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Austin, TX 78701
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August 30, 2024

John B. Lajzer
Division Director
Division of Compliance and Enforcement
Public Utility Commission of Texas
P.O. Box 13326
Austin, Texas 78711-3326

Re: Project No. 56822, *Investigation of Emergency Preparedness and Response by Utilities in Houston and Surrounding Communities*

Dear Mr. Lajzer:

CenterPoint Energy Houston Electric, LLC (CenterPoint Houston) hereby files its responses to the requests for information issued by the Staff of the Public Utility Commission of Texas (Commission) in this project on August 12, 2024. In light of the large amount of information being provided, the Company intends to file a letter next week providing a roadmap of its responses to assist with Staff's review.

Consistent with the scoping memorandum filed on July 22, 2024 in this project, CenterPoint Houston is publicly filing its responses and non-confidential documents on the Commission's Interchange. For responses and documents that have confidential information or proprietary customer information, as defined by the Commission's rules, or are subject to a confidentiality provision, CenterPoint Houston is confidentially filing such responses and documents on the Commission's Interchange.

Please do not hesitate to contact me if you have any questions.

Sincerely,

/s/ Patrick Peters
Patrick Peters

PUC PROJECT NO. 56822

INVESTIGATION OF EMERGENCY § PUBLIC UTILITY COMMISSION
PREPAREDNESS AND RESPONSE BY §
UTILITIES IN HOUSTON AND § OF TEXAS
SURROUNDING COMMUNITIES §

August 30, 2024

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**CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PROJECT NO. 56822
INVESTIGATION OF EMERGENCY PREPAREDNESS AND RESPONSE**

**PUBLIC UTILITY COMMISSION OF TEXAS
REQUEST NO.: PUC-RF101-001**

QUESTION:

Electric Utilities – Emergency Planning and Event Response

Provide the following information concerning the last hurricane or major storm drill conducted in 2024:

- a. The date the drill was conducted;
- b. The category of hurricane drilled and any conditions (e.g., where the hurricane made landfall, date hurricane made landfall, status of infrastructure and vegetation management activities in affected area, aid received vs aid requested from mutual assistance programs, total number of customers in anticipated affected area) used in the drill;
- c. A description as to how the drill conducted in 2024 differed materially from the previous annual drill;
- d. The identity of all third-party vendors that assisted in either conducting or preparations for the 2024 hurricane drill;
- e. The identity of all other electric, water, sewer, or telecommunication utilities that were invited to participate in your 2024 hurricane drill and a description of their participation;
- f. The identity of all local government, trade associations, medical and eldercare facilities, community organizations, PGCs, and REPs that were invited to participate in your 2024 hurricane drill and a description of their participation;
- g. How performance during the 2024 hurricane drill was measured; and
- h. Any feed-back whether internally or externally from a third-party vendor or party invited to participate in the 2024 hurricane drill.

ANSWER:

- a. The drill was conducted on April 23, 2024
- b. The created hurricane for the drill made landfall as a category 3 with a maximum sustained wind at 125 mph, gusting at 150 mph. 2.1 million customer outages. Significant debris in roadways. Downed power lines, damage to substation transformers, bent transmission tower frames were conditions within the exercise.
- c. 2024 drill was a tabletop exercise (TTX) that focused on strategic issues and exercise objectives that evaluated plans and procedures, and assessed the operational and incident management structure. CenterPoint Energy has incorporated different types of drills and exercises throughout the years to evaluate plans, processes, and procedures in different ways. This included tabletop exercises and operations-based drills. An operations-based drill was performed in 2023. In 2024 a tabletop exercise was executed for the testing and evaluation of plans, processes, and procedures.
- d. No third-party vendors participated in or conducted the 2024 hurricane drill.
- e. No electric, water, sewer, or telecommunication utilities were invited to participate in the 2024

hurricane drill.

- f. No local government, trade associations, medical and eldercare facilities, community organizations, PGC's, or REPs were invited to participate in the 2024 hurricane drill.
- g. Performance was measured through the identifications and use of plans, processes, or procedures that addressed exercise injects, issues, and areas for improvement.
- h. Internal feedback was received:

Exercise Metrics (based on feedback forms)

43% of participants had attended 10+ exercises with CenterPoint Energy.

All participants feel that after this exercise they are better prepared to deal with the capabilities and hazards addressed.

91% of participants agreed that the exercise increased their understanding about and familiarity with the capabilities, response procedures, and resources of CenterPoint Energy.

All participants believed the exercise was well-structured and organized.

The exercise scenario was considered to be plausible and realistic.

Exercise Strengths

Majority of participants felt the exercise allowed for good collaboration and open communication.

The exercise allowed for broad cross section of participants that fostered great dialogue.

Staff worked well together and were able to resolve issues quickly.

Facilitation of the exercise went well, kept things moving along, and stayed on track.

The use of the parking lot was very helpful and referenced many times on participant feedback forms.

SPONSOR:
Chasta Martin

RESPONSIVE DOCUMENTS:
PUC-RFI01-001 - 2024 Hurricane TTX - Presentation



2024 Hurricane Tabletop Exercise

Emergency Preparedness & Response

Tuesday, April 23, 2024





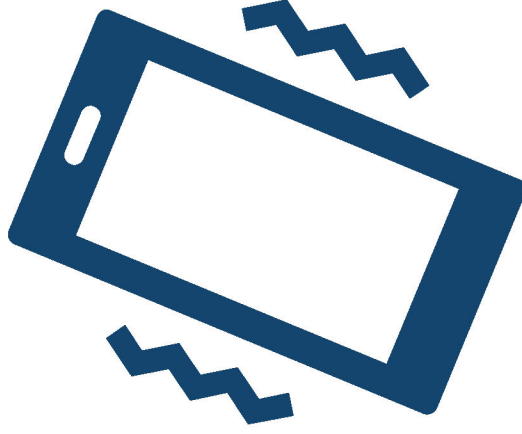
Welcome and Introductions





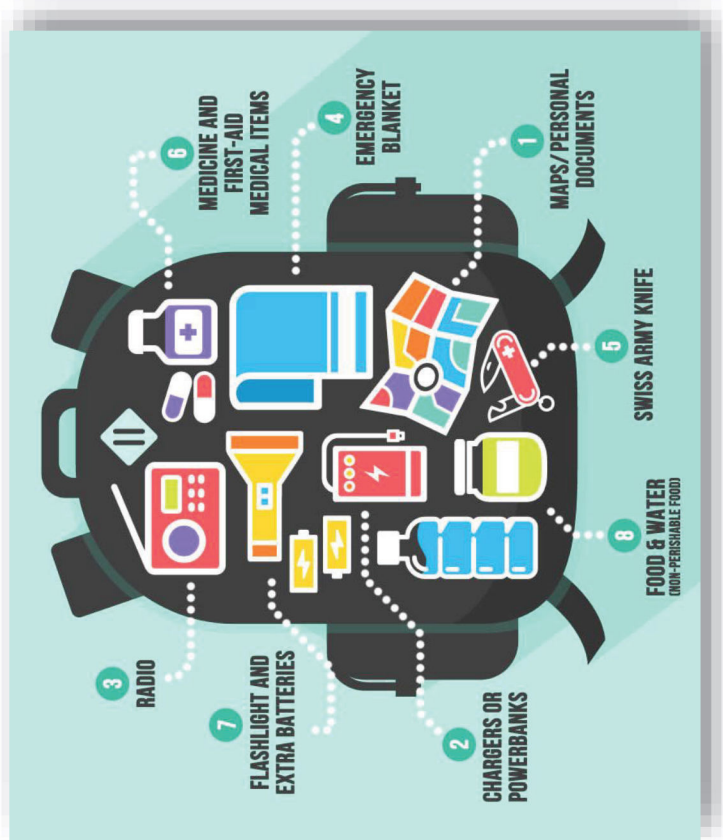
Administrative Remarks

- Safety and emergency information
- Restrooms
- Cell phone etiquette
- Breaks and lunch
- Microphones





Safety Share



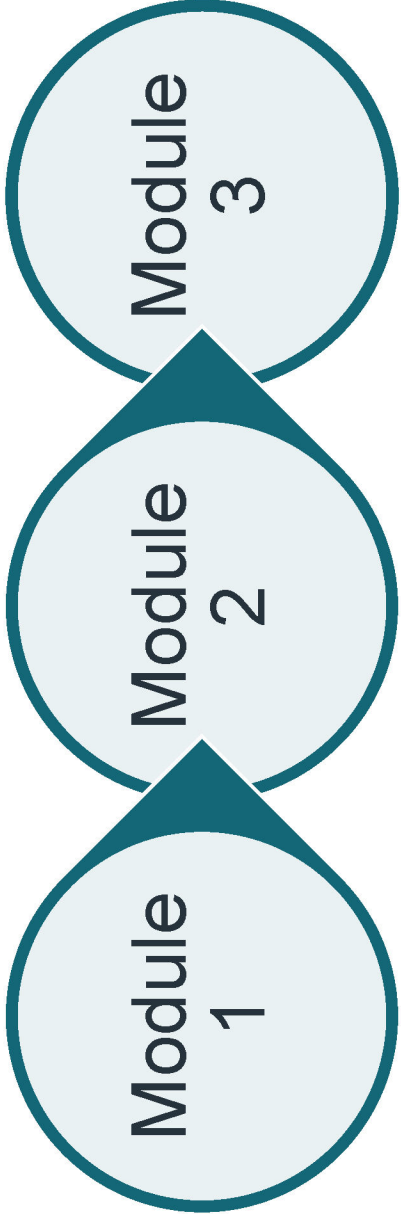


Exercise Schedule

Event	Time
Participant Registration	10:30am-10:45am
Welcome and Introductions	10:45am-11:00am
Module 1: Pre-Impact	11:00am-11:45am
Working Lunch	11:45am-12:15pm
Module 2: Pre- and Initial Impact	12:15pm-1:00pm
Break	1:00pm-1:15pm
Module 3: Restoration and Recovery	1:15pm-2:00pm
Break	2:00pm-2:15pm
Module 3 Continued	2:15pm-3:00pm
Hotwash and Closing Remarks	3:00pm-3:30pm



Exercise Overview and Structure





Objectives and Aligned Capabilities



**Operational
Coordination**

Identify a unified and coordinated operational structure and process that appropriately integrates all critical stakeholders and supports the execution of incident objectives.



**Operational
Communication**

Discuss the capacity for timely communications in support of situational awareness, restoration operations, and customer support among and between responders and stakeholders/decision-makers.



Objectives and Aligned Capabilities



Situational Assessment

Evaluate the process to provide all decision-makers with relevant information regarding the nature and extent of the hazard, any cascading effects, and the status of the response.



Planning

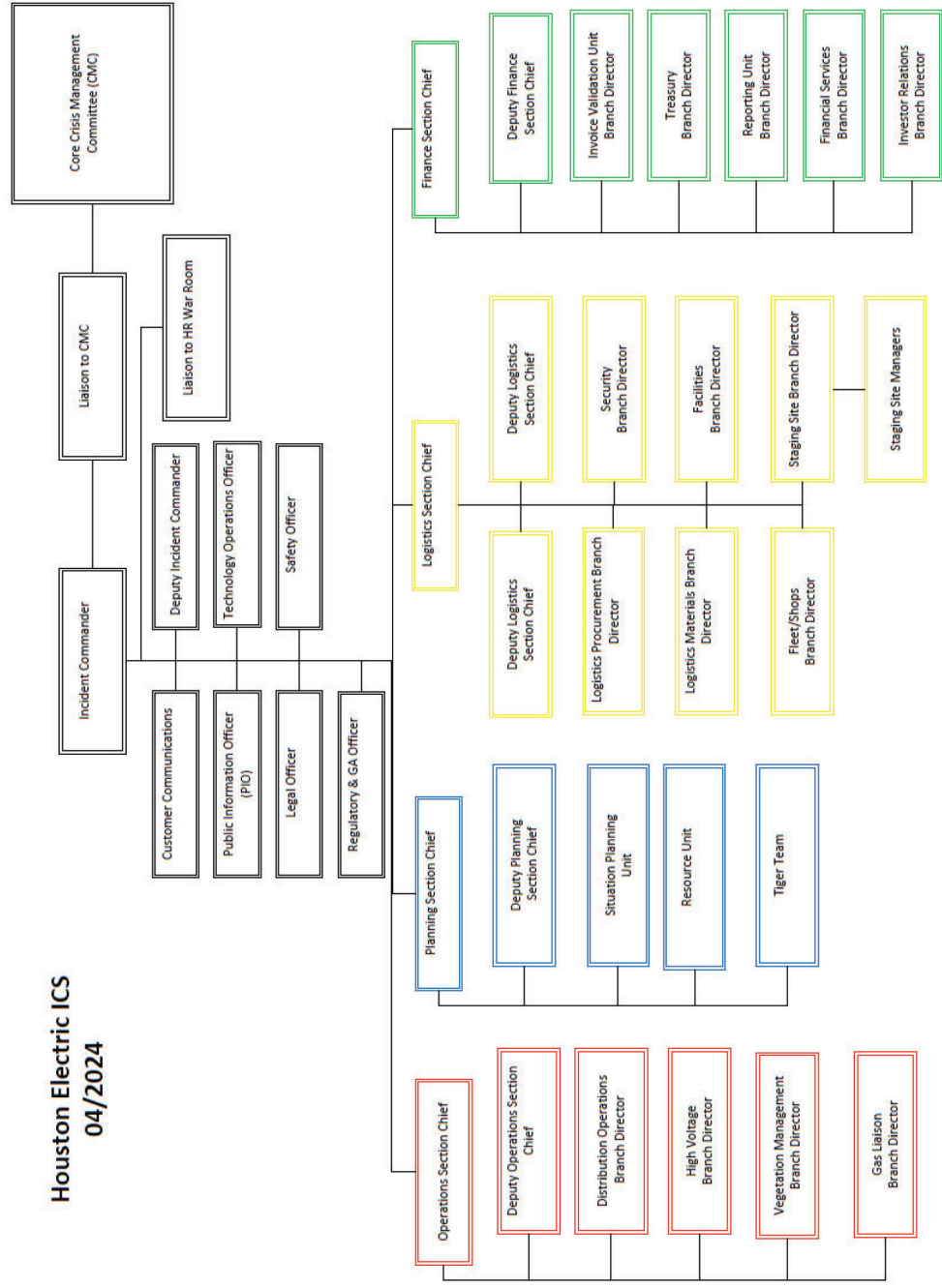
Test and validate existing hurricane response plans, processes, and protocols.



Exercise Guidelines

- This is an open no-fault environment. Varying viewpoints, even disagreements, are expected and open discussion is encouraged.
- Base your responses on the existing plans and capabilities of your organization.
- Decisions are not precedent setting; consider different approaches and suggest improvements.
- Issue identification is not as valuable as suggestions and recommended actions that could improve response efforts; problem-solving efforts should be the focus.

**Houston Electric ICS
 04/2024**





Module 1 | Pre-Impact



CEHE Weather Forecast
August 21, 2024

Current Emergency Level **4**



Important Forecast Updates

- Monitoring a hurricane advisory for the Gulf. No significant impact to Houston

Key Messages

- A hurricane advisory is issued for the southeast Texas area as a disturbance is predicted to enter the southern Gulf as a hurricane and track toward South Texas in the next 7 days. Currently landfall is predicted to hit northeast Mexico to the upper Texas coast in 7 days
- There are no significant impacts across Houston predicted at this time.

