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Control Number - 57579

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SOAH DOCKET NO. 473-25-11558
PUC DOCKET NO. 57579

APPLICATION OF CENTERPOINT	**§**	**BEFORE THE STATE OFFICE**
ENERGY HOUSTON ELECTRIC, LLC	**§**	
FOR APPROVAL OF ITS	**§**	**OF**
TRANSMISSION AND DISTRIBUTION	**§**	
SYSTEM RESILIENCY PLAN	**§**	**ADMINISTRATIVE HEARINGS**

March 24, 2025

Contact: Stacey Murphree
CenterPoint Energy Service Company, LLC
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Houston, Texas 77002
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CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-01

QUESTION:

For RM-1: Please explain what is meant by advanced conductors.

ANSWER:

Please refer to the response for HCC RFP04-03.

SPONSOR:
Deryl Tumlinson

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-02

QUESTION:

For RM-2: For underground lines:

a. Please detail how the right-of-way is maintained for underground lines;

b. Please detail what methods are used to prevent damage from roots; and

c. Please detail what methods are used to ensure future access for maintenance and repair.

ANSWER:

a. Please detail how the right-of-way is maintained for underground lines;

The right-of-way maintenance will vary depending on site-specific requirements set forth by franchisors, authorities having jurisdiction, and easement terms agreed upon with property owners. Generally, the company requires that no third-party facilities or structures are installed longitudinally within a distance of 5 feet of the centerline of a distribution conduit system.

b. Please detail what methods are used to prevent damage from roots; and

The primary method used to prevent damage from roots is the installation of concrete encased conduits for our distribution underground feeder main. Conduit bores for distribution underground feeder main is primarily installed in steel casing at least 1/4" thick.

c. Please detail what methods are used to ensure future access for maintenance and repair.

The company's conduit systems are installed, operated, and maintained in accordance with section 32 of the NESC. The company will conduct cable pull analyses to ensure that access points are adequately spaced. Based on the cable pull analysis results, manholes, vaults, pad-mounted equipment, terminal pole pedestals, and other access points are strategically located to ensure adequate access to the company's underground distribution facilities. Conduit systems are also generally installed with a reasonable number of extra conduits to allow for the speedy replacement of cable.

SPONSOR:
Randy Pryor

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-03

QUESTION:

For RM-27:

a. Are the cameras NERC and NDAA compliant?

b. What lighting upgrades and costs are required for each of the 30 substations?

ANSWER:

a. Yes

b. The Company completes lighting upgrades on an as needed basis at the completion of each project, therefore there is not an identified set cost required for each of the 30 substations.

SPONSOR:
Eric Easton and David Mercado

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-04

QUESTION:

For RM-26 please provide:

a. Cost per foot for chain link fencing;

b. Cost per foot for wire mesh fencing;

c. Double gate cost for chain link fencing; and

d. Double gate cost for wire mesh fencing.

ANSWER:

a. The company no longer uses chain-link fencing for substations.

b. ≈ $170 per LF

c. Please see the response to subpart (a).

d. ≈$4,000

SPONSOR:
Eric Easton and David Mercado

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-05

QUESTION:

For RM-26: When comparing the chain link fencing with wire mesh fencing, what considerations were given for the changes intruders would make in fence cutting methods?

ANSWER:

As of 2018, the Company moved to using wire mesh as its standard form of fencing. This change, in addition to other security measures like monitoring and cameras, provide additional layers of intrusion control.

SPONSOR:
Eric Easton and David Mercado

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-06

QUESTION:

For RM-26: When comparing the chain link fencing with wire mesh fencing, what considerations were given intrusion methods other than cutting through a fence?

ANSWER:

As of 2018, the Company moved to using wire mesh as its standard form of fencing. This change, in addition to other security measures like monitoring and cameras, provide additional layers of intrusion control.

SPONSOR:
Eric Easton and David Mercado

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-07

QUESTION:

For RM-26: On page 220 of the application, CEHE states "The electric utility industry nationally has seen an increase in the number of instances of physical attacks on its infrastructure. In 2023 alone, the electric utility industry reported to the DOE over 90 instances of physical attack, vandalism, and suspicious activity." What level of physical attacks and increases has CEHE seen with its substations?

ANSWER:

The company defines physical attacks as including, but not limited to fence cuts, intrusions, and trespass.

The company has seen a year over year increase in physical attacks since 2021, as shown in HCC RFI04-07 Attachment 1 CONFIDENTIAL.xls

SPONSOR:
Eric Easton and David Mercado

RESPONSIVE DOCUMENTS:
HCC RFI04-07 Attachment 1 CONFIDENTIAL.xls

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-10

QUESTION:

For RM-26: What is the age and condition of the fencing for each of the 21 substations?

ANSWER:

The age and condition of the fencing for the 21 substations are ten plus years of age.

SPONSOR:
Eric Easton and David Mercado

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-11

QUESTION:

For RM-16: For each substation transformer included or impacted by this measure, provide in Excel format:

a. The substation and transformer identity;

b. The capacity;

c. Peak load under normal conditions; and

d. Peak load under contingency conditions.

ANSWER:

a. Please refer to second column in attached confidential document.

b. Please refer to third column in attached confidential document.

c. Please refer to third column in attached confidential document.

d. Please refer to information provided within HCC-RFI04-16.

SPONSOR:
Eric Easton

RESPONSIVE DOCUMENTS:
HCC RFI 04 11 Confidential RM 16 RFI Response.pdf

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-12

QUESTION:

For RM-16: For 4 kV circuits:

a. How many circuits are there?

b. How many miles of line are 4kV?

c. How many customers are served by a 4 kV line?

d. How much load is served by 4 kV lines?

e. Are any of the 4 kV circuits part of this measure?

ANSWER:

CEHE has no 4 kV circuits within its system.

SPONSOR:
Eric Easton

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-13

QUESTION:

For RM-16: Does CEHE use voltage step banks to enable tying circuits with different voltage levels?

ANSWER:

The Company currently has voltage step bank transformers to enable tying circuits, however, as seen in the Distribution Grid Resiliency and Reliability Standards Updates document provided within HCC RFP01-01 Part A, these are being eliminated due to potential islands and switching challenges seen for contingency, etc. A portion of RM-16 does work to eliminate these 12 kV islands that are created using these voltage step bank transformers.

SPONSOR:
Eric Easton

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-14

QUESTION:

For RM-16: What is CEHE's feeder and substation capacity contingency planning for reliability?

ANSWER:

Please refer to information provided within HCC-RFI04-16.

SPONSOR:
Eric Easton

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-15

QUESTION:

For RM-16: Does CEHE use N-1 contingency criterion in reliability planning?

ANSWER:

Yes, CEHE does leverage an N-1 substation and distribution circuit capacity contingency planning when possible.

SPONSOR:
Eric Easton

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-16

QUESTION:

For RM-16: Provide the CEHE planning criteria for the distribution system.

ANSWER:

- CEHE Distribution System design criteria under normal operating conditions:
  - Conductor Loading ≤ 100%
  - Max Circuit Current < 632A (*balanced*)
  - 120V ≤ Feeder Voltage ≤ 126V
  - Load Balancing
    - 12kV circuits typically designed below 10MVA to allow for day-to-day field switching operations
    - 35kV circuits typically designed below 30MVA to allow for day-to-day field switching operations
  - Customer Count
    - 12kV circuits – typically no more than 750 customers per switching section
    - 35kV circuits – typically no more than 1000 customers per switching section
  - Transformer Bus Power Factor to be greater than 99% lagging (100% or leading for Unity substations)
- CEHE Distribution System design criteria under contingency operating conditions:
  - Single circuit outage
    - No more than 4 switching operations to pick up load from an outage circuit
    - Each circuit used to pick up load must maintain the following criteria:
      - Conductor Loading ≤ 120%
      - Max Circuit Current < 650A (*balanced*)
      - 117.6V ≤ Feeder Voltage ≤ 126V
  - Single substation transformer outage
    - Substation transformer loading ≤ 95% of the 2-hour firm
      - 2-hour firm is the capacity limit that a substation transformer can be continuously loaded at under contingency operating conditions for no longer than 2 hours
        - The typical 2-hour firm rating for a new 50MVA transformer is approximately 75MVA

The typical 2-hour firm rating for a new 100MVA transformer is approximately 150MVA

SPONSOR:
Eric Easton

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-17

QUESTION:

For RM-15: What are the designed hours of battery communication for the remote communications equipment, the IGSD devices, and the control systems?

ANSWER:

IGSD communications equipment uses an auxiliary battery system that is estimated to provide 20 hours of continuous power that may vary based on operating conditions and environment.

IGSD devices and control systems have a common auxiliary battery system that is estimated to provide 10 hours of continuous power that may vary based on operating conditions and environment.

SPONSOR:
Eric Easton

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-18

QUESTION:

For RM-3: Why are all IGSDs not grouped into one Resiliency Measure?

