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Item Number - 280

CenterPoint Energy

July 30, 2025

Public Utility Commission of Texas
Attn: Central Records
1701 N. Congress Avenue, 7th Floor
Austin, Texas 78701

RE: Docket No. 57579, *Application of CenterPoint Energy Houston Electric, LLC for Approval of its 2026-2028 Transmission and Distribution System Resiliency Plan*

Please void the filing in **Docket No. 57579, Item No. 279** dated July 30, 2025.

Please find attached correct filing.

Sincerely,

Michael Burleson

Sam Chang
Director and Associate General Counsel

1005 Congress Avenue, Suite 650
Austin, Texas 78701
(512) 397-3005
se.chang@centerpointenergy.com

July 30, 2025

Chairman Thomas J. Gleeson
Commission Kathleen Jackson
Commissioner Courtney K. Hjaltman
Public Utility Commission of Texas
1701 North Congress Ave., 7th Floor
Austin, Texas 78701

RE: Docket No. 57579, *Application of CenterPoint Energy Houston Electric, LLC for Approval of its 2026-2028 Transmission and Distribution System Resiliency Plan*

Dear Chairman and Commissioners:

CenterPoint Energy Houston Electric, LLC (the Company) looks forward to the Public Utility Commission's consideration of its System Resiliency Plan (SRP) at the July 31st Open Meeting. The Company also appreciates the opportunity to provide a presentation on its SRP and the mediated settlement agreement, and to answer any questions that the Commissioners may have regarding the SRP or the terms of the mediated settlement agreement.

The following Company representatives will be present at the July 31st Open Meeting to answer questions:

- Jason Ryan (presenter), Executive Vice President, Regulatory Services and Government Affairs;
- Eric Easton, Vice President, Grid Transformation and Investment Strategy; and
- Nathan Brownell, Vice President, Resilience and Capital Delivery.

Additionally, the following Guidehouse, Inc. experts will be present and available to answer questions:

- Eugene Shlatz, Director, Energy Solutions Practice; and
- Dr. Joseph Baugh, Associate Principal, Energy Solutions Practice.

Enclosed with this letter is a copy of the slide deck the Company will use during its presentation.

Thank you,

Sam Chang
Enclosure

CenterPoint Energy's 2026-2028 Transmission and Distribution System Resiliency Plan

Docket No. 57579, ***Application of CenterPoint Energy Houston Electric, LLC for Approval of its 2026-2028 Transmission and Distribution System Resiliency Plan***

CenterPoint Energy

Settlement Executive Summary

Resiliency Event Category (# of measures)	Estimated Total Investment (millions)	Customer Minutes of Interruption Savings (millions)
Extreme Wind (5)	$1,835.8	685.6
Extreme Water (1)	$7.0	2.5
Extreme Temp - Freeze (2)	$19.6	5.3
Extreme Temp - Heat (9)	$966.4	166.3
Physical Attack (2)	$37.5	42.7
Technology & Cybersecurity (5)	$93.0	N/A*
Situational Awareness (7)	$218.8	10.8
Total (31)	**$3,178**	**913.1**

Comprehensive settlement reached through **SOAH-led mediation**

Stronger distribution poles: 55,000 poles rated to 110 mph and 132 mph will be either installed new or replaced or braced to withstand stronger storms

Vegetation management: Industry-leading, three-year vegetation management cycle for distribution circuits with 100% of power lines cleared of hazardous vegetation

Automation Devices: 100% of lines serving the most customers will include devices capable of self-healing to reduce the impact of outages

Modernized cables: 20,150 spans of underground cables will be modernized to reduce the frequency and impact of outages

Technology and cybersecurity: Industry leading AI technology to improve risk mitigation, better optimize investment decisions, deter and detect unwanted cyber threats, and improve customer restoration times

Performance metrics: Similar to other utilities approved SRPs, with certain CenterPoint Energy-specific additions

Estimated **$1.40/month average residential customer impact beginning in 2026, becoming approximately $4.78/month by 2030.** Work will be completed in 3 years.

* Qualitative benefit analysis performed by Guidehouse

Our commitment to Greater Houston: Building the most resilient coastal grid in the country.