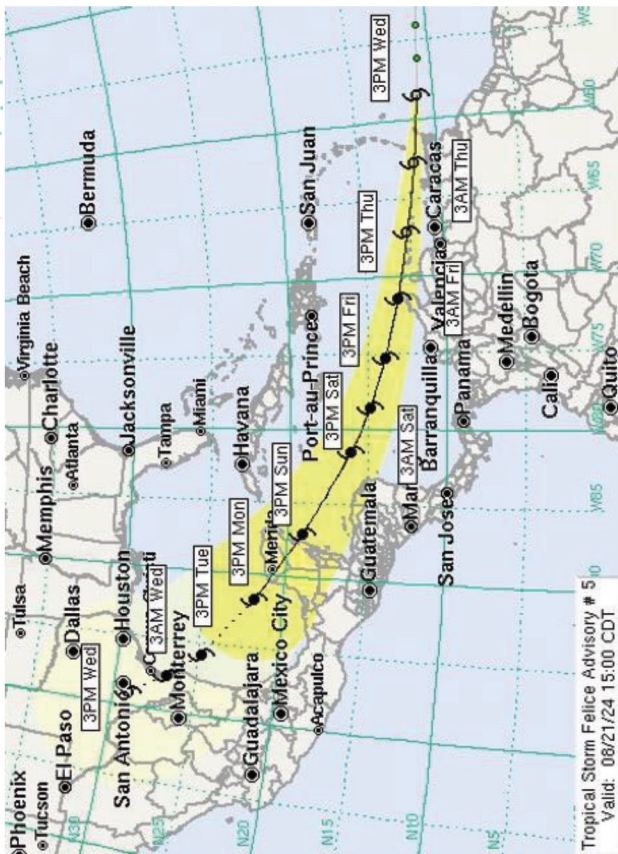
Threat Level Parameters	None	Low	Medium	High	Very High	Notes
High Winds (25mph+)						
Thunderstorms						
Flash Flooding						
Frequent Lightning						
Hail 1" or larger						
Tornadoes						





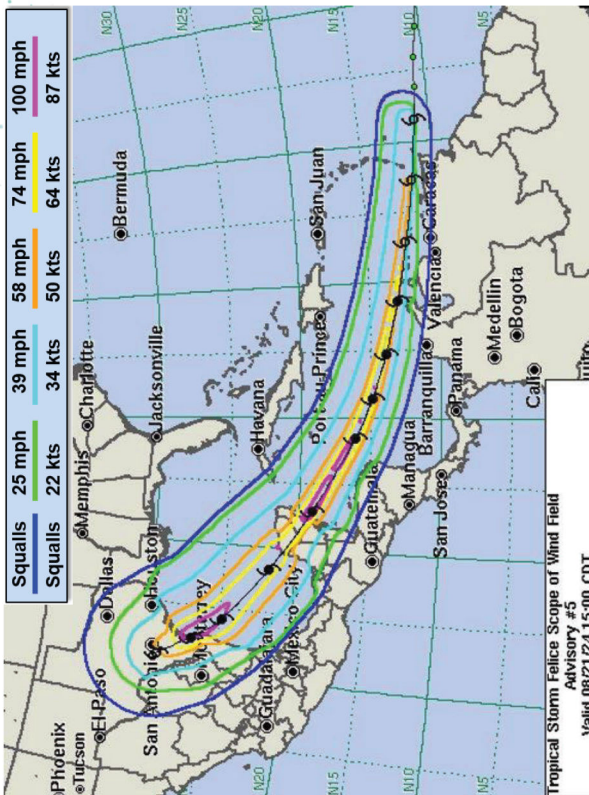
Wednesday, August 21, 2024

A hurricane advisory is issued for the southeast Texas area as a disturbance is predicted to enter the southern Gulf as a hurricane and track toward South Texas in the next 7 days. Currently landfall is predicted to hit northeast Mexico to the upper Texas coast in 7 days. There are no significant impacts across Houston predicted at this time.





Wednesday, August 21, 2024



Valid	Classification	Lat	Lon	Winds	Gusts
8/21/2024 3:00 PM CDT	Tropical Storm	N 11	W 58.4	50 mph	65 mph
8/22/2024 3:00 AM CDT	Tropical Storm	N 11.5	W 62.7	60 mph	75 mph
8/22/2024 3:00 PM CDT	Tropical Storm	N 12.2	W 67.1	70 mph	85 mph
8/23/2024 3:00 AM CDT	Category 1	N 13	W 71.4	80 mph	100 mph
8/23/2024 3:00 PM CDT	Category 1	N 13.9	W 75.2	90 mph	110 mph
8/24/2024 3:00 AM CDT	Category 2	N 14.9	W 78.5	105 mph	125 mph
8/24/2024 3:00 PM CDT	Category 3	N 16.1	W 81.5	115 mph	140 mph
8/25/2024 3:00 PM CDT	Category 4	N 19	W 87	140 mph	165 mph
8/26/2024 3:00 PM CDT	Category 1	N 21.8	W 91.6	85 mph	105 mph
8/27/2024 3:00 PM CDT	Category 2	N 24.8	W 95.8	105 mph	120 mph
8/28/2024 3:00 AM CDT	Category 2	N 26.8	W 97.5	110 mph	130 mph
8/28/2024 3:00 PM CDT	Tropical Storm	N 29	W 99	65 mph	80 mph



Discussion Questions (7 days to landfall)

- What are the triggers to start the activation of the Emergency Plan?
- Do you have any concerns at this time?
- Are you doing anything in preparation in case it shifts?
- Are we sending out any messaging to employees?



Current Emergency Level

4

CEHE Weather Forecast
August 22, 2024



Important Forecast Updates

- ❖ Tropical Storm Felice is now shifted path towards south Texas.
- ❖ Impact early next week on Wednesday possibly as a Category 3 hurricane

Key Messages

- ✓ Tropical storm Felice is predicted to impact south Texas early next Wednesday as a Category 3 hurricane with 110 mph sustained wind and gusts to 130 mph. The track is currently trending more northward from yesterday's advisory. There is the possibility for wind gusts of 39+ mph across Harris County coming next Wednesday.

Threat Level Parameters	None	Low	Medium	High	Very High	Notes
High Winds (≥39mph+)						
Thunderstorms						
Flash Flooding						
Frequent Lightning						
Hail 1" or larger						
Tornadoes						

Valid	Classification	Lat	Lon	Winds	Gusts
8/23/2024 3:00 AM CDT	Category 1	N 12.4	W 71.4	90 mph	110 mph
8/23/2024 3:00 PM CDT	Category 2	N 13.4	W 75.1	110 mph	130 mph
8/24/2024 3:00 AM CDT	Category 3	N 14.5	W 78.5	125 mph	150 mph
8/24/2024 3:00 PM CDT	Category 4	N 16	W 81.5	145 mph	175 mph
8/25/2024 3:00 AM CDT	Category 5	N 17.5	W 84	150 mph	190 mph
8/25/2024 3:00 PM CDT	Category 5	N 19	W 86.5	175 mph	200 mph
8/26/2024 3:00 PM CDT	Category 5	N 20	W 87.5	160 mph	215 mph
8/26/2024 3:00 AM CDT	Category 4	N 21	W 88.5	145 mph	175 mph
8/27/2024 3:00 AM CDT	Category 2	N 24	W 92.5	100 mph	115 mph
8/28/2024 3:00 AM CDT	Category 3	N 27.5	W 96.5	115 mph	140 mph
8/28/2024 8:00 AM CDT	Category 3	N 28.3	W 96.8	115 mph	140 mph
8/29/2024 3:00 AM CDT	Tropical Storm	N 31.5	W 98	40 mph	50 mph
8/29/2024 3:00 PM CDT	Tropical Depression	N 33.5	W 98.3	30 mph	35 mph



Thursday, August 22, 2024

Valid	Classification	Lat	Lon	Winds	Gusts
8/23/2024 3:00 AM CDT	Category 1	N 12.4	W 71.4	90 mph	110 mph
8/23/2024 3:00 PM CDT	Category 2	N 13.4	W 75.1	110 mph	130 mph
8/24/2024 3:00 AM CDT	Category 3	N 14.5	W 78.5	125 mph	150 mph
8/24/2024 3:00 PM CDT	Category 4	N 16	W 81.5	145 mph	175 mph
8/25/2024 3:00 AM CDT	Category 5	N 17.5	W 84	160 mph	190 mph
8/25/2024 3:00 PM CDT	Category 5	N 19	W 86.5	175 mph	200 mph
8/25/2024 9:00 PM CDT	Category 5	N 20	W 87.5	180 mph	215 mph
8/26/2024 3:00 AM CDT	Category 4	N 21	W 88.5	145 mph	175 mph
8/27/2024 3:00 AM CDT	Category 2	N 24	W 92.5	100 mph	115 mph
8/28/2024 3:00 AM CDT	Category 3	N 27.5	W 96.5	115 mph	140 mph
8/28/2024 8:00 AM CDT	Category 3	N 28.3	W 96.8	115 mph	140 mph
8/29/2024 3:00 AM CDT	Tropical Storm	N 31.5	W 98	40 mph	50 mph
8/29/2024 3:00 PM CDT	Tropical Depression	N 33.5	W 98.3	30 mph	35 mph

Tropical storm Felice is predicted to impact south Texas early next Wednesday as a Category 3 hurricane with 110 mph sustained wind and gusts to 130 mph. The track is currently trending more northward from yesterday's advisory. There is the possibility for wind gusts of 39+ mph across Harris County coming next Wednesday.



Key Issues

- Storm has shifted towards Texas
- Track is trending more northward
- Strong wind gusts predicted



Discussion Questions (6 days to landfall)

- Operations: Do you have any concerns since the storm shifted?
- Are we starting any emergency processes?
 - If so which ones?



**CEHE Weather Forecast
August 23, 2024**

Current Emergency Level **4**



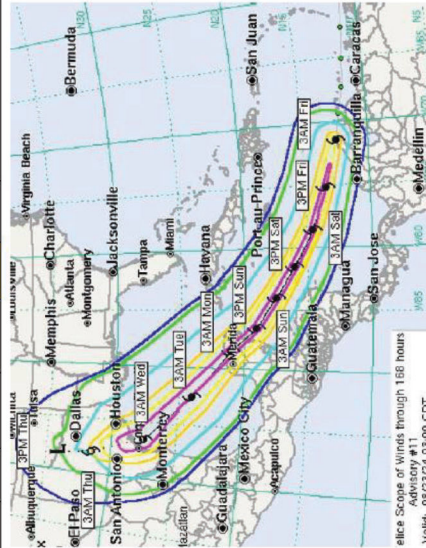
Important Forecast Updates

- ❖ Tropical Storm Felice is now predicted to make landfall north of Corpus Christi
- ❖ Impact early next week on Wednesday possibly as a Category 3 hurricane

Key Messages

- ✓ Hurricane Felice is predicted to make landfall north of Corpus Christi early Wednesday as a Category 3 hurricane with winds of 115 mph gusting at 140 mph. On Wednesday morning, downtown Houston should expect wind 31-51 mph with gusts nearing 80-85 mph and approximate rainfall 5-10 inches.

Threat Level Parameters	None	Low	Medium	High	Very High	Notes
High Winds (25mph+)						
Thunderstorms						
Flash Flooding						
Frequent Lightning						
Hail 1" or larger						
Tornadoes						





Key Issues

- 80-85 MPH wind gusts
- Landfall predicted close to where Harvey hit
- Heavy rain expected with flash flooding



Discussion Questions (5 days to landfall)

- Operations: Are these wind gusts concerning?
- Operations: How would staffing change?
- Communications: What kind of messaging are we pushing out to the public?
- Transmission: Would there be any concern for the lines outside of our service area?



**CEHE Weather Forecast
August 24, 2024**

Current Emergency Level **4**



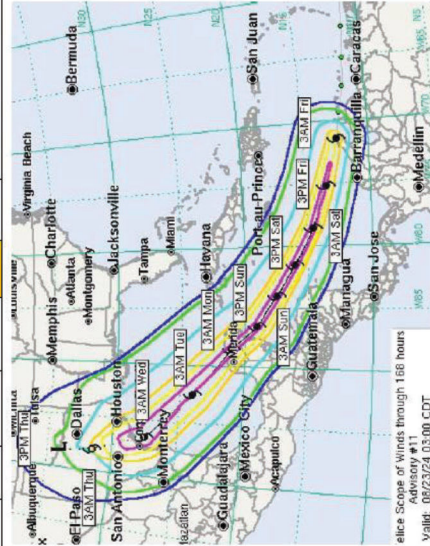
Important Forecast Updates

- ❖ Tropical Storm Felice is now predicted to make landfall north of Corpus Christi
- ❖ Impact early next week on Wednesday possibly as a Category 3 hurricane

Key Messages

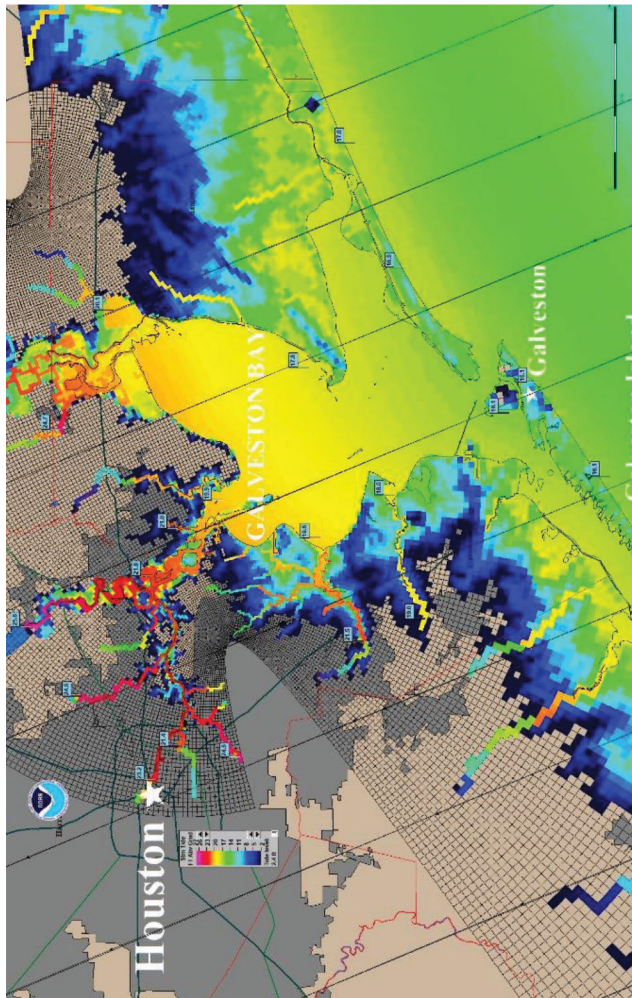
- ✓ Hurricane Felice is predicted to make landfall north of Corpus Christi early Wednesday as a Category 3 hurricane with winds of 115 mph gusting at 140 mph. On Wednesday morning, downtown Houston should expect wind 31-51 mph with gusts nearing 80-85 mph and approximate rainfall 5-10 inches.

Threat Level Parameters	None	Low	Medium	High	Very High	Notes
High Winds (25mph+)						
Thunderstorms						
Flash Flooding						
Frequent Lightning						
Hail 1" or larger						
Tornadoes						





Saturday, August 24, 2024



Hurricane Felice is on course to impact Texas as a Category 3 hurricane Wednesday morning. Sustained hurricane force wind with gusts over 100 mph predicted for the SE Texas area. A large storm surge is expected to move ashore into Galveston Bay Tuesday night to Wednesday morning. This surge would be near 20 ft into western Galveston Bay and 20-25 feet up the Houston Ship Channel causing significant flooding to refineries and possible flooding to downtown Houston due to Buffalo Bayou overflowing its banks.