ANSWER:

Each resiliency measure containing IGSD's is specifically tailored and designed to address a specific resiliency event but does provide tangential benefits to the other resiliency measures using IGSDs. The Company presented its IGSD projects in more granular resiliency measures to be more transparent with the customers on the different benefits of these devices.

SPONSOR:
Eric Easton

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-19

QUESTION:

For RM-1: Describe the loading criteria used for communication attachments and strength of communication wires/anchors that may be attached to the poles to be hardened.

ANSWER:

The same loading criteria utilized for CenterPoint facilities is applied for any third-party attachment that is installed on CenterPoint Energy distribution poles.

SPONSOR:
Eric Easton

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-20

QUESTION:

For RM-1: Has CEHE considered prioritizing main line poles to achieve greater impact from the pole replacement costs? If not, why not?

ANSWER:

Yes, within RM-1 distribution poles are prioritized along the main feeder as increased benefit is seen from this philosophy.

SPONSOR:
Eric Easton

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-21

QUESTION:

For RM-1: Explain why efficacy of the program does not include performance of hardened poles after a major event.

ANSWER:

The focus of resiliency measures is to predict damage through modeling and implement solutions that mitigate this potential damage shown within the model. This should show improvement in restoration times and overall efficiency of restoration. There are often interdependencies between multiple mitigation measures as well and is better seen through regional performance rather than individual asset performance. As mentioned within the report as well, this is considered industry best practice and measures the success of the overall regional performance (which is the intention of resiliency measures).

SPONSOR:
Eric Easton

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-22

QUESTION:

For RM-16: For each feeder included or impacted by this measure, provide in Excel format:

a. The feeder identity;

b. The capacity;

c. Peak load under normal conditions; and

d. Peak load under contingency conditions.

ANSWER:

a. The second and sixth columns of the .pdf attached within HCC-RFP04-01 list the substations and subsequent circuits that may be impacted.

b. Please refer to the information provided within HCC-RFI04-16

c. Please refer to the information provided within HCC-RFI04-16

d. Please refer to the information provided within HCC-RFI04-16

SPONSOR:
Eric Easton

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-23

QUESTION:

For RM-16: For each tie point included or impacted by this measure, provide in Excel format:

a. Peak capacity at the tie point;

b. Peak load under normal conditions at the tie point;

c. Peak load under contingency conditions at the tie point; and

d. Circuit identity on either side of the tie points.

ANSWER:

For all parts to this question, this information will not be determined until the location of new circuit ties is designed. This information would be subject to change as switching and load growth occurs.

SPONSOR:
Eric Easton

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-24

QUESTION:

For PP-1: List any third parties that have helped or are planned to help develop the microgrid pilot.

ANSWER:

EPRI is the only company currently that has assisted in microgrid development. We are currently evaluating third parties for assisting in creation of the RFP and performing studies but no selection has been made to this point.

SPONSOR:
Eric Easton

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-25

QUESTION:

For RM-14: List any galloping conductor incidents that occurred after installation of air flow spoilers.

ANSWER:

CenterPoint Houston has not experienced repeat galloping conductor outages after the installation of air flow spoilers at locations identified for mitigation.

SPONSOR:
David Mercado

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-26

QUESTION:

For RM-12: Provide the proposed depreciation rate for the system.

ANSWER:

The annual depreciation rate for major underground assets is 3.34%

SPONSOR:
Randy Pryor

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-27

QUESTION:

For RM-13: Explain the need for this measure if substations subject to flooding are re-elevated.

ANSWER:

Mobile substations are utilized for a number of resiliency events including, but not limited to: extreme water, extreme temperature, extreme wind, physical attack, and event response. For example, in the event there is a transformer failure from extreme heat, the Company would evaluate the use of a mobile substation to re-energize the affected area while permanent repairs are made.

SPONSOR:
Eric Easton and David Mercado

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-28

QUESTION:

For RM-13: Explain the need for this measure if additional capacity is added to the transmission/substation system.

ANSWER:

The addition of transmission/substation capacity does not inherently decrease the likelihood of a resiliency event. The addition of transmission/substation capacity can support the construction of additional distribution substations. Additional distribution substations may exacerbate the issue of managing CenterPoint's existing mobile substation fleet to support contingency and resiliency events.

SPONSOR:
Eric Easton and David Mercado

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-29

QUESTION:

For RM-13: How many mobile substations are currently owned by CEHE and how many mobile stations are currently available by lease or mutual aid?

ANSWER:

Please see response to TIEC RFI1-14, subpart a for how many are currently owned. The Company has no mobile substations currently available by lease or mutual aid.

SPONSOR:
Eric Easton and David Mercado

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-30

QUESTION:

For RM-14: Detail each historic outage due to galloping conductors for the past 10 years.

a. Identify the outage location;

b. Provide the number of customers out;

c. Provide the CMI;

d. Provide the restoration time;

e. Detail any infrastructure damage;

f. Provide the cost to repair any infrastructure damage; and

g. Indicate if air flow spoilers were installed to mitigate the issue and the installation cost.

ANSWER:

a.

Please see attachment "HCC RFI Set 4-30.xlsx"

b.

Please see attachment "HCC RFI Set 4-30.xlsx"

The number of customers out and CMI reflects customer outage data within +/- 10 minutes of the corresponding transmission line outage.

c.

Please see attachment "HCC RFI Set 4-30.xlsx"

The number of customers out and CMI reflects customer outage data within +/- 10 minutes of the corresponding transmission line outage.

d.

Please see attachment "HCC RFI Set 4-30.xlsx"

e.

Please see attachment "HCC RFI Set 4-30.xlsx"

CenterPoint Houston has not experienced infrastructure damage caused by galloping conductor outages in the past 10 years.

f.

Please see attachment "HCC RFI Set 4-30.xlsx"

CenterPoint Houston has not experienced infrastructure damage caused by galloping conductor outages in the past 10 years.

g.

Please see attachment "HCC RFI Set 4-30.xlsx"

Column 'H' in the attachment reflects if air flow spoilers were installed after this outage event. Any transmission line segment that was subject to galloping conductor outages that have been rebuilt on other projects have been identified in Column 'H'. Any pending galloping conductor mitigation projects are also identified in column 'H'.

The "Actual Cost (Project)" and "Estimated Cost (Project)" columns reflect the total spent (or estimated to be spent in the future) for the project under which the air flow spoilers were (or will be) installed.

There may appear to be duplicate cost values in the "Actual Cost (Project)" and "Estimated Cost (Project)" columns, however, these costs are managed at a project level and one project may reflect the addition of air flow spoilers that mitigated multiple outage events. If the Actual Cost (Project) in column 'I' matches another value, it can be assumed that these outages were mitigated by the same project and the total cost of the project is reflected in each entry for column 'I' Actual Cost (Project).

The projects to install air flow spoilers to mitigate galloping conductor outages reflected in the attachment include a total actual spend of $22,538,939.

SPONSOR:
David Mercado

RESPONSIVE DOCUMENTS:
HCC RFI Set 4-30 (confidential).xlsx

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-31

QUESTION:

For RM-12: Describe the communication means for components installed in vaults.

ANSWER:

Site to site communication is over multiple rings of single-mode fiber cable. Rings include a combination of routers and switches. Communication between equipment within each site is primarily over copper wire ethernet, serial or twisted pair. RSTP is used to improve communication between telecommunication equipment. Communication between end-devices and HMI server is primarily using DNP3.

SPONSOR:
Eric Easton and Randy Pryor

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-32

QUESTION:

For RM-12: Provide the expected service life of the MUCAMS system.

ANSWER:

MUCAMS is an ongoing program with no planned end of service life.

Service life of equipment used in MUCAMS will vary depending on operational and environmental conditions at each site. Based on information provided by different manufactures, service life of communication equipment is on average at least 25 years and service life of microprocessor-based relays is on average at least 20 years.

SPONSOR:
Eric Easton and Randy Pryor

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-33

QUESTION:

For RM-11: Will the facility be manned during flood conditions?

ANSWER:

Yes, the facility could be manned during a flood event.

SPONSOR:
Eric Easton

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-34

QUESTION:

For RM-11: Will pumps be used to control seepage during a flood and if so, how are the pumps maintained and tested?

ANSWER:

This will not be determined until a full engineering of the proposed solution is completed.

SPONSOR:
Eric Easton

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-35

QUESTION:

For RM-11: What alternate water and sewage facilities will be provided during flood conditions if the site is manned?

ANSWER:

The facility has on-site water storage tanks for emergency conditions.

SPONSOR:
Eric Easton

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-36

QUESTION:

For RM-11: What means of ingress and egress are available during flood conditions?

ANSWER:

The plan would be for occupants of the facility to shelter in place until flood waters receded. The facility is built with capabilities (cots, showers, food) to house employees onsite in the event of a significant weather event and standard practice is to pre-deploy employees to critical sites in advance of a significant weather event so that they ride out the event at the facility. In the event that we need to provide ingress/egress the Company has boats at their disposal to use to shuttle employees back and forth to drier land.

