

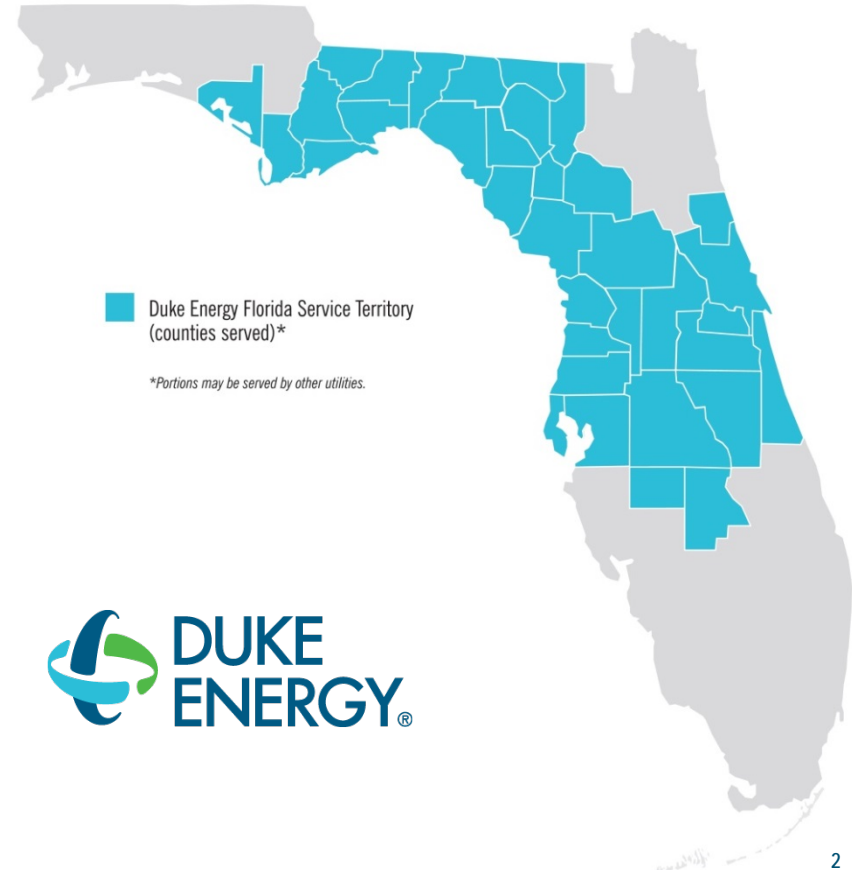
April 4, 2019

Florida PSC 2019 Hurricane Season Workshop

## At Duke Energy Florida, we power more than 4 million lives

Service territory includes:

- Service to 1.8 million retail customers in 35 counties
- 13,000 square miles
- More than 5,100 miles of transmission lines and 32,000 miles of distribution lines
- Owns and operates nearly 9,500 MWs of generating capacity
  - 76.2% gas, 21% coal, 3% renewable, 0.2%oil, 2,400 MWs Purchased Power.



# Duke Energy Florida is prepared for 2019 hurricane season

Operational preparation is a year-round activity

- Transmission & Distribution Systems Inspected and Maintained
- Storm Organizations Drilled & Prepared
- Internal and External Resource Needs Secured
- *Response Plan Continuously Improved*



Coordination with County and State EOC Leaders

- Structured Engagement and Information Sharing Before, During and After Hurricane
- Coordination with county EOC priorities
- Public Communications and Outreach



# RESTORATION

1. Transmission Lines

2. Substations

3. Critical Infrastructure

4. High-density neighborhoods

5. Individual homes



# Storm Hardening and Grid Upgrades Work

## Storm Hardening

- Since 2004, DEF has invested more than \$2 billion to harden its electrical system.
  - FPSC10-Point Maintenance Plan
  - Vegetation Management Cycles
  - Wood Pole Inspection Plan

## Self Healing Technology

- Allowing the grid to self-identify problems and react to them by isolating those areas or rerouting power.
- This technology avoided 5 million Hurricane Irma outage minutes

## Grid Improvement Plan – includes Technology and undergrounding

- DEF plans to invest an additional \$3.4 billion over the next 10 years to further modernize the grid
- Includes advanced Self-Healing technology, Hardening & Resiliency, Targeted Undergrounding, and AMI





# Storm Plan – Lessons Learned and Improvements

## Planning

- Damage forecasting / ETR monitoring tools
- Rebuild versus Restoration – PIO, IC

## Logistics

- Alternative housing options
  - Minimize non-productive daylight hours, maximize repair time

