

State of Florida



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FPSC - COMMISSION CLERK

Public Service Commission

CAPITAL CIRCLE OFFICE CENTER • 2540 SHUMARD OAK BOULEVARD
TALLAHASSEE, FLORIDA 32399-0850

-M-E-M-O-R-A-N-D-U-M-

DATE: April 16, 2018
TO: Carlotta S. Stauffer, Commission Clerk, Office of Commission Clerk
FROM: Emily Knoblauch, Engineering Specialist, Division of Engineering *EK*
RE: Docket No. 20170215-EU-Review of electric utility hurricane preparedness and restoration actions.

Please file the attached FMEA - Electric Utility Hurricane Workshop Presentation in the above mentioned docket file.

Thank you

Hurricane Irma

Florida Public Power Mutual Aid and Storm Readiness

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Florida Municipal Power Agency

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Who is Public Power?

Public Power Nationally

2,011 PUBLIC POWER UTILITIES PROVIDE
ELECTRICITY TO 49 MILLION PEOPLE*
IN 49 STATES AND 5 U.S. TERRITORIES



1 IN **7** ELECTRICITY CUSTOMERS IN THE U.S. ARE SERVED BY **PUBLIC POWER**



Public Power Customers

HOW MANY CUSTOMERS DOES A PUBLIC POWER UTILITY HAVE?

1,352 PUBLIC POWER UTILITIES HAVE **UNDER 4,000** CUSTOMERS

332 PUBLIC POWER UTILITIES HAVE **4-10K** CUSTOMERS

247 PUBLIC POWER UTILITIES HAVE **10-40K** CUSTOMERS

45 PUBLIC POWER UTILITIES HAVE **40-100K** CUSTOMERS

30 PUBLIC POWER UTILITIES HAVE **100K+** CUSTOMERS



Electric Utilities in America



PUBLIC POWER UTILITIES

60%



RURAL ELECTRIC COOPERATIVES

26%



POWER MARKETERS

9%



INVESTOR OWNED UTILITIES

6%



FEDERAL POWER AGENCIES

0.3%



Electricity Customers Served By:

