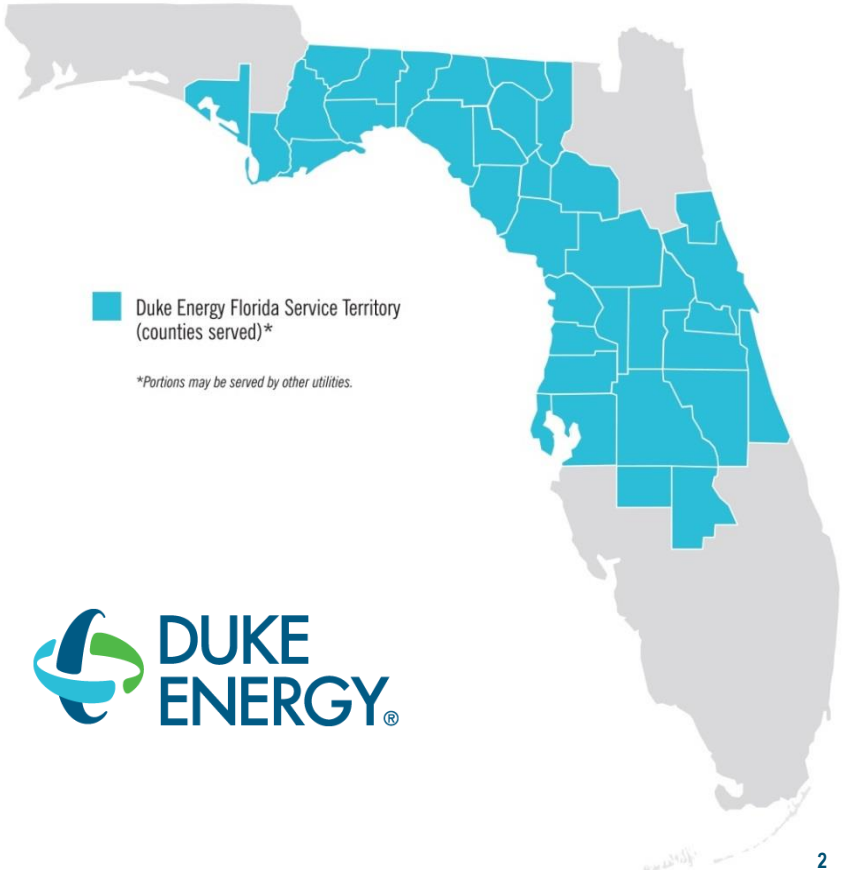
Hurricane Irma Storm Review

November 11, 2018

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.



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Storm Preparedness Activities

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 Tested and Continuously Improved

Coordination with County EOC Officials

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

Hurricane Irma – Resources & Logistics

Resources

- 12,528 Total Resources
  - 1,553 pre-staged in Perry, Georgia
- 91 line and vegetation vendors from 25 states
- Duke Energy Carolinas and Midwest crews as well as resources from Texas, New York, Louisiana, Colorado, Illinois, Oklahoma, Minnesota, Maine and Canada
- 26 independent basecamps, parking/staging sites

Mutual Assistance

- Largest mobilization in DEF history
- 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

RESTORATION

Hurricane Irma- Restoration

Irma's track northward up the Florida peninsula resulted in a broad swath of hurricane and tropical storm force winds.

Damage:

- 2,030 Distribution poles replaced
- 141 Transmission poles replaced
- 178 miles of wire replaced (800 additional miles spliced and repaired)
- 1,106 transformers replaced
- 71 substations out of service
- 124 transmission circuits restored

Restoration Summary			
System Totals	Customers Restored	Peak Customers Out	Outage Events*
	1,738,030	1,284,816	35,196

- 1 million customers restored in three days.
- As typical with major storms, the remaining restoration work was more time-consuming and labor-intensive (for example, pole climbing in back lot areas where trucks could not access).

* Total outage events completed to restore all customers

Irma was the first hurricane on record to impact all 35 counties served by Duke Energy Florida

Customer Communications

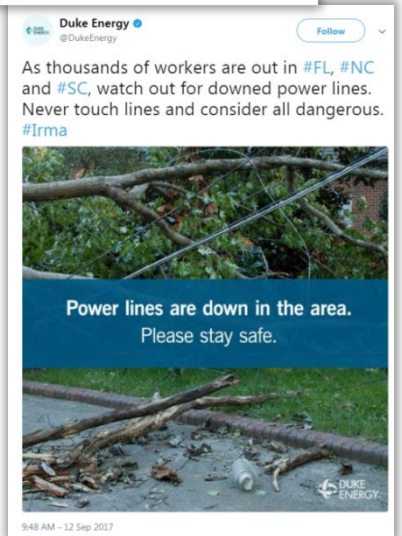
- Duke Energy State President participated in daily round table calls facilitated by Florida Governor Rick Scott
- Staffing plans supported State and County EOCs
- Customers kept informed through emails, outbound calls, print and broadcast interviews and social media
- duke-energy.com/irma website updated several times a day – received 1.2 million page views
- Despite some IT and communication challenges, over 5.7 million outbound customer messages sent over duration of event

Channel	Posts	Views	Interactions (likes, comments, shares, clicks and media views)
Facebook	54	2,518,044	1,446,583
Twitter	72	16,462,848	234,689
Total	**126**	**18.9 million**	**1.6 million**