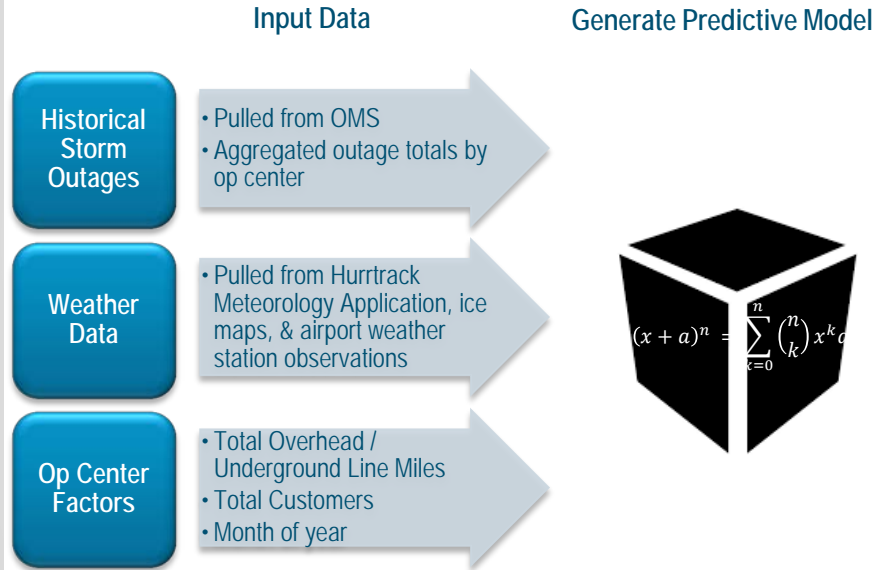
## Operations

- Compact restoration/ETR zones
  - More focused and granular ETR messages



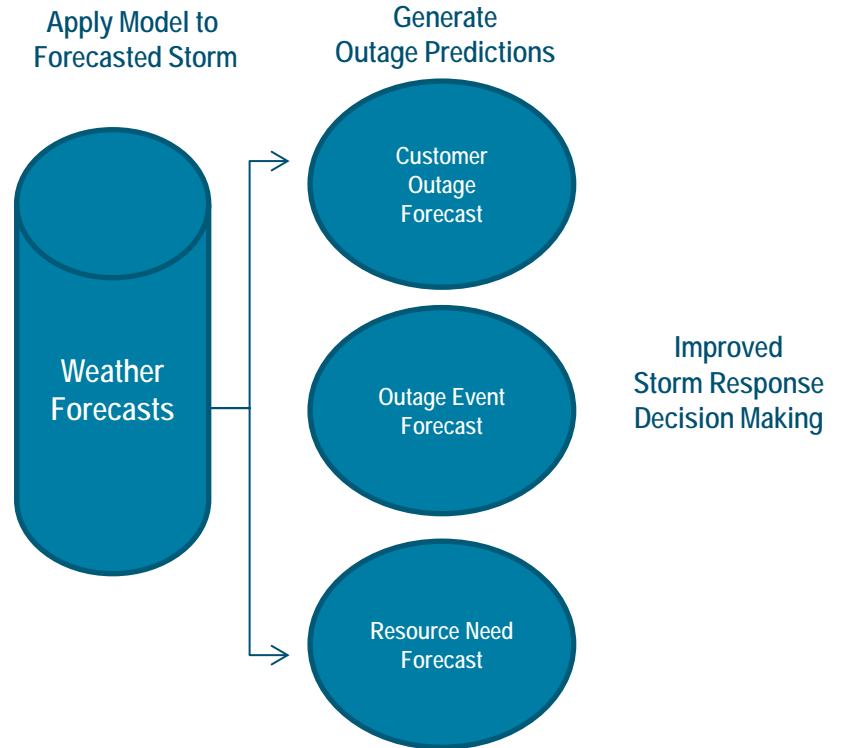
# Planning - pre-storm customer outage and resource need forecasts

## Model Training



Models provide a range of forecasts – Low, Mid, and High for both total customer outages and outage events based on historical data.

