(A) a report on the occurrence of any resiliency events the resiliency plan or a previously-implemented resiliency plan was intended to address, including a comparison of the frequency and magnitude of these events with any projections contained in the resiliency plan or a resiliency plan previously-implemented by the electric utility;

(B) an evaluation of the effectiveness of each implemented resiliency plan measure in preventing,

withstanding, mitigating, or more promptly recovering from the risks posed by any resiliency events that measure was implemented to address. This evaluation must include an analysis using the metric or criteria contained in the resiliency plan for that measure, and a comparison of the measure's actual effectiveness with its projected effectiveness.

(C) an update on the expected impact of implemented resiliency plan measures, as appropriate for each measure, on system restoration costs, reduction in the frequency or duration of outages for customers at the location for which a resiliency plan was implemented, and any improvement in the overall service reliability for customers.

(3) When submitting an updated resiliency plan, the utility must include in the evidence supporting the plan, any information from prior resiliency benefit updates related to previously-approved measures designed to address the same or similar resiliency risks.

(4) An electric utility is required to maintain records associated with the information referred to in this subsection for five years, beginning the year after the plan is approved. Upon request by commission staff an electric utility must provide any additional information and updates on the status of the resiliency plan submitted.

Source Note: The provisions of this §25.62 adopted to be effective February 8, 2024, 49 TexReg 522

(III)

Exhibit JMR-5

HOUSE RESEARCH ORGANIZATION BILL DIGEST

HOUSE RESEARCH ORGANIZATION bill digest 4/27/2023

HB 2555 (2nd reading)
Metcalf, Raymond
(CSHB 2555 by Smithee)

SUBJECT: Authorizing transmission and distribution resiliency planning by utilities

COMMITTEE: State Affairs — committee substitute recommended

VOTE: 8 ayes — Hunter, Hernandez, Anchía, Dean, Metcalf, Slawson, Smithee, Turner

0 nays

5 absent — Geren, Guillen, Raymond, Spiller, S. Thompson

WITNESSES: For —Jeff Stracencer, AEP Texas; Mark Bell, Association of Electric Companies of Texas; Joel Yu, Enchanted Rock, LLC; Sean Meredith, Entergy; John Gordon (*Registered, but did not testify*: Isaac Albarado, Oscar Garza, Kelly Sadler, AEP Texas; Jason Ryan, CenterPoint Energy; Tom Oney, Lower Colorado River Authority; Mindy Carr, Oncor; Michael Ruggieri, Southwestern Elec. Power Co.; Roy Jackson, TNMP; Damon Withrow, Xcel Energy)

Against — Katie Coleman, Texas Association of Manufacturers

On — Zachary Stephenson, Texas Electric Cooperatives (*Registered, but did not testify*: Thomas Gleeson, Public Utility Commission; Kenneth Flippin, US Green Building Council Texas Chapter)

BACKGROUND: Concerns have been raised that current regulatory processes do not adequately provide for utilities to financially plan measures to increase the resiliency of electric infrastructure against inclement weather.

DIGEST: CSHB 2555 would authorize an electric utility to file with the Public Utility Commission (PUC) a plan to enhance the resiliency of its

transmission and distribution system through at least one of the following methods:

- hardening transmission and distribution facilities;
- modernizing such facilities;
- undergrounding certain electrical distribution lines;
- lightning mitigation;
- flood mitigation;
- information technology;
- cyber security;
- physical security;
- vegetation management; or
- wildfire mitigation and response.

The bill would require the plan to explain the systematic approach the utility would use to carry out the plan for at least three years.

In determining whether to approve a plan, the PUC would be required to consider the extent to which the plan was expected to enhance system resiliency and the estimated costs of implementation.

The PUC would be required to by order approve, approve with modification, or deny the plan within 180 days of filing. A plan could not be approved if the PUC determined that it was not in the public interest to approve the plan. If the PUC did not issue an order by the 180th day, the plan would be considered approved.

Approval of a plan would not require a utility to implement all measures or incur all costs in the plan if business needs, financial conditions, or supply chain or labor conditions dictated otherwise. Denial of a plan would not be considered a finding of the prudence or imprudence of a measure or cost for rate-making purposes.

A utility whose plan had been approved could request that the PUC review an updated plan, which would have to comply with any applicable PUC

rules and take effect no earlier than three years after the most recent approval of the plan.

Implementation of an approved plan could not be considered imprudent for rate-making purposes. If the PUC determined that the implementation costs of the plan were prudently incurred, the costs could not be subject to disallowance for exceeding plan estimates.

A utility would be authorized to file with a plan an application for a rider to recover implementation costs. If a plan with a filed rider application was approved, the PUC would be required to determine the appropriate terms of the rider, and reconcile the approved rider with any update to a plan. The bill would provide for deferral and future recovery of implementation costs for a plan that did not include a rider application.

Plan costs considered to be reasonable and prudent could not include costs otherwise recovered through the utility's base rates, and would be required to be allocated to customer classes pursuant to the rate design most recently approved by PUC. The bill would provide for the recovery of reasonable and prudent costs associated with a capital investment that was recoverable as a plan cost.

For the period an approved plan was in effect, a utility would not be required to submit any annual report required by certain provisions of the Utilities Code or PUC rules, with the exception of an annual service quality report.

CSHB 2555 would take immediate effect if finally passed by a two-thirds record vote of the membership of each house. Otherwise, it would take effect September 1, 2023.

NOTES: According to the Legislative Budget Board, CSHB 2555 would have an estimated negative impact to general revenue related funds of $1,048,274 through fiscal 2024-25.

EXHIBIT JMR-6

BILL ANALYSIS

C.S.H.B. 2555
By: Metcalf
State Affairs
Committee Report (Substituted)

BACKGROUND AND PURPOSE

Inclement weather is common in Texas and tornadoes, hurricanes, ice, windstorms, and drought can create conditions that threaten electric infrastructure. Severe weather events in recent years, such as Tropical Storm Nicholas and Winter Storm Mara, resulted in severe damage to transmission and distribution infrastructure. Increasing the resiliency of utility infrastructure in Texas will result in more rapid outage restoration times and less damage to existing structures, which reduces the long-term costs for utilities and their customers. Because the impact of electric system threats varies greatly from year to year due to weather, it is difficult for utilities to financially plan for preventative activity using current regulatory processes. C.S.H.B. 2555 seeks to provide the opportunity for electric utilities to develop and file resiliency plans with the Public Utility Commission of Texas (PUC). By addressing resiliency in a proactive approach, rather than waiting for an extreme weather event, electric utilities would be able to plan and procure the necessary equipment and labor to prepare for weather emergencies. Moreover, the bill would allow the PUC to review, on a case-by-case basis dependent on each utility's needs, whether certain associated costs were reasonable and whether cost-recovery measures are permissible.

CRIMINAL JUSTICE IMPACT

It is the committee's opinion that this bill does not expressly create a criminal offense, increase the punishment for an existing criminal offense or category of offenses, or change the eligibility of a person for community supervision, parole, or mandatory supervision.

RULEMAKING AUTHORITY

It is the committee's opinion that rulemaking authority is expressly granted to the Public Utility Commission of Texas in SECTION 2 of this bill.

ANALYSIS

C.S.H.B. 2555 amends the Utilities Code to authorize an electric utility to file a plan to enhance the resiliency of its transmission and distribution system through at least one of the following methods:

- hardening electrical transmission and distribution facilities;
- modernizing electrical transmission and distribution facilities;
- undergrounding certain electrical distribution lines;
- lightning mitigation measures;
- flood mitigation measures;
- information technology;
- cyber security measures;
- physical security measures;
- vegetation management; or
- wildfire mitigation and response.

The bill requires the plan to explain the systematic approach the utility will use to carry out the plan during at least a three-year period. The bill authorizes the utility to file with the plan an application for a rider to recover all or a portion of the estimated costs relating to the plan's implementation. The plan must be filed in a manner authorized by Public Utility Commission of Texas (PUC) rule and the PUC must adopt rules to implement the bill's provisions relating to transmission and distribution resiliency plans not later than the 180th day after the bill's effective date.

C.S.H.B. 2555 requires the PUC by order to approve, approve with modification, or deny a resiliency plan that complies with any applicable PUC rules not later than the 180th day after the utility files the plan. In determining whether to approve a plan, the PUC must consider the extent to which the plan is expected to enhance system resiliency, including whether the plan prioritizes areas of lower performance, and the estimated costs of implementing the measures proposed in the plan. The bill prohibits the PUC from approving a plan that it determines is not in the public interest and establishes that, if the PUC does not issue an order by the 180th day, the plan and any associated rider are considered to have been approved.

C.S.H.B. 2555 establishes that the PUC's approval of a plan is not considered to be a requirement for purposes of the Public Utility Regulatory Act (PURA) provisions regarding electric utility rates and the regulation of electric services that an electric utility implement all the measures or incur all the estimated costs in the plan if business needs, financial conditions, or supply chain or labor conditions dictate otherwise. The bill further establishes that the PUC's denial of a plan is not considered to be a finding of prudence or imprudence of a measure or cost in the plan for purposes of those same PURA provisions.

C.S.H.B. 2555 requires the PUC, on approving a resiliency plan with which an application for an associated rider was filed, to determine the appropriate terms of the rider in the approval order. An approved rider must allow the utility to begin recovering the levelized cost of implementing the approved plan at the time the plan is first implemented. The bill requires the PUC to reconcile any rider approved in connection with the previously approved plan to determine the utility's reasonably and prudently incurred plan costs as part of a review of a plan. The bill authorizes a utility that files a plan with the PUC without applying for a rider to defer

all or a portion of the plan's implementation costs for future recovery as a regulatory asset, including carrying costs at the utility's weighted average cost of capital established in the final PUC order in the utility's most recent base rate proceeding, and to use certain PUC-authorized cost recovery alternatives or another general rate proceeding.

C.S.H.B. 2555 authorizes a utility with an approved resiliency plan to request that the PUC review an updated plan submitted by the utility. The updated plan must comply with any applicable PUC rules and take effect on a date that is not earlier than the third anniversary of the approval of the utility's most recently approved plan. The bill requires the PUC to review and approve, modify, or deny the updated plan in the manner provided for an original plan.

C.S.H.B. 2555 prohibits a utility's implementation of an approved resiliency plan from being considered imprudent for purposes of the previously mentioned PURA provisions. If the PUC determines that the implementation costs were prudently incurred, those costs are not subject to disallowance for exceeding the estimates in the plan. The bill prohibits plan costs considered by the PUC to be reasonable and prudent from including the same costs otherwise recovered through the utility's base rates and requires those costs to be allocated to customer classes pursuant to the rate design most recently approved by the PUC.

C.S.H.B. 2555 authorizes a utility to recover all reasonable and prudent costs associated with a capital investment that is recoverable as a plan cost, including the annual depreciation expense related to the investment calculated at the utility's currently approved depreciation rates, the after-tax return on the undepreciated balance of the investment calculated using the rate of return approved by the PUC in the utility's last comprehensive base rate proceeding, and federal income tax and other taxes related to the investment.

C.S.H.B. 2555 establishes that a utility for which the PUC has approved a resiliency plan is not required to submit to the PUC during the period in which the plan is in effect any required annual report, except the annual service quality report.

C.S.H.B. 2555 includes legislative findings relating to the following:

- the extraordinary damage to electrical transmission and distribution facilities, resulting in power outages, that can be caused by extreme weather conditions;
- the state's interest in promoting the use of certain resiliency measures to enable electrical transmission and distribution infrastructure to withstand extreme weather conditions;
- that the protection of electrical transmission and distribution infrastructure from extreme weather conditions can reduce system restoration costs to and outage times for customers and improve system resiliency and overall service reliability for customers;
- the state's interest for each electric utility to seek to mitigate system restoration costs to and outage times for customers when developing plans to enhance electrical transmission and distribution infrastructure storm resiliency; and
- the benefit to customers from reduced system restoration costs.

EFFECTIVE DATE

On passage, or, if the bill does not receive the necessary vote, September 1, 2023.

COMPARISON OF INTRODUCED AND SUBSTITUTE

While C.S.H.B. 2555 may differ from the introduced in minor or nonsubstantive ways, the following summarizes the substantial differences between the introduced and committee substitute versions of the bill.

The substitute revises the provision in the introduced authorizing a utility to file a plan to enhance the resiliency of its transmission and distribution system through at least one of several listed methods by including physical security measures and modernizing electrical transmission and distribution facilities among those methods, which were not included in the introduced version's listed methods.

The substitute includes a provision not present in the introduced establishing that the PUC's approval of a plan is not considered to be a requirement for purposes of applicable PURA provisions that the utility implement all the measures or incur all the estimated costs in the plan if business needs, financial conditions, or supply chain or labor conditions dictate otherwise.

While both the introduced and substitute require the PUC, as part of its review of a utility's updated plan, to reconcile the rider to determine the utility's reasonably and prudently incurred plan costs, the substitute includes a specification not present in the introduced that the rider to be reconciled is any rider approved in connection with the previously approved plan. Additionally, while both the introduced and substitute prohibit plan costs considered by the PUC to be reasonable and prudent from including costs recovered through the utility's base rates, the substitute includes a specification not present in the introduced that the costs that may not be included are the same costs otherwise recovered through those rates.

HBDi
HOUSTON BUSINESS DEVELOPMENT, INC.
Financing Growth of Small Business

March 7, 2023

U.S. Department of Energy
1000 Independence Ave SW
Washington, D.C. 20585

To whom it may concern:

With this letter, Houston Business Development, Inc. and the Bethune Empowerment Center (BEC) would like to express support for CenterPoint Energy's application for a grant from the U.S Department of Energy (DOE) to foster strengthening the grid in the nation's fourth largest city. CenterPoint Energy has a longstanding history of being a positive anchor in the Houston community through service, charitable giving and volunteerism.

The company has supported our recent work to develop a centralized workforce and economic development hub in the Acres Home community, a signature capital project of the City of Houston's Complete Communities initiative. There is a critical need for workforce programs in the Acres Home community where the average median income is $35,399, which is less than 80% of that of Houston. In 2016 there were 5,167 jobs in Acres Home, a ratio of one job per four residents.

Through a coalition of partners and the support of CenterPoint Energy, the BEC will provide a collective impact on the job training, apprenticeships, skill-building services, small business resources, co-working spaces, and business incubators for the Acres Home community. Our collaborators, among others, include:

- Home Builders Institute (HBI) - HBI will provide job training, apprenticeships, and skill-building services in plumbing, HVAC, and trades aligned with the local needs of Houston, such as weatherization, targeting youth, veterans, and the re-entry population.
- The ION - The ION fosters a community and culture where corporate innovators, academic partners, community partners, startups, and entrepreneurs come together to solve some of the world's greatest problems. The ION will provide digital literacy and technology training.
- Lone Star Community College - LSC-Houston North Victory serves the needs of students (both current and potential) while equipping them with the knowledge and skills they need to be successful in the classroom, their careers, and every aspect of their lives.

Resiliency and a reliable infrastructure are integral to our community and region. In 2020, Houston Mayor Sylvester Turner stated that the City is "focused on increasing the resilience of our neighborhoods, particularly in those that have been historically underinvested." If awarded funding by DOE, CenterPoint Energy would deliver on that focus by seeing that such funds would not only provide valuable resilience, but also generate benefits for disadvantaged communities in the Houston area.

We wholeheartedly support CenterPoint Energy's efforts to strengthen resiliency to mitigate the frequency and duration of outages by helping meet increasing energy demand, leading the energy transition, and ensuring that benefits flow directly to the communities we serve.

Sincerely,

Marlon D. Mitchell
President/CEO

5330 Griggs Road Houston, Texas 77021 •(713) 845-2400 - Office• (713) 645-2830 - Fax• www.hbdi.org

U.S. Department of Energy
1000 Independence Ave SW
Washington, D.C. 20585

I am writing to express my strong support for CenterPoint Energy's Grid Resiliency Program (GRIP) Application. As a representative of the Houston Independent School District (HISD), I have witnessed firsthand the positive impact of CenterPoint Energy's initiatives on our students and community.

HISD serves a diverse student population, with approximately 189,000 students from various cultural and socioeconomic backgrounds. A significant portion of our students, approximately 79%, are considered economically disadvantaged, and 64% are deemed "at risk." Despite these challenges, we are committed to providing our students with quality education and opportunities for growth and advancement.

CenterPoint Energy has been a valuable partner in our efforts to prepare students for success in an ever-changing global community. Through their proactive support of Career and Technical Education (CTE), they have extended learning beyond the classroom, introducing students to real-world problem-solving, technical training opportunities, and career pathways. Their dedication to investing in education through volunteerism, charitable contributions, and meaningful learning opportunities exemplifies their commitment to improving the communities they serve.

The Grid Resiliency Program proposed by CenterPoint Energy aligns with our mission of providing diverse opportunities for student growth and acceleration. By upgrading the electrical grid, this program will not only enhance the resilience of our infrastructure but also contribute to a brighter future for our students and their families. With improved infrastructure, low-economic communities will benefit from enhanced access to education, career and technical training opportunities, job security, transportation options, and overall community resilience.

In conclusion, I wholeheartedly endorse CenterPoint Energy's GRIP application and believe that their investment in strengthening the grid will have a profound and positive impact on the students and families of the Houston Independent School District. Thank you for considering this important initiative..

Sincerely,

Veronica Estrada

Veronica Estrada
Executive Director of Career & Technical Education

March 10, 2023

Dear U.S. Department of Energy grant committee,

I am pleased to offer this letter in support of CenterPoint Energy's grant application for the DOE's Grid Resilience and Innovation Partnerships Program.

Genesys Works Houston's partnership with CenterPoint Energy has spanned 12 years and encompasses a wide range of community benefits. This includes not just traditional avenues such as philanthropy and volunteer service, but the more direct and tangible impact of helping to develop, in a hands-on manner, a more diverse local workforce.

