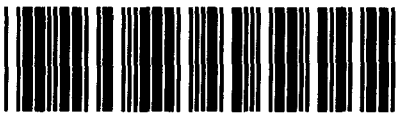
Control Number: 32182



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PROJECT NO. 32182

PUC INVESTIGATION OF METHODS TO IMPROVE ELECTRIC AND TELECOM INFRASTRUCTURE THAT WILL MINIMIZE LONG TERM OUTAGES AND RESTORATION COSTS ASSOCIATED WITH GULF COAST HURRICANES	§	**BEFORE THE PUBLIC UTILITY COMMISSION OF TEXAS**

2006 JUN 23 PM 3:26

COMMENTS OF TXU ELECTRIC DELIVERY COMPANY

TO THE HONORABLE PUBLIC UTILITY COMMISSION OF TEXAS:

COMES NOW TXU Electric Delivery Company ("Electric Delivery" or "Company") and, in response to the request by the Staff of the Public Utility Commission of Texas' ("PUC" or "Commission"), files these its Comments to the recommendations included in the draft Executive Summary filed by the Staff on June 9, 2006, and would respectfully show as follows:

I. GENERAL COMMENTS

Electric Delivery appreciates the opportunity to provide comments on Staff's draft Executive Summary. The summer and fall of 2005 provided challenges for electric utilities to respond to the devastation brought about by two major hurricanes. Electric Delivery recognizes the importance of addressing this issue to the citizens of the State of Texas, and particularly to those along the coastal region.

The initial draft Executive Summary was made available by Staff on May 10, 2006, with a workshop to solicit oral comments being held on May 15, 2006. Various parties, including the Company, filed written comments regarding the draft Executive Summary by the May 30, 2006 deadline. Staff submitted a second draft Executive Summary on June 9, 2006, and held a workshop to solicit oral comments on June 15, 2006. To Electric Delivery's knowledge, the comprehensive report detailing Staff's findings has not been made available to parties, and it should be noted that the current version of the draft Executive Summary does not provide the bases or justification for Staff's fifteen recommendations. Therefore, Electric Delivery's comments are limited solely to the draft executive summary.

A preliminary review of the recommendations contained within Staff's draft indicates that while those recommendations are well-intended, there is the need for a more comprehensive

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review of each recommendation as it relates to: 1) previously established engineering codes; 2) existing statues; 3) city jurisdictional matters; 4) implementation costs; and 5) cost recovery issues associated with these initiatives. As an example, proposed engineering or design standards must undergo extensive review to ensure that unintended consequences do not compromise the original design intent.

Given the magnitude of the effort expended by both Staff and the participating utilities, and the potential financial ramifications associated with some of the recommendations, Electric Delivery believes that it would be appropriate to examine the potential benefits anticipated through improved restoration activities as compared to the hardening of facilities. A significant portion of Project No. 32182 was spent addressing the utilities' practices as well as state and local government practices in the wake of a hurricane event, and Electric Delivery anticipates that lessons learned among the workshop participants with regard to restoration activities will further minimize the duration of outages associated with these events. Certainly, the benefits anticipated from improvements in these activities must be weighed against the significant costs associated with Staff's recommendations to determine the true benefit to the consumers of the State of Texas.

Finally, the proposed recommendations appear to apply state-wide, even though the full impact of hurricanes tends to be restricted to the immediate coastal areas. Electric Delivery believes that the bases and justification for each recommendation must be reviewed to see if it is reasonable to apply it to the entire state, or whether it should be more limited in its scope.

II. COMMENTS ON SPECIFIC RECOMMENDATIONS

Summary of Staff Recommendations:

1. 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.

The development and implementation of an inspection cycle for Vegetation Management is currently a part of Electric Delivery's internal procedures. As such, the guidelines employed pursuant to this inspection can be made available to the Commission within the stated timeframe of the recommendation.

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.

Electric Delivery inspects electrical overhead equipment on both a formal and informal basis as part of routine work on the system. Formal inspections are tracked. Informal inspections done as part of routine work are not tracked; however, a work order is created for any problems found from the informal inspection. The guidelines employed with respect to these inspections can be made available to the Commission within the stated timeframe of the recommendation.