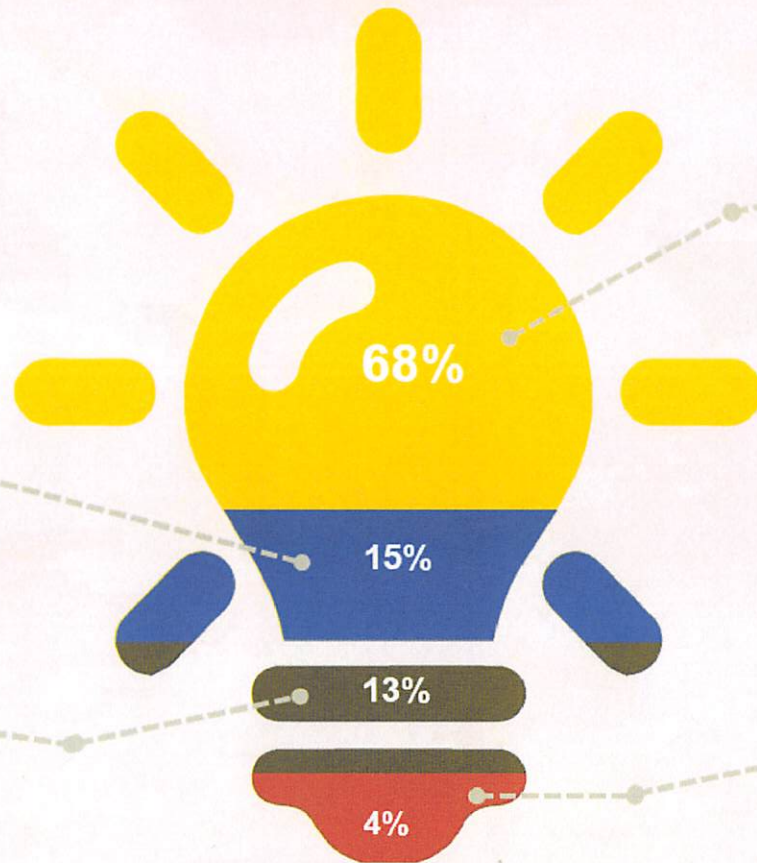


PUBLIC POWER UTILITIES



RURAL ELECTRIC COOPERATIVES

AMERICAN
**PUBLIC
POWER**
ASSOCIATION



INVESTOR-OWNED UTILITIES



POWER MARKETERS

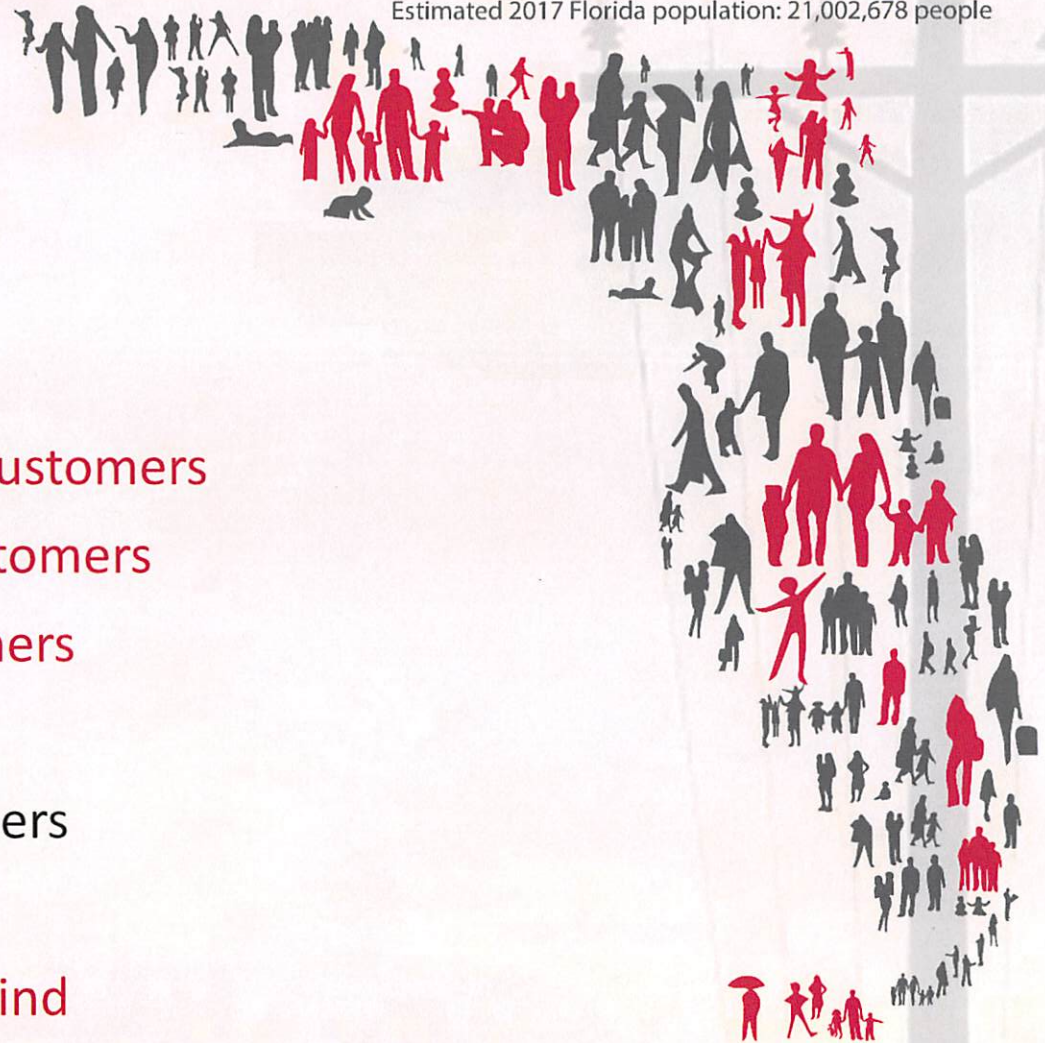
MOSTLY IN TEXAS

Who is **Florida** Public Power?