Talent is distributed equally, but opportunity is not. According to Measure of America in a June 2020 study, 12.2% (or over 102,000) of greater Houston-area youth ages 16 to 24 overall are disconnected from school or work. Those numbers jump to 13.2% for Black youth, and 14.6% for Latinx youth. According to a Houston ISD demographics report, 79.1% of the district is economically disadvantaged. Genesys Works' mission is to open doors of opportunity for students in under-resourced communities, providing them with high-touch technical and professional skills training and placing them in paid corporate internships, so that they may experience the business world first-hand and take one step closer to realizing their college and career dreams. We serve predominantly youth of color from lower-income backgrounds who attend nearly 40 high schools in six districts across greater Houston. Many of these are first-generation college students who do not have resources to help them navigate the vast array of postsecondary options. By connecting these students with meaningful work opportunities and postsecondary education and career coaching while they are still in high school, Genesys Works prevents underserved, under-resourced youth from ever becoming disconnected from education and employment.

Since 2011, CenterPoint Energy has hosted more than 75 Genesys Works interns in paid, year-long work-based learning experiences during their senior year in high school. This equates to over $750,000 in wages earned and paid directly to these students that benefit their families and communities. CenterPoint Energy employees provide these motivated young people with opportunities to lend real value to their business by getting real work done, while also helping to coach and support them as they determine their postsecondary paths. These students graduate high school with a year of work experience with a major company, a vision for their future, and a plan and financial resources in place to achieve that vision. In fact, many Genesys Works interns have extended their work experience with CenterPoint Energy by participating in college internships, and some have been hired full-time by the company—the ultimate fulfillment of our mission to provide a path to economic self-sustainability for youth who need nothing more than a chance to show what they're capable of.

Our board of directors and staff are deeply grateful for CenterPoint Energy's continued partnership. Their investment in the young people we serve, both financially and through their dedication to providing meaningful work experiences, coaching and support, is a shining example of how businesses and nonprofit organizations can partner to make our entire community stronger. Their work to increase our grid's resiliency will not only benefit the greater community but also continue to create economic development opportunities for workers of all ages. I hope you will give their application your most serious consideration.

Sincerely,

Katherine Taylor
Executive Director

March 6, 2023

SUBJECT: Support for the Department of Energy grant applications

To Whom It May Concern:

Houston Area Urban League (HAUL) is pleased with your efforts in submitting for the Department of Energy Grant. This Grant has our support based on CenterPoint Energy continued investment in substantial resources and efforts implementing grid resiliency plans to strengthen the electric system to enhance and build a stronger, smarter, and more adaptable grid to make it more resilient to severe weather events and improve service to CenterPoint's customers. CenterPoint's resilience planning is an integrated effort, involving numerous state and local governments and agencies, as well as community organizations dedicated to serving disadvantaged communities within the service territory.

We will support the CenterPoint Energy with this grant by providing the skilled workforce needed for the resilience-strengthening efforts. HAUL will assist CenterPoint Energy in creating a more diverse workforce by training and referring candidates from under represented and/or disadvantaged populations. We would like a letter of support from these partners to show how they can continue to assist by:

Houston Area Urban League would like to express interest in future collaboration with CenterPoint Energy to enhance our Urban Energy Jobs Program that will train suitable candidates in Alternative Energy, Intro to Power Industry, OSHA-30, Pipeline Safety, Fall Protection Safety, and Excavation. CenterPoint Energy is our lead Employer Partner and if funded for the Department of Energy Grant will enhance our ability to better empower communities and change lives.

Sincerely,

Judson W. Robinson, III
President & CEO

United Way
United Way of Greater Houston

April 10, 2024

U.S. Department of Energy
1000 Independence Ave SW
Washington, D.C. 20585

To Whom It May Concern:

I am writing on behalf of Rebuilding Together Houston (RTH) in support of CenterPoint Energy's Grid Resilience and Innovation Program application. For the last forty-two years our non-profit has provided critical home repairs to underserved families at risk of being displaced from their homes. Our work adds twenty years or more to the life of a home, making the home safer and more resilient against disaster.

CenterPoint Energy has provided our community with electricity for more than 150 years and shares in our vision. They have been extremely involved with RTH and listening to the needs of those they serve. RTH has repaired almost 800 homes between Winter Storm Uri in 2021 and Hurricane Harvey in 2017. Low-income homeowners are especially vulnerable to disaster because of inadequate housing, fragile health, and lack of back-up resources in case of emergencies. While the Greater Houston area has had a surge in economic growth in recent years, access to safe, quality, affordable housing and the supports necessary to maintain that housing, as well reliable resilient power delivery, constitute the most basic social needs.

The infrastructure investments and innovative solutions being pursued by CenterPoint Energy are welcome to the challenges we face in the Greater Houston area that have far reaching benefits for our citizens. It will also benefit our local job force and create opportunities for supporting education initiatives. CenterPoint Energy's goals for this project to expand their local education, training, and hiring efforts in our communities are of great importance to us. All of which lead to the same vision Rebuilding Together is focused on - creating safe homes and communities for everyone.

For these reasons, we fully support CenterPoint Energy's application for the Grid Resilience and Innovative Program for the Department of Energy. We would be proud to rebuild Houston together.

With gratitude,

Christine Holland

Christine Holland
CEO | Executive Director
Rebuilding Together Houston

INTERNATIONAL BROTHERHOOD OF ELECTRICAL WORKERS LOCAL UNION NO. 66

Ed Allen - Business Manager & Financial Secretary
4345 Allen Genoa Road - Pasadena, Texas 77504 - (713) 943-0716 - ibewlu66@gmail.com

March 28th, 2023

U.S. Department of Energy
1000 Independence Ave SW
Washington, D.C. 20585

To whom it may concern:

With this letter, IBEW 66 would like to express support for CenterPoint Energy's grant application to the Department of Energy in creating a more reliable, modern and resilient grid.

For over 125 years, IBEW Local Union 66 has represented skilled craftsmen in the electrical industry. We have had a good working relationship with CenterPoint Energy. Today, we have a membership of 4,813 men and women working in many crafts related to generation, distribution, maintenance, and operation of the electric grid.

CenterPoint Energy's continued investment in the grid provides ongoing benefits for our Union members, electrical workers, many of which are employees of the company and contractors through third party services. The company's investments continue to provide electrical workers a better standard of living for themselves and their families while also creating economic development opportunities for our region.

A sustainable future is dependent upon our region's ability to grow. Efforts to strengthen the grid will be the blueprint for an equitable and sustainable future to support increased electric transportation, the use of more renewable energy sources, and build the future power infrastructure – one that is more dependent upon a reliable grid that is designed to address current and future trends.

Through grid hardening and modernization efforts, CenterPoint Energy is working to support a more reliable, modern and resilient future – one that is less susceptible to damage, often from extreme weather-related incidents, such as hurricanes with high winds and flooding or weather events with extreme ice accumulations.

CenterPoint Energy's goals of creating a more resilient grid align with the needs of our union members and the needs of the future labor market. A more reliable and modern grid will ensure we keep our members working, create more job opportunities, and ensure that community members have access to reliable power.

On behalf of our members, we are pleased to support CenterPoint Energy's application to the U.S. Department of Energy efforts to strengthen our electrical grid.

Sincerely,

Ed Allen
Business Manager/Financial Secretary
IBEW Local 66

April 10, 2024

U.S. Department of Energy
1000 Independence Ave SW
Washington, D.C. 20585

To Whom It May Concern:

Founded in 1886, the YMCA is an organization that was established with a mission to provide safe accommodations for community members that worked in harsh conditions. Over the years, the YMCA has continued to grow while continuing to provide a safe place, welcoming environment for all, and ensure that everyone has access regardless of age, income, background, or circumstance. We care and support our community members through three focus areas that include fostering healthier families, empowering the youth, and supporting the growth for inclusiveness in communities.

In order for the YMCA to continue down the path to success, we would like to support CenterPoint Energy's initiative for Grid Resiliency. With GRIP funding, the upgrades to our region's electrical grid would have a tremendous impact on our community members' livelihood, health, education, and safety. Without the funding, our members will have less job opportunities and our disadvantaged members may be suffering from extreme weather during the winter and summer months or even go without the resources they need in hurricane season or in a harsh winter storm.

The Grid Resiliency and Innovation Program can provide the funding the Houston community needs to successfully meet the region's growth. The funding will provide a more reliable electrical grid for families and quality career opportunities for economically disadvantaged areas.

Resiliency and a reliable infrastructure are essential to the communities in our region. Power outages remain a significant risk to public health and safety, and CenterPoint is executing on multiple strategies to mitigate the frequency and duration of outages by helping meet increasing energy demand, leading the energy transition, and ensuring that benefits flow directly to the communities we serve. With this letter, the YMCA of Greater Houston would like to express support for CenterPoint Energy's GRIP application to the U.S. Department of Energy.

Sincerely,
Marie D. Arcos
Marie D. Arcos, MSW
Chief Government Affairs Officer
mariea@ymcahouston.org 713-758-9123

Pasadena Independent School District

Dr. Kirk Lewis Career and Technical High School

1348 Genoa-Red Bluff, Houston, Texas 77034

Office: 713-740-5320 | Fax: 713-740-5961 | www.CTHSweb.com

Steven Fleming
Principal

Chad Phillips
Assistant Principal

Matthew Cass
Assistant Principal

Jessica McCoy
Assistant Principal

Kristi White
Assistant Principal

Kim Voight
Lead Counselor

Tammy Gernander
College Now Counselor

Tracey Balusek
Transition Counselor

Dr. Christina Flores
Counselor

Kelly Potter
Counselor

Dr. Diane Barnes
Career and Community Coordinator

U.S. Department of Energy
1000 Independence Ave
Washington, D.C. 20858

To Whom It May Concern:

Pasadena Independent School District serves our student population with a mission to create a gateway to unlimited opportunities, to empower students to become accomplished, self-directed, collaborative, lifelong learners, who boldly contribute to an increasingly complex and evolving world by engaging them in positive relationships, rigorous curriculum, and innovative meaningful experiences. Our district is made up of nearly 50,000 students on the east side of Houston. The majority of Pasadena ISD resides in the Justice 40 territory where 60% of our students are considered at-risk.

As a district we want our students to have more opportunities to real-world experiences to drive their learning. For that reason, we've been proud to collaborate with CenterPoint Energy through their Career and Technical Education (CTE) outreach efforts. This program has shown our students real-world scenarios of our electric and natural gas utility work in the Houston area. It has allowed the students to problem-solve and learn about the innovative work being accomplished in serving our daily energy delivery needs.

The electrical grid is always a topic of interest during hurricane season, particularly on the eastern portion of Houston, Texas where the community has suffered from extreme weather incidents. This includes Hurricane Harvey and winter storm Uri where some families are still recovering from those impacts.

With CenterPoint Energy's Grid Resilience and Innovation Project, our community members will have a more resilient grid that will support them through these extreme weather events. The entire community will benefit from enhanced safety and job creation, which will also feed into our CTE programs with our students. The upgrades will also provide our schools with a more reliable electrical structure that will keep our electricity on through any situation.

For those reasons, we support CenterPoint Energy and their application for the Grid Resilience and Innovative Partnership Program that guides us one step closer to a more resilient electrical grid.

Sincerely,

Steven Fleming

March 6, 2023

We are pleased to provide this letter in support of CenterPoint Energy Houston Electric for its resilience-strengthening efforts.

SERJobs, a community-based 501(c)(3) non-profit organization founded in 1965, is a leader in workforce development and dedicated to building a high quality, high performance workforce to individuals, businesses and communities along the Texas Gulf Coast. Each client receives a personalized combination of the following services: Service Navigation, Assessments, Career Coaching, Career Exploration, Job Readiness Training, Occupational Training, Financial Education and Coaching, Employer Engagement, Job Placement Assistance, Referral Services, and Follow Up/Retention Services – all at no cost to the client.

SER has a long history of collaborating with CenterPoint Energy on worthwhile projects and looks forward to working effectively on this program. SERJobs is committed to engage in ongoing efforts to diversify our workforce by including those from under represented and/or disadvantaged populations in all our trainings and services. By doing so, SERJobs commits to the following:

- Ensuring a more skilled workforce
- Keeping consistent with the growth of our city
- Strengthening our community by helping to provide opportunities for the future

For more than 57 years, SERJobs has assisted mostly minority, historically-marginalized individuals who have barriers to employment by transformative and comprehensive workforce development services designed to facilitate self-sufficiency and economic opportunity. We are committed helping to provide the workforce needed for CenterPoint Energy's resilience-strengthening efforts.

Sincerely,

Sheroo Mukhtiar

Chief Executive Officer

www.serjobs.org 1710 Telephone Rd. Houston, TX 77023 Phone: 713.773.6000 Fax: 713.773.6010

improving opportunity.
empowering our community.

U.S. Department of Energy
1000 Independence Ave. SW
Washington DC 20585

March 10, 2023

To Whom It May Concern

I am writing on behalf of Tejano Center for Community Concerns, in support of CenterPoint Energy's application for the Department of Energy's Grid Resilience Utility and Industry Grant.

Tejano Center for Community Concerns' work is to develop education, social, health, and community institutions that empower families to transform their lives.

Alongside business partners, like CenterPoint Energy, we have served as an agent for change, empowering neighborhood residents. Tejano Center's goal has always been to improve lives and create a sustained network of support and opportunity within the community by providing a comprehensive array of programs and services.

The funding provided by this grant will support CenterPoint's valuable efforts to invest substantial resources in implementing grid resiliency plans to strengthen the electric system to enhance and build a stronger, smarter, and more adaptable grid. This work is essential to further insulate our region's electrical infrastructure from severe weather events and improve service to CenterPoint's business and residential customers.

Power outages remain a significant risk to public health and safety, and CenterPoint is executing on multiple strategies to mitigate the frequency and duration of outages by helping meet increasing energy demand, leading the energy transition, and ensuring that benefits flow directly to the communities they serve. In 2020, Houston Mayor, Sylvester Turner, stated that the city is "focused on increasing the resilience of our neighborhoods, particularly in those that have been historically underinvested." If awarded funding by DOE, CenterPoint would deliver on that focus by seeing that such funds would not only provide valuable resilience, but also generate benefits for disadvantaged communities in the Houston area.

We encourage the cooperation and collaboration of CenterPoint with the Department of Energy and look forward to the opportunities that this relationship could bring to our regional community. If we can be of any further assistance, please do not hesitate to reach out.

Sincerely,

Dr. Adriana Tamez
President & CEO
Tejano Center for Community Concerns

2950 Broadway Street
Houston, Texas 77017
713.640.3700 Tel
713.644.6232 Fax

TejanoCenter.org

GREATER HOUSTON
PARTNERSHIP

U.S. Department of Energy
1000 Independence Ave. SW
Washington DC 20585

March 14, 2023

To Whom It May Concern,

I am writing on behalf of The Greater Houston Partnership, in support of CenterPoint Energy's application for the Department of Energy's Grid Resilience Utility and Industry Grant. The Greater Houston Partnership is the region's premier business organization, representing more than 950 member companies that work together to achieve our mission of making Houston a great place to live, work and build a business.

Alongside business partners, like CenterPoint Energy, we have long championed Houston's growth through economic development efforts aimed at attracting leading global companies to Houston, creating jobs and contributing to the region's GDP. We also advocate for sound public policy at the local, state and federal levels and convene a diverse set of regional leaders on key issues impacting the greater Houston community.

The funding provided by this grant will support CenterPoint's valuable efforts to invest substantial resources in implementing grid resiliency plans to strengthen the electric system to enhance and build a stronger, smarter, and more adaptable grid. This work is essential to further insulate our region's electrical infrastructure from severe weather events and improve service to CenterPoint's business and residential customers.

Reliability of electricity supply is important for economic growth. The costs of outages, due to weather and other factors, take various forms including lost output and wages, spoiled inventory, delayed production, and damage to the electric grid. A more resilient electric grid brings a host of benefits beyond reduced vulnerability to severe weather. Many of these additional benefits of grid resilience constitute positive externalities. For example, power outages can hinder public safety since police, firefighters, and emergency medical personnel struggle to aid communities during outages. And the largest petrochemical complex in the world sits along our Houston Ship Channel, and not only do they face economic costs if their supply chains are disturbed, but that disturbance also impacts the national economy.

We encourage the cooperation and collaboration of CenterPoint with the Department of Energy and look forward to the opportunities that this relationship could bring to our regional community. If we can be of any further assistance, please do not hesitate to reach out.

Sincerely,

Susan Davenport
Senior Vice President & Chief Economic Development Officer
Greater Houston Partnership

www.houston.org
701 Avenida de las Americas, Suite 900 Houston, TX 77010
Austin | Brazoria | Chambers | Fort Bend | Galveston | | arris | Liberty | Montgomery | San Jacinto Walker | Waller Wharton

United Way
Greater Houston

United Way Center for
Philanthropy, Leadership
and Volunteerism

50 Waugh Drive
Houston, Texas 77007

P.O. Box 3247
Houston, Texas 77253-3247
Phone 713-685-2300

March 9, 2023

Department of Energy
1000 Independence Ave. SW
Washington, DC 20585

To Whom It May Concern:

United Way of Greater Houston is pleased to share its support of CenterPoint Energy's work to strengthen our grid to support resiliency.

In Greater Houston, 14 percent of families are living on wages below the federal poverty threshold, and another 33 percent of families are working hard but don't earn enough to afford the basic necessities of life. These families often have to make tough choices, like whether to buy food or pay for medicine. CenterPoint Energy has partnered with United Way of Greater Houston for many years to help our neighbors move from surviving to thriving and build a stronger, more resilient community for all.

In addition to contributing more than $1 million annually to support United Way's work to help our neighbors land on their feet and stay there, CenterPoint Energy employees are active United Way volunteers, contributing 800 volunteer hours over the last five years. CenterPoint Energy's leadership team members have a legacy of service on United Way's board and committees, including current United Way board member and senior vice president of CenterPoint's electric business, Lynnae Wilson.