3. 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.

TXU Electric Delivery trims or removes trees located in ROWs that compromise NESC standards as part of its normal vegetation management cycle. Current ROW width standards provide an appropriate balance between the competing public interests in reliable electric service and the aesthetic/environmental attributes of trees. Further, an enhanced tree-trimming requirement as contemplated by this recommendation should be implemented by passage of a

Commission rule, which would provide a basis for dealing with customer complaints regarding "aggressive" tree trimming and would supersede any conflicting local ordinances designed to limit utility tree-trimming practices. Electric Delivery would note that even a Commission rule may not take precedence should there be contrary restrictions in the easement between the utility and the landowner.

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.

This recommendation is not applicable to Electric Delivery.

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 at 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 of the upgrading assuming 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.

The premise that upgrading to current code would provide a significant improvement from damage sustained by hurricane events is questionable. It should be noted that in addition to the guidance provided by the NESC code, each utility implements its own additional design standards. All lines constructed prior to 1977 would have been built in accordance with the pre-1977 code. Given that there has not been a significant amount of new transmission construction, with the exception of activity over the last five years, one would expect the majority of the transmission grid to have been built in accordance with the pre-1977 code. This implies that all lines that are not new or have not been re-built with new conductor since 1977 would have to be

evaluated and redesigned. This is a massive and burdensome undertaking to determine what would need to be done (if anything) to the existing lines, and would divert significant engineering resources from new-build projects.

TXU Electric Delivery recommends that the requirement to perform this study and submit a report be dropped. If the intent of Staff's recommendation is for all transmission lines to be able to withstand the impacts of a hurricane event, then design standards (not NESC code) will be required to be developed and used as appropriate.

6. Require, after January 1, 2007, all new and replacement permanent transmission structures within 50-miles of the Texas coastline to be pre-stressed 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.

TXU Electric Delivery does not have any transmission structures within 50 miles of the Texas coastline and concludes that this recommendation is not applicable.

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.

Electric Delivery currently reports for weather events classified as "major" under

Substantive Rule 25.52(c)(2)(D). As mentioned in the May 15, 2006 Workshop, some of the causes of forced interruptions are attributed to "unknown" simply because the physical aftermath of a hurricane, tornado, or severe storm and the immediacy of the need for service restoration, do not afford the opportunity for conclusive forensic analysis. And in some cases, there is simply no evidence clearly indicating the cause of the outage – the cause of the outage is the weather event. Furthermore, the age of a particular structure may not be clearly delineated because the components of said structure may be of differing vintages. Staff's comments at the workshop and in this recommendation seem to indicate that a reporting requirement would somehow make "unknown" outage causes become attributable to a known cause. Utilities are already extremely interested in determining the cause of outages, as knowing the cause can contribute significantly to programs designed to reduce outages. TXU Electric Delivery views the requirement as excessive, burdensome and unlikely to improve reliability, and thus recommends that it be removed from Staff's recommendations. Alternatively, if Staff believes the collection of this data will bring to light cost-effective infrastructure "hardening" steps, it should abate all its other recommendations pending the collection and analysis of such data to ensure that cost-effective infrastructure improvements result from this rule.

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.

The recommendation is consistent with TXU Electric Delivery's design criteria.

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.

The Company agrees that, for facilities (overhead / underground) that are installed in the rear of residential lots, the developer, homeowners, and cities should provide and require suitable access to our facilities for any future repair. A 10-foot ROW is desirable; however, some subdivisions with small lots may be significantly impacted by this requirement, in that it would reduce the number of lots that can be developed. Ultimately, most subdivision development requirements are set at the municipal level, and Electric Delivery believes that this type of specific requirement would require a Commission rule to provide a basis for dealing with developer and customer complaints regarding this requirement, and extended outage complaints resulting from homeowner failure to abide by "buffer zone" requirements. Further, a rule is necessary to provide a basis to challenge any city ordinance that does not provide the required "buffer zone". Electric Delivery would note that, even with a rule, the outcome of any litigation between the requirements of such a rule and conflicting requirements in a municipal zoning/subdivision development ordinance is unknown.

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.