Florida Public Power

Estimated 2017 Florida population: 21,002,678 people

- 34 municipal electric utilities
- 1.3 million customer meters
- 14% of Florida's population
- Large Utilities
 - JEA (Jacksonville): 404,000 customers
 - OUC (Orlando): 198,000 customers
 - Tallahassee: 113,000 customers
- Small Utilities
 - Moore Haven: 1,015 customers
 - Bushnell: 1,065 customers
- Combined, 3rd largest utility behind FPL & Duke Energy Florida

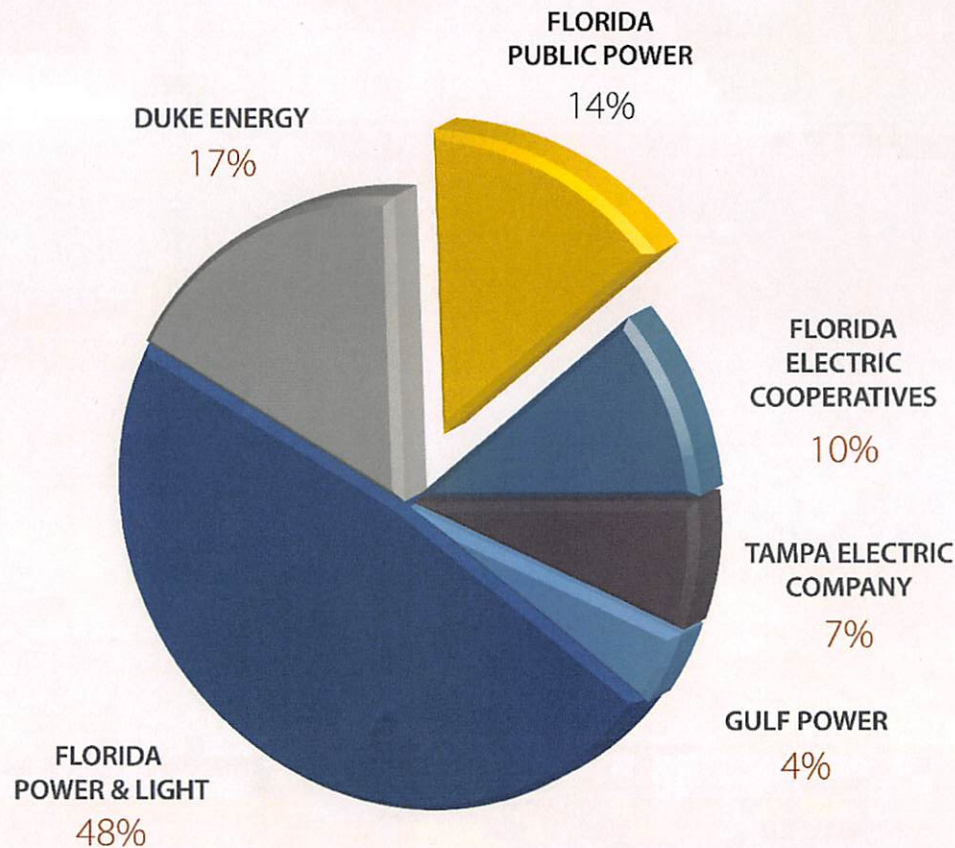


Florida Public Power



Florida Public Power

Florida Electric Utility Market Share %



Public Power: Power Supply

- How do the small utilities generate power?
 - They don't...
- Only 12 of 34 generate electricity
- Others purchase power from:
 - Florida Municipal Power Agency
 - 13 purchase all, 11 have committed to purchase some
 - Duke Energy Florida
 - Florida Power & Light
 - Other Municipals



