

# Hurricane Preparedness Workshop for 2019

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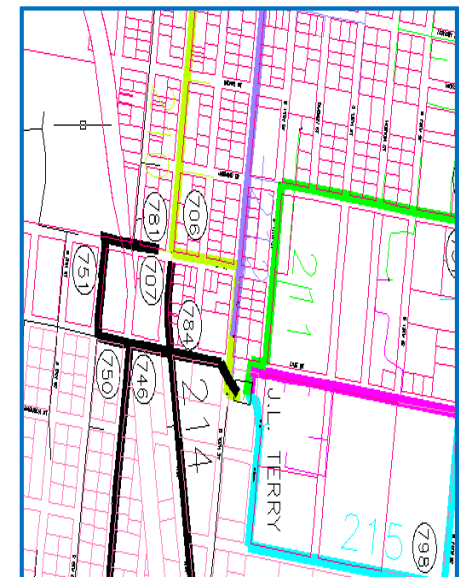
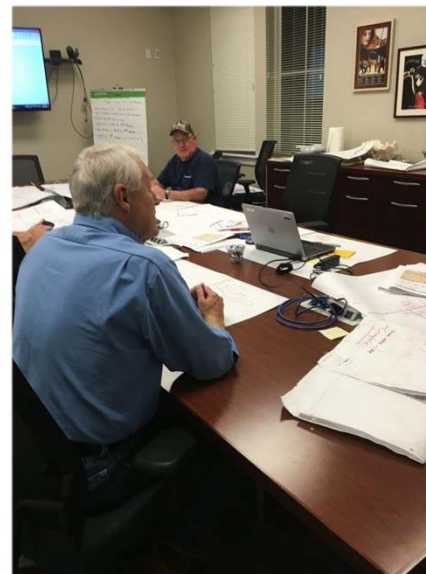
# Overview of Prevention and Restoration Process

Storm  
Hardening

Preparation

Activation

Restoration



## Storm Hardening

# Plans and Initiatives

- Wood Pole Inspection:
  - Eight year cycle (1.25 Total cycles completed)
  - Transmission and Distribution inspections on the same cycle
  - Total poles inspected from beginning of program 32,921
  - 2018 pole inspections delayed due to Hurricane Michael
  - During 2019, poles scheduled for inspection during 2018 and 2019 will be inspected
  - Replaced 125 poles during 2018 that were identified in previous inspections
  - Poles replaced during 2018
    - Hurricane Michael - >2,000
  - Additional inspections have not been included in the program





## Storm Hardening

# Plans and Initiatives

- Vegetation Management:
  - Three year trim cycle for all distribution feeders (3 Total cycles completed)
  - Six year trim cycle for distribution laterals (1.5 Total cycles completed)
  - Three year trim cycle for transmission lines
- Accomplishments in 2018:
  - Trimmed 47.36 miles of distribution feeders
  - Trimmed 100.01 miles of distribution laterals.
  - Trimmed 15.8 miles of transmission lines
  - Perform “hot spot” distribution trimming prior to hurricane season. Miles trimmed are included in totals above.



## Storm Hardening

# Plans and Initiatives 2006-2017

- Detailed Transmission Inspection:
  - Six year cycle
  - Completed in 2012 and again at the end of 2018
  - 263 wood, steel and concrete structures inspected
  - Wood ground line inspections completed with Wood Pole Inspection Program
  - Inspection results showed impacts by woodpecker damage on wood poles and rust on metal structures
- Joint Use Pole Attachment Audit completed was completed in 2016 with next scheduled for 2021
  - Joint use agreements in various stages of negotiations



## Storm Hardening

# Storm Hardening Projects for 2018

- Replaced 125 distribution poles identified in previous inspection with storm hardened poles
- Replaced distribution regulators in the Marianna Substation
- Installed three phase electronic recloser to improve reliability in the southern section of the Northwest Florida service territory
- Installed fifty (50) S&C Trip Saver Fuses on distribution laterals throughout the system.
- In excess of 2,000 distribution poles were replaced to storm hardened standards as a result of Hurricane Michael
- Impacts from 2016 – 2018 hurricane seasons had no impact on storm hardening projects
- FPU does not currently have any undergrounding pilot programs underway





