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DOCKET NO. 57579

APPLICATION OF CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC FOR APPROVAL OF ITS 2026-2028 TRANSMISSION AND DISTRIBUTION SYSTEM RESILIENCY PLAN	§ § § § §	**PUBLIC UTILITY COMMISSION OF TEXAS**

APPLICATION OF CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC FOR APPROVAL OF ITS 2026-2028 TRANSMISSION AND DISTRIBUTION SYSTEM RESILIENCY PLAN

CenterPoint Energy Houston Electric, LLC ("CenterPoint Houston" or the "Company") requests that the Public Utility Commission of Texas ("Commission") approve the Company's 2026-2028 Transmission and Distribution System Resiliency Plan (the "System Resiliency Plan"). In support of its Application and request, the Company states the following:

I. SUMMARY

In 2023, the 88th Texas Legislature passed and the Governor signed into law H.B. 2555,[1] which created Public Utility Regulatory Act ("PURA") § 38.078 and permits an electric utility to request Commission approval of the electric utility's transmission and distribution system resiliency plan. In passing H.B. 2555, the 88th Legislature made the following findings:

- Protecting electrical transmission and distribution infrastructure from extreme weather conditions can effectively reduce system restoration costs to and outage times for customers and improve system resiliency and overall service reliability for customers;
- It is in the state's interest for each electric utility to seek to mitigate system restoration costs to and outage times for customers when developing plans to enhance electrical transmission and distribution infrastructure storm resiliency; and
- All customers benefit from reduced system restoration costs.[2]

With these specific legislative findings in mind and consistent with the Company's past, current, and future focus on and prioritization of resiliency-related projects, the Company has developed

[1] H.B. 2555, 88th Leg., R.S. (2023).

[2] *Id.*, Section 1, Subsections (3)-(5).

its System Resiliency Plan to mitigate the impact of certain Resiliency Event[3]-related impacts that have occurred and will occur in the future in the Company's service area. The following table summarizes the Resiliency Event categories related to system hardening, grid modernization, undergrounding, flood control, information technology, physical security, vegetation management and wildfire mitigation in the Company's System Resiliency Plan and the anticipated customer minutes of interruption (CMI) savings.

Figure APP-1.

Resiliency Event Categories, Costs, and 3-Year CMI Savings

Resiliency Event (Category)	Estimated Capital Costs (millions)	Estimated Incremental O&M Expense (millions)	Estimated 3-Year CMI Savings (millions)
Extreme Wind	$3,864.6	$148.1	1,055.7
Extreme Water	$91.6	-	11.0
Extreme Temperature (Freeze)	$53.5	$2.6	5.3
Extreme Temperature (Heat)	$1,207.2	$37.2	183.1
Physical Attack	$37.4	$0.1	42.7
Technology & Cybersecurity	$79.6	$13.5	N/A
Situational Awareness	$209.6	$9.2	10.8
Total	**$5,543.3**	**$210.7**	**1,308.6**

Note: As noted in the System Resiliency Plan for some measures, the Company may accelerate certain measures subject to available funding, personnel and materials. Also, some measures may extend beyond the three-year period, and thus there may be additional capital costs and additional incremental O&M expenses beyond the three-year period; therefore, the above estimates of capital costs, expenses and timeframe could vary as detailed in the System Resiliency Plan.

As summarized above, and as confirmed by the Company's independent, third-party expert, the Company anticipates that the System Resiliency Plan will save approximately 1.3 billion CMI. The Company requests that the Commission approve the Company's System Resiliency Plan and the corresponding Resiliency Measures.[4] The Company also requests that the Commission approve the proposed utility-scale microgrid pilot program and associated study, design, implementation, and operation costs and include certain accounting language in any Commission order approving the Company's System Resiliency Plan permitting the Company to establish a

[3] As defined by 16 Tex. Admin. Code § 25.62(b)(3).
[4] As defined by 16 Tex. Admin. Code § 25.62(c)(1).

regulatory asset for deferral of distribution-related costs, as permitted by PURA § 38.078(k). Finally, the Company requests language in any Commission order approving the System Resiliency Plan that would provide the Company the flexibility to immediately begin implementation of all or portions of the System Resiliency Plan, as labor and material allow.

II. JURISDICTION AND NOTICE

The Commission has jurisdiction of this proceeding under PURA §§ 14.151 and 38.078. As required by 16 Tex. Admin. Code ("TAC") § 25.62(d)(1)(A)-(E), the Company will provide notice of this proceeding to:

- All municipalities in the Company's service area that have retained original jurisdiction;
- All parties in the Company's most recent base-rate proceeding;
- The Office of Public Utility Counsel; and
- The Electric Reliability Council of Texas ("ERCOT").

III. AUTHORIZED REPRESENTATIVES

The telephone number and address of CenterPoint Houston's authorized business representative are as follows:

Stacey Murphree
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Manager, Regulatory and Rates
1111 Louisiana Street, 19th Floor
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stacey.murphree@centerpointenergy.com

The telephone numbers and addresses of CenterPoint Houston's authorized legal representatives are:

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Vice President, Associate General Counsel
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Houston, Texas 77002
(713) 229-1234
james.barkley@bakerbotts.com

CenterPoint Houston requests that all information and documents in this filing be served on each of the persons above at their respective physical or email addresses.

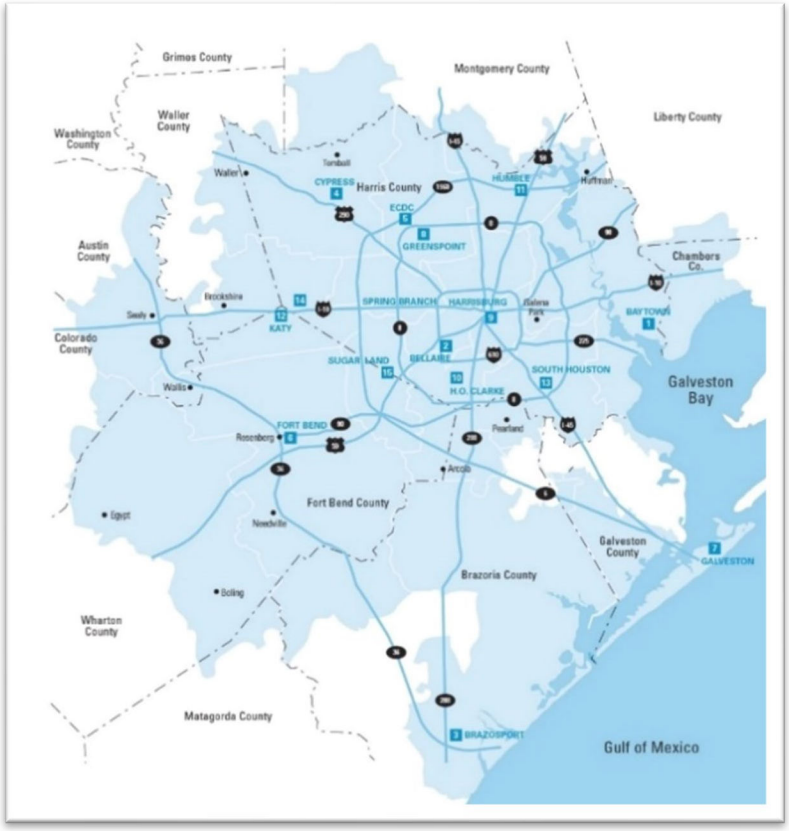
IV. GENERAL OVERVIEW

A. Overview of the Company's Service Area, Customer Profile, and Customer Growth

The Company's service area is comprised of approximately 5,000 square miles located in and around the Greater Houston Area and the Texas Gulf Coast. The map below generally illustrates the Company's service area.

Figure APP-2.

Company Service Area

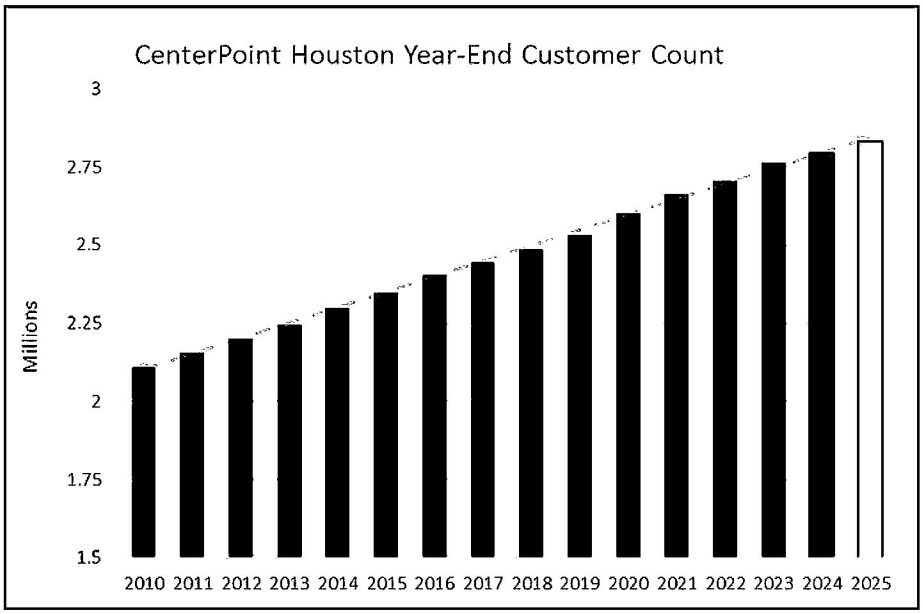


While the Company's service area is only approximately 2% of the geographic area of Texas, the Company's customers account for 25% of the load in the ERCOT power region. This is due to the large number of customers within the Company's service footprint. As such, the Company currently provides electric delivery service to approximately 2.8 million residential, commercial, and industrial customers. Among the Company's customers are also several important public-serving facilities and infrastructure such as the Texas Medical Center, the Port of Houston, the George Bush Intercontinental Airport, and William P. Hobby Airport, as well as several chemical refining facilities that consume large amounts of electricity.

The Company's current customer count of approximately 2.8 million customers is the result of rapid and sustained customer growth over the past decade. Consistent with the past rapid and sustained growth, the customer growth in the Company's service area is anticipated to continue growing by 2% annually for the foreseeable future. The chart below illustrates the customer growth in the Company's service area.

Figure APP-3.

2010-2025 Customer Growth



B. The Company's Commitment to Enhancing Resiliency

The Company has an obligation and a commitment to provide safe and reliable electric delivery service to the customers in the Company's service area, which includes making necessary capital expenditures to meet the needs of the past and future rapid and sustained customer growth. Another component of the Company's obligation and commitment to provide safe and reliable electric delivery service is making capital expenditures to enhance the resiliency of the Company's transmission and distribution system, as expected by customers and regulators. For example, from 2020-2023, the Company invested approximately $1.3 billion in capital expenditures for resiliency-related system hardening and modernization projects. The following table provides examples of resiliency-related system hardening, modernization, and flood mitigation projects related to system hardening and modernization that were implemented by the Company from 2020-2023 with their corresponding capital costs.

Figure APP-4.

2020-2023 Resiliency-Related Projects and Costs

Description	2020	2021	2022	2023	Total
IGSD Installation	1	5	12	13	$ 31
Transmission System Hardening	12	159	274	166	$ 611
Substation Elevation	18	13	20	20	$ 71
Distribution Pole Replacement/Bracing	29	30	61	52	$ 172
Substation Security	5	20	24	10	$ 59
S90 Tower Replacements	3	20	55	14	$ 92
69/138 kV Conversions	16	3	49	90	$ 158
Distribution Resiliency - Circuit Rebuild	-	-	40	40	$ 80
Distribution Resiliency - TripSaver	-	-	7	5	$ 12
Total 2020 - 2023	**$ 84**	**$ 250**	**$ 542**	**$ 410**	**$ 1,286**

In addition to making capital expenditures related to resiliency, the Company has also engaged in vegetation management. Figure APP-5 below summarizes the approximate amount the Company spent on vegetation management from 2020-2023, as reported in the annual Vegetation Management report that is filed with the Commission in Project No. 41381.

Figure APP-5.

2020-2023 Vegetation Management-Related Projects and Costs

Description	2020	2021	2022	2023	Total
Scheduled VM (Proactive Tree Trimming)	25.2	26.5	28.2	35.6	$ 115.5
Unscheduled VM (Reactive Tree Trimming)	3.6	3.5	3.7	5.5	$ 16.3
Tree Risk Management (Proactive Hazard Tree Removal)	0.1	0.2	0.9	3.7	$ 4.8
Emergency and Post-Storm Activities	0.7	1.2	1.8	1.0	$ 4.7
Total 2020 - 2023	**$ 29.6**	**$ 31.4**	**$ 34.6**	**$ 45.8**	**$ 141.4**

During 2024, the Company experienced two significant weather events——a derecho which occurred on May 16th and Hurricane Beryl, which made landfall on July 8th. In response, the Company established the Greater Houston Resiliency Initiative ("GHRI"), a set of commitments to enhance the resiliency of the transmission and distribution system, improve communications with customers, and strengthen community partnerships. The first phase of GHRI work included the installation of stronger, more resilient distribution poles, conducting incremental vegetation management by trimming and removing vegetation on high-risk distribution circuits, and the

installation of automated devices. Figure APP-6 below summarizes the resiliency-related efforts that were completed by August 27, 2024.

Figure APP-6.
GHRI Phase I Resiliency-Related Efforts

August 28, 2024 Taking Action Now to Reduce Outages	Completed August 27	Progress to Date	August Target
Installing stronger and more storm-resilient poles	WORK COMPLETE	1,133 poles	1,000 poles
Trimming or removing higher-risk vegetation	WORK COMPLETE	2,026 power line miles	2,000 power line miles
Installing automated devices, known as trip savers	WORK COMPLETE	307 devices	300 devices

The second phase of GHRI work builds on these prior efforts and anticipates additional work to be completed by June 1, 2025, prior to the 2025 hurricane season. Figure APP-7 below provides a status of the work completed as of January 5, 2025.

Figure APP-7.
GHRI Phase II Resiliency-Related Efforts

Near-Term Actions to Improve Resiliency	As of Jan. 5, 2025	Target by June 1, 2025
Install new poles or replace existing wooden poles with stronger ones, including composite, capable of withstanding extreme winds (Coastal: 132 mph standard; Inland: 110 mph standard)	9,516 poles	25,000 poles
Install automated reliability devices to reduce sustained interruptions in major storm events and reduce restoration times	Scheduled to begin early 2025	4,500 automated reliability devices
Install Intelligent Grid Switching Devices (IGSDs)	71 IGSDs	350 IGSDs
Trim or remove vegetation from distribution line miles with higher-risk vegetation across our system	1,448 miles	4,000 miles
Undergrounding of power lines	197 miles	400 miles
Install new weather monitoring stations	Scheduled to begin early 2025	100 stations

During calendar year 2024, the Company conducted vegetation management on approximately 3,230 miles of line, including trimming or removing higher-risk vegetation. In total, the Company anticipates the resiliency-related actions in Phase One and Phase Two of the GHRI will lead to more than 125 million fewer customer outage minutes.

This forward-looking System Resiliency Plan aims to further enhance the resiliency of the Company's transmission and distribution system during the three-year period of 2026–2028. The Company will continue to make resiliency-related investment well past 2028 to cement its position as the most resilient coastal utility within the U.S. and enhancing service for all our customers.

C. Customer Value

The Company believes it is important to focus not only on the overall cost of providing its services (its revenue requirement), but also the cost of the Company's services to the average residential customer (its rates). Rates impact the ability of individual customers to afford electric service. From 2014 - 2023, CenterPoint Houston's portion of the customer electric bill has grown by 3%, substantially lower than multiple inflation metrics. Figure APP-8 below shows CenterPoint Houston's 10-year growth in T&D rates next to various measures of inflation and price increases.

Figure APP-8

2014 – 2023 CenterPoint Houston T&D Rates and Inflation Measurements

CenterPoint Houston T&D rates	**+3%**
National Consumer Price Index CPI	+27%
National primary energy	+24%
National electricity	+28%
Houston Consumer Price Index (CPI)	+25%
Texas total electricity	+22%
Texas electric energy charges	+35%
Houston median income	+37%

According to T&D rates archived by the PUCT, Texas utilities' T&D rates increased 18% from 2014 - 2023. Again, over that same period, CenterPoint Houston's T&D rates increased by a mere 3%.

As a share of median income and total electric bills, the CenterPoint Houston territory currently has the lowest T&D charge in Texas. Figure APP-9 below compares the share of service territory median income to the T&D charges of a 1000 kWh / month residential customer for CenterPoint Houston and takes a straight-line average for all Texas T&D companies. Figure APP-10 below does the same for total electric bills.

Figure APP-9

CenterPoint Houston and Average Texas T&D Share of Median Income

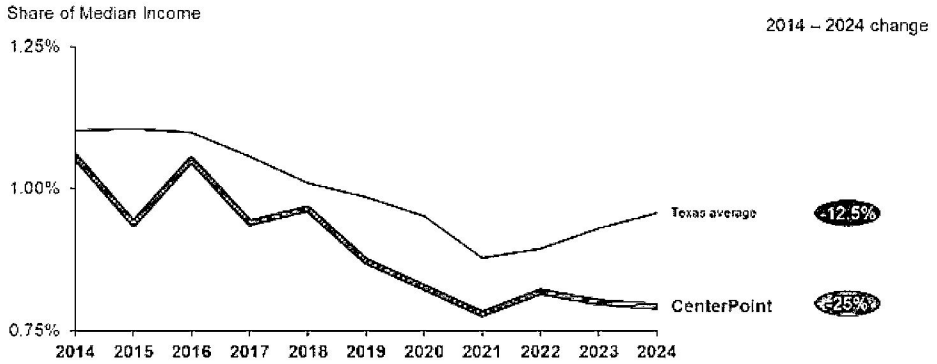
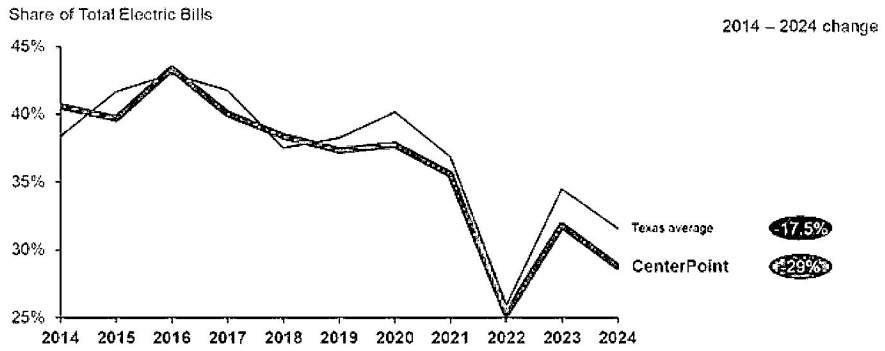


Figure APP-10

CenterPoint Houston and Average Texas T&D Share of Total Electric Bills



Making sense of these statistics, about 0.8% of median income is needed for a 1000 kWh a month bill in the CenterPoint Houston territory, which is 20% below the Texas average of about 1%. The CenterPoint Houston territory share of the total electric bill is about 29%, compared to approximately 32% for the Texas average.

In the past, capital increases came at a time when various transition and storm recovery charges were being retired. These retirements significantly helped offset the impact of customer rate increases due to the system investments. However, the last transition charge ended in October 2024, meaning there are no retiring transition charges left to offset the impacts of future

necessary investments. Additionally, starting in 2025, system restoration charges associated with Hurricane Beryl and the May storms will potentially impact customer bills. While these securitizations increase total charges, their financial structure and recovery timeline help to reduce overall rates.