Public Power Mutual Aid

Mutual Aid – Many Options

- Florida Mutual Aid
 - Mutual Aid agreements in place between public power and ALL Florida electric utilities
- Southeastern Mutual Aid
- National Mutual Aid



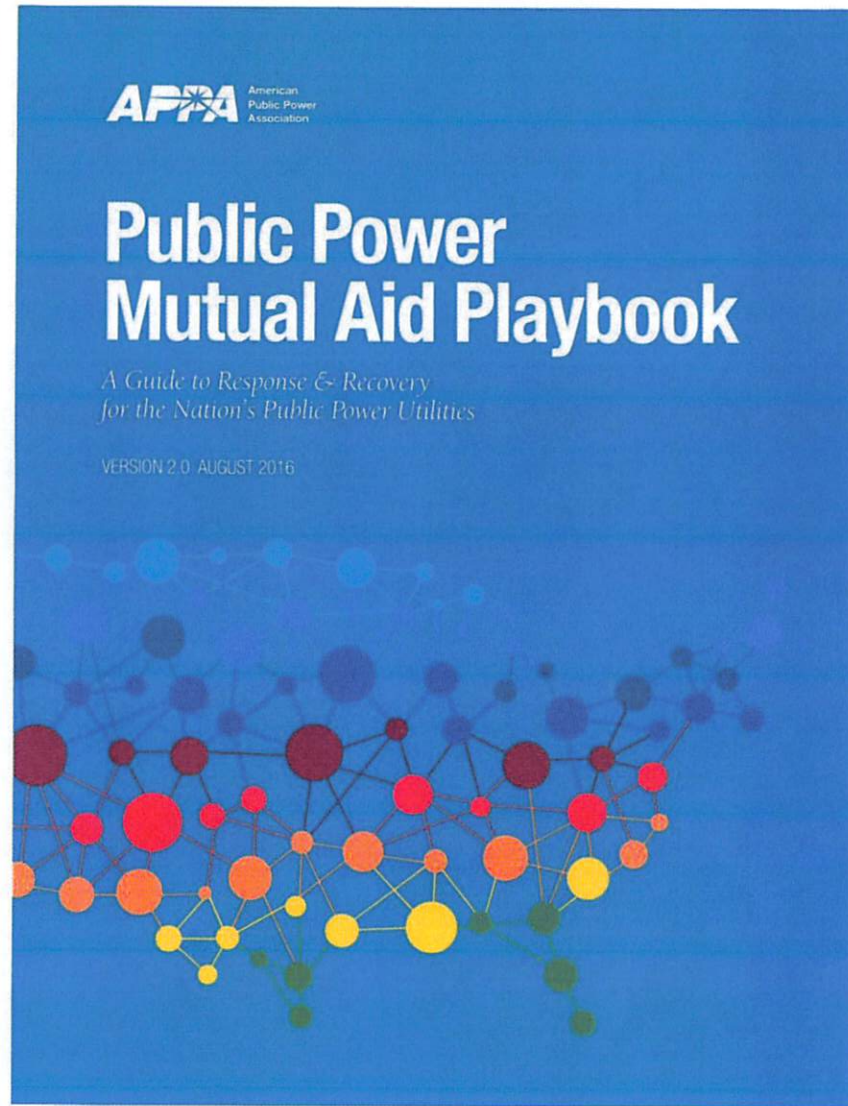
Mutual Aid – By the Numbers

- Florida mutual aid network
 - 34 municipal electric utilities
 - 17 electric cooperatives
 - 5 investor-owned utilities
- National mutual aid
 - More than 2,000 municipal electric utilities
 - More than 800 electric cooperatives

Mutual Aid – Agreements and Procedures

- FMEA coordinates mutual aid support for its members
 - Serves as statewide mutual aid network coordinator
 - Works directly with national association (APPA) and other network coordinators
 - Meet together in person twice a year
 - Member utilities communicate needs (or availability) to FMEA

