

**BEFORE THE  
FLORIDA PUBLIC SERVICE COMMISSION  
DOCKET NO. 080317-EI**

**IN RE: TAMPA ELECTRIC COMPANY'S  
PETITION FOR AN INCREASE IN BASE RATES  
AND MISCELLANEOUS SERVICE CHARGES**



**DIRECT TESTIMONY AND EXHIBIT  
OF  
REGAN B. HAINES**

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07058 AUG 11 8

FPSC-COMMISSION CLERK



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1                   **BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION**

2                                   **PREPARED DIRECT TESTIMONY**

3   **OF**

4   **REGAN B. HAINES**

5  
6   **Q.**   Please state your name, address, occupation and  
7           employer.

8  
9   **A.**   My name is Regan B. Haines. My business address is 2200  
10           East Sligh Avenue, Tampa, Florida 33610. I am employed  
11           by Tampa Electric Company ("Tampa Electric" or  
12           "company") as Director, Engineering in the Energy  
13           Delivery Department.

14  
15   **Q.**   Please provide a brief outline of your educational  
16           background and business experience.

17  
18   **A.**   I graduated from Clemson University in June 1989 with a  
19           Bachelor of Science degree in Electrical Engineering and  
20           again in December 1990 with a Master of Science degree  
21           in Electrical Engineering specializing in Power Systems  
22           Engineering. I have been employed at Tampa Electric  
23           since 1998. My career has included various positions in  
24           the areas of Transmission and Distribution System  
25           Planning and Engineering within the Energy Delivery

1 Department. In my current position, I am responsible  
2 for directing all activities associated with the  
3 designing, engineering, performance analysis, joint use  
4 and various construction services for the electric  
5 transmission and distribution systems from the generator  
6 to the customer's meter.  
7

8 **Q.** Have you previously testified before the Florida Public  
9 Service Commission ("Commission" or "FPSC")?  
10

11 **A.** Yes. I have testified before the Commission in Docket  
12 No. 070297-EI concerning the impact of extreme weather  
13 events on the state's transmission and distribution  
14 ("T&D") infrastructure and the company's storm hardening  
15 efforts.  
16

17 **Q.** What is the purpose of your direct testimony?  
18

19 **A.** My direct testimony supports Tampa Electric's T&D  
20 related capital and operations and maintenance ("O&M")  
21 expenses of \$218,945,000 and \$76,256,000, respectively,  
22 for the 2009 test year. These amounts include the costs  
23 of implementing Tampa Electric's Storm Hardening Plan  
24 approved by this Commission in Order No. PSC-07-1020-  
25 FOF-EI, issued December 28, 2007. I will also discuss

1 T&D operations, system reliability and Tampa Electric's  
2 plan for continued cost-effective service to its  
3 customers. I will describe the increased federal  
4 regulatory challenges the company is facing and  
5 recommend a mechanism to recover required transmission  
6 additions. Finally, I will discuss and support the  
7 company's T&D O&M benchmark comparisons.

8  
9 **Q.** Have you prepared an exhibit to support your direct  
10 testimony?

11  
12 **A.** Yes, I am sponsoring Exhibit No. \_\_\_ (RBH-1) consisting  
13 of seven documents, prepared under my direction and  
14 supervision. These consist of:

15 Document No. 1 List Of Minimum Filing Requirement  
16 Schedules Sponsored Or Co-Sponsored  
17 By Regan B. Haines

18 Document No. 2 Transmission And Distribution  
19 Material, Equipment and Fuel  
20 Percentage Price Increases Since  
21 1999

22 Document No. 3 Transmission And Distribution  
23 Capital Investment For 2009

24 Document No. 4 Transmission And Distribution  
25 Related O&M Budget For 2009

1 Document No. 5 2007 SAIDI Comparison From Southern  
2 Company Benchmark Consortium Study  
3 Document No. 6 Florida Investor Owned Utility  
4 Historical SAIDI Comparison  
5 (Distribution Only)  
6 Document No. 7 Storm Hardening Activity 2009  
7 Projection

8

9 **Q.** Are you sponsoring any sections of Tampa Electric's  
10 Minimum Filing Requirements ("MFRs")?

11

12 **A.** Yes. I am sponsoring or co-sponsoring the MFRs listed  
13 in Document No. 1 of my Exhibit No. \_\_\_ (RBH-1).

14

15 **Q.** Describe Tampa Electric's T&D system.

16

17 **A.** Tampa Electric's service area covers approximately 2,000  
18 square miles in West Central Florida, including all of  
19 Hillsborough County and portions of Polk, Pasco and  
20 Pinellas counties. Tampa Electric's transmission system  
21 consists of approximately 1,300 miles of overhead  
22 facilities, 26,000 poles and 15 miles of underground  
23 facilities. The company's distribution system consists  
24 of approximately 6,100 miles of overhead lines, 300,000  
25 poles and 7,900 miles of underground lines. Tampa

1 Electric's transmission and distribution systems are  
2 connected through 220 substations throughout its service  
3 territory.

4  
5 **COST OVERVIEW**

6 **Q.** Please describe the expenditures you will be discussing  
7 in your direct testimony.

8  
9 **A.** The expenditures I will be addressing are T&D related  
10 O&M expenses and capital investment. I will describe  
11 why these expenditures are required and how Tampa  
12 Electric is efficiently balancing short-term maintenance  
13 and long-term capital investment in an effort to provide  
14 the most cost-effective reliable power to its customers.

15  
16 **Q.** What are the main drivers of capital and O&M spending?

17  
18 **A.** The need for capital additions as well as O&M expenses  
19 are driven by a number of factors. One of the primary  
20 drivers is customer growth, which includes the addition  
21 of new customers as well as the increased demand  
22 requirements from existing customers. Tampa Electric  
23 has experienced significant customer growth over the  
24 last 16 years and continued growth is projected at a 2.1  
25 percent annual average over the next 10 years. Tampa



1 Electric's customer base has increased 44 percent since  
2 1991 to 666,354 customers in 2007 and is forecasted to  
3 be 679,941 customers by the end of 2009. This growth  
4 has occurred within all customer classes. Existing  
5 customers also continue to add appliances, televisions,  
6 computers, and expand the size of their residences and  
7 businesses, which increases demand. This load growth  
8 and increase in demand increases the utilization of the  
9 T&D system and eventually forces the expansion of the  
10 system. As the system increases in size, increased  
11 expenditures are required to ensure the safe and  
12 effective operation of the system. This increase in  
13 demand requires both capital expansion of the T&D system  
14 and increases in O&M expenses as well.

15  
16 A second driver, which is normal and expected by all  
17 utilities, is capital and O&M expenses associated with  
18 the aging of infrastructure. Florida's population grew  
19 by approximately 4.8 million from 1960 to 1980. The  
20 number of Tampa Electric customers grew by approximately  
21 168,000 during this time. A significant amount of  
22 electric infrastructure was installed to support this  
23 increasing population. As a result, some of the  
24 infrastructure is now 30 to 50 years old. As the system  
25 ages, increased expenditures, both capital and O&M, are

1 required to replace aging infrastructure while providing  
2 safe and reliable service to the company's customers.

3  
4 A third driver, which I discuss later in my testimony  
5 affecting both capital and O&M expenses is increases in  
6 material and equipment costs as illustrated in my  
7 Exhibit No. \_\_\_ (RBH-1), Document No. 2. Since 1992,  
8 general inflation has increased by 48 percent; steel by  
9 72 percent and concrete by 73 percent.

10  
11 Two additional drivers for O&M expenses are related to  
12 weather and regulatory compliance. The weather, which  
13 can vary from year-to-year, creates outages and system  
14 outage restoration activities. O&M expenses projected  
15 for the test year have been based on a normalized  
16 weather year.

17  
18 Regulatory rules and related compliance costs have  
19 increased since 1991. The Federal Energy Regulatory  
20 Commission ("FERC") and the North American Electric  
21 Reliability Corporation ("NERC") both have increased  
22 reliability and compliance requirements. The Florida  
23 Public Service Commission's storm hardening requirements  
24 have also had an impact.

25

1 Finally, maintenance spending is required for the  
2 company to inspect its growing T&D system on a prudent  
3 basis and to correct conditions found during these  
4 maintenance inspections before they become detrimental  
5 to the system and create operational or safety issues.  
6 The company has increased its maintenance activities in  
7 order to comply with all requirements of the recent  
8 Commission orders related to storm hardening which are  
9 further outlined later in my direct testimony.

10  
11 **Q.** Please provide an overview of Tampa Electric's T&D  
12 related capital and O&M expenditures proposed in this  
13 proceeding.