To help minimize rate impacts CenterPoint Houston has also worked to identify and pursue opportunities to obtain federal funding to offset the cost of its resiliency investments. The Company details in the System Resiliency Plan which resiliency interventions the company has applied for grants towards and will continue to do so as available in the future.

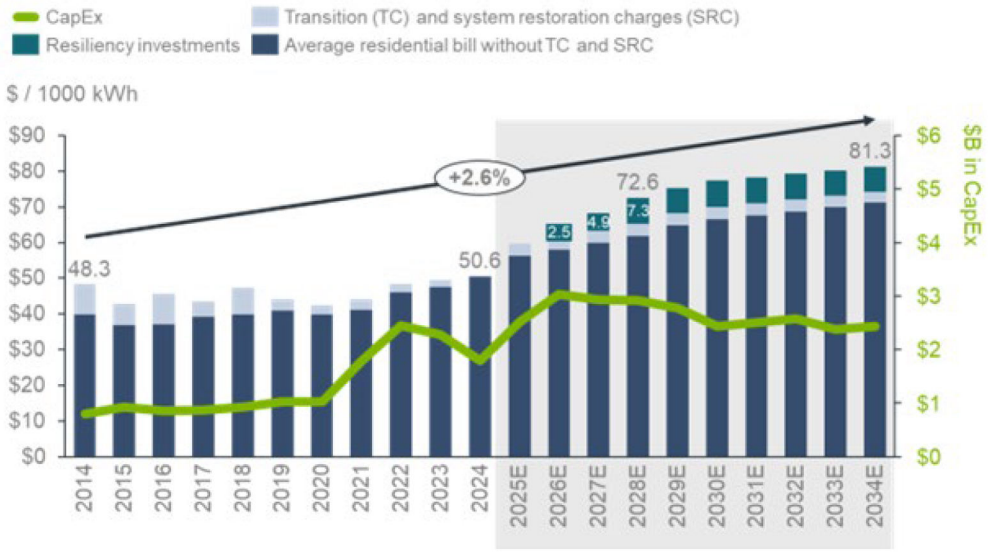
The Company expects that customer growth will also help reduce upward pressure on customer bills. As further detailed in the Company's direct testimony, organic customer growth in the Greater Houston area allows the Company to spread capital investments across a larger customer base and thereby helps customer affordability.

With the Company's proposed $5.5 billion in system resiliency capital investment between 2026 - 2028, bills will increase by approximately $7.33 per month over that period. Based on publicly available capital plans of other Texas T&D utilities, the per year growth is projected to be in line with peers on a percentage basis, reflecting a change that impacts all utilities. Additionally, this outlook does not account for the potential positive impacts that resiliency spending may have on bills in the future. According to a third-party analysis conducted by Guidehouse, the SRP is expected to save $43 million in storm restoration per year. Applying a simple spread across 2.8 million customers, that equates to a projected savings of approximately $1.28 per month.

Accounting for all of these factors, over the long term, we expect bill increases to follow inflation. Note that adjustments to the capital plan and other variables, like those coming out of the latest rate case, may continue to be made over the course of time. With these caveats in mind, Figure APP-11 below projects the residential customer bill impact of the resiliency plan on a 1000 kWh / month household.

Figure APP-11

CenterPoint Houston Historical and Projected Residential T&D Portion of Electric Bills



D. Resiliency Events in the Company's Service Area

Because of the proximity of the Company's service area to the Texas Gulf Coast, the Resiliency Events that typically occur and have occurred in the Company's service area are primarily related to extreme weather events, specifically extreme heat, high winds, heavy rains, lightning, flooding, tropical storms, tornadic activity, hurricanes, and freezes. Notable extreme weather event-related Resiliency Events in the Company's service area are Hurricane Ike in 2008, a thunderstorm and wind event in 2013, flooding in 2015, Hurricane Harvey in 2017, a microburst event in 2017, an ice storm in 2018, tornadoes in 2019, Winter Storm Uri in 2021, Hurricane Nicholas in 2021, a tornado in 2022, a tornado in 2023, and a microburst event in 2023. Figure APP-12 below summarizes the extreme weather-related Resiliency Events that occurred in the Company's service area since 2020.

Figure APP-12.

2020-2024 Extreme Weather-Related Resiliency Events

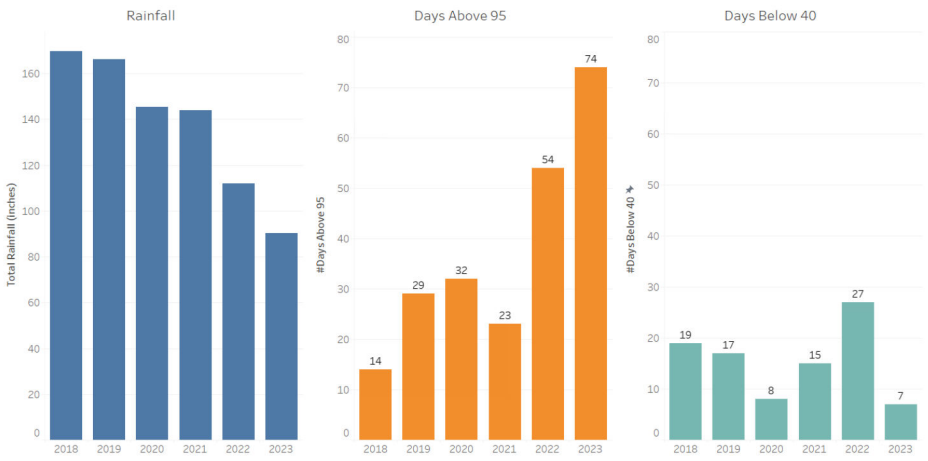
Year	Date	Total Customers Affected	Restoration Time
2020	April 29th	256,057	16 hours, 15 minutes
	May 15th-16th	114,575	28 hours, 5 minutes
	May 27th-29th	423,000	32 hours, 15 minutes
2021	February 14th-19th	8,127,986	116 hours, 40 minutes

Year	Date	Total Customers Affected	Restoration Time
	September 17th-18th	706,429	120 hours, 5 minutes
	October 28th-29th	308,585	32 hours, 55 minutes
2022	January 8th-9th	79,138	27 hours, 20 minutes
	March 22nd	49,743	5 hours, 40 minutes
2023	January 24th-26th	207,547	57 hours, 10 minutes
	May 14th	53,985	9 hours, 50 minutes
	June 8th-10th	362,363	34 hours
	June 21st-25th	574,582	77 hours, 40 minutes
2024	January 5th	141	5 hours, 52 minutes
	April 10th-11th	288,203	24 hours, 30 minutes
	May 2nd-3rd	239,411	36 hours, 4 minutes
	May 5th	2,951	30 minutes
	May 16th-24th	1.23 million	190 hours, 40 minutes
	May 28th-May 30th	508,666	54 hours, 32 minutes
	July 8th-July 19th	3.47 million	278 hours, 20 minutes
	Dec 28th	26,142	31 hours, 46 minutes

In addition to extreme weather events, the Company's service area also experiences heavy precipitation and extreme temperatures. The following graph, Figure APP-13, summarizes the precipitation and temperature changes in the Company's service area from 2018 to 2023.

Figure APP-13.

2018-2023 Total Rainfall and Extreme Temperature Days



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Many of the Resiliency Measures in the Company's System Resiliency Plan will address and mitigate the impacts of extreme weather-related Resiliency Events. For example, the Company proposes to harden its transmission and distribution system by replacing and/or upgrading structures and poles to meet the Company's current wind loading standards. Likewise, the Company proposes to install additional Intelligent Grid Switching Devices on the Company's distribution system, thus mitigating the number and duration of outages caused by an extreme weather-related Resiliency Event and facilitating quicker restoration times. In addition to mitigating the impact of extreme weather-related Resiliency Events, the Company also proposes Resiliency Measures that will enhance the Company's physical security and cybersecurity posture.

V. OVERVIEW OF THE COMPANY'S REQUEST

A. Overview of the Petition

This Petition contains the following exhibits:

- Exhibit 1: The Company's Transmission & Distribution System Resiliency Plan;
- Exhibit 2: The Direct Testimony of Company witness Nathan Brownell;
- Exhibit 3: The Direct Testimony of Company witness Deryl Tumlinson;
- Exhibit 4: The Direct Testimony of Company witness David Mercado;
- Exhibit 5: The Direct Testimony of Company witness Randy Pryor;
- Exhibit 6: The Direct Testimony of Company witness Eric Easton;
- Exhibit 7: The Direct Testimony of Company witness Ronald W. Bahr;
- Exhibit 8: The Direct Testimony of Company witness Christopher Ford;
- Exhibit 9: The Direct Testimony of Company witness Brad A. Tutunjian;
- Exhibit 10: The Direct Testimony of Company witness Mussadiq Akram;
- Exhibit 11: The Direct Testimony of Company witness Jeff. W. Garmon;
- Exhibit 12: The Direct Testimony of Guidehouse witness Eugene L. Shlatz, including Exhibit ELS-2, an expert report from Guidehouse Inc. ("Guidehouse"), a third-party, independent expert consultant retained by the Company to evaluate the Company's System Resiliency Plan;
- Exhibit 13: The Direct Testimony of Guidehouse witness Dr. Joseph B. Baugh;
- Exhibit 14: The Company's proposed form of notice for this proceeding; and

- Exhibit 15: The Company's proposed protective order.

A summary of each witness' testimony is provided in Figure APP-14 below:

Figure APP-14.

Witnesses and Corresponding Testimony Subjects

Witness	Testimony Subject
Mr. Nathan Brownell	Overall Policy and Strategy
Mr. Deryl Tumlinson	Overhead Distribution System
Mr. David Mercado	Transmission System and Substations
Mr. Randy Pryor	Strategic Undergrounding and Vegetation Management
Mr. Eric Easton	Damage Prediction, Use of Advanced Analytics, and Wildfire Mitigation
Mr. Ronald Bahr	Information Technology
Mr. Christopher Ford	Cybersecurity Operations
Mr. Brad Tutunjian	Microgrid Pilot Program
Mr. Muss Akram	Customer Value
Mr. Jeff Garman	Accounting Treatment
Mr. Eugene Shlatz	Guidehouse Independent Expert Witness supporting Operational Resiliency Measures
Dr. Joseph Baugh	Guidehouse Independent Expert Witness supporting Technology and Cybersecurity Resiliency Measures

B. Overview of the Company's System Resiliency Plan

The Company's System Resiliency Plan has thirty-nine (39) Resiliency Measures that, in total, will harden and modernize the Company's transmission and distribution system; implement flood mitigation measures; enhance the Company's information technology, including information technology used in support of operations; enhance the physical security of the Company's substations; proactively conduct vegetation management on select distribution circuits; and mitigate the identified risk of wildfires. Additionally, as part of the Company's System Resiliency Plan, the Company is proposing a pilot program that would assess the extent to which utility-scale microgrids may assist in restoration efforts during a Resiliency Event. The Company estimates that the thirty-nine (39) Resiliency Measures will cost approximately $5.543 billion in capital costs and will cost approximately $210.7 million in incremental O&M expense over the three-year period from 2026-2028.[5] Figure APP-15 below summarizes each Resiliency Measure and the proposed Microgrid Pilot Project in the Company's System Resiliency Plan.

Figure APP-15.
Resiliency Measures, Costs, and 3-Year CMI Savings

Resiliency Measure	Estimated Capital Costs (millions)	Estimated Incremental O&M Expense (millions)	Estimated 3-Year CMI Savings (millions)
Extreme Wind			
Distribution Circuit Resiliency (RM-1)	$513.4	-	263.0
Strategic Undergrounding (RM-2)	$860.0	-	81.1
Restoration IGSD (RM-3)	$107.3	$0.5	97.0
Distribution Pole Replacement/Bracing Program (RM-4)	$251.6	-	121.0
Vegetation Management (RM-5)	-	$146.1	137.0
Transmission System Hardening (RM-6)	$1,467.3	$0.8	223.8
69kV Conversion Projects (RM-7)	$369.3	-	65.5
S90 Tower Replacements (RM-8)	$118.4	-	59.5
Coastal Resiliency Projects (RM-9)	$177.4	$0.8	7.8
Extreme Water			

[5] Some Resiliency Measures in the Company's System Resiliency Plan may extend beyond the three-year period and thus there may be additional capital costs and additional incremental operations and maintenance expense beyond the three-year period. Additionally, and subject to available funding, personnel, and materials, the Company may accelerate some future resiliency projects, which would entail additional capital costs and additional incremental operations and maintenance expense.

Resiliency Measure	Estimated Capital Costs (millions)	Estimated Incremental O&M Expense (millions)	Estimated 3-Year CMI Savings (millions)
Substation Flood Control (RM-10)	$43.8	-	3.9
Control Center Flood Control (RM-11)	$7.0	-	2.5
Major Underground Control and Monitoring System (MUCAMS) (RM-12)	$10.8	-	0.6
Mobile Substation (RM-13)	$30.0	-	3.9
Extreme Temperature (Freeze)			
Anti-Galloping Technologies (RM-14)	$14.0	$1.0	5.3
Load Shed IGSD (RM-15)	$4.5	$0.1	N/A
Microgrid Pilot Project (PP-1)	$35.0	$1.5	N/A
Extreme Temperature (Heat)			
Distribution Capacity Enhancements/Substations (RM-16)	$579.6	-	138.1
MUG Reconductor (RM-17)	$245.0	-	13.6
URD Cable Modernization (RM-18)	$128.4	-	13.0
Contamination Mitigation (RM-19)	$144.0	$6.0	15.7
Substation Fire Barriers (RM-20)	$9.0	-	1.5
Digital Substation (RM-21)	$31.8	-	1.2
Wildfire Advanced Analytics (RM-22)	-	$0.9	N/A
Wildfire Strategic Undergrounding (RM-23)	$50.0	-	N/A
Wildfire Vegetation Management (RM-24)	-	$30.0	N/A
Wildfire IGSD (RM-25)	$19.4	$0.3	N/A
Physical Attack			
Substation Physical Security Fencing (RM-26)	$18.0	-	17.6
Substation Security Upgrades (RM-27)	$19.4	$0.1	25.1
Technology & Cybersecurity			
Spectrum Acquisition (RM-28)	$42.0	-	N/A
Data Center Modernization (RM-29)	$12.7	$1.3	N/A
Network Security & Vulnerability Management (RM-30)	$7.5	$2.0	N/A
IT/OT Cybersecurity Monitoring (RM-31)	$13.4	$4.2	N/A
Cloud Security, Product Security & Risk Management (RM-32)	$4.0	$6.0	N/A
Situational Awareness			
Advanced Aerial Imagery Platform / Digital Twin (RM-33)	$18.4	$2.0	10.8
Weather Stations (RM-34)	-	$0.3	N/A
Wildfire Cameras (RM-35)	-	$0.9	N/A
Voice and Mobile Data Radio System (RM-36)	$20.9	-	N/A
Backhaul Microwave Communication (RM-37)	$12.7	-	N/A

Resiliency Measure	Estimated Capital Costs (millions)	Estimated Incremental O&M Expense (millions)	Estimated 3-Year CMI Savings (millions)
Emergency Operations Center (RM-38)	$50.0	$6.0	N/A
Hardened Service Centers (RM-39)	$107.6	-	N/A
Total	**$5,543.3**	**$210.7**	**1,308.6**

Note: As noted in the System Resiliency Plan for some measures, the Company may accelerate certain measures subject to available funding, personnel and materials. Also, some measures may extend beyond the three-year period, and thus there may be additional capital costs and additional incremental O&M expenses beyond the three-year period; therefore, the above estimates of capital costs, expenses and timeframe could vary as detailed in the System Resiliency Plan.

The Company engaged Guidehouse to provide independent advisory and assessment services. The Guidehouse analysis included not only meeting and interviewing Company subject matter experts, conducting vulnerability analysis for weather-related Resiliency Events, and assessing the proposed Resiliency Measures using a cost-benefit framework, but also a comparison of the proposed Resiliency Measures to those adopted by other electric utilities. The Guidehouse independent risk and cost-benefit analysis confirmed that each Operations and Physical Security Resiliency Measure is either cost-effective based on the calculated BCA ratio or otherwise provides qualitative benefits that support inclusion in the System Resiliency Plan. Further, the survey of peer utility practices indicates that the proposed Resiliency Measures are generally consistent with those deployed at peer utilities. The Guidehouse independent analysis and qualitative assessment of Technology Resiliency Measures found that the Company's System Resiliency Plan appropriately prioritizes technology Resiliency Measures that help mitigate cyber security risk. Findings from the survey of peer utility practices indicates that the proposed Resiliency Measures are consistent with other utilities as well.

C. Overview of the Company's Requested Accounting Language

PURA § 38.078(k) permits deferral of distribution-related costs relating to the implementation of an electric utility's resiliency plan. As part of Commission approval of the Company's System Resiliency Plan, the Company requests the following accounting language in any Commission order approving the Company's System Resiliency Plan:

> Effective on the earlier of the date of a final order in this proceeding or January 1, 2026, CenterPoint Houston may defer all or a portion of the

> distribution-related costs relating to the implementation of the Company's System Resiliency Plan over a 3-year period for future recovery as a regulatory asset, including depreciation expense and carrying costs at the Company's weighted average cost of capital as established by the Commission's final order in the Company's most recent base rate proceeding, and use Commission-authorized cost recovery alternatives under 16 Tex. Admin. Code §§ 25.239 and 25.243 or another general rate proceeding.

The Company also requests specific accounting language that would allow the Company to defer costs associated with distribution-related vegetation management costs relating to the implementation of the Company's System Resiliency Plan. The Company requests the following language in any Commission order approving the Company's System Resiliency Plan:

> Effective on the earlier of the date of a final order in this proceeding or January 1, 2026, CenterPoint Houston may defer the annual incremental distribution-related vegetation management costs relating to the implementation of the Company's System Resiliency Plan over a 3-year period for future recovery as a regulatory asset, including carrying costs at the Company's weighted average cost of capital established in the Commission's final order in the Company's most recent base rate proceeding, and use Commission-authorized cost recovery alternatives under 16 Tex. Admin. Code §§ 25.239 and 25.243 or another general rate proceeding. The annual baseline amount that will be used to determine the annual incremental distribution-related vegetation management costs shall be $46 million. Annual distribution-related vegetation management costs that exceed the annual baseline amount of $46 million shall be considered the annual incremental distribution-related vegetation management costs relating to the implementation of the Company's System Resiliency Plan and thus eligible to be deferred for future recovery as a regulatory asset.

VI. PROTECTIVE ORDER

The Company has designated certain documents included in this Application as either Protected Material or Highly Sensitive Protected Material under the terms of the proposed protective order and anticipates it being necessary for the Company or other parties to submit additional documents containing confidential material during discovery in this case. The Company therefore requests approval of the proposed protective order attached as Exhibit 15. The proposed protective order is the Commission protective order and has been approved in prior Commission proceedings. Until a protective order is issued in this proceeding, the Company will provide access

to the confidential information submitted with this Application to parties that agree in writing to be bound by the proposed protective order as if it had been issued by the Commission.