CenterPoint Energy also helps increase the capacity of our community's entire nonprofit sector. They sponsor the annual Power Tools for Nonprofits conference, a development and educational event for nonprofit professionals which will celebrate its 30th year in 2023. This year, CenterPoint Energy and United Way of Greater Houston joined forces to launch the CenterPoint Energy Emerging Leaders Institute, addresses the lack of diverse and emerging leaders in the nonprofit sector through development, training, and engagement.

Houston has faced seven federally declared disasters in the last seven years alone. When disaster strikes, CenterPoint's partnership is invaluable to our organization and our community. In addition to its team working around the clock to help our community recover from power outages, downed lines, and other hazards in times of disaster, CenterPoint supports our community's recovery through United Way and other organizations. Most recently, in the wake of Winter Storm Uri, CenterPoint Energy CEO, David Lesar, led a community-wide recovery effort in partnership with United Way of Greater Houston, Greater Houston Community Foundation, City of Houston, and Harris County. CenterPoint Energy made a generous $1 million lead gift to ensure we could quickly get resources to those most in need and raised $17 million to help households repair their homes and get back on their feet.

CenterPoint Energy works with many other community organizations to help make Houston a great place to live and work. For example, CenterPoint Energy recently invested $2.8 million in Houston's Complete Communities initiative, an effort we are invested in to increase the financial stability and resilience of community which supports economically disadvantaged communities in our region by funding projects to advance equity, vitality, and resiliency. As part of that investment, CenterPoint Energy is supporting a program to repair the homes of low-income residents that have moderate damage and deferred maintenance issues that, left unaddressed, will disqualify the properties for weatherization services that will increase the resilience and disaster preparedness of the homeowners, as well as reduce energy usage which can free up funds for other living expenses.

CenterPoint Energy is a great partner to United Way of Greater Houston and the Greater Houston community. We are pleased to support their application to the Department of Energy and their efforts to implement grid resiliency plans to strengthen the electric system and build a more robust, smarter, and more adaptable grid to make it more resilient to severe weather events and improve service to our community.

Sincerely,

Amanda McMillian
President and CEO

We work together to improve lives, build a stronger community, and create meaningful opportunities for people to prosper.

Wesley
COMMUNITY CENTER

Department of Energy
GRIP Program

March 6, 2023

To whom it may concern:

Wesley Community Center is excited to provide this letter of support for CenterPoint Energy for its efforts in building energy resiliency in Houston while at the same time strengthening our diverse community.

Wesley Community Center was founded in 1904 to support lower income, struggling families in Houston's Near Northside. We provide quality early childcare, after school and summer care for school-aged youth, food, and emergency financial services for struggling families, and a Financial Opportunity Center for individuals to gain the skills they need to become self-sufficient. Through our FOC, we provide workforce development, financial coaching and income assistance to lower income clients seeking financial stability. Wesley clients are predominately Hispanic and African American, and almost all are at or below the poverty level.

CenterPoint has supported Wesley's work for many years. Last year, we developed a partnership to connect Wesley's job training clients to CenterPoint's Contact Center. Wesley developed a new customer service employment training with CenterPoint's input. After the three week training, Wesley coaches help job training clients apply to work in the Contact Center. CenterPoint staff members present to the class while in session, and review all resumes submitted through Wesley.

In our first cohort, the majority of clients who applied received offers from CenterPoint and started in their paid training program, earning over $18/hour. This is a substantial increase for the average Wesley client, and it is just a start. CenterPoint offers a higher wage post-training, and opportunities for advancement and overtime. Because of CenterPoint's reputation and the positive experience of our first cohort, our second cohort received more applications than we could accept at this time. We will continue to offer this training multiple times per year to help as many people as possible gain entry into this wonderful opportunity.

We are thrilled to partner with CenterPoint as it works hard to bolster energy resiliency and lift up all members of our diverse community.

Thank you for your consideration.

Sincerely,

Amy Corron

President & CEO

1410 Lee Street - Houston, TX 77009-8228 - 713.223.8131
www.wesleyhousehouston.org
A National Mission Institution of the United Methodist Church

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CITY OF HOUSTON

John Whitmire

Mayor

P.O. Box 1562
Houston, Texas 77251-1562

Telephone – Dial 311
www.houstontx.gov

April 8, 2024

Re: City of Houston's Support for CenterPoint Resiliency Plan Staffing Measure

To whom it may concern,

The City of Houston is writing to express our support for CenterPoint to include within its Resiliency Plan a request to fund a City of Houston employee to manage Resiliency Plan implementation work within the City of Houston and for the benefit of the Houston community.

Power resilience is key to enabling economic prosperity, public safety, and quality of life for all residents and businesses in Houston.

The Texas Legislature passed HB 2555 in the 88th Legislative Session "to promote the use of resiliency measures to enable electrical transmission and distribution infrastructure to withstand extreme weather conditions." The legislation calls for Resiliency Plan measures to "improve system resiliency and overall service reliability for customers."

For the City of Houston, these measures will have a direct impact on ensuring that our critical water, wastewater, emergency management, and public safety infrastructure can operate reliably year-round and during extreme weather conditions.

The proposed City of Houston employee will be a dedicated point of contact between the City and CenterPoint on matters relating to Resiliency Plan implementation –right-of-way management, critical facility management, community engagement, and more.

The City of Houston fully supports CenterPoint's commitment to power resilience and with the inclusion of a dedicated municipal employee to help facilitate the projects, Houston and CenterPoint can be more effective in implementing Resiliency Plans and providing benefits to Houston residents.

Sincerely,

Mayor John Whitmire
City of Houston

EXHIBIT JMR-9

SUMMARIES OF DIRECT TESTIMONY

Witness	Summary
Brad Tutunjian, Vice President, Regulatory Policy	Brad Tutunjian, Vice President, Regulatory Policy for CNP, provides a general overview of the Company's service area, including historical and anticipated future load growth and customer profile. He explains the Company's general methodology in developing its Resiliency Plan, which included identifying the past and present Resiliency Events that have occurred in the Company's service area, analyzing the system susceptibilities to those Resiliency Events, and engaging an independent third-party expert—Guidehouse—to provide additional independent analysis to support the development of the Resiliency Plan. Mr. Tutunjian concludes his testimony by discussing the Company's proposed vegetation management Resiliency Measure as well as the two pilot programs proposed by the Company.
Ronald W. Bahr, Vice President of Information Technology	Ronald W. Bahr, Vice President of Information Technology for CNP, provides testimony in support of the technological Resiliency Measures in the Resiliency Plan. Mr. Bahr provides a general description of the Company's technology infrastructure, including the information technology, operational, and cybersecurity services. He explains the Resiliency Events related to technology and the Resiliency Measures the Company has implemented to enhance the resiliency of the technology operations and infrastructure. Mr. Bahr also explains the Company's proposed transition from its existing SAP software to the upgraded SAP 4/HANA software, which will support critical supply chain, restoration, and dispatching

	activities.
Jeff W. Garmon, Director of Regulatory Reporting	Jeff W. Garmon is the Director of Regulatory Reporting for CenterPoint Energy Service Company, LLC, a CNP subsidiary that provides corporate support services to CNP's various other subsidiaries, including CenterPoint Houston. Mr. Garmon explains the Company's accounting policies and procedures that ensure the proper treatment of expenses and capital investment, particularly as they relate to accounting for Resiliency Plan costs. His testimony also describes how the Company's accounting policies and procedures apply to the Resiliency Measures contained in the Resiliency Plan. Further, as permitted by PURA § 38.078(k), Mr. Garmon presents the Company's request for certain accounting treatment, which would allow for the deferral of distribution-related costs for future recovery as a regulatory asset. Finally, he explains the calculation of related carrying costs.
Eugene L. Shlatz, Director of Guidehouse's Energy, Sustainability & Infrastructure Practice	Mr. Shlatz worked for twelve years as a Director in Guidehouse's Energy, Sustainability & Infrastructure Practice and now provides the same services to Guidehouse on a consulting basis following his retirement. He has more than 35 years of experience in electric utility operations, engineering, and electric pricing. In his testimony, Mr. Shlatz provides an overview of Guidehouse's independent analysis and review of the Resiliency Plan with a focus on the proposed operations and physical security Resiliency Measures. He describes each Resiliency Measure and provides Guidehouse's assessment of the benefits and reasonableness of each Resiliency Measure. Finally, Mr. Shlatz explains Guidehouse's benchmarking study that compares the types of Resiliency Measures deployed by the Company's peer group of electric utilities. He concludes that the Company's Resiliency Plan is appropriate for addressing the risks it faces, aligned with best

	industry practices, and beneficial to the customers and communities in its service area.
Joseph B. Baugh, Associate Principal of Guidehouse's Energy, Sustainability, and Infrastructure Practice	Mr. Baugh has worked at Guidehouse since 2019 as an Associate Principal in Guidehouse's Energy, Sustainability, and Infrastructure Practice, working primarily on the Cybersecurity and Compliance team. He has over 50 years of experience in electric utility and power system operations, including specializing in network and information security associated with electric utility information and operational technology systems. Similar to Mr. Shlatz, Mr. Baugh provides an overview of Guidehouse's independent analysis of the Company's Resiliency Plan but with a focus on the technology Resiliency Measures. He describes each technology Resiliency Measure and gives Guidehouse's assessment of the benefits and reasonableness of each measure. Lastly, he presents the results of the benchmarking study comparing the Company's technological Resiliency Measures to those implemented by electric utilities in the Company's peer group. Based on his analysis, Mr. Baugh concludes that the Company's Resiliency Plan appropriately prioritizes technology Resiliency Measures to mitigate cybersecurity risk. Specifically, Mr. Baugh determines that the Company's Resiliency Plan is appropriate for addressing the risks it faces, aligned with best industry practice, and beneficial customers and communities in the Company's service area.

DOCKET NO. 56548

APPLICATION OF CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC FOR APPROVAL OF ITS RESILIENCY PLAN	**§**	**PUBLIC UTILITY COMMISSION OF TEXAS**

DIRECT TESTIMONY OF

BRAD TUTUNJIAN

FOR

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC

APRIL 2024

TABLE OF CONTENTS

TABLE OF EXHIBITS AND WORKPAPERS

Exhibits	Description
Exhibit BAT-1	Glossary of Acronyms

EXECUTIVE SUMMARY OF RESILIENCY PLAN

The Company presents its Resiliency Plan to the Commission for review and approval, including the specific Resiliency Measures detailed in the Resiliency Plan, pursuant to the Commission's Resiliency Rule. The Resiliency Measures detailed in the Resiliency Plan will support the continued safe and reliable operation of Company's transmission and distribution system through Resiliency Events, including extreme weather events. The Company estimates that it will incur a total of approximately $2,192 million in capital costs and approximately $85.9. million in incremental O&M expense over 2025-2027 to implement the Resiliency Measures in the Company's Resiliency Plan. Of that total, and at the time of filing, the Company currently estimates that approximately $1,134 million are distribution-related costs eligible under the Resiliency Rule to be deferred as a regulatory asset.[1] The Company's Resiliency Plan is summarized in Figures BAT-1 and BAT-2 below:

Figure BAT-1.

Resiliency Plan Capital Cost Estimates (in millions)			
Resiliency Plan Categories	Witness	Estimated Capital Cost	Estimated Distribution - Related
Hardening Facilities	**Tutunjian**	$ 1,452.9	$ 504.3
Modernizing Facilities	**Tutunjian**	214.7	143.3
Flood Mitigation	**Tutunjian**	37.6	24.9
System Security	**Tutunjian**	34.5	8.7
Information Technology for Operations	**Tutunjian/Bahr**	260.7	255.8
Information Technology	**Bahr**	54.1	27.1
Vegetation Management	**Tutunjian**	-	-
Wildfire Mitigation	**Tutunjian**	137.2	98.3
Total		**$ 2,191.7**	**$ 1,062.3**

[1] The Company notes that, as the Company implements Resiliency Measures in a Commission-approved Resiliency Plan, there may be additional distribution-related costs that would be eligible to be deferred as a regulatory asset.

Figure BAT-2.

Total Estimated O&M (in millions)			
Resiliency Plan Categories	Witness	Estimated O&M Cost	Estimated Distribution - Related
Hardening Facilities	**Tutunjian**	$ 1.5	$ 0.1
Modernizing Facilities	**Tutunjian**	1.0	0.9
Flood Mitigation	**Tutunjian**	-	-
System Security	**Tutunjian**	0.1	0.0
Information Technology for Operations	**Tutunjian/Bahr**	14.5	14.4
Information Technology	**Bahr**	0.2	0.1
Vegetation Management	**Tutunjian**	25.0	25.0
Wildfire Mitigation	**Tutunjian**	43.6	31.3
Total		**$ 85.9**	**$ 71.8**

The Company anticipates that its Resiliency Plan will provide additional benefits to customers by mitigating the impact of certain Resiliency Events that occur in the Company's service area such as extreme weather conditions, thus reducing overall outage times, the number of customers impacted, and system restoration costs. Additionally, the Company's Resiliency Plan has certain information technology-related Resiliency Measures, a Microgrid pilot program, a City of Houston Resiliency Employee pilot program, and SAP software upgrades that would better assist the Company to analyze, determine, and implement future projects intended to mitigate the impact of Resiliency Events and certain physical security-related Resiliency Measures that further protect the Company's substations. Thus, the Company's Resiliency Plan is in the public interest, and the Company requests that the Commission approve the Company's Resiliency Plan along with the request for certain accounting language.

I. INTRODUCTION

Q. PLEASE STATE YOUR NAME AND CURRENT POSITION.

A. My name is Brad Tutunjian. I am the Vice President, Regulatory Policy for CNP.

Q. PLEASE SUMMARIZE YOUR BACKGROUND AND CURRENT RESPONSIBILITIES.

A. I graduated from Texas Tech University in 1997 with a Bachelor of Science Degree in Mechanical Engineering. I am a licensed Professional Engineer in the State of Mississippi. From my 1997 graduation to the present, I have been employed by CNP or one of its affiliates. My positions within CNP have included Graduate Engineer, Distribution Designer, Distribution Operations Manager, District Manager, Service Area Director, Electric Distribution Operations, Division Vice President – Natural Gas Regional Operations (Mississippi/Louisiana), Division Vice President – Regional Operations (Minnesota), Vice President of Distribution Operations and Service Delivery and Vice President, Regulatory Policy. I was named to my present position in 2023, at which time I assumed responsibility for supporting regulatory initiatives on behalf of CNP before various regulatory bodies on matters of policy impacting various CNP business units.

Q. ON WHOSE BEHALF ARE YOU TESTIFYING IN THIS PROCEEDING?

A. I am testifying on behalf of CenterPoint Houston.

Q. HAVE YOU TESTIFIED PREVIOUSLY?

A. Yes. I filed testimony with the Commission in Docket Nos. 53442 and 54825, which were both DCRF proceedings. I have also testified in two gas utility rate proceedings before the Minnesota Public Utilities Commission in Docket Nos. G-008/GR-17-285

and G-008/GR-19-524 as well as in Texas before the Railroad Commission in Case No. OS-23-00015513.

Q. AS A RESULT OF YOUR WORK EXPERIENCE AND RESPONSIBILITIES, ARE YOU FAMILIAR WITH THE RESILIENCY EVENTS THAT OCCUR AND HAVE OCCURRED IN THE COMPANY'S SERVICE AREA AND THE COMPANY'S PROPOSED RESILIENCY MEASURES INTENDED TO MITIGATE THE IMPACT OF SUCH RESILIENCY EVENTS?

A. Yes. My job responsibilities have made me well acquainted with both Resiliency Events and Resiliency Measures. I have direct experience in storm restoration efforts from my previous roles as Vice President of Distribution Operations as well as Service Area Director for 4-½ years. As the Vice President of Operations, I was directly responsible for planning, drilling, and executing the Company's Emergency Operations Plan. I directly managed numerous storm responses for large storms, microbursts, and tornados within the Company's service area and major storm events such as Hurricane Nicholas and Hurricane Ike. In addition to responding to our local events, I have led the Company's mutual assistance teams to work with other utilities during their storm restoration efforts, for example, Hurricane Gustav in Louisiana. I have also spent time in my career supporting and leading our Natural Gas business during major storm restoration events, including Hurricanes Ivan, Katrina, Rita and Humberto.

II. OVERVIEW OF TESTIMONY

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to demonstrate that it is in the public interest to approve the Company's Resiliency Plan, and particularly those Resiliency Measures that

address operational issues.

Q. WHAT EXHIBITS HAVE YOU INCLUDED WITH YOUR TESTIMONY?

A. I have prepared or supervised the preparation of the exhibits listed in the table of contents. Exhibit BAT-1 is a Glossary of Acronyms. Abbreviated or capitalized terms not defined in my testimony will have the same meaning as listed in the Glossary of Acronyms.

Q. ARE OTHER COMPANY WITNESSES PROVIDING DIRECT TESTIMONY IN THIS DOCKET?

A. Yes. Company witnesses Ronald Bahr, Jason Ryan, and Jeff Garmon are providing direct testimony in support of the Company's Resiliency Plan. While my testimony focuses on operational Resiliency Measures, Mr. Bahr will testify on certain technology-related Resiliency Measures in the Company's Resiliency Plan. Mr. Ryan will provide overall policy testimony. Mr. Garmon will provide testimony on accounting issues related to the Resiliency Plan.