14  
15 **A.** Tampa Electric forecasts that it will invest  
16 \$218,945,000 in T&D related capital and incur  
17 \$76,256,000 in T&D related O&M expenses in 2009. The  
18 Energy Delivery business unit at Tampa Electric is  
19 primarily responsible for the T&D related capital  
20 expenditures and O&M expenses illustrated in Document  
21 Nos. 3 and 4 of my exhibit. The 2009 Energy Delivery  
22 capital budget includes the following initiatives:  
23 system expansion of transmission, substation and  
24 distribution facilities to support customer growth and  
25 generation expansion; storm hardening initiatives;

1           substation circuit breaker replacements; relocations to  
2           support road improvements; Automated Meter Reading  
3           ("AMR") meter additions; an Energy Management System  
4           ("EMS") upgrade project; and outdoor lighting additions.

5  
6           The 2009 budgeted T&D related O&M costs include those  
7           activities required for system operation and  
8           restoration; meter reading; vegetation management;  
9           inspection programs; and the ongoing maintenance of  
10          equipment and computer systems. All projected budgets  
11          have taken into account efficiencies and productivity  
12          gains the company has achieved through technology and  
13          process improvements, which are mentioned later in my  
14          direct testimony. These capital investments and O&M  
15          expenses are necessary to provide electrical service in  
16          a cost-effective, safe and reliable manner while at the  
17          same time meeting FERC, NERC, and FPSC requirements.

18  
19       **RELIABILITY**

20       **Q.** Please provide an overview of the company's reliability  
21          initiatives.

22  
23       **A.** Tampa Electric focuses on multiple initiatives to cost-  
24          effectively maintain and enhance customer service and  
25          reliability. First, activities are targeted that will

1 prevent or limit the number of outages experienced by  
2 customers and then the company work to reduce the amount  
3 of outage time experienced.

4  
5 The two largest reliability programs the company employs  
6 are vegetation management and wood pole inspections.  
7 These two initiatives provide the largest benefit for  
8 preventing outages before they occur. Additionally, the  
9 company performs inspections and repairs to improve T&D  
10 circuit reliability, which include circuit thermovision  
11 evaluations to detect potential problem areas,  
12 condition-based substation maintenance to maintain  
13 equipment prior to ineffective operation or failure,  
14 underground cable testing to predict failure and pad-  
15 mounted transformer inspections and repairs.

16  
17 Another measure taken by the company to maintain  
18 reliable service is through system capacity evaluations.  
19 These studies consider the forecasted peak loading  
20 demands of customers and identify potential problem  
21 areas within the system. This provides the company's  
22 engineers with the information needed to develop the  
23 most cost-effective alternatives for system expansion.

24  
25 As a result of these initiatives, Tampa Electric's

1 reliability performance is consistently in the top  
2 quartile among utilities according to annual Edison  
3 Electric Institute and Southern Company Consortium  
4 benchmark reports; see Document No. 5 of my exhibit.

5  
6 **Q.** Please describe the primary indices used by the company  
7 to monitor system reliability performance.

8  
9 **A.** Tampa Electric reviews multiple system reliability  
10 indices, but primarily monitors System Average  
11 Interruption Duration Index ("SAIDI") and Momentary  
12 Average Interruption Event Frequency Index ("MAIFIE").  
13 SAIDI is generally considered a key reflection of  
14 operating performance. It indicates the total minutes  
15 of interruption time the average customer experiences in  
16 a year. SAIDI is calculated by dividing total customer  
17 minutes of interruption by total customers served. A  
18 significant factor having a direct influence on this  
19 index is the severity of the storm season.

20  
21 MAIFIE defines the average number of times an average  
22 customer experiences a momentary interruption event.  
23 The MAIFIE index is calculated by dividing the total  
24 number of customer momentary interruption events by the  
25 total number of customers served. Tampa Electric

1 annually sets reliability goals for both SAIDI and  
2 MAIFIE.

3  
4 **Q.** Please describe your system reliability performance.

5  
6 **A.** Since 2005, Tampa Electric has reduced its SAIDI by  
7 almost 10 percent, from 84 minutes to 77 minutes.  
8 Document No. 6 of my exhibit shows Tampa Electric's  
9 performance relative to the other investor-owned  
10 utilities in Florida since 1999. With the exception of  
11 the hurricane years of 2004 and 2005, Tampa Electric has  
12 consistently had the top or second best SAIDI  
13 performance in the state.

14  
15 **Q.** What are some additional initiatives that the company  
16 has undertaken to improve overall reliability  
17 performance?

18  
19 **A.** The company has recently made significant improvements  
20 to its overall system reliability through various  
21 reliability initiatives that will provide benefits in  
22 the coming years. This improved performance is a result  
23 of a continued focus on first preventing an outage from  
24 occurring and then minimizing outage times when they do  
25 occur.

1 For example, the company tracks the performance of  
2 distribution circuits that may require performance  
3 improvement and has developed a process for the  
4 identification and completion of corrective  
5 improvements. In 2007, 10 circuits were targeted which  
6 resulted in a 42 percent improvement in SAIDI  
7 performance for those circuits. Thirty-eight  
8 distribution circuits have been identified for this  
9 program in 2008.

10  
11 MAIFIE is also another key measure of system  
12 reliability. The identification and elimination of line  
13 faults that generate momentary interruptions continues  
14 to be a priority and focus of improving distribution  
15 reliability for the company because these could  
16 eventually lead to lengthier outages in the future.  
17 Vegetation management is a major driver for momentary  
18 outages. Tampa Electric is transitioning to a three-  
19 year tree trim cycle in an effort to minimize these  
20 momentary outages.

21  
22 Another major driver of momentary outages is lightning.  
23 Tampa Electric's service territory is located in  
24 "Lightning Alley", which has the heaviest concentration  
25 of annual lightning strikes in the United States



1 ("U.S.") according to NASA. Replacement of failed  
2 lightning arrestors helps minimize lightning's impact.  
3 During the company's annual mock storm exercise each  
4 spring, team members take the opportunity during circuit  
5 patrols to identify lightning arrestors that need  
6 replacing.

7  
8 The company has also pursued reductions to the duration  
9 of outages through the development and implementation of  
10 process efficiencies and the leveraging of technology.  
11 With the implementation of electronic relays on the  
12 transmission system, the location of the fault causing  
13 the outage is identified to the Energy System Operator  
14 ("ESO"). This allows the ESO to isolate the damaged  
15 area quickly using remotely controlled pole top switches  
16 and return most, if not all, customers back to service  
17 even before field team members arrive on site. The ESO  
18 also directs the transmission line patrolmen to the  
19 problem area to identify what repair will need to be  
20 made.

21  
22 In 2007, the company implemented a distribution circuit  
23 restoration project that focused on reducing the  
24 duration of feeder outages. This was accomplished  
25 through realigning resources available to respond to an

1 outage, isolating the damaged area, restoring service to  
2 as many customers as possible prior to repairing the  
3 damage, and then installing fault identification  
4 devices. This project is further described later in my  
5 direct testimony.

6  
7 All of these initiatives not only help improve system  
8 reliability, but they ultimately save costs, which are  
9 reflected in all cost projections.

10  
11 **PLANNING PROCESS**

12 **Q.** Please explain Tampa Electric's approach to planning for  
13 expansion of the T&D systems.

14  
15 **A.** The objective of Tampa Electric's Energy Delivery System  
16 Planning Department is to plan well ahead of customers'  
17 needs in order to provide timely, cost-effective and  
18 reliable electrical service. Tampa Electric's 10-year  
19 demand and energy forecasts, produced by the company's  
20 Load Forecasting Department, along with various  
21 electrical characteristics are utilized to analyze the  
22 future needs of Tampa Electric's T&D system. The  
23 planning process identifies when new transmission,  
24 substation and/or distribution facilities will be needed  
25 to meet customer requirements.

1 Using the company's forecasted system load, a review of  
2 circuit loading, distribution transformer loading and  
3 distribution reactive power loading is performed on an  
4 annual basis for the next five-year period. Future  
5 potential thermal overloads and/or abnormal voltage  
6 conditions are also identified. Once it has been  
7 determined that additional distribution capacity is  
8 required in an area, various alternative projects are  
9 created and evaluated for meeting the estimated system  
10 growth. Cost estimates are produced for each  
11 alternative and the alternatives are then evaluated  
12 based on the impact to reliability, voltage, capacity,  
13 economics and constructability. Based on these  
14 criteria, the most cost-effective viable solution is  
15 chosen to accommodate the projected system growth on the  
16 distribution system.

17  
18 The planning criteria for transmission system additions  
19 are based on NERC, Florida Reliability Coordinating  
20 Council ("FRCC") and other applicable standards. The  
21 NERC reliability standards specify transmission system  
22 scenarios to be evaluated and the levels of system  
23 performance to be attained. The company conducts an  
24 annual transmission assessment of the effects of  
25 forecasted future load growth over a 10-year period on

1 the transmission system, the need to serve new load  
2 areas and/or large new customers, future  
3 interconnections with neighboring utilities, integration  
4 of new generation facilities and firm contractual  
5 transmission service obligations. The changes in system  
6 performance due to these factors are simulated and  
7 analyzed for the present and future years to identify  
8 existing and future system limitations. Alternative  
9 solutions to these limitations are then developed,  
10 analyzed, and screened based on electrical performance.  
11 Viable alternatives are compared for their relative  
12 merits with respect to reliability, voltage, capacity,  
13 economics and constructability. Transmission facility  
14 additions such as a new transmission line are  
15 implemented as a result of this process.

