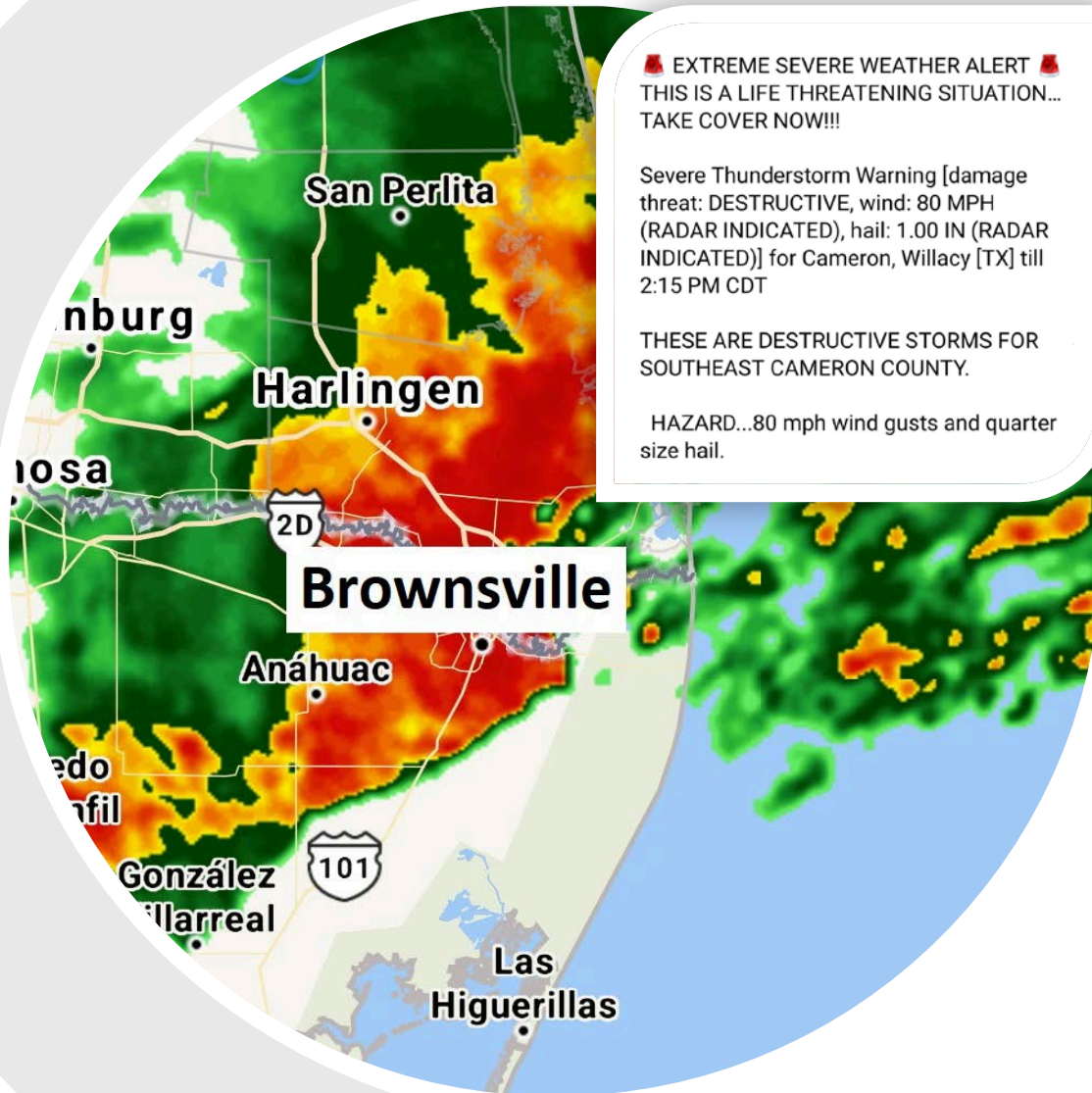




IMPACTFUL WEATHER EVENTS

MAY 08, 2023





EXTREME SEVERE WEATHER ALERT
THIS IS A LIFE THREATENING SITUATION...
TAKE COVER NOW!!!