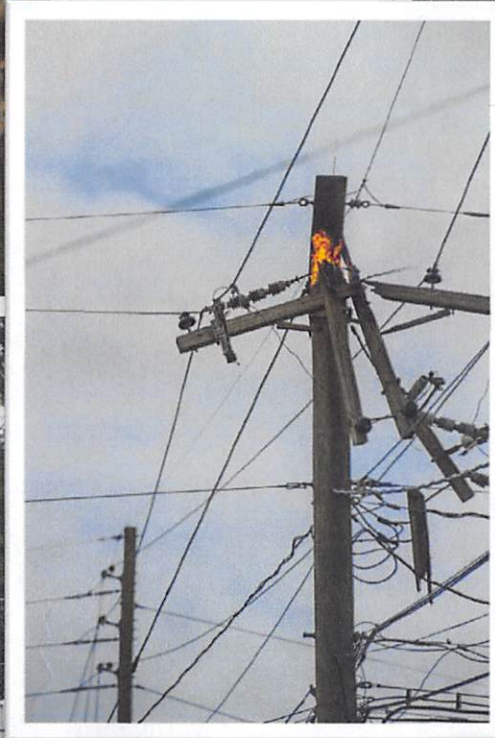
National Mutual Aid



National Mutual Aid

Level	Tier 1: Utility Coordinator	Tier 2: Network Coordinator	Tier 3: National Coordinator <i>(American Public Power Association)</i>
Steady State			
0 No outages	<ul style="list-style-type: none"> Update contact and resources lists and communicate periodically with network coordinator 	<ul style="list-style-type: none"> Compile contact and resources lists from utilities within network 	<ul style="list-style-type: none"> Maintain mutual aid playbook and listserv
1 Isolated event	<ul style="list-style-type: none"> Assess need, respond to event, and determine if escalation is needed 	<ul style="list-style-type: none"> None generally, but may assist with information as requested 	<ul style="list-style-type: none"> Maintain mutual aid playbook and listserv
Local/State Mutual Aid Activated			
2 Local/state event	<ul style="list-style-type: none"> Communicate needs and available resources to network coordinator and update periodically Manage response within their utility 	<ul style="list-style-type: none"> Monitor response May assist identifying available resources Inform APPA of response, potential needs, and if preemptive call is needed 	<ul style="list-style-type: none"> Monitor conditions for possible escalation Monitor response to inform federal agencies
Regional Mutual Aid Activated			
3 Regional event	<ul style="list-style-type: none"> Communicate needs and available resources to network coordinator Periodic updates of needs and resources as response proceeds 	<ul style="list-style-type: none"> Assist identification of available resources May work with other network coordinators to mobilize needed resources 	<ul style="list-style-type: none"> Host preemptive call with affected network coordinators Monitor response to inform federal agencies
National Mutual Aid Activated			
4 National event	<ul style="list-style-type: none"> Communicate needs and available resources to network coordinator Multiple daily updates of needs and resources as response proceeds Manage local response 	<ul style="list-style-type: none"> Assist identification of available resources Work with other network coordinators and APPA to mobilize needed resources 	<ul style="list-style-type: none"> Available to coordinate response Inform federal agencies

Disaster Preparedness



Disaster Preparedness

Year Round Planning

- Public Power prepares year round
 - Review and Update Internal Plans
- FMEA conducts pre-season preparation workshop with members
- Participate in statewide FCG mutual aid workshop
- Individual utilities conduct exercises, briefings and meetings to discuss their preparation
 - FMEA participates in state EOC and national Association
- Key feature: Municipal electric utilities coordinate with all city departments, including local EOCs

Disaster Preparedness

- All municipal utilities have completed the first round of their 8-year inspection cycle.
- Since 2007, pole replacement has been in the range of 2-10%

Pole Inspections And Replacement



Disaster Preparedness

Vegetation Management

- FMEA members generally on a 3-year trim cycle
- Our local governing boards and customers seek the improved aesthetics and reliability from a 3-year cycle
- Right tree, right place