Key Issues

- Shift occurs over the weekend
- Storm surge expected in Galveston



Discussion Questions (96 hours to landfall)

- **Government Relations:** How do we find out when local EOCs are activated?
 - How do we coordinate with Galveston and Brazoria counties to get a “head’s up” on an evacuation order before it’s made public?
- **Logistics:** Where are you at in your processes?
- **Finance:** Where are you at in your processes?
- **Since this shift occurred on a weekend, how do we ensure that employees are receiving our messaging?**



**Get your Lunch!
Resume at 12:15pm**



3.2. Emergency Plan Activation

CenterPoint Energy has established Emergency Levels to help support CNP in understanding the complexity of an emergency and possible actions that may need to be implemented at the particular emergency level (Emergency Operations Center (EOC) activations, resource/staffing needs, mutual assistance, etc.).

Table 3.2

Level of Activation	Description
Level 4 -Routine Operations Incident	Normal daily operations; any issues are resolved at the crew level
Level 3 – Elevated Incident Conditions	An incident has occurred, but local/regional resources are capable of handling. The Emergency Operations Center (EOC) is not activated. EP&R staff are notified and available for support.
Level 2 – Severe Emergency Conditions	An emergency has occurred that requires coordination among multiple departments and resources. The EOC is partially or fully activated to support depending on significance of emergency. EP&R staff are notified. Crisis Management Committee (CMC) is notified, but likely not activated
Level 1 – Crisis Conditions	A crisis has occurred, and significant coordination is necessary. Crisis may involve multiple CNP operations/locations. EOC is fully activated. Crisis Management Committee (CMC) is activated



Module 2 | Pre- and Initial Impact



CEHE Weather Forecast
August 25, 2024

Current Emergency Level **2**



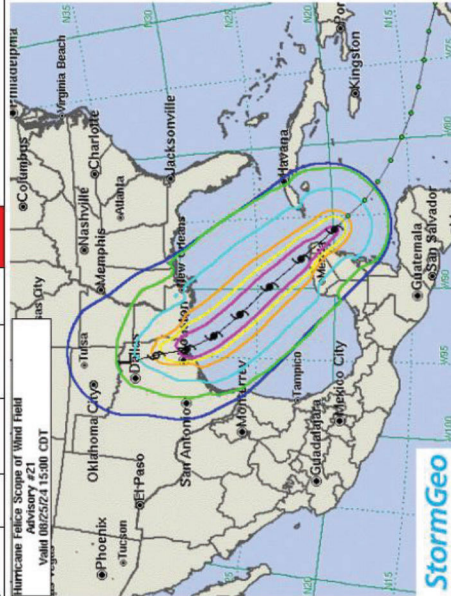
Important Forecast Updates

- ❖ Felice's track has adjusted to land slightly east of downtown Houston as a Category 4 hurricane
- ❖ Major impacts across the CenterPoint service area are still expected

Key Messages

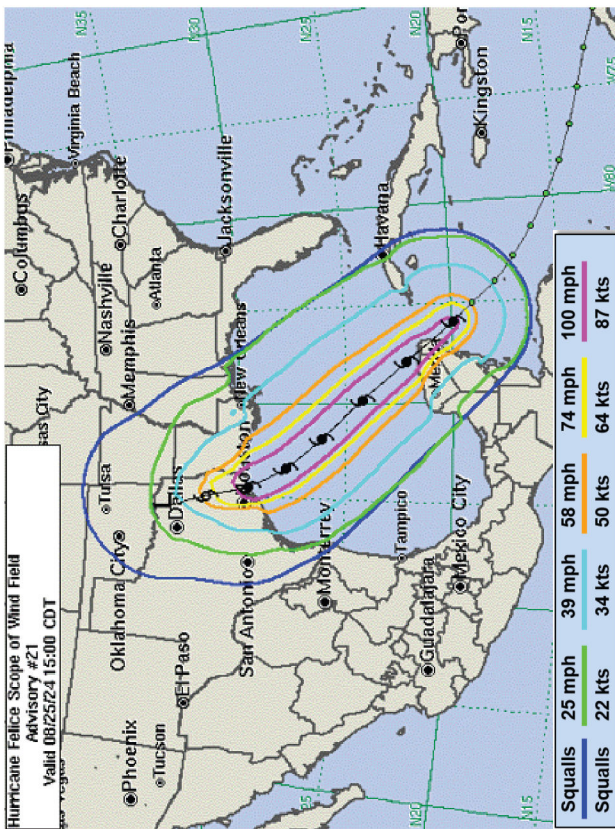
- ✓ Felice's track has adjusted to land slightly east of downtown Houston as a Category 4 hurricane. Major impacts across the CenterPoint service area are still expected. Tropical-force winds will start Tuesday evening and continue into Wednesday evening. 6-12 inches of rain are expected with totals to 18 inches possible across Houston. Large storm surge predicted Tuesday night which will cause extensive flooding up the ship channel.

Threat Level Parameters	None	Low	Medium	High	Very High	Notes
High Winds (25mph+)						
Thunderstorms						
Flash Flooding						
Frequent Lightning						
Hail 1" or larger						
Tornadoes						





Sunday, August 25, 2024

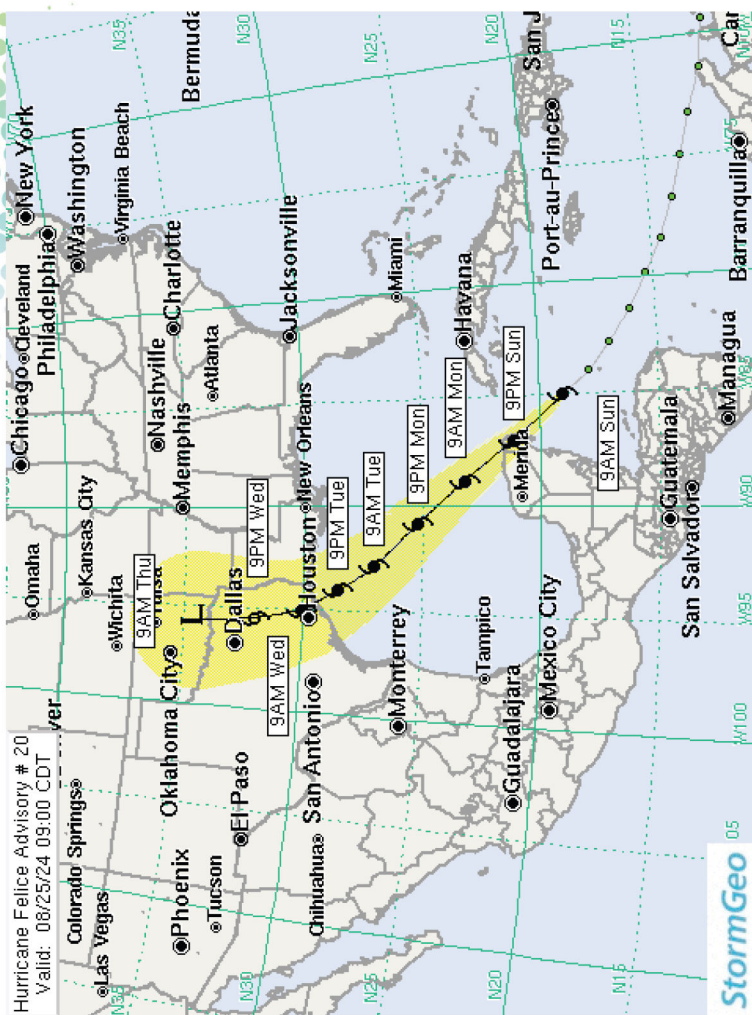


Felice's track has adjusted to land slightly east of downtown Houston as a Category 4 hurricane. Major impacts across the CenterPoint service area are still expected. Tropical-force winds will start Tuesday evening and continue into Wednesday evening. 6-12 inches of rain are expected with totals to 18 inches possible across Houston. Large storm surge predicted Tuesday night which will cause extensive flooding up the ship channel.



Hurricane Felice

Current Location	19.9N, 85.9W				
Geographic Reference	105 miles SE of Cancun				
Movement	Northwest at 18 mph				
Max Winds	190 mph gusting to 225 mph				
Current Hurricane Severity Index	37 out of a possible 50 points (12 size, 25 intensity)				
Max Predicted Hurricane Severity Index	38 out of a possible 50 points (13 size, 25 intensity)				
Current Radius of Tropical Storm-Force Winds	200 miles				
Max Predicted Radius of Tropical Storm-Force Winds	260 miles				
Organizational Trend	Increasing				
Forecast Confidence	Average				
Estimated Central Pressure	889 mb				
Valid	Classification	Lat	Lon	Winds	Gusts
8/25/2024 9:00 AM CDT	Category 5	N 19	W 85	185 mph	220 mph
8/25/2024 8:00 PM CDT	Category 5	N 20.9	W 86.8	195 mph	230 mph
8/25/2024 9:00 PM CDT	Category 5	N 21.1	W 87	185 mph	220 mph
8/26/2024 12:00 AM CDT	Category 4	N 21.6	W 87.4	140 mph	165 mph
8/26/2024 9:00 AM CDT	Category 4	N 23.2	W 88.8	130 mph	155 mph
8/26/2024 9:00 PM CDT	Category 4	N 25.2	W 90.8	130 mph	160 mph
8/27/2024 9:00 AM CDT	Category 4	N 27	W 92.8	130 mph	160 mph
8/27/2024 9:00 PM CDT	Category 4	N 28.5	W 94	130 mph	160 mph
8/28/2024 4:00 AM CDT	Category 3	N 29.4	W 94.6	125 mph	150 mph
8/28/2024 9:00 AM CDT	Category 2	N 30	W 95	105 mph	125 mph
8/28/2024 9:00 PM CDT	Tropical Storm	N 32	W 95.5	45 mph	60 mph
8/29/2024 9:00 AM CDT	Remnant Low	N 34.3	W 95.7	30 mph	35 mph



StormGeo 05



Key Issues

- Upgraded to a Category 4
- Supervisors and managers are reporting that employees with Emergency Support Function roles are saying they are evacuating with their families
- Galveston and Brazoria counties have issued evacuation orders



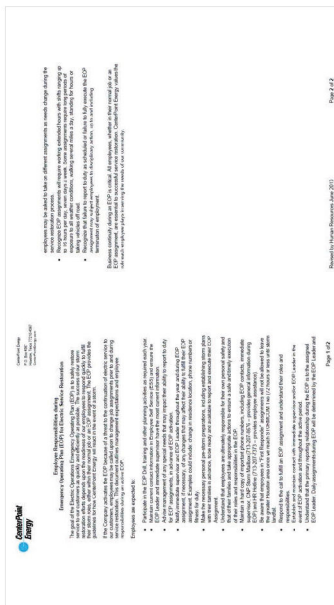
Discussion Questions (72 hours to landfall)

- Employees with response roles are calling asking if they are allowed to evacuate. Who are the key decision-makers to determine evacuation?
 - Operations: How will this impact employee job functions?
 - Operations: Which service centers are being evacuated?
- When do we activate and at what Emergency Level?
 - Who makes that determination?
- Operations: When is mutual aid requested?
- Human Resources: How do we coordinate with employees to ensure the safety of their homes and families?



Discussion Questions (72 hours to landfall)

- Human Resources: What are our policies for reporting during an emergency activation?
 - Based on that policy how do we handle employees who want to evacuate with their families?
 - Are emergency expectations clearly conveyed to staff?





CenterPoint Energy
P.O. Box 4587
Houston, Texas 77210-4587
CenterPointEnergy.com

Employee Responsibilities during Emergency Operating Plan (EOP) for Electric Service Restoration

The goal of the Electric Operations Emergency Operating Plan (EOP) is to safely restore service to our customers as quickly and efficiently as possible. The success of our storm restoration efforts depends upon the readiness of our employees to respond quickly to fulfill their storm roles, either within their normal job or an EOP assignment. The EOP provides the guidelines for how CenterPoint Energy will react in the event of a storm.

If the Company activates the EOP because of a threat to the continuation of electric service to our customers, employees may be called upon to change job assignments prior to and during service restoration. This document outlines management expectations and employee responsibilities during an active EOP.

Employees are expected to:

- Participate in the EOP Drill, training and other planning activities as required each year.
- Maintain current contact information in Employee Self Service (ESS) and ensure the EOP Leader and immediate supervisor have the most current information.
- Advise management of any special needs that may impact their ability to report to duty for EOP assignments, in advance of EOP activation.
- Notify immediate supervisor and EOP Leader throughout the year and during EOP assignment, if necessary, of any changes that may affect their ability to fulfill their EOP assignment. Examples could include: change in residence location, phone numbers or fitness for duty.
- Make the necessary personal pre-storm preparations, including establishing storm plans with their families in advance, to be ready and available to report and execute their EOP Assignment.
- Understand that employees are ultimately responsible for their own personal safety and that of their families and take appropriate actions to ensure a safe and timely execution of their roles and responsibilities in the EOP.
- Maintain a hard copy of important phone numbers, including EOP contacts, immediate supervisor, CNP Storm Mailbox (713-207-8676 – provides general information during EOP) and HR Hotline (713-207-7373 – provides employee assistance).
- Be aware that employees in "First Responder" assignments will not be allowed to leave the greater Houston area once we reach STORMCOM Two (72 hours or less until storm landfall).
- Respond to the call to fulfill an EOP assignment and understand their roles and responsibilities.
- Establish and maintain contact with immediate supervisor and/or EOP Leader in the event of EOP activation and throughout the active period.
- Understand that the primary reporting relationship during the EOP is to the assigned EOP Leader. Daily assignments during EOP will be determined by the EOP Leader and

employees may be asked to take on different assignments as needs change during the service restoration process.

- Recognize EOP assignments will require working extended hours with shifts ranging up to 16 hours per day, seven days a week. Some assignments require long periods of exposure to all weather conditions, walking several miles a day, standing for hours or taking vehicles off road.
- Recognize that failure to report to duty as scheduled or failure to fully execute the EOP assignment may subject employees to disciplinary action, up to and including termination of employment.

Business continuity during an EOP is critical. All employees, whether in their normal job or an EOP assignment, are essential to successful service restoration. CenterPoint Energy values the role each employee plays in serving the needs of our community.



**CEHE Weather Forecast
August 26, 2024**

Current Emergency Level
1



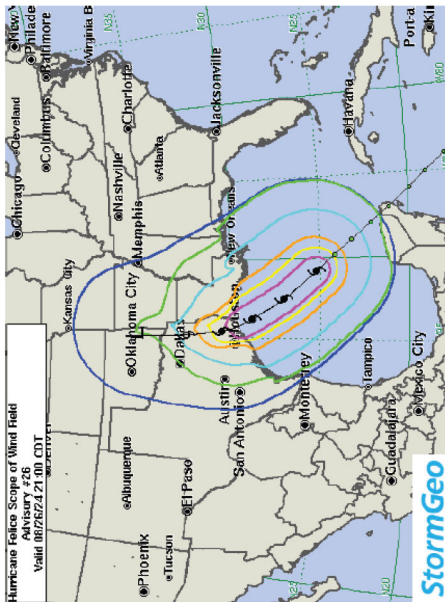
Important Forecast Updates

- ❖ Felice's track has adjusted to land slightly east of downtown Houston as a Category 4 hurricane
- ❖ Major impacts across the CenterPoint service area are still expected

Key Messages

- ✓ Strongest winds predicted to pass east of Houston, but the track could shift back west. Sustained hurricane force wind with gusts over 100 mph is predicted over the central and eastern part of the service area. Large storm surge and heavy rain will create extensive flooding in the ship channel and around bays.

