

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

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In re: Petition for rate increase by  
Progress Energy Florida

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Docket No. 050078

Submitted for filing:  
April 29, 2005

**DIRECT TESTIMONY OF**  
**RAY F. DESOUZA**

**On behalf of PROGRESS ENERGY FLORIDA**

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**DIRECT TESTIMONY OF**  
**RAY F. DESOUZA**

1     **I.   Introduction and Summary.**

2     **Q.   Please state your name and business address.**

3     A.   My name is Ray F. DeSouza. My business address is 3300 Exchange Place, Lake  
4       Mary, Florida.

5  
6     **Q.   By whom are you employed and in what capacity?**

7     A.   I am employed by Progress Energy Florida, Inc. (“PEF” or the “Company”) in the  
8       capacity of Director, Transmission Engineering.

9  
10    **Q.   What are your duties and responsibilities as the Director of Transmission**  
11    **Engineering?**

12    A.   As Director of Transmission Engineering, I have the responsibility of leading  
13       PEF’s transmission engineering section which provides both technical and project  
14       management support for transmission projects. I direct the activities of this 83  
15       employee team that develops project feasibility studies, creates engineering design  
16       packages, and manages the schedule and budget for major transmission  
17       maintenance and all transmission capital projects. The section also supports our  
18       transmission asset management group in providing technical support, like  
19       engineering studies and standards, to the transmission operation groups. As  
20       director of the section, one of my primary responsibilities is to ensure that the team  
21       has the capacity to provide the highest level of technical and project management  
22

1 services and that all of our activities are aligned in support of the Company's  
2 goals.

3  
4 **Q. Please describe your educational background and professional experience.**

5 A. I graduated from the University of South Florida in 1987 with a Bachelor of  
6 Science in Electrical Engineering and received an MBA from Rollins College in  
7 2003. I joined Florida Power in 1987 as an engineer in the Transmission  
8 Engineering section designing transmission facilities for major capital projects. In  
9 1995, I moved to the Transmission Standards and Technology group and assumed  
10 responsibility for developing specifications and engineering support for major  
11 substation equipment. In that capacity I led teams to accelerate the use of  
12 computer-aided design tools in the engineering units and initiated strategic  
13 alliances with some of our equipment suppliers. I became a supervisor in the  
14 Transmission Engineering section in 1999 with responsibility for managing the  
15 activities and resources required for our drafting function. In 2001, I was  
16 promoted to Manager of Substation Engineering providing technical support for all  
17 substation capital projects and some major maintenance projects. In 2002, I was  
18 promoted to Director of Transmission Engineering.

19 I am a registered Professional Engineer in the State of Florida and a member  
20 of the Institute of Electronic and Electrical Engineers. I represent PEF in the  
21 Southeastern Electric Exchange.

22  
23 **Q. What is the purpose of your direct testimony?**

24 A. The purpose of my direct testimony is to support the reasonableness of the  
25 transmission portion of PEF's capital and O&M expenses.

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**Q. Do you have any exhibits to your testimony?**

A. Yes, I have prepared or supervised the preparation of the following exhibits to my direct testimony:

- Exhibit No. \_\_\_\_ (RFD-1), entitled Minimum Filing Requirements Schedules Sponsored, All or In Part, by Ray F. DeSouza.
- Exhibit No. \_\_\_\_ (RFD-2), entitled Transmission Florida Reliability Graphs.
- Exhibit No. \_\_\_\_ (RFD-3), entitled Transmission Florida Accelerated & Proactive Reliability Initiatives.

These exhibits are true and accurate.

**Q. Do you sponsor any schedules of the Company's Minimum Filing Requirements (MFRs)?**

A. Yes, I sponsor MFR schedules as outlined on Exhibit No. \_\_\_\_ ( RFD-1) insofar as they pertain to transmission. These are true and correct, subject to being updated during the course of this proceeding.