SPONSOR:
Eric Easton

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-37

QUESTION:

For RM-11: How reliable is the power supply to this facility during flood conditions?

ANSWER:

This site does maintain backup generation in the event of a power outage. There is redundancy in both utility power and emergency generation.

SPONSOR:
Eric Easton

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-38

QUESTION:

For RM-10: In evaluating substation re-elevation vs. flood walls, what considerations were given to water seepage through and under the wall?

ANSWER:

The potential for water seepage was carefully evaluated during the design phases of floodwall projects. To address critical points, the following mitigation strategies and devices were incorporated into the designs:

1. Internal trench drain systems were designed to capture and redirect water.

2. Overall drainage plan was redesigned to enhance water management.

3. Pump stations with redundant number of pumps were installed.

4. Vendor-approved water sealants were installed to floodgates to prevent leakage.

SPONSOR:
Eric Easton

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-39

QUESTION:

For RM-10: What is the cost of substation re-elevation compared to building a flood wall?

a. Provide costs for previous substation re-elevation projects and costs for flood wall alternatives.

b. Provide costs for previous substation flood wall projects and costs for re-elevation alternatives.

c. Provide costs for each of the 12 proposed substation re-elevation projects and costs for flood wall alternatives.

ANSWER:

Costs of floodwall projects vary significantly as they depend on overall linear footage and height of walls. On average, floodwall projects will cost approximately double the cost of an average flood mitigation project to raise equipment.

Responses to a through c are within the attached .pdf.

SPONSOR:
Eric Easton

RESPONSIVE DOCUMENTS:
HCC RFI 04 39 Confidential A thru C Responses

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-40

QUESTION:

For RM-10: Have any substations with flood walls experienced water inside the station during a flood?

ANSWER:

To date, no substations with floodwalls have experienced flood waters inside them during a flood event.

SPONSOR:
Eric Easton

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-41

QUESTION:

For RM-10: On page 107 of the Resiliency Plan there is the statement "However, as in other types of events most temporary customer outages can be restored using automation device Resiliency Measures such as TripSavers and IGSDs." Please explain how a TripSaver restores temporary outages which cannot be restored by a recloser and fuse saving scheme.

ANSWER:

TripSavers are single phase reclosing devices that have the ability to open to clear most temporary faults and close back in to restore power to customers and do act in a similar fashion to the described recloser and fuse saving scheme. They do not have communications, though, and cannot be remotely disabled for resiliency events where PSPS may be enacted.

SPONSOR:
Eric Easton

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-42

QUESTION:

For RM-10: Do the TripSavers have two-way communications and can the TripSavers be controlled by dispatchers?

ANSWER:

No, Tripsavers do not have two-way communications that can be controlled by dispatchers.

SPONSOR:
Eric Easton

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-43

QUESTION:

For RM-10: Compare the cost of both single-phase and multiphase TripSaver installations to:

a. A line fuse;

b. A recloser without communication; and

c. A recloser with communication.

ANSWER:

The cost of a single phase TripSaver is approximately $6,000. The Company leverages this price per unit with multiphase locations.

- a) The cost of a line fuse is approximately $300.
- b) The Company only installs three-phase IGSDs and does not do so without communications; however, the cost is approximately $103,000.
- c) The IGSD installation cost with communication on this three-phase device is approximately $119,000.

SPONSOR:
Eric Easton

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-44

QUESTION:

For RM-10: Compare the cost of both single-phase and multiphase IGSDs to:

a. A recloser without communication; and

b. A recloser with communication.

ANSWER:

The Company installs only three phase IGSDs with communications today. Please reference HCC-RFI04-43 for the cost of these three phase units.

SPONSOR:
Eric Easton

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-45

QUESTION:

For RM-10: Does CEHE use a fuse saving scheme, a fuse blowing scheme, or both and under what scenarios?

ANSWER:

CNP protection strategy has historically utilized a fuse sacrifice scheme (prior to the widespread installation of Trip Savers) where possible.

SPONSOR:
Eric Easton

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-46

QUESTION:

For RM-9: For each replaced tower, provide:

a. Provide the age and condition;

b. The old design criteria;

c. The new design criteria; and

d. The cost.

ANSWER:

Exact towers identified for replacement in RM-9 will not be available until detailed engineering is complete for the projects included in RM-9. Based on preliminary estimates, approximately 94 towers will be replaced on RM-9 projects pending detailed engineering.

a.

The approximate average age of towers being replaced on this resiliency measure is 1956.

Please see below for breakdown of approximate age of tower, by decade.

1930's – 49
1940's – 0
1950's – 5
1960's – 30
1970's – 0
1980's – 0
1990's – 0
2000's – 0
2010's – 1
2020's – 9

CenterPoint Houston tracks the installation of the foundation as a metric to identify the age of the structure in question. For example, if a steel tower with a foundation originally installed in 1950 had an additional extension installed in 2020 which required a new foundation, but the original tower was not replaced, the age of the structure would be updated to reflect the new foundation installed in 2020.

CenterPoint Houston maintains these Transmission structures on the Transmission line inspection and rehabilitation program discussed in response to HCC RFP Set 4-27.

b.

Please see response to HCC RFP 4-26 (b).

c.

Please see response to HCC RFP 4-26 (b).

d.

Please see response to HCC RFP 4-25 (d).

SPONSOR:
Eric Easton and David Mercado

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-47

QUESTION:

For RM-9: Provide data showing for each 69 kV circuit:

a. The circuit identity;

b. The capacity at 69 kV;

c. The capacity at 138 kV after conversion;

d. The current peak loading;

e. The projected peak loading due to load growth;

f. The projected peak loading due to transferred load;

g. The length; and

h. The cost.

ANSWER:

All 69kV circuits referenced in response to this RFI are currently de-energized.

a.

Transmission Circuit 01Z3-1
Transmission Circuit 11Z2-1
Transmission Circuit 13Z1-1
Transmission Circuit 13Z3-2
Transmission Circuit 13Z3-1

b.

Not Applicable, all 69kV circuits included in RM-9 are currently de-energized.

c.

The conversion projects included in RM-9 are still undergoing study by CenterPoint Energy's Transmission Planning department. This data will not be available until completion of Transmission Planning Study Reports. .

d.

Not Applicable, all 69kV circuits included in RM-9 are currently de-energized.

e.

The projects included in RM-9 are still undergoing study by CenterPoint Energy's Transmission Planning department. Projected peak loading will not be available until completion of Transmission Planning Study Reports. It would be virtually impossible to differentiate between line loading due to load growth and transferred load. Line loading is mostly the product of being part of a networked

system. In other words, the load on a transmission line isn't only determined by local demand or generation; it's the result of how the entire network shares and distributes power. If something changes elsewhere in the grid, it can impact the loading on a line hundreds of miles away.

f.

The projects included in RM-9 are still undergoing study by CenterPoint Energy's Transmission Planning department. Projected peak loading will not be available until completion of Transmission Planning Study Reports. It would be virtually impossible to differentiate between line loading due to load growth and transferred load. Line loading is mostly the product of being part of a networked system. In other words, the load on a transmission line isn't only determined by local demand or generation; it's the result of how the entire network shares and distributes power. If something changes elsewhere in the grid, it can impact the loading on a line hundreds of miles away.

g.

01Z3-1 Approximately 0.11 miles
11Z2-1 Approximately 0.39 miles
13Z1-1 Approximately 5.41 miles
13Z3-2 Approximately 2.21 miles
13Z3-1 Approximately 2.62 miles

h.

Please see response to HCC RFP 4-25 (d).

SPONSOR:
Eric Easton and David Mercado

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-48

QUESTION:

For RM-9: Provide data showing for each 138 kV circuit that will transfer load to the converted circuits:

a. The circuit identity;

b. The circuit capacity;

c. The current peak loading; and

d. The projected peak loading after load transfer to the converted circuits.

ANSWER:

The projects included in RM-9 are still undergoing study by CenterPoint Energy's Transmission Planning department. However, the initial plan does include moving a West Galveston transformer currently served by transmission circuit 01B to the newly converted 138 kV circuit.

Line loading is mostly the product of being part of a networked system. In other words, the load on a transmission line isn't only determined by local demand or generation; it's the result of how the entire network shares and distributes power. If something changes elsewhere in the grid, it can impact the loading on a line hundreds of miles away. It would be virtually impossible to quantify all the 138kV transmission circuits that would transfer load to the converted circuits due to the networked system.

a.

Transmission Circuit 01B

b.

Transmission Circuit 01B – Normal 223 MVA, Emergency 286 MVA

c.

The max instantaneous MVA recorded in 2024 for Transmission Circuit 01B based on a preliminary analysis was 77MVA.

d.