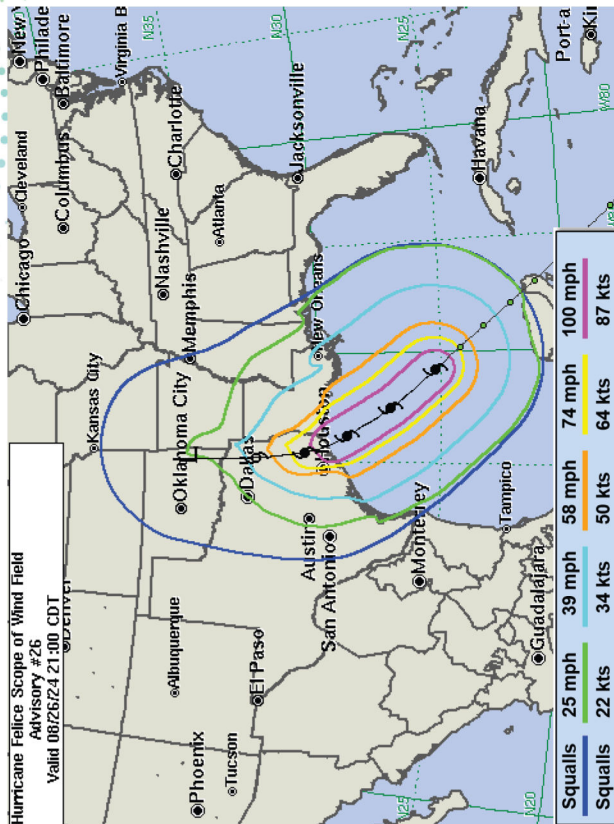
Threat Level Parameters	None	Low	Medium	High	Very High	Notes
High Winds (≥50mph)						
Thunderstorms						
Flash Flooding						
Frequent Lightning						
Hail 1" or larger						
Tornadoes						





Monday, August 26, 2024

Strongest winds predicted to pass east of Houston, but the track could shift back west. Sustained hurricane force wind with gusts over 100 mph is predicted over the central and eastern part of the service area. Large storm surge and heavy rain will create extensive flooding in the ship channel and around bayous.





Key Issues

- Hurricane has shifted to the east of Houston
- Predicted winds over 100 MPH
- Extensive flooding around the ship channel and all the bayous



Discussion Questions (48 hours to landfall)

- City of Houston is setting up “lily pads” for rescues and storm displacements. They have reached out to request mobile generation for resiliency.
 - Operations: Who makes the decision to deploy mobile generation?
 - Operations: What is the timeframe for deployment?
 - Operations: Who leads mobile gen operations?



Discussion Questions (48 hours to landfall)

- Operations has informed logistics that staging sites will be needed, who is responsible for deciding the locations of the staging sites that will be activated?
 - Decision Maker: How are you communicating the activation and location of the staging site? Who are you communicating that to?
- Finance: What are your current processes?
- Operations: How are equipment and supplies staged prior to landfall for a Category 4 storm?
 - What mitigation measures are used to help ensure supplies are not damaged or inaccessible due to flooding post-landfall?



Break Time!



**CEHE Weather Forecast
August 27, 2024**

Current Emergency Level

1



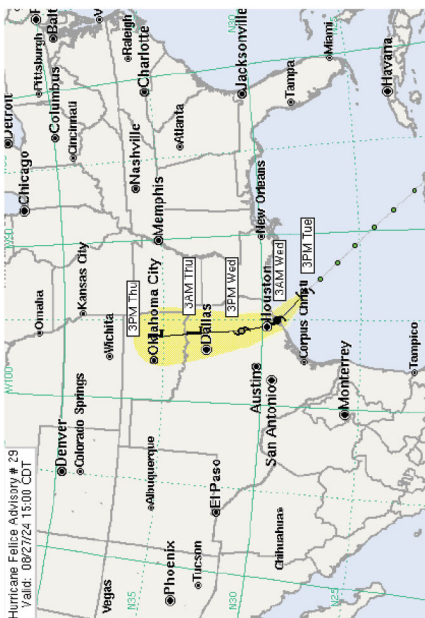
Important Forecast Updates

- ❖ Track has shifted back west to nearly over downtown Houston Wednesday morning. Tropical force winds are reaching the coast now.
- ❖ Eye will pass over downtown Houston tomorrow morning.

Key Messages

- ✓ Track has shifted back west to nearly over downtown Houston Wednesday morning. Tropical force winds are reaching the coast now. Sustained hurricane force wind (100 mph) predicted from late tonight to mid-morning Wednesday over all of the CenterPoint service area. Heavy rain and a likely storm surge of 20-25 feet into Galveston Bay will cause extensive flooding throughout the area.
- ✓ Eye will pass over downtown Houston tomorrow morning. Large storm surge will be moving ashore into Galveston Bay tonight. Significant flooding to occur to the northern ship channel into downtown Houston.

Threat Level Parameters	None	Low	Medium	High	Very High	Notes
High Winds (25mph+)						
Thunderstorms						
Flash Flooding						
Frequent Lightning						
Hail 1" or larger						
Tornadoes						

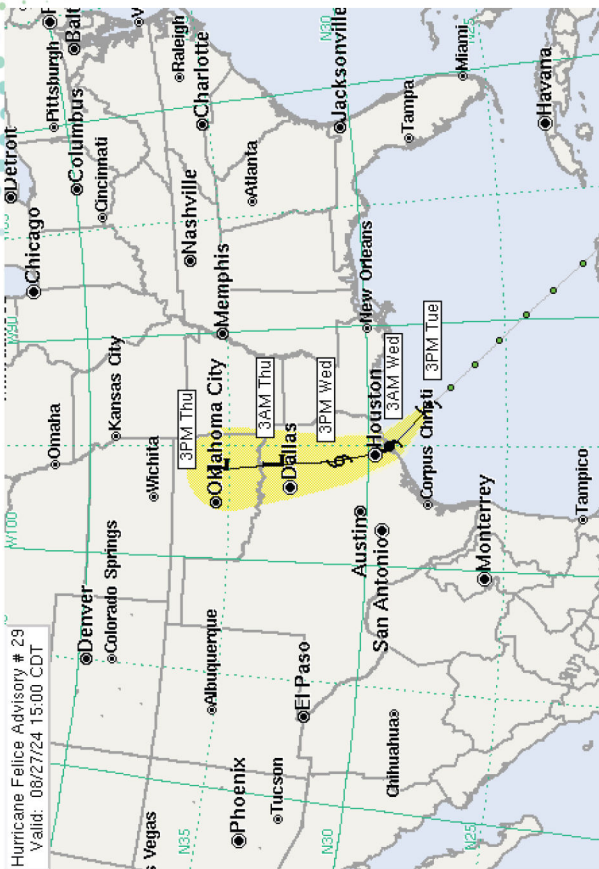




Tuesday, August 27, 2024

Track has shifted back west to nearly over downtown Houston Wednesday morning. Tropical force winds are reaching the coast now. Sustained hurricane force wind (100 mph) predicted from late tonight to mid-morning Wednesday over all of the CenterPoint service area. Heavy rain and a likely storm surge of 20-25 feet into Galveston Bay will cause extensive flooding throughout the area.

Eye will pass over downtown Houston tomorrow morning. Large storm surge will be moving ashore into Galveston Bay tonight. Significant flooding to occur to the northern ship channel into downtown Houston.





Key Issues

- Power outages have been reported as Felice encroaches inland.
- Houston and Harris County have issued voluntary evacuation orders
- Houston has opened their evacuation hub at the George R. Brown

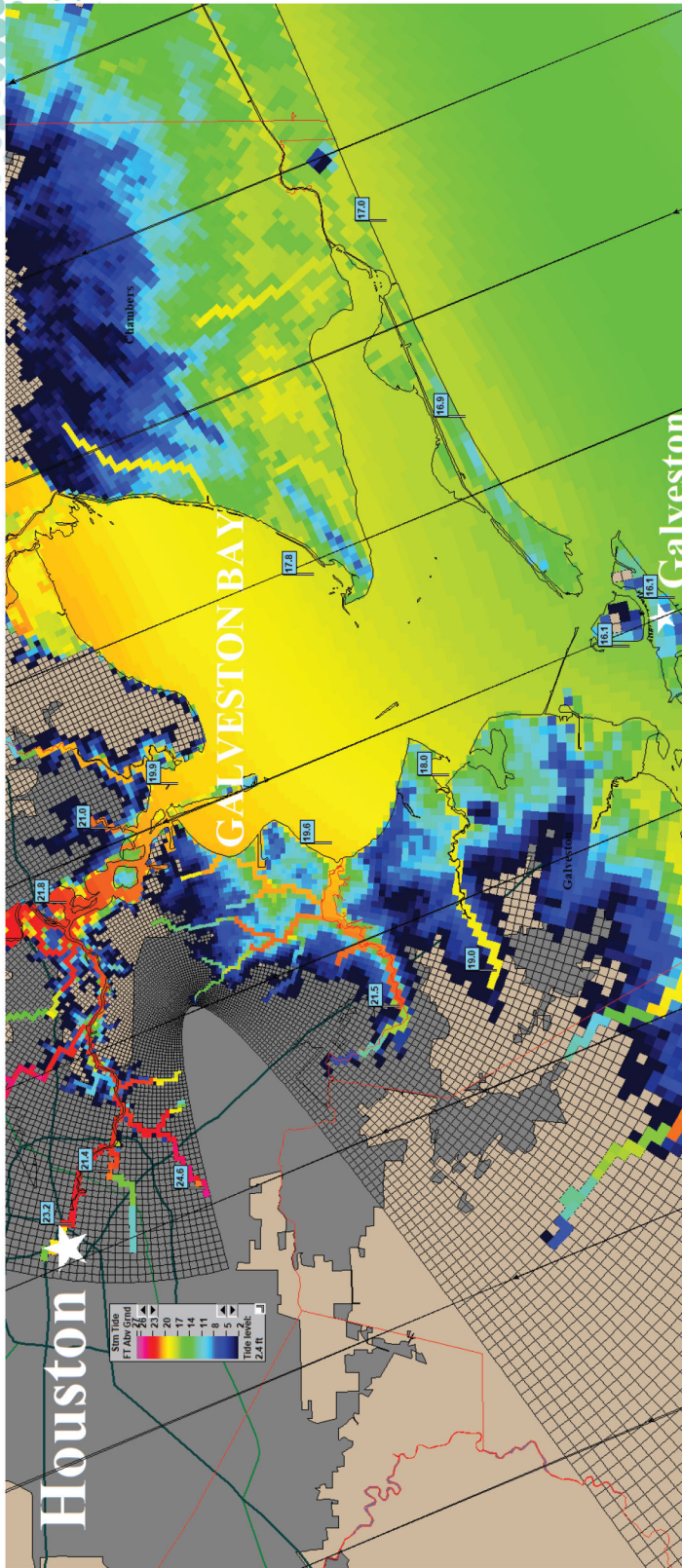


Discussion Questions (24 hours to landfall)

- Based on the voluntary evacuations, Operations is requesting the reentry procedures for restricted areas to be prepared when the storm passes.
 - Who is responsible for this and how is it accomplished?
- Finance: Any changes to procedures or policies?
- Human Resources/Information Technology: The employee storm hotline is experiencing issues and not accessible. What is our backup procedure to provide updated information to employees?



Wednesday, August 28, 2024 3:00 AM





Key Issues

- Sustained hurricane force wind with gusts over 120 MPH
- Storm surge 20-25 feet into Galveston Bay
- Expecting 18 inches of total rainfall



Discussion Questions (Landfall)

- Operations has been working outages leading up to landfall.
- When is work stopped and sheltering taking place?

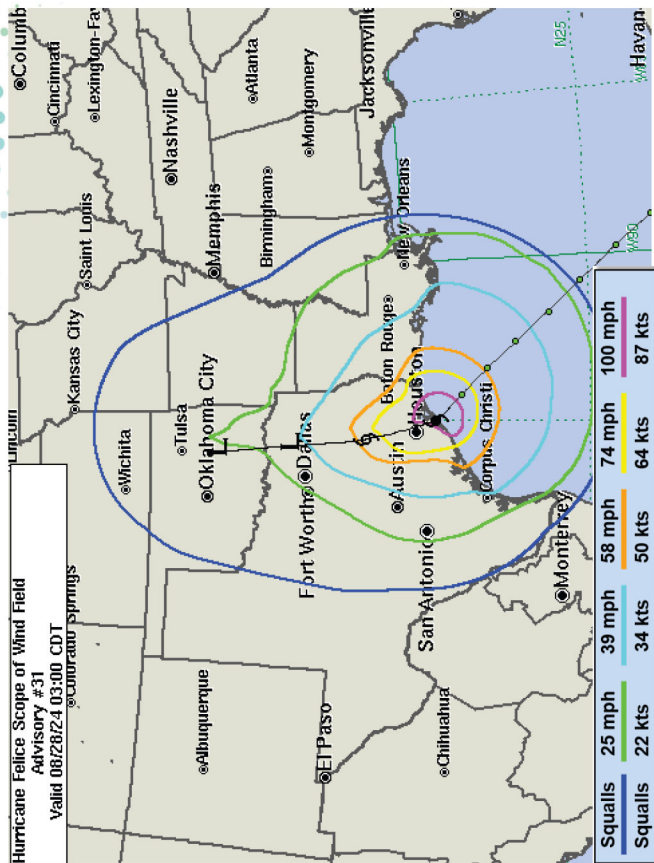



Module 3 | Restoration & Recovery



Wednesday, August 28, 2024 9:00 AM

Hurricane Felice made landfall over eastern Galveston Island at 3:00 AM as a powerful Category 3 with a maximum sustained wind at 125 mph, gusting at 150 mph. The weather across southeast Texas is rapidly deteriorating. There is a very significant storm surge in Galveston, with reports claiming that much of the eastern part of the island is under water. Total storm rainfall will likely be in the 8-12 inch range with some areas receiving 15-18 inches on the eastern side of the city.






Electric Operations

Emergency Activation Level **1**

Situation Report

August 28, 2024 6:00am



In Numbers*

- Customer Outages 2,100,000
- Internal Crews 150
- Contract Line Crews 700
- Vegetation Crews 300
- Mutual Assistance Crews 900

Command Staff

- Incident Commander: Tim Steamun
- Operations Section Chief: Darrell Ward
- Planning Section Chief: Steve Gibson
- Foreign Crew Coordinator: David Neumann
- Communications: Michelle Hundley

Situation Update

Hurricane Felice made landfall over eastern Galveston Island at 3:00 AM as a powerful Category 3 with a maximum sustained wind at 125 mph, gusting at 150 mph. The weather across southeast Texas is rapidly deteriorating. There is a very significant storm surge in Galveston, with reports claiming that much of the eastern part of the island is under water. Total storm rainfall will likely be in the 8-12 inch range with some areas receiving 15-18 inches on the eastern side of the city.

Goals

Restore electric in a safe and timely manner to all outage areas.

Objectives

- Assess remaining outages with the prioritization below and execute restoration.
 - Circuits
 - Fuses
 - Transformers
 - Singles

Key Operational Updates

- Outages*:
 - 3000 Circuits
 - 9,038 Fuses
 - 1115 Transformers
- Contract Crews
 - 1,068 Contract OVH
 - 14 UFD

Actions Completed

- Released additional foreign contract crews.
- ETRs have been set back to normal.

Activations

- Houston Electric Department Operations Center (DOC)** has been activated.
- CenterPoint Energy Emergency Operations Center (EOC) activated.

Resource Needs

- Everything! Everywhere! All at Once!

Final Situation Report

*Customer outages and crew numbers are real-time number when this report is distributed. Subject to change as the response and restoration continues.