16  
17 As these plans are evaluated, the company also considers  
18 the need to acquire land for future substation sites and  
19 power line rights-of-way. Growth in general and  
20 specific patterns are reviewed to ensure substation  
21 sites and power line rights-of-way can be acquired in a  
22 timely manner to install the facilities necessary for  
23 reliable service. Given the increased efforts presently  
24 necessary to acquire land for substations and rights-of-  
25 way, it is extremely important to identify and secure

1 the needed rights early before growth makes it very  
2 difficult, expensive or impossible. Accordingly, Tampa  
3 Electric has acquired property held for future use,  
4 which is identified in MFR Schedule B-15, and requests  
5 that this property be included in rate base. This  
6 investment is both reasonable and prudent.

7  
8 **Q.** How do the company's T&D expansion plans become actual  
9 projects?

10  
11 **A.** Using the results of the planning process, a five-year  
12 construction plan and budget are developed which  
13 identify the near term projects required to provide  
14 reliable service. These plans are also incorporated  
15 into the FRCC's planning process, which is described  
16 later in my direct testimony.

17  
18 **CAPITAL INVESTMENT**

19 **Q.** What are Tampa Electric's T&D capital investment plans  
20 during 2009?

21  
22 **A.** Tampa Electric plans to invest \$218,945,000 in T&D  
23 related capital in 2009. The company's forecasted T&D  
24 capital plans are listed and described in Document No. 3  
25 of my exhibit. This T&D capital investment is required

1 to provide reliable service to customers. In general,  
2 these expenditures include capital projects such as  
3 substation and switching station construction and  
4 upgrades, road widening projects, storm hardening  
5 projects, new lighting systems and new T&D circuit  
6 construction. Additional capital investments will be  
7 made to leverage technology including automated meter  
8 reading and various computer software projects.

9  
10 **Q.** How have the company's T&D assets grown from 1991 until  
11 2007?

12  
13 **A.** The book value of the company's T&D assets in 1991 was  
14 \$635,774,000. The book value has grown to  
15 \$1,486,323,000 primarily due to the increase in the  
16 number of customers the company serves. The company  
17 added over 200,000 customers from 1992 to 2007. The  
18 increase in the number of customers has been a primary  
19 driver in load growth, which has driven the increase in  
20 capital investment.

21  
22 **Q.** Are there other reasons driving the need for capital  
23 investment besides load growth?

24  
25 **A.** Yes. In addition to customer load growth, there is also

1 considerable capital investment required to maintain the  
2 reliability of service provided to Tampa Electric's  
3 current and future customers. Technology is one area of  
4 capital investment used to maintain reliability. Some  
5 examples are its outage management system ("OMS"),  
6 digital protective relays and fault indicators. Another  
7 area of capital investment for reliability is the  
8 program necessary to upgrade older equipment.

9  
10 **Q.** Please explain the company's need to replace aging  
11 infrastructure and to perform system upgrades.

12  
13 **A.** Most T&D equipment has a 30-year useful life. Tampa  
14 Electric installed a significant amount of T&D  
15 infrastructure to support the 168,000 customers that  
16 were added from 1960 to 1980. This infrastructure is  
17 approaching or is at the end of its useful life, which  
18 typically results in increased failures and higher  
19 maintenance costs. In order to replace these aging  
20 assets prior to failure and to upgrade the system in  
21 specific areas to maintain or, in some cases, improve  
22 existing reliability levels, capital investments are  
23 required.

24  
25 Tampa Electric plans to target the following system

1 upgrades specifically: various storm hardening  
2 improvements to the company's overhead and underground  
3 systems; pole replacements; transmission structure  
4 inspections and repairs; lightning protection  
5 improvements; replacement of obsolete oil-type circuit  
6 breakers; replacement of electromechanical meters and  
7 substation relays with electronic versions; and physical  
8 and cyber security enhancements mandated by the FERC and  
9 the NERC. As Tampa Electric's system continues to age  
10 and customer growth continues to increase, additional  
11 requirements are placed on the system making it  
12 imperative that the company keep pace with the service  
13 levels that customers expect.

14  
15 **Q.** Are there other drivers to the increased cost of capital  
16 investment?

17  
18 **A.** Yes. Material costs, which have increased at an  
19 astounding rate, are another key driver in the company's  
20 increased capital spending over the last few years.  
21 These high material costs are expected to continue in  
22 the future. For example, the price the company must pay  
23 for 69/13 kV substation transformers has increased by  
24 over 160 percent since 1999. Document No. 2 of my  
25 exhibit lists the percentage price increases for typical



1 T&D equipment experienced in the ten-year period from  
2 1999 to 2008. The significant increases are largely  
3 attributable to the infrastructure growth occurring in  
4 developing countries causing competition for raw  
5 materials.

6  
7 **OPERATIONS AND MAINTENANCE EXPENSE**

8 **Q.** Please describe what is included in operations expenses.

9  
10 **A.** Operations expenses are typically those required to  
11 carry out the day-to-day activities associated with  
12 operating the T&D system and all activities required to  
13 support providing electric service to customers. These  
14 include expenses associated with meter reading, meter  
15 installations, locating underground facilities,  
16 dispatching field team members in response to customer  
17 requests, responding to and restoring the system  
18 following outages, and switching and re-configuring the  
19 company's T&D systems to ensure reliable operations.

20  
21 **Q.** Please explain the main drivers for the company's T&D  
22 related operations expenses.

23  
24 **A.** As mentioned earlier in my direct testimony, the two  
25 main drivers are load growth and weather related

1 outages. The company has experienced significant load  
2 growth since its last rate case and projects continued  
3 growth in demand for the foreseeable future. This  
4 continued increase in demand impacts Energy Delivery's  
5 activities such as meter reading, meter disconnect and  
6 re-connect, and new meter connection activities.  
7 Weather related outage activity also has a direct impact  
8 on operations expenses associated with restoration  
9 activities.

10  
11 **Q.** What is included in the T&D related maintenance  
12 expenses?

13  
14 **A.** Maintenance expenses include activities performed to  
15 keep assets in serviceable condition, maintain safety  
16 requirements, avert premature failures and manage  
17 vegetation growth. They also include activities, which  
18 correct or repair non-operable or unsafe conditions on  
19 the system as identified through an inspection program  
20 or as a result of a storm or other event.

21  
22 **Q.** What will be the result of the proposed maintenance  
23 spending?

24  
25 **A.** During the 2009 test year, Tampa Electric will be

1 increasing maintenance and tree trimming expenditures  
2 above current levels and will complete full  
3 implementation of inspection and maintenance programs in  
4 order to comply with FPSC requirements. The expected  
5 result will be improved reliability and service to  
6 customers on both a day-to-day basis and following a  
7 major storm event. Increasing the level of maintenance  
8 and focusing on key programs will enable the company to  
9 maintain the reliability standards historically provided  
10 to its customers. Tampa Electric's inspection and  
11 maintenance programs include: a three-year tree trimming  
12 and vegetation management cycle, an eight-year wooden  
13 pole inspection cycle, a six-year transmission structure  
14 inspection cycle, annual substation inspections,  
15 condition based substation preventative maintenance,  
16 downtown network inspections and underground system  
17 inspections.

18  
19 **Q.** Please describe Tampa Electric's vegetation management  
20 program and explain why the program's costs are  
21 increasing.

22  
23 **A.** Tampa Electric is increasing its vegetation management  
24 program to establish and maintain a three-year  
25 distribution system trimming cycle in order to comply

1 with the Commission's requirements for storm hardening.  
2 Tampa Electric's vegetation management program provides  
3 a balanced and phased approach toward a three-year tree  
4 trim cycle plan to reach the company's desired  
5 objectives. The objectives are to improve the quality  
6 of line clearance while increasing system reliability.  
7 Tampa Electric began ramping up its vegetation  
8 management program at the end of 2005, with an emphasis  
9 on critical trimming needed in areas identified by the  
10 company's reliability based methodology. The company  
11 continues its progress toward a three-year tree trim  
12 cycle plan and anticipates reaching its goal by 2010.

13  
14 To ensure the company is implementing the most cost-  
15 effective program, Tampa Electric's System Reliability  
16 and Line Clearance Departments take into consideration  
17 many factors in developing the annual plan, such as  
18 multi-year circuit performance data, last trim date and  
19 circuit priorities. Various improvements made  
20 throughout 2007 resulted in a 15 percent increase in  
21 total miles trimmed during 2007 with only a 12 percent  
22 increase over 2006 spending.

23  
24 The proposed 2009 budget for this program is  
25 \$16,073,000. This is the spending level, plus

1 inflation, that will be maintained going forward. Tampa  
2 Electric will continue to review system reliability and  
3 all pertinent field and customer information along with  
4 its annual trimming plan in order to manage its overall  
5 vegetation management program effectively.