Severe Thunderstorm Warning [damage threat: DESTRUCTIVE, wind: 80 MPH (RADAR INDICATED), hail: 1.00 IN (RADAR INDICATED)] for Cameron, Willacy [TX] till 2:15 PM CDT

THESE ARE DESTRUCTIVE STORMS FOR SOUTHEAST CAMERON COUNTY.

HAZARD...80 mph wind gusts and quarter size hail.

-  Cesar A. Cortinas, P.E. | Dir. of Electric T&D
-  Eli Alvarez, P.E. | Area Manager

TWO DIFFERENT BUT SIMILAR STORMS

April 23, 2023 Thunderstorm

- Time: 1:24 PM
- Storm Features:
 - Rain
 - Heavy winds (80mph)
 - Lightning
- Transmission System Damage: YES
- Distribution System Damage: YES
- Maximum Electric Outages: ≈4,000
- Area(s) Most Impacted: Brownsville Navigational District.
- Emergency Plan Activated: YES

April 29, 2023 Thunderstorm

- Time: 1:30 AM
- Storm Features:
 - Rain
 - Heavy winds (80mph)
 - Lightning
- Transmission System Damage: NO
- Distribution System Damage: YES
- Maximum Electric Outages: ≈12,000
- Area(s) Most Impacted: South Brownsville
- Emergency Plan Activated: NO

MAJOR DIFFERENCES

- Little warning was given for the April 23rd weather event.
- Considerable warning was given for the April 29th weather event.
- Transmission system was significantly damaged during the April 23rd weather event (a primary reason for initiating the General Emergency Plan)
- No major transmission damage during the April 29th event.
- Differences in Areas of impact:
 - The April 23rd weather event primarily impacted the Brownsville Navigational District and surrounding areas.
 - The April 29th weather event was more widespread; however, there were more trouble calls in the Southern Brownsville.



APRIL 23RD WEATHER EVENT

TIMELINE (APRIL 23)



Time	Event
April 23, 2023 1:30 PM	Thunderstorms reported throughout Brownsville.
April 23, 2023 2:15 PM	BPUB crews arrive on site and report several downed transmission, and distribution poles at the Port of Brownsville.
April 23, 2023 3:15 PM	BPUB Crews finish assessing electrical system damages
April 23, 2023 5:00 PM	BPUB initiates partial activation of emergency plan.
April 23, 2023 5:01 PM	Restoration efforts resume under emergency plan.
April 23, 2023 11:59 PM	Approximately 550 BPUB customers without power.



TIMELINE (APRIL 24)



Time	Event
April 24, 2023 12:00 AM	BPUB made contact with mutual aid entities and third party contractors to aid in restorations
April 24, 2023 5:41 AM	BPUB crews finish installing one (1) transmission pole; three (3) remaining.
April 24, 2023 8:45 AM	South Texas Electric Cooperative (STEC) reached out to BPUB Energy Control Center to offer transmission crew assistance.
April 24, 2023 1:20 PM	All customers, except for six (6) distribution customers restored.
April 24, 2023 5:00 PM	STEC agrees to assist BPUB with transmission work.
April 24, 2023 8:00 PM	BPUB reduces personnel on emergency standby.

TIMELINE (APRIL 25 & APRIL 26)

Time	Event
April 25, 2023 4:34PM	All customers have been restored.
April 26, 2023 7:30PM	STEC finishes installing the remaining transmission poles.
April 26, 2023 8:00PM	BPUB deactivates the emergency plan.





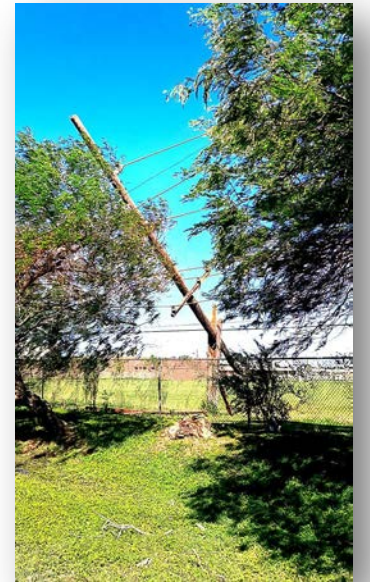
2ND. THUNDERSTORM WEATHER EVENT

APRIL 29, 2023

TIMELINE (APRIL 29)