VII. CONCLUSION AND REQUEST

The Company anticipates that the Resiliency Measures in its System Resiliency Plan will provide benefits to its customers by enhancing resiliency of the Company's transmission and distribution system, by reducing CMI by approximately 1.3 billion, by reducing the total number of customers affected by an outage due to a Resiliency Event, by reducing total outage times due to a Resiliency Event, and by reducing system restoration costs incurred in response to a Resiliency Event. As demonstrated by the Company's track record in controlling and reducing operations and maintenance expense, the Company anticipates being able to implement the Resiliency Measures in the Company's System Resiliency Plan while maintaining the Company's commitment to customer affordability. Thus, the Company requests that the Commission:

- approve the Company's System Resiliency Plan and the Company's proposed Resiliency Measures;
- approve the Company's microgrid pilot program;
- include the Company's requested accounting language in the Commission's order approving the Company's System Resiliency Plan; and
- include language in the Commission's order that would provide the Company the flexibility to immediately begin implementation of all or portions of the System Resiliency Plan, as labor and material allow.

The Company also requests that the Commission grant the Company such other relief to which the Company is entitled.

Date: January 31, 2025

Respectfully submitted,

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EXHIBIT 1

TRANSMISSION AND DISTRIBUTION SYSTEM RESILIENCY PLAN

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Transmission and distribution system resiliency plan

CenterPoint Energy
Houston Electric, LLC

CenterPoint® Energy

Energy for what matters most™

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Glossary of Acronyms

2026-2028 T&D SRP or SRP	The Company's 2026-2028 Transmission and Distribution System Resiliency Plan
AI	Artificial intelligence
AMI	Advanced metering infrastructure
AMS	Advanced metering system
ASTM	American Society for Testing and Materials
Company	CenterPoint Energy Houston Electric, LLC
Commission	Public Utility Commission of Texas
Critical load public safety customer	A customer for whom electric service is considered crucial for the protection or maintenance of public safety, including but not limited to hospitals, police stations, fire stations, and critical water and wastewater facilities
DI Apps	Distributed intelligent applications
DOE	Department of Energy
EOP	Emergency Operations Plan
ERCOT	Electric Reliability Council of Texas
FEMA	Federal Emergency Management Agency
GHRI	Greater Houston Resiliency Initiative
Good Utility Practice	Any of the practices, methods, or acts engaged in or approved by a significant portion of the electric utility industry during the relevant time period, or any of the practices, methods, or acts that, in the exercise of reasonable judgment in light of the facts known at the time the decision was made, could have been expected to accomplish the desired result at a reasonable cost consistent with good business practices, reliability, safety, and expedition. Good utility practice is not intended to be limited to the optimum practice, method, or act, to the exclusion of all others, but rather is intended to include acceptable practices, methods, and acts generally accepted in the region.
GPS	Global positioning system
Guidehouse	Guidehouse Inc.
IEC	International Electrotechnical Committee
kV	Kilovolt

LiDAR	Light detection and ranging
LTE	Long-term evolution
mph	Miles per hour
NESC	National Electrical Safety Code
NOAA	National Oceanic and Atmospheric Administration
NWS	National Weather Service
O&M	Operations and maintenance
PMR	Pole mounted router
PSPS	Public safety power shut-off
PURA	Public Utility Regulatory Act, Tex. Util. Code §§ 11.001-66.016
Resiliency Event	An event involving extreme weather conditions, wildfires, cybersecurity threats, or physical security that poses a material risk to the safe and reliable operation of the Company's transmission and distribution systems
Resiliency Measure	A measure designed to prevent, withstand, mitigate, or more promptly recover from the risks posed to the Company's transmission and distribution system by a Resiliency Event
Resiliency Plan Rule	16 Tex. Admin. Code § 25.62
Resiliency Plan Statute	Tex. Util. Code § 38.078
RFP	Request for Proposal
ROW	Right-of-way
SAIDI	System Average Interruption Duration Index
SAIFI	System Average Interruption Frequency Index
SAN	Storage Area Network
SCADA	Supervisory Control and Data Acquisition
SOC	System Operation Control
TAC	Texas Administrative Code
UFLS	Underfrequency load shedding

Section 1. Executive Summary

CenterPoint Houston's mission is to provide safe, reliable, and cost-effective electric service to all our customers. The Company's 2.8 million residential, commercial, and industrial customers are the center of our operations, and serving as their electric utility is both an honor and a privilege. In this modern digital age, reliable electric service is more important than ever to sustain the livelihood of our growing customer base. At the same time, aging infrastructure, more frequent extreme weather events, and the emerging threat of physical and cyber-attacks necessitate new approaches to ensure that the Company can provide dependable electric service.

Recognizing these threats to resiliency, in 2023 the Texas legislature passed Public Utility Regulatory Act (PURA) § 38.078, and the Public Utility Commission of Texas (PUCT) implemented 16 TAC § 25.62 establishing the requirements and procedures for an electric utility to submit a resiliency plan. While the Company initially submitted a 2025-2027 Resiliency Plan in Docket No. 56548, it was withdrawn to focus the Company's efforts on implementing Phase One of the GHRI and to allow for a broader assessment of additional resiliency-enhancing investments. The Company now presents its 2026-2028 T&D SRP, which incorporates input from post-storm consultations with local and state officials and emergency management offices; PA Consulting's Hurricane Beryl after-action review; the Commission; and Guidehouse, an independent third-party expert.[1]

This System Resiliency Plan (SRP) charts the path for CenterPoint Houston to become the most resilient coastal grid in the country. That ambition to become the most resilient coastal grid is appropriate for Houston, the home to the largest city in the state (and fourth largest in the country), home to the largest medical center and largest petrochemical complex in the world, and an area that has been identified as the most impacted area in the country by natural disasters like high wind and water events, and the potential for wildfires. The more than 2.8 million homes and businesses we have the privilege to serve expect we will achieve that ambition, and we will. Not only will the programs identified in this SRP move us in that direction, they will improve day-to-day reliability as well. And because we have kept our portion of customer bills relatively flat for the last decade, we can achieve our ambition while keeping customer bills affordable. In this SRP the Company proposes to invest approximately $5.754 billion between 2026-2028 to further enhance the

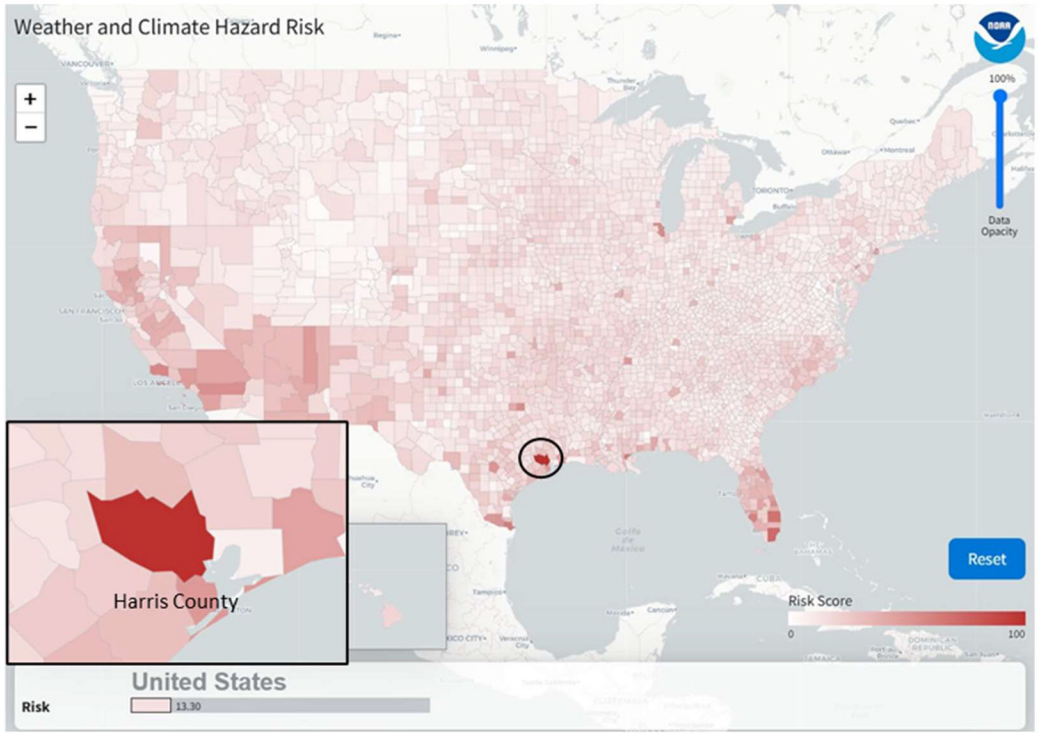
[1] Differences between the 2025-2027 SRP and this filing are further detailed in Exhibit NB-6.

resiliency of the Company's transmission and distribution system. The SRP includes a number of preliminary sections, but the heart of the plan is found in Sections IV through VI.

Section IV describes the Company's service area, the diversity and growth of our customers, and our physical system. The Company's service area is approximately 2% of the geographic area of Texas, but our customers account for 25% of the load in the ERCOT power region. Our service area includes a dense concentration of chemical, refining, and other important industrial facilities, as well as the Houston Ship Channel, two international airports, and the world's largest medical center. Serving the Company's approximately 2.8 million residential, commercial, and industrial customers, requires maintaining approximately 3,900 miles of overhead transmission lines that deliver electricity at 69 kV, 138 kV, and 345 kV. Further, the service area's customer growth is anticipated to continue near 2% per year for the foreseeable future—the equivalent of adding a city the size of Waco, Texas, every year.

Section V defines the Resiliency Events that most affect the Company's service area and details past occurrences. Due to the proximity of the Company's service area to the Texas Gulf Coast, the Resiliency Events that have typically occurred, and have an increasing probability of occurring in the future, are primarily related to extreme weather events, such as extreme temperature, wind, and water events. Data from NOAA further confirms that the Greater Houston Area has the highest weather and climate hazard risk in the country. NOAA's risk map below illustrates Harris County's high risk relative to other counties throughout the country.

Figure SRP ES-1
NOAA Risk Map (United States)



The SRP explains how these Resiliency Events translate to system susceptibilities and the potential impact on the Company's transmission and distribution system.

Section VI of the SRP describes the practices associated with the proposed thirty-nine Resiliency Measures and the Resiliency Events that the measures are intended to address. In doing so, the SRP is organized by proposed Resiliency Measure, with each measure categorized by the Resiliency Event that it is most strongly associated with. However, this grouping is not intended to suggest that any given measure will not improve the durability of the system during other types of Resiliency Events.

For each Resiliency Measure, this SRP: provides evidence of its efficacy and expected benefits, explains if it is a coordinated effort with other programs or sources of funding, details its selection over alternatives, describes implementation, and addresses the prioritization of each associated Resiliency Event. In support of this SRP, there are six operations witnesses—Mr. Deryl Tumlinson, Mr. David Mercado, Mr. Randy Pryor, Mr. Eric Easton, Mr. Ronald Bahr, and Mr. Christopher Ford—who, respectively, testify to the Resiliency Measures related to distribution, transmission and substations, undergrounding and vegetation management, damage prediction, technology, and cybersecurity operations.

The Company has been, and continues to be, actively engaged in enhancing the resiliency of its transmission and distribution system. This SRP builds on the Company's established activities to strategically address modern challenges for the benefit of all our customers. While the implementation of some of the Resiliency Measures described in this plan will extend beyond 2028, this 2026-2028 plan will see the completion or substantial completion of a significant number of Resiliency Measures.

Figure SRP ES-2
Completion Percentages

RM #	Resiliency Measure	# Assets	% Complete
RM-1	Distribution Circuit Resiliency	25,000 poles	on-going
RM-2	Strategic Undergrounding	111 miles	9%
RM-3	Restoration IGSD	900 devices	54%
RM-4	Distribution Pole Replacement/Bracing	30,000 poles	on-going
RM-5	Vegetation Management	11,700 miles	on-going
RM-6	Transmission System Hardening	1,715 structures	100% / 19%
RM-7	69kV Conversion Projects	462 structures	93%
RM-8	S90 Tower Replacements	37 towers	100%
RM-9	Coastal Resiliency Projects	2 locations	52%
RM-10	Substation Flood Control	12 substations	on-going
RM-11	Control Center Flood Control	1 location	100%
RM-12	MUCAMS	318 sites	64%
RM-13	Mobile Substations	6 units	on-going
RM-14	Anti-Galloping Technologies	25 circuit miles	on-going

RM #	Resiliency Measure	# Assets	% Complete
RM-15	Load shed IGSD	36 devices	Annual Review
RM-16	Distribution Capacity Enhancement/Substations	20 substations	on-going
RM-17	MUG Reconductor	21.7 miles	on-going
RM-18	URD Cable Modernization	34,500 spans	100%
RM-19	Contamination Mitigation	20 circuits	21%
RM-20	Substation Fire Barriers	36 firewalls	38%
RM-21	Digital Substation	13 substations	6%
RM-22	Wildfire Advanced Analytics	N/A	on-going
RM-23	Wildfire Strategic Undergrounding	7.1 miles	on-going
RM-24	Wildfire Vegetation Management	3,000 miles	on-going
RM-25	Wildfire IGSD	150 devices	on-going
RM-26	Substation Physical Security Fencing	21 substations	15%
RM-27	Substation Security Upgrades	30 substations	on-going
RM-28	Spectrum Acquisition	N/A	100%
RM-29	Data Center Modernization	N/A	90%
RM-30	Network Security & Vulnerability Management	N/A	on-going
RM-31	IT/OT Cybersecurity Monitoring	N/A	on-going
RM-32	Cloud Security, Product Security & Risk Management	N/A	on-going
RM-33	Advanced Aerial Imagery/Digital Twin	N/A	on-going
RM-34	Weather Stations	N/A	on-going
RM-35	Wildfire Cameras	N/A	on-going
RM-36	Voice & Mobile Data Radio System	27 DMR Tier 3 Sites	100%
RM-37	Backhaul Microwave Communication	165 microwave radios	25%
RM-38	Emergency Operations Center	1 location	100%
RM-39	Hardened Service Centers	4 service centers	78%

As required by 16 Tex. Admin. Code § 25.62(c)(2)(G), the comprehensive chart below summarizes the SRP objectives, the resiliency events or related risks the plan is designed to address, the plan's proposed resiliency measures, the proposed metrics or criteria for evaluating the plan's effectiveness, the plan's cost and benefits, all of which demonstrate that the overall plan is in the public interest.

Figure SRP-ES-3
Executive Summary Comprehensive Chart

Resiliency Measure	Description	Estimated costs	Estimated 3 Year CMI	Resiliency Event(s) Impact to be Mitigated	Anticipated Customer Benefits
Extreme Wind					
Distribution Circuit Resiliency (RM-1)	Rebuild and upgrade 25,000 poles and crossarms	Capital: $513.4 million Incremental O&M: None	263.0 million	Extreme wind events • Microburst • High wind • Tornado • Hurricane	Improved structural integrity Higher wind loading capabilities Reduce the frequency and number of customers impacted by outages Reduce total outage times Reduce system restoration costs
Strategic Undergrounding (RM-2)	Replace wooden distribution poles and equipment on overhead distribution lines at freeway crossings, critical facilities, and in	Capital: $860.0 million Incremental O&M: None	81.1 million	Extreme wind events • Microburst • High wind • Tornado • Hurricane Extreme Temperature	Improve structural integrity Reduce the frequency and number of customers impacted by outages

Resiliency Measure	Description	Estimated costs	Estimated 3 Year CMI	Resiliency Event(s) Impact to be Mitigated	Anticipated Customer Benefits
	hard to access areas; 111 miles			• Heat • Freeze Wildfires Third-party damage • Vehicular collision	Reduce total outage times Reduce system restoration costs
IGSD Installation (RM-3)	Install 900 Intelligent Grid Switching Devices (IGSDs)	Capital: $107.3 million Incremental O&M: $490,000	97.0 million	Extreme weather events Extreme wind events • Microburst • High wind • Tornado • Hurricane Extreme Temperature • Heat • Freeze Wildfires	Faster restoration Reduce time and expense associated with dispatching field personnel to restore an outage Reduce number of customers impacted by an outage Reduce total outage time
Distribution Pole Replacement/Bracing Program (RM-4)	Replace, upgrade, or brace 30,000 wooden distribution pole	Capital: $251.6 million Incremental O&M: None	121.0 million	Extreme wind events • Microburst • High wind • Tornado • Hurricane Wildfires Third-party damage • Vehicular collision	Improved structural integrity Higher wind loading capabilities Reduce the frequency and number of customers impacted by outages Reduce total outage

Resiliency Measure	Description	Estimated costs	Estimated 3 Year CMI	Resiliency Event(s) Impact to be Mitigated	Anticipated Customer Benefits
					times Reduce system restoration costs
Vegetation Management (RM-5)	Transition from a 5-year to a 3-year trim cycle on all distribution circuits; 11,700 miles in total	Capital: None Incremental O&M: $146.1 million	137.0 million	Extreme wind events • Microburst • High wind • Tornado • Hurricane Heavy rain and major storm Extreme freezes Extreme heat	Reduce the frequency and number of customers impacted by outages Reduce total outage times Reduce system restoration costs
Transmission System Hardening (RM-6)	Harden transmission structures by replacing wooden structures with steel or concrete structures, 1,715 structures in total	Capital: $1,467.3 million Incremental O&M: $750,000	223.8 million	Extreme wind events • Microburst • High wind • Tornado • Hurricane Wildfires Extreme temperature event Icing on conductors	Improved structural integrity Higher wind loading capabilities Reduce the frequency and number of customers impacted by outages Reduce total outage times Reduce system restoration costs
69kV Conversion Projects (RM-7)	Rebuild and reconductor 69kV transmission circuits to	Capital: $369.3 million	65.5 million	Extreme wind events • Microburst • High wind	Improved structural integrity Higher wind loading

Resiliency Measure	Description	Estimated costs	Estimated 3 Year CMI	Resiliency Event(s) Impact to be Mitigated	Anticipated Customer Benefits
	138kV; upgrade 462 structures	Incremental O&M: None		• Tornado • Hurricane Extreme temperature event • Freeze Wildfires	capabilities Mitigate loss of transmission during extreme weather events by providing multiple paths of redundancy Capacity for future load growth
S90 Tower Replacements (RM-8)	Replacement of S90 towers; replace 37 towers in total	Capital: $118.4 million Incremental O&M: None	59.5 million	Extreme wind events • Microburst • High wind • Tornado • Hurricane Extreme Temperature Events • Freeze Wildfires	Improved structural integrity Higher wind loading capabilities Reduce the frequency and number of customers impacted by outages Reduce total outage times Reduce system restoration costs
Coastal Resiliency Projects (RM-9)	Construct additional transmission circuits to the coastal portion of the Company's service area; upgrade current 69kV transmission	Capital: $177.4 million Incremental O&M: $750,000	7.8 million	Extreme wind events • Microburst • High wind • Tornado • Hurricane	Mitigate loss of transmission during extreme weather events by providing multiple paths of redundancy

Resiliency Measure	Description	Estimated costs	Estimated 3 Year CMI	Resiliency Event(s) Impact to be Mitigated	Anticipated Customer Benefits
	circuits to 138kV, install new underwater cables, re-route existing transmission line, and construct a new transmission circuit			Extreme temperature event • Heat • Freeze Wildfires Third-party damage	Capacity for future load growth Reduce the frequency and number of customers impacted by outages Reduce total outage times Reduce system restoration cost
Extreme Water					
Substation Flood Control (RM-10)	Elevate and mitigate flood risk at 12 substations in total	Capital: $43.8 million Incremental O&M: None	3.9 million	High water or flooding events	Reduction of risk of equipment failure or mis-operation Mitigate the impact of flooding or highwater events on equipment Enhance substation performance during flooding events Reduce the frequency and number of customers impacted by outages Reduce total outage time