Q. HOW IS YOUR TESTIMONY ORGANIZED?

A. First, I provide a general overview of the Company's service area, including historical and anticipated future load growth, customer profile, and Resiliency Events that occur and have occurred in the Company's service area. Next, I will explain the Company's general methodology in developing its Resiliency Plan, including explaining how and why the Company chose each Resiliency Measure in the Resiliency Plan. Then, I will provide a high-level description of the Resiliency Measures related to operations, giving additional details on the Company's wildfire management and vegetation management strategies. I will also explain the Company's two proposed pilot programs,

the Microgrid Pilot Program and the City of Houston Resiliency Employee Pilot Program, which seek to mitigate the risk of resiliency-related issues in the future. Finally, I will explain why the Company's Resiliency Plan is in the public interest and should be approved by the Commission.

III. OVERVIEW OF THE COMPANY'S SERVICE AREA

Q. PLEASE DESCRIBE THE COMPANY'S SERVICE AREA.

A. The Company's service area is comprised of the Greater Houston Area, which is located along the Gulf Coast of Texas and includes the city of Houston and cities and other areas located in Harris County, Montgomery County, Chambers County, Galveston County, Brazoria County, Fort Bend County, Wharton County, and Colorado County.

Q. PLEASE DESCRIBE THE COMPANY'S TRANSMISSION AND DISTRIBUTION SYSTEM.

A. At a general level, the Company's transmission and distribution system is comprised of approximately 3,700 miles of overhead transmission lines that deliver electricity at 69 kV, 138 kV, and 345 kV; over 280 substations that reduce voltage to serve distribution customers; approximately 56,000 miles of distribution lines (approximately 30,000 miles of overhead distribution and 26,000 miles of underground distribution); miscellaneous associated equipment (e.g. step-down transformers, insulators, capacitors, fuses); and a telecommunications network.

Q. HOW MANY CUSTOMERS ARE SERVED BY THE COMPANY?

A. The Company serves approximately 2.8 million metered customers. These customers include residential, commercial, and industrial customers.

Q. HAS THERE BEEN CUSTOMER GROWTH IN THE COMPANY'S SERVICE AREA?

A. Yes. The Greater Houston Area has been steadily growing the past few years. From 2019 to the present, the number of metered customers grew from approximately 2.5 million customers to approximately 2.8 million customers, which represents a customer growth rate of approximately 2.2% for the past five years. However, customer growth is not limited to just the past few years. In 2010, the Company had approximately 2.1 million customers, meaning the Company has experienced a 2% customer growth rate for over a decade. The Company has invested in its transmission and distribution system to address the customer growth that it has experienced.

Q. DOES THE COMPANY ANTICIPATE THAT CUSTOMER GROWTH WILL CONTINUE?

A. Yes. The Company anticipates that 2% customer growth will continue into the future. The Company continues to see growth in residential and commercial customers throughout the Company's service area, and the Company will continue to invest in its transmission and distribution system to address future customer growth.

Q. ARE THE COMPANY'S SERVICE AREA AND CUSTOMER PROFILE UNIQUE?

A. Yes. It is a uniquely compact and dense service area. While the Company's service area is only about 2% of the geographic area of Texas, the customers who live and work in the Company's service area account for approximately 25% of ERCOT's total load.

Q. PLEASE EXPLAIN FURTHER.

A. The uniquely concentrated nature of the Company's service area is attributable to a few factors. First, from a population perspective, the city of Houston is the largest city in the state, and the Greater Houston area is the fifth largest metropolitan area in the country and ranked second among the country's major metro areas in population growth in 2022. As a result of the large population and anticipated population growth in the Greater Houston area, the Company provides service to a large number of residential and commercial customers. Second, the Greater Houston area has a large presence of petroleum and petrochemical refineries, meaning the Company has many industrial customers that consume large amounts of electricity. Third, the Greater Houston area includes several important public-serving facilities and infrastructure. For example, the Texas Medical Center, which is the world's largest medical complex and home to multiple medical and research institutions, is in the city of Houston. Likewise, the Port of Houston, which is one of the country's busiest container ports, is in the Greater Houston area. Finally, the city of Houston has two airports, George Bush Intercontinental Airport and William P. Hobby Airport, which serve millions of passengers and are local hubs for connecting flights.

Q. GIVEN THE NATURE OF THE COMPANY'S SERVICE AREA AND CUSTOMER PROFILE, HOW IMPORTANT IS IT FOR THE COMPANY TO PROVIDE SAFE AND RELIABLE SERVICE.

A. It is very important and the Company's utmost priority is providing service to the Company's customers. The Company takes very seriously its obligation to provide safe and reliable service, and the Company has committed and will always commit to

providing safe and reliable service. The Greater Houston area is an economic lynchpin in Texas, and the Company is keenly aware of the role it plays in the Greater Houston area. The service provided by the Company enriches the communities it serves and enables millions of homes and businesses to function. The Company's investment in and implementation of resiliency projects are key components of ensuring that the Company continues to provide safe and reliable service to the Company's residential, commercial, and industrial customers.

IV. DEVELOPMENT OF THE COMPANY'S RESILIENCY PLAN

Q. WHAT IS RESILIENCY?

A. For purposes of this proceeding, the Resiliency Rule defines resiliency. Based on the definitions of "Resiliency Event" and "Resiliency Measure," resiliency is the ability "to prevent, withstand, mitigate, or promptly recover from the risks posed by"[2] events "involving extreme weather conditions, wildfires, cybersecurity threats, or physical security threats that poses a material risk to the safe and reliable operation" of the Company's transmission and distribution system.[3] Colloquially speaking, resiliency is the ability of a transmission and distribution system to "take a punch."

Q. IS THERE A DISTINCTION BETWEEN RESILIENCY AND RELIABILITY?

A. Yes, but the two concepts overlap. Resiliency is best characterized as a *subset* of reliability, not an entirely separate concept. While reliability addresses day-to-day transmission and distribution performance, even during normal operating conditions, resiliency specifically focuses on performance during Resiliency Events. If resiliency

[2] 16 TAC § 25.62(c).
[3] 16 TAC § 25.62(b)(3).

is the ability of a transmission and distribution system to "take a punch," then reliability is the ability of that transmission and distribution system to provide service even during normal, "blue sky" days. Resiliency projects may therefore provide reliability benefits (e.g. distribution pole replacement/bracing, IGSD devices, vegetation management, etc.), but the purpose of resiliency projects is to mitigate the impact of Resiliency Events on customer outages, restoration times, and restoration costs.

Q. HAS THE COMPANY PREVIOUSLY INVESTED IN AND IMPLEMENTED RESILIENCY PROJECTS?

A. Yes. The Company has extensive experience in investing in and implementing resiliency projects. Over the past five years, the Company invested approximately $1.46 billion for resiliency projects. The following Figure BAT-3 provides examples of resiliency projects implemented by the Company in the past five years and the corresponding costs:

Figure BAT-3.

Year	Resiliency Project	Cost (millions)
2019	**Total**	**$100**
	IGSD Installation	$7
	Transmission System Hardening	$11
	Substation Elevation	$12
	Distribution Pole Replacement/Bracing	$20
	Substation Security	$9
	S90 Tower Replacements	$1
	69/138 kV Conversions	$40
2020	**Total**	**$84**
	IGSD Installation	$1
	Transmission System Hardening	$12
	Substation Elevation	$18
	Distribution Pole Replacement/Bracing	$29
	Substation Security	$5
	S90 Tower Replacements	$3

	69/138 kV Conversions	$16
2021	**Total**	**$250**
	IGSD Installation	$5
	Transmission System Hardening	$159
	Substation Elevation	$13
	Distribution Pole Replacement/Bracing	$30
	Substation Security	$20
	S90 Tower Replacements	$20
	69/138 kV Conversions	$3
2022	**Total**	**$617**
	Distribution Resiliency – Circuit Rebuild	$40
	Distribution Resiliency – TripSaver	$7
	IGSD Installation	$12
	Transmission System Hardening	$274
	Substation Elevation	$20
	Distribution Pole Replacement/Bracing	$61
	Substation Security	$24
	S90 Tower Replacement	$55
	69/138 kV Conversions	$49
	Medical Center Substation	$75
2023	**Total**	**$410.4**
	Distribution Resiliency – Circuit Rebuild	$40
	Distribution Resiliency – TripSaver	$5
	IGSD Installation	$13
	Transmission System Hardening	$166
	Substation Elevation	$20
	Distribution Pole Replacement/Bracing	$52
	Substation Security	$10
	S90 Tower Replacement	$14
	69/138 kV Conversions	$90
	Medical Center Substation	$0.4
	Total for 2019 - 2023	**$1,461.4**

Q. PLEASE PROVIDE EXAMPLES OF PAST RESILIENCY PROJECTS.

A. In response to flooding caused by Hurricane Harvey, the Company began elevating equipment at certain substations susceptible to flooding. Additionally, the Company has begun strategically using non-wood distribution poles (e.g. poles made of composite fiberglass or ductile iron) for all major equipment located on new distribution circuits and for wooden distribution poles after evaluation it was

determined to either upgrade or replace. Finally, the Company has been installing IGSDs on its distribution system. IGSDs are designed to reduce the number of customers interrupted by momentary faults that occur on main line sections of certain distribution circuits.

Q. WILL THE COMPANY CONTINUE TO INVEST IN RESILIENCY PROJECTS EVEN IN THE ABSENCE OF H.B. 2555, WHICH ENABLES TRANSMISSION AND DISTRIBUTION UTILITIES TO FILE AND SEEK COMMISSION APPROVAL OF A RESILIENCY PLAN?

A. Yes. As previously discussed in my testimony, the Company's investment in and implementation of resiliency projects are key components of ensuring that the Company continues to provide safe and reliable service to the Company's customers.

Q. WHAT IS A RESILIENCY EVENT?

A. The Company's Resiliency Plan defines a Resiliency Event as: "an event involving extreme weather conditions, wildfires, cybersecurity threats, or physical security threats that poses a material risk to the safe and reliable operation of the Company's transmission and distribution system." This definition is substantively identical to the definition used in the Commission's Resiliency Rule.[4]

Q. WHAT ARE THE MOST COMMON TYPES OF RESILIENCY EVENTS THAT OCCUR IN THE COMPANY'S SERVICE AREA?

A. Because a portion of the Company's service area includes communities along the Texas Gulf Coast, the Resiliency Events that typically occur and have occurred in the Company's service area are related to extreme weather conditions, specifically:

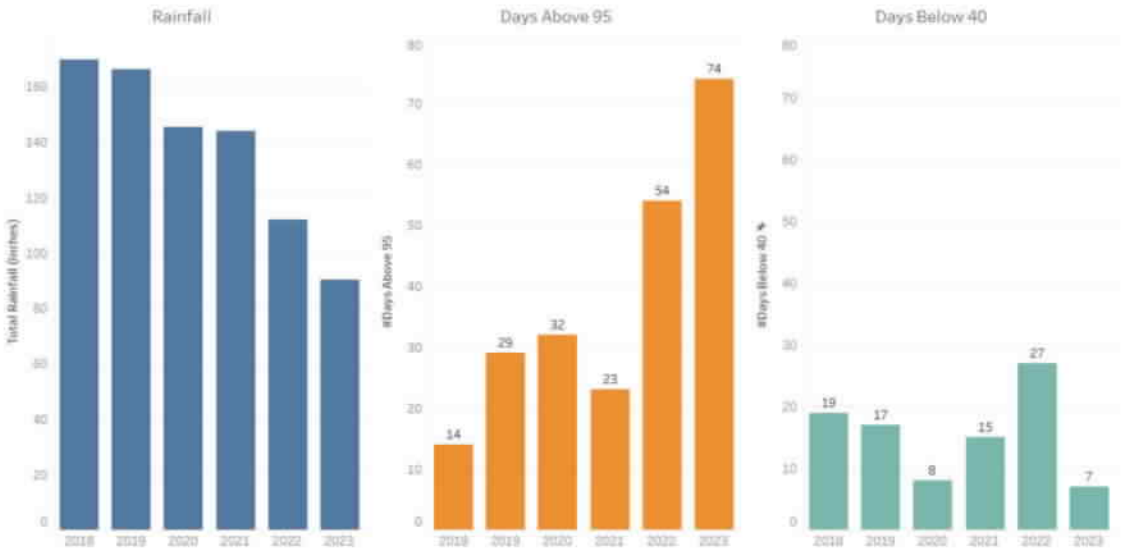
[4] *Id.*

extreme heat, high winds, heavy rains, lightning, flooding, tropical storms, tornadic activity, hurricanes, and freezes. These extreme weather conditions can cause physical damage and pose a material risk to the safe and reliable operation of the Company's transmission and distribution system. Notable extreme weather condition-related Resiliency Events in the Company's service area are the Memorial Day flooding in 2015, Hurricane Harvey in 2017, a microburst event in Sealy in 2017, an ice storm in 2018, Winter Storm Uri in 2021, Hurricane Nicholas in 2021, Winter Storm Elliott in 2022, an F3 tornado in February 2023, and a microburst event in June 2023. Figure RP-5 in the Resiliency Plan lists the extreme weather conditions that affected the Company's service area from 2019 to 2023.

Q. PLEASE SUMMARIZE THE PRECIPITATION AND TEMPERATURE IN THE COMPANY'S SERVICE AREA IN THE PAST FIVE YEARS.

A. The following Figure BAT-4 summarizes the precipitation and temperature changes in the Company's service area from 2019 to 2023.

Figure BAT-4.



Source: Storm Geo

Q. DO YOU BELIEVE THE PRECIPITATION AND TEMPERATURE CONTRIBUTE TO THE EXTREME WEATHER CONDITIONS YOU PREVIOUSLY MENTIONED?

A. Yes. Extreme precipitation can cause flooding within our service territory and can cause significant damage to our substations and other equipment serving customers. This has been seen numerous times in the previous 10 years (Memorial Day flood of 2015, Tax Day flood of 2016, etc.). Extreme temperatures also are of large concern in our service territory, and we experience both extremes, hot and cold. The most recent extreme cold temperatures occurred during Winter Storm Uri in 2021, and just this year temperatures dipped into the low 20's for at least 2 days within our territory (less than 100 days into the year). The other extreme, heat, also affects our service territory, with the most recent extreme heat seen just last year with 45 days registered. As shown in Figure BAT-4, temperatures appear to be trending upward. These extreme and

prolonged temperatures strain grid equipment from increased loading and create or exacerbate conditions that could potentially lead to wildfires. Typically, however, high wind events in our service territory have been accompanied by rain, thus mitigating the risk for wildfires. In 2011, though, there were notable wildfires around Texas, with one wildfire within the Company's service area (Riley Road fire), and in 2023, the Company saw heightened wildfire risks in parts of its service territory when we experienced prolonged periods of drought and high heat. The Company will continue to review and monitor conditions by leveraging data from the Texas A&M Forest Service and the National Weather Service to continue to mitigate the risks of wildfires and, in case the need arises, to enact the PSPS. The Resiliency Plan also includes efforts by the Company to mitigate the impact of extreme wind conditions as seen in hurricanes, tornadoes, and microbursts, which have increased in frequency and intensity in the Company's service territory within the past decade (Pasadena tornado in 2023, multiple tornadoes in 2022, Hurricanes Nicholas in 2021, Imelda in 2019, and Harvey in 2017 most recently).

Q. ARE THERE OTHER TYPES OF RESILIENCY EVENTS THAT HAVE OCCURRED OR COULD OCCUR IN THE COMPANY'S SERVICE AREA?

A. Yes. Another type of Resiliency Event that occurs in the Company's service area is physical security, or more specifically, physical damage caused by third parties. For example, the Company has experienced damage to its distribution system due to vehicular collisions and to its transmission system from barges colliding with transmission line structures. Likewise, the Company has experienced faults on distribution circuits due to foreign material (e.g. fireworks, balloons) contacting

conductors. Also previously mentioned, as the Company's service area continues to experience an increase in extreme temperatures and extended periods of drought, the risk of potential wildfires has increased. Finally, as discussed further in the testimony of Company witness Ron Bahr, cybersecurity and technology threats have been increasing in recent years. As the electric grid becomes more sophisticated and dynamic, resilient technology is a critical aspect in operating and maintaining service to our customers during both peak times and resiliency events.

Q. DID THE COMPANY DEVELOP ITS RESILIENCY PLAN WITH THE INTENT TO MITIGATE THE IMPACT OF CERTAIN RESILIENCY EVENTS THAT OCCUR IN THE COMPANY'S SERVICE AREA?

A. Yes. The Resiliency Measures in the Company's Resiliency Plan are intended to enhance the Company's transmission and distribution system to withstand, limit interruptions of service, and better recover from certain, identified Resiliency Events. Figure RP-4 identifies Resiliency Events addressed by CenterPoint Houston's Resiliency Plan and provides a brief definition of each. That list is not meant to be exhaustive but includes the primary Resiliency Events addressed by the Resiliency Plan.

Q. WHAT ATTRIBUTES OF THE COMPANY'S TRANSMISSION AND DISTRIBUTION SYSTEM MAKE IT SUSCEPTIBLE TO PARTICULAR RESILIENCY EVENTS?

A. Figure RP-7 summarizes the attributes of CenterPoint Houston's transmission and distribution system that make it susceptible to particular Resiliency Events. As above,

this list is not meant to be exhaustive but includes the primary Resiliency Events addressed by the Resiliency Plan.

