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**Timolyn Henry**

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**From:** S. Denise Hill [dhill@publicpower.com]  
**Sent:** Wednesday, May 31, 2006 2:42 PM  
**To:** Filings@psc.state.fl.us  
**Subject:** Vero Beach Storm Preparedness Report

**Attachments:** Vero Beach Storm Preparedness Report.doc



Vero Beach Storm  
Preparedness ...

Dear Sir/Madam,

Attached is the Implementation Plan for Ongoing Storm Preparedness for the City of Vero Beach.

Denise

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# **Storm Preparedness Implementation Plan City of Vero Beach Electric Department May 2006**

## **A. Introduction**

The City of Vero Beach is located on the Atlantic coast in Indian River County. The electric utility serves approximately 32,500 customers in a 50 square mile area. The City operates a power plant, 138,000 and 69,000-volt transmission lines and a 13,200 volt distribution system. The electric system also has transmission ties with Fort Pierce Utility Authority and Florida Power and Light.

According to historical data, Indian River County averages being affected by hurricanes in some way every 2 years. In 2004 the City of Vero Beach had direct hits from Frances and Jeanne and again in 2005 by Wilma. During Frances and Jeanne we lost source voltage to the transmission system. The generators were not running so we were 100 % down. Most of our feeders had locked out by the time we lost transmission voltage. In 2005 during Wilma we lost 75 % of our distribution feeders. It took 16 days to restore the feeders after Frances, 9 after Jeanne, and 4 after Wilma.

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

The City has always attempted to maintain a three years vegetation management cycle, however after hurricane Frances it was evident that this wasn't enough. Prior to Frances the trees were trimmed back three feet from the lines and generally we did not cut down trees in the right of way. In December 2004, after Frances and Jeanne, the City adopted the Tree Line USA approach to trimming trees. Now when tree limbs get within a 3 feet of the neutral or 5 feet of the primary it is removed back to the trunk or main limb. This usually leaves about a 10 ft clearance after initial trimming. The City has also started topping trees that are in the right-of-way at the customer's request in an effort to help them remove the trees. Prior to Frances the City used two 3-man crews year round with a third crew for 6 to 8 months during storm season. With the new trimming policy the City is able to maintain proper clearance with two 3-man crews.

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

The City has a GIS department that has mapped the electric system. The entire system was inventoried and mapped using a GPS prior to the hurricanes. The information included all overhead and underground facilities outside of the substations including the age of the equipment if it was available. The Electrical Engineering Department uses AutoCAD for all new installations and the GIS department incorporates the data into the GIS maps. The GIS maps were used during the restoration after Wilma to keep customers informed of the progress.

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

The original transmission system was a mix of square concrete poles, steel poles, and wooden poles. In the last 10 years all transmission line additions have been with spun concrete. Most of the wooden poles have also been replaced with spun concrete. We currently have approximately 700 square concrete, 65 steel, 125 spun concrete, 65 wooden, and 5 round hybrid concrete/steel poles. Any additions or replacements will be either spun concrete or round hybrid poles.

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

Data on outages is gathered daily and put into a monthly report. This same procedure is used during and after a hurricane. The information that was gathered has led to some major decisions:

- a. To convert our oldest overhead distribution lines to underground.
- b. Adopt a more aggressive tree trimming policy.
- c. Use only spun concrete or hybrid transmission poles.
- d. Use spun concrete distribution poles instead of square concrete.
- e. The adoption of the policy to turn the reclosing relay off on a feeder breaker after the fourth consecutive operation to allow it lockout on its own during a hurricane.

The desire and need for more accurate and real time data is also pushing the City towards installing an Outage Management System which will merge the SCADA, GIS, and emergency phone answering system.

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

The City's overhead electric distribution system has a little over 6000 poles. The ownership of these poles is split between Bellsouth and the City with Bellsouth owning over half of the poles. Every 5 years Bellsouth and the City survey the system jointly. During this survey this City inspects each pole to determine its condition and need for upgrade or replacement.

The poles may have a number of attachments including phone, cable, and fiber. When a pole is initially installed it is designed for all future attachment therefore when a request for an attachment is made new calculations are generally not made.

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

The City owns approximately 55 miles of transmission lines and is able to visually inspect each pole once a year except for the two river crossings. These two crossings are inspected by helicopter every 10 years. The rest of the transmission poles are also inspected by helicopter at that time.

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

Data is collected on every outage including whether it is overhead or underground, the cause of the outage, duration, number of customers affected, weathers conditions, if equipment, animals, or vegetation was involved, utility mapping coordinate and a few other items. The action taken and material used is also recorded. There are no plans to change the process at this time other than to move forward toward installing an Outage Management System to assist in assimilating and retrieving the data.

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

We participate in the development review process for all new developments in the City and to a lesser degree with the County. We try to use this process to point out any potential problems with vegetation being planted do close to the power lines. We do not coordinate with city/county governments on a daily basis with regard to vegetation management, however we do respond to special requests when necessary.

With regard to storm preparedness and recovery we are active participants in the local emergency operations center (EOC). The County, City, Police, Fire and Sheriff's departments all use the same 800 Megahertz radio system, which is coordinated through the EOC during a declared disaster.

We also work closely with the local governments, health care facilities, and retail stores with regard to installing backup generators. We assist them in determining the size generator that is needed. We also make sure that it coordinates with the operation of the City's electric system.

**J. Collaborative Research Through the Public Utility Research Center (PURC) at the University of Florida**

The City of Vero Beach participates in PURC activities related to storm hardening research through membership in the Florida Municipal Electric Association and its involvement with PURC.