

Control Number: 32182



Item Number: 62

Addendum StartPage: 0

Memorandum

DATE:	June 9, 2006	
TO:	All interested parties	
FROM:	David Featherston Director, Infrastructure Reliability Division	
SUBJECT:	Project 32182 – Investigation of Methods to Improve El Infrastructure that Will Minimize Long Term Outages a	ectric and Telecom nd Restoration Costs.

The attached letter was mailed by regular mail to these two parties.

Paul Hudson Chairman

Julie Caruthers Parsley Commissioner

Barry T. Smitherman Commissioner

W. Lane Lanford Executive Director



Public Utility Commission of Texas

June 9, 2006

Mr. Nelson Nease Brickfield Burchette Ritts & Stone, P.C. 1005 Congress Avenue – Suite 400 Austin, Texas 78759

RE: <u>Project No. 32182</u> Investigation of Methods to Improve Electric and Telecom Infrastructure that Will Minimize Long Term Outages and Restoration Costs

Dear Mr. Nease:

Commission staff has filed today a draft Executive Summary and Recommendations for this investigation, which is enclosed. The staff will hold a workshop on June 15, 2006 at 1:30 PM in the Commissioners' Hearing Room on the 7th floor of the William B. Travis Building. Written comments on the draft should be filed by June 23, 2006. The entire project schedule can be found on the PUC Interchange under Project 32182 (Item No. 58).

For any questions concerning this draft or the schedule, please contact Brian Almon at 512-936-7355 (<u>brian.almon@puc.state.tx</u>) or Nara Srinivasa at 512-936-7335 (nara.srinivasa @puc.state.tx.us).

Thank you for your participation.

Sincerely,

David Featherston Director, Infrastructure Reliability Division

Enclosure

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Paul Hudson Chairman

Julie Caruthers Parsley Commissioner

Barry T. Smitherman Commissioner

W. Lane Lanford Executive Director



Public Utility Commission of Texas

June 9, 2006

Mr. Larry E. Biddle, Docket Manager EMBARQ 400 W. 15th St. – Suite 1400 Austin, Texas 78701-1600

RE: <u>P</u> Ii

Project No. 32182 Investigation of Methods to Improve Electric and Telecom Infrastructure that Will Minimize Long Term Outages and Restoration Costs

Dear Mr. Biddle:

Commission staff has filed today a draft Executive Summary and Recommendations for this investigation, which is enclosed. The staff will hold a workshop on June 15, 2006 at 1:30 PM in the Commissioners' Hearing Room on the 7th floor of the William B. Travis Building. Written comments on the draft should be filed by June 23, 2006. The entire project schedule can be found on the PUC Interchange under Project 32182 (Item No. 58).

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Thank you for your participation.

Sincerely.

David Featherston Director, Infrastructure Reliability Division

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PROJECT NO 32182

PUC INVESTIGATION OF METHODS TO IMPROVE ELECTRIC AND TELECOMMUNICATIONS INFRASTRUCTURE TO MINIMIZE LONG TERM OUTAGES AND RESTORATION COSTS ASSOCIATED WITH GULF COAST HURRICANES

STAFF REPORT

DRAFT

EXECUTIVE SUMMARY

June 9, 2006

I. EXECUTIVE SUMMARY AND RECOMMENDATIONS

The purpose of this Hurricane Infrastructure Investigation is to identify ways to improve electric and telecommunications infrastructure and to minimize the utilities' downtime occurring as a result of Gulf Coast hurricanes. To accomplish this goal, the Public Utility Commission (PUC) staff (Staff) conducted industry workshops at the Commission and town hall meetings in the Houston, Beaumont and Corpus Christi areas. In the course of these workshops and meetings, Staff obtained input from telecommunications and electric utilities as well as interested parties. Staff focused on information related to the utilities' historical experiences with storm aftermaths and the utilities' resulting long-term and short-term plans for infrastructure improvements to address these situations. This report summarizes damages and operational issues sustained by electric and telecommunications utilities during and after the occurrence of Hurricane Rita and provides the utilities' recommendations, including suggested cost recovery mechanisms

The electric and telecommunications utilities generally agreed that damage to above-ground distribution facilities from hurricanes, and high-wind events, resulted primarily from the impact of trees and flying debris. Damage to substation equipment, was primarily the result of flying debris (including limbs and portions of trees) and occasionally the result of flooding.