## Model Scoring



# Hurricane Michael - Resources & Logistics

## Resources

- 5,100 Total Restoration workers
- 3,885 Sleeper Trailer beds
- 8 independent basecamps, parking/staging sites

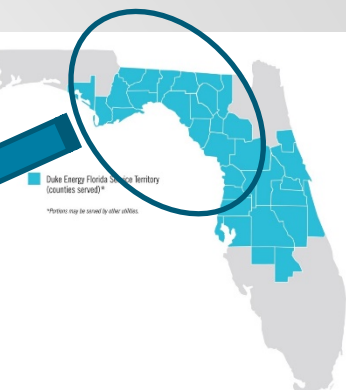
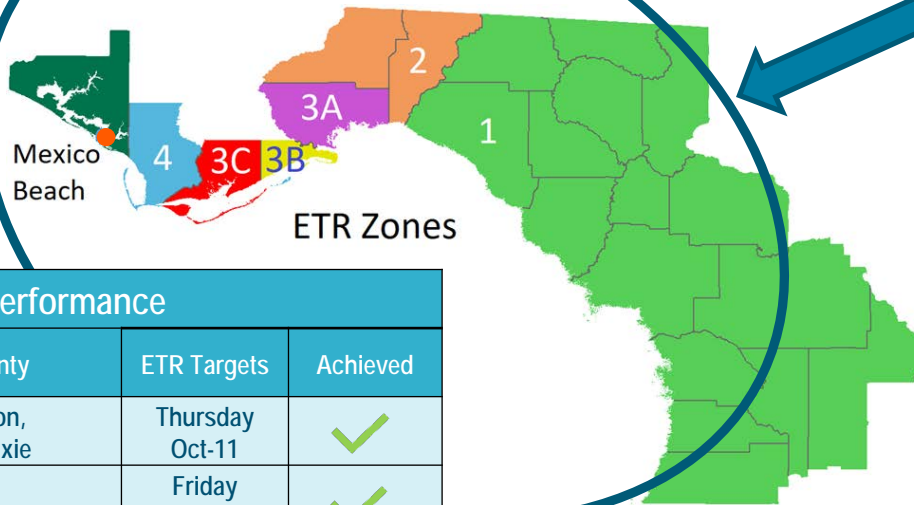


## Mutual Assistance

- Largest mobilization to rural panhandle DEF territory
- Mutual Assistance Agreements, executed between DEF and other utilities, ensure that resources can be timely dispatched and fairly apportioned.
- Southeastern Electric Exchange coordinates Mutual Assistance

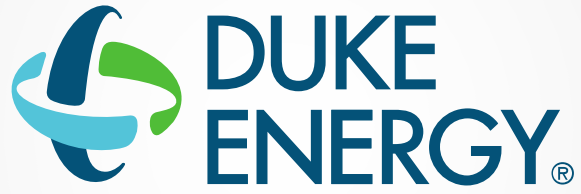


# Hurricane Michael – Operations ETR Performance



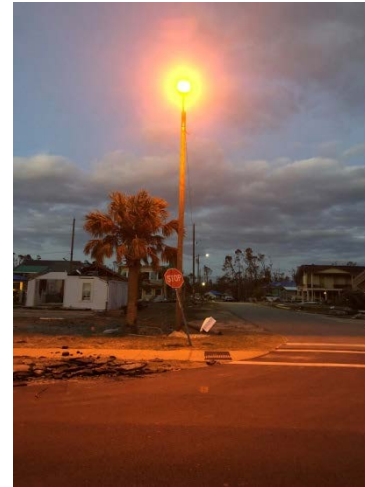
ETR Performance		
Restoration Zones by County	ETR Targets	Achieved
Zone 1 – Taylor, Madison, Hamilton, Suwanee, Columbia, Lafayette, Dixie	Thursday Oct-11	✓
Zone 2 – Jefferson & Leon	Friday Oct-12	✓
Zone 3A - Wakulla	Sunday Oct-14	✓
Zone 3B – Franklin East	Monday Oct-15	✓
Zone 3C – Franklin West (including St. George Island)	Wednesday Oct-17	✓
Zone 4 – Gulf minus St. Joe Beach	Thursday Oct-18	✓


Rebuild 3 Distribution Feeders	Completed
3 Feeder/Backbone Rebuild	Monday Oct-22
Power Restored to All Customers Able to Receive	Saturday Nov-3



# Customer Communications and Outreach

- Duke Energy State President participated in round table calls facilitated by the Florida Governor.
- Issued eight news releases in both English and Spanish.
- Hosted a phone media press conference featuring State President and Storm Director to provide a restoration update.
- Customers kept informed through emails, outbound calls, print and broadcast interviews and social media.
- <https://www.dukeenergyupdates.com/michael/florida> website updated several times a day – received 24,000 page views.
- Sent 971,000 email messages tailored to residential and business customers.





REBUILD

**Hurricane Michael caused significant damage**

We're working hard to assess damage and restore power.