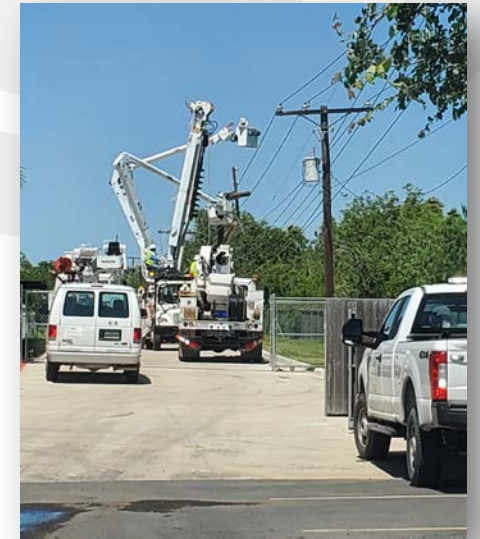
Time	Event
April 29, 2023 1:30 AM	Thunderstorms, high winds, and Lightning reported throughout Brownsville.
April 29, 2023 2:15 AM	BPUB system operations reports eight (8) distribution feeders open, representing 12,000 customers without power.
April 29, 2023 4:00 AM	BPUB begin patrolling feeders after Lightning storms passes. Several downed poles reported throughout Brownsville. Restorations begins.
April 29, 2023 5:00 AM	Staff contacts LineTec and Axis Power for additional support to expedite restorations.
April 29, 2023 6:30 AM	General Assessment complete. Widespread system damage; however, still within staff capabilities.



TIMELINE (APRIL 29)



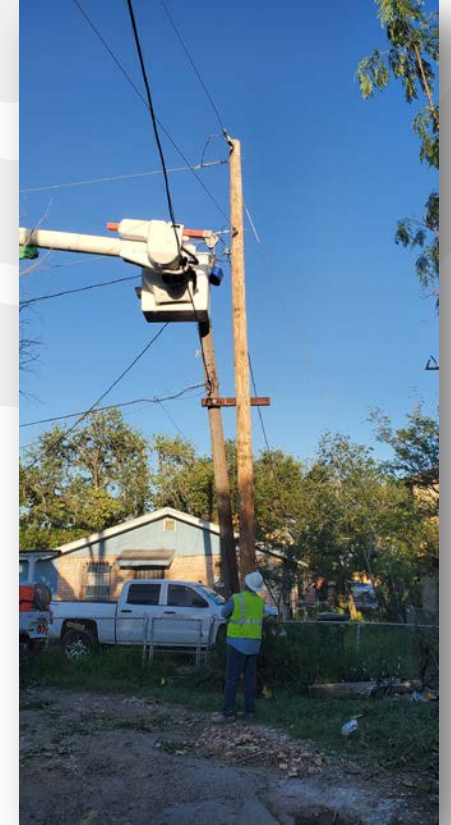
Time	Event
April 29, 2023 8:44 AM	Emergency construction agreement with Axis Power is signed by the BPUB GM.
April 29, 2023 10:00 AM	Approximately 2,600 customers without power.
April 29, 2023 11:20 AM	Axis Power and LineTec notified BPUB that electrical damages for AEP and MVEC in south Texas are considerable and they do not have available crews.
April 29, 2023 11:28 AM	Crews continue restorations. Approximately 670 customers without power.
April 29, 2023 4:00 PM	Crews continue restorations. All but one feeder brought back online; approximately 540 customers without power.



TIMELINE (APRIL 29 ,APRIL 30 & MAY 1)



Time	Event
April 29, 2023 7:38 PM	Crews continue restorations. All feeders brought back online. Approximately 79 customers without power.
April 30, 2023 12:00 AM	More trouble calls continue to come in due to fallen trees, limb on wires, leaning poles and scattered outages.
April 30, 2023 4:00 PM	Several failed poles are reported, scattered throughout Brownsville.
April 30, 2023 9:00 PM	All customer outages have been restored. All poles braced for the day shift.
May 1, 2023 8:00 AM	BPUB crews and contractors continue storm repairs, including fielding several trouble calls for limb on wire
May 1, 2023 7:00 PM	All storm related trouble calls complete.