**Q. Please summarize your testimony.**

A. Since 2002, we have made significant improvements to, and increased the reliability of, PEF's transmission system. We accomplished this through effective management, a continuing emphasis on safety, operational excellence and customer service, and an increased investment in reliability initiatives. We have achieved these improvements while meeting the increasing service demand on the Florida grid resulting from new load and new generation supplies. The customers'

1 expectations for reliable service, however, continue to rise and we must continue  
2 to be proactive in our efforts to meet these demands.

3 Historically, the Company's transmission system has benefited from a very  
4 robust design, providing exceptional ability to isolate faults and limit the impact to  
5 small sections of the system. Nonetheless, since 2002, we have made significant,  
6 additional reliability investments to replace equipment in order to meet the rising  
7 customer demands. Through our Commitment to Excellence ("CTE") program  
8 alone, we invested \$37 million on 22 initiatives between 2002 and 2004 to  
9 improve transmission system reliability. And as discussed in greater detail in Dale  
10 Oliver's testimony, these initiatives included aggressive vegetation management,  
11 animal mitigation, and line bonding and grounding programs. We have also  
12 invested in improvements to our operation and maintenance activities through the  
13 establishment of an asset management group, through the implementation of more  
14 efficient data and asset management tools, through increased training of our craft  
15 and technical personnel, and by driving accountabilities for system performance to  
16 the individual employee level.

17 Through CTE and improvements in operation and maintenance of the  
18 system, PEF improved transmission reliability by 37% since 2002. PEF retail  
19 customers experienced year-over-year improvements in transmission-related  
20 SAIDI (System Average Interruption Duration Index) throughout the three-year  
21 period.

22 While we have made significant improvements in the transmission system,  
23 we remain committed to continuing to provide superior service and to meet our  
24 customers' rising expectations. Going forward we will focus on increasing the  
25 effectiveness of our maintenance program through enhancements of our work

1 management systems and transitioning to a predictive maintenance model. We  
2 plan to maintain an aggressive posture on refurbishing and replacing aging  
3 equipment. We also plan to implement projects to modernize older  
4 designs/equipment.

5 To this end, we are anticipating total transmission capital expenditures of  
6 \$91.7 million in 2006, which includes base funding, reorganization savings, and  
7 accelerated and proactive initiative funding. We are anticipating O&M expenses  
8 of approximately \$36.754 million in 2006, which includes base funding,  
9 reorganization savings, and accelerated and proactive initiative funding. This will  
10 enable the Company to strike a reasonable balance between high quality of service  
11 that our customers expect and a reasonable cost for that service.

## 12 13 **II. PEF's Reliability Initiatives Since 2002.**

14 **Q. Please summarize the transmission system reliability initiatives that the**  
15 **Company has undertaken since 2002.**

16 As discussed in greater detail in Dale Oliver's testimony, in 2002, PEF committed  
17 to further improving the level of service to its customers. The Company  
18 developed a comprehensive program, CTE, to target areas, including the  
19 transmission system, where reliability improvements could be made. Under the  
20 CTE program we developed specific, measurable goals with the ultimate objective  
21 of reaching top quartile performance in key categories. We then identified and  
22 prioritized projects to cost-effectively achieve these goals.

23 In Transmission, we focused on twenty-two key projects to improve  
24 reliability, in particular to reduce SAIDI. These included (1) accelerated line, pole  
25 and other equipment inspection and replacement, (2) enhanced vegetation and

1 right-of-way management, and animal mitigation measures, and (3) substation  
2 upgrades. As I noted above, PEF spent more than \$37 million on these projects.

3 Our programs yielded measurable improvements. For example, we first  
4 targeted the lowest performing transmission lines, i.e., those with the highest  
5 outage rates, for bonding, regrounding and repairs. As a result of our efforts, we  
6 have seen a 35% improvement in the performance of these targeted lines. This  
7 was part of an overall improvement in Transmission "FOHMY" (i.e., the number  
8 of forced outages per hundred mile of line per year) during years of increased  
9 lightning activity. We then targeted substations with a history of animal related  
10 outages by installing protective barriers. As a result of our efforts, we reduced our  
11 animal-related customer outage times by more than 50%. We also increased our  
12 vegetation management efforts for our transmission right-of-ways. This work  
13 resulted in a 50% reduction in tree-related outages from 2002 to the 2003-2004  
14 average. The net result of these various initiatives, as noted before, was a  
15 significant improvement in retail SAIDI, going from 16.26 customer minutes for  
16 2002 down to 10.23 customer minutes for 2004. These reliability improvements  
17 are shown in Exhibit No. \_\_\_\_ (RFD-2).

