ORIGINAL

CCA Official Filing
5/31/2006 2:38 PM********** 2:38 PM********** Timolyn Henry******1

Timolyn Henry 060198

From: S. Denise Hill [dhill@publicpower.com]
Sent: Wednesday, May 31, 2006 2:26 PM
To: Filings@psc.state.fl.us
Subject: KUA Storm Preparedness Implementation Plan

Attachments: KUA Storm Preparedness Implementation Plan FINAL 0406.doc

KUA Storm
eparedness Impleme

Dear Sir/Madam,

Attached is the Implementation Plan for Ongoing Storm Preparedness for the KUA (Kissimmee Utility Authority).

Thank you,

Denise

S. Denise Hill
Information Technology Specialist
Florida Municipal Electric Association
P.O. Box 10114
Tallahassee, FL 32302-2114
O: 850-224-3314, ext. 6
F: 850-224-0358
dhill@publicpower.com
www.publicpower.com

CMP _____
COM _____
CTR _____
ECR _____
GCL _____
OPC _____
RCA _____
SCR _____
SGA _____
SEC 1
OTH _____

STORM PREPAREDNESS IMPLEMENTATION PLAN
KISSIMMEE UTILITY AUTHORITY
JUNE 1, 2006

A. Introduction

This report is intended to provide an outline of Kissimmee Utility Authority's (KUA's) ongoing efforts to prepare for severe weather events such as hurricanes. KUA currently serves approximately 62,000 customers in Osceola County. KUA operates generation, transmission and distribution facilities.

Prior to 2004, KUA's system was last significantly impacted by Hurricane Donna in 1960. Donna resulted in massive flooding in the downtown area of Kissimmee.

In 2004, KUA was impacted by three major hurricanes. The eye of Hurricane Charley swept through the central part of the KUA's service territory and interrupted service to 100% of KUA's 58,000 customers. The most significant damage to the system was the result of trees knocking down power lines and poles. KUA's engineering and operations staff of approximately 80 people was joined in the restoration effort by over 350 additional personnel from throughout Florida and the southeast. Even with this large number of mutual aid from outside our organization, it took thirteen (13) days to restore power to all customers that were able to receive power.

Shortly after being struck by Charley, KUA again took a direct hit from Hurricane Frances. Frances resulted in the loss of service to approximately 21,000 KUA customers. All power was restored in less than 48 hours following Frances. Post-storm evaluations indicated that there was significantly less damage during Frances for two primary reasons: 1) wind strengths of Frances were less that Charley 2) Charley had knocked down so many trees, there were significantly less downed lines due to trees.

KUA was again hit a short time later when Hurricane Jeanne struck the area and knocked out service to approximately 34,000 KUA customers. Ninety percent of these customers were restored in less than twelve (12) hours and all customers were restored within approximately 48 hours.

In 2005, KUA was spared significant hurricane damage and was only minimally impacted by Hurricane Wilma. Wilma caused brief interruption of service to a total of approximately 4,700 customers. All service to customers able to receive service was restored within 12 hours after the first impact of the storm.

KUA has used the experience from these events to continually evaluate, modify and improve all aspects of our planning, preparation and response to major storm events. The remaining sections of this report will briefly outline some of these efforts.

For additional information contact:

Kenneth L. Davis
Vice President of Engineering and Operations
(407) 933-7777 Ext. 1210
Email: kdavis@kua.com

B. Vegetation Management Cycle

KUA's design standards exceed the National Electric Safety Code requirements for horizontal clearances to all transmission lines. This typically dictates easement widths that provide for larger clear zones from trees and other structures.

KUA has now established a more formalized vegetation management program. All transmission lines are inspected and trimmed as needed prior to the start of each hurricane season. Inspection and trimming records will be maintained in the Geographic Information System (GIS) in order to track the effectiveness of the trimming activities and identify areas that might indicate persistent vegetation problems.

We attempt to maintain a 3-4 year cycle for inspecting and trimming all main distribution feeder circuits. We have also implemented testing of increased use of tree growth retardants (TGRs) in selected areas. When compared to 2003, KUA's annual expenditure for distribution vegetation management in 2005 increased over 61%. Through the same time frame, KUA vegetation related outages (as a percentage of all outages) has decreased from 7.28% to 4.74%.

C. Transmission and Distribution Geographic Information System

KUA utilizes a fully integrated GIS and Outage Management System (OMS). The system provides the capability to automatically identify a customer call and post the outage to the OMS system and display to location of the caller on a geographic display. Outage data is tracked all the way down to the individual customer level and maintains the date, time, duration and cause of the outage. Outage data is also separated by underground or overhead.

All outages are reviewed and evaluated and corrective action is taken as needed. We 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 us to spot potential problem areas before the problem becomes more severe.