2,132,836 Florida calls handled by Customer Care Operations during Irma

Customer Communication - Examples

- Prior to landfall, hurricane preparedness email sent to all customers with an email address
- Preparedness communication sent to 1,400 medical essential customers
- Customers kept informed throughout event
  - Outbound call campaign reached 5.7M customers
  - 18.9M views of social media content (126 original posts)
  - 2.9M residential and business customer communication emails sent
  - Conducted print and broadcast interviews providing preparation, storm status, and restoration updates as well as several national interviews with Duke Energy Florida state president
  - Produced four storm update videos and promoted via social media
  - Captured photos and videos of storm damage and restoration in the field
  - Duke Energy Florida distributed 13 news releases in both English and Spanish
  - Radio, TV and digital paid advertising in five markets throughout the event. as well as on the Weather Channel
  - County and State EOC representatives processed over 4,500 priority issues in coordination with local operations centers



Storm Hardening and Grid Resilience Investments

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 approximately 5 million outage minutes during Hurricane Irma

Grid Investment 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, and Targeted Undergrounding

We are providing flexible options and assistance as our residential and business customers endure hardships and work to get their lives back to normal after Irma.

Customer moving due to damage from Hurricane Irma

- Waive additional deposit and reconnect fees through the end of the year
- Waive reconnect fees for customers whose service orders were delayed due to restoration

Collections and Deposits – through the end of October

- Late payment charges and disconnects for non-payments suspended
- Flexible credit arrangements - including zero down and three months to pay

DEF is providing outage letters to customers to support insurance claims, including FEMA.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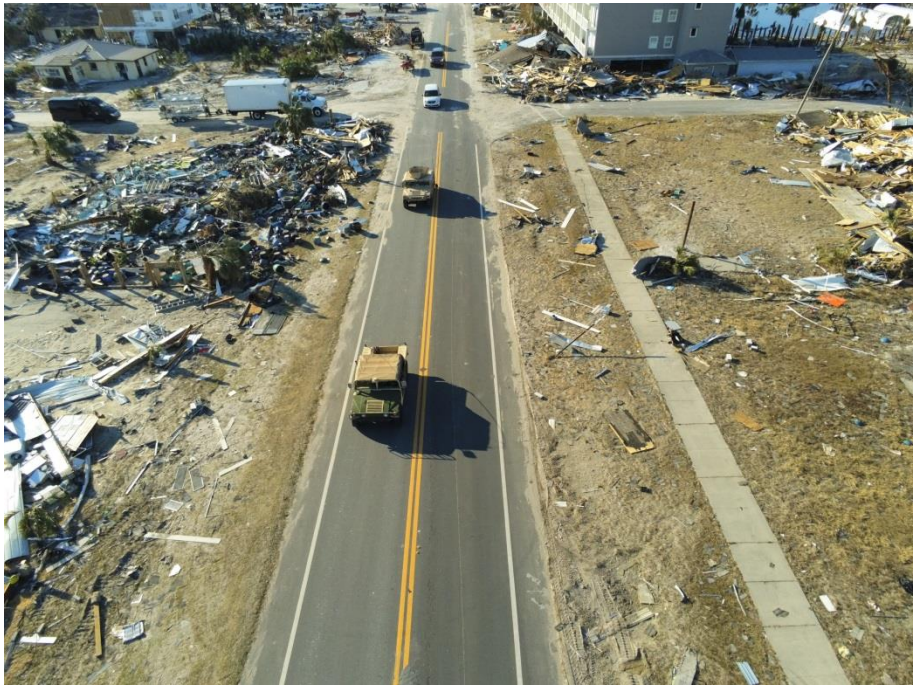
Hurricane Michael - Weather

Hurricane Michael made landfall October 10th, 2018 as an unprecedented, strong Category 4 hurricane with maximum sustained winds of 155 mph and a minimum pressure 919 mb (just shy category 5 designation). The storm caused catastrophic damage from wind and storm surge, particularly from Panama City Beach to Mexico Beach, resulting in widespread outages and significant damage to transmission and distribution facilities across the central Florida Panhandle. Michael is the most powerful storm to impact the Florida Panhandle in recorded history, and the fourth most-powerful hurricane to strike the US behind the Labor Day Hurricane (1935), Hurricane Camille (1969), and Hurricane Andrew (1992).



Hurricane Michael - Weather

Wind: Catastrophic wind gusts were observed across the central Florida Panhandle with top-end speeds reported near Tyndall Air Force Base and surrounding areas near 130 mph before going offline. The highest gusts to impact the Florida Service Area were largely confined to the Odena Ops Center and Apalachicola Airport in the central Panhandle, with gusts estimated up to 120 mph in Port St. Joe, and measured gust of 82 mph at Apalachicola Airport. The strongest gusts extended inland to the Tri-State area with hurricane-strength gusts into extreme southwestern Georgia. Gusts generally ranged 40 – 60 mph along the I-10 corridor into the Panhandle East. Gusts were also observed 35 – 45 mph range south along the Nature Coast and central Gulf Coast from Cross City to St. Petersburg.

- Tyndall Air Force Base – 129 mph
- Apalachicola Airport – 82 mph
- Tallahassee Airport – 71 mph

Storm Surge

- At Apalachicola, peak inundation was 8.57 feet, a new record since Hurricane Dennis. The National Hurricane Center estimates peak storm surge was between 9-14 feet in Port St. Joe. Reporting gauges also at Aucilla River and St. Marks produced near or record-breaking inundation not seen since Hurricane Hermine in September 2016.

Rainfall

- 4-5” for Gulf, Franklin, Calhoun and Liberty Counties
- 2-4” in Wakulla, Gadsden and Leon Counties