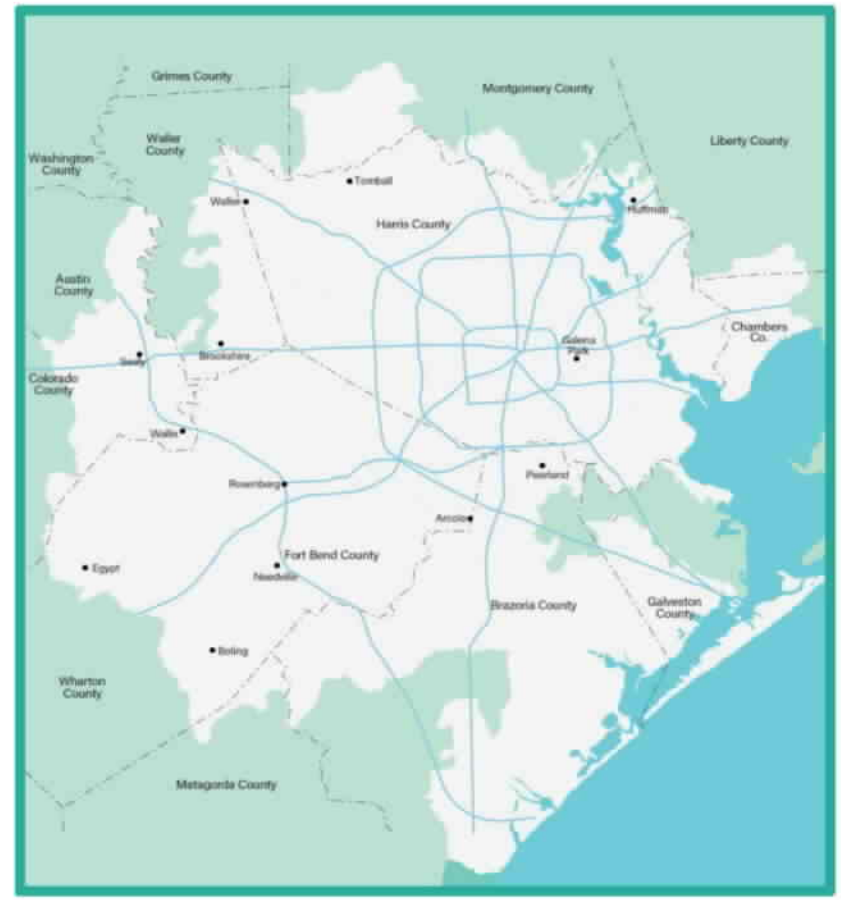
Our service territory

CenterPoint Energy

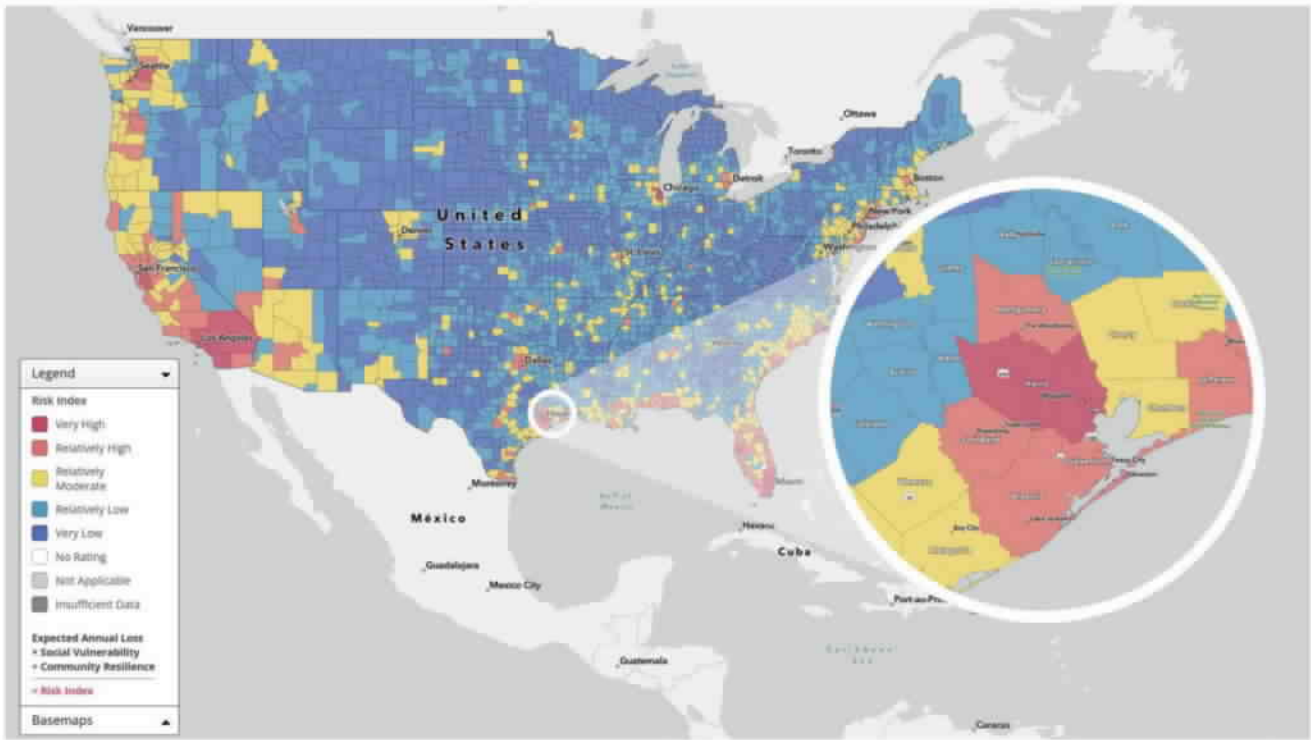
CenterPoint Energy Houston Electric Service Territory

- Greater Houston area currently has the **4th largest population in the U.S.**
- Texas Medical Center is the **world's largest medical center**
- The Port of Houston is one of the **busiest container ports in the U.S.**
- CEHE serves both **George Bush Intercontinental Airport** and **William P. Hobby Airport**
- Houston accounts for **~1/3 of the nation's base petrochemical manufacturing** capacity

2.8M	~25%	4,000	56,500+
Metered customers	of ERCOT peak load	Miles of transmission	Miles of distribution



FEMA National Risk Index Map



Source: https://hazards.fema.gov/nri/map (National Risk Index version March 2023)

- **Harris County, Texas has a FEMA Risk Index score of 99.97 (out of 100).**
- Compared to the rest of the United States, Harris County's Risk Index component scores of **Expected Annual Loss** and **Social Vulnerability** are **VERY HIGH**, while **Community Resilience** is **VERY LOW**.

NOAA Weather and Climate Hazard Risk Map

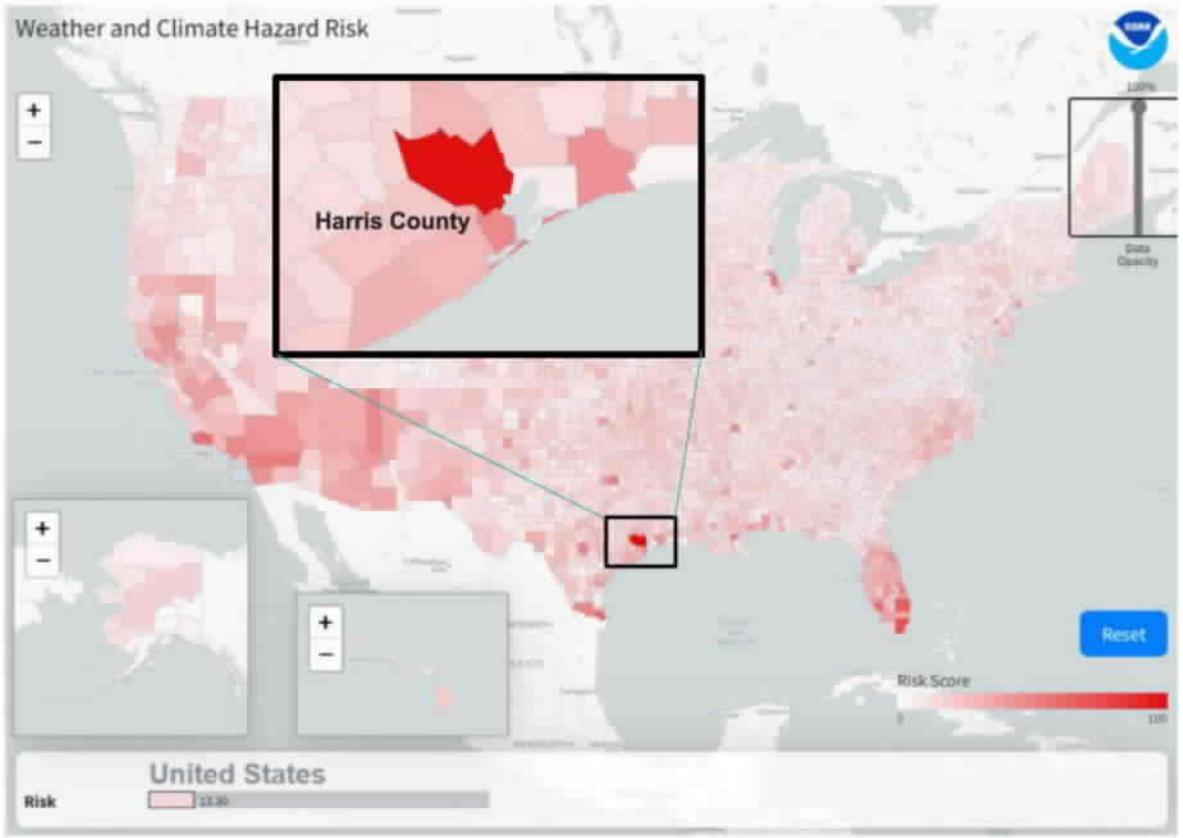
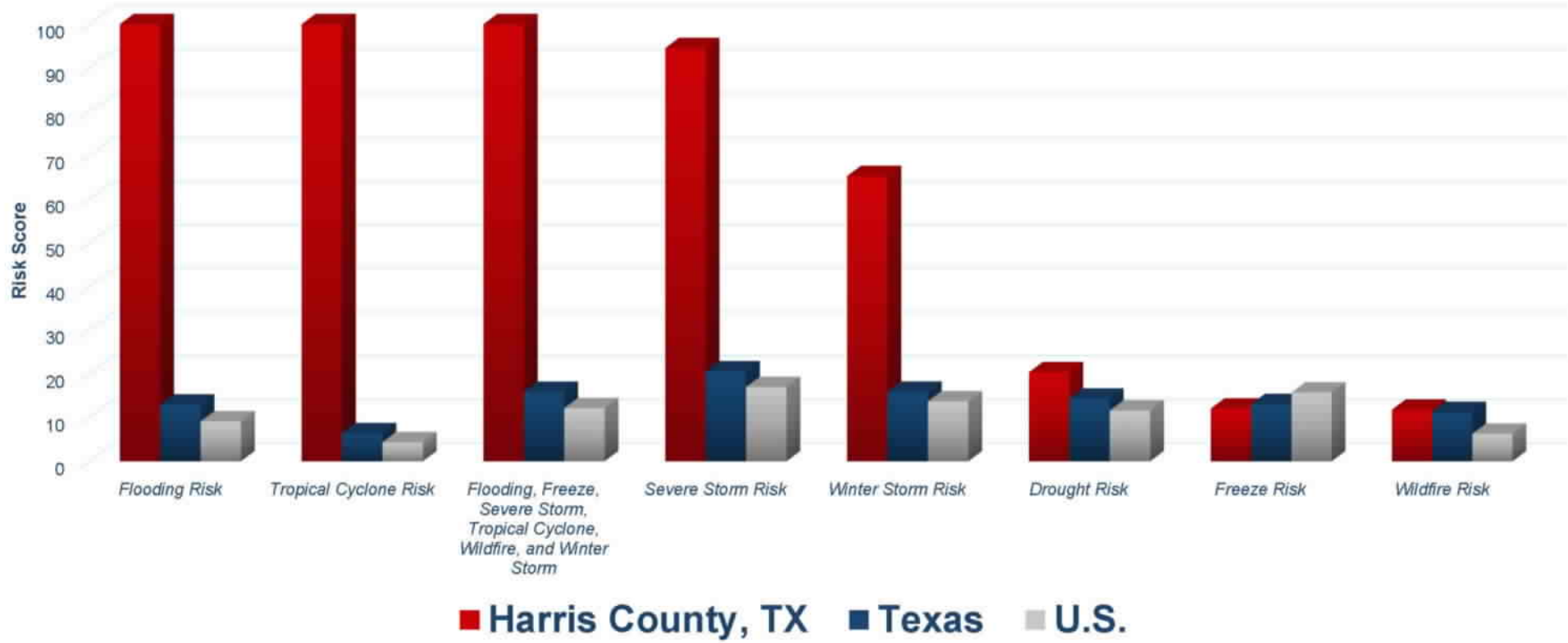