18 In addition to CTE, we continued to focus on improving our maintenance  
19 and construction activities. We implemented a new asset management tool in  
20 2002, which has improved our ability to schedule and track equipment  
21 maintenance and provided us with a better ability to perform trending analyses on  
22 the performance of our major equipment. We have also revised our maintenance  
23 procedures to leverage best industry practices, and we have increased training to  
24 craft and technical personnel with an emphasis on task related training. We  
25 established a project management group to provide a single point of accountability

1 for the life cycle of transmission projects. These are some of the many initiatives  
2 in the maintenance and construction areas that helped to promote better reliability  
3 performance from 2002 to 2004 on the transmission system.  
4

5 **III. Steps Taken to Monitor and Control Costs.**

6 **Q. What steps do you take to effectively manage the Company's transmission-**  
7 **related capital and O&M costs?**

8 A. PEF transmission management takes a number of steps to ensure that we are  
9 focused on the right priorities, our budgets are reasonable, and that we are  
10 spending money wisely. We have implemented many best practices since the  
11 merger between Carolina Power & Light and Florida Progress, which have  
12 enabled us to aggressively manage and control costs. In 2001, the Transmission  
13 Department instituted a project management organization to augment the  
14 engineering group in Florida. Under this organization, Project Managers have  
15 responsibility for projects from inception to energization. During budget  
16 formation, Project Management supervises the Transmission Department's project  
17 ranking process. Projects are prioritized based on ranking criteria such as  
18 operational impact and regulatory requirements.

19 The project rankings are reviewed and approved by the Department's Project  
20 Review Group ("PRG"), which is composed of the Department's managers and  
21 which provides another opportunity for oversight of capital expenditures. The  
22 PRG meets monthly to manage the overall capital budget and assure that emergent  
23 projects are evaluated consistently and funded if necessary. The PRG process thus  
24 provides for consistency in project evaluation and funding, as well as providing for  
25 flexibility in handling the dynamics inherent in a large complex business. The



1 PRG uses a three-phase project authorization process as a methodology for project  
2 development, review, and approval so that an adequate business case is established  
3 prior to the commitment of significant resources. This process was implemented  
4 in 2002. The three phases are study, design, and implementation. Authorization is  
5 required separately for each phase and must be obtained before work starts.

6 We also utilize benchmarking as a way to measure ourselves against others  
7 in the industry and drive continuous improvement in the business. Our  
8 organization has made progress on transmission cost benchmarks, ranking in the  
9 top quartile on "Total Cost per Gross Plant" and moving towards top quartile on  
10 "Transmission Normalized O&M and Infrastructure Capital per Planned Peak".  
11 Our budgets and performance metrics are woven into incentive compensation  
12 goals for employees at all levels of the organization to ensure focus. Transmission  
13 has achieved its O&M and Capital budget goals for each of the three years starting  
14 in 2002 through 2004.

15 Finally, our Business Operations group monitors spending each month for  
16 reasonableness and compliance with budget, while also acting as a facilitator for  
17 operational analysis, the development of improvement ideas and the revision of  
18 spending projections. The mechanisms for cost management used by the  
19 Transmission Department provide full cycle accountability and ensure that our  
20 expenditures are prudent.

21

1 **IV. Management Effectiveness.**

2 **Q. What other effective management practices has the Transmission**  
3 **organization implemented?**

4 A. We have implemented a number of practices to improve safety, the effectiveness  
5 of our workforce, and generally to promote an environment for continuous  
6 improvement. These practices have favorably impacted our performance in  
7 diverse areas of the business: safety, training, storm response, corporate culture,  
8 and corporate restructuring.