## Preparation

# Pre-Storm Planning

- Culture of preparedness – safety first.
- Moving forward with a more comprehensive planning approach regarding Pre-Storm Planning
  - Focus on Logistics
  - Pre-staged resources
  - Employee Assignments
- Customer Outreach Programs
  - Hurricane/Storm Brochures
  - Website Information & Bill Inserts
  - Public Service Announcements
- Annual Preparation Update
  - Emergency Procedures
  - Storm Assignments
  - Communication Plans





## Preparation

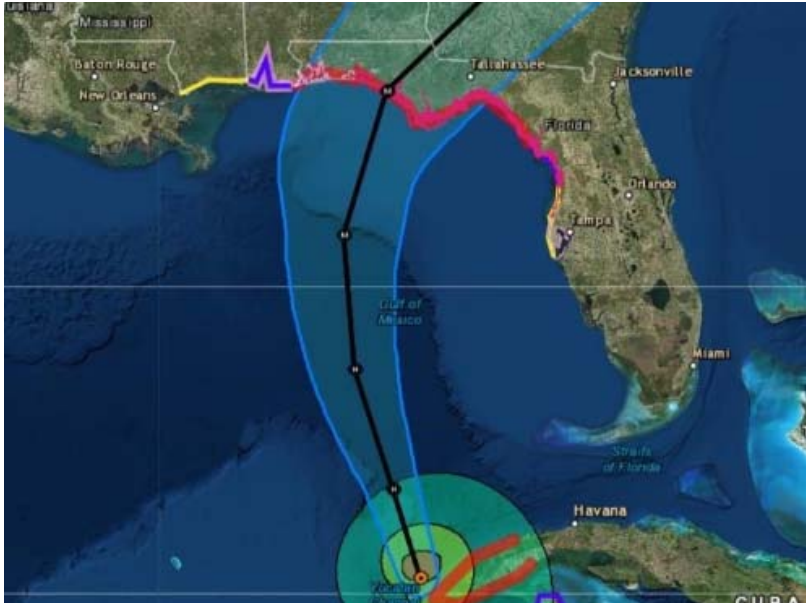
# Pre-Storm Planning

- Response planning and company-wide readiness exercises including electric, natural gas and propane operations.
  - Company wide table top drill scheduled for May 8<sup>th</sup>
  - Focus on lessons learned from Hurricane Michael
- System, facility and inventory inspections
  - Emergency materials and supplies included in emergency plan
  - Emergency items ordered and stocked prior hurricane season
- Coordination with city/county/state EOCs and other utilities
  - Ongoing communications with each organization
  - Participation occurs at all meetings
- Participation with the Southeastern Electric Exchange Mutual Assistance Committee
- Mutual Assistance agreements various municipalities within Florida
- Participation in Edison Electric Institute Storm Drills



## Activation

# Activated Storm Plans



- Conference calls initiated.
- Duties and assignments reviewed.
- Secured buildings and purchased supplies.
- Activated storm reserve fund charge codes.
- Prepared trucks for necessary emergencies.
- Made contact with EOC, contractors, and energy partners.
- Asked employees to activate their own family plans.
- Worked with Business Information Services (BIS) and Customer Care to redeploy call center resources.
- Equipment, fuel and inventory levels checked for readiness.
- Logistics plan activated (lodging, meals, EOC).
- FPU buildings close at wind speeds greater than 40 mph.



# Hurricane Michael

Hurricane Michael hit the Florida panhandle during the day October 10, 2018 as a Category 4 with 155 mile per-hour winds and proceeded to impact the FPU service territory during the day and into the night with the eye of the hurricane cutting across the middle of the FPU service territory.