Disaster Preparedness

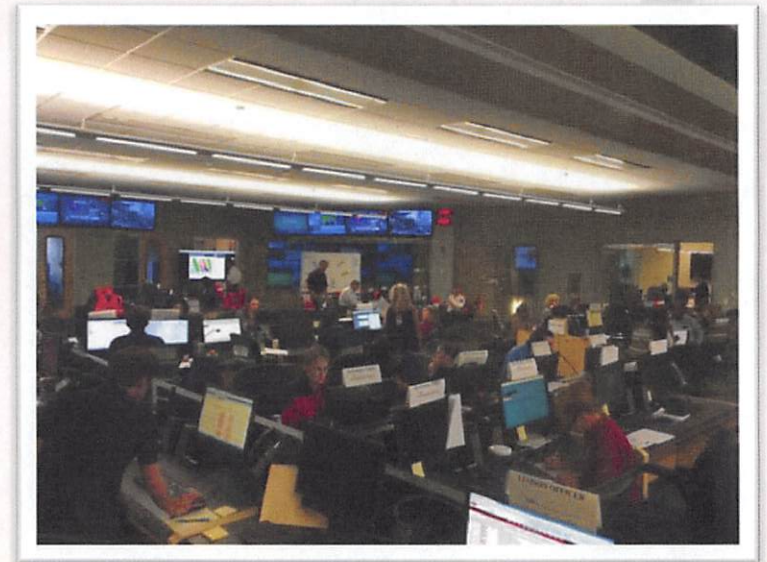
Communications

- Develop pre-written social media responses
 - Preparedness, pre-storm, post-storm, safety
- Use various platforms
 - Facebook, Twitter, News, Text-Alerts
- Communicate often
 - Restoration process
 - ETR's – Realistic and factual
 - Areas being worked

Disaster Preparedness

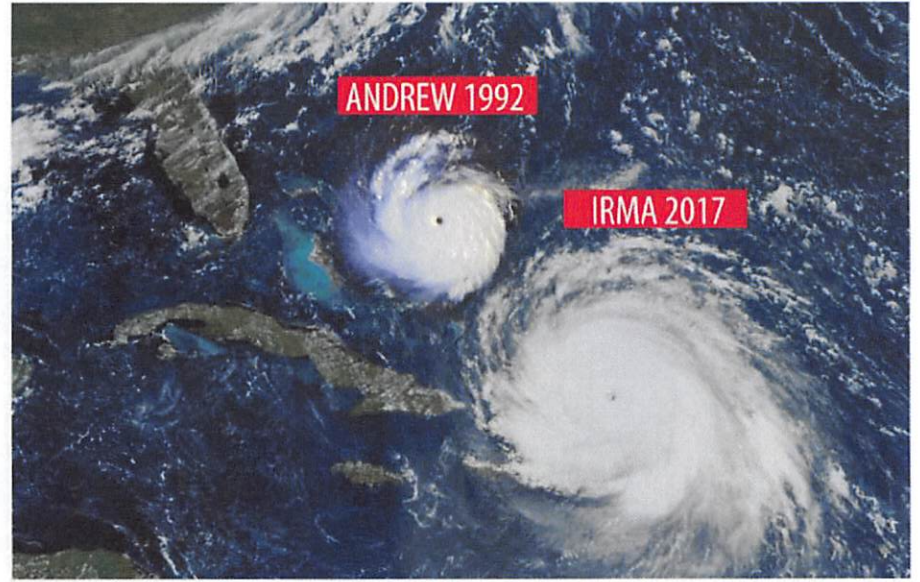
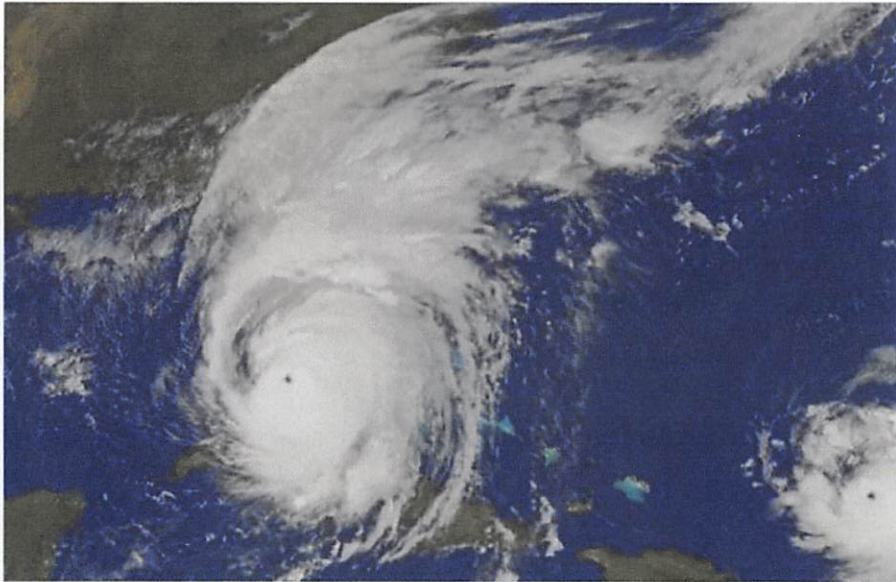
Work Closely with Local Leaders