Resiliency Measure	Description	Estimated costs	Estimated 3 Year CMI	Resiliency Event(s) Impact to be Mitigated	Anticipated Customer Benefits
Control Center Flood Control (RM-11)	Construct a protective flood wall at the Company's back-up control center	Capital: $7.0 million Incremental O&M: None	2.5 million	High water or flooding events	Mitigation of damage or inoperability of back-up control center due to flooding or high-water events Enhance control center performance during flooding events Reduce the frequency and number of customers impacted by outages Reduce total outage times
Major Underground Control and Monitoring System (MUCAMS) (RM-12)	Installed to monitor vault and pad-mounded equipment in dedicated underground areas, 318 sites in total	Capital: $10.8 million Incremental O&M: None	0.6 million	Extreme weather events • Flooding • High water Extreme Wind • Hurricanes Extreme Temperature Wildfires	Knowledge of inoperability of automated equipment in the field. Ability to determine status of critical customers remotely Reduce total outage times Reduce truck rolls
Mobile Substation (RM-13)	Purchase of 6 mobile substations for the 3-year period	Capital: $30.0 million	3.9 million	Flooding or high-water events Extreme Wind	Enhance substation performance during flooding events

Resiliency Measure	Description	Estimated costs	Estimated 3 Year CMI	Resiliency Event(s) Impact to be Mitigated	Anticipated Customer Benefits
		Incremental O&M: None		• Tornado • Hurricane Extreme Temperature • Drought • Freeze Wildfires Physical Attack • Physical Attack • Theft	Reduce the frequency and number of customers impacted by outages Reduce total outage times
Extreme Temperature (Freeze)					
Anti-Galloping Technologies (RM-14)	Installation of air flow spoilers to mitigate the accumulation of ice and lift from air flowing under and install sensors to detect ice accumulation	Capital: $14.0 Incremental O&M: $1.0 million	5.3 million	Extreme Weather Event Extreme Temperature (Freeze) events Extreme Wind events • High Wind • Derecho • Hurricane	Reduction of risk of equipment failure or mis-operation Reduce the frequency and number of customers impacted by outages Reduce total outage time
Load Shed IGSD (RM-15)	Install 36 IGSDs to support load shed events	Capital: $4.5 million Incremental O&M: $100,000	N/A	Extreme weather events Extreme Temperature • Heat • Freeze Wildfires	Faster restoration Reduce time and expense associated with dispatching field personnel to restore

Resiliency Measure	Description	Estimated costs	Estimated 3 Year CMI	Resiliency Event(s) Impact to be Mitigated	Anticipated Customer Benefits
					an outage Reduce number of customers impacted by an outage Reduce total outage time
Microgrid Pilot Project (PP-1)	Coordinate with third-party entities in the study, design, implementation, and operation of microgrids in the Company's service area	Capital: $35.0 million Incremental O&M: $1.5 million	N/A	Extreme temperature event • Heat • Freeze Resiliency Events that cause outages	Faster restoration Reduce time and expense associated with dispatching field personnel to restore an outage Reduce number of customers impacted by an outage Reduce total outage time
Extreme Temperature (Heat)					
Distribution Capacity Enhancements/Substations (RM-16)	Installation of additional capacity and/or substations to provide for adequate switching based on load; 20 substations	Capital: $579.6 million Incremental O&M: None	138.1 million	Extreme weather events Extreme Temperature • Heat • Freeze Extreme Wind • Tornado	Faster restoration Reduce time and expense associated with dispatching field personnel to restore an outage

Resiliency Measure	Description	Estimated costs	Estimated 3 Year CMI	Resiliency Event(s) Impact to be Mitigated	Anticipated Customer Benefits
				• High Wind • Derecho • Hurricane Extreme Water • Flooding Wildfire Physical Attack	Reduce number of customers impacted by an outage Reduce total outage time
MUG Reconductor (RM-17)	Replacement of aged cable and duct systems on underground 3-phase circuits that have deteriorated over the years; 22 miles	Capital: $245.0 million Incremental O&M: None	13.6 million	Extreme weather events Extreme Wind Event • Tornado • Microburst • High Wind • Derecho • Hurricane • Tropical Storm Extreme Temperature • Heat • Freeze Wildfire	Faster restoration Reduce time and expense associated with dispatching field personnel to restore an outage Reduce number of customers impacted by an outage Reduce total outage time
URD Cable Modernization (RM-18)	Modernization of 34,500 spans of underground residential distribution cable	Capital: $128.4 million Incremental O&M: None	13.0 million	Extreme weather events Extreme Wind • Tornado • High Wind • Derecho	Faster restoration Reduce time and expense associated with dispatching field personnel to restore an outage

Resiliency Measure	Description	Estimated costs	Estimated 3 Year CMI	Resiliency Event(s) Impact to be Mitigated	Anticipated Customer Benefits
				• Microburst • Hurricane Extreme Temperature • Heat • Freeze Wildfire	Reduce number of customers impacted by an outage Reduce total outage time
Contamination Mitigation (RM-19)	Installation of sensors to proactively detect salt accumulation on insulators; replace insulators and wood poles in high contamination areas; 20 circuits completed during the three-year period	Capital: $144.0 million Incremental O&M: $6.0 million	15.7 million	Extreme Temperature • Heat (drought conditions) Wildfires (ignition source in southern HFRA)	Reduce frequency and number of customers impacted by an outage Reduce total outage time
Substation Fire Barriers (RM-20)	Construct transformer fire barriers at 36 substations in total	Capital: $9.0 million Incremental O&M: None	1.5 million	Extreme Temperature • heat Wildfires	Mitigate damage from substation fires Reduce the number of customers impacted by outages Reduce total outage times Reduce system restoration costs

Resiliency Measure	Description	Estimated costs	Estimated 3 Year CMI	Resiliency Event(s) Impact to be Mitigated	Anticipated Customer Benefits
Digital Substation (RM-21)	Upgrade communications and protection equipment leveraging new communications protocols and fiber optic cabling at 13 total substations	Capital: $31.8 million Incremental O&M: $(600,000)	1.2 million	Resiliency Events related to extreme weather events Physical threats	Enhanced ability to proactively plan and implement projects to mitigate outages attributable to extreme weather events Make data transmission from the Company's substations to the Company's control center more efficient and secure Allow the Company to make better and timelier assessments of substation operations Provide modern physical protection for substation control house equipment
Wildfire Advanced Analytics (RM-22)	Used in tandem with the Advanced Aerial Imagery Platform/Digital Twin Resiliency Measure to proactively "rank" improvement	Capital: None Incremental O&M: $900,000	N/A	Wildfire	Enhanced ability to proactively plan and implement projects to reduce the risk, mitigate the spread, or mitigate the impact of

Resiliency Measure	Description	Estimated costs	Estimated 3 Year CMI	Resiliency Event(s) Impact to be Mitigated	Anticipated Customer Benefits
	regions based on their value add to customers and strategically optimizing the higher fire risk locations.				a wildfire Determine future improvements to the Company's transmission and distribution system to reduce the risk, mitigate the spread, or mitigate the impact of a wildfire Reduce restoration times Reduce the frequency and number of customers impacted by outages attributable to a wildfire Reduce total outage times attributable to a wildfire Reduce system restoration costs attributable to a wildfire
Wildfire Strategic Undergrounding (RM-23)	Bury select portions of distribution lines underground that have	Capital: $50.0 million	N/A	Wildfire	Reduction of risk that a failed overhead structure or conductor

Resiliency Measure	Description	Estimated costs	Estimated 3 Year CMI	Resiliency Event(s) Impact to be Mitigated	Anticipated Customer Benefits
	elevated wildfire risk; 7 total miles	Incremental O&M: None			is the source of wildfire ignition Reduction of risk that vegetation contact with a conductor is the source of wildfire ignition Reduction of risk that a fault is the source of wildfire ignition
Wildfire Vegetation Management (RM-24)	Inspect ROW and extensively trim trees and other vegetation in high fire risk areas; 3,000 total miles	Capital: None Incremental O&M: $30.0 million	N/A	Wildfire	Reduction of risk that a failed overhead structure or conductor is the source of wildfire ignition Reduction of risk that vegetation contact with a conductor is the source of wildfire ignition Reduction of risk vegetation is the source of wildfire ignition
Wildfire IGSD (RM-25)	Install additional IGSDs on select locations to enable the isolation of	Capital: $19.4 million	N/A	Wildfire	Faster restoration due to reduced exposure of number of

Resiliency Measure	Description	Estimated costs	Estimated 3 Year CMI	Resiliency Event(s) Impact to be Mitigated	Anticipated Customer Benefits
	portions of the distribution system that have an elevated level of wildfire risk; 150 total devices	Incremental O&M: $300,000			customers subject to PSPS Reduce time and expense associated with dispatching field personnel to restore an outage by reducing the need to perform ground patrol on the segment of the sectionalized circuit Reduce number of customers impacted by an outage Reduce total outage time
Physical Attack					
Substation Physical Security Fencing (RM-26)	Enhance security fencing at 21 substations in total	Capital: $18.0 million Incremental O&M: None	17.6 million	Physical intrusion and vandalism	Enhance physical deterrence capability Physical threats to substations, including unauthorized entry, theft, and vandalism
Substation Security Upgrades (RM-27)	Enhance security systems at 30 substations in total	Capital: $19.4 million	25.1 million	Physical intrusion and vandalism	Deter, prevent, and mitigate unauthorized entry into, theft at, and

Resiliency Measure	Description	Estimated costs	Estimated 3 Year CMI	Resiliency Event(s) Impact to be Mitigated	Anticipated Customer Benefits
		Incremental O&M: $100,000			vandalism of the Company's substations Prevent outages from physical threats Increase difficulty for bad actors to gain undetected and unauthorized access to the Company's substations
Technology & Cybersecurity					
Spectrum Acquisition (RM-28)	Acquisition of additional spectrum to maintain future levels of reliability and resiliency, along with accommodation of new communication devices and demand	Capital: $42.0 million Incremental O&M: None	N/A	Resiliency Events that cause outages	Maintain communications capability including during resiliency events Provide visibility, and command and control for substations operations; avoid radio frequency interference; Avoid hardware failures; Support

Resiliency Measure	Description	Estimated costs	Estimated 3 Year CMI	Resiliency Event(s) Impact to be Mitigated	Anticipated Customer Benefits
					communication during restoration
Data Center Modernization (RM-29)	Upgrade the Company's existing data centers to provide for more virtual communications paths; develop a multi-cloud environment in support of disaster recovery migration; integrate cloud environments to create a hybrid environment; implement a new SAN fabric	Capital: $12.7 million Incremental O&M: $1.3 million	N/A	Resiliency Events that cause outages	Provide visibility, and command and control for substations operations Avoid radio frequency interference Avoid hardware failures Support communications during restoration
Network Security & Vulnerability Management (RM-30)	Implement application security; assess, prioritize, and mitigate cybersecurity vulnerabilities; deploy advanced firewalls, network sensors, and other cyber technologies at 400 sites	Capital: $7.5 million Incremental O&M: $2.0 million	N/A	Cybersecurity Unauthorized access Loss of critical or sensitive data	Provide capability to monitor and control certain distribution grid components during the resilience event Reduce risk of disruption of critical computing systems or energy delivery systems Prevents loss of critical/sensitive data

Resiliency Measure	Description	Estimated costs	Estimated 3 Year CMI	Resiliency Event(s) Impact to be Mitigated	Anticipated Customer Benefits
					Increase compliance with regulatory requirements by implementing measures to protect software and its components from vulnerabilities and threats
IT/OT Cybersecurity Monitoring (RM-31)	Deploy advanced firewalls, network sensors, and other cyber technologies at 400 sites	Capital: $13.4 million Incremental O&M: $4.2 million	N/A	Cybersecurity Unauthorized access Loss of critical or sensitive data	Provide capability to monitor and control the distribution grid during the resilience event Identify and respond to outage events
Cloud Security, Product Security & Risk Management (RM-32)	Development of security and risk management in cloud services as well as protection of field products	Capital: $4.0 million Incremental O&M: $6.0 million	N/A	Cybersecurity Unauthorized access Loss of critical or sensitive data	Real-time visibility into data Continuous monitoring controls Improved detection, response and recovery
Situational Awareness					

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Resiliency Measure	Description	Estimated costs	Estimated 3 Year CMI	Resiliency Event(s) Impact to be Mitigated	Anticipated Customer Benefits
Advanced Aerial Imagery Platform / Digital Twin (RM-33)	Digitize a replication of the Company's transmission and distribution system by combining LiDAR imagery data, device data (meters, IGSDs, sensors, etc.), weather data, inspection data, and monitoring data and inputting the combined data into advanced software platforms	Capital: $18.4 million Incremental O&M: $2.0 million	10.8 million	Extreme wind events • Microburst • High wind • Tornado • Hurricane Extreme Water • Flooding Extreme temperature event • Heat • Freeze Wildfires	Enhanced ability to proactively plan and implement projects to mitigate outages attributable to extreme weather events Determine future improvements to the Company's transmission and distribution system to mitigate the impact of future resiliency events Reduce restoration times Preemptively mitigate damage from resiliency events Reduce the frequency and number of customers impacted by outages Reduce total outage times Reduce system restoration costs

Resiliency Measure	Description	Estimated costs	Estimated 3 Year CMI	Resiliency Event(s) Impact to be Mitigated	Anticipated Customer Benefits
Weather Stations (RM-34)	Provide high resolution monitoring of weather data and measurements to be used to inform and create weather-based risk profiles and enable more accurate weather risk modeling. Weather stations will be purchased in 2025 (100 of them initially) and this will cover upkeep of these units.	Capital: None Incremental O&M: $300,000	N/A	Extreme weather events Extreme Wind • Tornado • High Wind • Derecho • Microburst • Hurricane Extreme Temperature • Heat • Freeze Wildfire	Faster restoration Reduce time and expense associated with dispatching field personnel to restore an outage Reduce number of customers impacted by an outage Reduce total outage time
Wildfire Cameras (RM-35)	Installation of camera system and/or other monitoring equipment at select locations on the Company's system that have elevated wildfire risk Weather cameras will be purchased in 2025 and this will cover the upkeep of these units.	Capital: None Incremental O&M: $900,000	N/A	Wildfire	Real-time monitoring capability in select regions Faster response time in the event that issues are identified or in the event of a wildfire
Voice and Mobile Data Radio System (RM-36)	Upgrade the fleet mobile and portable radio communications equipment used to	Capital: $20.9 million	N/A	Resiliency Events that cause outages	Maintain communications capability to and with the Company's field

Resiliency Measure	Description	Estimated costs	Estimated 3 Year CMI	Resiliency Event(s) Impact to be Mitigated	Anticipated Customer Benefits
	dispatch and communicate with the Company's field personnel	Incremental O&M: None			personnel in instances with limited cellular coverage, including during resiliency events
Backhaul Microwave Communication (RM-37)	Replace the Company's existing microwave radio links and upgrade the Company's backbone point-to-point microwave links	Capital: $12.7 million Incremental O&M: None	N/A	Resiliency Events that cause outages	Provide visibility, and command and control for substations operations Avoid radio frequency interference Avoid hardware failures Support communication during restoration
Emergency Operations Center (RM-38)	Build Emergency Operations Center facility for emergency response personnel to monitor situational awareness systems and support restoration during Resiliency Events	Capital: $50.0 million Incremental O&M: $6.0 million	N/A	Resiliency Events that cause outages	Support near real-time situational awareness during Resiliency Events Reduce restoration time

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Resiliency Measure	Description	Estimated costs	Estimated 3 Year CMI	Resiliency Event(s) Impact to be Mitigated	Anticipated Customer Benefits
Hardened Service Centers (RM-39)	Build 4 harden service center facilities for distribution personnel supporting restoration during Resiliency Events	Capital: $107.6 million	N/A	Resiliency Events that cause outages	Reduce time and expense associated with dispatching field personnel to restore an outage Reduce total outage time

Section 2. Introduction

Section 2.1. Greater Houston Area: Highest Climate and Weather-Related Risk in the Country

The Greater Houston area, which is the Company's service area where it provides electric delivery service, is located near the Gulf Coast and thus subject to the following climate and weather-related risks: (1) extreme wind events (i.e., hurricanes, tropical storms, severe storms, tornadoes, derechos, and microbursts); (2) flooding and extreme water events; and (3) extreme temperatures (i.e., droughts and freezes).

The Greater Houston area has the highest climate and weather-related risk, as determined by NOAA and FEMA. NOAA has determined that the Greater Houston area has the highest weather and climate hazard risk in the country. According to NOAA, Harris County has a risk score of 100.00, which is the top of the scale. The county with the second highest risk score is Miami-Dade County, with a risk score of 71.53. Harris County's risk score is far greater than the risk scores of Dallas County (53.94), Tarrant County (39.64), Bexar County (50.56), Travis County (28.97), and the state of Texas (17.29) as a whole.

The following table from NOAA summarizes the risk scores for Harris County for specific climate and weather-related risks.