9 **Safety:** Safety remains a core value for the organization. To that end, we have  
10 established very vibrant safety councils in every section in the Transmission  
11 Department. These councils are organized and managed by employees on a  
12 volunteer basis. The department also establishes safety goals, and employees at  
13 every level are accountable for achieving these goals. The result has been an  
14 improvement in our OSHA injury rate from 3.04 in 2002 to 1.64 in 2004.

15 **Training and Development:** We instituted training advisory boards for the  
16 various disciplines in the organization. The boards provide direction for the  
17 development of training programs in the department. The System Performance  
18 unit, which is responsible for craft and technical training in Transmission, has  
19 increased the total hours of training from 10,696 hours in 2001 to 38,902 hours in  
20 2004. This is reflective of our commitment to employees and to improve the  
21 operational excellence of the Company.

22 **Human Performance:** In 2002, Human Performance (HP) was implemented in  
23 PEF (T&D). The objective of HP is to reduce incidents of human error that can  
24 lead to injuries, customer outages, or equipment damage. In support of this  
25 initiative, Transmission has an infrastructure to promote HP within the

1 organization. This is spearheaded by the Transmission HP Steering Committee  
2 and supported by smaller HP committees in all sections of the department. These  
3 committees help to develop programs that encourage event and near-miss  
4 reporting, tracking and trending of events, and the development of promotional  
5 activities to keep HP as a top of mind item with our employees. Since 2003, when  
6 we started tracking, the number of customer impacting events due to human error  
7 has been reduced by 32%, from 53 to 36.

8 **Storm/Hurricane Preparedness:** As we learned during the unusually active  
9 storm season last year, pre-storm preparation and readiness are critical success  
10 factors in restoring power quickly after the event. In the years preceding summer  
11 of 2004, the Florida transmission organization leveraged the storm experience of  
12 the Carolina organization by modeling their storm organization, storm plans, and  
13 storm drills. During the 2004 storms, for example, we were able to augment our  
14 staff with experienced personnel from Carolina at all levels of the organization.  
15 This preparation paid enormous dividends: in the aftermath of four hurricanes,  
16 with 2,684 miles of damaged transmission lines and 274 substations impacted,  
17 Transmission was able to safely restore power to over 90% of the affected  
18 substations prior to the daily estimated time of restoration (ETR). This enabled  
19 retail service to be restored as described in Jeff Lyash's testimony.

20 **Diversity and Corporate Culture:** Employees are the most important investment  
21 of any organization. As such, employees are valued for their skills, abilities, and  
22 contribution to the organization regardless of their background. Our corporate  
23 culture centers on People, Performance, and Excellence. From our annual  
24 employee surveys, we have seen steady improvement in our employee satisfaction  
25 results and diversity scores from 2001 to 2004. Our transmission employee

1 employee surveys, we have seen steady improvement in our employee satisfaction  
2 results and diversity scores from 2001 to 2004. Our transmission employee  
3 satisfaction score improved from 72.8 in 2001 to 82 in 2004. Our diversity score  
4 rose from 77.8 to 82 during the same period. We have also focused on supplier  
5 diversity and have achieved strong results. In 2003 and 2004, we sourced \$ 2.7  
6 million and \$ 3.3 million of transmission business from minority owned  
7 businesses.

8 **Corporate Restructuring:** Included in our funding request is the amount of  
9 transmission O&M savings of \$0.893 million associated with the Company's  
10 current reorganization effort. The Company is undertaking a complete review of  
11 its organizational structure in order to once again identify areas where further  
12 efficiencies can be achieved. This initiative, which will be implemented  
13 throughout 2005 and will include employee incentives for voluntary early  
14 retirement, is expected to produce nearly \$20 million in O&M savings in 2006,  
15 with roughly \$ 0.893 million in the transmission organization. These savings  
16 result from our constant focus on improving efficiency and eliminating  
17 redundancies to ensure the maximum use of our resources.