STORM RESPONSE / RESTORATIONS

April 23, 2023 Weather Event

Dates	Total Customers Experiencing an Outage	Average Restoration time (Hours)
April 23-25, 2023	3950	8.0
Total	3950 (7.4%)	

April 29, 2023 Weather Event

Dates	Total Customers Experiencing an Outage	Average Restoration time (Hours)
April 29-30, 2023	12000	6.4
Total	12,000 (22%)	

*Does Not Include BND Distribution Customer Outages



SUMMARY AND LESSONS LEARNED

POLE AND TRANSFORMER FAILURES

April 23, 2023 Thunderstorm

- 4 transmission pole failures
- 5 transformer failures (approximately)
- 12 distribution pole failures

April 29, 2023 Thunderstorm

- 9 distribution pole failures
- 7 transformer failures (approximately)
- 2 out of service transmission pole failures

EVENT DAMAGE DETAILS

April 23, 2023 Thunderstorm

- The majority of the electrical damage was restricted to the Brownsville Navigational District and surrounding areas.
- Damage to the BPUB transmission system affected reliability for several hours.
- STEC was able to provide assistance while BPUB crews and contractors were repairing the distribution system.
- At least two of the transmission pole failures were damaged by wind or lightning.

April 29, 2023 Thunderstorm

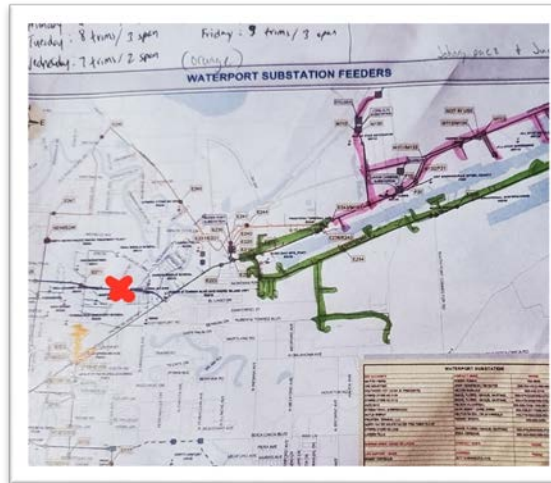
- Outages for this storm were more widespread and affected South Brownsville.
- Although damages were not as significant compared to the April 23rd event, there were more trouble calls that required a significant amount of manpower.
- Fuse replacement was the top trouble call, followed by “wire issues” caused by fallen trees and limbs.
- Poles treated with “Penta” seemed to be failing prematurely compared to other pole treatments.

ONGOING PREVENTIVE MAINTENANCE

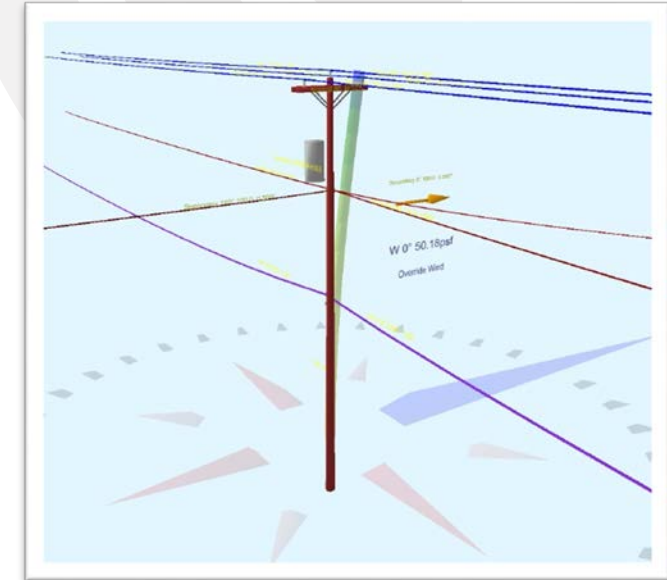
- Service Order Assessment
- Pole Replacements
- CIP & O&M Projects
- Investigate alternative pole material



Pole inspection contract



Tree trimming jobs



Pole loading verification at current standards



THANK YOU

 Cesar A. Cortinas, P.E. | Dir. of Electric T&D

 Eli Alvarez, P.E. | Area Manager