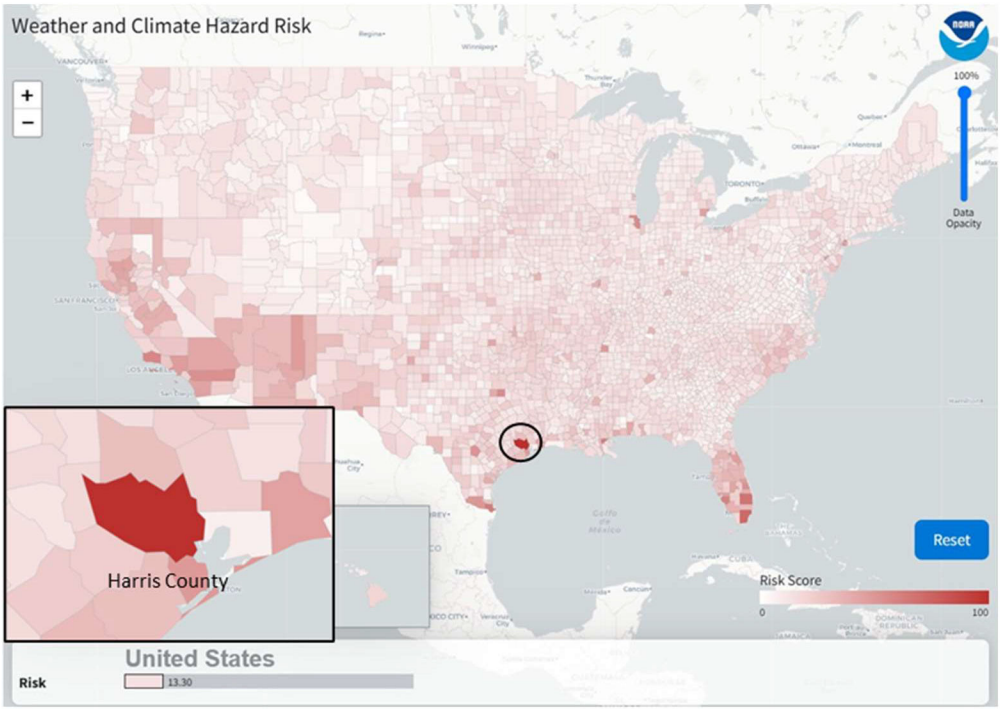
Figure SRP-1
NOAA Weather and Climate Risk Scores (Harris County, Texas, United States)

Risk and Vulnerability

Data Type	Harris County	Texas	U.S.
Weather and Climate Risk			
Drought Risk	20.36	14.32	11.61
Flooding Risk	100.00	12.97	9.13
Freeze Risk	12.05	13.09	15.72
Severe Storm Risk	94.56	20.58	16.99
Tropical Cyclone Risk	100.00	6.41	4.36
Wildfire Risk	11.81	11.28	6.30
Winter Storm Risk	65.33	15.99	13.71
Weather and Climate Combined Risk	100.00	17.29	13.30

The NOAA risk map below illustrates Harris County's high risk relative to other counties throughout the country.[2]

Figure SRP-2
NOAA Risk Map (United States)

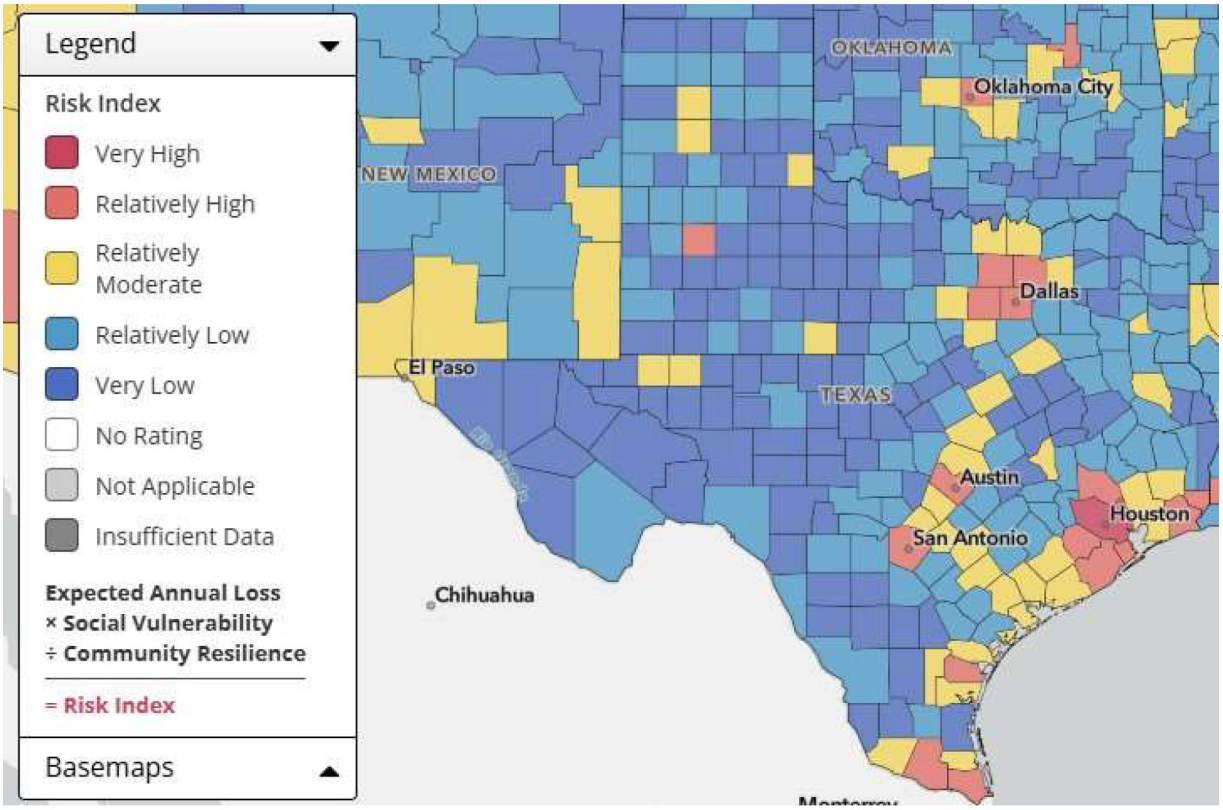


Similarly, as depicted in the illustration below, FEMA has categorized the Greater Houston area as being in the "very high" risk category for all hazards.[3]

[2] The NOAA's weather and climate risk map is available online at: https://www.ncei.noaa.gov/access/billions/risk.

[3] FEMA's risk index map: https://hazards.fema.gov/nri/map.

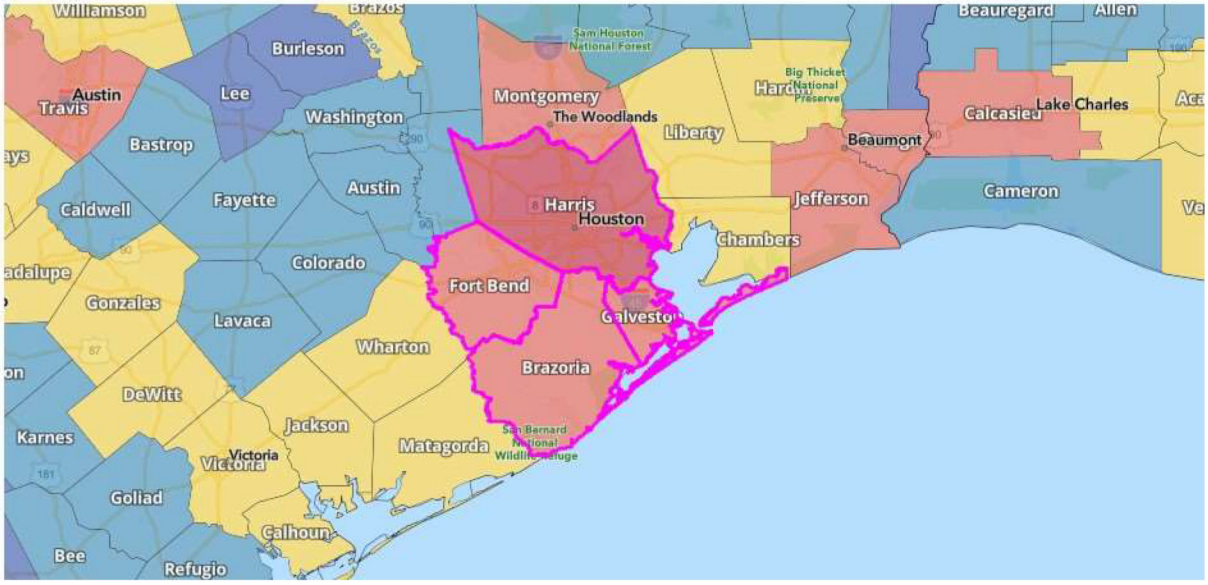
Figure SRP-3
FEMA Hazard Risk Map (Texas)



As depicted in the illustration below, Harris County, Galveston County, Brazoria, and Fort Bend County, which comprise a large portion of the Greater Houston Area, have FEMA risk scores that put them in the 99.97, 99.52, 99.11, and 99.08 percentiles, respectively, in the country.

Figure SRP-4
FEMA Hazard Risk Map
(Harris, Galveston, Brazoria, and Fort Bend Counties)

Risk Index



Risk Index Legend

Very High | Relatively High | Relatively Moderate | Relatively Low | Very Low

No Rating | Not Applicable | Insufficient Data

Rank	Community	State	Risk Index Rating	Risk Index Score	National Percentile
1	Harris County	TX	Very High	99.97	0 – 100
2	Galveston County	TX	Relatively High	99.52	0 – 100
3	Brazoria County	TX	Relatively High	99.11	0 – 100
4	Fort Bend County	TX	Relatively High	99.08	0 – 100

As evidenced by the NOAA and FEMA data above, the Greater Houston area is susceptible to the highest climate and weather-related risk in the country.

Section 2.2. The Company's Commitment to Enhancing System Resiliency

The Company has an obligation and a commitment to provide safe and reliable electric delivery service to the customers and the communities it has the privilege to serve. As part of the Company's obligation and commitment to provide safe and reliable electric delivery service, the

Company allocates a portion of its capital expenditures to resiliency-related projects. For example, from 2020 - 2023, the Company spent approximately $1.3 billion in capital expenditures for resiliency-related system hardening and modernization projects. The following figure provides examples of resiliency-related system hardening, modernization, and flood mitigation projects implemented by the Company from 2020 - 2023 with their corresponding capital costs.

Figure SRP-5
2020-2023 Resiliency-Related Projects and Costs

Description	2020	2021	2022	2023	Total
IGSD Installation	1	5	12	13	$ 31
Transmission System Hardening	12	159	274	166	$ 611
Substation Elevation	18	13	20	20	$ 71
Distribution Pole Replacement/Bracing	29	30	61	52	$ 172
Substation Security	5	20	24	10	$ 59
S90 Tower Replacements	3	20	55	14	$ 92
69/138 kV Conversions	16	3	49	90	$ 158
Distribution Resiliency - Circuit Rebuild	-	-	40	40	$ 80
Distribution Resiliency - TripSaver	-	-	7	5	$ 12
Total 2020 - 2023	**$ 84**	**$ 250**	**$ 542**	**$ 410**	**$ 1,286**

In addition to making capital investments related to resiliency, the Company has also engaged in vegetation management. The figure below summarizes the approximate amount the Company spent on vegetation management from 2020-2023, as reported in the annual Vegetation Management report that is filed with the Commission in Project No. 41381.

Figure SRP-6
2020-2023 Vegetation Management Related Projects and Costs

Description	2020	2021	2022	2023	Total
Scheduled VM (Proactive Tree Trimming)	25.2	26.5	28.2	35.6	$ 115.5
Unscheduled VM (Reactive Tree Trimming)	3.6	3.5	3.7	5.5	$ 16.3
Tree Risk Management (Proactive Hazard Tree Removal)	0.1	0.2	0.9	3.7	$ 4.8
Emergency and Post-Storm Activities	0.7	1.2	1.8	1.0	$ 4.7
Total 2020 - 2023	**$ 29.6**	**$ 31.4**	**$ 34.6**	**$ 45.8**	**$ 141.4**

During 2024, the Company experienced two significant weather events – a derecho which occurred on May 16th and Hurricane Beryl, which made landfall on July 8th. In response, the Company established the Greater Houston Resiliency Initiative ("GHRI"), a set of commitments

to enhance the resiliency of the transmission and distribution system, improve communications with customers, and strengthen community partnerships. The first phase of GHRI work included the installation of stronger, more resilient distribution poles, conducting incremental vegetation management by trimming and removing vegetation on high-risk distribution circuits, and the installation of automated devices. The figure below summarizes the resiliency-related efforts that were completed by August 27, 2024.

Figure SRP-7
GHRI Phase I Resiliency-Related Efforts

August 28, 2024 Taking Action Now to Reduce Outages	Completed August 27	Progress to Date	August Target
Installing stronger and more storm-resilient poles	WORK COMPLETE	1,133 poles	1,000 poles
Trimming or removing higher-risk vegetation	WORK COMPLETE	2,026 power line miles	2,000 power line miles
Installing automated devices, known as trip savers	WORK COMPLETE	307 devices	300 devices

The second phase of GHRI work builds on these prior efforts and anticipates additional work to be completed by June 1, 2025, prior to the 2025 hurricane season. The figure below provides a status of the work completed as of January 5, 2025.

Figure SRP-8
GHRI Phase II Resiliency-Related Efforts

Near-Term Actions to Improve Resiliency	As of Jan. 5, 2025	Target by June 1, 2025
Install new poles or replace existing wooden poles with stronger ones, including composite, capable of withstanding extreme winds (Coastal: 132 mph standard; Inland: 110 mph standard)	9,516 poles	25,000 poles
Install automated reliability devices to reduce sustained interruptions in major storm events and reduce restoration times	Scheduled to begin early 2025	4,500 automated reliability devices
Install Intelligent Grid Switching Devices (IGSDs)	71 IGSDs	350 IGSDs
Trim or remove vegetation from distribution line miles with higher-risk vegetation across our system	1,448 miles	4,000 miles
Undergrounding of power lines	197 miles	400 miles
Install new weather monitoring stations	Scheduled to begin early 2025	100 stations

During calendar year 2024, the Company conducted vegetation management on approximately 3,230 miles of line, including trimming or removing higher-risk vegetation. In total, the Company anticipates the resiliency-related actions in Phase One and Phase Two of the GHRI will lead to more than 125 million fewer customer outage minutes.

This forward-looking SRP aims to further enhance the resiliency of the Company's transmission and distribution system during the three-year period of 2026 – 2028. The Company will continue to make resiliency-related investment well past 2028 to cement its position as the most resilient coastal utility within the U.S. and enhancing service for all our customers.

Section 2.3. Purpose and Scope of the System Resiliency Plan

The System Resiliency Plan Statute permits an electric utility to file for Commission review and approval of the electric utility's proposed transmission and distribution system resiliency plan. The Resiliency Plan Rule details the substantive requirements for a proposed transmission and distribution system resiliency plan. This SRP describes the Company's Resiliency Measures, each of which uses one or more of the following methods: hardening electric

transmission and distribution facilities (system hardening); modernizing electric transmission and distribution facilities (grid modernization); undergrounding certain electric distribution lines (undergrounding); lightning mitigation measures; flood mitigation measures; information technology; cybersecurity measures; physical security measures; vegetation management, and wildfire mitigation and response. As required by the Resiliency Plan Rule, this SRP discusses the Resiliency Event-related risks faced by the Company and historical Resiliency Events that have occurred in the Company's service area. Additionally, this SRP also provides capital cost and O&M expense estimates, implementation timeframes, the Resiliency Event-related impacts to be mitigated, the anticipated benefits, and criteria for measuring effectiveness for each Resiliency Measure in the Company's SRP. The Company's SRP is intended to provide the Company maximum discretion and flexibility as it relates to implementation of Resiliency Measures on a specific portion or portions of the Company's transmission and distribution system or the Company's service area. In implementing an individual Resiliency Measure or a group of Resiliency Measures in the SRP, the Company will consider the most current data on factors such as the Company's past operational experience with Resiliency Events, the number and type of customers that may benefit from the implementation of a Resiliency Measure, operational and engineering considerations, availability of material and personnel, and Good Utility Practice.

Prior to this application, the Company filed its 2025-2027 T&D SRP in April 2024 in Commission Docket No. 56548 for Commission review and approval. The Company subsequently withdrew its 2025-2027 T&D SRP to focus its efforts on implementing Phase One of the GHRI and to allow for a broader assessment of additional resiliency-enhancing investments that are now included in the Company's 2026-2028 T&D SRP. The Company's 2026-2028 T&D SRP proposes to invest over a three-year period – approximately $5.75 billion versus $2.28 billion – to implement more Resiliency Measures – i.e., thirty-nine (39) Resiliency Measures versus twenty-five (25) Resiliency Measures – and to accelerate the pace of resiliency of the Company's transmission and distribution system.

As a result of the Company withdrawing its 2025-2027 T&D SRP, the Company conducted a broader assessment of additional resiliency-enhancing investments using a forward-looking analysis. The Resiliency Measures in the Company's 2025-2027 T&D SRP were to be implemented at a program level and based on historical trends. The Resiliency Measures in the Company's 2026-2028 T&D SRP are still based on historical trends and analysis but are proposed to be implemented at a more granular project level, are based on recently conducted service area LiDAR mapping data and incorporate predictive modeling and analysis. The Company also incorporated feedback and recommendations received since Hurricane Beryl and increased the pace of implementation for some resiliency measures.

The Company utilized a granular and risk-based approach in developing its SRP. The Resiliency Measures included in the Company's SRP are based on:

- Analysis of historical Resiliency Events in the Greater Houston area;
- Analysis of forecasted future Resiliency Events that are anticipated to occur in the Greater Houston area;
- LiDAR mapping data;
- Predictive modeling and analysis;
- Feedback from the nineteen (19) Community Open House events that were conducted by the Company after Hurricane Beryl;
- Recommendations in PA Consulting's Hurricane Beryl after-action report;
- Recommendations in the Public Utility Commission of Texas Hurricane Beryl report (Docket No. 56822); and
- Feedback from the twelve (12) counties served by the Company

The 2026-2028 SRP thus incorporates much that has been learned since the filing of the 2025-2027 SRP, the May 2024 Storms, and Hurricane Beryl. While the implementation of some of the Resiliency Measures described in this plan will extend beyond 2028, this 2026-2028 plan will see the completion or substantial completion of a significant number of Resiliency Measures.

Figure SRP-9
Completion Percentages

RM #	Resiliency Measure	# Assets	% Complete
RM-1	Distribution Circuit Resiliency	25,000 poles	on-going
RM-2	Strategic Undergrounding	111 miles	9%
RM-3	Restoration IGSD	900 devices	54%
RM-4	Distribution Pole Replacement/Bracing	30,000 poles	on-going
RM-5	Vegetation Management	11,700 miles	on-going
RM-6	Transmission System Hardening	1,715 structures	100% / 19%
RM-7	69kV Conversion Projects	462 structures	93%
RM-8	S90 Tower Replacements	37 towers	100%
RM-9	Coastal Resiliency Projects	2 locations	52%
RM-10	Substation Flood Control	12 substations	on-going
RM-11	Control Center Flood Control	1 location	100%
RM-12	MUCAMS	318 sites	64%
RM-13	Mobile Substations	6 units	on-going
RM-14	Anti-Galloping Technologies	25 circuit miles	on-going
RM-15	Load Shed IGSD	36 devices	Annual Review

RM #	Resiliency Measure	# Assets	% Complete
RM-16	Distribution Capacity Enhancement/Substations	20 substations	on-going
RM-17	MUG Reconductor	21.7 miles	on-going
RM-18	URD Cable Modernization	34,500 spans	100%
RM-19	Contamination Mitigation	20 circuits	21%
RM-20	Substation Fire Barriers	36 firewalls	38%
RM-21	Digital Substation	13 substations	6%
RM-22	Wildfire Advanced Analytics	N/A	on-going
RM-23	Wildfire Strategic Undergrounding	7.1 miles	on-going
RM-24	Wildfire Vegetation Management	3,000 miles	on-going
RM-25	Wildfire IGSD	150 devices	on-going
RM-26	Substation Physical Security Fencing	21 substations	15%
RM-27	Substation Security Upgrades	30 substations	on-going
RM-28	Spectrum Acquisition	N/A	100%
RM-29	Data Center Modernization	N/A	90%
RM-30	Network Security & Vulnerability Management	N/A	on-going
RM-31	IT/OT Cybersecurity Monitoring	N/A	on-going
RM-32	Cloud Security, Product Security & Risk Management	N/A	on-going
RM-33	Advanced Aerial Imagery/Digital Twin	N/A	on-going
RM-34	Weather Stations	N/A	on-going
RM-35	Wildfire Cameras	N/A	on-going
RM-37	Backhaul Microwave Communication	165 microwave radios	25%
RM-36	Voice & Mobile Data Radio System	27 DMR Tier 3 Sites	100%
RM-38	Emergency Operations Center	1 location	100%
RM-39	Hardened Service Centers	4 service centers	78%

Section 2.4. Role of Guidehouse as an Independent Third-Party Expert

The Company retained Guidehouse to serve as an independent third-party expert in providing an assessment and recommendations on the Resiliency Measures in the Company's SRP. The work conducted by Guidehouse included the following:

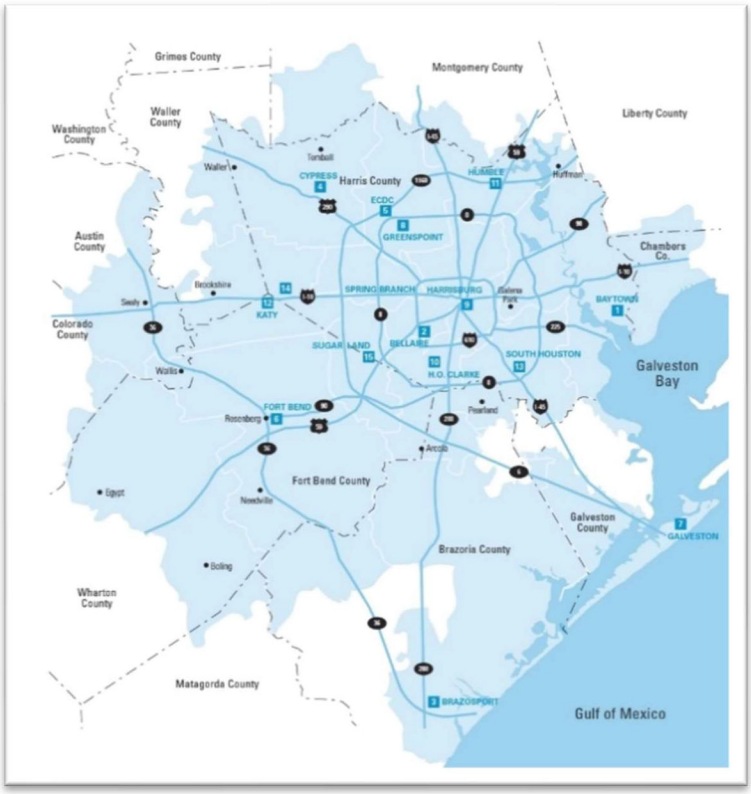
- Quantification of benefits for each Resiliency Measure in the SRP, when appropriate, using data collected by the Company from prior storms and applying forecasted risk;
- Provide analysis of weather-driven and human threat risks faced by the Company, including a forward-looking forecast of weather-driven risk considering climate trends;
- Comparing the Resiliency Measures in the SRP to those of leading utility practices; and
- Proposing metrics reporting and program effectiveness measures.