Q. HOW DID THE COMPANY DETERMINE THE RESILIENCY MEASURES THAT IT SEEKS TO IMPLEMENT AS PART OF ITS RESILIENCY PLAN?

A. Certain measures are well-known within the utility industry as proven to enhance resiliency. One example is the physical hardening of structures, such as replacing wooden distribution poles with wooden poles of a stronger classification, or poles made of composite fiberglass, ductile iron, or concrete. In determining which Resiliency Measures to implement as part of the initial (2025-2027) Resiliency Plan, the Company analyzed historical Resiliency Events that impacted the Company's service territory. In analyzing historical Resiliency Events, the Company determined that extreme weather conditions — specifically extreme wind, extreme water, extreme storms, tornadoes, hurricanes, and extreme temperature (heat and freezes) — were the main cause of damage to the Company's transmission and distribution system. In its initial (2025-2027) Resiliency Plan, the Company has focused on Resiliency Measures that are generally accepted within the utility industry as ways to improve resiliency. As previously mentioned, the Company hired Guidehouse to perform quantitative and qualitative analyses (as appropriate) for a range of proposed Resiliency measures and then adjusted its plan based on the results of Guidehouse's analysis. In addition, the Company sought a method to digitally model its transmission and distribution system under a variety of weather conditions to evaluate other possible solutions and improvements for future consideration. The goal of this tool — the digital twin — is to simulate Resiliency Events and their consequences virtually, to aid the Company in

assessing the effectiveness of alternative resiliency measures under the modeled conditions, and to evaluate (in combination with other available tools) the likely costs and benefits of proposed Resiliency Measures. The digital twin will provide an assessment of the benefit for customers in the next resiliency plan filing (2028-2030) that is even more tailored to the Company's service area and TDU facilities.

Q. IS THE COMPANY SEEKING DEFERRED ACCOUNTING TREATMENT FOR THE RESILIENCY MEASURES IN THE COMPANY'S RESILIENCY PLAN?

A. Yes. Under the Resiliency Rule, incremental distribution-related costs are eligible to be deferred as a regulatory asset. Consistent with the Resiliency Rule, the Company is *not* seeking deferred accounting treatment for: (a) non-distribution-related Resiliency Measures, (b) Resiliency Measures that are otherwise required by law, or (c) Resiliency Measures that the costs of which are already in base rates or otherwise already being recovered. However, CenterPoint Houston *does* request deferred accounting treatment for the incremental, distribution-related costs associated with the Resiliency Measures in its Resiliency Plan.

Q. HOW DOES THE COMPANY DETERMINE WHAT PORTION OF ITS CAPITAL INVESTMENTS ARE DISTRIBUTION-RELATED?

A. The verification process starts with a listing by FERC account of all costs placed in service to the Company's property records in the time period covered by a particular filing, such as a DCRF proceeding, a TCOS proceeding, or a general rate case. FERC Accounts that are designated as entirely Transmission or entirely Distribution are identified first. The remaining items are then reviewed to determine if they should be

totally allocated to either distribution or transmission, or partially allocated among functions. The items that are identified as partially allocated among functions are then compared to recent filings such as the Company's most recent base rate proceeding or the Company's past DCRF and TCOS filings to determine the correct allocation. This process is used for Additions, Removals, Retirements, and Salvage to arrive at the appropriate capital investment classification. This process will continue to be applied to capital investments as they are made, and a similar approach was taken as it relates to the estimated Resiliency Plan capital investments with one exception. Because FERC Account information depends on the specific facts and circumstances pertaining to the actual costs incurred, that level of information is not available for the Resiliency Plan estimated costs. Therefore, the allocation of the estimated Resiliency Plan costs is based on the Company's past experience with similar projects.

Q. HOW DOES THE COMPANY ALLOCATE CAPITAL COSTS BETWEEN DISTRIBUTION AND TRANSMISSION FUNCTIONS FOR JOINT TRANSMISSION AND DISTRIBUTION CAPITAL PROJECTS?

A. The allocation methodology depends on the underlying FERC Accounts. With respect to FERC Accounts 303 (miscellaneous intangible plant), 391 (office furniture and equipment) and 397 (communication equipment), the Company utilizes allocation percentages from its most recent base rate proceeding as approved by the Commission. For FERC Accounts 352 (transmission structures and improvements), 353 (transmission station equipment), 361 (distribution structures and improvements), and 362 (distribution station equipment), the allocation percentage is based on the percentage of the value of the distribution equipment contained in the substation in

which the associated work was performed when the work supported both transmission and distribution functions. This is consistent with how such costs have been assigned in prior cases involving the Company. It is reasonable because the equipment that was installed or replaced supported both transmission and distribution assets within a particular substation.

Importantly, each substation may contain different percentages of transmission equipment and distribution equipment. By allocating the equipment that supports both transmission and distribution equipment using a specific percentage for each substation based on the makeup of the existing assets in that specific substation, the allocation accurately reflects the distribution portion of the costs related to a particular project. This is the same allocation methodology used for these FERC accounts in the Company's prior rate filings. Once assigned, the allocation percentages assigned to the distribution function are verified against the assigned allocators used in those previous rate filings to ensure consistency with how the Company's investment has been allocated and reflected in existing rates.

Q. WHY IS IT IMPORTANT TO ALLOCATE COSTS BETWEEN THE DISTRIBUTION AND TRANSMISSION FUNCTIONS CONSISTENTLY IN DIFFERENT PROCEEDINGS?

A. The use of consistent allocation percentages in different proceedings ensures that the capital costs associated with the plant assets serving both functions are properly recovered under the various rate mechanisms that authorize the recovery of those costs. For example, if the Company were to use a different allocation percentage in a DCRF proceeding for a plant asset that is also eligible for recovery under the TCOS

mechanism, there would be a mismatch between recovery of transmission capital costs included in the TCOS and distribution capital costs being recovered through the DCRF. This would, in turn, result in less or more than 100% of the capital costs being recovered. In contrast, allocating costs consistently between the distribution and transmission functions ensures that only the actual original cost of the capital project is recovered in rates.

Q. HOW DO THE RESILIENCY MEASURES IN THE COMPANY'S RESILIENCY PLAN RELATE TO THE COMPANY'S PAST RESILIENCY PROJECTS?

A. Some of the Resiliency Measures in the Company's Resiliency Plan are a continuation and acceleration of the types of resiliency projects that the Company has implemented in the past, as previously discussed in my testimony. Relatedly, some of the Resiliency Measures in the Company's Resiliency Plan are the types of resiliency projects that the Company has previously reported to the Commission in the Company's annual storm hardening and infrastructure improvement and maintenance reports. For example, one of the Resiliency Measures in the Resiliency Plan that the Company has implemented and reported to the Commission is the Distribution Pole Replacement/Bracing Resiliency Measure. Under the Distribution Pole Replacement/Bracing Resiliency Measure, wooden distribution poles will be inspected and evaluated by engineering and operational personnel and, if necessary, replaced with composite fiberglass or ductile iron poles. From 2019 to 2023, the Company spent approximately $193 million on similar efforts. Similarly, another Resiliency Measure in the Resiliency Plan which the Company has previously implemented and reported to the Commission is the

installation of IGSDs. IGDSs are equipment that automatically segment circuits and assist in fault location, thus reducing outage times and affected customers. From 2019 to 2023, the Company spent approximately $38 million on the installation of IGSDs. Finally, another Resiliency Measure in the Resiliency Plan which the Company has previously implemented and reported to the Commission is the elevation of certain substations to mitigate the impact of flooding and high-water events. From 2019 to 2023, the Company spent approximately $71.2 million to elevate 11 substations.

Q. WHY IS THE COMPANY PROPOSING SOME RESILIENCY MEASURES THAT ARE SIMILAR TO RESILIENCY PROJECTS THAT THE COMPANY HAS IMPLEMENTED IN THE PAST?

A. The Resiliency Rule provides an opportunity for the Commission to gain better visibility into the resiliency strategies of the utilities it regulates, but CenterPoint Houston (and other utilities) have implemented resiliency long before the passage of H.B. 2555 and the Commission's Resiliency Rule. CenterPoint Houston is filing its Resiliency Plan pursuant to the Resiliency Rule, and giving the Commission a reasonably complete picture of what the Company is doing to prevent, withstand, mitigate, or more promptly recover from Resiliency Events, which necessitates including Resiliency Measures that are not new. As previously discussed in my testimony, there are resiliency measures that are well-known within the utility industry proven to enhance resiliency, as supported by Guidehouse's report and testimony. Additionally, the Resiliency Measures that are a continuation of the Company's current resiliency projects are proven to provide benefits to the Company's customers. Thus, the Company believes that it makes sound operational sense to propose such

well-known resiliency measures in the Company's Resiliency Plan. While the Company seeks and welcomes the Commission's review of its entire Resiliency Plan, the Company does not seek deferred accounting treatment for non-distribution related Resiliency Measures, nor for Resiliency Measures that are otherwise required by law or the costs of which are already in base rates or otherwise being recovered.

Q. HOW DO THE RESILIENCY MEASURES IN THE COMPANY'S RESILIENCY PLAN WORK IN CONJUNCTION WITH THE COMPANY'S EXISTING RESILIENCY PROJECTS?

A. The Company has historically focused on resiliency programs and projects, because of its location and the significant number of extreme weather events experienced. The programs and projects that are specified in this Resiliency Plan are inclusive of the projects and programs that the Company has been leveraging for many years. They have been successful in reducing the overall customer minutes of interruption. Above this, the Company strives to provide the maximum benefit to customers by including programs and projects that are beneficial to customers. Overall, these programs and projects are simply a continuation of the Company's already resiliency focused preparations for future extreme weather events beyond past experiences in the Company's service territory.

Q. IS THE COMPANY'S METHODOLOGY IN DETERMINING WHICH RESILIENCY MEASURES TO IMPLEMENT AS PART OF ITS RESILIENCY PLAN CONSISTENT WITH THE COMPANY'S APPROACH IN INVESTING IN AND IMPLEMENTING PREVIOUS PROJECTS?

A. Yes.

Q. HAS GUIDEHOUSE PROVIDED ASSISTANCE TO THE COMPANY IN DETERMINING WHICH RESILIENCY MEASURES TO IMPLEMENT AND AN ASSOCIATED COST BENEFIT ANALYSIS?

A. Yes.

Q. PLEASE EXPLAIN GUIDEHOUSE'S ROLE IN THE DEVELOPMENT OF THE COMPANY'S RESILIENCY PLAN?

A. Guidehouse provided the Company with an independent analysis of the resiliency risks faced by CenterPoint Energy. Guidehouse also conducted a review and analysis, including a benefit-cost analysis, of the resiliency programs and projects included in the Company's Resiliency Plan.

Q, **PLEASE SUMMARIZE WHAT GUIDEHOUSE CONCLUDED ABOUT THE COMPANY'S RESILIENCY PLAN BASED ON THEIR ANALYSIS.**

A. The Guidehouse analysis included meetings and interviews with Company subject matter experts, a vulnerability analysis for weather-related Resiliency Events, and an assessment of the proposed Resiliency Measures using a cost-benefit framework. Additionally, the Guidehouse analysis included a comparison of the proposed Resiliency Measures to those adopted by other electric utilities. Please see the testimony of Guidehouse witness Eugene Shlatz for additional information on the methodology utilized. The Guidehouse independent risk and cost-benefit analysis confirmed that each Operations and Physical Security Resiliency Measure is either cost-effective based on the calculated BCA ratio or otherwise provides qualitative benefits that support inclusion in the Resiliency Plan. Further, the survey of peer utility

practices indicates that the proposed resiliency measures are generally consistent with those deployed by peer utilities.

V. RESILIENCY MEASURES IN THE COMPANY'S RESILIENCY PLAN

Q. PLEASE SUMMARIZE THE RESILIENCY PLAN.

A. The Company estimates that it will incur approximately $2.19 billion from 2025 through 2027 to implement the Resiliency Measures in the Company's Resiliency Plan. My testimony supports the operational Resiliency Measures in the Resiliency Plan, while Mr. Bahr's testimony supports the information technological Resiliency Measures in the Resiliency Plan. The operational Resiliency Measures in the Company's Resiliency Plan can be divided into the following categories: (1) hardening, (2) modernizing, (3) flood mitigation, (4) information technology to support operations, (5) information technology, (6) physical security, (7) vegetation management, and (8) wildfire mitigation. The Executive Summary is part of the Company's Resiliency Plan, and Exhibit 1 to the Application is the Company's Resiliency Plan. In addition to operational and information technology Resiliency Measures, the Company's Resiliency Plan also includes information on two pilot programs: (1) a Microgrid Pilot Program, which proposes pilot program to study the operational impacts and benefits of microgrids during a Resiliency Event, and (2) proposed funding for a City of Houston employee to oversee certain resiliency-related efforts for the City of Houston. Additionally, the Resiliency Plan includes one activity to transition the Company's supply chain, restoration, and dispatching software to the latest SAP system, S/4HANA, which Mr. Bahr discusses in his testimony.

Q. ARE ANY OF THE OPERATIONAL RESILIENCY MEASURES A COORDINATED EFFORT WITH FEDERAL STATE, OR LOCAL GOVERNMENT PROGRAMS AND FUNDING OPPORTUNITIES?

A. No, though CenterPoint Houston has pursued opportunities to obtain available federal, state, and local funding as described by Mr. Ryan in his testimony.

Q. FOR RESILIENCY MEASURES THAT INVOLVE THE REPLACEMENT, MODIFICATION, OR UPGRADING OF EQUIPMENT OR FACILITIES, PLEASE GENERALLY DESCRIBE HOW THE COMPANY WILL DETERMINE WHICH EQUIPMENT OR FACILITIES WILL BE REPLACED OR UPGRADED.

A. At a high level, the Company will consider factors such as the as the Company's past operational experience with Resiliency Events, the number and type of customers that may benefit from the implementation of a Resiliency Measure, operational and engineering considerations, and Good Utility Practice in the implementation of the Resiliency Measures in the Company`s Resiliency Plan. For the Resiliency Measures that entail the replacement, modification, or upgrade of equipment or facilities, the Company will consider factors such as geographic location, history of Resiliency Event-related outages that have affected the specific equipment or facilities or specific portions of the Company's service area, the number or type of customers in a specific portion of the Company's service area that have been impacted by Resiliency Event-related outages, age of equipment and facilities, and performance of the specific equipment or facilities or specific portions of the Company's service area during Resiliency Events. Using the Distribution Pole Replacement/Bracing Resiliency

Measure as an example, the Company may focus implementation on distribution circuits that have been impacted the most by wind-related Resiliency Events. Likewise, for the IGSD Installation Resiliency Measure, the Company may focus implementation on locations that would benefit the most amount of customers or on locations that serve critical public infrastructure like water pumping stations. Finally, for the Substation Flood Control Resiliency Measure, the Company may focus implementation on substations that have higher flood risk or serve a large number of customers, or on critical public infrastructure.

Q. PLEASE GENERALLY DESCRIBE THE COMPANY'S PROPOSED MEASURE OF EFFICACY FOR THE RESILIENCY MEASURES IN THE COMPANY'S RESILIENCY PLAN.

A. Generally, and to the extent that effectiveness can be tangibly evaluated, the Company is proposing an after-the-fact analysis to determine the efficacy of a Resiliency Measure. Using the Distribution Pole Replacement/Bracing Resiliency Measure as an example, the Company would analyze the performance of wooden distribution poles that have been replaced with composite fiberglass or ductile iron during extreme wind-related Resiliency Events. Likewise, for the IGSD Installation Resiliency Measure, the Company would analyze the overall customer outage minutes that have been avoided during a Resiliency Event due to installation of IGSDs. Finally, for the Substation Flood Control Resiliency Measure, the Company would analyze the performance of substations that have been elevated during flooding events.

Q. IS THE COMPANY CAPABLE OF CONDUCTING AN AFTER-THE-FACT ANALYSIS.

A. Yes. The Company continuously monitors the Company's transmission and distribution system, which includes monitoring during Resiliency Events. As part of Company's monitoring the Company's transmission and distribution system during a Resiliency Event, the Company records and tracks various metrics, including number of customers impacted, total outage time, total restoration time, and total restoration costs.

Q. DID THE COMPANY MODIFY ITS RESILIENCY PLAN BASED ON INITIAL FEEDBACK FROM GUIDEHOUSE?

A. Yes. Guidehouse recommended that the Company consider adding programs to address the impact of rising temperatures on derating in future resiliency plans. The Company will take that recommendation into account when formulating future resiliency plans. Additionally, between the time the Company initially formulated its resiliency plan and the time of Guidehouse's analysis, wildfires emerged as a heightened concern in Texas. Based on feedback from Guidehouse, the Company added a resiliency measure specifically addressing Wildfire Mitigation. For this reason, the Wildfire Mitigation Resiliency Measure is included in our plan and meets Guidehouse's recommendations but was not evaluated by Guidehouse in the same format as other Resiliency Measures.

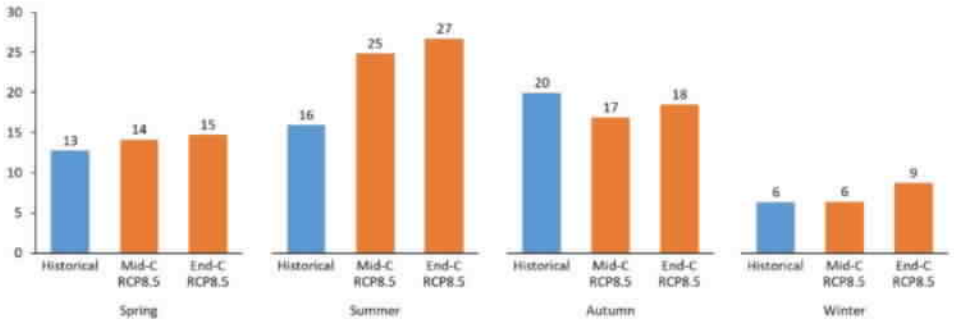
Q. PLEASE DESCRIBE GENERALLY THE WILDFIRE RISK IN THE COMPANY'S SERVICE AREA.

A. Historically, wildfires had not been a major concern in the Company's service territory. Guidehouse conducted a general analysis of wildfire risk in the Company's service area

indicating both that (1) wildfire risk was low in the Company's service area and (2) it is projected to increase for summer months over the next few decades. Figures BAT-5 and BAT-6 below summarize the historical and projected mid-century fire weather indices for Harris County and Colorado County. A fire weather index value above 25 is considered high for Texas, which both counties are projected to meet by mid-century during summers.

Figure BAT-5.

