comments, if any, regarding the alternative notices will be provided to the applicant not later than seven days after receipt by Staff of the alternative notices, Applicant may take into consideration any comments made by Commission staff before the notices are published or sent by mail.

Not applicable.

26. Parks and Recreation Areas:

For each route, list all parks and recreational areas owned by a governmental body or an organized group, club, or church and located within 1,000 feet of the center line of the route. Provide a general description of each area and its distance from the center line. Identify the owner of the park or recreational area (public agency, church, club, etc.). List the sources used to identify the parks and recreational areas. Locate the listed sites on a routing map.

POWER reviewed USGS topographic maps, TxDOT county highway maps, recent aerial photography, and field reconnaissance to identify parks and recreation areas within the study area. Based on this review, POWER identified no parks or recreation areas located within 1,000 feet of the centerline of any of the 29 alternative routes.

For more information on parks and recreational areas see Section 3.3 and Section 4.3 of the EA. No significant impacts to the use of the parks and recreation facilities located within the study area are anticipated from any of the alternative routes.

27. Historical and Archeological Sites:

For each route, list all historical and archeological sites known to be within 1,000 feet of the center line of the route. Include a description of each site and its distance from the center line. List the sources (national, state or local commission or societies) used to identify the sites. Locate all historical sites on a routing map. For the protection of the sites, archeological sites need not be shown on maps.

POWER conducted a literature review and records search at the Texas Historical Commission and The Texas Archeological Research Laboratory at the University of Texas at Austin to identify known historical and archeological sites located within 1,000 feet of the centerline of each of the 29 alternative routes. For more information regarding site descriptions and the evaluation of the historical and archeological sites located within the study area, see Section 3.5 and Section 4.5 of the EA.

Based on POWER's review, 17 recorded archeological sites and three NRHP-listed resources are located within 1,000 feet of the centerline of one or more of the alternative routes. Four of the identified sites are within the potential ROW of an alternative route. These sites are listed and described with the approximate distance from the centerline for each of the alternative routes in Tables 4-4 and 4-5 and Appendix C, Tables 4-6 through 4-34 of the EA. For the protection of these sites, they are not shown on the routing maps.

28. Coastal Management Program:

For each route, indicate whether the route is located, either in whole or in part, within the coastal management program boundary as defined in 31 TAC §503.1. If any route is, either in whole or in part, within the coastal management program boundary, indicate whether any part of the route is seaward of the Coastal Facilities Designation Line as defined in 31 TAC §19.2(a)(21). Using the designations in 31 TAC §501.3(b), identify the type(s) of Coastal Natural Resource Area(s) impacted by any part of the route and/or facilities.

No part of any primary alternative route is located within the Coastal Management Program boundary, as defined in 31 TAC § 503.1.

29. Environmental Impact:

Provide copies of any and all environmental impact studies and/or assessments of the project. If no formal study was conducted for this project, explain how the routing and construction of this project will impact the environment. List the sources used to identify the existence or absence of sensitive environmental areas. Locate any environmentally sensitive areas on a routing map. In some instances, the location of the environmentally sensitive areas or the location of protected or endangered species should not be included on maps to ensure preservation of the areas or species. Within seven days after filing the application for the project, provide a copy of each environmental impact study and/or assessment to the Texas Parks and Wildlife Department (TPWD) for its review at the address below. Include with this application a copy of the letter of transmittal with which the studies/assessments were or will be sent to the TPWD.

Wildlife Habitat Assessment Program
Wildlife Division
Texas Parks and Wildlife Department
4200 Smith School Road
Austin, Texas 78744

The applicant shall file an affidavit confirming that the letter of transmittal and studies/assessments were sent to TPWD.

The EA describes the natural resources, cultural resources, land uses, and other sensitive areas that may occur within the study area. The EA also describes how the Proposed Project may impact such resources. Specifically, the EA includes data obtained from TPWD, including the Texas Natural Diversity Database (TXNDD) and a list of Ecologically Significant Stream Segments (ESSS) in the study area.

CPS Energy will hand deliver a copy of the EA to TPWD on the date the Application is filed. A copy of the letter of transmittal of the EA to TPWD is provided as Attachment 12

to this Application. An affidavit confirming that the letter of transmittal and a copy of the EA were sent to TPWD will be filed with the PUC.

30. Affidavit

Attach a sworn affidavit from a qualified individual authorized by the applicant to verify and affirm that, to the best of their knowledge, all information provided, statements made, and matters set forth in this application and attachments are true and correct.

A sworn affidavit is attached below.

AFFIDAVIT OF ADAM R. MARIN, PE

STATE OF TEXAS §
§
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Before me, the undersigned authority, Adam R. Marin, PE, being first duly sworn, deposes and states:

"My name is Adam R. Marin, PE. I am the Regulatory Case Manager for the City Public Service Board (CPS Energy). I am over the age of twenty-one, and am competent to make the following affidavit:

On behalf of CPS Energy and in my capacity as Regulatory Case Manager on the Scenic Loop 138-kV Transmission Line Project, I am authorized to file and verify the CCN Application for CPS Energy. I am personally familiar with the documents filed with this application, and I have complied with all the requirements contained in the application; furthermore, all such statements made and matters set forth herein with respect to CPS Energy are true and correct."

Adam R. Marin, PE
Affiant

SUBSCRIBED AND SWORN TO BEFORE ME, a Notary Public in and for the State of Texas, this 15th day of July, 2020.

BRENDA MARTINEZ
Notary Public, State of Texas
Comm. Expires 11-30-2020
Notary ID 1217965-2

Notary Public