Image courtesy of National Oceanic and Atmospheric Administration

- **Greater Houston has the highest weather/climate hazard risk in the country**
- Harris County has more high-risk zones than any other county (per FEMA)
- Densest customer base coupled with densest urban vegetation along the coast

NOAA Risk and Vulnerability Summary

Harris County leads in multiple weather-related risk and vulnerability factors



Source: NOAA National Centers for Environmental Information (NCEI) U.S. Billion-Dollar Weather and Climate Disasters (2025). https://www.ncei.noaa.gov/access/billions/, DOI: 10.25921/stkw-7w73

Our post-Hurricane Beryl actions

CenterPoint Energy

Completed: 40+ post-Beryl commitments

Strengthening the Grid

- ✓ Install or replace 25,000 poles
- ✓ Undergrounding 400 miles of power lines and 10 crossings
- ✓ Elevate and harden 2 substations
- ✓ Harden 10 transmission miles
- ✓ Trim or remove vegetation from 4,000 miles
- ✓ Install 4,500 automated reliability devices and 350 Intelligent Grid Switching Devices
- ✓ Install 100 new weather monitoring stations

Improving Communications

- ✓ Launch year-round outreach
- ✓ Outage Tracker Improvements: Launch Spanish Outage Tracker (11/30), incorporate premise level info (1/31) and launch ability to report hazards (5/30)
- ✓ Host or participate in 20 community preparedness and safety events
- ✓ Host 3 in-language webinars
- ✓ Host 2 critical load customer webinar
- ✓ Host critical care customer webinar
- ✓ Send bi-monthly customer email and direct mail
- ✓ Send quarterly critical care customer email and direct mail

Strengthening Partnerships

- ✓ Implement a new storm crew management tool
- ✓ Meet with each city and county officials to discuss emergency preparedness, safety and coordination
- ✓ Conduct annual pre-hurricane season safety briefing with state officials and regulators
- ✓ Host pre-hurricane season open house with key partners, customers and media
- ✓ Host 2 exercises with local emergency management offices and state stakeholders
- ✓ Donate and install 21 generators

Timeline of our action

To address extreme weather risk, we launched the Greater Houston Resiliency Initiative.

July 2024 – August 2024

40+ immediate actions to improve resiliency, communications and partnerships

September 2024 – June 1, 2025

Additional suite of actions to prepare for 2025 hurricane season

June 1, 2025 – December 31, 2025

Tailored actions during hurricane season to address potential impacts in neighborhoods and communities

2026 – 2028

System resiliency plan actions to address future extreme weather

Examples of work completed

~45% reduction in customer outage minutes and
~33% fewer vegetation-related outages compared to the first half of 2024

Resiliency actions
(July 2024 – June 2025)


Installing stronger, more storm-resilient poles


Installing automation devices capable of self-healing


Clearing hazardous vegetation near power lines


Undergrounding power lines

Complete As of May 22, 2025	Target By June 1, 2025
26,470 POLES	26,000 POLES
5,159 DEVICES	5,150 DEVICES
6,018 MILES	6,000 MILES
417 MILES	400 MILES

Our SRP considerations

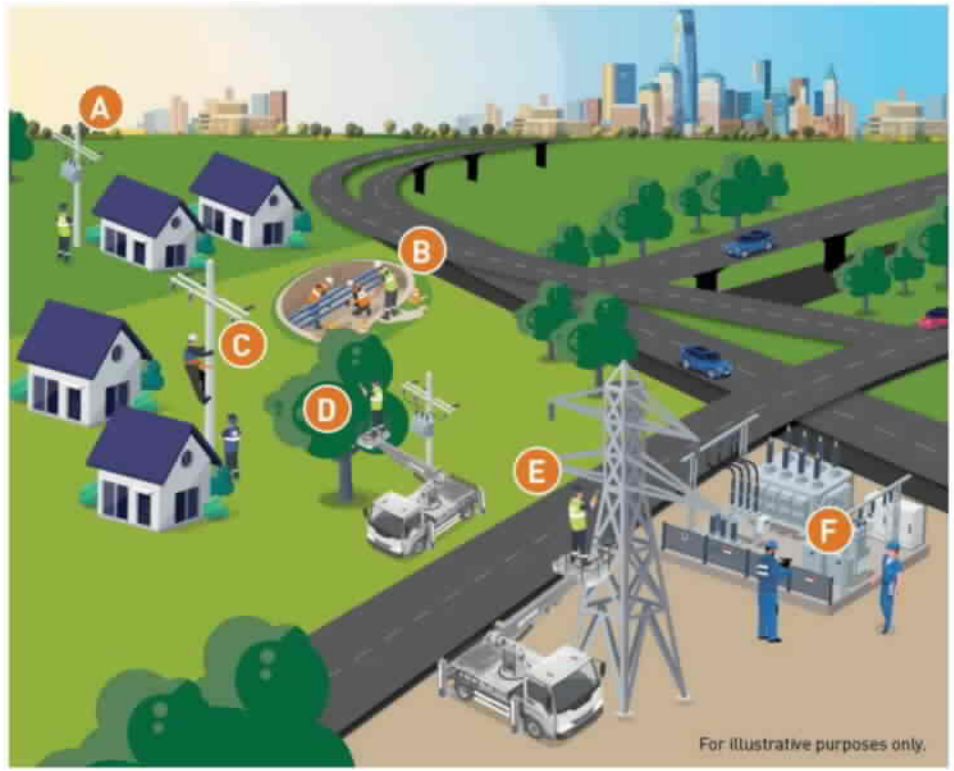
CenterPoint Energy

Building the Most Resilient Coastal Grid in the Country

2026 – 2028 System Resiliency Plan Proposal

The proposed SRP was designed to accomplish:

