State of Florida

Public Service Commission

CAPITAL CIRCLE OFFICE CENTER • 2540 SHUMARD OAK BOULEVARD
TALLAHASSEE, FLORIDA 32399-0850

-M-E-M-O-R-A-N-D-U-M-

DATE: October 12, 2006

TO: Director, Division of the Commission Clerk & Administrative Services (Bayó)

FROM: Division of Competitive Markets and Enforcement (R.Moses, L.Harvey, C.Vinson)
Office of General Counsel (A. Teitzman)

RE: Docket No. 060077-TL – Proposal to require local exchange telecommunications companies to implement ten-year wood pole inspection programs.

AGENDA: 10/24/06 – Regular Agenda – Decision on Proposal Prior to Hearing – Interested Persons May Participate

COMMISSIONERS ASSIGNED: All

PREHEARING OFFICER: Administrative

CRITICAL DATES: None

SPECIAL INSTRUCTIONS: None

FILE NAME AND LOCATION: I:060077EMB.doc

Case Background

On February 7, 2006, the Commission approved a staff recommendation in this docket requiring Florida's incumbent local exchange companies to implement wood pole inspection programs based upon an eight-year cycle and requiring the companies to provide annual reporting on pole inspection results. The Commission directed staff to conduct an informal meeting with the parties to discuss the PAA order's requirements and possible alternatives. This meeting was held on February 21, 2006.

On March 1, 2006, the Commission issued Order No. PSC-06-0168-PAA-TL (PAA order.) It required the companies to file plans for implementing their pole inspection programs.

The PAA order also specifically afforded a degree of flexibility in the manner the companies would implement the PAA order, directing staff to bring before the Commission any plans that materially deviate from its stated requirements.

On March 22, 2006, Verizon and Embarq (formerly Sprint) filed separate protests of the Commission's PAA order requesting formal hearings. The remaining Florida ILECs all filed proposals that complied with the PAA order's requirements. Due to the PAA order's treatment of severability, the protests by Verizon and Embarq did not prevent the PAA from becoming final at the end of the protest period for the other parties.

On April 3, 2006, Verizon filed a wood pole inspection program proposal, and subsequent discussions between staff and Verizon yielded revisions to the company's proposal. On July 18, 2006, the Commission accepted that amended proposed plan upon staff's recommendation.

On May 3, 2006 Embarq filed a wood pole inspection plan, and subsequent discussions with staff led to a revised plan being filed on July 6. Further revised plans were filed on September 12, 21, and October 4, 2006. This recommendation presents the final plan for approval by the Commission.

Discussion of Issues

Issue 1: Should the Commission approve Embarq's revised wood pole inspection plan (Attachment A)?

Recommendation: Yes. **(Moses, Harvey, Vinson)**

Staff Analysis: As ordered, Embarq's proposed wood pole inspection plan requires inspection of 100% of the company's wood poles on an eight-year cycle. There are, however, two variations from the PAA order's requirements. Therefore, Commission approval of Embarq's wood pole inspection plan is necessary.

In its proposals and responses to the PAA, Embarq noted that many of the National Electric Safety Code (NESC) rules regarding pole strength and loadings (e.g. Sections 25 and 26) apply only to Grades B and C construction standards. These grades are required for poles bearing electric distribution and transmission conductors. Embarq's poles bearing only telecommunications facilities (or telecommunications plus cable facilities) are generally subject to lesser Grade N construction standards. On this basis, Embarq has proposed differing inspection methodologies for its shorter Grade N poles.

Variations from the PAA Order

Embarq categorizes its wood poles that bear electric utility conductors exceeding 750 volts (Grade B and C), plus its telephone-only poles 35 feet and longer (Grade N), as "Priority 1" poles. Embarq proposes inspections including load calculation and drilling for all Priority 1 poles. The proposed drilling will trial the use of the Resistograph above and below ground level as an alternative to traditional excavation and drilling.

Embarq's remaining wood poles, Grade N poles 30 feet or less in length and bearing only telecommunications facilities (or telecommunications plus cable facilities) are categorized as "Priority 2" poles. For these poles, Embarq also proposes the use of the Resistograph as an alternative to traditional excavation and drilling. Since Priority 2 poles are not subject to NESC strength requirements, Embarq proposes to perform the Resistograph testing only when a "visual inspection and/or sound and prod testing reveals suspected damage or decay."

