

DUKE ENERGY FLORIDA  
2015 HURRICANE SEASON PREPARATION BRIEFING

Florida PSC Hurricane Preparedness Workshop  
March 18, 2015

Our hurricane restoration **operational plan** functioned well in 2004 and 2005. We continue to review it annually in an effort to make improvements. All lessons learned from past major storms and mid-level storms, annual drills, and other utility experiences have been incorporated into our written response plan and our 2015 hurricane drill. The 2015 drill will continue to exercise and improve our ability to leverage internal Duke Energy resources from our other states.

In general Florida, and specifically Duke Energy Florida's ("DEF") service territory, has been spared from any significant hurricanes since 2004/2005. The impact from these historic hurricane seasons and other significant storms across the country continues to drive continuous improvement is key foundational components: Storm Restoration Organization, Transmission and Distribution infrastructure and Local Government Coordination.

**Storm Restoration Organization**

The annual storm plan review and update process for the 2015 season will be completed by June 1, 2015. All of Duke Energy is in the process of developing plans to incorporate a structured ICS model for major storms. Our system hurricane drill is scheduled for the week of April 13th. The objective will be to test employees' ability to perform storm roles, exercise processes and procedures, and validate leadership's decision making ability.

We have also taken steps to ensure that critical restoration material and fuel are ready and available from multiple sources. Inventory levels of critical materials are increased over and above normal stock levels in preparation for the upcoming storm season. We have negotiated retainer contracts with fuel vendors to ensure fuel needs are met.

Following a major storm, our goal is to restore service to as many customers as quickly and safely as possible – starting with the transmission system and working through the distribution system – and resources are allocated with that objective in mind. We give first priority to facilities needed to ensure public health and safety (hospitals) as well as critical public infrastructures (water and sewer facilities). Coordinated reviews between DEF and local municipalities are completed annually, as part of our hurricane preparation plan.

DEF works simultaneously with first responders at the local level – police, fire, public works, and emergency management – to clear debris and address urgent public safety needs, such as downed power lines.

DEF focuses on restoring power in a sequence that enables power restoration to public health and safety facilities and to the greatest number of customers as safely and quickly as possible.

External Line and tree trimming resources are critical components of a successful restoration effort. DEF has Line and Vegetation resources from five (5) other states that can be engaged day 1 in the event of a storm, ahead of mutual assistance resources being secured. We have taken steps to ensure mutual assistance resources are ready and available through arrangements with contractors and relationships with other utilities through regional mutual assistance organizations like the Edison Electric Institute and the Southeastern Electric Exchange.

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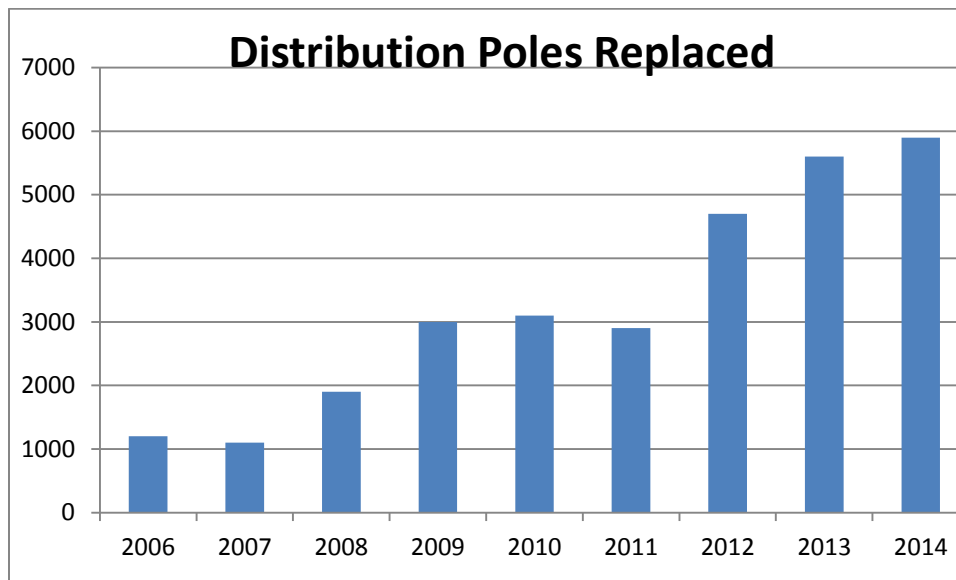
**Distribution System**

Distribution system inspection, maintenance, and replacement work is the cornerstone of DEF’s overall annual resource plan. Manpower and material needs are identified in the prior year to ensure work is prioritized, constructed efficiently, and completed on schedule.

The wood pole plan is on a firm 8 year cycle for inspections and maintenance and is in compliance with the Commission’s storm preparedness initiative. In April 2014 we started our second eight-year cycle (“cycle 2”). Inspections are targeted and prioritized. In 2014, 108,475 distribution poles were inspected, 65,674 were treated to prevent decay, and 5,597 replaced.