D. Wooden Transmission vs. Concrete Transmission Structures

Since 1985, KUA standards have dictated that all new transmission lines will be constructed with concrete and/or steel structures. When an existing wood transmission pole requires replacement or relocation, the replacement pole is also concrete or steel. The one exception to this standard occurred during the recovery

from Hurricane Charley. A number of wood transmission poles were damaged due to trees. We were unable to find an adequate number of concrete poles in stock to replace these damaged poles. These particular poles were replaced with wood poles in order to restore the transmission line to service in a reasonable time frame.

KUA has also recently implemented design standards that include the use of concrete poles on all new main three phase distribution feeder circuits. Concrete poles will also be used for major equipment structures such as three-phase transformer banks, main three-phase underground riser poles and crossings of major roadways. These concrete poles are being designed to handle NESC extreme wind conditions.

E. **Post-Storm Data Gathering, Data Retention and Forensic Analysis**

After every major outage on the KUA system, Engineering & Operations Staff conduct a "post mortem" meeting to analyze the cause of the outage, the response to the outage and evaluate any changes or improvements that can be made to the system or the response process. Forensic analysis is utilized on an as-needed basis.

Throughout the recovery efforts for Hurricane Charley, KUA Staff conducted regular meetings to evaluate the recovery efforts. A complete review of all aspects of the preparation, response and recovery effort was also conducted after Charley. In order to assist in our evaluation, KUA also hired the firm of James Lee Witt Associates to review our post storm response and recovery. They were charged with reviewing our preparation and response activities to identify areas where improvement could be made. Most of their recommendations have been implemented. This included a complete revision of our Emergency Operations Plan.

We have also participated with joint utility storm preparation sessions conducted by the Florida Municipal Electric Association (FMEA) and at various industry conferences such as ones conducted by the American Public Power Association (APPA). These conferences have allowed us to interact with other state and national utilities to discuss best practices and lessons learned from storm response and restoration efforts.

F. **Audit of Joint-Use Pole Attachment Agreements**

When a permit request is received from an attaching entity, engineering personnel review proposed location with regard to pole height, type of KUA facilities on the pole and the number of other attachments already existing. Our GIS system maintains a record for every pole in the system that shows the number and owner of all foreign attachments to the pole.

We currently do not run stress calculations on all attachments unless field review points to an obvious problem. However, we are currently drafting a new Pole

Attachment Agreement that will further address KUA's need to obtain stress/loading calculations as part for the attachment permit approval process.

G. **Six-year transmission Inspection Program**

As part of our ongoing transmission and distribution inspection program, we attempt to conduct a visual inspect all transmission and distribution facilities on a five-year cycle. Experienced line crew personnel are assigned to inspection duties on a full-time basis. In addition to the visual inspections, infrared scanning of the T & D system is conducted on an ongoing basis. We currently perform scanning a minimum of two evenings each week. Scan results are submitted to engineering for review and scheduling of corrective action.

In October of 2002, we contracted for an aerial inspection of our 230 kV transmission facilities. The inspection was performed via helicopter fly-over in close proximity to the line. A trained inspector utilized gyro-stabilized binoculars and long focal length photography to aid in the inspection. This task included inspection of insulators for signs of arcing, tracking, discoloration, bird droppings etc. Inspections were also conducted of line hardware for wear and potential failure.

Funding has been included in the upcoming Fiscal Year 2007 budget to outsource for the inspection of all wood transmission poles. Funding has also been included for the start of a formal distribution wood pole inspection program that will establish an eight-year inspection cycle.

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

Although we do track all outages via our Outage Management System (see article C above) we do not currently calculate reliability indices for overhead vs. underground. However, the data is readily available and can be calculated and evaluated rather easily.

I. **Coordination with Local Governments**

We do not particularly coordinate with city/county governments with regard to vegetation management outside of compliance with local tree removal ordinances when applicable. To date we have a good working relationship with these agencies that enables us to conduct both routine and emergency vegetation management without prior agency permits or approvals. We do participate in the development review process for all new developments in both the City and County. We do use the process to point out any potential problems that we can identify with regard to vegetation being planted do close to the power lines.

With regard to storm preparedness/recovery, we are active participants in the local emergency operations centers (EOC) for both the County and City. If either EOC is

activated, a KUA representative from the Engineering Department is stationed at the EOC throughout the storm/recovery period. This person provides a direct contact between the EOC, other response agencies and KUA. KUA's liaison to the County EOC has also been certified under the National Incident Management System (NIMS).

A member of the County EOC also serves as an observer of KUA's annual Disaster Drill exercise to get first-hand knowledge of how the utility is operating during and emergency response activity.

In addition, KUA will typically station line crew personnel at key fire rescue stations to "ride out" the storm with the first responders. These personnel will respond to any emergency calls with the first responders to ensure that the area is safe with regard to downed power lines.

J. **Collaborative Research Through PURC**

Through KUA's membership in the Florida Municipal Electric Association and its interaction with PURC, KUA is involved in PURC activities. Also, KUA has sent KUA staff to PURC conferences