Section 3. Overview of the Company's Service Area, Customer Profile, and Transmission and Distribution System

Section 3.1. Geography of the Company's Service Area

The Company's service area comprises approximately 5,000 square miles located in and around the Greater Houston Area and the Texas Gulf Coast. The Company's service area includes the City of Houston as well as other cities and non-municipal areas located in Harris County, Montgomery County, Chambers County, Galveston County, Brazoria County, Fort Bend County, Wharton County, and Colorado County. The map below generally illustrates the Company's service area.

Figure SRP-10
Company Service Area

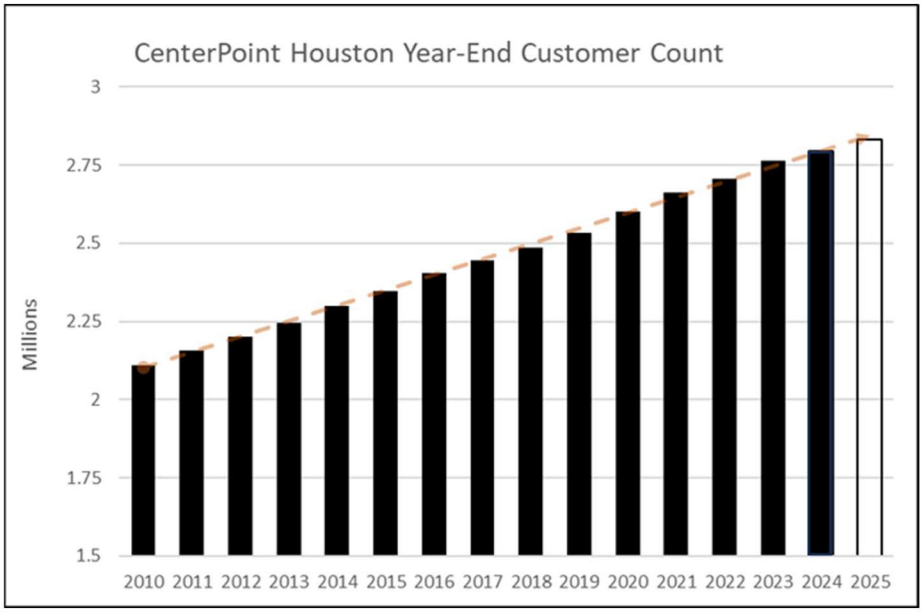


Section 3.2. Rapid and Sustained Customer Growth and Diversity of Customer Load

The Company's service area is approximately 2% of the geographic area of Texas, but the Company's customers account for approximately 25% of the load in the ERCOT power region.

The Company provides electric service to approximately 2.8 million meters for residential, commercial, and industrial customers. The Company's service area has experienced rapid and sustained customer growth during the past several decades, and this customer growth is anticipated to continue near 2% per year for the foreseeable future. The chart below illustrates the customer growth in the Company's service area since 2010.

Figure SRP-11
2021-2025 Customer Growth



The Company's service area includes important public-serving facilities and infrastructure such as: the Texas Medical Center, the Port of Houston, the George Bush Intercontinental Airport, William P. Hobby Airport, and many petrochemical and refining facilities.

Section 3.3. The Company's Transmission and Distribution System

To provide safe and reliable electric service to the Company's approximately 2.8 million residential, commercial, and industrial customers, the Company maintains and operates a transmission and distribution system comprised of:

- approximately 3,900 miles of overhead transmission lines that deliver electricity at 69 kV, 138 kV, and 345 kV;
- over 260 Company owned substations that reduce voltage to serve distribution customers and provide connectivity to the transmission system;
- approximately 58,000 miles of distribution lines (approximately 30,000 miles of overhead

distribution and 28,000 miles of underground distribution and streetlights) and miscellaneous associated equipment (e.g., step-down transformers, insulators, capacitors, fuses);

- a telecommunications network; and
- supporting information technology hardware and software.

Section 4. Overview of Resiliency Events in the Company's Service Area

Section 4.1. Definitions and Occurrences of Resiliency Events

The Company's 2026-2028 SRP describes Resiliency Measures intended to address twenty different Resiliency Events. Those twenty Resiliency Events fall into seven categories—extreme wind, extreme water, extreme temperature (freeze), extreme temperature (heat), physical attack, technology & cybersecurity and situational awareness. The following figure sorts the twenty Resiliency Events by Category and provides a bit more detail on each measure, describing the magnitude, thresholds, or other characteristics that define each Resiliency Event.

Figure SRP-12
Resiliency Event Definitions

Resiliency Event	Definition and Related Magnitude Threshold
Extreme Wind Resiliency Events[4]	
High winds	Sustained wind speeds of 40-57 mph
Derecho	Widespread, long-lived windstorm that is associated with a band of rapidly moving showers or thunderstorms. Although a derecho can produce destruction similar to the strength of tornadoes, the damage typically is directed in one direction along a relatively straight swath. As a result, the term "straight-line wind damage" sometimes is used to describe derecho damage.
Microburst	A localized column of sinking air (downdraft) within a thunderstorm and is usually less than or equal to 2.5 miles in diameter. Microbursts can cause extensive damage at the surface, and in some instances, can be life-threatening.
Tropical storm	A tropical cyclone in which the maximum sustained surface wind speed

[4] Definitions in the Extreme Water, Wind, Temperature (Freeze) and Temperature (Heat) categories are as defined by the National Weather Service.

Resiliency Event	Definition and Related Magnitude Threshold
	ranges from 39 mph to 73 mph.
Hurricane	A tropical cyclone in which the maximum sustained surface wind is 74 mph or more.
Tornadic activity	A violently rotating column of air touching the ground, usually attached to the base of a thunderstorm.
Extreme Water Resiliency Events[4]	
Flooding	A covering, overflow or submerging of water onto normally dry land. The inundation of a normally dry area caused by rising water in an existing waterway, such as a river, stream, or drainage ditch. Ponding of water at or near the point where the rain fell. Flooding is a longer-term event than flash flooding: it may last hours, days or weeks.
Heavy rain	A thunderstorm producing damaging winds (e.g., downed trees) or winds 58 mph or more and/or hail three-quarter of an inch or greater in diameter.
Lightning	Lightning activity level labeled 1-6: LAL1 – No thunderstorms. LAL2 – Isolated thunderstorms. Light rain. Lightning is very infrequent 1-5 cloud to ground strikes in a 5-minute period. LAL3 – Widely scattered thunderstorms. Light to moderate rain. Lightning infrequent. 6-10 cloud to ground strikes in a 5-minute period. LAL4 – Scattered thunderstorms. Moderate Rain. Lightning is frequent. 11-15 cloud to ground strikes in a 5-minute period. LAL5 – Numerous thunderstorms. Rainfall is moderate to heavy. Lightning is frequent and intense. More than 15 cloud to ground strikes in a 5-minute period. LAL6 – Dry lightning (same as LAL3 without rain). This type has potential for extreme fire activity and is normally highlighted in fire weather forecasts with a red flag.
Extreme Temperature (Freeze) Resiliency Events[4]	
Freeze	Temperatures at or near the surface (ground) are expected to be 32 degrees or colder Fahrenheit over a widespread area for a climatologically significant period of time.

Resiliency Event	Definition and Related Magnitude Threshold
Extreme Temperature (Heat) Resiliency Events[4]	
Extreme heat	Broken up into three categories: (1) heat advisory; (2) heat indices of 95-99 degrees Fahrenheit for 2 consecutive days; or (3) 100-104 degrees Fahrenheit for any duration
Wildfire	An unplanned, unwanted fire burning in a natural area, such as a forest, grassland, or prairie.
Physical Attack-Related Resiliency Events	
Vehicular Collision	Vehicles involved in accidents involving or colliding with distribution poles and/or equipment or transmission structures or other company facilities
Foreign Material	Objects that get caught within the conductors and cause a short to either ground or another phase (tree limb, mylar balloon, wildlife, etc.)
Domestic Terrorism	Ballistic attacks, electromagnetic pulses, intentional vehicles crashes
Barge contact	Barges that make contact with transmission structures or transmission lines
Technology & Cybersecurity-Related Resiliency Events	
Theft of Expensive or Long-lead Time Tech. Components	Theft requiring replacement of technology components used at substation, operational facilities, or data centers that would delay the repair or restoration of service
Vendor Outages	Internet provider, cloud services, telecommunications and outages.
Cybersecurity Attacks	Distributed Denial-of-Service (dDoS), ransomware, malware, phishing, exploitation of known but unpatched vulnerabilities, social engineering, supply chain attacks, system misconfigurations, missing or poor encryption practices, insider threats and external actors via physical- and cyber-attacks.
Situational Awareness-Related Resiliency Events	
Real-Time Operational Support	Camera and imagery tools, system and scenario modeling, advanced analytics/AI, centralized event command, hardened service centers

The figure below summarizes the Resiliency Events that have occurred in the Company's service area during 2020 through 2024. For each event, the figure provides the total number of customers affected by an outage caused by the Resiliency Event, and restoration time for the Resiliency Event.

Figure SRP-13
2020-2024 Resiliency Events

Resiliency Event	Total Customers Affected	Restoration Time
2020		
April 29th: A strong squall and associated cold front produced very strong, gusty winds, frequent lightning, and heavy rain.	256,057	16 hours, 15 minutes
May 15th-16th: Daytime heating, elevated moisture levels, and instability combined to produce scattered showers and thunderstorms, frequent lightning, strong gusty winds, and heavy rainfall. Subsequently, a strong upper-level disturbance pushed a line of severe thunderstorms with frequent lightning, strong damaging winds gusting up to 60 mph, and heavy downpours.	114,575	28 hours, 5 minutes
May 27th-29th: An upper-level disturbance combined with daytime heating and an unstable environment produced severe thunderstorms with severe wind gusts, frequent lightning, and heavy rainfall.	423,000	32 hours, 15 minutes
2021		
February 14th-19th: Winter Storm Uri.	8,127,986	116 hours, 40 minutes
September 17th-18th: Hurricane Nicholas produced powerful, gusty winds, heavy rain, and flooding.	706,429	120 hours, 5 minutes
October 28th-29th: High winds sustained at 30-35mph with gusts up to 50mph.	308,585	32 hours, 55 minutes
July 22nd: Akamai Internet Outage. External DNS provider system issue that impacted the availability of the corporate web page.	Indeterminate	2 hours
2022		
January 8th-9th: A warm front brought strong gusty winds, tornados, lightning, and heavy rain.	79,138	27 hours, 20 minutes
March 22nd: Strong thunderstorms, heavy rain, frequent lightning, and wind gusts nearing 40 mph.	49,743	5 hours, 40 minutes

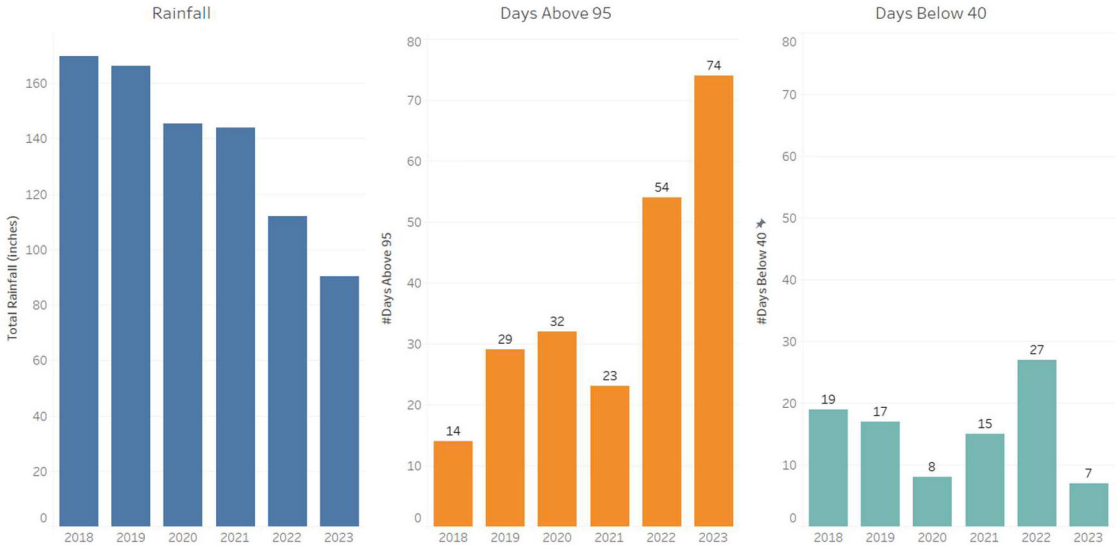
Resiliency Event	Total Customers Affected	Restoration Time
2023		
January 24th-26th: A strong disturbance brought severe thunderstorms with frequent lightning, hail, damaging wind gusts, tornadoes, and heavy rain.	207,547	57 hours, 10 minutes
May 14th: Frequent lightning and heavy rain.	53,985	9 hours, 50 minutes
June 8th-10th: Scattered storms that brought strong wind gusts, small hail, and frequent lightning strikes.	362,363	34 hours
June 21st-25th: Thunderstorms brought frequent lightning, hail, and damaging winds.	574,582	77 hours, 40 minutes
April 4th: AT&T/Comcast Fiber Cuts. Simultaneous damage to both AT&T and Comcast network fiber causing regional network connectivity interruption.	N/A	13 hours
2024		
January 5th: Fair and dry conditions with increasing wind in the afternoon as an approaching storm system pushed eastward bringing widespread showers, some heavy, and isolated thunderstorms with a few stronger storms including one Tornado	141	5 hours, 52 minutes
April 10th - 11th: Strong thunderstorms pushed through the area in the early morning of April 10, bringing heavy lightning and high winds, high winds, and confirmed case of tornado damages in the Katy area.	288,203	24 hours, 30 minutes
May 2nd - 3rd: A series of disturbances brought heavy rain and strong thunderstorms Thursday morning. Wind gusts of 30-40mph as well as frequent lightning and heavy downpours were the results. Additionally, a microburst event was detected in the northern portions of the Greenspoint and Humble Service Areas.	239,411	36 hours, 4 minutes
May 5th: Microburst event in Pinehurst, Texas	2,951	30 minutes
May 16th – 24th: A weather event brought widespread severe weather, derecho storm conditions with windspeeds of up to 100 mph, Category 2 Hurricane-like winds, and two	1.23 million	190 hours, 40 minutes

Resiliency Event	Total Customers Affected	Restoration Time
tornadoes into the Houston metro area. A derecho is defined by the National Oceanic and Atmospheric Administration as a line of intense, widespread, long-lived and fast-moving straight-line windstorms and sometimes thunderstorms that moves across a relatively straight swath and is characterized by damaging winds similar to a tornado. Additionally, two EF1 tornados touched down in the Waller and Harris County portions of CNP' s service area. These events caused widespread devastation to CNP transmission and distribution system including toppling of transmission towers, falling and broken distribution poles, equipment failures, extensive vegetation and debris damages, and prolonged outages.		
May 28th – May 30th: Severe storms passed through CNP's service area which brought strong wings, locally heavy rainfall, and frequent lightning	508,666	54 hours, 32 minutes
July 8th - July 19th: Hurricane Beryl made landfall in Texas as a powerful Category 1 hurricane, carrying with it significant sustained winds, storm surges and torrential rain. The storm significantly impacted CenterPoint' s service territory, with damaging winds reaching 97-miles-per-hour in Brazoria County, 89-miles-per-hour in Harris County, and 78-miles-per-hour in Galveston County, according to the Houston-Galveston National Weather Service. The destructive winds caused widespread damage to the electric grid that included uprooted trees, downed branches and other debris affecting its distribution poles, wires, and equipment, resulting in peak outages of approximately 2.11 million customers and approximately 3.47 million non-distinct customers during the storm period.	3.47 million	278 hours, 20 minutes
December 28th: Strong storms brought high winds and multiple tornados in Waller, Harris, and Galveston County	26,142	31 hours 46 minutes

Note: *Total Customers Affected represents the non-distinct customer count for each event.*

The Company's service area also experiences heavy precipitation and extreme temperatures. The following figure summarizes the precipitation and temperature changes in the Company's service area from 2018 to 2023.

Figure SRP-14
2018-2023 Total Rainfall and Extreme Temperature Days



Although the Company's service area is subject to extreme temperatures and sometimes drought conditions, to date there has historically been little impact from wildfires occurring within or near the Company's service area. Typically, high wind events in our service territory have also been accompanied by rain, thus mitigating the risk of wildfires. In 2011 there were notable wildfires in parts of Texas, with one wildfire within the Company's service area (Riley Road wildfire). In 2023 the Company saw heightened wildfire risks in parts of its service territory after we experienced prolonged periods of drought and high heat and in late June of 2024, a wildfire occurred within the Company's territory in Brazoria County. Seeing the rising trend of wildfires within our territory and outside our territory such as California, Hawaii, and New York, the Company sees the need to invest and protect its customers by incorporating measures to harden against the risk of wildfires. The Company will continue to review and monitor conditions by leveraging data from Technosylva, the Texas A&M Forest Service, Jupiter Data, and the National Weather Service to continue to mitigate the risks of wildfires and, if the need arises, to enact the PSPS.

Section 4.2. Risks Posed by Resiliency Events

Different Resiliency Events affect the Company's transmission and distribution system in different ways. For example, high winds can blow debris into our power lines and cause the conductors on a circuit to swing and interfere with each other (conductor slap). Flooding can damage equipment at substations and also prevent crews from accessing areas that need restoration even after bad weather has left the area. The figure below provides examples of the system

susceptibilities associated with each Resiliency Event. There are also attributes of the Company's transmission and distribution system that make it more vulnerable to certain types of Resiliency Events. For example, portions of the Company's system that are closer to the coast or in lower lying areas are more likely to sustain damage in a flooding event. The accessibility of substations—needed to some extent for the Company to operate and maintain its equipment efficiently—makes them susceptible to physical security threats like vandalism and theft. The Company is proposing physical security measures to mitigate this risk of unauthorized access by nefarious characters. The figure below lists a number of resiliency event types and potential susceptibilities of the Company's transmission and distribution systems.