**Houston Electric Department Operations Center (DOC) formerly known as "DVAL"

Internal Use Only



Key Issues

- 2.1 million customers without power
- 1200 gas leaks called in for Texas, many meters under water
- Significant debris in roadways
- Downed power lines
- Extreme flooding and power lines in flood waters
- Supply chain issues are making some resources scarce



Discussion Questions

- Emergency Support Function employees have sheltered during landfall. Concern over their safety is being made, what processes do we use to check on their safety status? What about with limited network connectivity?
- Operations: What are our response priorities?
 - What does an operational period look like for a Level 1 Emergency?
 - How long would it last?
 - What are our objectives for this first operational period?



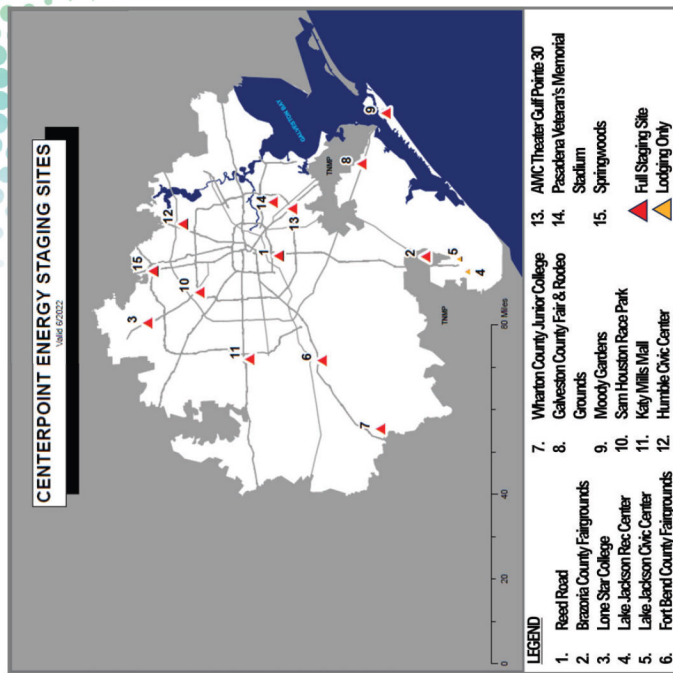
Discussion Questions

- **Government Affairs:** What is the deployment process of government liaisons to the EOCs?
- **Safety:** What safety concerns do we have as we begin restoration?
- **Operations:** West Bay substation is completely out with catastrophic damage including the transmission feed.
 - What is our plan for outage mitigation until it can be restored?
- **Operations:** How do we assess the damage to West Bay?
 - What is our primary method for assessing and reporting?
 - What is the redundancy if the primary is out?
 - How can Aerial Operations be involved?



Discussion Questions

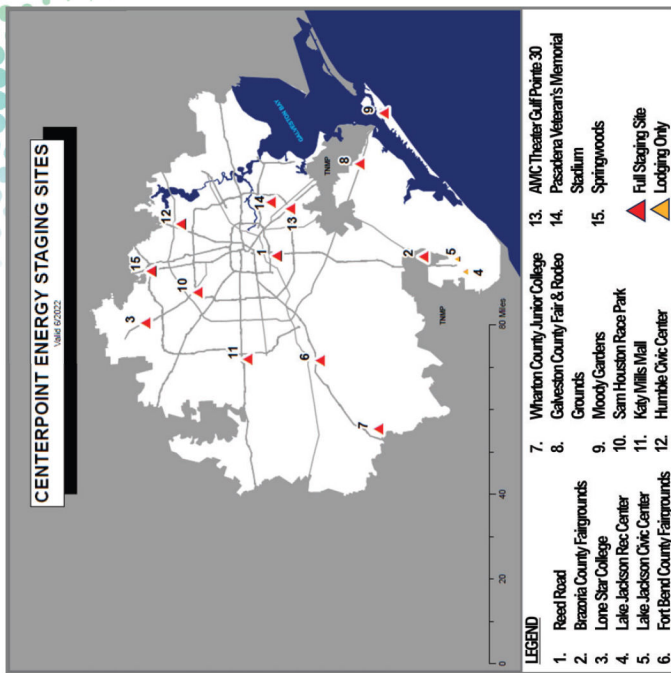
- Logistics: Staging sites have been set up at 12 locations, flooding has caused the Greenspoint Sam Houston Race Park to become inaccessible.
 - Who makes the decision to relocate the staging site?
 - What are the logistical and operational concerns with relocation?
 - How is that communicated and updated?
 - Who chooses those locations?





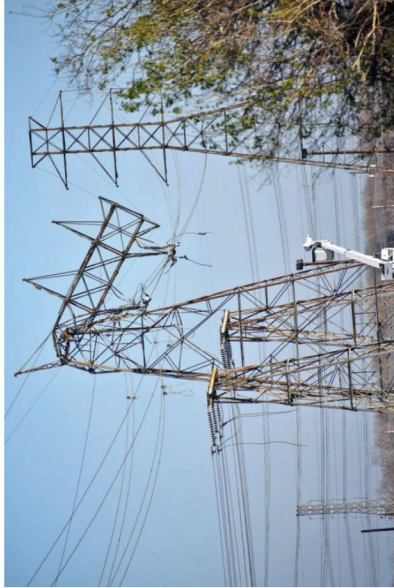
Discussion Questions

- Crews are experiencing downed trees and flooding on roadways.
 - How do we coordinate with city/county to clear travel paths and assist with our response?
- Gas Operations is managing leaks and outages
 - What limited resources from the enterprise will need to be coordinated amongst both gas and electric?
- How do the response measures and staffing for gas response impact electric operations?





Wednesday, August 28, 2024 3:00 PM





Key Issues

- Damage to sub-station transformers
- Bent transmission tower frames
- Concern that vault rooms could be affected by flood waters



Discussion Questions

- Operations Section Chief asks the Brazoria Staging Site Manager for an update on crew resources that are currently available at the staging site.
 - What application or methods are used to track resources?
 - How accurate is the tracking?
 - How quickly can the staging site manager provide that information?
 - How does the staging site manager track crews that are available and those that are not?
- As Operations evaluates the outages, IRIS has froze and is not providing up to date information. Service Suite has also gone down.
 - IT: What are the redundancies?
 - IT: What is our disaster recovery process?



August 29th-September 2024

Recovery efforts will take weeks if not months. Wind damage caused significant debris and blew out a lot of windows in many CNP buildings. Galveston, Baytown, and South Houston service centers are uninhabitable due to flood waters. Many transformers in storage yards have been in flood waters.





Key Issues

- Hostile customers
- FEMA has commandeered hotel rooms



Discussion Questions

- Customers are comparing the restoration to previous thunderstorms they have experienced and do not understand why it is taking so long to restore outages.
- Communications: What are our communication topics and how can we get ahead of the distrust in our restoration efforts?
- Operations: What is our processes for restoration timeline estimations?
 - How is that shared with the public?
 - Do we leverage our government officials to help us convey our message, and is this done proactively pre-storm?



Discussion Questions

- Finance: Some of the food vendors are reaching out because they have not been paid for the previous few days of food. They are not capable of buying more ingredients until they get paid.
 - What change processes are we capable of for our net-30, net-45 pay procedures?



Discussion Questions

- Logistics: Katy Service Center Manager contacts the Brazoria staging site manager and requests that 10 crews be sent up to their service center to support operations.
 - How are you deploying those resources?
- Logistics: 30 minutes after the resources are moved to the Katy service center, the Operations Section Chief contacts the Brazoria staging site manager and directs them to send 10 crews to Greenspoint. They no longer have the 10 crews to send.
 - What do we do now?
 - What is our chain of command and resource request process?
- Logistics/Operations: Operations Section Chief needs all crews at the Fort Bend staging site to be broken down into 2-person strike teams to assist with restoration.
 - Who is responsible for breaking down those crews?
 - Is that person trained and knowledgeable to perform that task?



Discussion Questions

- Logistics: The Katy staging site is no longer needed for restoration.
 - Who makes the decision to deactivate the staging site?
 - How is that communicated?
 - Who is it communicated to?
 - What all processes are involved in a staging site deactivation?
- Logistics: Duke Energy crews at the Brazoria staging site inform the staging site manager they finished their work and are ready to head back home.
 - Who makes the decision that they are demobilized?
 - How is that communicated?
 - Who all is it communicated to?



Hotwash



What went well?



What should we keep for future exercises?



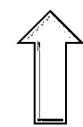
What were some challenges?



2024 Participant Feedback Form



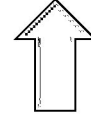




CNP Building	Water Surge	Wind Speed	Look to Evacuate (Based on wind speeds)	Threats/Cautions	Year
AOC		150mph	Cat 4+		2024
Baytown	Ground Elevation 30' ASL	125mph @32' above ground elevation	Cat 3+	Rising water from rain &/or water surge; check elevation of evacuation routes	2024
Bellaire		125mph	Cat 3+		2024
Brazoria		144mph	Cat 4+	Rainfall, trees and glass	2024
Brazosport	Ground Elevation 10' ASL	125mph @32' above ground elevation	Cat 3+	Check conditions of surrounding industrial plants	2024
CNP Tower		60mph	Cat 1+	Elevators need to be shutdown at sustained winds of 60mph; Glass	2024
Cypress		110mph	Cat 2+		2024
EC/DC		150mph+	Cat 4+		2024
Fort Bend *NEW*		144mph ultimate	Cat 4+		2024
Fort Bend		wind speed/	Cat 3+		2024
Galveston	Ground Elevation 96" ASL	113mph nominal	Cat 2+	Storm Surge, dilapidated surrounding buildings; closed evacuation routes	2024
Greenspoint		125mph	Cat 3+	Glass	2024
Greenspoint - Annex		110mph	Cat 2+		2024
Harrisburg		125mph	Cat 3+		2024
HOC Training		150mph ultimate	Cat 4+		2024
Humble		wind speed/	Cat 3+		2024
Katy		109mph nominal	Cat 3+		2024
South Houston		110mph	Cat 3+	Rainfall, trees and glass	2024
South Houston: S/C Glass Office BLDG		125mph	Cat 3+	Glass	2024
South Houston: S/C Warehouse/Office		90mph	Cat 1+		2024
South Houston: T&D Shops & Grg BLDG		125mph	Cat 3+		2024
South Houston: Warehouse		110mph	Cat 2+		2024
South Houston: Meter Lab		125mph	Cat 3+		2024
Spring Branch		125mph	Cat 3+		2024
Sugarland		125mph	Cat 3+		2024

3.4.3. EOC Activation

The Director of EP&R or his/her designee, the on-duty Incident Commander, or CEHE Leadership may activate the EOC. Upon activation, Command and General staff will report to the Emergency Operations Center (EOC). If the primary location is unsafe or otherwise inaccessible, the staff will assemble at an alternate location.





Discussion Questions (24 hours to landfall)

- Communications: What messaging is being pushed out to the public?
 - What channels are being used?
- Operations: Where would our “Storm Riders” be located?
- Which location would be the safest to host emergency operations?
- Facilities: What is the process to close CNP Tower?

**CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PROJECT NO. 56822
INVESTIGATION OF EMERGENCY PREPAREDNESS AND RESPONSE**

**PUBLIC UTILITY COMMISSION OF TEXAS
REQUEST NO.: PUC-RF101-002**

QUESTION:

Electric Utilities – Emergency Planning and Event Response

Do you ever seek participation of your customers during a hurricane drill? If yes, please provide a description of their level of involvement.

ANSWER:

CenterPoint Energy has not previously sought participation from customers during a hurricane drill. In the past we have invited various city officials and/or ISDs who received information and briefings on CenterPoint Energy's storm restoration process. PUC representatives have also been invited to previous drills.

SPONSOR:

Chasta Martin

RESPONSIVE DOCUMENTS:

None

**CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PROJECT NO. 56822
INVESTIGATION OF EMERGENCY PREPAREDNESS AND RESPONSE**

**PUBLIC UTILITY COMMISSION OF TEXAS
REQUEST NO.: PUC-RFI01-003**

QUESTION:

Electric Utilities – Emergency Planning and Event Response

Are actual events and conditions experienced during a previous hurricane or storm used in the next year's hurricane or major storm drill? If yes:

- a. How long would an actual storm be used to set the conditions for future hurricane drills?
- b. What hurricanes and major storms were used to set the conditions for the 2024 hurricane drill?

ANSWER:

Yes.

- A. We relied on our weather meteorologist vendor, StormGeo, to determine what storms would be appropriate to use.
- B. For CenterPoint Energy's 2024 hurricane drill, Hurricane Gilbert (1988) was used to set conditions for wind speeds and storm surge, and Hurricane Ike (2008) was used to set conditions for customer outages and overall impact to CenterPoint Energy's service area, with the number of customer outages adjusted for subsequent population growth since Hurricane Ike.

SPONSOR:

Chasta Martin

RESPONSIVE DOCUMENTS:

PUC-RFI01-003 - StormGeo_CenterPoint Hurricane Drill

2024 Hurricane Drill Hurricane Felice



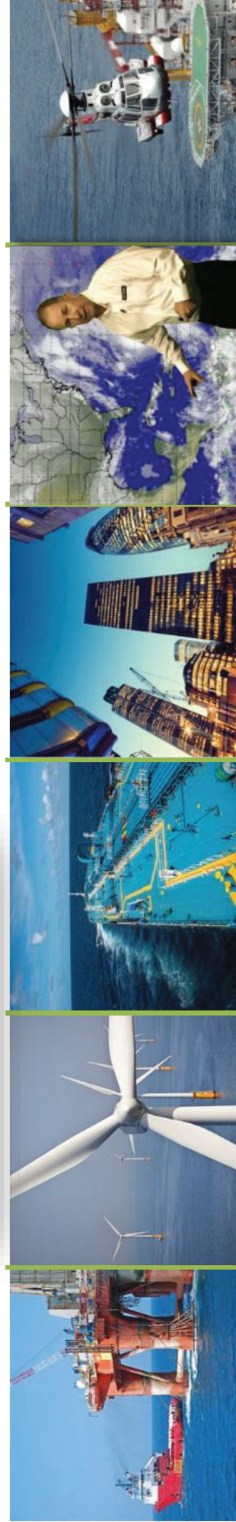
Your Presenter:

Chris Hebert

Manager, TropicsWatch

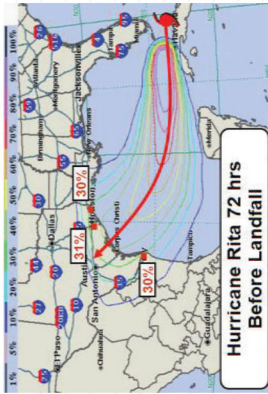
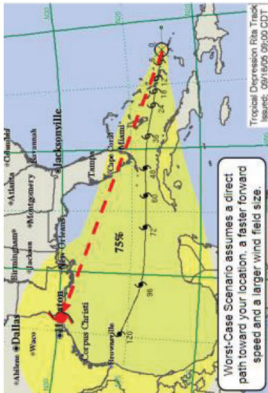
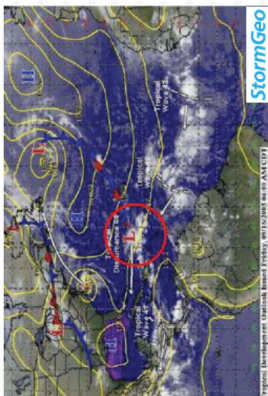
Chris.Hebert@StormGeo.com

[@TropicsWatch](https://twitter.com/TropicsWatch)



Decision Support for Weather Sensitive Operations

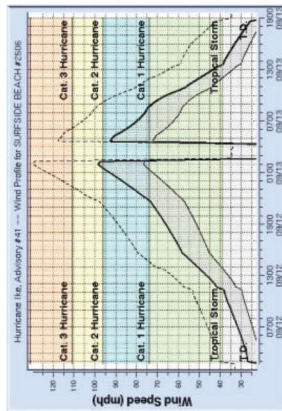
Timeline Tools offer objective guidance for activating a response plan