- We are local governments
- Work closely with all city and county departments and officials
 - In planning, preparations, and during storms
- Direct communications with local emergency management personnel and local emergency operations centers



Hurricane Irma

September 10-11, 2017



Hurricane Irma

Storm landfalls

Monday, September 11, 2017 12:00pm
Tropical Storm: North Florida/Panhandle



Irma Track History

September 9-11, 2017



Sunday, September 10, 2017 2:51pm
Category 3: Marco Island

Sunday, September 10, 2017 9:10am
Category 4: Cudjoe Key

Hurricane Irma

- 6.7 million Floridians out at peak
 - 827,000 from public power
- Every electric utility impacted, including all 34 public power utilities
- More than 2,000 public power lineworkers responded from approximately 200 utilities from 26 states plus Canada.
- 23 of Florida's 34 public power utilities used mutual aid assistance.

Impacts and Mutual Aid Assistance

Alabama	Louisiana	Oklahoma
Arkansas	Maryland	Pennsylvania
Connecticut	Massachusetts	Rhode Island
Georgia	Michigan	South Carolina
Illinois	Minnesota	Tennessee
Indiana	Missouri	Texas
Iowa	Nebraska	Virginia
Kansas	North Carolina	Wisconsin
Kentucky	Ohio	



Hurricane Irma

- All 34 public power utilities impacted
- More than 827,000 public power customers out at peak
- Nearly 50% of those restored in 24 hours
- More than 80% of total customers restored in 48 hours
- 98% restored in less than a week

Public Power Restoration

DATE	# Customers Out	% Customers Out
Sept 11, 2017	827,664	57%
Sept 12, 2017	397,941	27%
Sept 13, 2017	255,185	18%
Sept 14, 2017	149,482	10%
Sept 15, 2017	84,032	6%
Sept 16, 2017	39,532	3%
Sept 17, 2017	22,338	2%

Hurricane Irma

Response Challenges

- Lodging in neighboring states limited
- Significant fuel shortages for responding crews
- Restaurants and convenience stores closed
- Severe traffic
 - 7 million + tourists evacuated
- Potential I-75 closure due to flooding