Due to the small diameter of the drill bit involved with the Resistograph method, Embarq believes this device may be less intrusive and preferable to traditional drilling and excavation. Staff notes that the Resistograph represents new technology that has seen limited application. Still, as in the case of Verizon, staff believes the Resistograph to be a reasonable alternative, worthy of consideration for longer term use. Resistograph, when drilled at a 45 degree angle at ground level, provides information on the condition of the pole underground. As such, staff believes its use should be accepted on an experimental basis.

A second variation from the PAA order in Embarq's plan involves performing load calculations. For the Priority 2 poles, Embarq does not propose load calculations as described on page 10 of the PAA order. Instead, staff understands that as wood quality inspections are conducted on Priority 2 poles, load calculations will be selectively performed based upon need,

as determined from a visual inspection of pole attachments. Though the PAA order cites Section 26 of the NESC in requiring load calculations be conducted in conjunction with wood pole inspections, staff does not believe this section of the NESC is applicable to Grade N construction.

In comparison to the wood pole inspection plans already approved by the Commission, staff believes the Embarq plan provides adequate testing of the company's poles and reliable data to assess the effectiveness of the plan for continued use in future years. Other than the exceptions regarding the conducting of load calculations and excavation of Priority 2 poles, all requirements of the PAA order have been met in staff's opinion and staff recommends Embarq's plan (Attachment A) should be approved by the Commission.

Issue 2: Should this docket be closed?

Recommendation: Yes, the docket should be closed. **(Teitzman)**

Staff Analysis: Analysis of results, annual reporting, and monitoring of plan adherence by staff can be accomplished without an open docket. Should any issues arise, a new docket could be initiated at a future date.

WOOD POLE INSPECTION AND REPORTING PLAN

Embarq Florida, Inc. (f/k/a Sprint-Florida, Incorporated)

Revised October 4, 2006

Docket No. 060077-TL

1.0 Inspection Methodology

1. Abstract

Embarq Florida, Inc., f/k/a Sprint-Florida, Incorporated (hereinafter "Embarq") maintains approximately 38,800 wood poles within its service area. Within this population of poles, 9,673 are considered to be higher risk. These poles are 35' or taller and carry electrical circuits greater than 750 volts to ground. The remaining 29,127 poles are less than 35' in height, and carry telecommunication circuits. Both groups combined accounted for a placement (new and replacement for all purposes) rate of less than one-half of one percent during the unprecedented hurricane seasons of 2004 and 2005. Thus, these lower risk poles accounted for a failure rate of significantly less than one-half of one percent during the hurricane seasons. This data clearly illustrates that Embarq is in a distinctly different situation than that of the power industry for the majority of its poles

Embarq will inspect and document all of its poles in an 8-year cycle. Corrective action will be taken on any poles found to be defective or not of sufficient strength to carry the imposed load using an established process, i.e. the Irregular Plant Condition process.

If Embarq's analysis of the inspection results indicate that a geographic area experiences more decay due to environmental influences or bug infestation, Embarq will implement a cost-effective remediation plan, which may include the utilization of industry approved bracing or trussing.

1.2 Pole Selection Criteria

Class 5 poles of 30 and 35 feet are the standard for telecommunications poles. These poles are stronger than required for attachment loads imposed by communications and lower voltage electric attachments. Poles that carry only communication facilities and poles with communications and electric circuits less than or equal to 750 volts to ground have less potential to fall or break. A class 5 pole has a breaking load of 1900 lbs 2' from the top of the pole. A 30-foot class 5 pole has a more consistent circumference from the base to the top of the pole than a taller pole. With the added strength of support strands, the chances of these poles failing and creating a hazard are greatly reduced.

Taller poles with higher voltage power lines have more potential to fall or break due to the weight and size of the attachments and higher wind resistance at the weaker (narrower) top of the taller poles. Poles 35 feet or higher lose their consistency in circumference as a normal physics plant equation. The greater the height, the more reduced the circumference and greater potential for failure at heights exceeding 30 feet, i.e., poles that carry electrical attachments such as cross-arms and transformers.

Based on the years of experience in maintaining aerial plant and the guidelines in the NESC standards, Embarq believes that only poles over 30 feet with and without the specified electrical attachments reaching the age of 10 years need to be placed into the inspection program. Poles over 30 feet without electrical attachments and poles 30 feet and less are not considered higher risk, even in the NESC standards. However, in order to collect data which can be used as a basis for future decisions, Embarq will include all its poles in the proposed inspection plan.