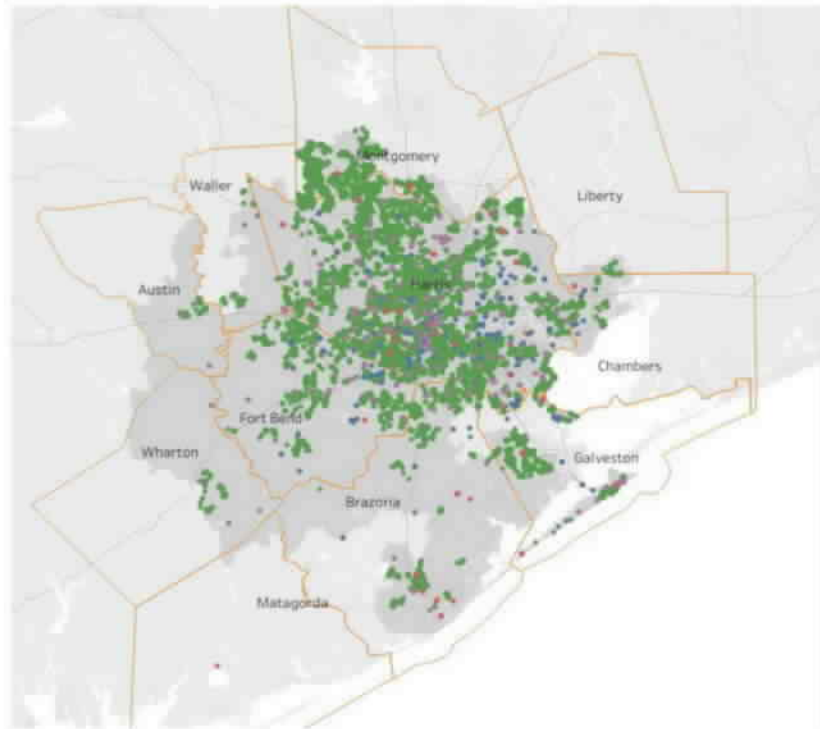
- **A** **100%** of lines serving the most customers have automated devices
- **B** **50+%** of the system undergrounded
- **C** **55,000** stronger, storm-resilient poles in place
- **D** **100%** of lines cleared of hazardous vegetation every 3 years
- **E** **2,200+** transmission structures rebuilt or upgraded
- **F** **99%** of substations raised to mitigate flood risk



This plan would have reduced outages by about **1.3 billion minutes** into 2029

Becoming the Most Resilient Coastal Grid in the Country

- Incorporates 3rd party feedback to improve customer and external communications, **build a smarter grid, stronger grid**, **self-healing grid**, and **improve customer restoration times**
- Accelerates the deployment and use of industry leading AI technologies to improve risk mitigation, **better optimize investment decisions**, and **improve customer restoration times** with more efficient decision-making **processes and execution**
- Developed a project-based approach using recently completed accessibility analytics
- Asset deployment pace must increase based on Post-Beryl lessons learned, Greater Houston Resiliency Initiative, PUCT Investigation report (Project No. 56822), and **customer's and community leaders' expectations**

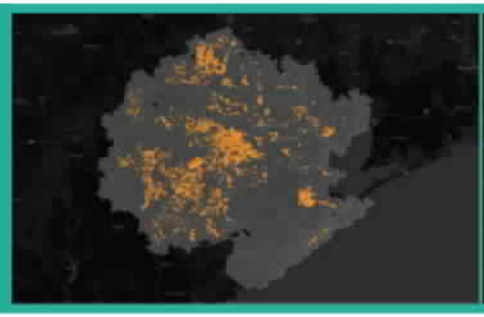


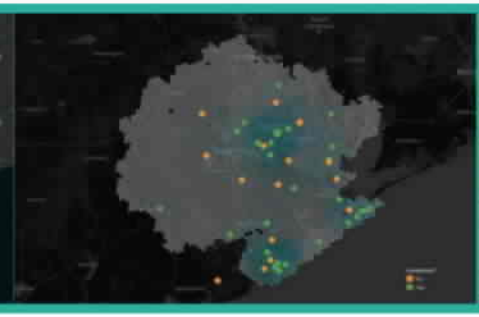
3-Tiered Approach to Project Identification

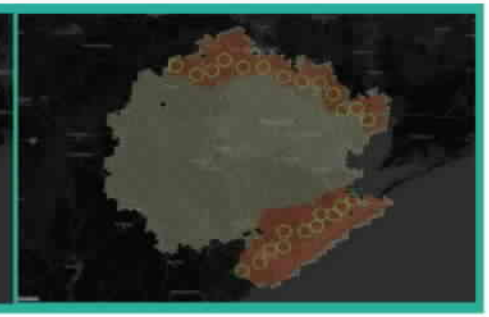
Post-Event Analysis

Industry Best Practices

Scenario-Based Modeling







First and Second System Resiliency Plan (SRP) Comparison

	Docket 56548 *Filed Apr. 29, 2024*	Docket 57579 *Filed Jan. 31, 2025*	Docket 57579 *Jun. 12, 2025 Settlement*
Total estimated costs	**$2.28B**	**$5.75B**	**$3.18B**
Transmission	*$1.14B*	*$2.16B*	*$0.13B**
Distribution	*$1.17B*	*$3.59B*	*$3.05B*
Capital / O&M	*$2.2B / $85.9M*	*$5.55B / $210M*	*$2.98B / $202.6M*
Count of Resiliency Measures	**25**	**39**	**31**
3-Year Customer Minutes of Interruption Savings	**940M**	**1.3B**	**913M**
3-Year Bill Impact	**$2.99/month**	**$7.33/month**	**$4.78/month after 4 years**

**Transmission amounts based on T/D allocation of included resiliency measures*

Our SRP settlement

CEHE Differentiators

Included transmission

Included transmission investments as allowed under statute, for more holistic view, greater transparency, and post-Beryl stakeholder feedback

Aligned with other utilities

Parties agreed to remove transmission investments to allow for apples-to-apples comparison with other utility SRPs
Our proposed transmission investments removed from the SRP will be addressed outside of the SRP process

Recovery deferred

Deferred ***recovery*** of $242M to second half of 2029, but work will still be completed within 3-year SRP timeframe

Reached settlement

Successful settlement reached through SOAH-led mediation

CEHE's System Resiliency Plan Settlement Overview

Smart investments, significant customer benefit and balanced costs

Resiliency Event Category	Estimated Capital (million)	Estimated O&M (million)	Estimated Total (millions)	3-Year CMI Savings (millions)	BCA Ratio
Extreme Wind (5)	$1,694.3	$141.5	$1,835.8	685.6	7.3
Extreme Water (1)	$7.0	None	$7.0	2.5	15.1
Extreme Temperature - Freeze (2)	$18.5	$1.1	$19.6	5.3	7.1
Extreme Temperature - Heat (9)	$929.2	$37.2	$966.4	166.3	4.3
Physical Attack (2)	$37.4	$0.1	$37.5	42.7	25.2
Technology & Cybersecurity (5)	$79.6	$13.5	$93.0	N/A*	N/A*
Situational Awareness (7)	$209.5	$9.2	$218.8	10.8	4.8
Total (31)	**$2,975.4**	**$202.6**	**$3,178.0**	**913.1**	**6.5**

* Qualitative benefit analysis performed by Guidehouse.