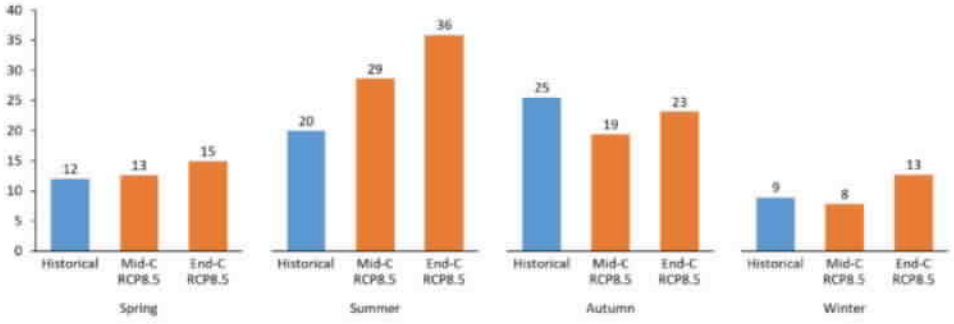
Harris County: Fire Weather Index



Source: Guidehouse analysis, with inputs from Argonne National Laboratory Fire Weather Index data

Figure BAT-6.

Colorado County: Fire Weather Index



Source: Guidehouse analysis, with inputs from Argonne National Laboratory Fire Weather Index data

Q. PLEASE DESCRIBE THE COMPANY'S PROCEDURES RELATED TO WILDFIRES.

A. The Wildfire Annex in the Company's EOP details the Company's existing processes to prepare for, mitigate against, respond to, and recover from a wildfire.[5] The Wildfire Annex also details the Company's processes in monitoring and responding to wildfire risk conditions, including procedures for activating the Company's use of PSPS, a plan for temporarily shutting off power during extreme wildfire risk conditions.

Q. PLEASE DESCRIBE THE COMPANY'S EFFORTS TO PROACTIVELY MITIGATE WILDFIRE RISK.

A. The Company has an asset management program for the periodic inspection and maintenance of the facilities and equipment that comprise the Company's transmission and distribution system. In conducting periodic inspections, Company personnel inspect (visually or through the use of infra-red) facilities and equipment to identify any issues, including issues that may cause facilities or equipment to fail. For example, under the Company's infrared inspection program:

- in 2022, the Company performed infrared inspections on 350 distribution circuits and discovered and proactively addressed 235 pending equipment failures before they occurred;
- in 2021, the Company performed infrared inspections on 97 distribution circuits and discovered 74 pending equipment failures before they occurred; and
- in 2020, the company performed infrared inspections on 324 distribution

[5] The most recent version of the Company's EOP is available and filed with the Commission in Project No. 53385.

circuits and discovered 180 pending equipment failures before they occurred.

Q. WHAT OTHER EFFORTS DOES THE COMPANY UNDERTAKE TO PROACTIVELY MITIGATE WILDFIRE RISK.

A. In addition to periodic inspections, the Company has a robust proactive vegetation management program. As described later in my testimony, this includes removing tree limbs and other vegetation that may come into contact with a conductor.

Q. DOES THE COMPANY MONITOR WEATHER AND DROUGHT CONDITIONS?

A. Yes. In the context of wildfire risk, the Company's Emergency Preparedness and Response group monitors weather and drought conditions.

Q. WHAT IS THE COMPANY'S PROCESS IN RESPONDING TO WEATHER AND DROUGHT CONDITIONS THAT MAY ELEVATE WILDFIRE RISK.

A. The Company continuously monitors weather and drought conditions to assess wildfire risk, and has a tiered approach in responding to weather and drought conditions indicating an elevated wildfire risk. The following Figure BAT-7 summarizes the Company's response, depending on the level of elevated wildfire risk.

Figure BAT-7.

Operations	Task
Enter Drought/High Fire Danger Risk	
Transmission and Distribution	Begin evaluation of heightened/targeted vegetation management; increased maintenance and inspections
Extreme Drought/Red Flag	
Distribution	Issue work tags to disable automatic reclosers for all affected circuits
Distribution	Bypass all hydraulic reclosers
Transmission	Heightened/targeted inspections
Transmission and Distribution	Analyze potential switching scenarios
Activate PSPS	
Transmission and Distribution	Review additional criteria to determine heightened risk factors and proactively de-energize

When weather conditions indicate elevated drought conditions and elevated fire risk, the Company may perform additional enhanced inspections on select portions of the Company's transmission and distribution system and in select areas of the Company's service area. These additional enhanced inspections include the evaluation of vegetation growth within and adjacent to transmission and distribution ROW and inspection of the Company's facilities and equipment. Additionally, when advance notice of hazardous fire conditions has been issued by the local fire marshal and the conditions could involve transmission ROW and Company facilities and equipment, the Company will dispatch personnel to reduce brush within the affected ROW and apply fire retardants to the base of transmission towers and structures to mitigate or reduce potential fire damage. Finally, the Company will activate its PSPS if certain conditions related to humidity, sustained winds, and drought status are met.[6]

[6] Page 51 of the Company's EOP details the Company's process for activating its PSPS.

Q. IS THE COMPANY PROPOSING WILDFIRE MITIGATION AS PART OF ITS RESILIENCY PLAN?

A. Yes. The Company identified ten best practice measures that may prove to be useful in furthering the public interest in mitigating wildfire risk. Each of the ten measures listed below is a recognized industry best practice based on the experience of utilities around the country. The Company is gathering additional data and considering whether and how to best implement any combination of these resiliency measures to address appropriately the risks specific to its own service area. Once the Company concludes its wildfire analysis, it will employ all or some of the measures described below to minimize wildfire risks:

1. Undergrounding (undergrounding of transmission or distribution lines)
2. Overhead Conductor Covering (insulating overhead conductors with a protective sheath);
3. Wildfire Camera Monitoring (installation of camera monitoring equipment);
4. Expansion of ROW (expanding Company ROW);
5. Asset Inspections (inspection of Company facilities and equipment);
6. Relay Protection Schemes (modification of relay protection schemes); and
7. Wildfire Vegetation Management (vegetation management).

The following three remaining wildfire mitigation Resiliency Measures are similar to Resiliency Measures included in the Company's Resiliency Plan for broader implementation:

8. Wildfire IGSD Installation (installation of IGSDs); and
9. Wildfire Advanced Analytics (advanced software module for wildfire risk

analysis).

10. Real Time Advanced Analytics

Q. HOW WILL THE COMPANY DETERMINE WHICH WILDFIRE MITIGATION RESILIENCY MEASURES WILL BE IMPLEMENTED?

A. The Company will utilize internal and external data to analyze the geography; historical climate, weather-related, and drought conditions; and forecasted climate, weather-related, and drought conditions in the Company's service area. The Company will use such analysis to identify:

- specific areas in the Company's service area that may be susceptible to a wildfire or have an elevated level of wildfire risk relative to other specific areas in the Company's service area;
- portions of the Company's transmission and distribution system that may be susceptible to a wildfire or have an elevated level of wildfire risk relative to other portions of the Company's transmission and distribution system; and
- portions of the Company's transmission and distribution system that are adjacent to or tie into another entity's transmission system that may be susceptible to a wildfire or have an elevated level of wildfire risk relative to other portions of the Company's transmission and distribution system.

Upon identifying such locations, the Company will analyze the ten wildfire mitigation Resiliency Measures in the Company's Resiliency Plan to determine whether each wildfire mitigation Resiliency Measure will, implemented individually or collectively, reduce the risk, mitigate the spread, or mitigate the impact of a wildfire on the Company's transmission and distribution system in a way that furthers the public

interest. Additionally, the Company will analyze the impact that each wildfire mitigation Resiliency Measure may have on the Company's transmission and distribution system, including whether the specific wildfire mitigation Resiliency Measure would result in the de-rating of certain Company facilities or equipment. The Company will implement a wildfire mitigation Resiliency Measure, individually or collectively with other wildfire mitigation Resiliency Measures, if, under Good Utility Practice and in the Company's engineering and operational judgment, the wildfire mitigation Resiliency Measure will appropriately reduce the risk, mitigate the spread, or mitigate the impact of a wildfire on the Company's transmission and distribution system.

Q. IS THE COMPANY PROPOSING INCREMENTAL VEGETATION MANAGEMENT AS PART OF ITS RESILIENCY PLAN?

A. Yes.

Q. PLEASE DESCRIBE THE COMPANY'S CURRENT VEGETATION MANAGEMENT PROGRAMS FOR THE COMPANY'S DISTRIBUTION SYSTEM.

A. As a general matter, the Company's vegetation management programs for the Company's distribution system fall into four categories: scheduled vegetation management (proactive tree trimming), unscheduled vegetation management (reactive tree trimming/removal), tree risk management (proactive hazard tree removal), and emergency and post-storm activities.

Q. PLEASE DESCRIBE THE COMPANY'S SCHEDULED VEGETATION MANAGEMENT (PROACTIVE TREE TRIMMING) PROGRAM.

A. The Company's scheduled vegetation management (proactive tree trimming) program prioritizes distribution circuits for trimming based on each circuit's trim cycle and the reliability of each circuit. Additionally, laterals along with the feeder-main are trimmed on circuits identified for trimming. All circuits that initially meet the recommended trim cycle criteria are then ranked and prioritized based on reliability performance. The recommended trim cycle for all circuits is dependent upon multiple factors, such as last trim date, vegetation-caused outages, potential impact on critical loads, and overall customer count. The vast majority of the Company's current vegetation management costs are for the scheduled vegetation management (proactive tree trimming) program.

Q. PLEASE DESCRIBE THE COMPANY'S UNSCHEDULED VEGETATION MANAGEMENT (REACTIVE TREE TRIMMING/REMOVAL) PROGRAM.

A. The Company's unscheduled vegetation management (reactive tree trimming/removal) program addresses vegetation issues that require immediate attention. Reactive trimming is done in response to specific requests from customers or Company field personnel.

Q. PLEASE DESCRIBE THE COMPANY'S TREE RISK MANAGEMENT (PROACTIVE HAZARD TREE REMOVAL) PROGRAM.

A. The Company's tree risk management (proactive hazard tree removal) program entails the Company conducting Level 1 tree risk assessments, as defined in Part 9 of ANSI Standard A300. In high-risk areas, hazard trees outside of the easement are proactively located and removed with the consent of the landowner. The purpose of the program

is to reduce the risk of falling trees impacting the Company's facilities and to minimize impacts in an extreme storm event.

Q. PLEASE DESCRIBE THE COMPANY'S EMERGENCY AND POST-STORM ACTIVITIES PROGRAM.

A. The Company's emergency and post-storm activities program entails the Company trimming trees in response to and as part of restoration efforts following emergency or storm events.

Q. HOW MUCH HAS THE COMPANY SPENT ON VEGETATION MANAGEMENT OVER THE PAST THREE YEARS?

A. From 2020-2022, the Company has spent approximately $96 million on vegetation management.

Q. IS VEGETATION MANAGEMENT AN IMPORTANT COMPONENT OF THE COMPANY'S OPERATIONS.

A. Yes. Vegetation-related issues (e.g. line contact due to wind events or storms) are one of the main causes of sustained outages, which is why the Company spends considerable funds and resources to mitigate the impact that vegetation may have on service. The existing vegetation management activities described above are currently built into the Company's existing rates and will continue to be a base rate activity going forward.

Q. PLEASE DESCRIBE THE NEW, INCREMENTAL VEGETATION MANAGEMENT RESILIENCY MEASURE.

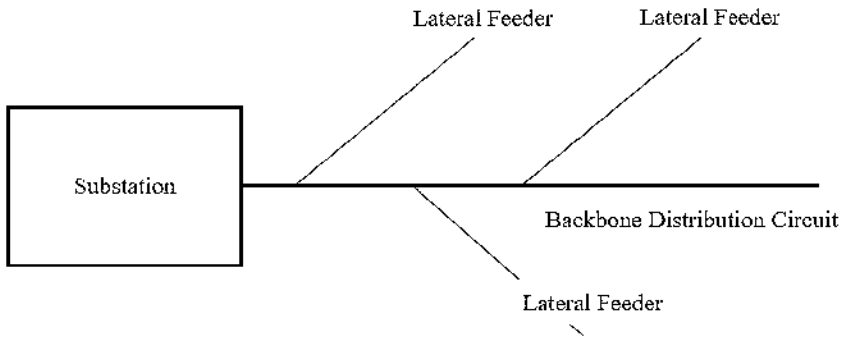
A. The Company proposes a Targeted Critical Circuit Vegetation Management ("Critical Circuit VM") Resiliency Measure to proactively trim vegetation located along

backbone distribution circuits and associated lateral feeders that serve critical load public safety customers. The Critical Circuit VM measure would trim vegetation on a three-year cycle.

Q. WHAT ARE A BACKBONE DISTRIBUTION CIRCUIT AND A LATERAL FEEDER?

A. A backbone distribution circuit is a circuit that is connected to and emanates from a substation. A lateral feeder is a circuit that is connected to and emanates from a backbone distribution circuit. Figure BAT-7 below provides a general illustration of a backbone distribution circuit and associated lateral feeders.

Figure BAT-7.



Q. WHAT IS A TRIM CYCLE?

A. For proactive vegetation management, like the Critical Circuit VM Resiliency Measure, a trim cycle is the frequency at which circuits are trimmed. For example, if a circuit is on a five-year trim cycle, the vegetation along a circuit will be scheduled to be trimmed every five years.

Q. PLEASE DESCRIBE THE ESTIMATED COSTS FOR THE CRITICAL CIRCUIT VM RESILIENCY MEASURE.

A. The Company estimates that the Critical Circuit VM Resiliency Measure will add an

additional incremental cost of approximately $8.3 million per year, or $25 million over three years, to the Company's existing, budgeted O&M expense for vegetation management.

Q. WILL THE INCREMENTAL O&M EXPENSE BE PLACED IN A DEFERRED REGULATORY ASSET, AS PERMITTED BY SUBSECTION (K) OF THE RESILIENCY STATUTE?

A. Yes. This new Critical Circuit VM resiliency measure, as well as the vegetation management activities included in the Wildfire Resiliency Measure, are the only vegetation management expenses included in the request for a deferred regulatory asset as permitted in Subsection (k) of the Resiliency Statute.

Q. PLEASE DESCRIBE THE ESTIMATED TIMEFRAME FOR IMPLEMENTATION OF THE CRITICAL CIRCUIT VM RESILIENCY MEASURE.

A. The first full, three-year trim cycle of the Critical Circuit VM Resiliency Measure is estimated to coincide with the current 2025-2027 Resiliency Plan.

Q. PLEASE DESCRIBE THE IMPLEMENTATION PROCESS, FROM BEGINNING TO END, FOR THE CRITICAL CIRCUIT VM RESILIENCY MEASURE.

A. CenterPoint Houston will prioritize the critical circuits in its Critical Circuit VM Resiliency Measure based on the number of critical load public safety customers served on each circuit while also making sure that the Critical Circuit VM Resiliency Measure does not become too geographically concentrated at any given point in time.

Q. WHICH RESILIENCY EVENT OR RESILIENCY EVENTS IS THE CRITICAL CIRCUIT VM RESILIENCY MEASURE INTENDED TO ADDRESS?

A. The Critical Circuit VM Resiliency Measure is intended to address vegetation-related outages on critical load public safety customer circuits due to extreme wind events such as microbursts, high winds, heavy storms and hurricanes.

Q. WHAT HAS BEEN THE COMPANY'S PRIOR EXPERIENCE WITH VEGETATION-RELATED OUTAGES DUE TO EXTREME WIND EVENTS SUCH AS MICROBURSTS, HIGH WINDS, AND HURRICANES AND HEAVY STORMS?

A. High wind events often blow vegetation into the conductor space, which causes a trip to occur because the vegetation comes into contact with energized lines. In this event, the outage is known as a permanent fault—when wind is strong enough to "break" vegetation and cause it to become entangled in the conductor space. If the break is a clean detachment of the vegetation, the vegetation can be "removed" by temporarily de-energizing the conductors. This is where programs such as the IGSD Resiliency Measure, the TripSaver Resiliency Measure, and the Critical Circuit VM Resiliency Measure provide benefits by temporarily de-energizing conductors to allow the vegetation to clear from the conductor space, proactively removing vegetation, and providing a safe distance between vegetation and conductors.

Q. IS THE COMPANY ABLE TO FORECAST IF AND WHEN THE RESILIENCY EVENT(S) YOU JUST MENTIONED WILL OCCUR?

A. No. While the Company monitors weather and operating conditions for general

Resiliency Events associated with extreme weather conditions and makes necessary preparations, the Company cannot forecast if, when, or where specific Resiliency Events associated with extreme weather conditions will occur.

Q. IS IT A COMPANY PRIORITY TO MITIGATE THE IMPACT OF VEGETATION-RELATED OUTAGES DURING A RESILIENCY EVENT?

A. Yes.

Q. BASED ON THE COMPANY'S PRIOR EXPERIENCE, HAS VEGETATION MANAGEMENT BEEN EFFECTIVE IN MITIGATING THE IMPACT OF VEGETATION-RELATED OUTAGES DURING A RESILIENCY EVENT?

A. Yes. The Company has seen vegetation management be effective in mitigating fault conditions caused by vegetation along backbone and lateral feeders. As a part of this effectiveness, the company has seen a reduction in outage durations and the total number of customers impacted.

Q. DOES THE COMPANY ANTICIPATE THAT THE CRITICAL CIRCUIT VM RESILIENCY MEASURE WILL PROVIDE BENEFITS TO CUSTOMERS?

A. Yes. Targeted vegetation management is a well-known measure within the utility industry that enhances resiliency. Vegetation management directed at critical circuits will reduce vegetation-related outages due to extreme wind events such as microbursts, high winds, hurricanes and heavy storms for critical load public safety customers. The Company anticipates that the Critical Circuit VM Resiliency Measure will reduce the overall frequency or duration of vegetation-related outages due to extreme wind. Additionally, the Company anticipates that the Critical Circuit VM Resiliency Measure will reduce the total number of customers impacted, total restoration time, and total

restoration costs.