Electric Delivery does not agree that undergrounding necessarily provides greater service reliability in all circumstances. Underground facilities are subject to dig-ins, and repair of underground facilities can take longer than for equivalent overhead facilities. With respect to weather-related events, while underground facilities generally are not subject to outages due to high winds and falling vegetation, they can be more susceptible to outages due to flooding.

With regard to the installation of underground facilities, it is Electric Delivery's current practice to install such facilities in the front of homes or in accessible alleyways. This is most common in the DFW Metroplex or residential developments that have a large number of lots. However, this may not be practical in rural areas or where a development consists of large (very wide or large acreage) lots such that predicting the most opportune placement of underground facilities is extremely difficult. Once again, Electric Delivery will consult with cities as to municipal requirements. Additionally, a supplemental caveat should be amended to this requirement. In addition to where underground installation is not prohibited by ordinance, the requirement should read "and where tariff provisions for payment of difference in cost by requesting parties are in effect", to ensure that all customers do not bear the cost of underground facilities.

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.

The requirement calls for a study to be done on the feasibility (reasonableness and cost) of using "breakaway" hardware on distribution equipment to minimize damage to structures during severe weather events. There are two primary areas of concern raised by the issue. The first is public safety, and the second is practicality.

In the area of public safety, the concern is the possibility of conductors breaking free from their supporting structures in such a way that a protective device is not cleared. The result could be energized cables operating at substandard clearances and possibly being accessible to the public. There may also be an increased likelihood of a cascading failure of hardware across multiple structures once a conductor breaks loose. This may unnecessarily increase the magnitude of the damage to a line and increase its restoration time. Any type of breakaway

hardware should be prohibited on roadway crossings where a wire would be subject to being hung by a vehicle and have a high likelihood of causing injury to the general public.

There are no specific restrictions in the NESC that prohibit breakaway facilities, but the Company believes the concept violates the general spirit of the code. The NESC was established to protect electrical workers and the general public from electrical equipment. Poles and equipment have established loading criteria in the code for the purpose of keeping energized conductors in the air and out of the reach of the public. The "breakaway" hardware concept, in essence, serves to defeat many of those rules and criteria.

From a practical side, to implement such a program would require having insulator pins, deadends, and through bolts for crossarms and braces engineered to break or shear at specific levels of force. Electric Delivery is not aware of any distribution hardware on the market today that meets this description. It would be desirable to have the hardware designed to break at as close to the rated strength of a wood pole as possible to prevent unnecessary component failures. The problem with this approach is wood is not an engineered product. Every installed pole is going to break at a different level of force. The relative strength of a pole is dependant on factors such as diameter, variations in wood density, loading, the number and location of holes drilled in the pole, as well as others. Pole strength is not a static figure. It will change (usually decrease) with the age of the pole. These factors will make it very difficult to engineer line equipment that will reliably fail under appropriate conditions. If it could be done, this hardware would then have to be retrofitted onto approximately 1.9 million poles in the Electric Delivery service territory. That would be an expensive and time consuming process.

Electric Delivery has broached the concept with third-party vendors that supply line hardware and they have not indicated that any party has approached them regarding the development of break away hardware. Further correspondence has indicated that Florida Power is taking the opposite approach and is strengthening their hardware to maintain the integrity of the infrastructure rather than weakening it to have the conductors break away. Electric Delivery therefore recommends removing this requirement completely because of the safety and practicality issues expressed in this commentary.

Finally, if the Commission should decide that such a study is necessary, the proposed January 1, 2007 deadline will likely not provide sufficient time to complete a coordinated effort, and Electric Delivery thus proposes that the deadline be extended until at least April 1, 2007.

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.

Using figures from Osmose (based on work they are doing in Florida), Electric Delivery has estimated costs on a per pole basis to do pole loading analysis for its system. Osmose has developed software called "Load Calc" that allows field personnel to do rough pole loading analysis in the field from their hand held units. The calculations use pole class, basic conductor configurations, assumed attachment points, and general weights, tensions, and attachment points for joint users to determine if a pole is within its acceptable loading guidelines. Any structure found to be close to or over its loading limits would have a more detailed pole loading analysis utilizing the "O Calc" software. This method also assumes guyed structures are not a problem.

