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Timolyn Henry\*\*\*\*\*1

**Timolyn Henry**

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**From:** S. Denise Hill [dhill@publicpower.com]  
**Sent:** Wednesday, May 31, 2006 2:25 PM  
**To:** Filings@psc.state.fl.us  
**Subject:** Keys Energy Services Storm Preparedness Implementation Plan  
**Attachments:** Keys Energy Services Storm Preparedness Implementation Plan.doc



Keys Energy  
Services Storm Pre..

Dear Sir/Madam,

Attached is the Implementation Plan for Ongoing Storm Preparedness for the Keys Energy Service.

Thank you,

Denise

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**STORM PREPAREDNESS IMPLEMENTATION PLAN**  
**KEYS ENERGY SERVICES - KEY WEST**  
**JUNE 1, 2006**

**A. INTRODUCTION:**

This report provides responses to specific questions related to ongoing efforts of Keys Energy Services (KEYS) to prepare for severe weather events such as hurricanes. Section "A" includes basic information about KEYS and the 2005 Hurricane Season.

1. *Contact person for clarifications or additional information*

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Director of Engineering/Control Center  
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Key West, Florida 33040  
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2. *Keys Energy Service*

-Municipal Electrical Company  
-154 Employees  
-27,000 customers  
-Service territory - Key West & the Lower Florida Keys  
-Entire service area is classified as coastal

3. *Electrical Statistics/System Configuration*

-142 MW system load  
-83 MW on-island local generation  
-8 substations with 35 feeders  
-257 miles distribution @ 13.8kV  
-60 miles of transmission @ 69 & 138kV  
-1 radial line - interconnection to Florida Keys Electric Coop (FKEC)

4. *Historical Information on 2005 hurricane impact to KEYS*

Hurricane Dennis - 7/9/05	
-Transmission Damage	-minor (10 hr outage)
-Distribution Damage	-moderate
-Outside Support	-60 crew
-95% Customer Restoration Time	-2.4 days

Hurricane Katrina- 8/26/05	
-Transmission Damage	-minor (4 hr outage)
-Distribution Damage	-moderate
-Outside Support	-40 crew
-95% Customer Restoration Time	-2.5 days

Hurricane Rita - 9/20/05	
-Transmission Damage	-minor (2 hr outage)
-Distribution Damage	-moderate
-Outside Support	-80 crews
-95% Customer Restoration Time	-2 days

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Hurricane Wilma - 10/24/05

-Transmission Damage	-minor (18 hr outage)
-Distribution Damage	-moderate
-Outside Support	-120 crews
-95% Customer Restoration Time	-4 days
-Other Comments	-major flooding

## **B. Three-Year Vegetation Management Cycle**

KEYS currently has a two year cycle that has been in effect for several years. We are able to attain this cycle with two of KEYS' in-house crews and three Asplundh crews. KEYS tries to, where possible, maintain clearance of:

1. -15 feet minimum on transmission lines
2. -10 feet minimum on all open conductors greater than 600 volts.
3. -5 feet minimum clearance on all open conductors less than 600 volts.
4. -3 feet minimum clearance on all covered conductors less than 600 volts.
5. -3 feet minimum clearance on all communications.

## **C. Transmission & Distribution Geographic Information System**

KEYS uses an automated GIS System. The GIS is based on Intergraph's "FRAME" software. This electric utility application allows KEYS to track all T&D electrical attributes for KEYS' facilities (i. e. pole, transformer, protective devices, capacitors, conductors, anchors, street lights etc). This data is very carefully maintained for accuracy. The system is on KEYS' intranet for various departments to utilize. In addition, all outages are reviewed, evaluated and corrective action is taken as needed. KEYS also review outage data to identify devices (i. e. fuses, breakers, feeders) that have experienced multiple outages over a defined period of time. This allows KEYS to identify potential problem areas before the problem becomes more severe.

## **D. Wooden Transmission vs. Concrete Transmission Statues**

KEYS has no wood transmission poles in our system. All KEYS' transmission poles are concrete (either round or square) or steel.

## **E. Post-Storm Data Gathering, Data Restoration and Forensic**

After every hurricane, all of KEYS' departments conduct individual sections "Debriefing Meeting" to obtain input on recovery efforts. In addition, KEYS' departments also conduct a company wide meeting to analyze the cause and effect of the outages and evaluate any change/improvements that can be made. A more detailed summary report is available upon request. This comprehensive report contains:

- Comparison tables of all 2005 storms
- Detail summary reports
- Survey on "Lines Energized Impacts"
- Debriefing meetings/summaries

In addition, KEYS' staff has participated in "Storm Evaluation Sessions" conducted by Florida Municipal Power Association (FMPA). These meeting have enabled KEYS to interact with others to obtain "lessons learned" from these storm restoration efforts.

#### **F. Audit of Joint Use Pole Attachment**

When KEYS receives a request to attach to KEYS' poles, KEYS will perform a stress analysis for ones that only involve transmission facilities. KEYS does not perform a detailed stress review for attachment request to KEYS' distribution poles. If the request includes "heavy copper communication" (not fiber) or involves an "angle (turn) structure" KEYS will review request in more detail. Furthermore, KEYS has not experienced any significant failures do to pole loading caused by "foreign utilities".

#### **G. Six Year Transmission Inspection Program**

KEYS does perform aerial inspections of the top part of KEYS' facilities (electrical section) every two years. The foundation and anchors are inspected every three - four years.

#### **H. Collection of Outage Data Differentiating between the Reliability Performance of Overhead and Underground Systems**

KEYS' outage data is recorded by system dispatchers in trouble logs and entered into an Excel's spreadsheet. This database includes the outage duration, number of customers affected and outage cause. Standard reliability indices are then calculated for the entire system. At the end of each month FMPA collects reliability indices from all member utilities and publishes a report comparing reliability performance. Each year KEYS' outage records are also sorted by feeder number, and standard reliability indices are calculated again for each feeder. This data is then used to identify problematic outage causes and geographic areas affected. Appropriate investigation is made through data collection and analysis and appropriate corrective action is taken. KEYS is modifying its reports by separating into two categories (overhead and underground distribution).

#### **I. Coordination with Local Governments**

KEYS coordinate all of KEYS' tree removals with the City, County and customers before any trees are removed. Any tree that is removed is either an evasive tree or a tree that may cause trouble with KEYS' distribution lines. Also, the protected trees that are in or near our lines, KEYS call for the City to assist in getting proper clearances without hurting the tree and to maintain a two year cut back. KEYS also works with the Nature Conservancy removing all evasive trees non indigenous to the keys.

b. With regards to storm preparedness/recover, KEYS are active participants in the local Emergency Operations Center (EOC) for both the City and County. If either EOC is activated, a KEYS' representative is stationed at the EOC throughout the entire storm/recovery period. This person provides a direct contact between the EOC, other response agencies and KEYS.

- c. KEYS will contact local government facilities agencies about facilities that are critical and have a need for backup-generation. KEYS incorporated this into their "Priority Restoration Policy".

**J. Collaborations Research through Public Utility Research Center (PURC)**

Keys Energy Services (KEYS) participates in PURC activities related to storm hardening through its membership in the Florida Municipal Power Association (FMPPA).