The projects included in RM-9 are still undergoing study by CenterPoint Energy's Transmission Planning department. The projected peak loading will not be available until completion of Transmission Planning Study Reports.

SPONSOR:
Eric Easton and David Mercado

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-49

QUESTION:

For RM-9: Provide data showing for each new 138 kV circuit:

a. The circuit identity;

b. The circuit capacity;

c. The projected peak loading after load transfer to the new circuits;

d. The length; and

e. The cost.

ANSWER:

Please see response to HCC RFI 4-54.

SPONSOR:
Eric Easton and David Mercado

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-50

QUESTION:

For RM-9: For each new underwater cable, please provide:

a. The cable identity

b. The capacity;

c. The justification for underwater construction vs. other methods;

d. The length;

e. The cost;

f. The projected peak loading after load transfer;

g. If it is replacing an existing circuit or if it is completely new construction; and

h. The circuit name, age, condition, design type, capacity, and peak loading of the circuit being replaced, if any.

ANSWER:

a.

The projects included in RM-9 are still undergoing study by CenterPoint Energy's Transmission Planning department. The cable identity will not be available until completion of Transmission Planning Study Reports and detailed engineering.

b.

The projects included in RM-9 are still undergoing study by CenterPoint Energy's Transmission Planning department. The capacity requirement will not be available until completion of Transmission Planning Study Reports, at which point engineering will design to support the capacity requirements identified by the Transmission Planning Study Report.

c.

CenterPoint Houston will be leveraging an established crossing of Galveston Bay to replace the existing, de-energized underwater (subsea) cable. This additional underwater crossing to Galveston Island will enhance the resilience of electric service by providing greater diversity in the crossing routes.

d.

The underwater (subsea) cable crossing is estimated to be 2.2miles.

e.

The costs included in the System Resiliency Plan filing for RM-9 do not distinguish between costs for underwater (subsea) cable, but rather, total project estimates. A project estimate will include many factors such as material, engineering, labor, and permit/easement acquisition.

f.

The projects included in RM-9 are still undergoing study by CenterPoint Energy's Transmission Planning department. The project peak loading will not be available until completion of Transmission Planning Study Reports.

g.

The new underwater (subsea) cable will replace a currently de-energized underwater (subsea) cable.

h.

Circuit Name - 13Z3-2
Age – Drawings for the underwater (subsea) crossing are dated 1949.
Condition – De-energized.
Design Type – 3-conductor cable in a direct buried 6-inch fiber conduit.
Capacity - Not Applicable, any existing underwater (subsea) cable identified for replacement in RM-9 is currently de-energized.
Peak Loading - Not Applicable, any existing underwater (subsea) cable identified for replacement in RM-9 is currently de-energized.

SPONSOR:
David Mercado

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-52

QUESTION:

For RM-9: Provide the priority criteria, assessment methods, and scoring used to prioritize the transmission circuits.

ANSWER:

Please see Section 5.1.5.9 of the SRP filing, Exhibit ELS-2 (Section 5.3.11) prepared by Guidehouse, and response to HCC RFI Set 4-51.

SPONSOR:
Eric Easton and David Mercado

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-53

QUESTION:

For RM-9: For the re-routed transmission line, please provide:

a. The line identity;

b. The capacity of the old line;

c. The peak loading of the old line;

d. The age and condition of the old line;

e. The justification for re-routing;

f. The length;

g. The cost;

h. The capacity of the new line; and

i. The projected peak loading of the new line.

ANSWER:

a.

Transmission Circuit 97D

b.

Transmission Circuit 97D has a normal rating of 1306MVA and an emergency rating of 1480MVA.

c.

The max instantaneous MVA recorded in 2024 for Transmission Circuit 97D based on a preliminary analysis was 649.33MVA.

d.

Construction on Transmission Circuit 97D started in 1969 and completed in 1970.

CenterPoint Houston maintains this Transmission line on the Transmission line inspection and rehabilitation program discussed in response to HCC RFP 4-27.

e.

The intent of the Spillman Island Replacement project is to avoid a catastrophic failure of structures on Spillman Island in a resiliency event which could result in severe loading and voltage concerns if not proactively addressed.

Access to existing structures on Spillman Island is severely limited due to ongoing dredge disposal, resulting in the continual filling around existing towers. The soil consolidates and adheres to the

foundation piles. The extra weight of the soil can cause the piles to settle downward, sometimes unevenly. The uneven settling can cause tower members to bend and legs to buckle.

f.

Transmission circuit 97D is approximately 18miles currently.

g.

$9M in estimated preconstruction activities (engineering, permitting, etc.) is included in this SRP filing in RM-9 for the new transmission line (discussed in HCC RFI 4-54) and re-routed transmission line (discussed in HCC RFI 4-53) which are included in the same project.

h.

The projects included in RM-9 are still undergoing study by CenterPoint Energy's Transmission Planning department. The capacity of the re-routed line will not be available until completion of Transmission Planning Study Reports. While the Transmission Planning Study and detailed engineering are not yet complete, the re-routed circuit will likely have a normal rating between 1306MVA and 3207MVA an emergency rating between 1480MVA and 3408MVA.

i.

The projects included in RM-9 are still undergoing study by CenterPoint Energy's Transmission Planning department. Projected peak loading will not be available until completion of Transmission Planning Study Reports.

SPONSOR:
Eric Easton and David Mercado

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-54

QUESTION:

For RM-9: For the new transmission circuit, please provide:

a. The circuit identity;

b. The capacity;

c. The justification for the new circuit;

d. The length;

e. The cost;

f. The projected peak loading after load transfer;

g. If it is replacing an existing circuit or if it is completely new construction

h. The circuit name, age, condition, design type, capacity, and peak loading of the circuit being replaced, if any;

i. Provide the load flow analysis including contingencies; and

j. Please provide information about considerations made for salt contamination and if it will be mitigated at the higher voltage.

ANSWER:

a.

New 138kV Transmission Circuit from Cedar Bayou Plant Substation to Mont Belvieu Substation. The Transmission circuit identifier has not yet been assigned.

b.

The projects included in RM-9 are still undergoing study by CenterPoint Energy's Transmission Planning department. The capacity of the new circuit will not be available until completion of Transmission Planning Study Reports. While the Transmission Planning Study and detailed engineering are not yet complete, any new conductor will likely have a normal rating of 854MVA and an emergency rating of 908MVA.

c.

The intent of the Spillman Island Replacement project is to avoid a catastrophic failure of structures on Spillman Island in a resiliency event which could result in severe loading and voltage concerns if not proactively addressed. The new 138 kV transmission line is expected to be needed as the two 138 kV circuits across Spillman Island will be de-energized, but reliability needs indicated another 138 kV circuit out of Cedar Bayou would be needed.

d.

Approximately 8.9miles.

e.

$9M in estimated preconstruction activities (engineering, permitting, etc.) is included in this SRP filing in RM-9 for the new transmission line (discussed in HCC RFI 4-54) and re-routed transmission line (discussed in HCC RFI 4-53) which are included in the same project.

f.

The projects included in RM-9 are still undergoing study by CenterPoint Energy's Transmission Planning department. Projected peak loading data will not be available until completion of Transmission Planning Study Reports.

g.

Based on preliminary project scoping, the new circuit referenced will include approximately 5.9 miles of new construction and approximately 3.0 miles of replacement of de-energized circuits.

h.

Circuit Name – 43Z1-1
Age – Structures on de-energized circuit 43Z-1 date back to approximately 1962.
Condition – De-energized.
Design Type – Overhead, 1-397ACSR conductor per phase.
Capacity - Not Applicable, this circuit is currently de-energized.
Peak Loading - Not Applicable, this circuit is currently de-energized.

Circuit Name – 88Z1-1
Age – Structures on de-energized circuit 88Z-1 date back to approximately 1971.
Condition – De-energized.
Design Type – Overhead, 2-795ACSR conductor per phase.
Capacity - Not Applicable, this circuit is currently de-energized.
Peak Loading - Not Applicable, this circuit is currently de-energized.

i.

The projects included in RM-9 are still undergoing study by CenterPoint Energy's Transmission Planning department. Load flow analysis, including contingencies, will not be available until completion of Transmission Planning Study Reports.

j.

The new circuit referenced in RM-9 will be constructed at 138kV, it is not an existing circuit operating at a lower voltage. In alignment with CenterPoint Houston's Transmission design criteria in coastal areas, high-leakage insulators will be used to mitigate salt contamination.

SPONSOR:
Eric Easton and David Mercado

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-55

QUESTION:

For RM-10: Provide, both separately by substation and in the aggregate of one or more substations to the extent maintained that way, the documents containing all reports, memos, and presentations containing, discussing, describing, any update or similar analysis of the impact from flooding or storm surge in substations with proposed flood measures.

ANSWER:

Please refer to Exhibit ELS-2 within the SRP, specifically beginning on page 1267 of 1555.