Figure SRP-15
System Susceptibilities to Resiliency Events

System Susceptibility to Resiliency Events	
Resiliency Event	**Examples of System Susceptibilities**
Extreme Wind Resiliency Events	
High Winds, Derecho, Microburst	Conductor slap (clashing), splice failures, distribution pole failures, transmission structure failures, wildfires, galloping conductors, trees/debris in conductors, wind damage
Tropical Storms	Conductor slap (clashing), splice failures, conductor failures, distribution pole failures, transmission structure failures, transformer failures, flooding of substations, rising water encroaching on conductors and equipment, wind damage, trees/debris in conductors, inability of crews to access areas to begin restoration, wind damage
Hurricanes	Conductor slap (clashing), splice failures, conductor failures, distribution pole failures, transmission structure failures, transformer failures, flooding of substations, rising waters encroaching on conductors and equipment, storm surges, structure failures, wind damage, trees/debris in conductors, inability of crews to access areas to begin restoration
Tornadic activity	Conductor slap (clashing), splice failures, conductor failures, distribution pole failures, transmission structure failures, structure failures, trees/debris in conductors

System Susceptibility to Resiliency Events	
Resiliency Event	**Examples of System Susceptibilities**
Extreme Water Resiliency Events	
Heavy rain	Flooding of substations, rising waters encroaching on conductors and sensitive equipment, storm surges, pole failures, inability of crews to access areas to complete restoration
Flooding	Flooding of substations, rising waters encroaching on conductors and sensitive equipment, storm surges, pole failures, inability of crews to access areas to complete restoration
Lightning	Transformer failures, conductor failures, arrestor failures, capacitor bank failures, fires
Extreme Temperature (Freeze) Resiliency Events	
Freezes	Conductor failures, pole failures, transformer failures, impact on power generation capabilities
Extreme Temperature (Heat) Resiliency Events	
Extreme Heat	Transformer failures, IGSD failures, conductor failures, capacitor bank failures, increased risk of wildfires
Wildfires	Conductor failures, distribution pole failures, transmission structure failures, transformer/substation failures, conductor clashing, conductor vegetation contact, contamination from ash/smoke
Physical Attack-Related Resiliency Events	
Vehicular Collisions	Pole failures, conductor failures, equipment failures, structure failures
Foreign Material Contact	Pole failures, breaker failures, equipment and/or structural failures
Barge Contact	Transmission structure failures, conductor failures
Technology & Cybersecurity-Specific Resiliency Events	
Cyberattacks	Damage to the technology environment, unpermitted access to sensitive data, cascading system outages, loss of systems control and capabilities
Vendor Outages	Loss of telecommunications services, internet services, or cloud services
Domestic Terrorism	Damage to physical systems impacting integrated IT/OT systems, damage to the technology environment, cascading system outages

System Susceptibility to Resiliency Events	
Resiliency Event	**Examples of System Susceptibilities**
Theft of Expensive or Long-lead Time Technology Components	Theft requiring replacement of technology components used at substation, and operational facilities, or data centers that would delay the repair or restoration of service
Situational Awareness-Related Resiliency Events	
Real-Time Operational Visibility	Outdated or limited camera and imagery tools, system and scenario modeling, advanced analytics/AI

Figure SRP-16
System Attributes Susceptible to Resiliency Events

Attribute contributing to Resiliency Event Impact	Extreme Wind	Extreme Water	Extreme Temp (Heat)	Extreme Temp (Freeze)	Physical Attack/ Damage	Technology & Cybersecurity Events	Situational Awareness
Lack of comprehensive system data visualization for analysis	X	X	X	X	X	X	X
Limitations on load shedding ability			X	X			
Presence of wooden poles susceptible to wind damage based on pole class and fire damage	X	X					
Presence of older transmission structures with lower wind rating	X	X		X			
Presence of infrastructure in wooded areas	X		X	X			
Presence of older 69kV transmission system with limited ampacity to serve load under contingency conditions	X		X	X			
Coastal area transmission and distribution system with higher risk of impact from weather events	X		X	X			
Multiple transformers within a substation with risk of cascading fire damage			X				
Need for accessibility to substations, thus increasing risk of physical attacks					X		
Proximity of substation to coastal areas and low-lying areas increasing risk of flooding	X	X					

Attribute contributing to Resiliency Event Impact	Extreme Wind	Extreme Water	Extreme Temp (Heat)	Extreme Temp (Freeze)	Physical Attack/ Damage	Technology & Cybersecurity Events	Situational Awareness
Limited capability to bring in all necessary telemetry	X	X			X	X	X
Higher outage risk to distribution circuits near freeways	X				X		
Overhead conductors with increased risk of temporary faults due to lightning and vegetation	X	X		X	X		
Presence of distribution structures with lower wind rating	X		X				

Section 5. Resiliency Measures

The Company's SRP presents thirty-nine Resiliency Measures that will enhance the ability of the Company's transmission and distribution system to withstand Resiliency Events through a combination of making outages less likely and reducing the duration of those outages. Many of the thirty-five Resiliency Measures address more than one Resiliency Event. Strategic Undergrounding, for example, not only reduces vulnerability to extreme weather Resiliency Events (High Wind, Tornadic Activity, and Hurricanes) but also mitigates damage from Vehicular Collisions. The Company's SRP presents the thirty-nine proposed Resiliency Measures in seven categories. In all but one case, the SRP categorizes Resiliency Measures according to the Resiliency Event or group of Resiliency Events they most directly address. The one exception is a group of Resiliency Measures that address situational awareness, an attribute of the Company's transmission and distribution system that affects the Company's ability to anticipate, prevent, mitigate, and respond to many types of Resiliency Events. The figure below sets out the seven categories, the Resiliency Measures to be discussed in the context of each category, and one or more of the Resiliency Measure methods listed in P.U.C. Subst. R. 25.62(c)(1) used by each Resiliency Measure.

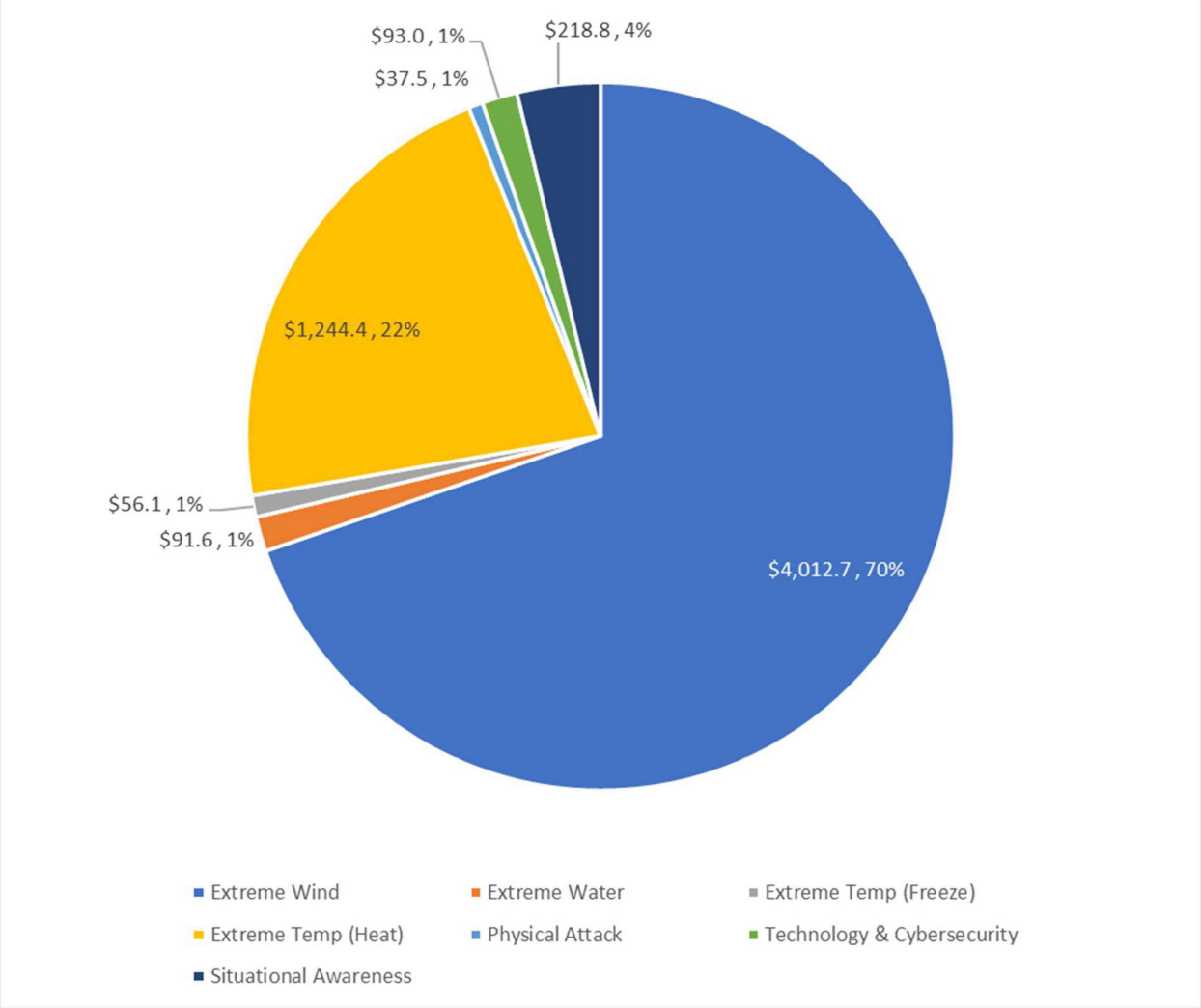
Figure SRP-17
Resiliency Measures by Category

		Extreme Wind			Extreme Water		Extreme Temperature			Physical Attack		Technology and Cybersecurity		Situational Awareness
		Tornado	High Wind Derecho Microburst	Hurricane Tropical Storm	Flooding	Heavy Rain	Heat	Freeze	Wildfire	Physical Attack/ 3rd Party Damage	Theft of Tech Components	Vendor Outages	Cybersecurity	Visibility
System Hardening														
RM-1	Distribution Circuit Resiliency	X	X	X										
RM-4	Distribution Pole Replacement/ Bracing	X	X	X						X				
RM-6	Transmission System Hardening	X	X	X				X	X					
RM-7	69kV Conversion Projects	X	X	X			X	X	X					
RM-8	S90 Tower Replacements	X	X	X				X	X					
RM-9	Coastal Resiliency Upgrades	X	X	X			X	X	X	X				
RM-13	Mobile Substations	X		X	X	X	X	X	X	X	X			
RM-14	Anti-Galloping Technologies		X	X				X						
RM-16	Distribution Capacity Enhancements	X	X	X	X	X	X	X	X	X				
RM-19	Contamination Mitigation						X							
RM-20	Substation Fire Barriers						X		X					
RM-38	Emergency Operations Center													X
RM-39	Hardened Service Centers													X
Undergrounding														
RM-2	Strategic Undergrounding	X	X	X			X	X	X	X				
RM-12	MUCAMS			X	X	X			X					X
RM-17	MUG Reconductor	X	X	X					X					
RM-18	URD Cable Modernization	X	X	X	X	X			X					
Grid Modernization														
RM-03	Restoration IGSD	X	X	X				X	X					
RM-15	Load shed IGSD						X	X	X					
RM-21	Digital Substation									X				
RM-33	Advanced Aerial Imagery/Digital Twin	X	X	X	X		X	X	X					
RM-34	Weather Stations	X	X	X			X	X	X					
RM-36	Voice and Mobile Data Radio System	X	X	X	X	X	X	X	X	X	X	X	X	X
RM-37	Backhaul Microwave Communication	X	X	X	X	X	X	X	X	X	X	X	X	X
PP-1	Microgrid Pilot Project						X	X						
Flood Mitigation														
RM-10	Substation Flood Control				X	X								
RM-11	Control Center Facility Upgrades				X	X								
Information Technology														
RM-28	Spectrum Acquisition	X	X	X	X		X	X	X	X	X	X	X	
RM-29	Data Center Modernization	X	X	X	X		X	X	X	X	X	X	X	
RM-32	Cloud Security, Product Security, & Risk Management													
CyberSecurity														
RM-30	Network Security and Vulnerability Management												X	
RM-31	IT/OT Cybersecurity Monitoring												X	
Physical Security														
RM-26	Substation Physical Security Fencing									X				
RM-27	Substation Security Upgrades									X				
Vegetation Management														
RM-5	Vegetation Management	X	X	X			X	X	X					
Wildfire Mitigation/Response														
RM-22 to RM-25; RM-35	Wildfire Mitigation						X		X					

The figure above summarizes each Resiliency Measure and the Resiliency Event(s)-related impact that the Resiliency Measure is intended to address.

Some Resiliency Measures in the Company's SRP may extend beyond the three-year period, and thus there may be additional capital costs and additional incremental O&M expenses beyond the three-year period. The figure below summarizes the proposed 2026-2028 total cost for the seven categories.

Figure SRP-18
2026-2028 SRP Cost by Category (in millions)



Section 5.1. Extreme Wind Events

The following section offers an overview of the Company's strategy to mitigate damage from extreme wind events to better protect its electric system and restore service to the customers and communities the Company serves. Appendix A of the SRP offers a more detailed explanation of extreme weather exposure in the Company's service territory, including descriptions of event types, past and present susceptibility of certain assets, forecasting methodology, preparation efforts, as well as a review of best practice benchmarks and alternatives.

Section 5.1.1. Susceptibility to Extreme Wind Events

Section 5.1.1.1. Extreme Wind in the Company's Service Territory

As demonstrated by recent weather events, CenterPoint Energy's service territory is often and increasingly subjected to extreme wind events.[5] These events include, but are not limited to, hurricanes, tornadoes, and straight-line winds that all may affect the Company's customers and its service territory differently. A tornado, for example, might destroy or severely damage both electric infrastructure and customer buildings and disrupt the ability to provide customers service along a narrower strip. While the destructive impact of a hurricane can result in damaging infrastructure and knocking out service delivery to a larger segment of customers spread across the Company's entire service area.[6] Thus, it is imperative that CenterPoint Energy prepare for, invest in, and fortify its electric transmission and distribution system against various extreme wind events to be able to maintain reliable service to its customers.

As shown in the figure below, some of the highest climate risks within Harris County are tropical cyclones (hurricanes) and flooding. When compared to the rest of Texas and the United States, tropical cyclones (hurricanes) pose a disproportionately high risk to Harris County.

[5]Appendix A, Section I.

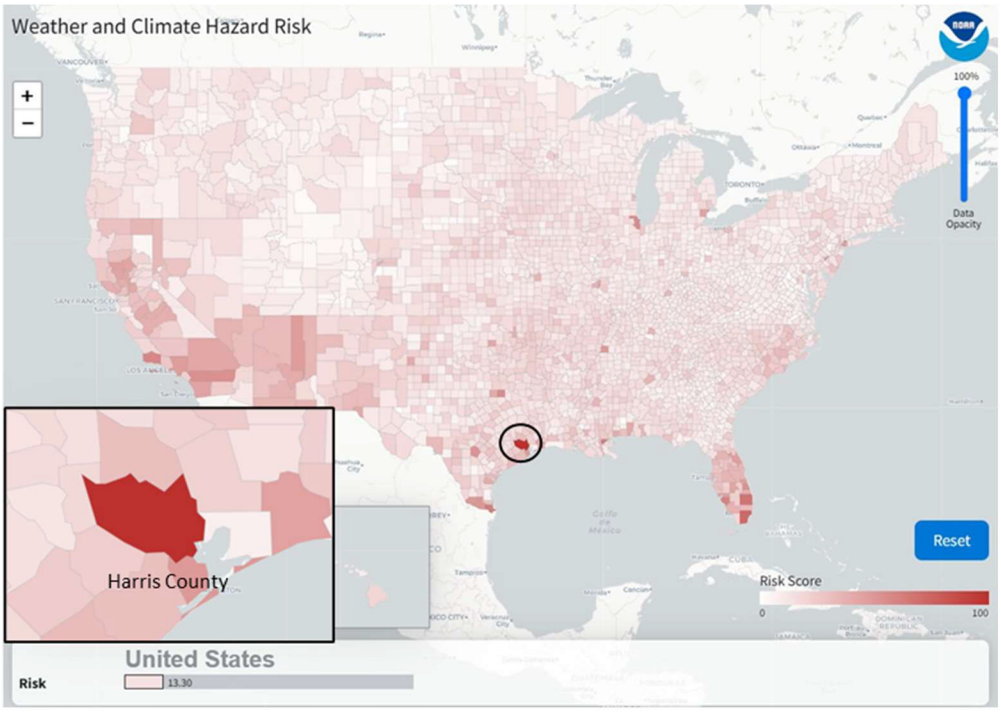
[6] *Id.*

Figure SRP-19
NOAA Weather and Climate Risk Scores (Harris County, Texas, United States)

Data Type	Harris County	Texas	U.S.
Weather and Climate Risk			
Drought Risk	20.36	14.32	11.61
Flooding Risk	100.00	12.97	9.13
Freeze Risk	12.05	13.09	15.72
Severe Storm Risk	94.56	20.58	16.99
Tropical Cyclone Risk	100.00	6.41	4.36
Wildfire Risk	11.81	11.28	6.30
Winter Storm Risk	65.33	15.99	13.71
Flooding, Freeze, Severe Storm, Tropical Cyclone, Wildfire, and Winter Storm Risk	100.00	15.88	12.14

The National Oceanic and Atmospheric Administration ("NOAA") has classified the area in which CenterPoint Energy's customers live and work as having some of the highest weather and climate risks in the entire country (figure below). Harris County—home to many of CenterPoint Houston's customers—is the single darkest (most risky) county on the entire map of weather and climate risk. Extreme wind events are among the variety of destructive weather and climate effects identified by NOAA for the Company's service territory.

Figure SRP-20
NOAA Risk Map (United States)



The Company's SRP responds to these risks and focuses on both the direct and indirect effects of extreme wind events and their impacts on the Company's ability to provide service to its customers. Through this SRP, the Company employs various strategies to mitigating damage from an extreme wind event, including hardening the power system infrastructure, investing in the restoration processes, and deploying advanced technology to optimize service restoration. As each weather type and event is unique, the Company adapts to each extreme wind event, as characterized below.

Section 5.1.1.2. Characterization of Wind Events

Extreme wind events differ in the amount of advanced warning, percentage of system impacted, sustained and gust windspeeds and direction of wind forces. Extreme wind events can cause customer outages primarily due to structural failures of transmission towers and distribution poles and trees falling into lines and poles. Customer outages can also result from secondary weather causes, such as lightning or falling or flying debris. The Company develops strategies and prepares for each unique extreme wind event based on its unique characteristics.