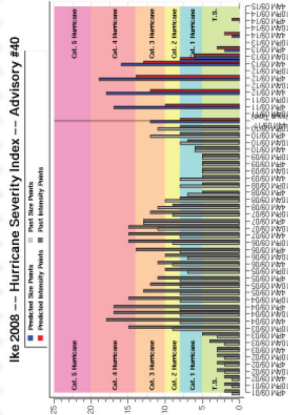
Response Plan Activator (RPA)

Worst Case Scenario

Prob. of Wind Impact



Forecast Wind Arrival



Hurricane Severity Index

Your Current Triggers



Phase	Trigger Parameter
1	Response Plan Activator – Positive (RPA+)
2	Earliest possible arrival of 39 mph wind is within 120 hours and either the probability of 58 mph wind is at least 3% or 39 mph wind is forecast for site
3	Earliest possible arrival of 39 mph wind is within 96 hours and either the probability of 58 mph wind is at least 10% or 39 mph wind is forecast for site
4	Earliest possible arrival of 39 mph wind is within 72 hours and either the probability of 58 mph wind is at least 20% or 39 mph wind is forecast for site
5	Forecast of 39 mph wind is within 66 hours
6	Forecast of 39 mph wind is within 60 hours
7	Forecast of 39 mph wind is within 54 hours
8	Forecast of 39 mph wind is within 48 hours
9	Forecast of 39 mph wind is within 36 hours
10	Forecast of 39 mph wind is within 30 hours
11	Forecast of 39 mph wind is within 24 hours
12	Forecast of 39 mph wind is within 18 hours
13	Forecast of 39 mph wind is within 6 hours
14	Sustained wind falls below 39 mph – Recovery Begins

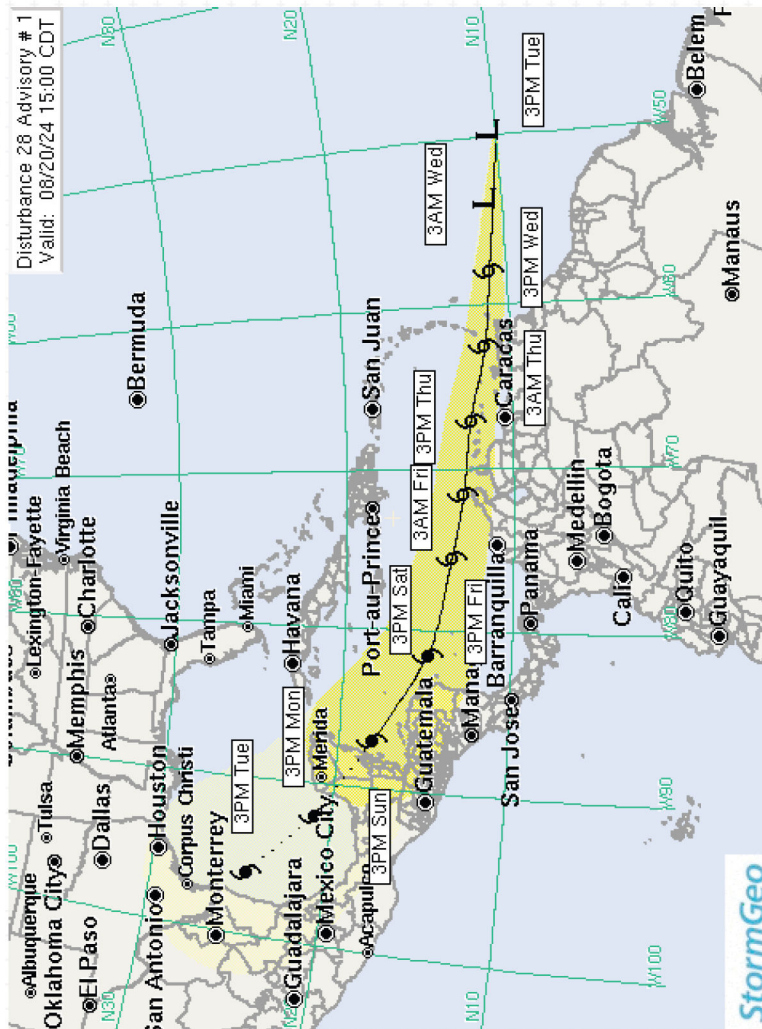
Advisory 1 – 3 PM CDT Tue., Aug. 20: Advisories initiated on Tropical Disturbance 28. Forecast is for it to track into Yucatan Peninsula Sunday as a hurricane then enter the Gulf and head for south Texas in 7 days.



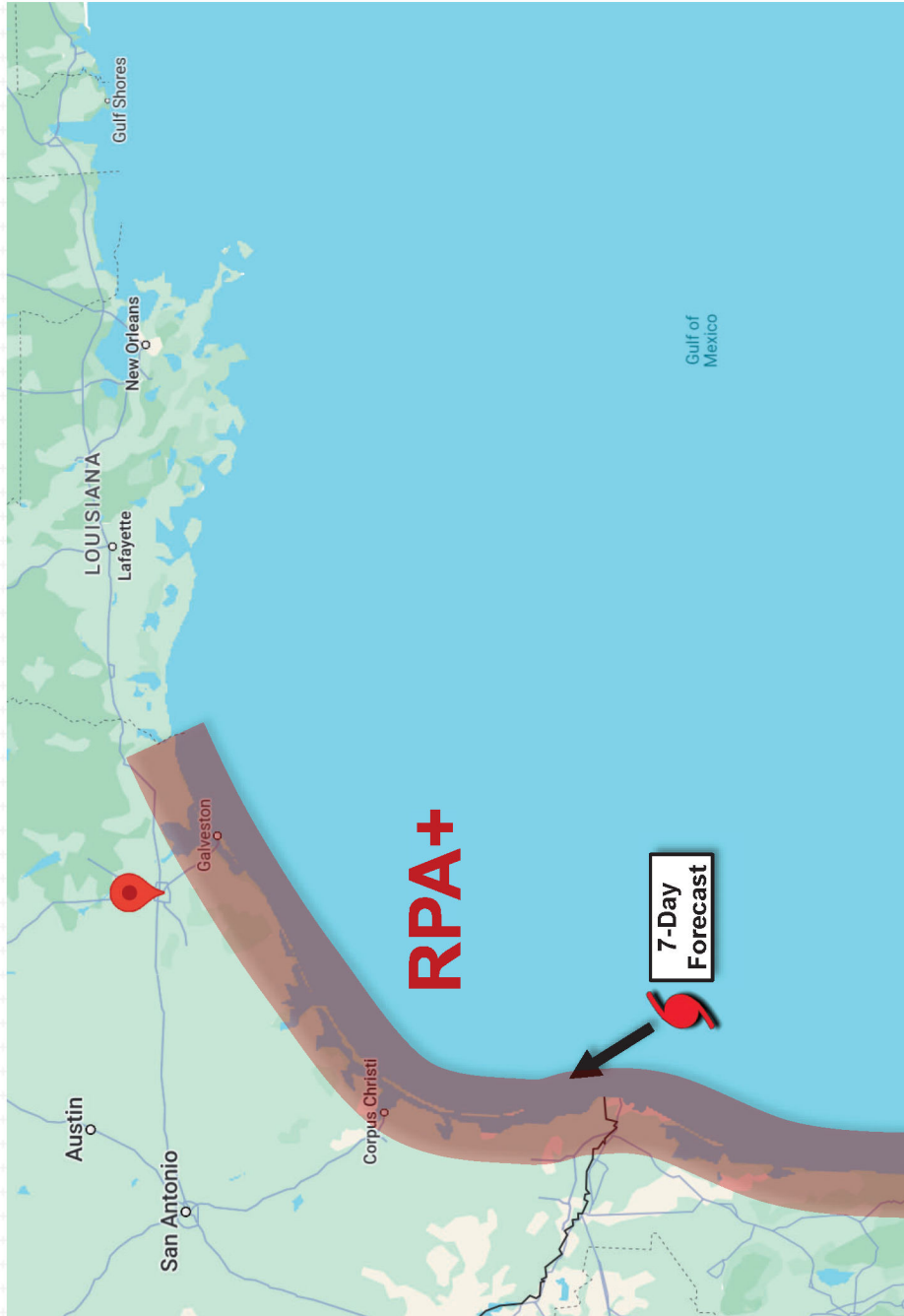
Disturbance 28

Current Location	10N, 50W
Geographic Reference	750 miles east of Trinidad
Movement	West at 25 mph
Max Winds	35 mph gusting to 45 mph
Current Hurricane Severity Index	1 out of a possible 50 points (0 size, 1 intensity)
Max Predicted Hurricane Severity Index	21 out of a possible 50 points (13 size, 6 intensity)
Current Radius of Tropical Storm-Force Winds	0 miles
Max Predicted Radius of Tropical Storm-Force Winds	215 miles
Organizational Trend	Increasing
Forecast Confidence	Average
Estimated Central Pressure	1010 mb

Valid	Classification	Lat	Lon	Winds	Gusts
8/20/2024 3:00 PM CDT	Tropical Disturbance	N 10	W 50	35 mph	45 mph
8/21/2024 3:00 AM CDT	Tropical Disturbance	N 10.5	W 54	35 mph	45 mph
8/21/2024 3:00 PM CDT	Tropical Storm	N 11	W 58	40 mph	50 mph
8/22/2024 3:00 AM CDT	Tropical Storm	N 11.5	W 62.5	50 mph	65 mph
8/22/2024 3:00 PM CDT	Tropical Storm	N 12.5	W 67	60 mph	75 mph
8/23/2024 3:00 AM CDT	Tropical Storm	N 13	W 71.5	65 mph	80 mph
8/23/2024 3:00 PM CDT	Tropical Storm	N 13.7	W 75.5	70 mph	85 mph
8/24/2024 3:00 PM CDT	Category 2	N 15	W 81.5	100 mph	120 mph
8/25/2024 3:00 PM CDT	Category 3	N 18	W 87	120 mph	145 mph
8/26/2024 3:00 PM CDT	Category 1	N 21	W 92	80 mph	100 mph
8/27/2024 3:00 PM CDT	Category 2	N 24.5	W 96	100 mph	120 mph



Advisory 1 – 3 PM CDT Tue., Aug. 20: Response Plan Activator – Positive from northeast Mexico to the Texas/Louisiana border.



A positive RPA for an area means that we think there is enough of a risk from this potential hurricane that clients in the area should activate their hurricane response plans and closely monitor its progress.



Advisory 1 – 3 PM CDT Tue., Aug 20: Phase 1 activated (RPA+)
Phase 2 reached in 23 hrs – 2PM Wednesday (39 mph wind possible within 120 hrs)

Trigger Report for Centerpoint Energy, Houston TX – Disturbance 28 Adv. #1
 Issued: 03:00 PM CDT Tuesday, August 20, 2024

Current Conditions		Forecast Conditions	
Location	10N / 50W - 3219 miles ESE	Max Forecast Winds	120 mph gusting 145 mph (Cat 3)
RPA Status	W @ 23 mph	Max Forecast HSI	25 (13 size / 12 intensity)
Winds	Positive	Hours to Next Trigger Point	23
Current HSI	35 mph gusting 45 mph (TD)	Estimated Next Trigger Point Reached	2 2PM Wed Aug 21
Current Indicated Phase	1		

Wind Field Forecast and Worst-Case Arrival Times at Houston TX					
Wind Field	Forecast ETA			Probability of Wind Impact	
	Hrs. Until Arrival	Arrival Time/Date	Duration	Worst-Case ETA Hrs. Until Arrival	Value
39 mph	N/A	N/A	N/A	143	21%
58 mph	N/A	N/A	N/A	150	9%
74 mph	N/A	N/A	N/A	153	5%
100 mph	N/A	N/A	N/A	155	<1%

Developing storm is too far out for and the probability of 58+ mph wind is too low for any other triggers to be calculated.

Phase	Trigger Parameter	Trigger Reached?	Estimated Hours Remaining and Time
1	Response Plan Activator - Positive (RPA+)	Yes	--
2	Earliest possible arrival of 39 mph wind is within 120 hours and either the probability of 58 mph wind is at least 3% or 39 mph wind is forecast for site	No	23 hours - 2PM Wed Aug 21
3	Earliest possible arrival of 39 mph wind is within 96 hours and either the probability of 58 mph wind is at least 10% or 39 mph wind is forecast for site	No	Trigger not forecast to be met
4	Earliest possible arrival of 39 mph wind is within 72 hours and either the probability of 58 mph wind is at least 20% or 39 mph wind is forecast for site	No	Trigger not forecast to be met
5	Forecast of 39 mph wind within 66 hours	No	Trigger not forecast to be met
6	Forecast of 39 mph wind within 60 hours	No	Trigger not forecast to be met
7	Forecast of 39 mph wind within 54 hours	No	Trigger not forecast to be met
8	Forecast of 39 mph wind within 48 hours	No	Trigger not forecast to be met
9	Forecast of 39 mph wind within 36 hours	No	Trigger not forecast to be met
10	Forecast of 39 mph wind within 30 hours	No	Trigger not forecast to be met
11	Forecast of 39 mph wind within 24 hours	No	Trigger not forecast to be met
12	Forecast of 39 mph wind within 18 hours	No	Trigger not forecast to be met
13	Forecast of 39 mph wind within 6 hours	No	Trigger not forecast to be met
14	Sustained wind falls below 39 mph - Recovery Begins	No	Trigger not forecast to be met

Key Points From Advisory 1

3 PM Tue., Aug. 20

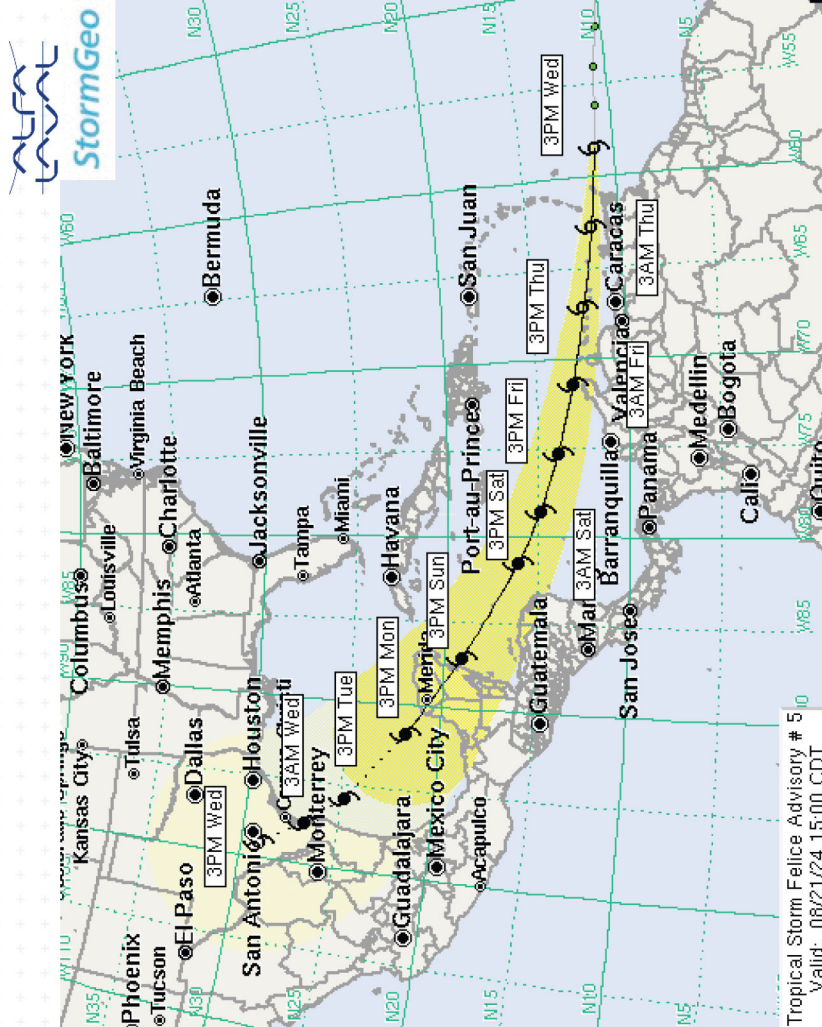


- Disturbance 28 predicted to enter south Gulf Monday as a hurricane and track toward south Texas in 7 days.
- Predicted landfall from northeast Mexico to upper Texas coast in 8 days
- No significant impacts across Houston predicted at this time
- Current Status: **Phase 1 – Response Plan Activator – Positive**
- Next Trigger: **Phase 2 (arrival of 39 mph wind within 120 hrs) predicted for 23 hours (2PM tomorrow)**



Post-Advisory Discussion

Advisory 5 – 3 PM CDT Wed., Aug. 21: TS Felice predicted to impact south Texas early next Wednesday as a Category 2 hurricane with 110 mph sustained wind and gusts to 130 mph. Track is trending northward.