Michael has moved quickly through the Carolinas, bringing high winds, rain and widespread damage to our area. With the already saturated ground, these conditions caused downed trees and power lines, bringing significant outages.

**Our power restoration process**

Crews are working closely to restore power where conditions safely allow. Continue to visit [DukeEnergyUpdates.com](https://www.dukeenergyupdates.com) for the latest outage and restoration information.

Our outage restoration process begins with a comprehensive damage assessment. This not only helps identify material needs and establish estimated times for restoration, but it also ensures our crews can bring services back on as safely and efficiently as possible.

Power restoration begins with critical infrastructure like hospitals and 911 facilities. Next, we focus on the large power lines that serve many customers, and then on individual neighborhoods and homes. [Learn more about the restoration process.](#)






**Stay safe**

Consider all lines and anything in contact with lines such as trees or limbs to be energized and dangerous. Be especially alert to the possibility of live power lines in standing water or mixed with other debris. We care about your safety and will continue to share information and updates as they become available.

Track our latest updates at [DukeEnergyUpdates.com](https://www.dukeenergyupdates.com). We won't rest until everyone's power is back on.

Thank you for your patience!

Visit our website for [updates](#). View our [outage map online](#).

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 Duke Energy | 650 South Tryon Street | Charlotte, NC 28202

	Florida			
	Email	Outbound	Text*	Voice*
Residential	960,107	654,971	70,680	651,523
Business	10,936	86	0	0
Total	971,043	655,057	70,680	651,523

\*Text and voice values include residential and business

## Flexibility During our Customer's Time of Need

- Sent Customer Care representatives to Mexico Beach area to assist customers in person.
- Providing flexible options and billing assistance for customers affected by Hurricane Michael.
- Waiving late-payment charges for up to two months for customers who experienced significant property damage.
- Holding bills for certain customers in the hardest-hit counties to allow those customers to focus on more immediate concerns.
- Waiving additional deposit and reconnect fees through the end of the year for customers moving due to damage from hurricane.
- Flexible credit arrangements - including zero down and three months to pay
- Providing outage letters to customers to support insurance claims, including FEMA.
- Documenting affected customer accounts impacted by hurricane to ensure special handling when customers call to reconnect or restore service.





## Vegetation Management

- What are the Utility's trim cycles for the distribution system and transmission system? A: DEF performs distribution trimming on a weighted average cycle of 3 years for backbones and 5 years for laterals to balance system reliability, customer impact, and cost effectiveness. Our 2019 Vegetation Management program is on schedule to meet feeder and lateral maintenance cycle commitments. Trim cycles for Transmission vary depending on easement widths and field vegetation conditions. Time based triggers can range from 2-8 years. Time triggers and field vegetation condition within and along the rights-of-way are both factors in determining the routine work cycles for Transmission.
- How many miles were trimmed in 2018 for each system? A: In 2018 DEF completed trimming on 662 miles of distribution feeder backbones and 2,626 miles of distribution laterals. Transmission cleared 397 miles of right-of-way and applied herbicide to 664 miles.
- In addition to regular trim cycles, does the Utility perform any additional trimming on each system i.e., before hurricane season? If so, how many additional miles were trimmed for each system? A: Between February 1 and April 15 storm hardening patrols will be completed on all Distribution Feeder backbones. All 3-phase circuitry is patrolled and immediate threats are identified. Necessary trimming, overhang, and tree removal will be completed by June 1, 2019. In the first quarter of 2019 DEF has also completed over 2,189 tree and limb removals, and reactive mid-cycle pruning at over 6,725 trim locations.

## Pole Inspections

- What are the Utility's pole inspections cycles for the distribution system and transmission system? A: Distribution pole inspection cycle is 1/8 of the population per year. As of 2019, Transmission wood pole inspection cycle is 1/4 of the population per year and concrete/steel/lattice structure inspection cycle is 1/6 of the population per year.
- How many poles were inspected in 2018 for each system? What were the results of the inspections? A: Distribution inspected 101,607 poles in 2018 and 1,963 which were identified for replacement. Transmission inspected 15,531 wood pole structures and 3,114 which were identified for replacement. |
- In addition to the regular pole inspections, does the Utility inspect any additional poles on each system, i.e., before hurricane season? If so, how many additional poles were inspected for each system? What were the results of the inspections? A: No, Duke Energy's pole inspection program is an ongoing year-round endeavor.