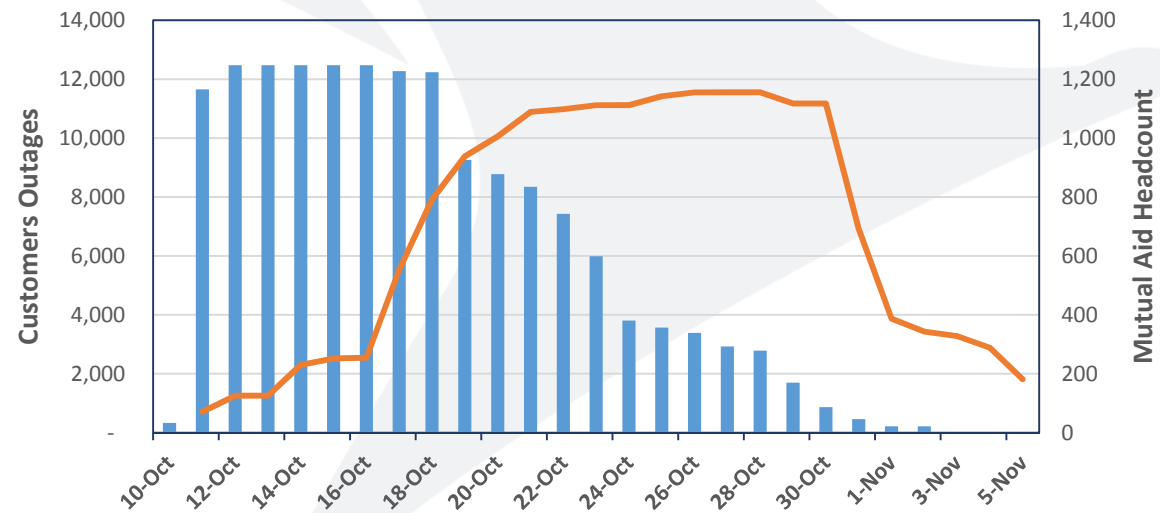
# Hurricane - Resources and Logistics

- Outages began October 10, 2018.
- Shortly following the hurricane impact, FPU began to engage more than 1,200 employees and contractors in restoration efforts.
- 100% of FPU customers in Jackson, Calhoun, and Liberty counties were without power.

Headcount by Resource Type	
Resource	Peak
Line	691
Tree Crew	217
Restoration/ Clean up	118
FPU / CPK volunteer support	47
Traffic control	60
Assessment / Engineering	54
Security	15
<b>Total Resources</b>	<b>1,202</b>



Customer Outages & Mutual Aid Headcount





## Restoration

# Hurricane - Systematic Repair Approach

- Outage management system (OMS) was used to organize and prioritize restoration activities.
- Prioritize critical services, schools and businesses.
- Tree crews sent ahead to remove debris and clear areas.
- Initiated a physical damage survey.
- Teamed external crews with FPU crew leaders.
- Constant communication with Marketing, Customer Care kept customers, media and emergency services informed.



# Hardened vs. Non-Hardened Facility Performance



- Significant hurricane impacts to FPU in 2018 limited to the Northwest Florida Division
- There were no transmission facilities impacted by Hurricane Michael
- During Hurricane Michael there were in excess of 2,000 distribution poles and 1200 transformers damaged
- Forensics analysis was completed on 88 damaged distribution poles
  - 86 (97.7%) of the damaged poles were non-storm hardened
  - 2 (2.3%) of the damaged poles were storm hardened
  - Cause of damage to storm hardened poles were wind and trees
  - Causes of damage to poles were trees, wind, cascade effect and debris



# Underground vs. Overhead Facility Performance

- Most storm damage was caused by vegetation
- Repairs necessary to repair underground riser poles in several locations