6  
7 **Q.** Are there other cost drivers for the increased  
8 vegetation management costs?

9  
10 **A.** Yes. While increased activity is a major driver for  
11 cost increases, per unit costs for vegetation management  
12 have also grown at a faster pace than inflation. This  
13 is primarily due to the competition for resources and  
14 increasing contractor rates mainly caused by escalating  
15 fuel costs.

16  
17 **O&M BENCHMARK COMPARISON**

18 **Q.** Have you made a comparison of Tampa Electric's test year  
19 T&D O&M budget to the Commission's benchmark?

20  
21 **A.** Yes. The comparison for transmission and distribution  
22 O&M expenses is shown in MFR Schedule C-37. It  
23 demonstrates that the projected T&D O&M expenses for the  
24 test year are below the O&M benchmark by \$1,064,000.  
25 Transmission is \$1,721,000 below the benchmark and

1 distribution is \$657,000 above.

2

3 **Q.** Why is distribution for 2009 above the O&M benchmark?

4

5 **A.** The 1991 base year included a four-year distribution  
6 tree trim cycle, while the 2009 test year includes a  
7 three-year distribution tree trim cycle. As I mentioned  
8 above, in order to comply with the Commission's storm  
9 hardening requirements, the company is transitioning to  
10 a three-year tree trim cycle to improve reliability  
11 during normal weather conditions as well as major storm  
12 events such as hurricanes.

13

14 **Q.** Why is the overall 2009 Transmission & Distribution O&M  
15 budget below the Commission's benchmark?

16

17 **A.** As I describe above, Tampa Electric's Energy Delivery  
18 team has taken a number of steps to ensure that spending  
19 is done in a prudent manner. The company has  
20 implemented a number of practices and programs that have  
21 improved the overall efficiency and effectiveness of  
22 operating and maintaining the T&D system while  
23 maintaining SAIDI performance in the first quartile as  
24 explained in the "Operational Efficiency and  
25 Effectiveness" section of my testimony and shown in

1 Document No. 6 of my exhibit.

2

3 **OPERATIONAL EFFICIENCY AND EFFECTIVENESS**

4 **Q.** What steps has the company taken to manage the company's  
5 T&D related capital and O&M expenditures effectively?

6

7 **A.** Tampa Electric's management team has taken a number of  
8 steps to ensure that a focus is placed on the right  
9 priorities, the proposed budgets are reasonable, and all  
10 expenditures are occurring in a wise manner. The  
11 company has implemented a number of practices to improve  
12 safety and the effectiveness of its workforce, and to  
13 create an environment for continuous improvement. These  
14 practices have favorably impacted performance in diverse  
15 areas of the business including: outage response,  
16 workforce utilization, inventory, project management,  
17 system protection and meter reading. Significant  
18 improvements have also been made to the company's  
19 distribution construction standards.

20

21 **Outage Response**

22 A new OMS was implemented in November 2001. The  
23 benefits of this system include a predictive point of  
24 outage typically resulting in decreased outage time;  
25 increased usage of the interactive voice response system

1 ("IVR") including estimated outage duration and  
2 automatic call back when service is restored; and  
3 centralized outage information for customer service  
4 professionals and field personnel.

5  
6 **Workforce Utilization**

7 In 2003, Tampa Electric hired a consultant to review the  
8 planning and scheduling of Energy Delivery's maintenance  
9 and construction work. They recommended that the  
10 planning and scheduling of work be centralized to give a  
11 global view of all resources and work. They also  
12 recommended that all work should be planned and  
13 scheduled except for true emergency work. This would  
14 reduce overall costs and improve on-time service dates  
15 due to the efficiencies gained with the process.  
16 Beginning in 2004, a new process was implemented and  
17 included developing a four-week schedule and releasing  
18 work two weeks ahead of time if all resources were  
19 available. Emergency work took a priority, but all non-  
20 emergency work was scheduled. Key process indicators  
21 were developed to evaluate ongoing area performance. In  
22 addition to improved customer service, this process  
23 change has resulted in many efficiency gains and avoided  
24 costs.

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**Inventory**

In May 2003, an initiative was implemented to centralize all major material at one main storeroom and distribute material to the outlying storerooms as needed for scheduled work. A small level of maintenance stock was maintained at each of the outlying storerooms. This change has reduced the amount of duplicate material stored at each service area and resulted in a reduction of inventory levels and an improved inventory turnover ratio. While this initiative has benefited customers by reducing inventory costs, it has not impacted the company's ability to provide excellent customer service.

**Project Management**

A project management organization was formed in November 2006 to manage large T&D construction projects. This group manages projects from the cost-estimating phase to project completion. The purpose was to improve the execution and overall management of large project work following the identification of project scope. In 2007, this change resulted in the completion of seven out of nine projects within 10 percent of the cost estimate and meeting the in-service date. The seven projects totaled \$8,329,500 and the final costs came within \$347,370 of the total project cost estimates. The two projects that

1 did not meet the 10 percent criteria totaled  
2 approximately \$1,826,200 and the final cost came within  
3 \$146,039 of the total project cost estimates.  
4

### 5 **System Protection**

6 The main purpose of a protective relay is to sense  
7 abnormal conditions on the electric system and then  
8 operate the appropriate switching devices to isolate the  
9 problem to provide protection to the remainder of the  
10 electrical system. In 1998, Tampa Electric purchased  
11 its first fully integrated distribution electronic  
12 relay. Since that time, the company has installed over  
13 1,400 electronic relays across 48 percent of its T&D  
14 system. The benefits of these relays are decreased  
15 costs, increased flexibility in system protection,  
16 decreased outage times through fault location, reduced  
17 maintenance, improved testing cycle time, and a self-  
18 monitoring feature that alarms when the relay is not  
19 functioning properly. These features have resulted in  
20 decreased costs and improved reliability for the  
21 company's T&D system.  
22

### 23 **Automated Meter Reading**

24 In 2003, Tampa Electric initiated an AMR project, which  
25 is the application of electronic and communication

1 technology to enable the reading of electric meters  
2 remotely. This technology has helped to increase  
3 operational efficiencies and to reduce exposure to  
4 issues surrounding safety and meters that are hard to  
5 access. The 2008 strategy includes the deployment of  
6 AMR meters in those areas where high cost reads and the  
7 hard to access meters overlap to generate the highest  
8 return on investment.

9  
10 Once an area has been completely saturated with  
11 residential AMR meters, there are significant cost  
12 benefits. In the areas of Dade City, Plant City and  
13 Fish Hawk Ranch in Lithia, there has been a complete  
14 conversion of the residential meters to AMR and the cost  
15 to read a meter has been reduced from approximately 45  
16 cents per read to 15 cents per read. In general, time  
17 needed to read meters in these three areas declined by  
18 approximately 58 percent. AMR also lowers the quantity  
19 of estimated meter reads. Estimated meter reads  
20 averaged 6.7 percent in 2005 but have remained below one  
21 percent for the past two years.

22  
23 The company plans to convert 55,000 residential meters  
24 to AMR meters each year at an estimated cost of three  
25 million dollars per year. Tampa Electric ended 2007

1 with 73 meter readers and it is projected that 63 meter  
2 readers will be required at the end of 2009. The  
3 company has factored in all productivity improvements  
4 gained from this initiative into its cost projections.

5  
6 **Construction Standards**

7 Tampa Electric has made many significant improvements to  
8 its construction standards since its last rate case.  
9 Some of the major enhancements include: 1) standardized  
10 overhead triangular construction to minimize life cycle  
11 costs; 2) added new class three wood poles to inventory  
12 to reduce use of class two poles; 3) converted porcelain  
13 horizontal line post insulators to polymer; 4) changed  
14 standard arrestor to flying lightning arrestor style on  
15 terminal poles; 5) implemented fiberglass guy strains;  
16 6) changed 1/0 stranded cable to solid cable; 7)  
17 implemented shorter 1000 MCM reel length; 8)  
18 standardized overhead conductor sizes, eliminated 4/0 AL  
19 ALCSR; 9) implemented UG jacketed cable; 10) implemented  
20 strand filled (Moisture Block) underground cable; 11)  
21 eliminated radial (Live Front) pad-mounted transformers;  
22 12) implemented new overhead transformer design with  
23 aluminum windings; 13) changed mild steel switchgear  
24 enclosures to stainless steel; and 14) changed mild  
25 steel single phase transformer enclosure to stainless

1 steel hybrid. These changes have helped manage rising  
2 material costs and provided reliability benefits to the  
3 system.