DEF currently has 769,905 wood distribution poles and has replaced 29,104 since 2006.

**Distribution Pole Replacement:**



Other 2014 system maintenance activities included over 1,348 padmount transformer replacements and 152,546 circuit feet of hardening pilot projects.

- Eight (8) Load Growth Improvement projects were completed in 2014.
  - Increased our total distribution substation capacity by 60 MVA.
  - The projects completed in 2014 include a new substation at Tavares East; substation capacity increases at Minneola and UCF North; new feeders at Tavares East, Minneola and Lake Helen; plus several re-conductor, load balancing/switching projects and neutral reactor projects completed on the distribution system.
- Thirteen (13) Storm Hardening projects were completed in 2014 (in addition to the pilot projects referenced earlier)
  - Represents 42,451 circuit feet of upgrades.

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- Thirteen (13) Small Wire upgrade projects were completed in 2014
  - Represents 49,643 circuit feet upgraded.
- Over the next three (3) years, more than thirty (30) load growth projects for new substations, capacity upgrades, and feeder additions have been identified. We are actively identifying additional projects based on distribution system load studies via our annual peer review process.
- We are continuously evaluating our distribution system to assess the need for additional projects in the areas of load growth, load transfer, new feeders, and protection of critical assets on an annualized basis. New projects are identified and vetted, then prioritized and funded.

DEF performs trimming on Distribution Feeder backbones on a three year weighted average cycle and Distribution Laterals on a five year weighted average cycle balancing this goal against overall system reliability, customer impact, and cost effectiveness. DEF's 2015 Vegetation Management program is on schedule to meet feeder and lateral maintenance cycle commitments.

Between April 1 and May 15 storm hardening patrols will be completed on all Distribution Feeders. All priority trimming and pruning will be completed by June 1, 2015. In addition to these programs, DEF has completed reactive mid-cycle pruning thus far in 2015 on over 5,600 trim locations and over 935 removals as of March.

DEF has fully implemented the Public Service Commission's 10-Point preparedness plan:

- The planned audits of joint use attachments were completed in 2009. In 2011, Duke Energy completed a full inventory of all joint use attachments. The completed inventory now details each company on every pole in the system. In 2012, DEF completed the analysis of the Joint Use Audit results from 2011. DEF notified the attaching companies of any specific violations that DEF has identified within the 3 feet of DEF's pole facilities.
- In 2011, Duke Energy successfully implemented its new work management system, the DEF Facilities Management Data Repository (FMDR) program. The current GIS system, implemented in 2008, is used in conjunction with the new work management system. In 2012, we added a new interface to automatically synchronize facilities between FMDR and the GIS system.
- A formal storm hardening forensic analysis process has been developed. The process will be implemented as needed during the 2015 storm season. Post-storm forensic data collection teams are identified and in place for the upcoming 2015 storm season.
- We continue our engagement with the academic community by sponsoring work through University of Florida's Public Utility Research Center. As part of this effort, we worked with the University staff and other utilities to assimilate state-wide weather station data into the forensics process and standardize the data that is collected during the forensic patrols.

In May of 2013, Duke Energy filed our 3 year (2013 – 2015) Storm Hardening Plan

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**Transmission System**

Transmission system readiness begins with structure inspections and system maintenance.

In 2014,

- 107 transmission circuit inspections were completed
- In excess of 7,952 wood pole structures were inspected
- In excess of 2,028 replaced with steel or concrete in accordance with NESC extreme wind design.

The vast majority of our transmission system was comprised of wood poles which we have been systematically replacing via maintenance upgrades, DOT relocations, and line rebuilds.

DEF currently has approximately 25,370 wood Transmission structures.

- Approximately 1,360 wood pole structures are scheduled to be replaced in 2015
- Since 2006, DEF has replaced over 16,000 wood structures with steel or concrete.

Duke Energy Transmission vegetation clearance requirements for the TVM program have been established. These clearances comply with the all NERC program vegetation clearance requirements.

The Duke Energy Transmission Vegetation Management Program

Duke Energy Transmission will continue to identify critical infrastructure improvements to meet NERC and other accepted industry practices. Also, DEF has a fully redundant backup Energy Control Center (ECC) that became operational in 2013. This critical facility has all the functionality of the main Control Center in St. Petersburg, but is located in a location that is not prone to storm surge. Although contingency plans currently exist, this redundant facility will further strengthen DEF's major storm response plan.

48 Transmission projects were completed 2014

76 Transmission Projects planned in 2015

Transmission is on target for meeting the goals outlined in the approved storm hardening plan.

In 2014,

- 724 miles of right of way were cleared.
- 723 miles of herbicide application
- 780 "danger trees" removed
- 37,275 tree removals
- 23,821 trees trimmed

The projects for 2015 are on schedule and we plan to clear 656 miles of right of way including all work identified by aerial and ground inspections.