Q. DOES THE CRITICAL CIRCUIT VM RESILIENCY MEASURE PRIORITIZE A PARTICULAR PORTION OF THE COMPANY'S SERVICE AREA, DISTRIBUTION SYSTEM, OR CERTAIN FACILITIES?

A. Yes. The Critical Circuit VM Resiliency Measure will prioritize critical backbone distribution circuits and associated lateral feeders that provide service to critical load public safety customers. However, as described above, the Company will execute the Critical Circuit VM Resiliency Measure in a way that does not lead to geographic over-concentration at any point in time.

Q. DID THE COMPANY CONSIDER OTHER ALTERNATIVES TO VEGETATION MANAGEMENT?

A. No. Vegetation management is the only measure that is used to reduce vegetation-related outages due to extreme wind events such as microbursts, high winds, hurricanes and heavy storms.

Q. IS THE CRITICAL CIRCUIT VM RESILIENCY MEASURE BEING DONE IN COORDINATION WITH FEDERAL STATE, OR LOCAL GOVERNMENT PROGRAMS AND FUNDING OPPORTUNITIES?

A. No.

Q. WHAT IS THE EVALUATION METRIC OR CRITERIA THAT THE COMPANY IS PROPOSING TO BE USED TO EVALUATE THE EFFECTIVENESS OF THE CRITICAL CIRCUIT VM RESILIENCY MEASURE?

A. The Company proposes that the effectiveness of the Critical Circuit VM Resiliency

Measure be evaluated on a post-Resiliency Event analysis. The Company proposes that after a Resiliency Event, the Critical Circuit VM Resiliency Measure be analyzed to determine whether the Critical Circuit VM Resiliency Measure reduced outages, service restoration times, and service restoration costs.

VI. RESILIENCY PILOT PROGRAMS

Q. DOES THE COMPANY'S RESILIENCY PLAN INCLUDE ANYTHING OTHER THAN THE 25 RESILIENCY MEASURES DESCRIBED ABOVE?

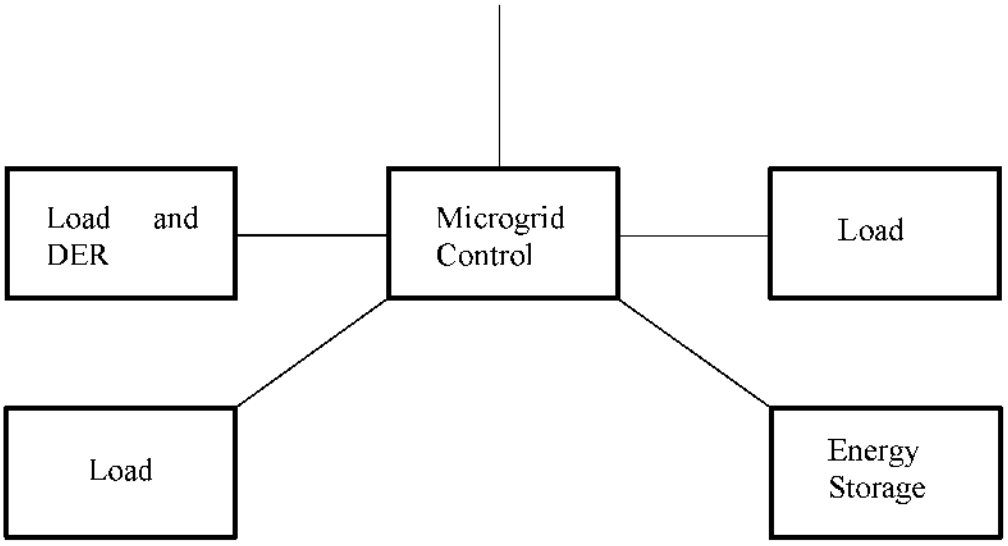
A. Yes. In addition to the 25 Resiliency Measures, CenterPoint Houston is proposing two pilot programs (a Microgrid pilot program and a City of Houston Resiliency Employee pilot program), and one additional resiliency activity (SAP S/4 Transformation and Phase 0 Activity) for the Commission's information and consideration. Mr. Bahr discusses the additional resiliency activity in his direct testimony. I discuss the two pilot projects below.

Q. WHAT IS A MICROGRID?

A. Generally, a microgrid consists of a group of interconnected loads and local generation resources that act as a single controllable entity with respect to the distribution system.[7] The illustration below generally depicts a microgrid.

[7] This definition for microgrid was developed by the National Renewable Energy Laboratory. *Grid Modernization: Microgrids*, THE NATIONAL RENEWABLE ENERGY LABORATORY (available at, https://www.nrel.gov/grid/microgrids.html).

Figure BAT-8.



Q. DOES THE COMPANY CURRENTLY HAVE MICROGRIDS THAT OPERATE IN THE COMPANY'S SERVICE AREA?

A. Yes, but not utility-scale microgrids.

Q. WHAT IS THE DEFINITION OF UTILITY-SCALE MICROGRIDS?

A. A microgrid that consists of multiple points of delivery interconnected through the utility's distribution system which can operate either in an islanded mode or in parallel with the distribution system.

Q. HAS THE COMPANY RECEIVED INQUIRIES AND INTEREST FROM MICROGRID DEVELOPERS ABOUT THE POSSIBILITY OF OPERATING A UTILITY-SCALE MICROGRID IN THE COMPANY'S SERVICE AREA?

A. Yes. Throughout the past few years, the Company has received inquiries from third parties about operating utility-scale microgrids in the Company's service area.

Q. WHAT IS THE COMPANY PROPOSING RELATED TO MICROGRIDS?

A. The Company is proposing a Microgrid Pilot Program.

Q. PLEASE DESCRIBE THE COMPANY'S MICROGRID PILOT PROGRAM.

A. Under the Company's proposed Microgrid Pilot Program, the Company would coordinate with selected third-party entities in the study, design, implementation, and operation of utility scale microgrids in the Company's service area.

Q. WHAT IS THE PURPOSE OF THE COMPANY'S MICROGRID PILOT PROGRAM?

A. The Company believes that utility scale microgrids may provide a benefit to customers during a Resiliency Event that causes power outages. In the event that a Resiliency Event damages the distribution system to where loads interconnected to a utility scale microgrid cannot be served from the distribution system, a utility scale microgrid would enable service to the interconnected loads to be restored, leveraging the energy from the distributed energy resource(s) interconnected to the utility scale microgrid. The Company seeks to obtain additional operational data and experience as to how a utility-scale microgrid would perform during a Resiliency Event. The Company is therefore proposing the Microgrid Pilot Program so that the Company can obtain additional operational data and experience to inform both the Company and the Commission regarding the demonstrated benefits of utility scale microgrids as a resiliency measure and potential future integration of utility scale microgrids in the Company's service area.

Q. PLEASE DESCRIBE THE IMPLEMENTATION PROCESS FOR THE MICROGRID PILOT PROGRAM.

A. At a general level, the implementation process for the Microgrid Pilot Program would entail the following:

- Request for Proposal: The Company will issue a Request for Proposal to interested parties. The Request for Proposal will contain the relevant technical, operational, and financial requirements needed to qualify for the Company's Microgrid Pilot Program.
- Evaluation: The Company will evaluate the bids submitted by interested parties. Submitted bids will be evaluated considering criteria such as total amount of load that would be interconnected to the utility scale microgrid; total amount of local generation that would be interconnected to the utility scale microgrid; modifications to the Company's distribution system, telecommunications network, information technology, and operational technology needed to ensure safe and reliable operations; and the type of load that would be interconnected to the utility scale microgrid (e.g. critical load, public infrastructure, residential).
- Study, Design, and Engineering: Upon determining which submitted bids will be part of the Company's Microgrid Pilot Program, the Company will commence the study, design, and engineering phase.
- Construction and Installation: The Company will construct or install the equipment and facilities necessary for the safe and reliable operation of the Company's distribution system.
- Operations: Upon commencement of operations, the Company's Microgrid Pilot

Program will operate as called upon by the Company.

Q. HOW MANY MICROGRIDS WOULD BE PART OF THE COMPANY'S MICROGRID PILOT PROGRAM?

A. Instead of determining the number of utility scale microgrids, the Company will engage developers and track this pilot program based on load demand and megawatts of necessary microgrid generation capacity. The Company will strive to achieve load diversity in participating utility scale microgrids (e.g. critical load, public infrastructure, residential).

Q. WHICH RESILIENCY EVENTS IS THE COMPANY'S MICROGRID PILOT PROGRAM INTENDED TO ADDRESS?

A. The Company's Microgrid Pilot Program is intended to address Resiliency Events that may disrupt service to the Company's customers, which will primarily be attributable to extreme weather events and third-party damage.

Q. WHAT IS THE PROPOSED EFFICACY METRIC OR CRITERIA, AND WHAT IS THE EXPECTED EFFICACY FOR THE MICROGRID PILOT PROGRAM?

A. Since the Microgrid Pilot Program will be implemented on a pilot basis, the Company will monitor the operational performance of the participating utility scale microgrids and will report to the Commission the Company's findings.

Q. DOES THE COMPANY HAVE A REQUEST RELATED TO COSTS ASSOCIATED WITH THE MICROGRID PILOT PROGRAM?

A. Yes. The Company requests that it be permitted to defer the costs in the requested regulatory asset associated with study, design, implementation, and operation of the

Company's Microgrid Pilot Program. The Company also requests that it be permitted to recover such costs in a future proceeding. The Company commits that the total cost associated with the study, design, implementation, and operation of the Company's Microgrid Pilot Program will not exceed $35 million.

Q. PLEASE DESCRIBE THE COMPANY'S PROPOSAL TO FUND A RESILIENCY EMPLOYEE PILOT PROGRAM FOR THE CITY OF HOUSTON.

A. The City of Houston is an important stakeholder, given the City of Houston's role as the local municipal authority over a large portion of the Company's service area; as a regulatory authority over the Company's rates, services, and operations; and as a customer. Thus, the Company believes it is important for the City of Houston to be engaged on matters related to resiliency.

As part of its Resiliency Plan, the Company proposes providing funding to the City of Houston to hire an employee who would oversee resiliency issues for the City of Houston during the term of the Resiliency Plan. The City of Houston employee funded through the Company's Resiliency Plan will be responsible for the implementation of new and existing City of Houston resiliency projects related to increasing power resilience and energy efficiency (as defined in the City of Houston's Climate Action Plan[8] and the Resilient Houston Plan[9]) at City of Houston facilities and in the community. Additionally, the City of Houston employee funded through the Company's Resiliency Plan will have responsibilities that include collaborating with

[8] Houston Climate Action Plan (Apr. 2020) (available at, http://greenhoustontx.gov/climateactionplan/CAP-April2020.pdf).

[9] Resilient Houston (Feb. 2020) (available at, https://www.houstontx.gov/mayor/Resilient-Houston-20200518-single-page.pdf).

City of Houston Departments, community partners, consultants, the Company, and others to design and implement projects; manage community and stakeholder engagement for power resilience projects; identify critical City of Houston facilities and equipment to harden and modernize; and collaborate with the Company and City of Houston Departments on vegetation management projects to increase power resilience and improve natural habitats.

Q. DOES THE COMPANY HAVE A REQUEST RELATED TO COSTS ASSOCIATED WITH THE CITY OF HOUSTON RESILIENCY EMPLOYEE PILOT PROGRAM?

A. Yes. The Company requests that the Company be permitted to defer in the requested regulatory asset the cost of funding the City of Houston Resiliency Employee Pilot Program and be permitted to recover, in a future proceeding, such costs. The Company also commits that the cost of funding the City of Houston Resiliency Employee Pilot Program will not exceed $200,000 per year.

VI. CONCLUSION

Q. IS IMPLEMENTATION OF THE RESILIENCY MEASURES IN THE COMPANY'S RESILIENCY PLAN IN THE PUBLIC INTEREST?

A. Yes, for the same reasons as discussed in my testimony.

Q. SHOULD THE COMMISSION APPROVE THE COMPANY'S RESILIENCY PLAN?

A. Yes.

Q. PLEASE SUMMARIZE YOUR DIRECT TESTIMONY.

A. The Company developed its Resiliency Plan after consideration of the unique nature of

the Company's service area and customer profile, the Resiliency Events that occur in the Company's service area, and the Company's past experience with such Resiliency Events. The Resiliency Measures in the Company's resiliency plan are intended to mitigate the impact of certain Resiliency Events that occur in the Company's service area. The Resiliency Measures are well-known within the utility industry as enhancing resiliency, and the Company anticipates that the Resiliency Plan will provide customer benefits of reduced overall outage times, number of customers impacted, and system restoration costs associated with the Resiliency Event that a Resiliency Measure is intended to address. For these reasons, the Company requests that the Commission approve the Company's Resiliency Plan and the implementation of the Resiliency Measures in the Company's Resiliency Plan. Additionally, the Company requests that the Commission approve the Company's request for certain accounting treatment.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes.

STATE OF Texas §
§
COUNTY OF Harris §

AFFIDAVIT OF BRAD A. TUTUNJIAN

BEFORE ME, the undersigned authority, on this day personally appeared Brad A. Tutunjian who having been placed under oath by me did depose as follows:

1. "My name is Brad A. Tutunjian. I am of sound mind and capable of making this affidavit. The facts stated herein are true and correct based upon my personal knowledge.

2. I have prepared the foregoing Direct Testimony and the information contained in this document is true and correct to the best of my knowledge."

Further affiant sayeth not.

Brad A. Tutunjian

SUBSCRIBED AND SWORN TO BEFORE ME on this 12th day of April, 2024.

Bianca Coster
Notary Public in and for the State of Texas

My commission expires: 1/26/2027

BIANCA COSTER
NOTARY ID #13416793-4
My Commission Expires
January 26, 2027

Exhibit BAT-1

GLOSSARY OF ACRONYMS

BCA	Benefit-cost analysis
CenterPoint Houston or the Company	CenterPoint Energy Houston Electric, LLC
CNP	CenterPoint Energy, Inc.
Commission	Public Utility Commission of Texas
DCRF	Distribution cost recovery factor
ERCOT	Electric Reliability Council of Texas
FERC	Federal Energy Regulatory Commission
IGSD	Intelligent grid switching device
Good Utility Practice	Any of the practices, methods, or acts engaged in or approved by a significant portion of the electric utility industry during the relevant time period, or any of the practices, methods, or acts that, in the exercise of reasonable judgment in light of the facts known at the time the decision was made, could have been expected to accomplish the desired result at a reasonable cost consistent with good business practices, reliability, safety, and expedition. Good utility practice is not intended to be limited to the optimum practice, method, or act, to the exclusion of all others, but rather is intended to include acceptable practices, methods, and acts generally accepted in the region
Guidehouse	Guidehouse Inc.
kV	Kilovolt
O&M	Operations and maintenance
PURA	Public Utility Regulatory Act, Tex. Util. Code §§ 11.001-66.016
PSPS	Public safety power shut-off protocols

Resiliency Event	An event involving extreme weather conditions, wildfires, cybersecurity threats, or physical security threats that poses a material risk to the safe and reliable operation of the Company's transmission and distribution systems
Resiliency Measure	A measure designed to prevent, withstand, mitigate, or more promptly recover from the risks posed to the Company's transmission and distribution system by a Resiliency Event
Resiliency Plan	The Company's Transmission and Distribution System Resiliency Plan
Resiliency Rule	16 TAC § 25.62
TAC	Texas Administrative Code
TCOS	Transmission cost of service
TDU	Transmission and distribution utility
TripSaver	TripSaver® II cutout-mounted recloser devices

DOCKET NO. 56548

APPLICATION OF CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC FOR APPROVAL OF ITS RESILIENCY PLAN	**§ § § §**	**PUBLIC UTILITY COMMISSION OF TEXAS**

DIRECT TESTIMONY OF

RONALD W. BAHR

ON BEHALF OF

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC

APRIL 2024

TABLE OF CONTENTS

TABLE OF EXHIBITS

Exhibits	Description
Exhibit RWB-1	Glossary of Acronyms

EXECUTIVE SUMMARY OF TECHNOLOGY RESILIENCY MEASURES

The Company presents its Resiliency Plan to the Public Utility Commission of Texas ("Commission") for review and approval pursuant to the Commission's Resiliency Rule, 16 Tex. Admin. Code § 25.62. This testimony supports the Company's filing and request by describing three categories of Resiliency Measures—information technology measures, operational technology measures, and cybersecurity measures—and how each such Resiliency Measures meets the standards laid out in the Resiliency Rule. The Resiliency Measures detailed in this testimony will support the continued safe and reliable operation of the Company's transmission and distribution system through Resiliency Events, including extreme weather events. The Company estimates that it will incur a total of approximately $2,192 million in capital costs and approximately $85.9. million in incremental O&M expense over 2025-2027 to implement the Resiliency Measures in the Company's Resiliency Plan. Of that total, and at the time of filing, the Company currently estimates that approximately $1,134 million are distribution-related costs eligible under the Resiliency Rule to be deferred as a regulatory asset. The Company anticipates that the information technology, operational technology, and cybersecurity Resiliency Measures detailed in the company's resiliency plan will provide additional benefits to customers by better facilitating the efficient restoration of outages following Resiliency Events that occur in the Company's service area such as extreme weather conditions, thus reducing overall outage times, the number of customers impacted, and system restoration costs.

I. INTRODUCTION

Q. PLEASE STATE YOUR NAME, POSITION AND BUSINESS ADDRESS.

A. My name is Ronald W. Bahr, and I am employed by CenterPoint Energy Service Company, LLC ("Service Company") as Vice President, Information Technology.