SRP Settlement Overview

Automation Devices: 100% of lines serving the most customers will include automation devices capable of self-healing to reduce the impact of outages on customers;

Stronger Distribution Poles: 55,000 stronger, more storm-resilient poles (rated to 110 mph and 132 mph) will be either installed new or replaced or braced to withstand stronger storms;

Vegetation Management: Industry-leading, three-year vegetation management cycle for distribution lines, with 100% of power lines cleared of hazardous vegetation;

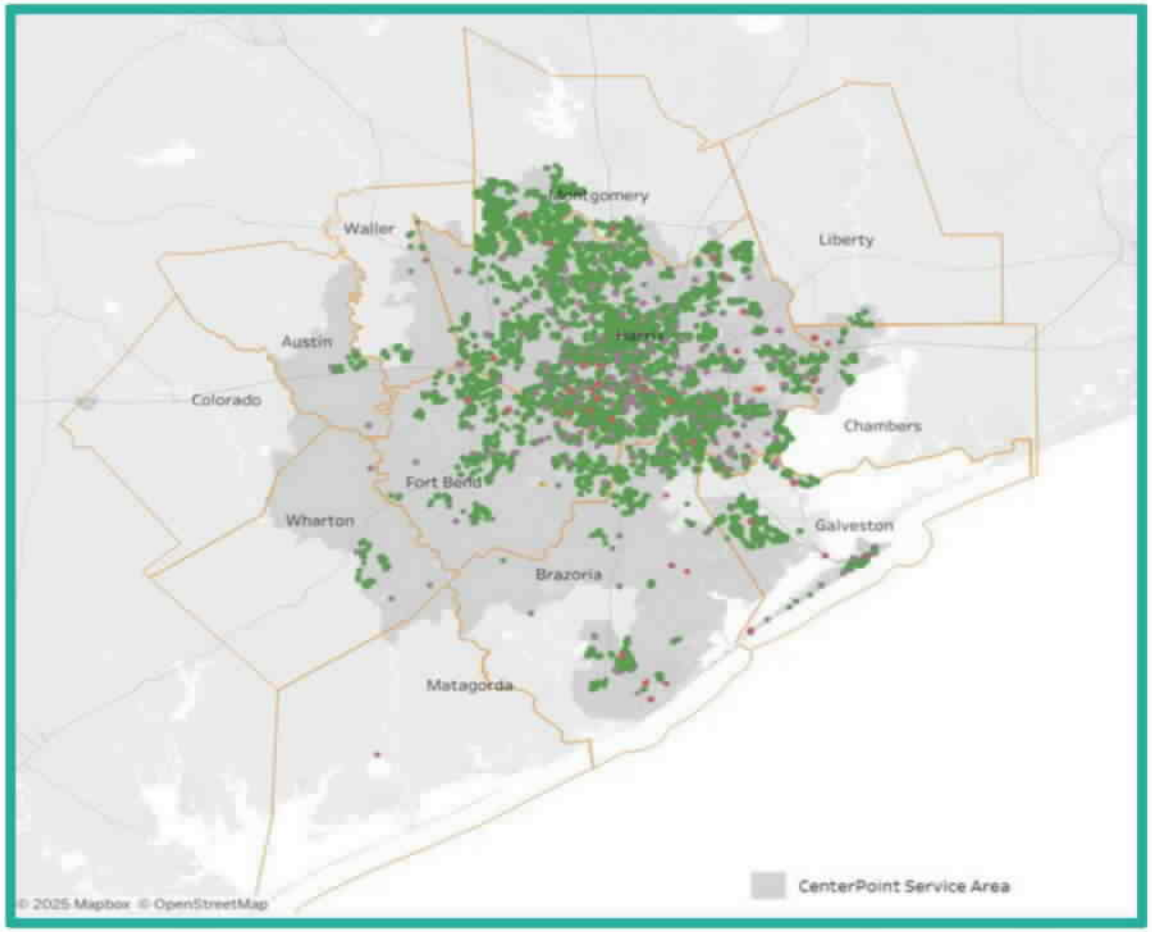
Modernized Cables: 20,150 spans of underground cables will be modernized to reduce the frequency and impact of outages on customers;

Technology & Cybersecurity: Industry leading AI technologies to improve risk mitigation, better optimize investment decisions, deter and detect unwanted cyber threats, and improve customer restoration times with more efficient decision-making processes and execution

Customer Bill Impact: Spreading investments over four years vs. three years will minimize bill impacts and help keep customer bills more affordable

SRP Settlement Proposed Project Map

Benefitting all counties served with key resiliency investments



Substations

- Substation Fire Barriers
- Digital Substation
- Contamination Mitigation – Substation

Undergrounding

- MUG Reconductor
- URD Cable Modernization
- Strategic Undergrounding
- Strategic Undergrounding – Hospitals
- Strategic Undergrounding – Veg

Distribution Hardening

- Distribution Circuit Resiliency
- IGSD Installation
- Wildfire IGSD
- Distribution Capacity Enhancement
- Contamination Mitigation – Distribution

Physical Security

- Physical Security Fencing

Vegetation Management

Current Distribution VM

- Approximately $46M/year
- Approximately 4,070 miles/year
- Historical Proactive VM
  - 2022 = 3,988 miles
  - 2023 = 4,608 miles
  - 2024 = 5,780 miles

3 Year SRP Distribution VM

- Additional $141M
- Additional 11,190 miles
  - 4,898 mils of 35kV circuits
  - 6,292 miles of 12kV circuits
    - 606 miles located in narrow easements/restricted access
- Per Mile Cost Drivers
  - 35kV and 12kV circuits in narrow easements cost more to trim ($11,859 and $21,855 respectively)
  - Vendors are charging more


Q&A

Appendix

CenterPoint Energy

Extreme Wind Resiliency Measures

Resiliency Measure	Estimated Capital Costs (millions)	Estimated Incremental O&M Expense (millions)	# of Assets	Estimated 3-Year CMI Savings (millions)	BCA Ratio
Distribution Circuit Resiliency	$500	None	24,347 poles	256.0	12.1
Strategic Undergrounding	$837	None	108 miles	79.7	2.8
Restoration IGSD	$107.3	$0.5	900 devices	97.0	19.1
Distribution Pole Replacements/Bracing	$250	None	29,808 poles	120.6	9.9
Vegetation Management	None	$141	11,190 miles	132.3	3.7
Subtotal	**$1,694.3**	**$141.5**		**685.6**	**7.3**

Extreme Water Resiliency Measures

Resiliency Measure	Estimated Capital Costs (millions)	Estimated Incremental O&M Expense (millions)	# of Assets	Estimated 3-Year CMI Savings (millions)	BCA Ratio
Control Center Flood Control	$7.0	None	1 location	2.5	15.1
Subtotal	**$7.0**	**None**		**2.5**	**15.1**

Extreme Temperature (Freeze) Resiliency Measures

Resiliency Measure	Estimated Capital Costs (millions)	Estimated Incremental O&M Expense (millions)	# of Assets	Estimated 3-Year CMI Savings (millions)	BCA Ratio
Anti-Galloping Technologies	$14.0	$1.0	25 circuit miles	5.3	7.1
Load shed IGSD Installation	$4.5	$0.1	36 devices	N/A*	N/A*
Subtotal	**$18.5**	**$1.1**		**5.3**	**7.1**

* Qualitative benefit analysis performed by Guidehouse.