18  
19 **V. Accelerated and Proactive Transmission Reliability Initiatives.**

20 **Q. Please provide an overview of your Capital and O&M expense forecasts for**  
21 **maintaining PEF's transmission system.**

22 **A.** From 2002-2004, we addressed and successfully implemented measures that  
23 mitigated the number and duration of outages occurring on the system. Reliability  
24 is measured by the index SAIDI, which is a product of the average minutes of

1 outage time per customer on our system as well as FOHMY, which is the number  
2 of forced outages per hundred mile of line per year. Over the years 2002–2004 we  
3 reversed a prior negative trend and instead experienced significant improvements  
4 in these reliability measures. The transmission SAIDI has dropped from 16.26 to  
5 10.23 minutes and FOHMY has dropped from 15.9 to 14.97 during this period.  
6 Moving forward, we will continue to focus on mitigating customer outages by  
7 implementing initiatives that will further strengthen our grid and enhance the  
8 operation of our system.

9 We are anticipating total transmission capital expenditures of \$91.7 million  
10 in 2006, which includes base and initiative funding. We are anticipating O&M  
11 expenses of approximately \$36.754 million in 2006, which includes base and  
12 initiative funding. The annual initiative funding will be \$10 million in O&M  
13 expense and \$15 million in capital. These 26 specific reliability initiatives are  
14 outlined in Exhibit No. \_\_\_\_ (RFD-3).

15 The initiatives can be classified into two types of activities: accelerating  
16 asset refurbishment and/or replacement, and proactively modernizing aging  
17 designs and/or equipment. The work activities cover a cross-section of  
18 transmission assets including transmission lines, substations, and relay protection  
19 and control. The accelerated asset refurbishment and/or replacement includes  
20 initiatives such as more aggressive vegetation management, targeted line  
21 inspection, bonding and grounding, conductor replacement, wedge connector  
22 removal, transformer replacements and repairs, bushing repairs, and renovating  
23 various substation equipment. The modernizing of designs and/or equipment  
24 includes initiatives such as targeted wood pole and cross-arm replacement, animal  
25 mitigation barrier installation, breaker replacement, adding load break capability to

1 switches, and modernizing various substation equipment. These initiatives can be  
2 broadly defined as proactively modernizing outdated designs with current design  
3 standards to improve performance and reliability.

4  
5 **Q. Are the projected transmission Capital expenditures and O&M expenses for**  
6 **2006 reasonable?**

7 **A.** Yes. More than that-they are necessary. At the level of funding noted  
8 above, the adjusted transmission O&M expenditures will be within \$0.04 million  
9 of the FPSC O&M Benchmark cost of \$36.713 million. In addition, we have  
10 ranked in the top quartile on "Total Cost per Gross Plant" and are moving towards  
11 top quartile on "Transmission Normalized O&M and Infrastructure Capital per  
12 Planned Peak". As discussed earlier, this level of funding will support baseline  
13 operating and maintenance activities, accelerate equipment refurbishments, and  
14 allow proactive system upgrades in order to strengthen the transmission grid and  
15 enhance the operation of our system. These expenditures are therefore reasonable  
16 and necessary to strike an appropriate balance between the high quality of service  
17 that our customers expect and a prudent cost for that service. PEF has remained  
18 committed to this objective over the years and will continue to do so.