Q. PLEASE TELL US ABOUT YOUR EDUCATIONAL BACKGROUND AND WORK EXPERIENCE.

A. I earned my Bachelor of Science degree in Accounting from Eastern Illinois University and a Master of Business Administration degree from Bowling Green State University. I have over 40 years of energy industry experience and have held Information Technology ("IT") leadership roles for over 22 years, for both non-regulated and regulated companies. In 2017, I joined CNP's nonregulated natural gas subsidiary. My role as Vice President included oversight over all technology functions. In 2020, I accepted a position with the Service Company as Vice President IT for all CNP subsidiaries, including CenterPoint Houston. During my time with the Service Company, I have also led large enterprise-wide IT projects for CNP and its subsidiaries.

Q. DO YOU HOLD ANY PROFESSIONAL LICENSES OR CERTIFICATES?

A. I hold the following certifications: Certified Financial Management (CFM) and Certified Management Accountant (CMA), both sponsored by the Institute of Management Accountants. I also hold a certification as a Professional in Human Resources (PHR) through the Society of Human Resources (SHRM).

Q. WHAT ARE YOUR CURRENT RESPONSIBILITIES?

A. I am a senior leader in the IT organization responsible for business and customer software solutions, vendor management, service delivery, governance, and IT financial

management. In addition, I lead the development and execution of IT strategies and work with CenterPoint Energy, Inc. ("CNP") business leaders across the company to support the achievement of their objectives through IT. I am also an executive sponsor for various strategic IT projects.

Q. ON WHOSE BEHALF ARE YOU TESTIFYING IN THIS PROCEEDING?

A. I am testifying on behalf of CenterPoint Houston.

Q. HAVE YOU TESTIFIED PREVIOUSLY?

A. Yes. I have provided testimony to the Indiana Utility Regulatory Commission in Cause No. 45990 as well as to the Public Utility Commission of Texas in Docket No. 56211.

Q. AS A RESULT OF YOUR WORK EXPERIENCE AND RESPONSIBILITIES, ARE YOU FAMILIAR WITH THE IT AND CYBERSECURITY RESILIENCY MEASURES THAT ARE DISCUSSED IN YOUR TESTIMONY?

A. Yes. I am familiar with the Information Technology and Cybersecurity Resiliency Measures discussed in my testimony. In my over 20 years of experience, I have overseen similar projects and have experience implementing improvements to the services and systems described in this testimony.

Q. WAS YOUR TESTIMONY, INCLUDING ASSOCIATED SCHEDULES, WORKPAPERS, AND EXHIBITS, PREPARED BY YOU OR UNDER YOUR SUPERVISION AND DIRECTION?

A. Yes, they were.

II. OVERVIEW OF TESTIMONY

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to demonstrate that it is in the public interest to approve the Company's Resiliency Plan, particularly those Resiliency Measures that address IT and cybersecurity.

Q. WHAT EXHIBITS HAVE YOU INCLUDED WITH YOUR TESTIMONY?

A. I have prepared or supervised the preparation of the exhibits listed in the table of contents. Exhibit RWB-1 is a Glossary of Acronyms. Abbreviated or capitalized terms not defined in my testimony will have the same meaning as listed in the Glossary of Acronyms. I also co-sponsor the Company's resiliency plan which is included as an attachment to the Application as Exhibit 1.

Q. ARE OTHER COMPANY WITNESSES PROVIDING DIRECT TESTIMONY IN THIS DOCKET?

A. Yes. Company witnesses Brad Tutunjian, Jason Ryan, and Jeff W. Garmon are providing direct testimony in support of the Company's Resiliency Plan. While I cover certain IT and Cybersecurity Resiliency Measures, Mr. Tutunjian provides descriptions and support for the operational measures that are also in the Company's Resiliency Plan. Mr. Ryan provides overall policy testimony. Mr. Garmon also provides testimony on accounting issues related to the Resiliency Plan.

Q. HOW IS YOUR TESTIMONY ORGANIZED?

A. First, I provide a general overview of the technology services that are needed to operate the Company's transmission and distribution system. Next, I explain the Company's methodology in developing its Resiliency Plan, including explaining how and why the

Company chose the IT-related Resiliency Measures in the Resiliency Plan. Finally, I support the reasonableness of the Company's Resiliency Plan and the Company's request that it be approved by the Commission.

III. OVERVIEW OF TECHNOLOGY SERVICES

Q. PLEASE DESCRIBE THE ROLE OF TECHNOLOGY IN THE OPERATIONS OF A UTILITY.

A. Technology is critical to efficiently operate an electric utility in a safe and reliable manner. Technology systems include software, networks, and hardware that are integrated to provide critical data to both utility workers performing construction and maintenance, and workers performing back-office functions, such as accounting. In addition, utilities use technology systems that must be securely connected to people and businesses outside the utility, allowing the Company to accomplish essential tasks such as receiving and remitting payments, ordering supplies, and providing customers with information updates. Most importantly, technology enables the Company to respond quickly to safety risks. Through applications, field workers can access information about facility locations, including the locations of electric transmission and distribution lines, substations, electric poles, and other critical data. This information allows the Company to respond to emergency situations quickly and safely.

Q. PLEASE GENERALLY DESCRIBE THE TECHNOLOGY INFRASTRUCTURE NEEDED FOR THE COMPANY TO PROVIDE SAFE AND RELIABLE SERVICE TO THE COMPANY'S CUSTOMERS.

A. At a general level, the Company needs technology infrastructure (i.e., equipment and software) that enables the Company to:

- securely monitor, operate, and control the Company's transmission system and substations in real-time; securely communicate and coordinate with ERCOT regarding operation of the Company's transmission system in real-time;
- securely monitor, operate, and control the Company's distribution system in real-time;
- efficiently manage and dispatch personnel for maintenance, repairs, and outage restoration;
- efficiently communicate with all field personnel, including third-party contractors, and customers.
- process ERCOT retail market transactions and securely communicate retail market data to ERCOT and REPs; and
- provide necessary back-office services, including back-office services in support of the tasks listed above.

Q. PLEASE GENERALLY DESCRIBE THE RELATIONSHIP BETWEEN IT, OPERATIONAL TECHNOLOGY, AND CYBERSECURITY.

A. IT is a broad term that refers to any equipment or systems used in the storing, controlling, retrieving, or transmitting of information. CenterPoint Houston uses Operational Technology ("OT") to refer to IT that manages the assets used to directly operate or facilitate the operation of an electric utility's transmission and distribution system.

Cybersecurity manages and protects against cyber risks that impact both Information Technology and Operational Technology. The Company's Resiliency Plan (and the remainder of my testimony) uses the term IT to categorize IT functions that do not involve OT unless otherwise noted.

A. INFORMATION TECHNOLOGY SERVICES

Q. IN THE CONTEXT OF THE INFORMATION TECHNOLOGY RESILIENCY MEASURES DESCRIBED IN YOUR TESTIMONY, WHAT IS INFORMATION TECHNOLOGY?

A. IT is information technology including, but not limited to, activities, standards, policies, procedures, practices, hardware or software, services, and supporting infrastructure and systems used to support metering, billing, customer service, work management, data analysis, and interrelated enterprise systems, and to manage, store, retrieve, deliver, or protect information or associated information technology assets for both on premise and cloud-based platforms. Information technology also includes, but is not limited to, activities, standards, policies, procedures, practices, hardware or software, services, and supporting infrastructure used to manage, monitor, protect, or control information and associated technology assets to operate or facilitate the operation of an electric utility's transmission and distribution system, including programmable systems or devices that interact with the physical environment (or manage devices that interact with the physical environment through secure communications networks) and detect or cause a direct change through the monitoring and/or control of devices, processes, and events and may include industrial control systems, building management systems, fire control systems, and physical access control mechanisms.

B. OPERATIONAL TECHNOLOGY SERVICES

Q. IN THE CONTEXT OF THE TECHNOLOGY RESILIENCY MEASURES DESCRIBED IN YOUR TESTIMONY, WHAT IS OT?

A. Operational Technology (OT) is a type of IT that includes programmable systems or devices that interact with the physical environment (or manage devices that interact with the physical environment through secure communications networks). These systems or devices detect or cause a direct change through the monitoring or control of devices, processes, and events and may include industrial control systems, building management systems, fire control systems, and physical access control mechanisms.

C. CYBERSECURITY SERVICES

Q. IN THE CONTEXT OF THE TECHNOLOGY RESILIENCY MEASURES DESCRIBED IN YOUR TESTIMONY, WHAT IS CYBERSECURITY?

A. Cybersecurity's mission is to protect and enable the business and our communities by managing cyber-related risk; measures ensure confidentiality, integrity, and availability of CenterPoint's data and systems. Each of the Cybersecurity-related investments enables day-to-day business activities across service territories. These efforts help ensue system resiliency, network and application resiliency, and security hardening.

IV. DEVELOPMENT OF THE COMPANY'S RESILIENCY PLAN

Q. WHAT IS RESILIENCY?

A. For purposes of this proceeding, the Resiliency Rule defines resiliency. Based on the definitions of "Resiliency Event" and "Resiliency Measure," resiliency is the ability "to prevent, withstand, mitigate, or promptly recover from the risks posed by" events "involving extreme weather conditions, wildfires, cybersecurity threats, or physical security threats that pose[] a material risk to the safe and reliable operation" of the

Company's transmission and distribution system. Colloquially speaking, resiliency is the ability of a transmission and distribution system to "take a punch."

Q. IN THE CONTEXT OF TECHNOLOGY, WHAT IS RESILIENCY?

A. In the context of technology, resiliency refers to the ability of a system or organization to withstand and recover from unexpected events, such as cyberattacks, natural disasters, or system failures. Resilient technology is critical in maintaining uninterrupted services for customers and providing service to them during peak times or a resiliency event.

Q. HAS THE COMPANY PREVIOUSLY INVESTED IN AND IMPLEMENTED TECHNOLOGY RESILIENCY PROJECTS?

A. Yes. The Company has extensive experience in investing in and implementing resiliency projects.

Q. WILL THE COMPANY CONTINUE TO INVEST IN TECHNOLOGY RESILIENCY PROJECTS EVEN IN THE ABSENCE OF H.B. 2555, WHICH ENABLED TRANSMISSION AND DISTRIBUTION UTILITIES TO FILE AND SEEK COMMISSION APPROVAL OF A RESILIENCY PLAN?

A. Yes. The technology landscape constantly changes in response to technological advancement in equipment and software (and as equipment and software reach the end of their useful lives). Additionally, the technology landscape must change in response to evolving physical security and cybersecurity risks. Thus, the Company will continue to invest in and implement technology resiliency projects.

Q. WHAT IS A RESILIENCY EVENT?

A. The Company's Resiliency Plan defines a Resiliency Event as: "an event involving extreme weather conditions, wildfires, cybersecurity threats, or physical security threat that

poses a material risk to the safe and reliable operation of the Company's transmission and distribution systems." This definition is substantively identical to the definition used in the Commission's Resiliency Plan Rule.

Q. IN THE CONTEXT OF TECHNOLOGY, WHAT IS A RESILIENCY EVENT?

A. In the context of technology, a resiliency event refers to a challenging event that can compromise the technology stack (i.e., a combination of technologies used to develop and run an application) of an organization. Such events can include cyberattacks, natural disasters, or other risks to the technology environment.

Q. WHAT ARE THE TYPES OF RESILIENCY EVENTS THAT ELECTRIC UTILITIES TYPICALLY EXPERIENCE THAT CAN AFFECT TECHNOLOGY?

A. Weather events that include extreme wind, water, temperatures, or fire, construction impacting network fiber cables, vendor outages, and cybersecurity attacks are types of resiliency events that can affect technology. Please refer to the testimony of Mr. Tutunjian for Resiliency Events related to weather.

Q. PLEASE SUMMARIZE RESILIENCY EVENTS THAT THE COMPANY HAS EXPERIENCED THAT HAVE IMPACTED THE COMPANY'S TECHNOLOGY INFRASTRUCTURE AND/OR SOFTWARE.

A. The following table summarizes the Information Technology Resiliency Events experienced by the Company in the past five years:

Figure RWB-1

Year	Resiliency Event(s) Impacting Technology
2020	Hurricane Laura
2021	Tropical Storm Nicholas, Winter Storm Uri; Akamai Internet Outage
2023	January Storm, June Storm; AT&T/Comcast Fiber Cuts

Q. DID THE COMPANY DEVELOP ITS RESILIENCY PLAN WITH THE INTENT TO MITIGATE THE IMPACT OF CERTAIN RESILIENCY EVENTS, INCLUDING RESILIENCY EVENTS THAT MAY IMPACT THE COMPANY'S TECHNOLOGY INFRASTRUCTURE AND/OR SOFTWARE?

A. Yes. The Technology Resiliency Measures in the Company's Resiliency Plan are intended to enhance the resiliency of the Company's technology infrastructure to withstand and limit interruptions of service during certain Resiliency Events.

Q. HOW DID THE COMPANY DETERMINE THE TECHNOLOGY RESILIENCY MEASURES THAT IT SEEKS TO IMPLEMENT AS PART OF ITS RESILIENCY PLAN?

A. The Resiliency Strategy focuses on investments to improve, modernize, or maintain technology operations and infrastructure to ensure secure and reliable technological systems. In determining which Technology Resiliency Measures to implement as part of its Resiliency Plan, the Company selected complementary measures required in alignment with operational resiliency measures, referenced previous resiliency measures to select measures that would supplement and expand on resiliency for key operations and infrastructure related to resiliency, and addressed the known threats to Cybersecurity.

Q. IS THE COMPANY'S METHODOLOGY IN DETERMINING WHICH TECHNOLOGY RESILIENCY MEASURES TO IMPLEMENT AS PART OF ITS RESILIENCY PLAN CONSISTENT WITH THE COMPANY'S APPROACH IN INVESTING IN AND IMPLEMENTING PREVIOUS TECHNOLOGY PROJECTS?

A. Yes.

Q. HAS GUIDEHOUSE PROVIDED ASSISTANCE TO THE COMPANY IN DETERMINING WHICH RESILIENCY MEASURES TO IMPLEMENT AND AN ASSOCIATED COST BENEFIT ANALYSIS?

A. Yes.

Q. PLEASE EXPLAIN GUIDEHOUSE'S ROLE IN THE DEVELOPMENT OF THE COMPANY'S RESILIENCY PLAN?

A. Guidehouse provided the Company with an independent analysis by determining each program's effectiveness from a resiliency perspective by applying the National Institute of Standards and Technology (NIST) framework. Please see the testimony of Guidehouse witness Mr. Joseph Baugh for additional information on the methodology utilized.

Q. PLEASE SUMMARIZE WHAT GUIDEHOUSE CONCLUDED ABOUT THE COMPANY'S RESILIENCY PLAN BASED ON THEIR ANALYSIS.

A. Guidehouse performed an independent qualitative analysis and review of each measure. Guidehouse found that the technology Resiliency Measures are reasonable for inclusion in the Company's Resiliency Plan, in part because they appropriately prioritize technology resiliency measures that help mitigate cybersecurity risk. Additionally, the Guidehouse analysis included a comparison of the proposed Resiliency Measures to those adopted by

other electric utilities and determined that the proposed resiliency measures are generally consistent with those deployed at peer utilities. Please see the testimony of Guidehouse witness Dr. Joseph Baugh for additional information on the Guidehouse review and analysis.

V. TECHNOLOGY RESILIENCY MEASURES

Q. PLEASE IDENTIFY THE TECHNOLOGY PORTIONS OF THE RESILIENCY PLAN THAT YOU SUPPORT.

A. I sponsor the following Information Technology resiliency measures:

1. Voice and Mobile Data Radio System Refresh;
2. Backhaul Microwave Communication;
3. Data Center Refresh;
4. Network Security and Vulnerability Management; and
5. IT/OT Cybersecurity Monitoring Program.

I also co-sponsor, along with Mr. Tutunjian, the following grid modernization, flood mitigation, and information technology to support operations measures:

1. IGSD Installation
2. Advanced Aerial Imagery Platform/Digital Twin
3. Substation Flood Control

I refer to these eight measures collectively as the "Technology Resiliency Measures." Descriptions of each measure are contained in the CenterPoint's Resiliency Plan.

Q. ARE ANY OF THE TECHNOLOGY RESILIENCY MEASURES COORDINATED EFFORTS WITH FEDERAL STATE, OR LOCAL GOVERNMENT PROGRAMS AND FUNDING OPPORTUNITIES?

A. No, although CenterPoint Houston has pursued opportunities to obtain available federal, state, and local funding as described by Mr. Ryan in his testimony.

Q. IS IMPLEMENTATION OF THE RESILIENCY MEASURES IN THE COMPANY'S RESILIENCY PLAN IN THE PUBLIC INTEREST?

A. Yes, for the same reasons as discussed in the Company's Resiliency Plan.

VI. SAP S/4 TRANSFORMATION AND PHASE 0 ACTIVITY

Q. DO YOU SPONSOR ANY ADDITIONAL PORTIONS OF THE RESILIENCY PLAN?

A. Yes. I also sponsor the SAP S/4 Transformation and Phase 0 Activity, which will increase system resiliency and is described in the Company's Resiliency Plan. The Company is not including the SAP S/4 Transformation and Phase 0 Activity as a Resiliency Measure in this Plan, but instead presents it in the interest of full visibility since this program represents a potentially major undertaking in the future.

Q. DO YOU AGREE THE SAP S/4 TRANSFORMATION AND PHASE 0 AS DESCRIBED IN THE COMPANY RESILIENCY PLAN ARE NECESSARY FOR GRID RESILIENCY?

A. Yes.

Q. WHAT IS THE SAP SYSTEM?

A. The SAP system is the backbone of the Company's business processes, supporting activities such as supply chain, restoration, and dispatching, all of which are critical to providing resiliency from an operational perspective, in support of the Company's transmission and distribution system. Without a platform such as the SAP system, the Company would be unable to integrate its numerous software programs and efficiently deploy and upgrade software across its system. The Company relies heavily on this