SPONSOR:
Eric Easton

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-56

QUESTION:

For RM-10: On page 105 of the Resiliency Plan there is the statement "Extreme water events primarily cause customer outages from water inundation at substations or underground vaults." For each underground vault that has caused outages due to flooding:

a. Identify the vault;

b. List the flood event(s) and date(s);

c. Describe the issue in the vault that caused an outage due to flooding;

d. Describe any remedial action taken to prevent future outages from vault flooding; and

e. List the cost(s) of the remedial action(s).

ANSWER:

Underground/transformer vaults in CenterPoint Houston's service territory are not substation facilities and not included in RM-10 (Substation Flood Control Resiliency Measure). Transformer vaults are distribution major underground facilities.

HCC agreed that the Company could limit this response to the past five years. In the past 5 years, there have been no extreme water events identified as the primary cause of outages for customers fed from underground/transformer vaults. To provide proper context for this resiliency measure, the Company is providing information on water damage during Hurricane Harvey in 2017.

For subparts (a)-(c): Please refer to Location, Event, Date, and Failed Equipment columns in the confidential attachment HCC RFI 04-56 Confidential Underground Vault Outages Flooding.pdf

For subpart (d): New customer requested transformer vaults must be built at grade and at least 2' above the 500-year floodplain. Current design standards require the installation of submersible vault type transformers. Transformer vaults with microprocessor-based relays will include the installation of two float switches inside of the vault. The first float switch is located at a height of 6" above grade and it triggers a warning to indicate the presence of liquid in the vault. The second float switch is located at 2' above grade and it triggers a lock-out to safely de-energize the service to the customer. The company provides the building owners with dry contacts for monitoring liquid and high temperature warnings in the company's transformer vaults. The company's supplemental terms and conditions for underground service provides instructions to the customer on how to notify the company in case of a warning light indication. RM-12 (MUCAMS) addresses the company's monitoring of warning light indications in transformer vaults.

For subpart (e), please refer to Cost column in the confidential attachment HCC RFI 04-56 Confidential Underground Vault Outages Flooding.pdf. Additionally, the company has invested approximately $10.8M from 2019 to 2024 with a forecast of $2M in 2025 to proactively replace existing single-phase transformers with submersible vault type transformers.

SPONSOR:
Eric Easton and David Mercado

RESPONSIVE DOCUMENTS:
HCC RFI 04-56 Attachment 1 Confidential Transformer Vault Outages Flooding.pdf

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-57

QUESTION:

For RM-8: Provide electronic data for each of the 37 towers showing:

a. the structure type;

b. the structure age;

c. failure probability;

d. the replacement structure type; and

e. the cost.

ANSWER:

The answers below will reflect that, upon further review, CenterPoint Houston has identified 38 S90 towers for replacement in this resiliency measure, contrary to the 37 S90 towers referenced in the SRP filing.

a. All existing towers identified for replacement in RM-8 are steel lattice towers.

b. The approximate average installation year of structures to be replaced on RM-8 is 1974.

CenterPoint Houston tracks the installation of the foundation as a metric to identify the age of the structure in question. For example, if a steel tower with a foundation originally installed in 1950 had an additional extension installed in 2020 which required a new foundation, but the original tower was not replaced. The age of the structure would be updated to reflect the new foundation installed in 2020.

Please see below for breakdown of approximate age of tower, by decade.

1960's – 15
1970's – 16
1980's – 6
1990's – 0
2000's – 1
2010's – 0
2020's – 0

c. An independent third-party consultant (Guidehouse) has calculated failure rates for RM-8 that were presented in Section 4.2.1 (Hurricane Risk Profile) of Exhibit ELS-2, beginning at PDF page 1193. Figure 4-12 of Exhibit ELS-2 (PDF page 1202) presents the annual probability of occurrence for wind speeds for 2030. The probability that wind speeds are expected to exceed the design threshold for the towers included for replacement in this resiliency measure is 0.2% annually.

d. Detailed engineering is still ongoing; however, CenterPoint Houston expects all S90 towers identified for replacement in RM-8 will be replaced with steel monopole structures.

e. Please see response to HCC RFP 4-25 (d).

SPONSOR:
Eric Easton and David Mercado

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-58

QUESTION:

For RM-8: For each of the 37 towers, provide details on the change in design criteria.

ANSWER:

The National Electric Safety Code (NESC) standards for ice and wind loading design for coastal and inland areas apply to circuits, of which structures are one component. Circuits are designed for a given structure span length, wire size, and line angle, among other factors. Actual ratings achieved are dependent on overall circuit design and will, at a minimum, adhere to the latest applicable NESC standards at the time of design. CenterPoint Houston has consistently designed its transmission circuits to the latest applicable NESC standards for ice and wind loading design for coastal and inland areas which are updated every five years. CenterPoint Houston's practice of designing all new transmission lines to utilize Grade B loading requirements applies the highest geographically applicable NESC values for wind and ice loading as well as the highest safety overload factors. However, CenterPoint Houston does not have the original records reflecting the NESC codebook that was used at the time the S90 towers were designed.

SPONSOR:
Eric Easton and David Mercado

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-59

QUESTION:

For RM-2: How many of the road crossings are non-interstate crossings? For each noninterstate crossing, show details that explain why the change was justified.

ANSWER:

30 of the crossings identified for RM-2 are non-interstate crossings.

RM-2 (Strategic Undergrounding) is intended to address distribution overhead facilities crossing interstate highways and other freeways. Please refer to pages 7, line 13 through 8, line 5 within Randal Pryor's direct testimony (PDF pages 676-677).

SPONSOR:
Eric Easton and Randy Pryor

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-60

QUESTION:

For RM-2: Provide details showing locations where concrete poles with hardened overhead lines are not feasible and would make relocating freeway crossings underground feasible.

ANSWER:

I-610 at Glenmont Street: There was an overhead crossing that was replaced with underground facilities. The elevated section of the freeway made it not feasible to maintain the overhead crossing without a signification reconfiguration of the distribution circuit or losing connection to an alternate circuit.

SH146 south of Capri Lane: There was an overhead crossing that was replaced with underground facilities. Widening of SH 146 and limited vertical clearance under the transmission line made it not feasible to maintain the overhead crossing without a significant reconfiguration of the distribution circuit or losing connection to an alternate circuit.

SPONSOR:
Eric Easton and Randy Pryor

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-61

QUESTION:

For RM-2: Provide budgetary costs for installing conduit on highway crossings on a unit basis (feet, lanes of traffic, etc.).

ANSWER:

Cost of conduit installation will vary based on factors such as depth of the underground crossing, length of the crossing and number of conduits to be installed. Depending on the aforementioned factors, on average it would cost between $0.7M to $1.5M per crossing or approximately between $2,300/ft to $3,300/ft.

SPONSOR:
Eric Easton and Randy Pryor

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-62

QUESTION:

For RM-2: Provide the number of freeway crossings budgeted to be replaced by RM-2 for each of the next five years.

ANSWER:

2025: 15

2026: 20

2027: 20

2028: 20

2029: TBD

SPONSOR:
Eric Easton and Randy Pryor

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-63

QUESTION:

For RM-2: Provide the annual budgeted cost for underground freeway crossings by year for the next 5 years.

ANSWER:

2025: $15M

2026: $20M

2027: $20M

2028: $20M

2029: TBD

SPONSOR:
Eric Easton and Randy Pryor

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-64

QUESTION:

For RM-2: NESC requires Grade B strength on freeways with on-ramps and off-ramps, confirm CEHE meets and maintains this strength requirement.

ANSWER:

Grade B strength is the company's standard requirement for the installation, operation, and maintenance of overhead supply lines at limited access freeways.

No overhead projects for the installation of overhead supply lines across freeways were identified for RM-2 (Strategic Undergrounding) in the 2026-2028 SRP. All projects identified for RM-2 in the 2026-2028 SRP are primarily for the installation of underground facilities.

SPONSOR:
Eric Easton and Randy Pryor

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-65

QUESTION:

For RM-2: NESC 218B requires the crossing span and adjoining span on each side of the crossing should be kept free from over-hanging or decayed trees or limbs that otherwise might fall into the line. Confirm CEHE meets this requirement.

ANSWER:

NESC 218B refers to vegetation management related to the installation, operation, or maintenance of overhead supply lines at crossings.

No overhead projects for the installation of overhead supply lines across freeways were identified for RM-2 (Strategic Undergrounding) in the 2026-2028 SRP. All projects identified for RM-2 in the 2026-2028 SRP are primarily for the installation of underground facilities.

CenterPoint Energy Houston Electric does meet the requirements of NESC 218B. The company routinely performs vegetation management on its distribution overhead supply lines, including limited-access highway crossings. The company is also enhancing the current proactive distribution vegetation management program by leveraging the use of a LiDAR based risk model to prioritize circuit sections based on vegetation encroachment and fall-in risk. Please refer to RM-5 (Vegetation Management) for one of the company's measures to ensure continuous compliance with NESC Rule 218B.