#### 4 5 **Other Process Improvements**

6 Circuit Restoration Initiative - In 2007, Tampa Electric  
7 embarked on a mission to reduce SAIDI by reducing  
8 distribution circuit outage time. A cross-functional  
9 team was put together to investigate the cause and  
10 nature of customer outages with a goal of improving  
11 reliability. The team discovered that 40 to 50 percent  
12 of yearly SAIDI was attributed to entire circuit  
13 outages. The result was a project called the Circuit  
14 Restoration Initiative. Accordingly, Tampa Electric  
15 implemented new guidelines for responding to circuit  
16 outages. For example, a guideline was established to  
17 have a minimum of two responders for each circuit  
18 outage. With the idea of working smarter not faster,  
19 two responders are able to patrol and locate problems in  
20 half the time. A philosophy of "switch before fix" was  
21 also implemented. Upon locating the problem, the first  
22 responder initially looks for ways to isolate the  
23 problem with switching; this energizes as many customers  
24 as possible with alternate feeds, before attempting to  
25 make repairs. Although this is not a new concept, with

1           disciplined application, this subtle change has reduced  
2           the number of customers impacted while repairs are made.

3  
4           The company also installed 700 strobe fault indicators  
5           on pre-selected circuits. These devices are attached to  
6           overhead main feeders at strategic locations. They  
7           flash when they sense fault current and the feeder is  
8           de-energized. This helps the first responder to quickly  
9           locate and isolate the cause of the outage. The company  
10          targeted circuits with historically the most problems as  
11          well as circuits with sections of lines that are  
12          difficult to access.

13  
14          Preliminary results for the circuit restoration  
15          initiative have been outstanding. In 2006, circuit  
16          outages experienced were restored with an average  
17          restoration time of 48 minutes. In 2007, the average  
18          circuit outage restoration time dropped to 38 minutes.  
19          With the improvements made, the company was able to  
20          reduce the average circuit outage time by 20 percent.  
21          The company expects this initiative to play a  
22          significant role in reducing SAIDI.

23  
24          Quicker Crew Call Outs - In 2004, Customer Service  
25          replaced the IVR system that provides telephone response

1 for the customer contact center. As part of the IVR  
2 replacement, the "outbound dialer" functionality was  
3 included in the scope in order to allow for faster,  
4 automated call out of crews for restoration work.

5  
6 Super Crews - This concept was introduced in 2005 to add  
7 a more flexible type of crew that could perform both  
8 restoration work as well as distribution maintenance  
9 work and has provided better resource scheduling  
10 flexibility.

11  
12 Mock Storm Exercise/Faulty Equipment Identification -  
13 During the company's annual mock storm exercise each  
14 spring, the participants take the opportunity during  
15 circuit patrols to identify lightning arrestors and  
16 capacitor banks that need repair. The replacement of  
17 lightning arrestors and certain capacitor banks will  
18 improve reliability. Through this effort, the company  
19 not only practices its storm response procedures, but it  
20 also identifies equipment needing repair.

21  
22 Lastly, the company implemented the use of text  
23 messaging and emails to alert key team members when a  
24 circuit is de-energized. This was accomplished by  
25 integrating the EMS and Supervisory Control and Data

1 Acquisition ("SCADA") systems with the company's email  
2 software. Immediately after a circuit outage, the  
3 system sends an alert via text message or email to  
4 selected local supervisors and managers. This creates  
5 an "all hands on deck, firefighter's mentality", to help  
6 facilitate a focused and timely response.  
7

8 **Q.** How does Energy Delivery ensure operations and  
9 maintenance is performed in a timely, efficient and  
10 effective manner, and that funds are spent  
11 appropriately?  
12

13 **A.** Energy Delivery verifies the status of achieving its  
14 goals through budgeting, planning and tracking systems  
15 and internal business control processes. The company  
16 monitors and measures performance through work  
17 management, system planning, project scheduling and  
18 asset tracking tools in several ways. For example, the  
19 key performance indicators are used to report on the  
20 performance of distribution, transmission and substation  
21 work. Another example is the further delineation of the  
22 O&M and capital budgets through the use of an activity-  
23 based costing tool, which tracks activities for both  
24 production units and costs per unit. Energy Delivery  
25 also tracks system performance for outage analysis and



1 input for maintenance and capital spending decisions.  
2 Additionally, the company prioritizes the numerous  
3 capital projects considered each year and utilizes  
4 Primavera software for planning and scheduling many  
5 complex capital projects. Finally, Energy Delivery has  
6 implemented new financial processes and systems to  
7 prioritize, track and monitor spending against its  
8 business plans. All of these systems and processes, and  
9 the team members that support, develop and use this  
10 information, allow Energy Delivery to perform work  
11 efficiently and effectively. These activities are aimed  
12 at providing quality service to customers at the lowest  
13 long-term cost, consistent with meeting the service  
14 standards that customers want and deserve.

15  
16 **STORM HARDENING ACTIVITIES**

17 **Q.** Please summarize Tampa Electric's storm hardening  
18 activities.

19  
20 **A.** Tampa Electric's storm hardening activities, which  
21 include the company's Pole Inspection Program, Ten-Point  
22 Storm Preparedness Plan and Storm Hardening Plan, are a  
23 multi-pronged approach to enhance the reliability of the  
24 T&D facilities.

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**Pole Inspection Program**

To implement Order No. PSC-06-0144-PAA-EI, issued February 27, 2006, Tampa Electric expects to conduct approximately 38,900 distribution and 3,700 transmission wooden pole inspections in 2009 and all inspection related O&M spending is estimated to be \$1,610,000 in 2009. Capital replacement and upgrades will cost an estimated \$14,789,000 for the same period. This is representative of the pole inspections and replacement the company expects on an annual basis.

**Ten-Point Storm Preparedness Plan**

Implementation of the Commission's storm preparedness plan in Docket No. 060198-EI, required by Order No. PSC-06-0351-PAA-EI issued April 25, 2006 and approved by Order No. PSC-06-0781-PAA-EI issued on September 19, 2006, will cost an estimated \$18,834,000, \$17,645,000 in O&M and \$1,189,000 in capital, during the 2009 test year. One of the most significant expenses is the implementation of the three-year tree trimming cycle required by the initiative of the Storm Preparedness Plan.

**Storm Hardening Plan**

Tampa Electric's storm hardening plan was developed in

1 response to Commission Order No. PSC-07-0043-FOF-EU,  
2 issued on January 16, 2007, in Docket No. 060172-EU.  
3 The Commission has recognized that Tampa Electric's  
4 storm hardening plan provides a reasonable, measured  
5 approach to storm hardening. The objective of the  
6 company's storm hardening plan is to improve system  
7 reliability and resiliency during and after extreme  
8 weather events. The total storm hardening activities  
9 cost projections for the test year, including the  
10 previously discussed Pole Inspection Program, the Ten-  
11 Point Storm Preparedness Plan is \$36,450,000,  
12 \$19,255,000 in O&M and \$17,195,000 in capital, and they  
13 are detailed in Document No. 7 of my exhibit.

14  
15 **REGIONAL TRANSMISSION PLANNING**

16 **Q.** Has Tampa Electric experienced increased federal  
17 regulation of transmission reliability since its last  
18 rate proceeding?

19  
20 **A.** Yes. In the mid-to-late 1990s, FERC began focusing on  
21 initiatives that helped enhance wholesale markets and  
22 ensure open access to transmission. In its Order 2000,  
23 FERC strongly supported the development of regional  
24 transmission organizations ("RTO") and encouraged  
25 utilities to divest ownership or control of their

1 transmission assets. Tampa Electric, along with the  
2 other peninsular Florida investor-owned utilities worked  
3 for years on developing GridFlorida.  
4

5 **Q.** How has transmission planning in Florida changed over  
6 the past few years?  
7

8 **A.** A key element of FERC's Order 2000 was the requirement  
9 for regional transmission planning and although  
10 GridFlorida never materialized, regional transmission  
11 planning has remained a priority for Florida. In Order  
12 PSC-06-0388-FOF-EI ("GridFlorida Order") from Docket No.  
13 020233-EI, the FPSC determined it would monitor the  
14 peninsular Florida utilities and stakeholders' efforts  
15 as they continued to find ways to enhance wholesale  
16 market opportunities. In its GridFlorida Order, the  
17 FPSC stated:

18 "Even though we are allowing the Applicants to  
19 withdraw the petition, the underlying impetus  
20 for examining the feasibility of an RTO still  
21 remains a valid concern for the state. Florida  
22 would still benefit from laying additional  
23 basic framework for wholesale competition, and  
24 efficiencies may be gained by making  
25 modifications to the current market structure.

1 Over the past four years, Florida's peninsular  
2 utilities and this Commission have conducted a  
3 close examination of the current wholesale  
4 market and identified several areas where  
5 efficiencies may be gained in a cost-effective  
6 manner. One of these is already underway at  
7 the utilities' initiative, and there are two  
8 more that the utilities are investigating. The  
9 initiative that is underway is the FRCC  
10 Transmission Planning Process."

11  
12 **Q.** Please describe the FRCC's transmission planning  
13 process.

14  
15 **A.** The FRCC has developed a regional "top down" approach to  
16 peninsular Florida transmission planning. Prior to its  
17 development, transmission planning was primarily  
18 performed and studied individually by electric  
19 utilities. The individual utility plans would then be  
20 aggregated and reviewed by the FRCC for compliance with  
21 NERC's planning standards but it was never conducted on  
22 a holistic, regional perspective. Since the GridFlorida  
23 Order, FRCC has been working on a more comprehensive  
24 regional planning model.