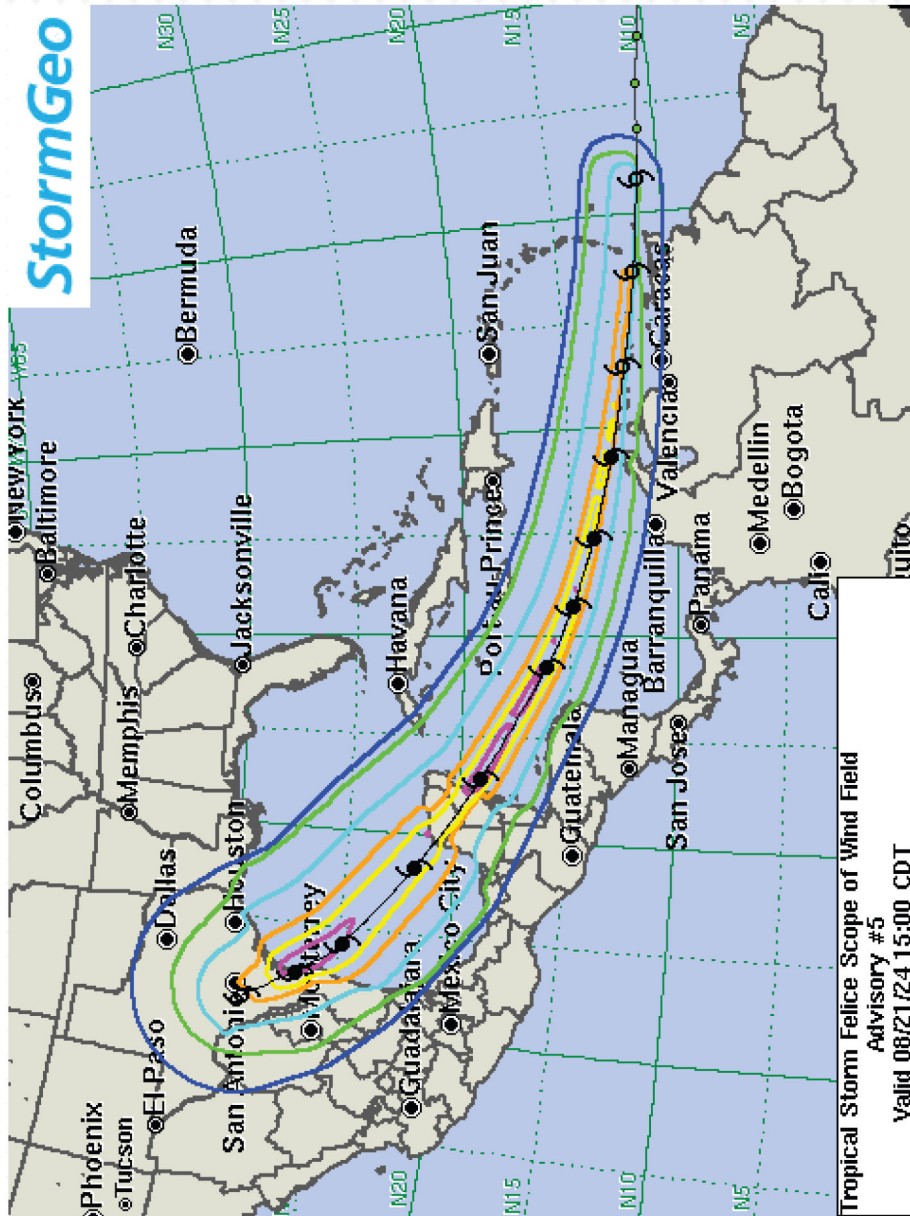


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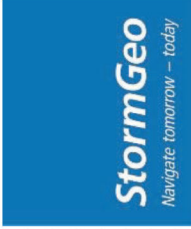
Tropical Storm Felice

Table with columns: Current Location, Geographic Reference, Movement, Max Winds, Current Hurricane Severity Index, Max Predicted Hurricane Severity Index, Current Radius of Tropical Storm-Force Winds, Max Predicted Radius of Tropical Storm-Force Winds, Organizational Trend, Forecast Confidence, Estimated Central Pressure, Valid, Classification, Lat, Lon, Winds, Gusts. Includes a red-bordered box for the 8/28/2024 3:00 AM CDT entry.

Advisory 5 – 3 PM CDT Wed., Aug. 21: Hurricane force winds into lower Texas coast. Tropical storm force wind very close to Harris County.



StormGeo

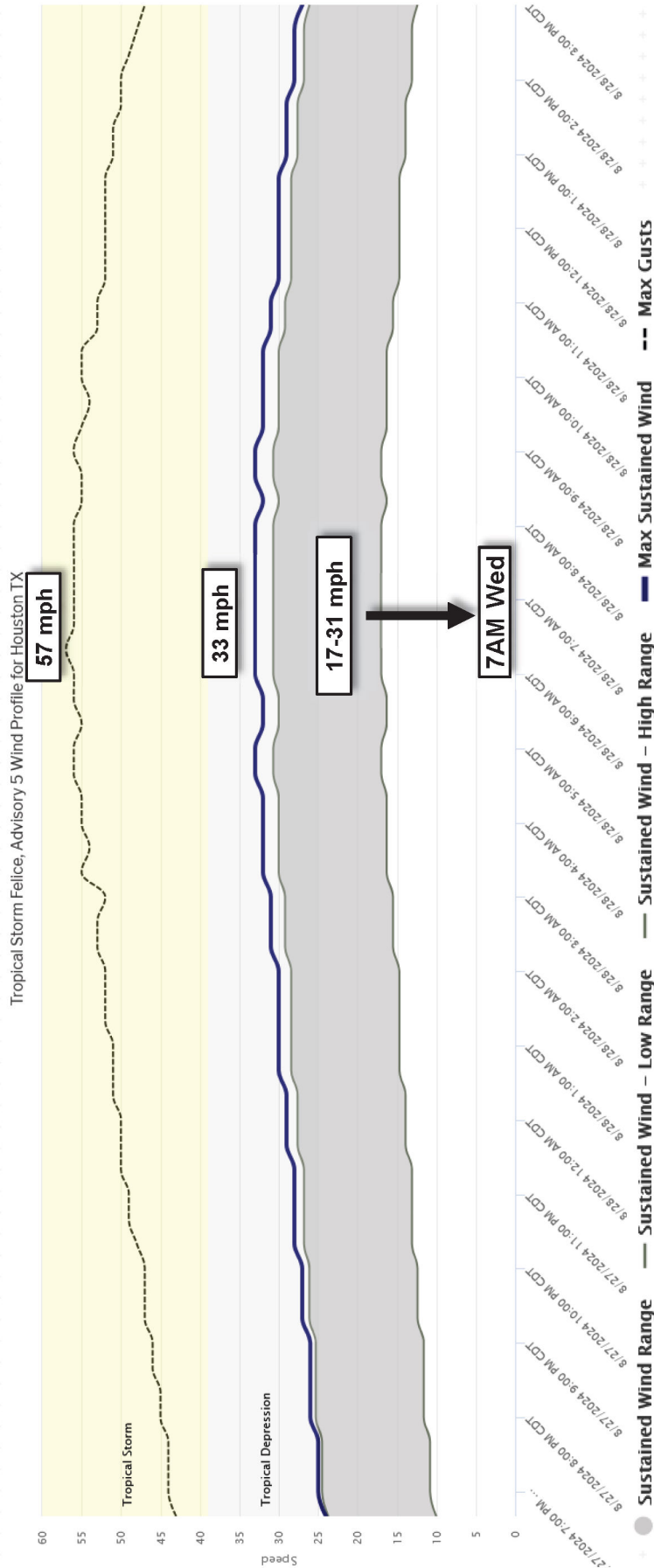


Any deviation in the track northward would take 39+ mph wind to the greater Houston area.



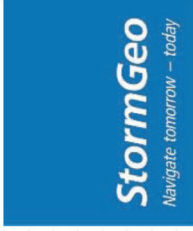
Advisory 5 – 3 PM CDT Wed., Aug. 21: -- Downtown Houston office

- Wind gusts 39+ mph possible Wednesday morning
- Rainfall 2-5 inches possible on Wednesday in outer bands of squalls
- Tides increasing to 3-6 ft above normal Wednesday morning at Galveston

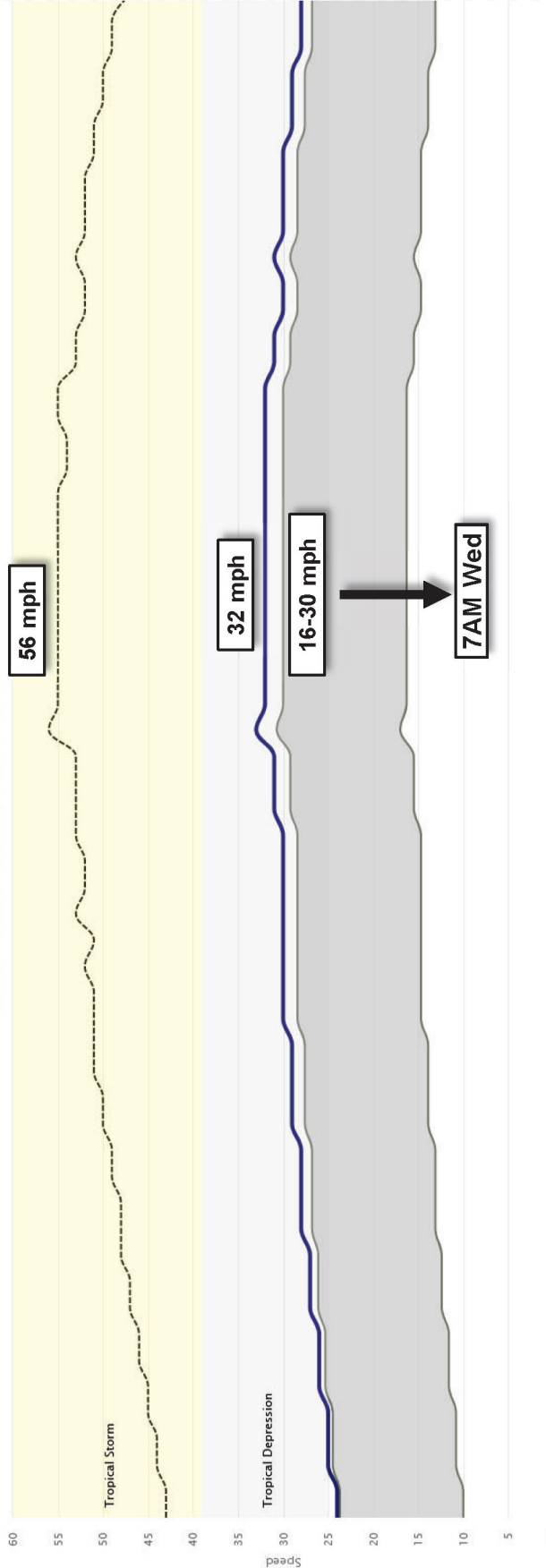


Advisory 5 – 3 PM CDT Wed., Aug. 21: -- Greenspoint office

- Wind gusts 39+ mph possible Wednesday morning
- Rainfall 2-5 inches possible on Wednesday in outer bands of squalls



Tropical Storm Felice, Advisory 5 Wind Profile for Greenspoint S/C



Time	Speed (mph)	Category
8/27/2024 8:00 PM CDT	10	Sustained Wind
8/27/2024 9:00 PM CDT	10	Sustained Wind
8/27/2024 10:00 PM CDT	10	Sustained Wind
8/27/2024 11:00 PM CDT	10	Sustained Wind
8/27/2024 12:00 AM CDT	10	Sustained Wind
8/28/2024 1:00 AM CDT	10	Sustained Wind
8/28/2024 2:00 AM CDT	10	Sustained Wind
8/28/2024 3:00 AM CDT	10	Sustained Wind
8/28/2024 4:00 AM CDT	10	Sustained Wind
8/28/2024 5:00 AM CDT	10	Sustained Wind
8/28/2024 6:00 AM CDT	10	Sustained Wind
8/28/2024 7:00 AM CDT	10	Sustained Wind
8/28/2024 8:00 AM CDT	10	Sustained Wind
8/28/2024 9:00 AM CDT	10	Sustained Wind
8/28/2024 10:00 AM CDT	10	Sustained Wind
8/28/2024 11:00 AM CDT	10	Sustained Wind
8/28/2024 12:00 PM CDT	10	Sustained Wind
8/28/2024 1:00 PM CDT	10	Sustained Wind
8/28/2024 2:00 PM CDT	10	Sustained Wind
8/28/2024 3:00 PM CDT	10	Sustained Wind
8/28/2024 4:00 PM CDT	10	Sustained Wind
8/28/2024 5:00 PM CDT	10	Sustained Wind
8/28/2024 6:00 PM CDT	10	Sustained Wind
8/28/2024 7:00 PM CDT	10	Sustained Wind
8/28/2024 8:00 PM CDT	10	Sustained Wind
8/28/2024 9:00 PM CDT	10	Sustained Wind
8/28/2024 10:00 PM CDT	10	Sustained Wind
8/28/2024 11:00 PM CDT	10	Sustained Wind
8/28/2024 12:00 AM CDT	10	Sustained Wind
8/28/2024 1:00 AM CDT	10	Sustained Wind
8/28/2024 2:00 PM CDT	10	Sustained Wind



**Advisory 5 – 3 PM CDT Wed., Aug 21: Phase 2 activated (39 mph wind possible within 120 hrs)
Phase 2 reached in 24 hrs – 3PM Thursday (39 mph wind possible within 96 hrs)**

Trigger Report for Centerpoint Energy, Houston TX -- Tropical Storm Felice Adv. #5
Issued: 03:00 PM CDT Wednesday, August 21, 2024

Current Conditions		Forecast Conditions	
Location	11N / 58.4W - 2703 miles ESE	Max Forecast Winds	140 mph gusting 165 mph (Cat 4)
Movement	W @ 24 mph	Max Forecast HSI	36 (20 size / 16 intensity)
RPA Status	Positive	Hours to Next Trigger Point ²⁴	
Winds	50 mph gusting 65 mph (TS)	Estimated Next Trigger Point Reached	3PM Thu Aug 22
Current HSI	3 (1 size / 2 intensity)		
Current Indicated Phase	2		