SPONSOR:
Eric Easton and Randy Pryor

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-66

QUESTION:

For RM-2: Are any crossings to be replaced built and maintained to Grade C strength? If so, describe why hardening the crossing structure would not provide reasonable strength for extreme events.

ANSWER:

No, Grade B strength is the company's standard requirement for the installation, operation, and maintenance of overhead supply lines at limited access freeways.

SPONSOR:
Eric Easton and Randy Pryor

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-67

QUESTION:

For RM-2: Will the undergrounding only address primary poles? If not, will secondary service conductors be replaced as part of the undergrounding measure?

ANSWER:

RM-2 will primarily address feeder main primary poles. Undergrounding of overhead laterals will be evaluated on a case-by-case basis. We do not anticipate replacing a customer's meter base or making changes to any customer's service entrance conductors. Safety, code compliance, and other extraneous circumstances requiring changes to customer owned facilities will be handled in accordance with the company's Tariff for Retail Delivery Service and Service Standards.

SPONSOR:
Eric Easton and Randy Pryor

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-68

QUESTION:

For RM-2: Will a customer meter need to be replaced as part of the undergrounding? If so, what cost must the customer pay for the conversion?

ANSWER:

We do not anticipate replacing a customer's meter base or making changes to any customer's service entrance conductors. Safety, code compliance, and other extraneous circumstances requiring changes to customer owned facilities will be handled in accordance with the company's Tariff for Retail Delivery Service and Service Standards.

SPONSOR:
Eric Easton and Randy Pryor

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-69

QUESTION:

For RM-2: What is the priority for undergrounding tree fall-in locations?

ANSWER:

Priority is given to circuit sections that have high tree fall-in risk, are in difficult to access areas, serve critical customers, have a high load at risk/customer count and would work in conjunction with other resiliency measures that might have been identified for the same distribution feeder/area.

Please refer to the Description section on pages 72-74 (PDF pages 107-109) and the Measuring Efficacy section on page 78 (PDF page 113) for RM-2 in the SRP.

SPONSOR:
Eric Easton and Randy Pryor

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-70

QUESTION:

For RM-2: Provide ranking protocols.

ANSWER:

Distribution circuits identified for RM-2 are ranked based on fall-in risk, services to critical customers and CMI/per unit cost.

SPONSOR:
Eric Easton and Randy Pryor

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-71

QUESTION:

For RM-3: For each 900 cut and clear IGSD device, provide a spreadsheet showing:

a. Device identification and location;

b. If each device is associated with:
   i. Failure replacements;
   ii. Circuits that are 300% of systemwide SAIDI or SAIFI;
   iii. Overall distribution system protection needs; and
   iv. Overall distribution system planning needs.

c. If the device will serve critical loads;

d. How many customers are served;

e. How much load in kW is served; and

f. Estimated installation cost.

ANSWER:

Pursuant to agreement with the City of Houston, the Company is providing a representative 25 examples as a sample.

a. Please see the attached spreadsheet.

b. Not applicable.

c. Please see the attached spreadsheet.

d. Please see the attached spreadsheet.

e. Please see the attached spreadsheet.

f. Average cost is $119K per device.

SPONSOR:
Eric Easton

RESPONSIVE DOCUMENTS:
HCC RFI 4-71 Restoration IGSD Locations CONFIDENTIAL.pdf

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-72

QUESTION:

For RM-3: What are the historic costs associated with IGSD device installations and the reduction in sustained customer interruptions during severe storms and other extreme weather events?

ANSWER:

Please see the attachment HCC RFI 4-72 IGSD Historical Costs and Benefits.xls for the historical costs associated with IGSD device installations and the reduction in sustained customer interruptions for the last 5 years. The Company currently does not track benefits of automation associated with IGSD devices broken out by major events and non-major events so the information provided is the annual total including major events.

SPONSOR:
Eric Easton

RESPONSIVE DOCUMENTS:
HCC RFI 4-72 IGSD Historical Costs and Benefits.xls

HCC RFI 4-72 - Historic costs associated with IGSD device installations and the reduction in sustained customer interruptions

	Benefits from IGSD and Legacy Distribution Automation Devices		
Year	SAIDI Minutes Saved (Including Major Events)	Customer Minutes of Interruption Avoided (Including Major Events)	IGSD Installation Cost ($ in millions)
2020	19.27	49.72 million minutes	1
2021	33.77	96.91 million minutes	5
2022	20.65	55.19 million minutes	12
2023	30.47	83.37 million minutes	13
2024	242.42	690.37 million minutes	17

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-73

QUESTION:

For RM-3: What are the designed hours of battery communication for the remote communications equipment, the IGSD devices, and the control systems?

ANSWER:

Please reference the response for HCC-RFI04-17.

SPONSOR:
Eric Easton

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-74

QUESTION:

For RM-3: Please compare the cost of both single-phase and multi-phase IGSD devices to:

a. Single-phase and multi-phase reclosing circuit breakers; and

b. Electronic reclosers with communications.

ANSWER:

The Company only leverages three-phase IGSD devices, and the cost is approximately $119k.

a. The Company only leverages three-phase circuit breakers with an average cost of approximately $225k.

b. The only electronic reclosers with communications the Company currently deploys are IGSD devices and the cost is provided above.

SPONSOR:
Eric Easton

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-75

QUESTION:

For RM-4: In reference to "Figure SRP-42: Pole Replacement Criteria" in the application, for each application type:

a. Detail the selection criteria and reasoning for selecting or excluding wood, fiberglass, or ductile iron; and
b. Compare the cost between wood, fiberglass, and ductile iron.

ANSWER:

a. Figure SRP-42 provides pole material options for various types of distribution infrastructure – both typical distribution poles as well as defined critical equipment. On typical distribution poles all materials are acceptable options if conditions or loading warrants a certain pole material. On critical equipment, material choice is dependent on the type of equipment, however an engineered (non-wood) material is used for improved resiliency, performance, and longevity. For intelligent grid switching devices (IGSD), Regulator Racks, and Transformer Banks (> 3-250kVA's), ductile iron poles are utilized as these equipment types require more rigidity. Double Circuit Poles, Junction Poles, Substation Getaways, and Capacitor Banks can utilize either fiberglass or ductile iron poles as both pole options provide enhanced material performance and improved resiliency. Lastly, Pole Top Switches and Three Phase Terminal Poles utilize fiberglass poles due to the physical locations of the equipment and construction methods required on these installations.

b. Please see attached Pole Cost Comparison Excel file which details individual pole costs for each material.

SPONSOR:
Eric Easton

RESPONSIVE DOCUMENTS:
HCC-RFI04-75 - Pole Cost Comparison.xls

Wood Pole Description	Price
POLE, WOOD, 25 FT, CLASS 9, CCA-ET	$ 80.60
POLE, WOOD, 25 FT, CLASS 9, CREOSOTE	$ 144.00
POLE, WOOD, 30 FT, CLASS 6, CCA-ET	$ 167.70
POLE, WOOD, 35 FT, CLASS 4, CCA-ET	$ 261.30
POLE, WOOD, 30 FT, CLASS 6, CREOSOTE	$ 321.60
POLE, WOOD, 40 FT, CLASS 4, CCA-ET	$ 344.50
POLE, WOOD, 35 FT, CLASS 2, CCA-ET	$ 352.30
POLE, WOOD, 45 FT, CLASS 4, CCA-ET	$ 416.00
POLE, WOOD, 40 FT, CLASS 2, CCA-ET	$ 458.90
POLE, WOOD, 50 FT, CLASS 3, CCA-ET	$ 530.40
POLE, WOOD, 35 FT, CLASS 4, CREOSOTE	$ 544.80
POLE, WOOD, 45 FT, CLASS 2, CCA-ET	$ 554.00
POLE, WOOD, 50 FT, CLASS 2, CCA-ET	$ 627.90
POLE, WOOD, 55 FT, CLASS 3, CCA-ET	$ 629.20
POLE, WOOD, 40 FT, CLASS 4, CREOSOTE	$ 674.40
POLE, WOOD, 45 FT, CLASS 1, CCA-ET	$ 692.90
POLE, WOOD, 55 FT, CLASS 2, CCA-ET	$ 733.20
POLE, WOOD, 45 FT, CLASS 4, CREOSOTE	$ 814.80
POLE, WOOD, 50 FT, CLASS 1, CCA-ET	$ 820.30
POLE, WOOD, 60 FT, CLASS 2, CCA-ET	$ 878.80
POLE, WOOD, 40 FT, CLASS 2, CREOSOTE	$ 897.60
POLE, WOOD, 45 FT, CLASS H1, CCA-ET	$ 958.10
POLE, WOOD, 55 FT, CLASS 1, CCA-ET	$ 971.10
POLE, WOOD, 45 FT, CLASS 2, CREOSOTE	$ 1,084.80
POLE, WOOD, 45 FT, CLASS H2, CCA-ET	$ 1,086.80
POLE, WOOD, 50 FT, CLASS 3, CREOSOTE	$ 1,113.60
POLE, WOOD, 50 FT, CLASS H1, CCA-ET	$ 1,149.20
POLE, WOOD, 60 FT, CLASS 1, CCA-ET	$ 1,185.60
POLE, WOOD, 50 FT, CLASS 2, CREOSOTE	$ 1,285.20
POLE, WOOD, 50 FT, CLASS H2, CCA-ET	$ 1,316.90
POLE, WOOD, 55 FT, CLASS H1, CCA-ET	$ 1,342.90
POLE, WOOD, 65 FT, CLASS 1, CCA-ET	$ 1,467.70
POLE, WOOD, 50 FT, CLASS 1, CREOSOTE	$ 1,482.00
POLE, WOOD, 55 FT, CLASS H2, CCA-ET	$ 1,604.20
POLE, WOOD, 45 FT, CLASS H1, CREOSOTE	$ 1,655.00
POLE, WOOD, 60 FT, CLASS H1, CCA-ET	$ 1,660.10
POLE, WOOD, 55 FT, CLASS 3, CREOSOTE	$ 1,713.60
POLE, WOOD, 50 FT, CLASS H1, CREOSOTE	$ 1,800.00
POLE, WOOD, 50 FT, CLASS H2, CREOSOTE	$ 1,882.80
POLE, WOOD, 55 FT, CLASS 2, CREOSOTE	$ 1,978.80
POLE, WOOD, 60 FT, CLASS H2, CCA-ET	$ 2,138.50
POLE, WOOD, 70 FT, CLASS 1, CCA-ET	$ 2,145.00