25

1 The FRCC planning process is intended to develop a  
2 regional transmission plan to meet the existing and  
3 future requirements of all customers, users, providers,  
4 owners and operators of the transmission system in a  
5 coordinated, open and transparent transmission-planning  
6 environment. The planning process begins with the  
7 consolidation of the long-term transmission plans of all  
8 transmission owners and providers in the FRCC region.  
9 It is a requirement that the long-term transmission  
10 plans incorporate the integration of new firm resources  
11 as well as other firm commitments. This includes all 69  
12 kV and above transmission facilities. A detailed  
13 evaluation and analysis of plans is conducted by utility  
14 working groups in concert with the FRCC staff and  
15 managed by the FRCC Planning Committee. The evaluations  
16 and analysis provide the basis for possible recommended  
17 changes to individual system plans that, if implemented,  
18 would result in a more reliable and robust transmission  
19 system for the FRCC region.

20  
21 **Q.** Did the Energy Policy Act of 2005 ("the Act") have an  
22 impact on regional planning and reliability?

23  
24 **A.** Yes. A significant change due to the Act that impacted  
25 the regional planning process was the development of an

1 electric reliability organization ("ERO") with FERC  
2 oversight. The Act made compliance with reliability  
3 standards approved by FERC mandatory and enforceable,  
4 subject to civil penalties. In 2006, NERC was certified  
5 by FERC as the ERO for the U.S. The Act also authorized  
6 delegation of compliance, monitoring, and enforcement of  
7 reliability standards to regional entities such as the  
8 FRCC and, in 2007, FERC approved this delegation between  
9 NERC and the FRCC. The FRCC is responsible for  
10 regulating mandatory planning standards.

11  
12 **Q.** What other changes have occurred that affect the  
13 regional planning process?

14  
15 **A.** Another change that has occurred has resulted in  
16 revisions to the FERC Open Access Transmission Tariff  
17 ("OATT"). Following the Act, FERC initiated a  
18 rulemaking to implement revisions to the OATT to correct  
19 perceived shortcomings to FERC's previous orders. This  
20 rulemaking process culminated in the issuance of FERC's  
21 Order 890 in December 2007, which was the latest step in  
22 the evolution of allowing non-transmission owners fair  
23 access to transmission service. Order 890 was developed  
24 to provide greater specificity to reduce opportunities  
25 for undue discrimination. It also established a set of

1 rules to make the planning and use of the nation's  
2 transmission system more open and transparent. In  
3 particular, Order 890 required the development of a cost  
4 allocation methodology for regional transmission  
5 expansion. In response, the FRCC developed a regional  
6 transmission cost allocation methodology.

7  
8 **Q.** Please describe the FRCC cost allocation methodology.

9  
10 **A.** A key element in FRCC's cost allocation methodology is  
11 that it addresses third-party impacts on transmission  
12 facilities; that is, when generation installed on a  
13 transmission owner's system overloads facilities on  
14 another transmission owner's system. The remedy could  
15 require expansion of another transmission owner's  
16 system. Third-party impacts have occurred periodically  
17 in Florida and have become more pronounced over time,  
18 especially since the peninsular Florida system is highly  
19 integrated, where changes on one system affect multiple  
20 systems.

21  
22 The FRCC cost allocation methodology divides the  
23 peninsular Florida system into cost sharing zones.  
24 There are two south zones, one central zone, and three  
25 north zones. The protocol is triggered when a third-



1 party impact occurs, an affected owner has requested  
2 application of the cost sharing methodology and the  
3 third-party impact has been confirmed by the FRCC. For  
4 example, assume that a transmission owner's system is in  
5 the central zone and the costs for expansion of his  
6 system will be shared by the load in the central zone  
7 and by the incremental generation in any zone that  
8 contributes to the overloading of his system. Under the  
9 FRCC methodology, the cost allocation methodology would  
10 allocate half of the costs to the load in the central  
11 Florida zone and half to the incremental generation that  
12 contributes to the third-party impact. While this  
13 example has been made simple for illustrative purposes,  
14 third-party impacts can be much more complex in terms of  
15 identifying costs and benefits. The FRCC methodology  
16 represents a framework describing criteria, principles  
17 and dispute resolution to guide cost sharing  
18 negotiations amongst the parties.

19  
20 **Q.** Does Tampa Electric's projected 2009 transmission  
21 expenditures include projects that will be submitted for  
22 FRCC review?

23  
24 **A.** Yes. For 2009, the company has included \$68,101,000 in  
25 its budget for 230 kV transmission projects. However,

1 given the regional planning process and the dynamic  
2 nature of generation and transmission needs for the next  
3 five years, it is virtually impossible to predict Tampa  
4 Electric's share of expected expenditures accurately.  
5 As Florida and the U.S. refine energy policy relative to  
6 greenhouse gas legislation, alternative technologies and  
7 fuel sources, generation technologies and requirements  
8 will be refined accordingly. Even over the past year,  
9 clean coal technology has taken a backseat to nuclear  
10 and renewable sources. Along with the uncertainty of  
11 energy policy, the cost of transmission construction has  
12 dramatically increased over the past few years. During  
13 the years 2000 through 2002, it cost approximately  
14 \$700,000 to construct a mile of transmission line.  
15 Today that cost could be three times as much due to the  
16 higher labor, land acquisition and raw material costs.

17  
18 **Q.** In this proceeding, what are you recommending for future  
19 transmission expenditures as it relates to cost  
20 recovery?

21  
22 **A.** Given the need for additional transmission in Florida  
23 and the uncertainty associated with future expenditures,  
24 I recommend the Commission approve a Transmission Base  
25 Rate Adjustment ("TBRA"). The TBRA would allow Tampa

1 Electric to timely recover its transmission costs  
2 associated with those 230 kV and above transmission  
3 projects submitted for FRCC review. As I stated above,  
4 the company has included \$68,101,000 in its 2009 test  
5 year budget for such projects, but it is very likely  
6 that future expenditures could be even more significant.  
7 A TBRA will allow the company to recover its required  
8 transmission related expenditures as they are incurred  
9 rather than through base rates. In his direct  
10 testimony, Tampa Electric witness Jeffrey S. Chronister  
11 describes the mechanism in further detail.  
12

13 **LAKE AGNES - CANE ISLAND TAP 230 kV LINE**

14 **Q.** Please describe the Lake Agnes - Cane Island Tap 230 kV  
15 line.  
16

17 **A.** The Lake Agnes - Cane Island Tap 230 kV line is made up  
18 of two transmission circuits: Lake Agnes - Osceola 230  
19 kV circuit and four miles of the Osceola - Cane Island  
20 230 kV circuit. Tampa Electric owns 25 percent interest  
21 in the Lake Agnes - Cane Island Tap 230 kV line. The  
22 line is 25.4 miles and connects the Lake Agnes and  
23 Osceola substations and includes four miles of  
24 transmission line east from the Osceola substation to  
25 the tap for the Cane Island substation.

1 **Q.** Is the line in Tampa Electric's retail rate base?

2

3 **A.** No. During Docket No. 950379-EI, Order No. PSC-97-0436-  
4 FOF-EI, issued on April 17, 1997, the Commission said:

5 "It appears that TECO purchased 25 percent of  
6 the line primarily to ensure the ability to  
7 make wholesale sales to entities such as the  
8 Reedy Creek Improvement District ("RCID").  
9 Based on the information available at this  
10 time, the company finds that the entire  
11 investment shall be assigned to the wholesale  
12 jurisdiction."

13

14 **Q.** Are there any reasons this ruling should be reviewed  
15 again?

16

17 **A.** Yes. The Lake Agnes - Osceola 230 kV circuit was  
18 upgraded in 2008 to meet NERC reliability standards for  
19 the bulk electric grid. The Osceola - Cane Island 230  
20 kV circuit is planned to be upgraded in 2010.

21

22 **Q.** Explain the importance of the bulk electric grid to the  
23 retail ratepayers.

24

25 **A.** Tampa Electric is interconnected to other utilities via

1 the bulk electric grid. Given the breadth of the  
2 Eastern Interconnection from Florida to Canada, west to  
3 the Mississippi River, disturbance impacts are minimized  
4 due to the solidarity of the grid. The redundancy of  
5 transmission grid provides alternate paths for power to  
6 flow when there are planned and unplanned outages on the  
7 bulk electric grid. Tampa Electric's retail customers  
8 also benefit because of its participation in a reserve  
9 sharing group ("RSG"). NERC standards require that an  
10 entity have enough generation available within 15  
11 minutes to replace the loss of its largest resource.  
12 Because of the interconnection, Tampa Electric  
13 participates in a RSG that limits the amount of  
14 resources that Tampa Electric must maintain to meet this  
15 NERC standard. This benefits retail customers from both  
16 a cost and a reliability perspective.

17  
18 **Q.** Has the Lake Agnes - Cane Island Tap 230 kV line been  
19 impacted by the NERC planning standards?