Transmission is on target for meeting the goals outlined in the approved storm hardening plan.

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The PSC 10-Point storm preparedness plan and Storm Hardening rule have been implemented including enhanced GIS capability, post-storm forensic data collection, PSC initiated inspection cycles, and most notably, the hardening of transmission structures continues through wood pole replacement with concrete or steel assets.

**Local Government Coordination**

DEF remains prepared for a strong storm and has resources and materials planned to respond. In addition to our resources in Florida, we have access to resources throughout the Duke Energy multi-state organization, providing us important extra resources to draw upon. All of Duke Energy's jurisdictions are prepared to provide assistance.

DEF provides local governments with resource and restoration information before, during and after storm events to assist their local emergency response. Our program is operational year-round with more than 50 employees assigned to local government for emergency planning and response.

As part of our annual pre-hurricane season preparation, we work with EOC staff on state-wide and county levels to identify and prioritize critical infrastructure. EOC priorities will be factored into DEF's tactical restoration plan.

Representatives throughout the DEF service territory participated in the Florida Statewide Hurricane Exercise on storm preparedness activities. Other activities included weathering the Storm Hurricane forum, a Pinellas County Road Clearing mock drill with the Director of the Pinellas county EOC to discuss and coordinate the DEF Make It Safe program. Representatives attended a Pinellas County Response Operations Coordination meeting to discuss evacuation implementation guidelines, municipal liaisons, new storm surge illustrations and damage assessment.

From July to October 2014, DEF held nine individual live line demonstration sessions across our service territory. These events provided a forum for collaboration on emergency response, storm series outreach, and general safety awareness. These sessions offered critical information for first responders. Attendees included representatives from sheriff's departments, public works, police, fire and rescue departments, public schools, and emergency management as well as county administrators. Approximately 300 county representatives attended.

DEF representatives led a storm response and coordination meeting with the facilities staff from the Orange County Public Schools, Tampa Bay Beaches Chamber and the Pinellas County EOC Infrastructure Functional Group Table Top Exercise, which evaluated the EOC's Infrastructure Functional Group's actions during a storm. Multiple infrastructure capabilities were exercised such as restoration of critical infrastructure, critical transportation, operational coordination, operational communications, and private and public services and resources.

By placing DEF representatives inside many County EOC's, sharing information and participating in various forums, drills and exercises, we are able to more easily incorporate local government restoration priorities into our overall and on-going plan.

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During storms, electronic outage maps and estimated restoration times made available on DEF's external website have proved invaluable to cities and counties. In addition, detailed outage information down to the square-mile level is developed and provided via secure websites to the EOCs in multiple formats including data that can be imported into County GIS systems. Additionally, we have increased our capacity to provide the detailed outage data to EOCs during mid-level storms. DEF EOC Reps are the single point of contact for the county EOCs working closely with the DEF Community Relations Manager, who provides overall communications and coordination with cities and counties. EOC Reps will work with EOC staff to establish priorities during storms for restoration and provide regular restoration updates.

Immediately following a major storm such as a hurricane, accessibility for First Responders is a crucial component to public safety. Our Road Clearing Program has been established to provide dedicated resources to assist counties in the early stage of storm restoration with road clearing and "Make it Safe" activities.

We manage tree placement for Distribution and Transmission through our "Know Where You Grow" outreach program.

Public Education and Communication – DEF will communicate with customers and government leaders by:

- Advertising in newspaper inserts and storm preparedness publications
- Participating in radio and television storm discussion broadcasts
- Posting website information
- Conducting its own storm education meetings and forums

**Concerns, Vulnerabilities**

No system, no matter how hardened, can withstand a catastrophic hurricane without damage and extensive service interruptions.

- Multiple hurricane events have the potential to greatly dilute emergency response resources.
- Hurricanes with significant storm surge impacting our low lying coastal areas may cause large scale mandatory coastal evacuations.
- Severe (category 4, 5) hurricanes.

Duke Energy in other states and service areas and neighboring utilities were engaged in restoration activities associated with winter ice/snow storms, although DEF resources were not deployed in support of any relief efforts. Duke Energy Florida continues to be involved in any post event lessons learned and best practices reviews to apply towards our own planning and restoration plans.

**Conclusion:**

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Duke Energy has earned the EEI emergency-response award 6 times (for storms within the company's service area) and the assistance award 3 times (for support of other utilities' restoration efforts, most recently 2014 February & March Winter Storms Pax & Ulysses).

We believe our system will continue to perform well, especially in light of the initiatives implemented since the PSC began its ongoing storm hardening efforts.

Duke Energy's organization and T&D systems are prepared for the 2015 hurricane season.

Updated Duke Energy storm plans, extensive communication strategies, employees trained to perform storm roles and drills/exercises over the next few months will ensure our readiness for the 2015 hurricane season.