Poles will be listed in order of priority with poles carrying electric distribution circuits greater than 750 volts being priority 1 and telephone poles 30 feet and shorter and carrying only telephone cable, cable television and possibly an electric company drop as priority 2. During inspections of Embarq priority 1 poles load calculations will be performed to determine whether

the poles are structurally sound and capable of maintaining the current imposed loads. Poles failing acceptable load calculation parameters as defined by ANSI 05.1 and NESC standards will be corrected within 90 days unless an immediate safety hazard exists

Going forward Embarq will enhance its load calculation program based on the data provided by the attaching entities to illustrate cumulative load and ensure that higher risk "priority 1" poles, i.e., 35 feet and taller, carrying electric distribution facilities exceeding 750 volts, are not overstressed. Embarq is analyzing several load calculation software programs including the Osmose O-Calc and Linesoft pole load calculation software in order to choose one to use as its standard product.

2.0 Pole Inspection Methodology

Embarq Florida owns and maintains approximately 38,800 poles within the boundaries of its Florida service areas. Embarq will inspect all poles as stated in section 1.2 and will collect data essential for reporting and remediation consistent with Order No PSC-06-0168-PAA-TL. The following are the specifics of the Embarq pole inspection plan.

Business as Usual Inspections by technicians;

2.1 During business as usual (BAU) activity the EMBARQ technicians when accessing poles will conduct visual inspections in conjunction with sound and prod technique to determine if decay or bug infestation is present or a visual inspection indicates that the pole strength/stability is suspect. A pole that as a result of a prod test reflects surface decay, bug infestation or rot at any point on the pole will be tagged as unsafe and reported to engineering for corrective action

2.2 Visual inspections will consist of checking for excessive rake, leaning, pole movement in wind, location of the birthmark on the pole relative to ground line to determine the depth of the pole in the ground, vehicle damage, fungus, bugs, and cracks that go several inches into the pole. Cracks are common due to the compression of the preservative treatment process however deep cracks could be a sign of a problem.

2.3 Report defective poles to engineering for structural bracing or replacement following established procedures.

Inspection Program:

Inspectors on behalf of Embarq will perform the following tasks;

2.4 Review and create maps of pole records for each exchange/area to be inspected

2.5 Perform inspections of Priority 1 poles which will include load calculation and drilling to determine strength and structural integrity. Embarq will trial Resistograph technology as an alternative to traditional excavation and drilling.

2.6 Perform Sound and Prod test on all Grade N poles to determine if additional testing is required

2.7 If visual inspection and/or sound and prod test reveals suspected damage or decay the inspector will drill the pole above and below ground, not to exceed a depth of 18 inches, to determine the strength and structural integrity. Embarq will trial the Resistograph as an alternative to traditional excavation and drilling.

2.8 Record results, and update Embarq's engineering work order (EWO) and facility record systems

2.9 Report defective poles to engineering for structural bracing or replacement following established engineering standards

2.10 Place an inspection tag on each pole delineating the date of inspection and or placement

2.11 Provide a summary of the pole inspection results to the FPSC on an annual basis with the first report to be filed on March 1, 2007.

3.0 Pole Inspection Requirements per the NESC

Embarq will fully comply with Rule 25-4.036, Florida Administrative Code (F.A.C.), Design and Construction of Plant and the 2007 Edition of the National Electrical Safety Code (IEEE C2-2002) and the National Electrical Code (NFPA 70-2005), pertaining to the construction of telecommunications facilities. Embarq agrees that compliance with these codes and accepted good practice is necessary to ensure, as far as reasonably possible, continuity of service, uniformity in the quality of service furnished and the safety of persons and property.

3.1. The NESC rules regarding pole strength and loadings, including deterioration, only apply to grades B and C construction. In addition, specific rules apply to poles exceeding 35 feet in height.

3.1.1 Sections 25 and 26 provide rules that apply to wind loading requirements and speak specifically to grades B and C construction. Rule 250 – 2 (c), (d), and (e) are coastal hurricane maps that indicate the winds are calculated at a 10 meter/33 foot height. Since the majority of the Embarq poles are 30 feet or shorter, those poles are excluded from NESC load requirements; however, Embarq will include those poles in the inspection schedule so that data on the performance of all classes and sizes of poles in the Embarq network can be accumulated and analyzed.