POLE, WOOD, 65 FT, CLASS H1, CCA-ET	$ 2,243.80
POLE, WOOD, 60 FT, CLASS 2, CREOSOTE	$ 2,276.40
POLE, WOOD, 55 FT, CLASS 1, CREOSOTE	$ 2,281.20
POLE, WOOD, 70 FT, CLASS H1, TREATED	$ 2,500.00
POLE, WOOD, 55 FT, CLASS H1, CREOSOTE	$ 2,545.00
POLE, WOOD, 60 FT, CLASS 1, CREOSOTE	$ 2,629.20
POLE, WOOD, 65 FT, CLASS H2, CCA-ET	$ 2,663.70
POLE, WOOD, 60 FT, CLASS H1, CREOSOTE	$ 2,886.00
POLE, WOOD, 55 FT, CLASS H2, CREOSOTE	$ 2,890.00
POLE, WOOD, 70 FT, CLASS H2, TREATED	$ 2,986.00
POLE, WOOD, 65 FT, CLASS 1, CREOSOTE	$ 2,986.80
POLE, WOOD, 65 FT, CLASS H1, CREOSOTE	$ 3,055.00
POLE, WOOD, 60 FT, CLASS H2, CREOSOTE	$ 3,250.80
POLE, WOOD, 70 FT, CLASS 1, CREOSOTE	$ 3,652.80
POLE, WOOD, 70 FT, CLASS H1, TREATED	$ 3,710.00
POLE, WOOD, 65 FT, CLASS H2, CREOSOTE	$ 3,745.00
POLE, WOOD, 70 FT, CLASS H2, TREATED	$ 4,188.02

Fiberglass Pole Description	**Price**
POLE, 45FT, FBGL, BROWN, SMALL WIRE	$ 4,328.83
POLE, 50FT, FBGL, BROWN, SMALL WIRE	$ 4,577.31
POLE, 40 FT, FBGL, BROWN, FEEDER	$ 5,540.26
POLE, 45FT, FBGL, BROWN, FEEDER	$ 5,540.26
POLE, 50FT, FBGL, BROWN, FEEDER	$ 5,724.01
POLE, 60FT, FBGL, BROWN, FEEDER	$ 6,352.45
POLE, 55FT, FBGL, BROWN, FEEDER	$ 6,577.45

Ductile Iron Pole Description	**Price**
POLE DUCTILE IRON, 45FT, H3, BROWN	$ 4,695.90
POLE DUCTILE IRON, 50FT, H3, BROWN	$ 5,350.40
POLE DUCTILE IRON, 55FT, H3, BROWN	$ 6,039.00
POLE, DUCTILE IRON, 55FT, 12KV IG, BROWN	$ 6,039.00
POLE, DUCTILE IRON , 60FT, 35KV IG BROWN	$ 6,723.20
POLE, DUCTILE IRON , 60FT H3, BROWN	$ 6,723.20
POLE, DUCTILE IRON , 65FT, H3, BROWN	$ 7,407.40
POLE, DUCTILE IRON , 70FT, H3, BROWN	$ 8,091.60

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-76

QUESTION:

For RM-4: What percentage of poles will be braced compared to replacement poles?

ANSWER:

Based on the LiDAR based analysis completed on historical pole inspection data, it is estimated that 23% wood poles will be braced, 73% will be replaced with wood poles and 4% will be upgraded to composite poles.

SPONSOR:
Eric Easton

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-77

QUESTION:

For RM-5: Please detail all the differences in trimming practices for the 3-year trim cycle vs the 4.2-year and 5.5-year trim cycles.

a. Include difference in SAIFI/SAIDI;
b. Include for extreme events; and
c. Variance in vegetation types (coastal verse trees further inland).

ANSWER:

The difference between the proposed 3-year trim cycle and the Company's current risk-based cycle is the frequency at which tree trimming occurs for all distribution circuits. All other trimming practices remain the same.

a. To help support the 3-year trim cycle proposal, the Company reviewed the performance of recently trimmed circuits (trimmed in the previous year) during major events to assess the difference in SAIFI and SAIDI as shown in the attached file. Although the dataset for vegetation related outages is incomplete for major events, the data available shows a -73% reduction in SAIDI and -74% reduction in SAIFI in 2023 from recently trimmed circuits vs not trimmed circuits and a -54% reduction in SAIDI and -56% reduction in SAIFI in 2024. This is based on reviewing events that have a "Vegetation" or "Strong Wind" cause codes.

b. Please see subpart (a)

c. None

SPONSOR:
Eric Easton and Randy Pryor

RESPONSIVE DOCUMENTS:
HCC-RFI04-77 - VM Major Event Analysis.xls

Disclaimer: Note that during major events, crews are focused on the rapid restoration of power and not always precise in their documentation of outage causes. Hence, this analysis may not represent the entire major events experience, but derived from available dataset that was provided by the crews.

2023 Major Events Analysis						
	CMI	CI	CAIDI	SAIDI	SAIFI	# OF SUSTAINED OUTAGES
Trimmed Circuit in 2022 (Major Events with "Vegetation" or "Strong Wind" cases)	36,661,851.81	84710	432.79	12.87	0.03	235
	CMI	CI	CAIDI	SAIDI	SAIFI	# OF SUSTAINED OUTAGES
NOT Trimmed Circuits in 2022 (Major Events with "Vegetation" or "Strong Wind" cases)	238,691,693.67	563620	423.5	83.82	0.2	1982
Delta	-202,029,842	-478,910	9	-71	-0.17	-1,747
Delta %	-73.37%	-74%	1%	-73.38%	-74%	-79%

2024 Major Events Analysis						
	CMI	CI	CAIDI	SAIDI	SAIFI	# OF SUSTAINED OUTAGES
Trimmed Circuit in 2023 (Major Events with "Vegetation" or "Strong Wind" cases)	897,484,010.83	567,616.00	1,581.15	315.15	0.20	1,996.00
	CMI	CI	CAIDI	SAIDI	SAIFI	# OF SUSTAINED OUTAGES
NOT Trimmed Circuits in 2023 (Major Events with "Vegetation" or "Strong Wind" cases)	3,018,560,981.02	2,013,556.00	1,499.12	1,059.96	0.71	8,808.00
Delta	-2,121,076,970	-1,445,940	82	-745	-0.51	-6,812
Delta %	-54.16%	-56%	3%	-54.16%	-56%	-63%

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-78

QUESTION:

For RM-5: 11,700 circuit miles of line are identified as part of the Vegetation Management Measure. Please detail the vegetation management status/need for the remaining 18,300 miles of overhead distribution line that make up the rest of the 30,000 miles of overhead distribution line.

ANSWER:

The 30,000 miles of overhead distribution line includes overhead secondary distribution. The Company currently has approximately 23,400 miles of overhead primary distribution line that is part of the vegetation management program. The 11,700 circuit miles identified as part of the Vegetation Management Measure are the incremental circuit miles and do not include the remaining 11,700 circuit miles in the base vegetation management program that will also be trimmed in 2026-2028 to maintain the 3-year cycle for the distribution system.

SPONSOR:
Eric Easton and Randy Pryor

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-79

QUESTION:

For RM-7: Provide the age of the 69 kV transformers.