20  
21 **A.** Yes. In June 2005, a FRCC transmission assessment of  
22 the Central Florida region studied the planned  
23 generation additions in the Polk County region and their  
24 impact on the I-4 corridor transmission based on NERC  
25 planning standards. A Florida Central Coordinated

1 Restudy of the area was completed June 2006 with the  
2 recommendation to upgrade the Lake Agnes - Osceola  
3 circuit by June 2008 and the Osceola - Cane Island  
4 circuit by June 2011.

5  
6 **Q.** Has the Lake Agnes - Osceola upgrade been completed and  
7 at what cost?

8  
9 **A.** Yes. The upgrade went in service April 24, 2008 at a  
10 cost to Tampa Electric of \$3,268,000. The Osceola -  
11 Cane Island upgrade is expected to cost approximately  
12 \$900,000. The upgrades and improvements were made to  
13 maintain the reliability of the bulk electric grid,  
14 which benefits the company's retail customers.

15  
16 **SUMMARY**

17 **Q.** Please summarize your direct testimony.

18  
19 **A.** Tampa Electric forecasts that it will invest  
20 \$218,945,000 in T&D related capital and incur  
21 \$76,256,000 in T&D related O&M expenses in 2009. The  
22 Energy Delivery capital budget includes system expansion  
23 of transmission, substation and distribution facilities  
24 to support customer growth and generation expansion,  
25 storm hardening initiatives, substation circuit breaker

1 replacements, AMR meter additions and an EMS upgrade  
2 project. The 2009 O&M budget includes those activities  
3 required for system operations and restoration, meter  
4 reading, vegetation management, inspection programs, and  
5 the maintenance of equipment and computer systems.  
6 These capital investments and O&M expenses are necessary  
7 to preserve the company's reliable electric service and  
8 to meet the Commission's requirements for storm  
9 hardening.

10  
11 To ensure that the T&D system is reliable, Tampa  
12 Electric maintains the necessary capacity and reserves  
13 on the system, ensures the quality of the power is  
14 acceptable, limits outages from occurring and minimizes  
15 the outage time when they occur. The company has  
16 recently made significant improvements to its overall  
17 system reliability through various reliability  
18 initiatives that will also provide benefits in the  
19 coming years. Since 2005, Tampa Electric has reduced  
20 its SAIDI by almost 10 percent, from 84 minutes to 77  
21 minutes. This improved performance is a result of a  
22 concentrated focus on first preventing an outage and  
23 then minimizing outage times when they do occur.

24  
25 To efficiently and effectively manage costs, Tampa

1 Electric's management team has implemented a number of  
2 practices to improve safety, the effectiveness of its  
3 workforce, and generally to promote an environment for  
4 continuous improvement. These practices have favorably  
5 impacted performance in diverse areas of the business:  
6 outage response, workforce utilization, inventory,  
7 project management, system protection, and meter  
8 reading. Significant improvements have also been made  
9 to the company's construction standards.

10  
11 At the same time, the company has experienced additional  
12 federal and state regulatory requirements. Tampa  
13 Electric, along with the other transmission owners in  
14 Florida, expects to invest significantly in the  
15 transmission system. Because of the significance of the  
16 expenditures and the unpredictable nature of regional  
17 cost allocations, a TBRA will serve as an appropriate  
18 cost recovery mechanism for future transmission  
19 investments.

20  
21 Overall, Tampa Electric has been able to maintain its  
22 system reliability performance and position within the  
23 first quartile of comparable peer utilities while  
24 remaining below the Commission's O&M benchmark. This  
25 represents an appropriate balance between the quality



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service that customers expect and reasonable costs.

**Q.** Does this conclude your testimony?

**A.** Yes, it does.

**EXHIBIT**

**OF**

**REGAN B. HAINES**

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LIST OF MINIMUM FILING REQUIREMENT SCHEDULES

SPONSORED OR CO-SPONSORED BY REGAN B. HAINES

MFR Schedule	Title
B-11	Capital Additions And Retirements
B-13	Construction Work In Progress
B-15	Property Held for Future Use - 13-Month Average
C-8	Detail of Changes In Expenses
C-9	Five Year Analysis - Change In Cost
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C-41	O&M Benchmark Variance By Function
F-8	Assumptions

**Transmission & Distribution  
Material, Equipment & Fuel Percentage Price Increases Since 1999**

Description	Percentage Increase
Single Phase Overhead Transformer - 25 KVA	59%
Single Phase Overhead Transformer - 37 KVA	85%
Single Phase Overhead Transformer - 50 KVA	48%
Single Phase Overhead Transformer - 75 KVA	60%
Single Phase Padmounted Transformer - 25 KVA	139%
Single Phase Padmounted Transformer - 37 KVA	123%
Single Phase Padmounted Transformer - 50 KVA	113%
Single Phase Padmounted Transformer - 75 KVA	90%
Concrete Pole - 35 FT	25%
CCA Wood Pole - 45 FT Class 2	25%
Concrete Pole - 75 FT Class H1	43%
Concrete Pole - 85 FT	35%
Overhead Conductor - 336 MCM ACSR - 1000 FT	99%
Overhead Conductor - 954 MCM ACSR - 1000 FT	66%
High Pressure Sodium Lamp - 400W	40%
High Pressure Sodium Lamp - 100W	47%
28 MVA 69/13kV Substation Transformer	163%
SOURCE: Tampa Electric Company Purchasing Department	
Gasoline <sup>(1)</sup>	230%
#2 Diesel Oil <sup>(1)</sup>	289%
Crude Oil <sup>(1)</sup>	649%
(1) U.S. Energy Information Administration	
Copper <sup>(2)</sup>	552%
Carbon Steel <sup>(2)</sup>	87%
Aluminum <sup>(2)</sup>	109%
Zinc <sup>(2)</sup>	222%
(2) U.S. Department of Labor - Bureau of Labor Statistics "www.bls.gov"	

**Transmission and Distribution  
Capital Investment for 2009**

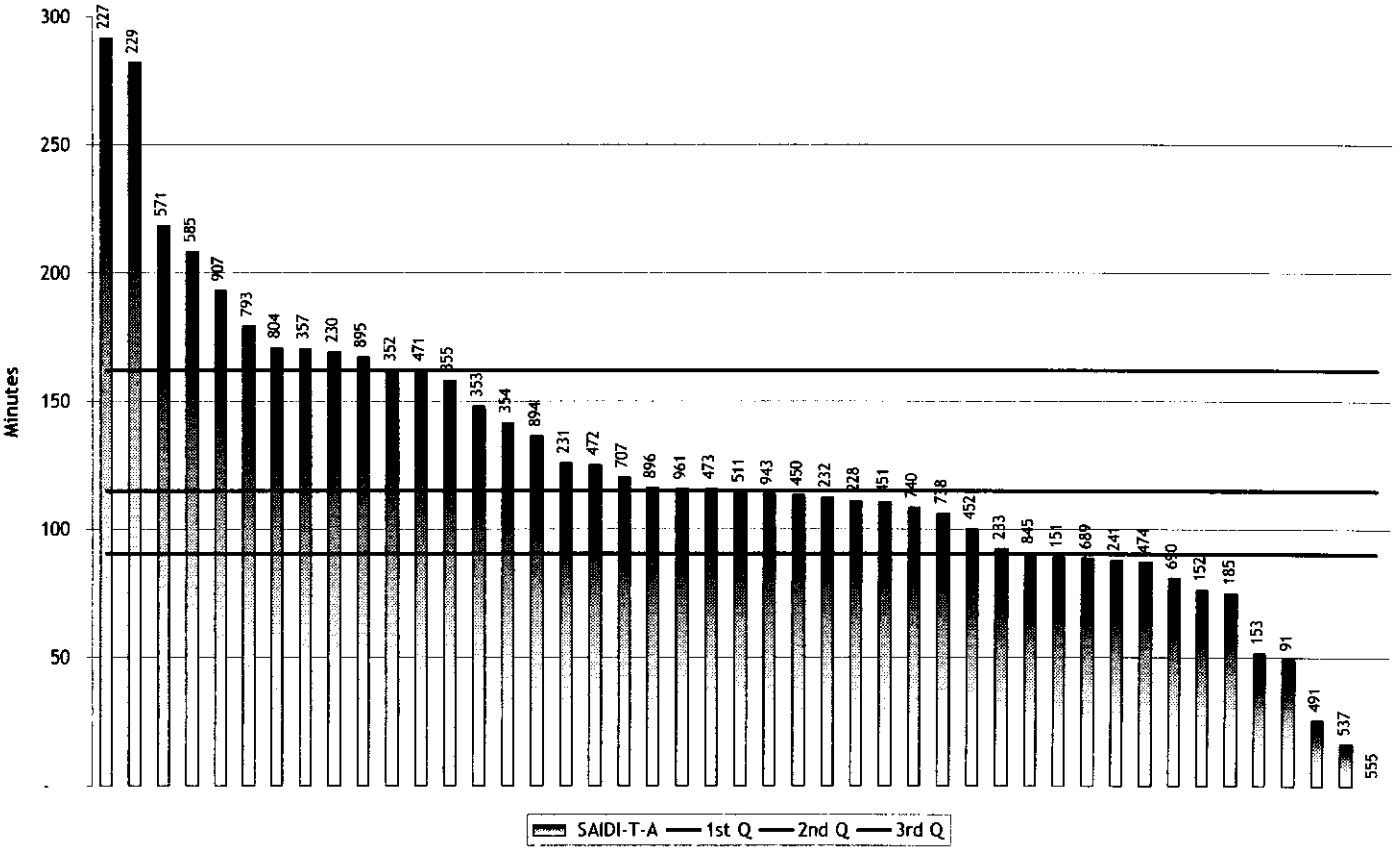
	(\$000s)
<b>Blankets</b>	
Distribution	\$ 73,817
Transmission	11,965
Lighting	11,734
Substation	4,926
Metering	5,237
Vehicles	230
Office	71
Telecom	105
<b>Total Blankets</b>	<b>\$ 108,085</b>
<b>Specifics</b>	
Transmission	\$ 9,160
230kV Transmission	68,101
Distribution	17,387
Road Widening	2,274
Non-Construction	9,238
AMR Meters	3,500
PHFFU	1,200
<b>Total Specifics</b>	<b>\$ 110,860</b>
<b>Total Capital</b>	<b>\$ 218,945</b>