Extreme Temperature (Heat) Resiliency Measure

Resiliency Measure	Estimated Capital Costs (millions)	Estimated Incremental O&M Expense (millions)	# of Assets	Estimated 3-Year CMI Savings (millions)	BCA Ratio
Distribution Capacity Enhancements/Substations	$575.0	None	19 substations	138.7	5.6
MUG Reconductor	$125.0	None	11.2 miles	7.5	1.4
URD Cable Modernization	$75.0	None	20,150 spans	7.5	2.2
Contamination Mitigation	$94.0	6.0	13 circuits	10.5	2.4
Substation Fire Barriers	$9.0	None	36 fire barriers	1.5	4.0
Digital Substation	$31.8	None	13 substations	1.2	1.7
Wildfire Advanced Analytics	None	$0.9	N/A	N/A*	N/A*
Wildfire Vegetation Management	None	$30.0	3,000 miles	N/A*	N/A*
Wildfire IGSD	$19.4	$0.3	150 devices	N/A*	N/A*
Subtotal	**$929.2**	**$37.2**		**166.3**	**4.3**

* Qualitative benefit analysis performed by Guidehouse.

Physical Security Resiliency Measures

Resiliency Measure	Estimated Capital Costs (millions)	Estimated Incremental O&M Expense (millions)	# of Assets	Estimated 3-Year CMI Savings (millions)	BCA Ratio
Substation Physical Security Fencing	$18.0	None	21 substations	17.6	21.7
Substation Security Upgrades	$19.4	$0.10	30 substations	25.1	28.5
Subtotal	**$37.4**	**$0.10**		**42.7**	**25.2**

Technology & Cybersecurity Resiliency Measures

Resiliency Measure	Estimated Capital Costs (millions)	Estimated Incremental O&M Expense (millions)	# of Assets	Estimated 3-Year CMI Savings (millions)	BCA Ratio
Spectrum Acquisition	$42.0	None	N/A	N/A*	N/A*
Data Center Modernization	$12.7	$1.3	N/A	N/A*	N/A*
Network Security and Vulnerability Management	$7.5	$2.0	N/A	N/A*	N/A*
IT/OT Cybersecurity Monitoring Program	$13.4	$4.2	N/A	N/A*	N/A*
Cloud Security, Product Security & Risk Management	$4.0	$6.0	N/A	N/A*	N/A*
Subtotal	**$79.6**	**$13.5**			

* Qualitative benefit analysis performed by Guidehouse.

Situational Awareness Resiliency Measures

Resiliency Measure	Estimated Capital Costs (millions)	Estimated Incremental O&M Expense (millions)	# of Assets	Estimated 3-Year CMI Savings (millions)	BCA Ratio
Advanced Aerial Imagery Platform/Digital Twin	$18.4	$2.0	N/A	10.8	4.8
Weather Stations	None	$0.3	N/A	N/A*	N/A*
Wildfire Cameras	None	$0.9	N/A	N/A*	N/A*
Voice & Mobile Data Radio System	$20.9	None	27 sites	N/A*	N/A*
Backhaul Microwave Communication	$12.7	None	165 radios	N/A*	N/A*
Emergency Operations Center	$50.0	$6.0	1 location	N/A*	N/A*
Hardened Service Centers	$107.6	None	4 service centers	N/A*	N/A*
Subtotal	**$209.5**	**$9.2**		**10.8**	**4.8**

* Qualitative benefit analysis performed by Guidehouse.

SRP Performance Metrics

Metric	Description
Resiliency Index	This metric establishes the level of resiliency at each location as it relates to the risk each measure is developed to mitigate. As the programs associated with each measure are implemented, the level of system resiliency will continue to increase, demonstrating improved resiliency.
Normalized Event Impact	This metric establishes the performance for each area across the system for various intensities and types of extreme weather events. Future event performance is compared against previous performance and against projected performance at full implementation of the resiliency measures to demonstrate a reduction of outages and a reduction of the duration of outages for events of similar type and intensity. At minimum, the comparison will include customers interrupted, customer interruption minutes, restoration costs, and average restoration time.
Underperforming Area Focus	This metric identifies the number of underperforming areas across the system. A focus on underperforming areas with resiliency investment will result in the reduction of feeders that meet this classification. Underperforming areas include distribution feeders serving customers experiencing multiple outages over multiple years and feeders violating the reliability rules as defined by 16 TAC § 25.52.
System Outage Minutes	This metric is a rolling three-year, all-weather System Average Interruption Duration Index ("SAIDI"). Extreme outlier events, Major Event Exclusion days with more than 2.5 beta as defined by IEEE 1366, will be notated and the data reported with and without these events. This metric will start being reported in the third year after the first system resiliency plan is approved, as it takes time to realize the impact of resiliency measures.
Customer Minutes Interrupted	This metric will calculate a customer minutes interrupted (CMI) ratio for any major event by comparing the actual CMI of the circuits hardened by projects in projects in Distribution Circuit Resiliency Measure (RM-1) of CenterPoint's SRP to the modeled CMI of the same circuits without those hardening investments. To calculate the metric, CenterPoint will develop a model that will input outage data from the county or counties materially impacted by the major event(s) to calculate the CMI that would have occurred if the investment(s) had not occurred. At a minimum, this will include counties where 10% or more of CenterPoint's meters in the county are impacted over a 24-hour period.

SRP Performance Metrics (Cont'd)

Metric	Description
System Restoration Duration	This metric establishes average system restoration duration for all events. Notation will be made and data reported with and without extreme outlier events, Major Event Exclusion days with more than 2.5 beta, as defined by IEEE 1366. Each year, an average system restoration duration is calculated to compare to the previous three-year averages. This metric will start reporting in the third year after the first system resiliency plan is approved, as it takes time to realize the impact of resiliency measures.
System Restoration Cost	This metric will calculate a system restoration cost (SRC) ratio for any major events by comparing the actual SRC of the circuits hardened by projects in Distribution Circuit Resiliency Measure (RM-1) of CenterPoint's SRP to the modeled SRC of the same circuits without those hardening investments.
Wildfire Mitigation Outage Events	This metric establishes the number of outages per mile in identified high-risk wildfire areas. A focus on high-risk wildfire areas with resiliency investment will result in a decrease of outage events across those areas. This metric will focus on outage events where a fault occurs that likely has sparks and/or flames with the potential to start a wildfire. Additionally, if a wildfire causes an outage, CenterPoint will investigate and report on effectiveness (or ineffectiveness) of measures in mitigating the wildfire impact including cost of damage to CenterPoint facilities caused by wildfires, and cost of damage to third parties caused by wildfires ignited by CenterPoint facilities.
Suspicious Activity Count	Suspicious activity will be measured in a count of total encounters, where an automated or manual deterrence mechanism was used to deter suspicious behavior or a suspicious individual, thereby preventing a potential theft, unauthorized entry, or other potential resiliency-impacting event. The count would only consider true positives and would exclude other events such as wildlife. Additionally, tracking and reporting of the number of successful intrusions and cost of damage to CenterPoint facilities will be done.