Most electric and telecommunications utilities in Texas have some outside plant structures or facilities that were designed and built according to now outdated wind loading standards. Staff recommends that the utilities report on the amount of pre-1977 facilities and to project the cost and time to upgrade the facilities to meet current wind loading standards to improve the likelihood that infrastructure facilities will be able to withstand severe weather events. The following material provides Staff's detailed recommendations pursuant to reducing future outage durations and associated restoration costs due to hurricanes or similar high-wind events.

Summary of Staff Recommendations:

 Require electric and telephone utilities without a vegetation management program to develop and implement a vegetation management program for all overhead facilities/lines (structures, pole, cross arms, insulators, etc.). This program should consider the growth rates of common vegetation in the service area. Each utility should provide the Commission with the details of its existing or newly developed vegetation management program by April 1, 2007.

Staff believes vegetation management is a key component for addressing outages. Any management program must consider the type of vegetation, the concerns of the landowners, and the rights of the utility to implement a program depending upon the ownership of the land in and near the ROW. The cost of an effective program must be borne by the ratepayers and recovered through traditional rate making procedures.

2. Require electric and telephone utilities without a cyclical ground-based facilities inspection program to develop and implement a regular, ground-based inspection cycle for all overhead facilities (structures, pole, cross arms, insulators, etc.), including a condition-based assessment of wood pole suitability for continued service. Each utility should provide the Commission with the details of its existing or newly developed facilities inspection program by April 1, 2007.

Staff believes that a regular inspection cycle for overhead facilities is necessary to ensure that the facilities are maintained in a manner that will provide a reasonable level of service to the customers. Require each electric utility to trim or remove (during the normal vegetation management cycle) all trees that are located within right of way (ROW) controlled by the utility and that compromise NESC clearance limits.

Staff believes that ROW under the control of the utility must be clear of trees as much as possible to minimize outages and to allow quick and unhindered access during restoration activities. Staff also believes that removal of trees will be more cost-effective than periodic trimming, but staff realizes that public resistance may prevent 100% removal.

4. Require telecommunications utilities to ensure that all central offices in hurricane- prone areas be capable of full operation without interruption for at least 72 hours after loss of electric utility power.

Staff recognizes that the requirement for sufficient fuel storage for a generator to meet this requirement may not be cost effective and that there are other ways to assure a 72-hour operation for central offices, such as batteries, mobile generators or off-site fuel storage.

5. Each electric utility should provide the Commission by August 1, 2007 with a report identifying all of the utility's transmission lines that were built to pre-1977 NESC wind loading standards. For each identified line, the report should provide the number of miles of ROW, a description of the types of structures used in the line, and an estimated cost and reasonable time required to upgrade the line to the NESC standards in effect a the time the upgrade starts. For each identified line within 10 miles of the Texas coastline, the report should include an estimated cost and reasonable time required to upgrade the line to the NESC standards in effect at the time required to upgrade the line to the NESC standards in effect at the time of the upgrade starts 140 mile-per-hour wind speed.

Staff believes the upgrading lines built before the NESC's 1977 wind loading standards will decrease damage and improve restoration time. The cost of the upgrading should be identified to determine if it would be cost effective.

6. Require, after January 1, 2007, all new and replacement permanent transmission structures within 50-miles of the Texas coastline to be prestressed concrete, steel, or other engineered products that are more resistant to high wind and deterioration than wood.

Require, after January 1', 2007, all new and replacement permanent transmission structures within 10 miles of the Texas coastline to be designed assuming a maximum wind loading of 140 mile-per-hour.

Staff believes the effort to strengthen facilities should be focused along the Gulf Coast where major storms are more likely and were wood structures deteriorate quicker than in other parts of the state.