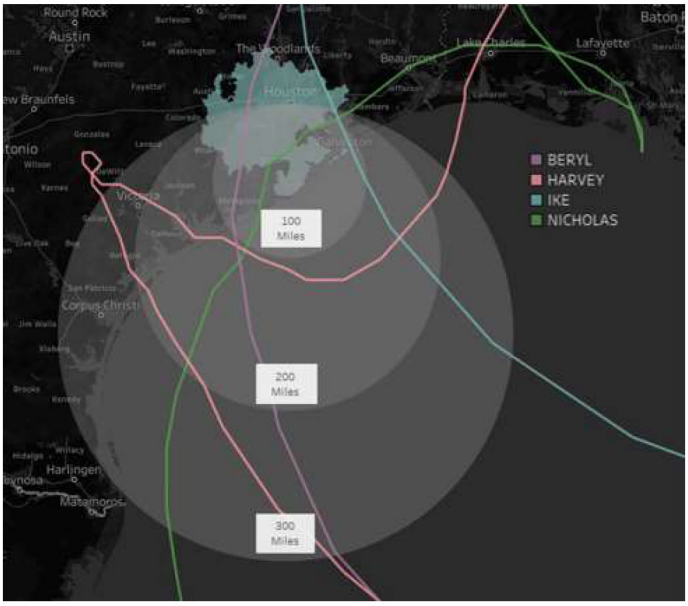
Hurricane. A hurricane results when a storm's maximum sustained winds reach 74 mph in a tropical cyclone originating in the Atlantic basin. Typically, the risk from a hurricane is forecast days prior to the storm making landfall. A storm's track heavily influences the impacts to power system infrastructure as it determines what percentage of the system will experience the maximum wind speeds. Hurricane winds are multidirectional. Thus, as compared to unidirectional wind events, there is an increased risk that vegetation or debris blow into conductors or trees collapse.[7]

Typically, hurricanes are the highest risk wind event in the Company's service territory. Hurricanes cover a large geographic area and can affect 100% of the system serving the Company's customers. Typical hurricanes are approximately 300 miles wide, but their size and intensity can vary, with winds extending outwards between 25 to 150 miles from the eye of the storm, as shown in the figure below.[8]

[7] https://oceanservice.noaa.gov/facts/hurricane.html

[8] Map Created by the Company

Figure SRP-21
Past Hurricane Paths



Derecho. A derecho is a widespread, long-lived, straight-line windstorm associated with a fast-moving severe thunderstorm that can result in destruction like a tornado. Similar to a tornado, most damage typically occurs in one direction along a relatively straight path. For an event to qualify as a derecho, wind damage extends at least 400 miles, the storm system is at least 60 miles wide, and wind gusts are at least 58 mph. A derecho impacts less area than a hurricane since its lower wind speeds lead to a lower level of predicted damage.[9]

Microburst. A microburst is a localized column of sinking air (downdraft) within a thunderstorm and is usually less than or equal to 2.5 miles in diameter. Microbursts can cause extensive damage. Microbursts are typically forecasted on a near-term basis, generally within 6-12 hours before convection is expected to develop. The short timeframe and nature of the damage makes modeling of this weather event extremely difficult. However, the strategies associated with mitigating damage from other extreme wind events can help reduce damage from microbursts.[10]

Tornado. A tornado is a narrow, violently rotating column of air that extends from a thunderstorm to the ground. Tornadoes can be among the most violent phenomena of all atmospheric storms impacting the Company's service territory. Wind speeds associated with

[9] https://www.spc.noaa.gov/misc/AbtDerechos/derechofacts.htm

[10] https://www.weather.gov/bmx/outreach_microbursts

tornadoes can be significantly higher than other extreme wind events, which increases the potential for damage to transmission and distribution structures that support and serve the Company's customers. The typical damage path is 2 to 3 miles in length.[11]

Sustained Prevailing Wind. Prevailing winds are a surface wind predominantly blowing from one direction. Prevailing winds cause customer outages by blowing salt particulate onto electric power system infrastructure that builds up and results in diminished insulation levels. Dominant winds are the trends in wind direction with the highest speed over a particular point on the Earth's surface at any given time. A region's prevailing and dominant winds are caused by global patterns of movement in the Earth's atmosphere. The timescale for persistent high wind events to occur is much slower than the previously identified events. The impact to infrastructure severing coastal customers can be significant.

Section 5.1.2. Preparations for Customer Restoration

Before a Wind Resiliency Event, the Company completes several activities to prepare for customer restoration activities, including modeling damage predictions, assessing availability and requesting mutual assistance resources, staging site location prioritization, and coordinating critical customer restoration efforts, including the deployment of temporary generation facilities.

Section 5.1.2.1. Damage Prediction Modeling

Damage prediction modeling is performed when a storm or hurricane has the potential to impact CenterPoint Energy's customers and service territory. The model consists of estimating wind speed, estimating pole failures, and the types and numbers of crews that may be necessary based on estimated damage, evaluating across the entire system, and determining potential customer restoration needs.

Damage prediction begins with defining the path of a storm by selecting multiple probable scenarios or utilizing NOAA's projected path of a storm. The path, expected wind speed, storm size, and rate at which the storm moves, are used to estimate the maximum potential windspeed that CenterPoint Energy's customers and assets could experience at a 2 square mile polygon level. This, along with pole characteristics, vegetation data from LiDAR, and amounts of soil moisture are then modeled to estimate pole failure rates in each polygon. Pole failure generally occurs when the structure of the pole fails, trees fall onto, or other vegetation or debris makes contact with distribution circuits during an extreme wind event. Structural failure is less probable at windspeeds below the design structures threshold. The need for numbers and type of crews is also estimated

[11] https://www.nssl.noaa.gov/education/svrwx101/tornadoes/

using a target system-wide restoration duration for each forecasted storm or hurricane. Replacing distribution poles is a time-consuming manual process and total customer restoration time following a weather event can depend upon the actual number and area of distribution pole failures. Customer restoration efforts can also be extended if the failed poles are in areas with restricted or limited access to necessary trucks, cranes, and other necessary equipment.

Section 5.1.2.2. Mutual Assistance Resource Levels

If there is advanced notice of an extreme wind event, Mutual Assistance Resources are estimated based on the modeled expected level of damage. These resources are staged outside the areas of the projected storm path for the safety of the crews and to avoid damaging the equipment needed for restoration. Once sustained windspeeds fall below 30 mph, OSHA regulations consider these conditions safe for customer restoration activities to begin. Mutual assistance crews provide various specialized skill sets, including overhead line skills, underground cable crews, vegetation management, damage assessment, etc. The allocation of the Mutual Assistance Resources by skillset depends on each individual storm's impact and unique characteristics as well as local environmental factors, which are discussed within the specific measures identified below. Advances in technology, data, and artificial intelligence is continuing to aid in enhancing damage prediction models and aids in optimizing the necessary resources to be acquired for Mutual Assistance purposes.

Section 5.1.2.3. Staging Sites

Choosing the number and locations of staging sites is also informed by the damage prediction model along with the ability to optimally select staging sites in predicted areas with most significant infrastructure damage, the capacity of the staging site, and geographic location of the staging site. Staging site assessment is refreshed as additional storm forecast prediction information is received up until landfall and then updated one final time post landfall to allow for and inform site adjustments.

Section 5.1.2.4. Critical Customer Restoration

As described in Section III, the Company's service area is home to the largest medical complex in the world and serves a number of regional hospitals and two international airports. In addition to utilizing processes during significant events to prioritize customer restoration, the Company also maintains a database of priority customer locations. Damage prediction modeling assists in forecasting when critical customers are in areas at risk of significant damage. The Company communicates with these critical customers in preparing for a resiliency event. These predictions assist in prioritizing restoration crews and/or the deployment of temporary generation, as well as in supporting the selection of hardening projects.

Section 5.1.3. Service Restoration Efforts

Upon the initial impact of an extreme wind event, a combination of temporary and sustained customer outages occurs on the system.

Section 5.1.3.1. Temporary Customer Outages

Temporary customer outages can result from events such as tree branches or debris falling on or blowing into a conductor. Most temporary customer outages can be restored using automation device Resiliency Measures, such as TripSavers and IGSDs. Automated reclosing can significantly improve customer restoration outcomes; for example, during Hurricane Beryl 430.35 million customer minutes of interruption were saved due to automation device Resiliency Measures.

Section 5.1.3.2. Sustained Customer Outages

Sustained customer outages often result from equipment failures, such as the mechanical failure of a pole or a tree falling on or debris damaging a conductor. Sustained outages can result in all customers served from the impacted substation circuit breaker losing service. Automated devices can sectionalize the damaged portion of the distribution circuit and allow the substation breaker to successfully close. The successful closing of the circuit breaker is critical for two specific reasons. First, doing so restores customers on the circuit between the sectionalization point and circuit breaker. Second, the customer restoration process is also decreased by automating the cut and clear process.

The cut and clear process is conducted by crews patrolling de-energized circuits to identify the location of the damage and then manually isolating the damaged section to allow re-energization from the Control Center. For events which impact widespread or the entire service area, the cut and clear process can take 24 to 72 hours to complete once conditions are safe to work. Automated sectionalizing can begin earlier than manual processes and also reduces the need for truck rolls and manual intervention from the Control Center. Increasing automation for cut and clear sectionalizing could aid in accelerating the customer restoration process by 1 to 2 days. For system wide events, customer minutes of interruption can total over 8.1 million minutes per day (as seen in Hurricane Beryl).

Section 5.1.3.3. Damage Assessment

Damage Assessment encompasses the deployment of inspection crews to areas within the Company's territory impacted by a resiliency event to identify and document damage to the grid that has occurred to aid in efforts to safely restore power to the Company's customers. The damage assessment and cut and clear processes are completed in parallel to help identify and plan system

restoration based on observed damage and to ensure safe conditions for the public and restoration crews by isolating damaged circuit sections. Damage prediction modeling aids in directing resources based on the areas of highest damage concentration as well as estimating the number of damage assessment resources needed to complete field inspections. The efficient completion of damage assessment therefore is critical to establishing customer estimated restoration times and other communications, crew work allocation and material management.

Section 5.1.3.4. Customer Restoration

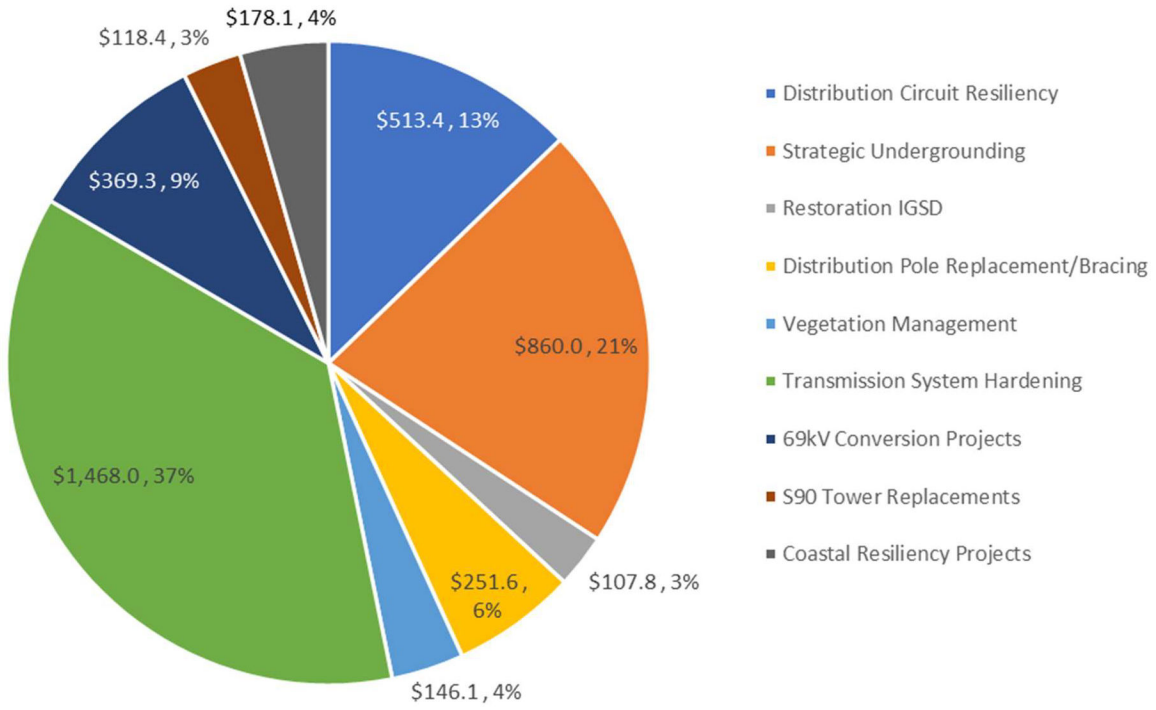
Overall customer restoration times can vary based on the specific characteristics and breadth of the extreme wind event; however, the following fundamentals hold true for all events. Once restoration begins, temporary generation can be deployed based on pre-determined locations identified in collaboration with County Offices of Emergency Management. Similarly, the Company maintains a database of critical customers to inform prioritization of restorations. The dynamic nature of each event requires processes and procedures that can be adjusted to unforeseen circumstances or the health and safety of the public. To help address these emergent issues, the Company embeds resources in state, city and county Emergency Operations Centers, activates its priority desk, and maintains communication with federal, state, and local officials. Beyond critical customers, the restoration process works to address outage events based on the greatest number of impacted customers.

Section 5.1.4. Investment Methodology

The Company selects investments using a 3-tier process, which utilizes LiDAR-based modeling, historical events, and industry best practices.[12] For instance, transmission and distribution hardening—both of which mitigate the risks of tropical cyclones—are two of the Company's highest investment areas for extreme wind events, as shown in the figure below.

[12] Appendix, Section 1.1.

Figure SRP-22
Extreme Wind Cost Allocation (in millions)



Section 5.1.4.1. LiDAR-Based Modeling

The Company uses LiDAR-based modeling to prioritize certain investments based on a variety of factors. These factors include event characteristics, asset vulnerability, benefits of automation, and repair times of predicted damage (based on expected crew productivity). Additionally, the model analyzes climate projections to complete a Benefit Cost Analysis ("BCA") over a longer time period, which takes into account changes in frequency and intensity of events. The investments in the Company's SRP were evaluated by an independent third party and are expected to reduce customer minutes of interruption by 1,055.7 million minutes.

Section 5.1.4.2. Historic Susceptibility to Extreme Wind Resiliency Events

The Company is constantly identifying lessons learned, opportunities for enhancement of design, and ways to improve processes and procedures for each successive event. For example, experience during Hurricane Ike (2008) led to changing the standards for the transformer installation overhead design. The effects of this change were realized during Hurricane Beryl (2024) when pole failures associated with transformer equipment poles was greatly diminished in

comparison.[13] The figure below summarizes the extreme wind Resiliency Events that have occurred in the Company's service area, the total number of customers affected by an outage by the Resiliency Event, and the restoration times for Extreme Wind Resiliency Events from 2020 through 2024.

Figure SRP-23
2020-2024 Extreme Wind Resiliency Events

Resiliency Event	Total Customers Affected	Restoration Time
2020		
April 29th: A strong squall and associated cold front produced very strong, gusty winds, frequent lightning, and heavy rain.	256,057	16 hours, 15 minutes
May 15th-16th: Daytime heating, elevated moisture levels, and instability combined to produce scattered showers and thunderstorms, frequent lightning, strong gusty winds, and heavy rainfall. Subsequently, a strong upper-level disturbance pushed a line of severe thunderstorms with frequent lightning, strong damaging winds gusting up to 60 mph, and heavy downpours.	114,575	28 hours, 5 minutes
May 27th-29th: An upper-level disturbance combined with daytime heating and an unstable environment produced severe thunderstorms with severe wind gusts, frequent lightning, and heavy rainfall.	423,000	32 hours, 15 minutes
September 17th-18th: Hurricane Nicholas produced powerful, gusty winds, heavy rain, and flooding.	706,429	120 hours, 5 minutes
October 28th-29th: High winds sustained at 30-35mph with gusts up to 50mph.	308,585	32 hours, 55 minutes

[13] Appendix A, Section 2.2.3.1.

Resiliency Event	Total Customers Affected	Restoration Time
2022		
January 8th-9th: A warm front brought strong gusty winds, tornados, lightning, and heavy rain.	79,138	27 hours, 20 minutes
March 22nd: Strong thunderstorms, heavy rain, frequent lightning, and wind gusts nearing 40 mph.	49,743	5 hours, 40 minutes
2023		
January 24th-26th: A strong disturbance brought severe thunderstorms with frequent lightning, hail, damaging wind gusts, tornadoes, and heavy rain.	207,547	57 hours, 10 minutes
June 8th-10th: Scattered storms that brought strong wind gusts, small hail, and frequent lightning strikes.	362,363	34 hours
June 21st-25th: Thunderstorms brought frequent lightning, hail, and damaging winds.	574,582	77 hours, 40 minutes
2024		
January 5th: Fair and dry conditions with increasing wind in the afternoon as an approaching storm system pushed eastward bringing widespread showers, some heavy, and isolated thunderstorms with a few stronger storms including one Tornado	141	5 hours, 52 minutes
April 10th - 11th: Strong thunderstorms pushed through the area in the early morning of April 10, bringing heavy lightning and high winds, high winds, and confirmed case of tornado damages in the Katy area.	288,203	24 hours, 30 minutes

Resiliency Event	Total Customers Affected	Restoration Time
May 2nd - 3rd: A series of disturbances brought heavy rain and strong thunderstorms Thursday morning. Wind gusts of 30-40mph as well as frequent lightning and heavy downpours were the results. Additionally, a microburst event was detected in the northern portions of the Greenspoint and Humble Service Areas.	239,411	36 hours, 4 minutes
May 5th: Microburst event in Pinehurst, Texas	2,951	30 minutes
May 16th – 24th: A weather event brought widespread severe weather, derecho storm conditions with windspeeds of up to 100 mph, Category 2 Hurricane-like winds, and two tornadoes into the Houston metro area. A derecho is defined by the National Oceanic and Atmospheric Administration as a line of intense, widespread, long-lived and fast-moving straight-line windstorms and sometimes thunderstorms that moves across a relatively straight swath and is characterized by damaging winds similar to a tornado. Additionally, two EF1 tornados touched down in the Waller and Harris County portions of CNP' s service area. These events caused widespread devastation to CNP transmission and distribution system including toppling of transmission towers, falling and broken distribution poles, equipment failures, extensive vegetation and debris damages, and prolonged outages.	1.23 million	190 hours, 40 minutes
May 28th – May 30th: Severe storms passed through CNP's service area which brought strong wings, locally heavy rainfall, and frequent lightning	508,666	54 hours, 32 minutes
July 8th - July 19th: Hurricane Beryl made landfall in Texas as a powerful Category 1 hurricane, carrying with it significant sustained winds, storm surges and torrential rain. The storm significantly impacted CenterPoint' s service territory, with damaging	3.47 million	278 hours, 20 minutes

Resiliency Event	Total Customers Affected	Restoration Time
winds reaching 97-miles-per-hour in Brazoria County, 89-miles-per-hour in Harris County, and 78-miles-per-hour in Galveston County, according to the Houston-Galveston National Weather Service. The destructive winds caused widespread damage to the electric grid that included uprooted trees, downed branches and other debris affecting its distribution poles, wires, and equipment, resulting in peak outages of approximately 2.11 million customers and approximately 3.47 million non-distinct customers during the storm period.		
December 28th: Strong storms brought high winds and multiple tornados in Waller, Harris, and Galveston County	26,142	31 hours 46 minutes

Note: *Total Customers Affected represents the non-distinct customer count for each event.*

Section 5.1.4.3. Benchmark Events – Hurricane Beryl

While all significant events provide lessons learned, benchmark events are those which resulted in the highest customer impacts for a given Resiliency Event type. Each benchmark event and analysis are further detailed in Appendix A. Using the most recent benchmark event as an example, below are details on Hurricane Beryl's impact as an extreme wind event.

In the early hours of July 8, 2024, Hurricane Beryl made landfall near Matagorda with the east side of the eyewall impacting Brazoria County. It produced wind gusts over 60-70 mph (97-113 km/h) with a peak gust of 97 mph (156 km/h) in Brazoria County. In addition to the hurricane, there were 16 reported tornadoes associated with the system, ranging from EF0 to EF2 in intensity that were confirmed in Texas; another tornado tracked out of Louisiana and into Texas. The storm's eye wall tracked west of the most populated portions of the Company's service territory, exposing the transmission and distribution system to the worst case (the "dirty side") wind loading scenario. Systemwide, the storm affected some or all customers being served by approximately 215 substations and 1,688 feeders.