Wind Field Forecast and Worst-Case Arrival Times at Houston TX					
Wind Field	Hrs. Until Arrival	Duration	Worst-Case ETA		Trend
			Hrs. Until Arrival	Arrival Time/Date	
39 mph	N/A	N/A	120	3PM Mon Aug 26	+3%
58 mph	N/A	N/A	127	10PM Mon Aug 26	+15%
74 mph	N/A	N/A	131	2AM Tue Aug 27	+1%
100 mph	N/A	N/A	133	4AM Tue Aug 27	+0%

Phase	Trigger Parameter	Trigger Reached?	Estimated Hours Remaining and Time	
			Yes	No
1	Response Plan Activator - Positive (RPA+)	Yes	--	
2	Earliest possible arrival of 39 mph wind is within 120 hours and either the probability of 58 mph wind is at least 3% or 39 mph wind is forecast for site	Yes	--	
3	Earliest possible arrival of 39 mph wind is within 96 hours and either the probability of 58 mph wind is at least 10% or 39 mph wind is forecast for site	No	24 hours - 3PM Thu Aug 22	
4	Earliest possible arrival of 39 mph wind is within 72 hours and either the probability of 58 mph wind is at least 20% or 39 mph wind is forecast for site	No	48 hours - 3PM Fri Aug 23	
5	Forecast of 39 mph wind within 66 hours	No	Trigger not forecast to be met	
6	Forecast of 39 mph wind within 60 hours	No	Trigger not forecast to be met	
7	Forecast of 39 mph wind within 54 hours	No	Trigger not forecast to be met	
8	Forecast of 39 mph wind within 48 hours	No	Trigger not forecast to be met	
9	Forecast of 39 mph wind within 36 hours	No	Trigger not forecast to be met	
10	Forecast of 39 mph wind within 30 hours	No	Trigger not forecast to be met	
11	Forecast of 39 mph wind within 24 hours	No	Trigger not forecast to be met	
12	Forecast of 39 mph wind within 18 hours	No	Trigger not forecast to be met	
13	Forecast of 39 mph wind within 6 hours	No	Trigger not forecast to be met	
14	Sustained wind falls below 39 mph - Recovery Begins	No	Trigger not forecast to be met	

Key Points From Advisory 5 3 PM Wed., Aug. 21



- TS Felice to impact south Texas as Category 3 hurricane early next Wednesday
- Possible wind gusts 39+ mph across Harris County on Wednesday
- Current Status: Phase 2 – 39 mph wind possible within 120 hrs
- Next Trigger: Phase 3 (arrival of 39 mph wind within 96 hrs) predicted for 24 hours (3PM tomorrow)



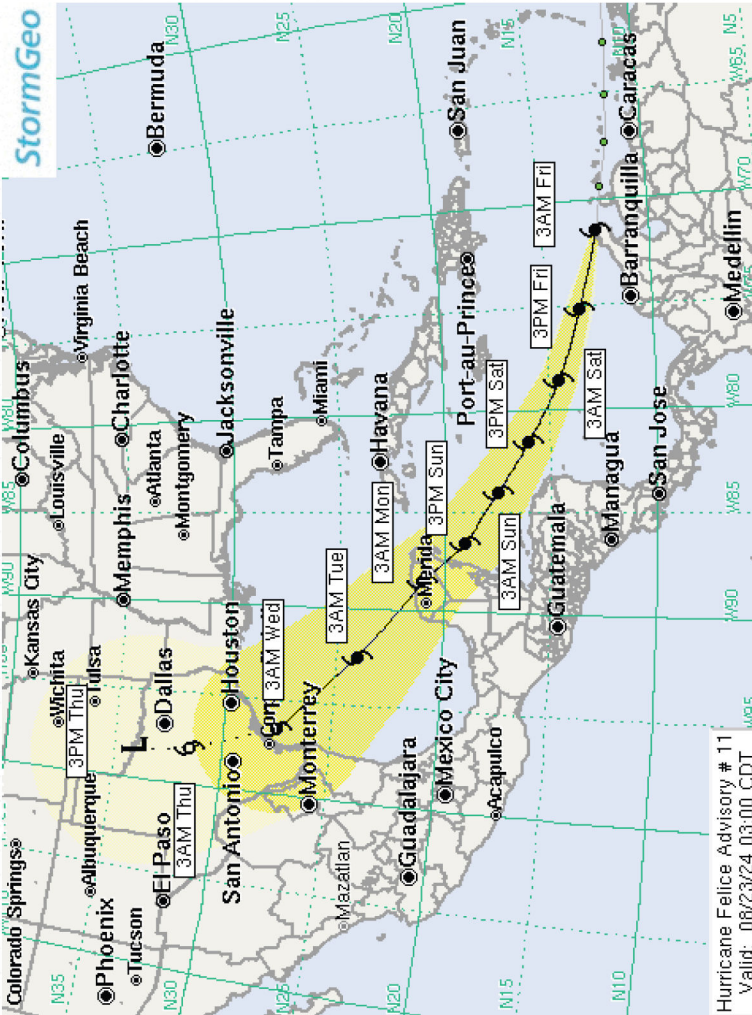
Post-Advisory Discussion

Advisory 11 – 3 AM CDT Fri., Aug. 23: Hurricane Felice predicted to make landfall north of Corpus Christi early Wednesday as a Category 3 hurricane with winds of 115 mph gusting 140 mph.

Hurricane Felice

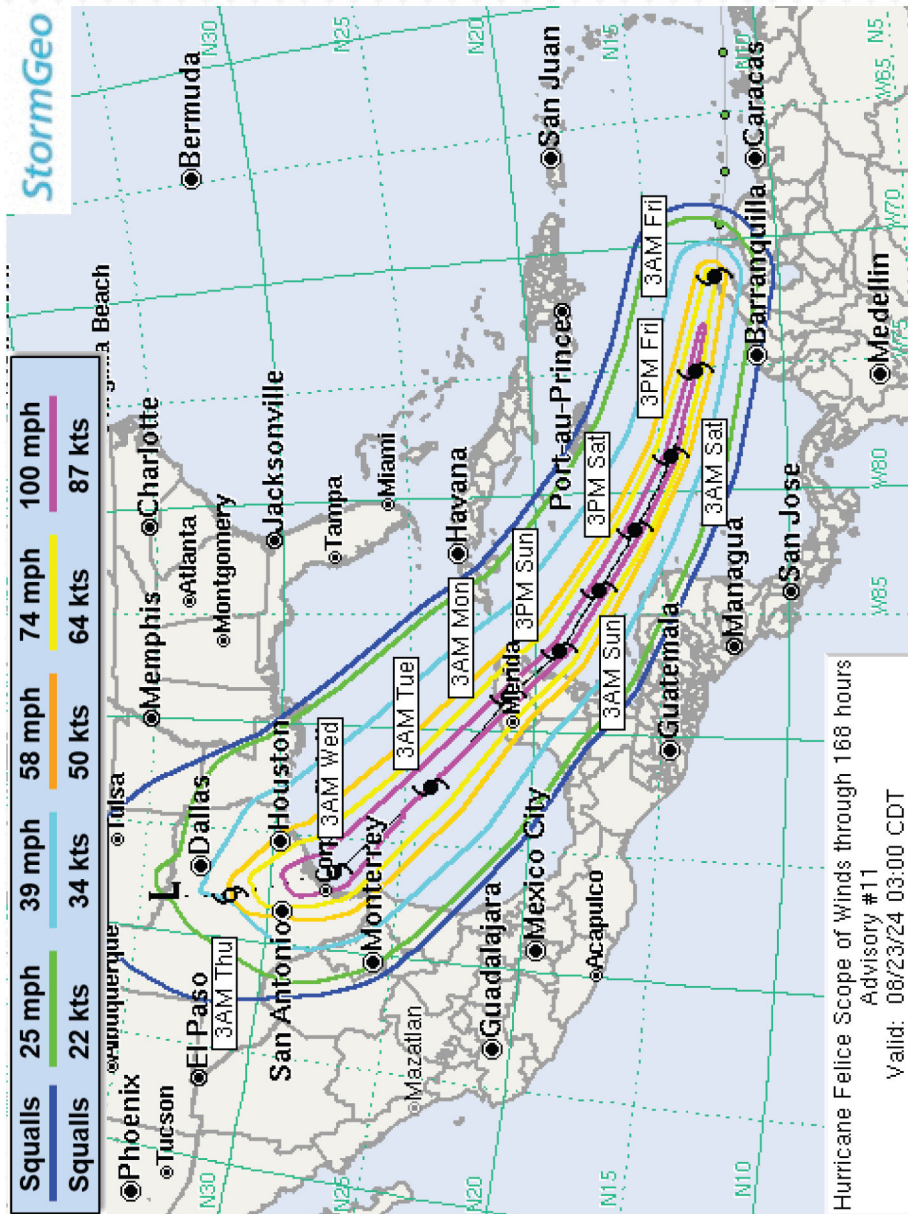
Current Location	12.4N, 71.4W	
Geographic Reference	15 miles north of Puerto Estrella, Columbia	
Movement	West-northwest at 22 mph	
Max Winds	90 mph gusting to 110 mph	
Current Hurricane Severity Index	10 out of a possible 50 points (3 size, 7 intensity)	
Max Predicted Hurricane Severity Index	38 out of a possible 50 points (13 size, 25 intensity)	
Current Radius of Tropical Storm-Force Winds	110 miles	
Max Predicted Radius of Tropical Storm-Force Winds	265 miles	
Organizational Trend	Steady	
Forecast Confidence	Average	
Estimated Central Pressure	985 mb	

Valid	Classification	Lat	Lon	Winds	Gusts
8/23/2024 3:00 AM CDT	Category 1	N 12.4	W 71.4	90 mph	110 mph
8/23/2024 3:00 PM CDT	Category 2	N 13.4	W 75.1	110 mph	130 mph
8/24/2024 3:00 AM CDT	Category 3	N 14.5	W 78.5	125 mph	150 mph
8/24/2024 3:00 PM CDT	Category 4	N 16	W 81.5	145 mph	175 mph
8/25/2024 3:00 AM CDT	Category 5	N 17.5	W 84	160 mph	190 mph
8/25/2024 3:00 PM CDT	Category 5	N 19	W 86.5	175 mph	200 mph
8/25/2024 9:00 PM CDT	Category 5	N 20	W 87.5	180 mph	215 mph
8/26/2024 3:00 AM CDT	Category 4	N 21	W 88.5	145 mph	175 mph
8/27/2024 3:00 AM CDT	Category 2	N 24	W 92.5	100 mph	115 mph
8/28/2024 3:00 AM CDT	Category 3	N 27.5	W 96.5	115 mph	140 mph
8/28/2024 8:00 AM CDT	Category 3	N 28.3	W 96.8	115 mph	140 mph
8/29/2024 3:00 AM CDT	Tropical Storm	N 31.5	W 98	40 mph	50 mph
8/29/2024 3:00 PM CDT	Tropical Depression	N 33.5	W 98.3	30 mph	35 mph



Hurricane Felice Advisory # 11
Valid: 06/23/24 03:00 CDT

Advisory 11 – 3 AM CDT Fri., Aug. 23: Hurricane force winds into central TX coast Tuesday night, passing just west of Houston Wednesday morning



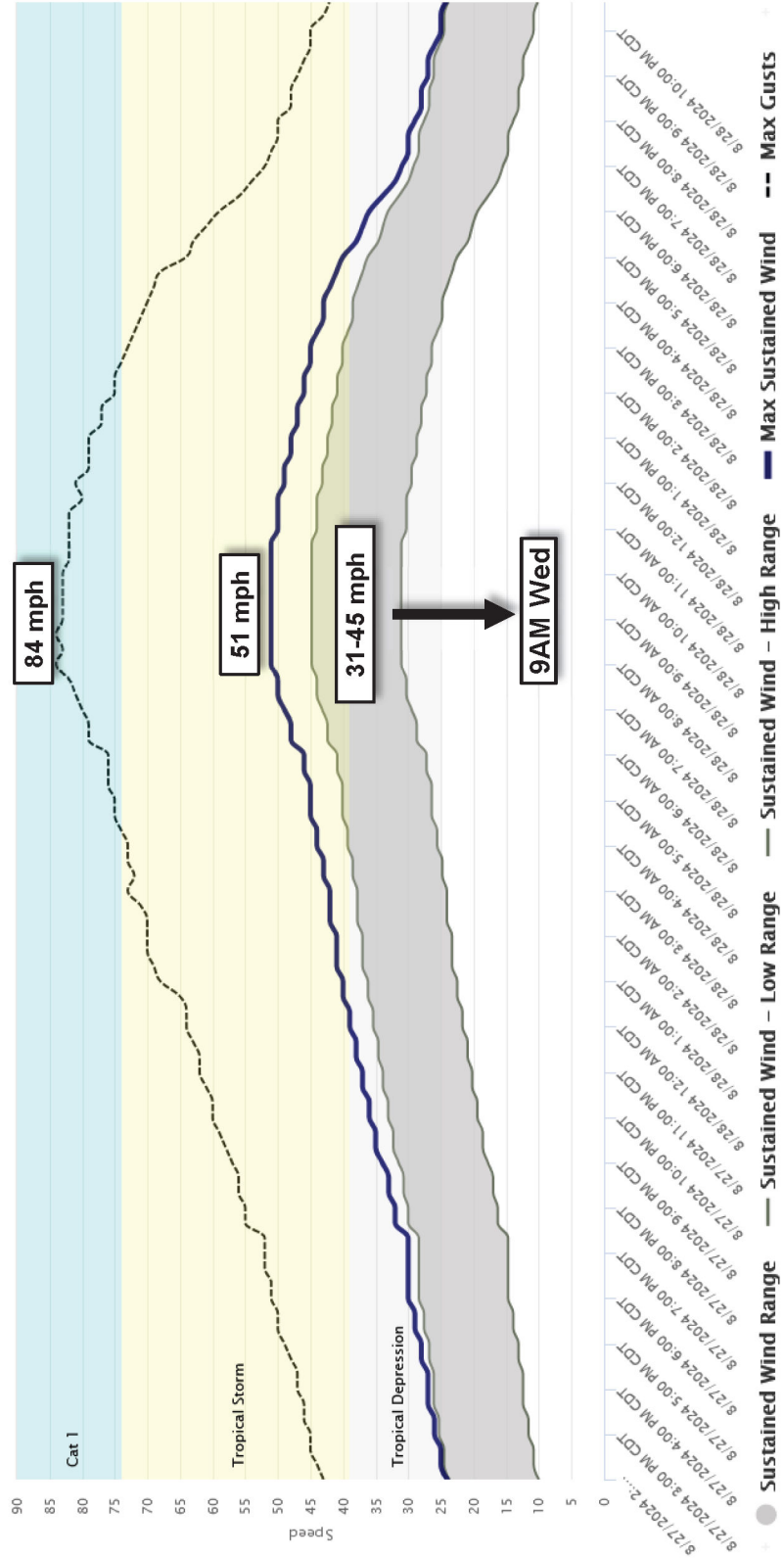
Moderate to strong tropical storm force wind with gusts to hurricane strength now predicted for much of your service area.

Advisory 11 – 3 AM CDT Fri., Aug. 23 -- Downtown Houston office

- Wind 31-51 mph with gusts to near 80-85 mph Wednesday morning
- Rainfall 5-10 inches with isolated totals 15 inches Tuesday PM through Wednesday PM
- Tides increasing to 5-8 ft. above normal in Galveston Bay Tuesday night/early Wednesday



Hurricane Felice, Advisory 11 Wind Profile for Houston TX





Advisory 11 – 3 AM CDT Fri., Aug. 23 -- Greenspoint office

- Wind 30-50 mph with gusts to near 80 mph Wednesday morning
- Rainfall 6-12 inches with isolated totals 18 inches Tuesday PM through Wednesday PM

Hurricane Felice, Advisory 11 Wind Profile for Greenspoint S/C