4. Specific Pole Data Accumulation

Embarq will utilize the following methods to ensure that 100% of Embarq poles are inspected over an 8-year cycle:

4.1 Implement a schedule of pole inventories by exchange/service area

4.2 Conduct mutual inspections with electric companies as the agreements between the parties require

4.3 Utilize a contracted work force to perform pole inspections to complement Embarq trained technicians

4.4 Record data for each inspected pole.

4.5 Pole specific data will include:

4.5.1 Type of inspections performed

4.5.2 Type of pole (material e.g. wood/species)

4.5.3 Age of poles inspected

4.5.4 Number of poles inspected by size and class

4.5.5 Number of poles failing inspection

4.5.6 Number of poles requiring a change in inspection cycle

4.5.7 Number of poles requiring minor follow up

4.5.8 Number of poles that were overloaded

4.5.9 Number of poles with an estimated pole life less than 8 years

4.5.10 Number of inspected poles addressing a prior backlog

Embarq inspectors will record the data associated with each pole inspected and will maintain a database from which an annual summary report can be generated to monitor and track the progress, effectiveness and cost of the inspection program.

5. Compliance

Embarq will ensure compliance through internal processes as follows:

5.1 Periodic quality assurance of the contractor or company employees performing the pole inspections and the quality of the data captured

5.2 Quarterly progress reports to Network Services operation Director Engineering

5.3 Ensure resources are maintained to meet annual pole inspection requirements

Annual report to FPSC

Embarq will submit an annual pole inspection report to the FPSC Division of Competitive Markets and Enforcement by March 1 of each calendar year. The report will contain data points as defined in section 4 above.

6. Poles Inspected During Normal Course of Business

Poles and attachments found to be unsafe by technicians during normal course of business in compliance with Embarq Practice 010-100-009 Climbing Equipment, Climbing Safety, Testing Poles and Working On Poles will be tagged per Embarq Irregular Plant Conditions Practice 010-100-024 Tagging and reporting Unsafe Equipment and Conditions, will be reported to the local supervisor and engineering manager for immediate remediation.

Pole failures occur as a result of various causes. Before climbing a pole or testing it for safe climbing conditions, the technician will make a visual check for excessive rake or unexplained leaning of a pole; bent, loose, or missing pole steps; the presence and distribution of large knots; climber gaff splinters; unauthorized signs, aerials, clotheslines; nearby interfering tree growth; and excessively tight or excessively slack drop or line wires on one side of pole.

Before climbing, technicians must test poles using the following methods in a manner that will provide the greatest structural results.

1) Prod Test: (exploring the pole for rot at the ground level or below.) A long shank screwdriver (5 in. minimum) or test prod must be used. Apply pressure at ground level to pole by pushing prod into pole. For further determination, remove 6 inches or more dirt at base of poles and reapply inward pressure to pole by prod below ground level.

2) Hammer Test: Rap the pole sharply with a hammer weighing about 3 pounds, starting near the ground line and continuing upwards circumferentially around the pole to a height of approximately 6 feet. The hammer will produce a clear sound and rebound sharply when striking sound wood. Decay pockets will be indicated by a dull sound and/or a less pronounced hammer rebound. When decay pockets are indicated, the pole shall be considered unsafe.

Poles found to be in an unsafe condition will be given immediate remedial action, e.g. trussing, bracing or replacement, within 10 business days.

7. Strength Assessments and Load Calculations

The strength and loading requirements specified in National Electrical Safety Code (NESC) Sections 25 and 26, only apply to Grade B and C construction, not Grade N construction. The NESC does not provide specific loading requirements for Grade N Construction. NESC pole strength requirements for communication poles are based on the grades of construction specified in Section 24 of the NESC. Sections 224 and 242 state the only time the communication facilities become a Grade B construction is when the communication facilities are higher than the electric circuits or the communications facilities are placed in the supply space on the pole. Embarq owned poles that carry electric supply cables or components that exceed 750 volts (Priority 1) are subject to NESC rules for Grade B and C construction. Therefore, strength assessments will be conducted utilizing strength assessment software of all attachments on the pole. Embarq will partner with the appropriate electric utility to determine imposed load of electric facilities.

EMABRQ will use a program specifically designed to accurately assess loads on existing and newly installed poles. Outputs will include:

- Individual attachment load
- Total load of all attachments
- Results indicating overload or reserve capacity
- Stress on the pole from wind at the base of the pole

New poles placed in service will be put into one of the two categories, either a Priority 1 or Priority 2 depending on the grade of construction. Poles that are added or replaced or changed due to the addition or removal of power distribution attachments exceeding 750 volts will be assigned either a Priority 1 or a Priority 2 status based on the new characteristics and inspected accordingly.