SRP Performance Metrics (Cont'd)

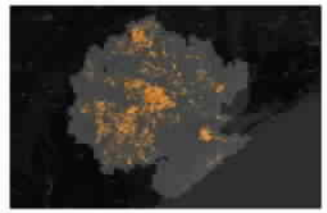
Metric	Description
Repeated Theft Count	Repeated theft analysis will focus on the specific existing sites where theft has occurred or is highly likely to occur and will count the instances in which theft reoccurs. The counts will include instances when the thief is apprehended during the act or when the theft is detected after the fact (either through the security system or otherwise). This metric will help evaluate CenterPoint's ability to deter future attempted theft at the existing theft-prone locations. A secondary metric will be a count of those thefts detected and interrupted by the automated or manual deterrence and detection mechanism. Additionally, cost of stolen items and equipment will be tracked and reported.
Trimmed Circuit Failure Rate	This metric will be applicable to the Vegetation Management Resiliency Measure (RM-5). CenterPoint agrees to include in its annual system resiliency plan reports, for each resiliency event, the percent of trimmed circuit segments that failed due to vegetation-related issues and the percent of untrimmed circuits that failed due to vegetation-related issues. This comparison is limited to those trimmed and untrimmed circuits included as part of the Vegetation Management measure.
Hardened Structure Failure Rate	This metric will be applicable to Distribution Circuit Resiliency Measure (RM-1). CenterPoint agrees to include in its annual system resiliency plan reports the failure rate of hardened distribution structures as set forth in its SRP. This failure rate calculation will report the percent of hardened distribution structures that failed and the percent of unhardened distribution structures that failed. This failure rate calculation will reflect a comparison of hardened equipment failures against unhardened equipment failures. This comparison is limited to those hardened and unhardened projects included as part of the Distribution Circuit Resiliency Measure (RM-1).
Vegetation Management	This metric will monitor and maintain data on the cost and reliability benefits of CenterPoint's Vegetation Management Resiliency Measure (RM-5) over the next three years as a guide for evaluating any future levels of spending for vegetation management-resiliency.

LiDAR Based Model Library Development


Lattice Transmission


Angle Transmission Structures

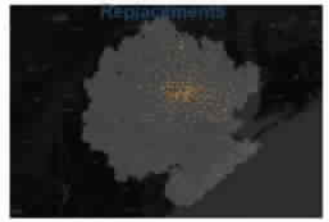

Wood Transmission Structures


Distribution Pole


Tree Fall-in Risk


Coastal Transmission


Strategic Undergrounding


Distribution Automation (IGSD)

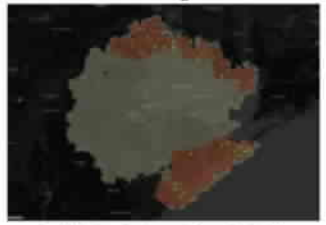

Coastal Contamination

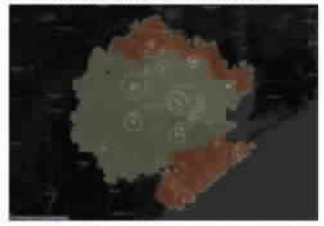

Flood Mitigation

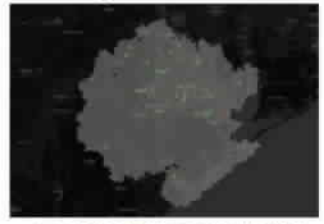

Transformer Fire Barriers


Digital Substations


Wildfire Camera Monitoring


Wildfire Automation (IGSD)


Wildfire Strategic Undergrounding


Load Shed Automation (IGSD)