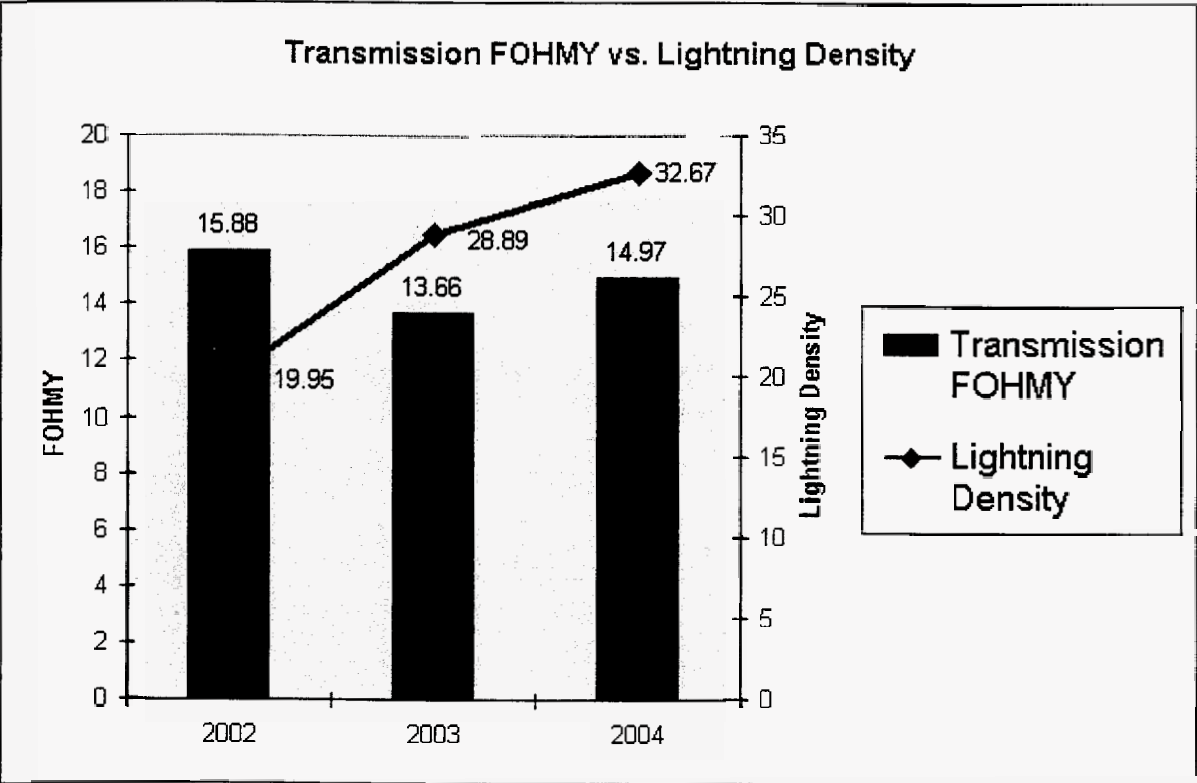
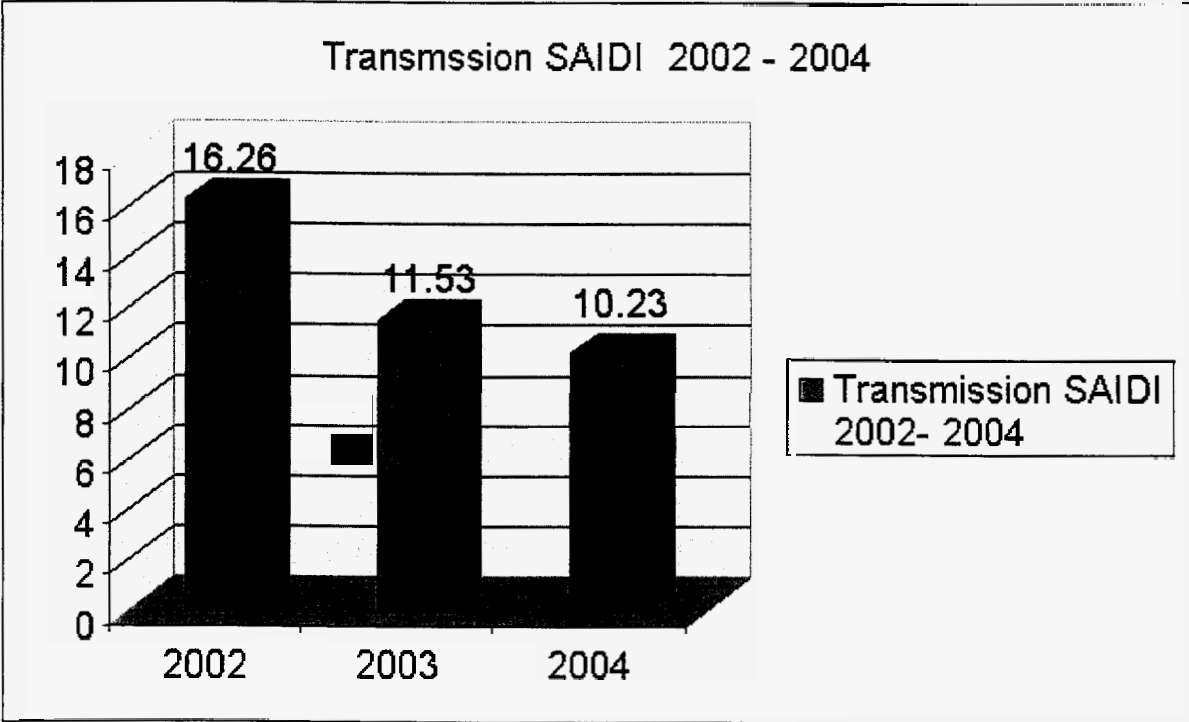
19  
20 **Q. Does this conclude your direct testimony?**