**Transmission & Distribution  
Related O&M Budget for 2009**

<b>FERC</b>	<b>Transmission</b>	<b>(\$000s)</b>
560	Operation Supervision and Engineering	\$ 694
561	Load Dispatching	2,086
562	Station Expenses	925
565	Transmission of Electric by Others-Operation	372
566	Misc Transmission Expenses	2,013
567	Rents	29
569	Maintenance of Structures	2,813
570	Maintenance of Station Equipment	1,600
571	Maintenance of Overhead Lines	2,895
573	Maint of Misc Transmission Plant	577
<b>Total</b>		<b>\$ 14,004</b>
<b>FERC</b>	<b>Distribution</b>	
580	Operation Supervision & Engineering	776
582	Station Expenses	1,013
583	Overhead Line Expenses	120
584	Underground Line Expenses	16
585	Street Lighting & Signal Sys Expenses	380
586	Meter Expenses	4,043
587	Customer Installation Expenses	4,258
588	Misc Distribution Expenses	13,564
589	Rents	529
590	Maint Supervision & Engineering	81
592	Maintenance of Station Equipment	2,588
593	Maintenance of Overhead Lines	24,689
594	Maintenance of Underground Lines	3,660
595	Maintenance of Line Transformers	399
596	Maint of Street Lighting & Signal Sys	2,406
597	Maintenance of Meters	604
<b>Total</b>		<b>\$ 59,127</b>
<b>FERC</b>	<b>Customer Service</b>	
902	Meter Reading Expenses	3,124
<b>Total</b>		<b>\$ 3,124</b>
<b>Grand Total</b>		<b>\$ 76,256</b>

# 2007 SAIDI Comparison from Southern Company Benchmark Consortium Study

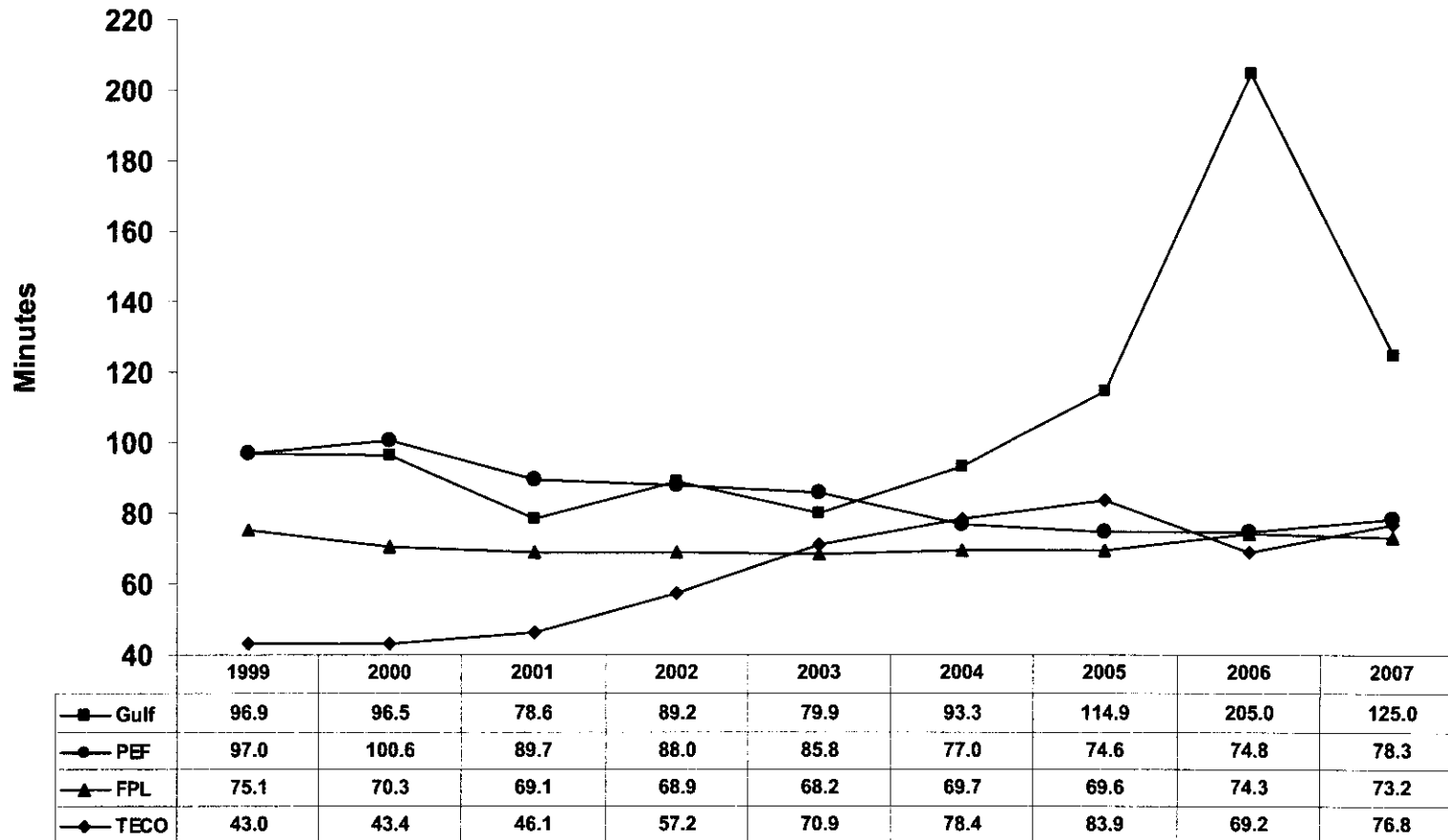
Tampa Electric Company (No. 185)





**Florida Investor-Owned Electric Utility Historical SAIDI Comparison  
(Distribution Only)**

**1997 – 2007**



## Storm Hardening Activity 2009 Projections

Storm Hardening Initiatives	O&M (\$000s)	Capital (\$000s)	Total (\$000s)
<b>1) Vegetation Management - Distribution Circuits:</b>			
Planned	\$ 14,906		
Unplanned	1,167		
<b>Vegetation Management Subtotal</b>	<b>\$16,073</b>	<b>\$0</b>	<b>\$16,073</b>
<b>2) Audit of Joint-Use Attachment Agreements</b>	218		
<b>3) Transmission Structure Inspection Program:</b>			
Transmission Line O&M	856		
Transmission Line Capital		1,108	
Transmission Substation	278		
<b>4) Collection of Detailed Outage Data (OH vs. UG)</b>		81	
<b>5) Other 10-Point Plan Activities</b>	220		220
<b>Ten-Point Storm Preparedness Plan Subtotal (Items 1-5)</b>	<b>\$17,645</b>	<b>\$1,189</b>	<b>\$18,834</b>
<b>6) Pole Inspection &amp; Change-Out Program:</b>			
T&D Pole Inspections	1,514		
Distribution Pole Change-Outs		3,932	
Distribution Pole Reinforcements		511	
Transmission Pole Change-Outs		8,460	
Comprehensive Loading Analysis	96		
Change-Outs due to TEC Loading		1,886	
<b>Pole Inspection Program Subtotal</b>	<b>\$1,610</b>	<b>\$14,789</b>	<b>\$16,400</b>
<b>7) Targeted Critical Facilities / Mitigate Flood Damage:</b>			
Port of Tampa		530	
Downtown Network		105	
Interstate Crossings - Distribution		581	
<b>Critical Infrastructure Subtotal</b>	<b>\$0</b>	<b>\$1,217</b>	<b>\$1,217</b>
<b>Total</b>	<b>\$ 19,255</b>	<b>\$ 17,195</b>	<b>\$ 36,450</b>