Hurricane Irma

Keys Energy Services Ground Zero

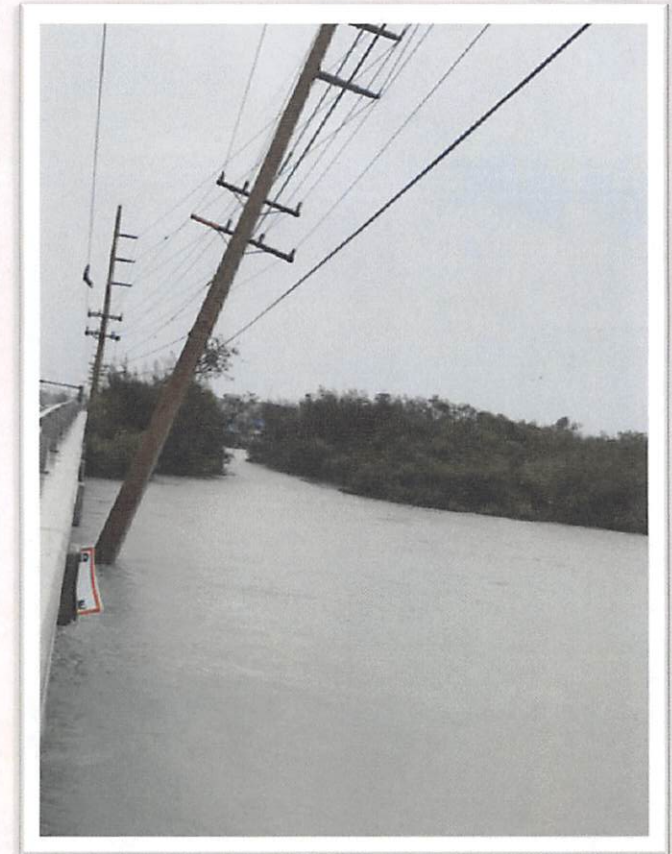
- Serve approximately 28,000 customers
- Life threatening – approximately 60 employees stayed CAT 5 bldg
- No communications – satellite phones only – for days
- No water, no sewer – for days
- No police, fire, EMT services – for days
- Bridges needed to be inspected before any travel
- Tie line damaged, repeated faults
- Food and water logistics
- Damage recovery supplies far exceeding warehouse capabilities
- Supply and transport problems



Hurricane Irma

Keys Energy Services Ground Zero

- Direct Impact as Category 4
 - Sustained winds excess 120 mph
 - Gusts up to 150 mph
- Lost transmission and communications – 11:05 pm Sept. 9
 - Repeated faults
 - Communications out for days
- Replaced ten damaged transmission poles
 - Majority being water crossing poles
- Replaced 625 distribution poles
- Replaced 650 transformers
- No storm hardened poles failed



Hurricane Irma

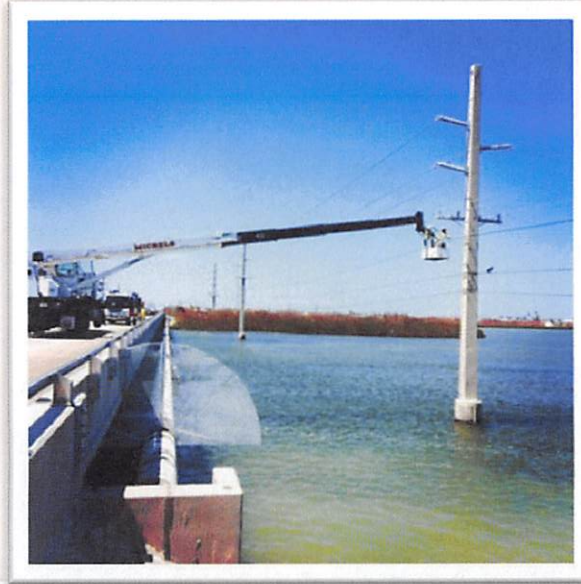
Keys Energy Services Ground Zero

- More than 500 personnel in restoration efforts
- Provided 4,300 nights of lodging
- Served more than 19,400 meals
- Laundered over 100 loads of laundry daily
- More than 38,000 gallons of gas and diesel for vehicles and equipment



Hurricane Irma

Keys Energy Services Ground Zero



Hurricane Irma

Lessons Learned

- Communications is critical
 - Communicate often
 - Factual and realistic
- Pre-planning mutual aid is critical
- Mutual aid agreements in place before storms
 - Used reciprocally
 - Sharing of supplies and resources
- Preparations are key!

Contact Information

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