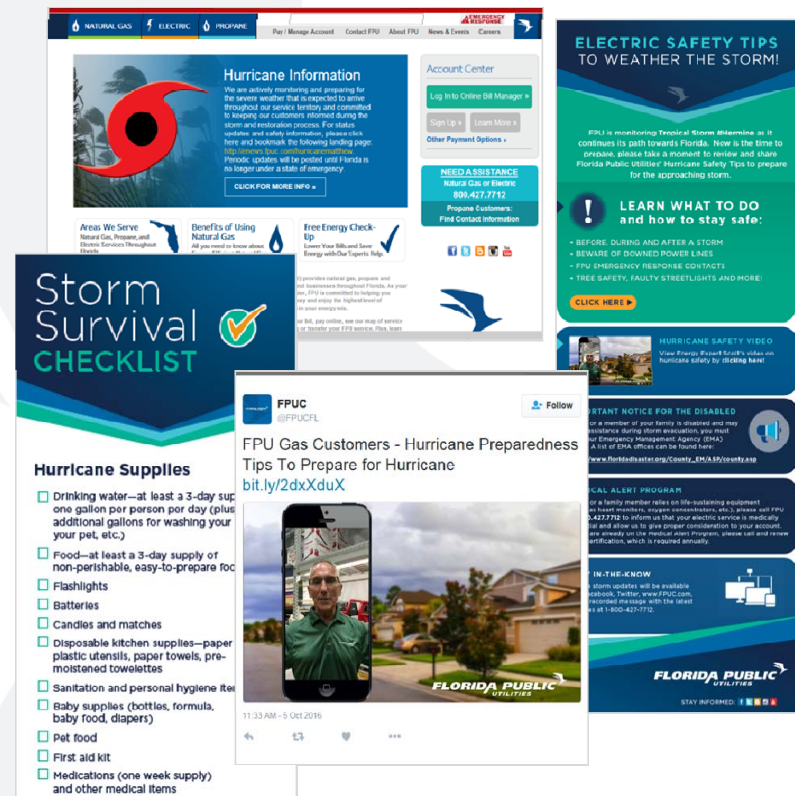


- In some cases, damage to underground facilities due to push crews and clean-up crews
- Downed vegetation obscures underground equipment locations

# Customer Communication- Awareness Pre-Storm

In preparation for the storm, FPU published watch and warning notifications at the 72, 48 and 12 hour increments to local and national media outlets.

- Bill Inserts
- Print Ads
- Brochures
- IVR Messaging
- Press Releases
- E-Blasts
- Social Media Posts
- Website Updates
- Public Service Announcements







# Customer Communications – Hurricane Michael Restoration

- Thirteen (13) automated outbound calls were conveyed to all FPU Northwest Florida medical alert customers.
- Four (4) Interactive Voice Response (IVR) messages were developed and published throughout of the event.
- Five (5) email blasts regarding restoration updates and safety messaging were sent to all customers in our Northwest Florida Service Territory during the pre-storm and post-storm time periods.
- Published organic posts to our social media pages and our dedicated hurricane landing page multiple times each day.
  - Sixty-two (62) Facebook / Fifty-one (51) Twitter.
  - Forty-eight (48) hurricane landing page posts regarding hurricane advisory, safety, and restoration updates.
- Provided digital advertisements for critical safety and customer messaging on a daily basis.
- Developed and published an online outage map for customer use which developed and launched a post-storm landing page with power restoration information.
  - Online outage map indicating projected Estimated Time of Repair (ETR) by zones.
  - Diagram delineating utility and customer owned equipment with links to our on line FAQs.
- Provided FPU advisory and status updates to local TV and Radio Stations for broadcasting