Assuming 10% of the Company's distribution structures are guyed, Osmose believes 85% of the remaining poles can be successfully analyzed using their "Load Calc" software. The other 15% of the remaining poles would need a more detailed analysis with the "O Calc" software. The estimated cost for the inspection and running "Load Calc" is $9 per pole. The cost for running "O Calc" on a structure is $90/pole. Based upon these figures, the total cost to do loading analysis on all 1.9 million poles in the Company's system totals over $36 million. This figure does not include remediation of any problems found.

Electric Delivery's analysis assumes that contractors would be available to do the work. If the utilities in Texas and Florida are all being required to do this simultaneously, qualified skilled labor may be in short supply. In addition, time spent on this type of pole-by-pole analysis would reduce worker availability to perform other necessary field work.

To prevent loading problems going forward, the Company would need to require a detailed loading analysis on any pole a joint user requests to attach to. This is not currently being done and would need to be added to our joint use contracts and permitting process, and would increase the permitting cost to third party attachers.

TXU Electric Delivery submits that $36 million is an unreasonably high expense to incur

to prevent what, for our system, is believed to be a minor contributing factor to severe storm damage to facilities.

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.

Electric Delivery has an attachment agreement with all parties attaching to a Company pole. The Agreement commits both parties to permitting, attachment count and maintenance of facilities. The agreement specifically identifies penalties for unauthorized (not permitted) attachments. Many of those making attachments to Company poles are governed by the Federal Communications Commission (FCC) and the appropriate policies and procedures are in place to follow those requirements.

- Attachment Standards - All attachers are required to follow NESC or Electric Delivery Standards, whichever is more stringent. Electric Delivery has a section in the overhead standards manual specifically for joint use requirements and all attachers have access to this information via a web site or by requesting the information directly.
- Permit Application - All attachers are required to provide a permit application before making attachment to a pole. Electric Delivery follows a process which assures that the new attachment is made to NESC and/or Electric Delivery Standards.
- Safety Compliance Audit – Electric Delivery currently audits individual attachers for their compliance to NESC and/or Electric Delivery Standards.
- Attachment Count – Counting of 3rd party attachments takes place every 5 years per the attachment agreement. Attachments found that were not permitted are considered unauthorized. By contract, Electric Delivery is allowed to charge back rent up to 5 years as well as a specific amount for each unauthorized attachment.
- Pole Loading – As a general matter, when a request is made by a third party to attach facilities to a pole, Electric Delivery does not require or complete pole loading calculations, as general loading information, based upon engineering studies, is known at the time the pole was first installed. The Company could implement a new pole loading analysis requirement as part of the permit application process, although that would

increase costs and the time it takes to approve the application, and Electric Delivery does not support implementation of such a broad requirement.

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.

Electric Delivery has no comment with regard to this recommendation.

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.

Electric Delivery is taking the lead in modernizing the electric grid. Incentives to encourage the use of such devices may be beneficial to complement the penalties inherent in the Commission's current reliability rule. Electric Delivery would note that the technology in this area is emerging and, thus, any incentive program must be fluid enough to keep pace with new and better equipment, availability, and/or cost.

One such technology is Broadband Over Powerline ("BPL"), which will be installed to read AMIS meters for approximately 2 million customers in the Electric Delivery service area over the next four years. This opens the opportunity to collect voltage and transformer load data to monitor the system. Some equipment operational data can also be gathered and communicated on the BPL fiber network for an additional communication cost. There is statutory language already in place associated with AMR and BPL, but no legislation or Commission rules to encourage the separate development of the Smart Grid.

In addition to BPL, there are various other technologies and devices being developed to support a Smart Grid. Some examples include fault indicators with communications back to the operating center, and R&D projects such as a fault anticipator.

Electric Delivery applauds Staff for its forward-thinking and embracement of new technologies, including but not limited to BPL, and would support the proposed recommendation.

Respectfully submitted,

TXU Electric Delivery Company

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CERTIFICATE OF SERVICE

It is hereby certified that a copy of the foregoing has been hand delivered to the Staff of the Public Utility Commission on this the 23rd day of June, 2006.