7. Require each electric utility to identify and maintain records regarding each instance in which damage of transmission or distribution facilities occurred due to a weather event other than lightning. Require each electric utility to provide an annual report to the Commission that includes, for each such weather event, the date and type of weather event causing the damage, an identification and description of each facility damaged (by distribution feeder or transmission line, not by pole or structure), a description of the nature and extent of damage to each facility (feeder or line), the voltage of each facility damaged, and the approximate age (by 5-yr increments) of each facility damaged. The first report is due February 15, 2008 for calendar year 2007.

Staff believes more detailed information is needed to determine how to design facilities to lessen the impact from weather related events. By understanding what damage is caused by particular weather events, the electric utilities and

Commission staff will be able to conclude what are the reasonable, cost effective improvements needed for the electric system. Staff does not believe all facilities can be protected against all possible weather events, but some changes can be identified through this effort.

8. Require utilities after January 1, 2007 to design and construct all new substations that are located within a 100-yr floodplain so that the floor of the control house and all water-sensitive components of the substation operating equipment are above the elevation of the 100-yr floodplain.

Staff believes that, if it is determined by the utility that the most suitable location of a new substation is within a 100-yr floodplain, the utility should ensure that any potential flooding will not impact the operating equipment. Staff believes that substations that are currently under construction should not be required to meet this new standard. Therefore, an effective date is recommended several months after the expected Commission approval date.

9. If new underground distribution facilities are to be installed in the rear of residential lots, require electric utilities to work with developers and homeowners to establish buffer zones of not less than 10 feet around the facilities in which no trees or structures will be placed. Such buffer zones will ensure suitable access to the facilities for any future repair work.

Staff concludes that utilities must take an active role with developers and homeowners so that everyone in new residential developments understands the need to provide access to underground electric facilities. A utility representative making presentations to homeowner associations is not sufficient to meet this requirement. The utility must use bill inserts, door hangers or other more direct methods to inform residents about this requirement.

10. To the extent that it is not prohibited by city ordinance, electric utilities should encourage developers of new residential properties to utilize underground distribution facilities and express the preference to locate these facilities in front of homes or in accessible alleyways.

Staff believes the underground facilities, even though the initial installation expense is larger than overhead facilities, will provide better long-term reliable service to residential customers.

11. Staff recommends that electric utilities in Texas jointly sponsor a research project/study that evaluates the effectiveness, reasonableness and costs of retrofitting overhead distribution facilities so that, under conditions of high wind and/or ice loading, the conductors and/or support hardware will fail before the structures fail. A final project/study report, including conclusions and recommendations, should be provided to the Commission by January 1, 2007.

Staff believes there are instances in the United States where utilities are considering this type of installation and retrofit. If this type of installation could lessen restoration costs and recovery time, then utilities need to evaluate this technology. Utilities should consider a partnership with one or more Texas universities or with appropriate industry research groups.

12. Staff recommends initiation of a rulemaking by January 1, 2007 that directs each electric utility to conduct inspections (during the utility's regular, ground-based inspection cycle) of its distribution facilities to determine whether the amount of non-electric equipment on structures is causing an overload on those structures. The rulemaking should also direct each utility to correct all such identified overloading problems within a reasonable amount of time and to institute practices that will prevent such overloads in the future.

- 13. Staff recommends initiation of a rulemaking by January 1, 2007 that directs each electric and telephone utility to develop (and incorporate into its existing "pole attachment" contracts and tariffs) procedures and requirements sufficient to ensure the structural integrity of the utility's overhead facilities in situations where other parties attach cables or other facilities to the utility's overhead facilities.
- 14. Staff recommends that the Commission include in the Electric and Telecommunication Scope of Competition Reports a suggestion that the State Legislature explore the issue of authorizing electric utilities to trim or remove trees that are not on ROW controlled by the utility but which threaten the utility's transmission or distribution facilities.
- 15. Several electric utilities have embarked on projects to modernize the electric grid by deploying intelligent devices on the network. These deployments will enhance real-time monitoring of outages, selective switching of electric supply routes, and preventative maintenance of protective devices to increase the reliability of the power grid. The Commission should establish through a rulemaking incentives to encourage such deployments by electric utilities.