# Suggested Improvements Based on Lessons Learned



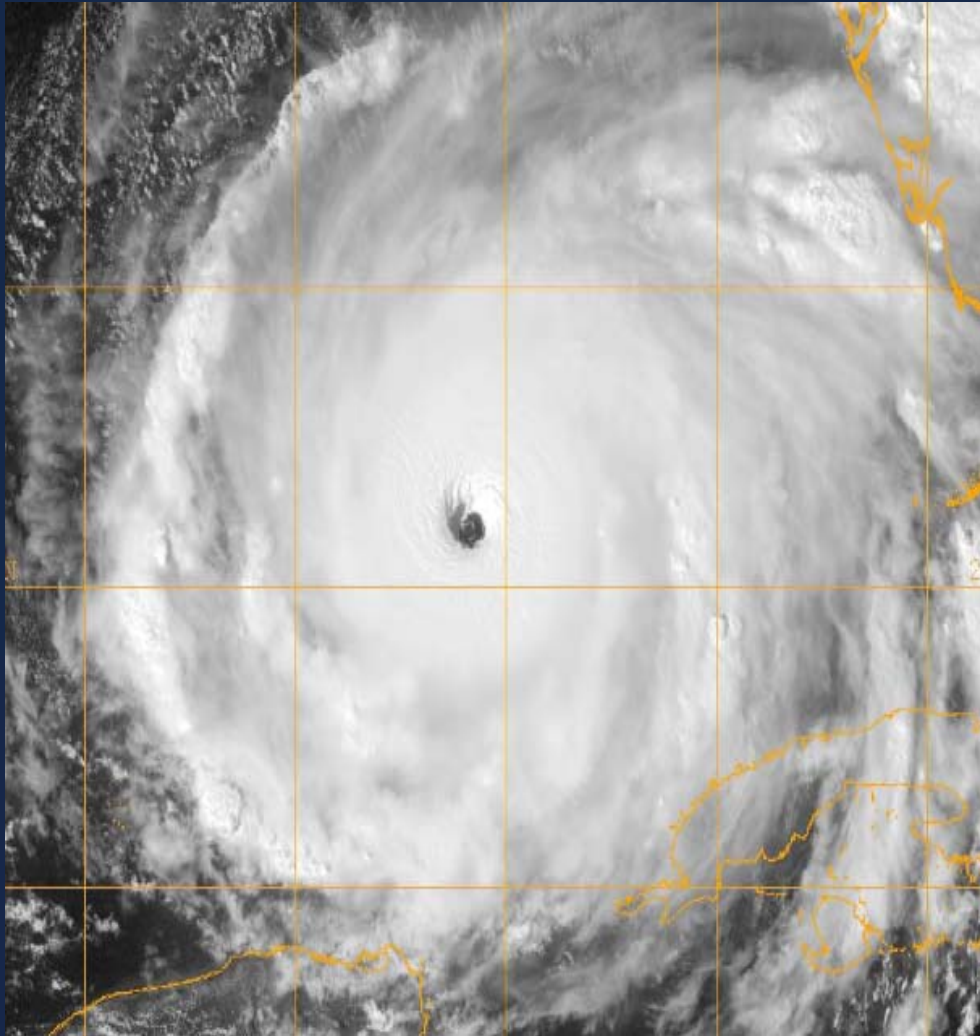
- Additional outsourcing of logistics functions needed
- Communication provided from satellite phones were not effective
- Due to severity of storm, materials in inventory were not adequate
- Use of push crews ahead of utility crews did improve ability to move around
- Changes to third party agreements should focus on the ability to replace poles during emergencies as needed
- Clean up crews should be reminded to avoid areas where pad-mounted equipment may be located
- Increase number of damage assessment and record keeping personnel

# Suggested Improvements Based on Lessons Learned



- Continue to invest in all Storm Hardening initiatives
- Improve network for communications – phone, radio, data
- Continue to improve GIS, OMS, IVR systems and explore other technologies.
  - OMS was not effective during storm
  - Updates after the storm are a challenge
- Develop emergency procedures that are scalable based on storm severity
- Evaluate vegetation management feeder and lateral cycles.
- Communicate to customers to avoid storing debris on top of pad-mounted transformers
- Continue to improve internal resource allocation as well as effectively securing mutual aid resources.





# Questions

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