ANSWER:

Manufacture date of 69kV power transformers identified for replacement on RM-7 is listed below:

Transformer Replacement	Manufacture Date
1	9/25/57
2	8/14/17
3	6/19/58
4	9/26/58
5	9/26/58
6	1/19/62
7	9/2/99
8	10/21/99
9	9/11/18
10	9/3/80
11	2/8/60
12	5/16/79
13	2/23/61
14	2/23/61

SPONSOR:
Eric Easton and David Mercado

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-80

QUESTION:

For RM-7: Provide the age and condition of the 462 structures to be replaced.

ANSWER:

The metric of approximately 462 structures represents an initial estimate of new structures that will be installed on 69kV Conversion projects. This does not reflect an exact number of existing structures that would be replaced on RM-7 69kV Conversion projects. CenterPoint Houston anticipates approximately 167 of the originally identified 462 structures to be replaced prior to the beginning of the SRP. The estimated costs for the projects replacing approximately 167 structures were not included in the SRP filing. The exact number of structures that will be replaced on RM-7 will not be known until detailed engineering is complete for each identified project.

Based on preliminary estimates to-date, approximately 286 Structures will be removed on projects included in RM-7. This structure replacement count is subject to change pending the outcome of detailed engineering. The 286 structures identified for removal in preliminary project estimates included in RM-7 have an average install year of 1977.

Please see below for breakdown of approximate age of structure, by decade.

1940's – 33
1950's – 63
1960's – 59
1970's – 22
1980's – 10
1990's – 50
2000's – 18
2010's – 24
2020's – 7

CenterPoint Houston maintains these Transmission structures on the Transmission line inspection and rehabilitation program discussed in response to HCC RFP 4-27.

SPONSOR:
Eric Easton and David Mercado

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFI04-81

QUESTION:

For RM-5: Please detail what different measures are taken when a customer denies removal of a hazard tree outside the utility easement.

ANSWER:

As stated in the program document HCC RFP 4-19 Hazard Tree Program 1_28_25.pdf, it is the customer's responsibility to handle the removal of any debris associated with the hazard tree removal. This is often the key reason why some customers choose to deny the removal of trees located on private property. Additionally, some customers prefer to retain the dead tree or trees for wildlife habitat, as these trees can attract various species depending on their location.

When a customer decides to deny the removal outside the utility easement, we make every effort to negotiate and understand their concerns. In rare instances, if the tree poses an imminent threat, we may agree to remove the debris. However, we are cautious about setting a precedent for this practice with all customers.

SPONSOR:
Randy Pryor

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFP04-02

QUESTION:

Provide any documentation, presentation, or analysis of pilot programs implemented by CEHE for:

a. RM-1;
b. RM-3;
c. RM-4;
d. RM15.

ANSWER:

There were no pilot programs for these resiliency measures. Please see responses to HCC-RFP04-01 above for documentation.

SPONSOR:
Deryl Tumlinson

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFP04-03

QUESTION:

For RM-1: Provide documentation presentation or analysis showing that advanced conductors are more cost effective than other conductors.

ANSWER:

Conductors are analyzed on a per project basis and the need is determined to upgrade. This analysis centers around the circuit load, the age and size of existing conductor, and potential tree fall-in risk. "Advanced conductors" in this context refers to wires that are upgraded for higher capacity or are being installed to phase out older smaller conductors such as copper conductors with all aluminum conductors.

SPONSOR:
Eric Easton

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

HOUSTON COALITION OF CITIES
REQUEST NO.: HCC-RFP04-04

QUESTION:

For RM-1: Provide documentation detailing plans to update the pole inspection criteria to meet the ¾ remaining strength criteria from Table 261-1 associated with NESC Rule 250C (extreme wind) and NESC Rule 250D (extreme ice) designs.

ANSWER:

Attached is the HCC RFP04 04 Distribution Grid Resiliency and Reliability Standards Updates 2022.pdf. Please also refer to the Guidehouse report provided within the System Resiliency Plan in Exhibit ELS-2.

SPONSOR:
Eric Easton

RESPONSIVE DOCUMENTS:
HCC-RFP04 04 and 04a Distribution Grid Resiliency and Reliability Standards Updates 2022

CenterPoint Energy	Criteria	Department:	Engineering Standards
		Document No:	STD-CRI-DIS RES REL
Title: **Distribution Grid Resiliency & Reliability**		Issue Date:	08-15-2022
		Previous Issue Date:	03-04-2022

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2 Overview

CenterPoint Energy Houston Electric, LLC (CenterPoint Energy) has a long history of providing reliable and safe distribution service at a reasonable cost to its customers. The purpose of CenterPoint Energy Distribution Grid Resiliency & Reliability Criteria is to outline the Company's grid hardening initiatives that align with applicable regional and national standards while maintaining excellence in safety and reliability.

3 Scope

This document establishes the criteria used by CenterPoint Energy for distribution grid resiliency that meets or exceeds the National Electric Safety Code (NESC) and complies with Public Utility Commission of Texas (PUCT) Electric Substantive Reporting Rules, Chapter 25. It discusses the application of the new grid resiliency criteria and documents the criteria for existing reliability initiatives. This document provides guidance on criteria that applies to distinct resiliency initiatives such as new distribution construction on capacity projects and reliability circuit re-build initiative projects. On a limited basis the criteria may apply to emergency repair of distribution facilities or to situations where reliability would not be adversely affected.

4 Grid Resiliency Strategy

CenterPoint Energy adopted several new distribution grid resiliency strategies. This section summarizes each of the new recommended electrical and structural resiliency enhancements.

4.1 Enhanced Wind & Ice Loading

4.1.1 Extreme Wind Loading

CenterPoint Energy adopted National Electrical Safety Code (NESC) Rule 250C (Extreme Wind) and 250D (Extreme Ice with Concurrent Wind Loading), regardless of pole height. All new distribution structures and replacements will be designed to applicable hurricane level extreme wind speeds; 110-mph (North of US 59 and Hwy 90) and 132-mph (South of US 59 and Hwy 90).

4.1.2 Extreme Ice Loading

Extreme ice loading design will anticipate up to a ½" of radial ice on distribution structural designs throughout our territory.

4.1.3 Hardening for Cold Weather

In addition, a special tangent pole with ice framing will be used to reduce the risk of damage from galloping conductors. The ice framing standard will be used for distribution line design in designated areas regardless of line direction.

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PUC Docket No. 57579
HCC RFP04 04 Distribution Grid Resiliency and Reliability Standards Updates 2022.pdf
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4.2 Non-Wood Engineered Structures

4.2.1 Equipment Poles

All major equipment including Intelligent Grid Switching Devices (IGSDs), large three-phase transformer banks (>250kVA), pole top switches, terminal poles, capacitor banks, regulator racks, junction poles,

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and double stacked circuits will be installed on poles composed of a non-wood, engineered material like fiberglass, ductile iron, and/or concrete.

4.2.2 Substation Getaways

The first distribution section originating from a substation feeder shall utilize underground construction and if overhead construction must be used, it shall be non-wood, engineered structures.

4.2.3 Freeway Crossings

For all freeway crossings underground construction will be the primary design option. If that is not feasible, then overhead construction with concrete pole will be considered.

4.3 Improved Backfill Material

Crushed limestone will be used as the backfill material for all hydro excavated new pole installations to improve embedment strength.

4.4 Trip Saver Devices on Laterals

This new cutout-mounted recloser will be available for 12kV multi-phase laterals and 35kV single-phase laterals where applicable.

5 Distribution Design User Application Guide

CenterPoint Energy uses commercially available computer software (Distribution Design Studio, DDS) to model its distribution system. The distribution system's adequacy is tested in the software against established NESC Rules and Overhead/Underground Distribution Standards (ODS Volume I, Volume II, & UDS). This section details the application of each of the resiliency initiatives and documents the status of material assemblies in DDS and inventory.

5.1 Enhanced Wind & Ice Loading

Extreme Wind & Ice Loading Criteria (EWL) will apply to any new construction(s) for circuit and laterals based on the wind speed of the substation that the distribution feeder is originated. A new wind map drawing will also assist in determining the wind speed. For example, all distribution circuits from a substation in a 110-mph wind zone would be designed to that wind speed. As a result of this criteria, larger diameter wood poles could be expected near higher wind zones like the coastal areas. Any adjustments, or upgrades, to facilities where the structural integrity of the existing design may be impacted, or the replacement of facilities that are currently failing in the field shall be required to pass structural analysis in compliance with EWL.

When a line is extended or established, all poles involved in construction of new facilities will be analyzed using EWL criteria and the latest NESC codes. This includes structural analysis using the appropriate wind zone. By doing so, all new planned work will comply with the higher wind standards.
Any addition of major equipment or change in pole loading (Pole top switches, capacitor banks, transformers, new or re-conductoring and so on) will also require a structural analysis to EWL criteria. If