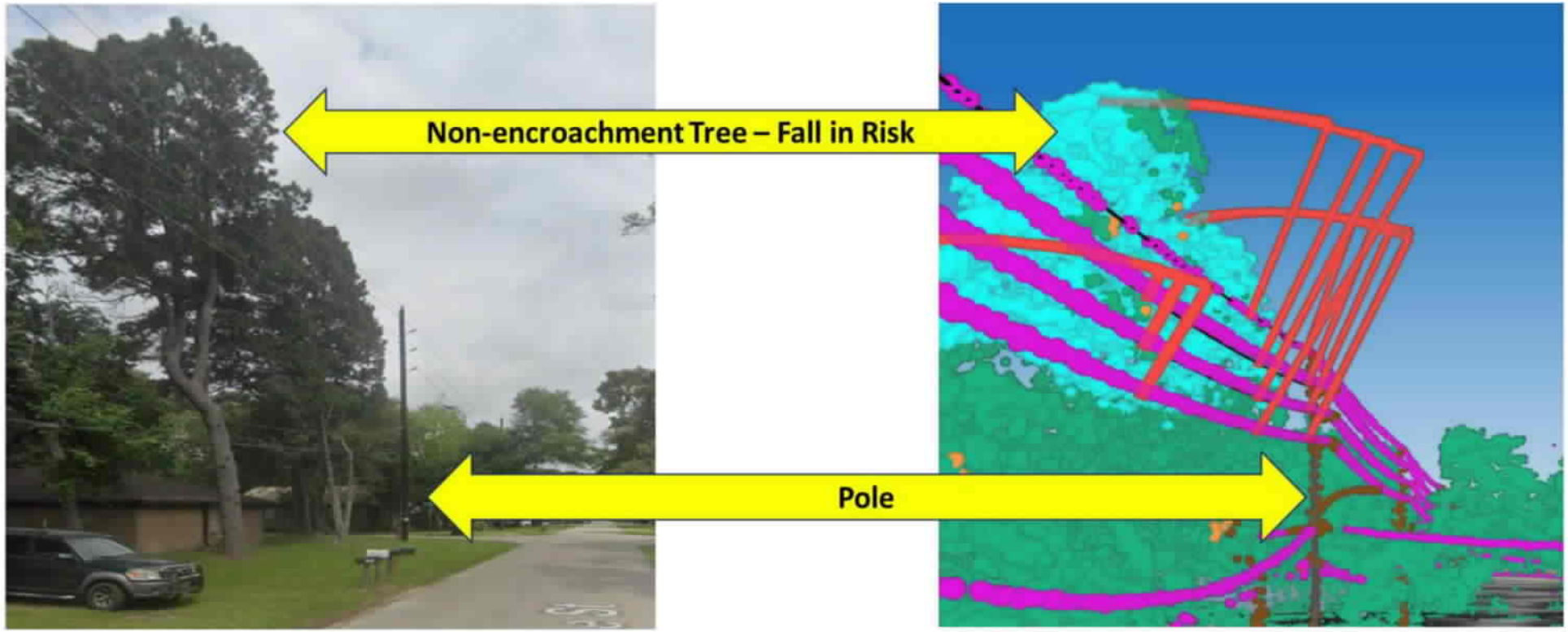
Model vs Real World View

Low Risk Early Detection

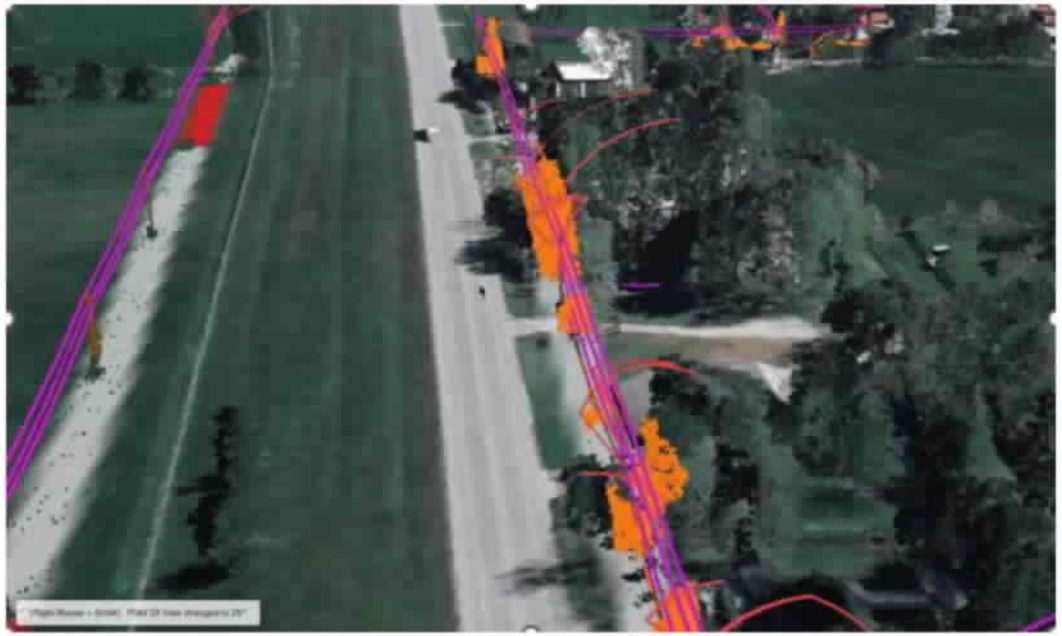
- The early detection of vegetation can assist in multi-year optimization of vegetation management by accounting factors such as vegetation species and rainfall totals using AI, which can influence the rate of growth.

Fall in Risk (Both trimmed and untrimmed circuits)

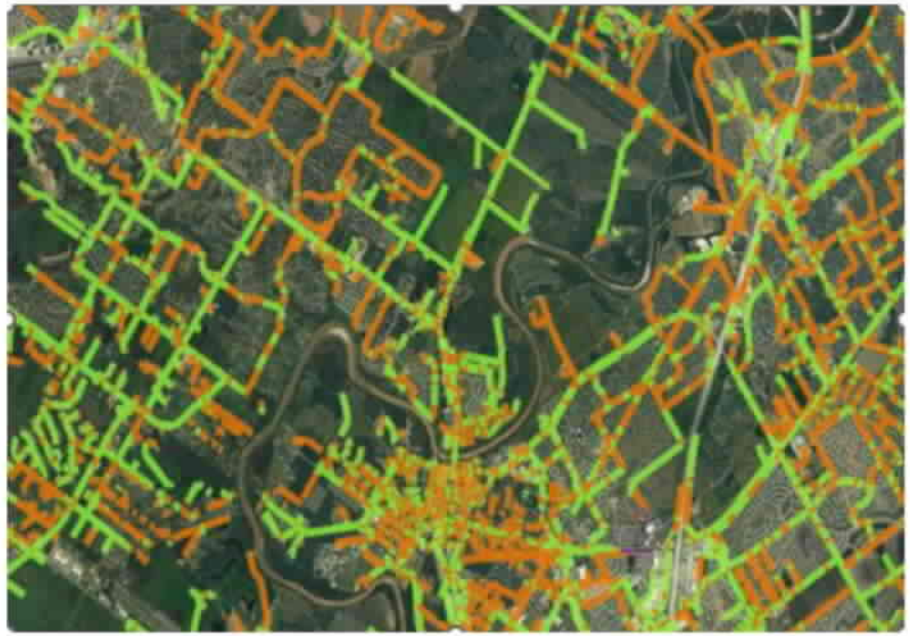
- Identification of fall in risk on trimmed and untrimmed circuits. Modeling will include environmental features such as soil saturation which greatly increases the occurrence of tree fall in.



Fall in Risk and Truck Accessibility



Red = fall-in circuit risk, orange = relative vegetation encroachment risk

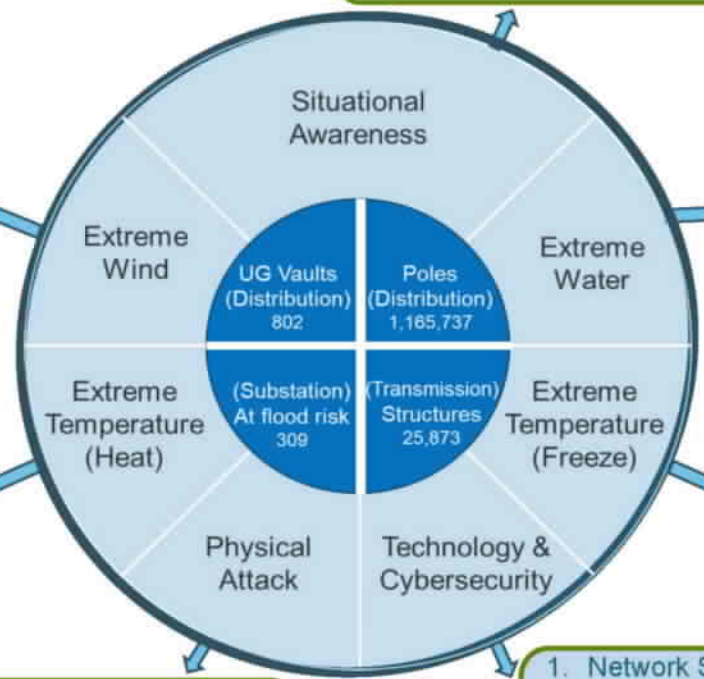


Orange = inaccessible, green = accessible

Extreme Event Mitigation Map

1. Advanced Aerial Imagery/Digital Twin
2. Weather Stations
3. Wildfire Cameras
4. Backhaul Microwave Communication
5. Voice & Mobile Data Radio System
6. Emergency Operations Center
7. Hardened Service Centers

1. Distribution Pole Replacement
2. Distribution Circuit Resiliency
3. Strategic Undergrounding
4. Restoration IGSD
5. Vegetation Management



1. Control Center Flood Control

1. Distribution Capacity Enhancement/Substations
2. MUG Reconductor
3. URD Cable Modernization
4. Contamination Mitigation
5. Substation Fire Barriers
6. Digital Substation
7. Wildfire Advanced Analytics
8. Wildfire IGSD
9. Wildfire Vegetation Management

1. Load Shed IGSD
2. Anti-Galloping Technology

1. Substation Security Upgrades
2. Substation Security Fencing

1. Network Security & Vulnerability Management
2. Data Center Modernization
3. Spectrum Acquisition
4. IT/OT Cybersecurity Monitoring
5. Cloud, Data and Product Security

CERTIFICATE OF SERVICE

I hereby certify that on July 30, 2025, notice of the filing of this document was provided to all parties of record via electronic mail in accordance with the Second Order Suspending Rules, filed in Project No. 50664.

Terence Glenn Russell