## Storm Hardening Projects

- How many storm hardening projects were completed in 2018 for the Utility's distribution system and transmission system? What did the projects entail? A: Distribution completed 6 projects comprising 6 miles of reconductor, 1 feeder tie, and 0.5 miles of OH to UG conversion. Transmission completed replacement of 796 wood poles with steel or concrete.
- What impacts, if any, did the 2016/2017/2018 hurricane seasons have on the Utility's storm hardening projects e.g., were projects delayed? Please explain the impacts. A: The last three years were very active in our Florida service territory as well as in areas of the southeastern US where Duke Energy provides mutual assistance. Duke Energy's on-system storms included tropical storm Colin, hurricanes Hermine, Matthew, Irma and Michael. In addition, Duke Energy provided off-system mutual assistance restoration support for several winter storms and hurricanes Harvey, Maria, and Florence. As a result, Duke Energy did not fully complete 9 of the 30 Storm Hardening Projects in the 2016-2018 Three Year Hardening Plan. Eight of the nine projects will be completed prior to the 2019 hurricane season on June 1<sup>st</sup>. The remaining project has been delayed by easements and completion is expected by the end of 2019.
- If the Utility has an undergrounding pilot project, please provide a status on the project.
  - How many miles have been undergrounded? A: In 2018 1.34 miles of overhead lateral were converted to underground.
  - How many different projects/communities have been completed? A: 12 projects
  - How many different projects/communities are planned to be completed in 2019? A: The plan for 2019 includes over 30 miles of OH to UG lateral conversions.

## Storm Preparedness

- What changes, if any, were made to the Utility's storm preparedness plans? A: Storm plans have been updated to ensure full staffing in 2019.
- How many hurricane drills are scheduled for 2019 and when will the drills be performed? A: Duke Energy will conduct a system storm drill the week of April 22<sup>nd</sup>. The drill one element of our annual preparation which also includes training, community outreach, and process improvement which take place year-round.
- What changes, if any, were made to the Utility's hurricane drills? A: Duke Energy's hurricane drill in 2019 will be a combination of mock exercises and tabletop process/workflow reviews.
- How many meetings are planned for 2019 between the Utility and city/county/state EOCs concerning storm preparedness and priority lists? When will these meetings take place? A: Duke Energy expects to complete 65 visits by June 1<sup>st</sup> (some county EOCs include multiple meetings/visits)
- How many mutual aid agreements does the Utility have in place to help with restoration efforts for 2019? A: Duke Energy has agreements with all members (52) of the southeastern electric exchange, a statewide compact with the FMPA and 9 individual municipalities, and storm contracts in 2018 with 94 companies (up from 24 in 2017).
- How many outreach presentations will the Utility hold in 2019 to communicate storm readiness to its customers? Where will these presentations be held and what topics will they cover? A: In 2018 Duke Energy recorded 104 outreach presentations, and we are on track for similar volume in 2019.



## Storm Preparedness

- How does the Utility provide customers information about restoration efforts following a storm? Is this method updated as part of the Utility's hurricane preparedness? A: Duke Energy continues to improve its outage communications process to better meet customers' needs and expectations. We provide outage communications in the forms overwhelmingly preferred by customers - via email, text message, calls, and social media. Outage communications include five points of information as requested by our customers which include: the length of the outage, number of customers impacted, cause of the outage, status of crew dispatched for repairs and when the outage began.
- Does the Utility provide any information or outreach programs to customers about delineating equipment responsibility between the customers and Utility? A: Yes, information is provided in several forms including our website, via phone contact, and on the back page of our storm season brochure.
- Does the Utility have an inventory of equipment needed for recovery after a storm? If so, how is the inventory maintained? A: Yes, Duke Energy has access to inventory needed for hurricane restoration in 2019. In addition to stock available at our central warehouse, we have access to material from Duke Energy operating companies in the Carolinas and Midwest, and from other utilities and vendors.

## Lessons Learned

- Identify any lessons learned from the last hurricane season. A: In addition to what's noted in the presentation material, Duke Energy has strengthened its off-line plans to include ETR communication (for loss of OMS) and Damage Assessment (for loss of cell phone communication).
- Identify any changes to third party agreements regarding restoration efforts. A: We continue to assess and add staging sites in strategic areas, including transmission sites in North Florida. As noted above 2018 off-system vendor contracts will also be reviewed and renewed as needed in 2019.
- If applicable, was the use of “push crews” helpful during the 2018 hurricane season? Are there any areas of improvements involving the push crews? A: Duke Energy supported road clearing with counties and the state in 2018 and will continue to do so in 2019. We continue to work closely with county emergency crews to ensure they have the support needed to open roads into and within Duke Energy service territory.