21 **A.** Yes.

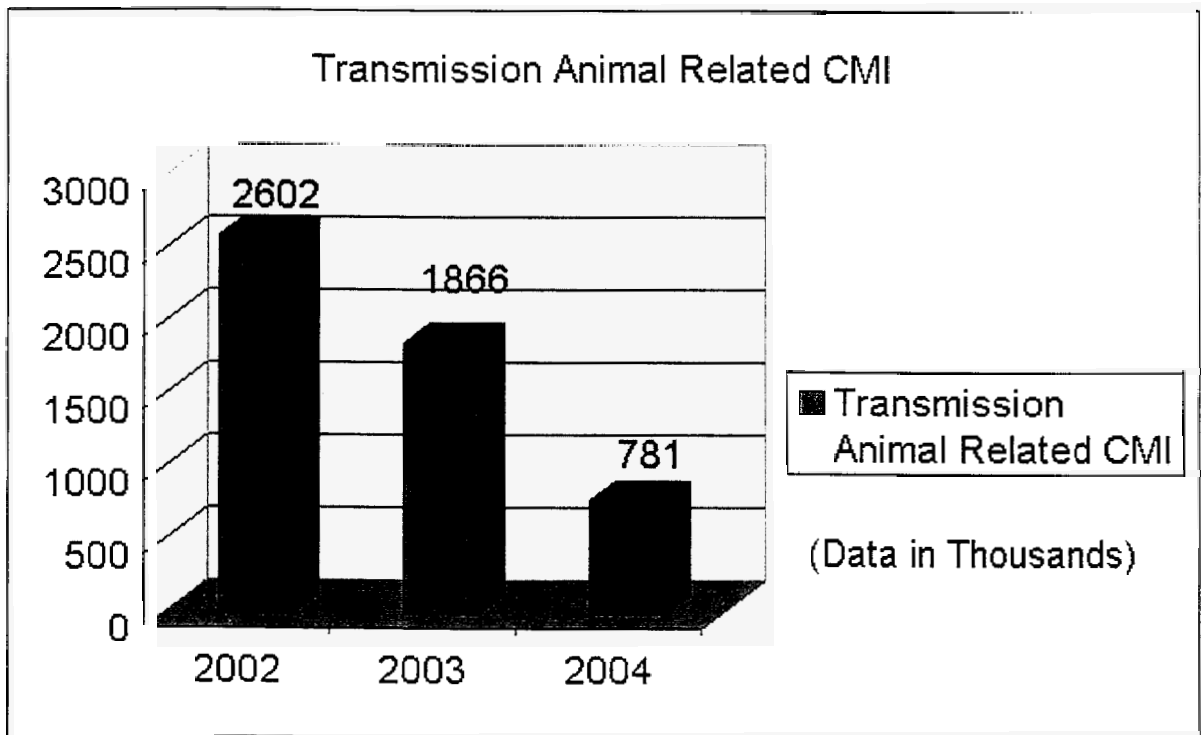
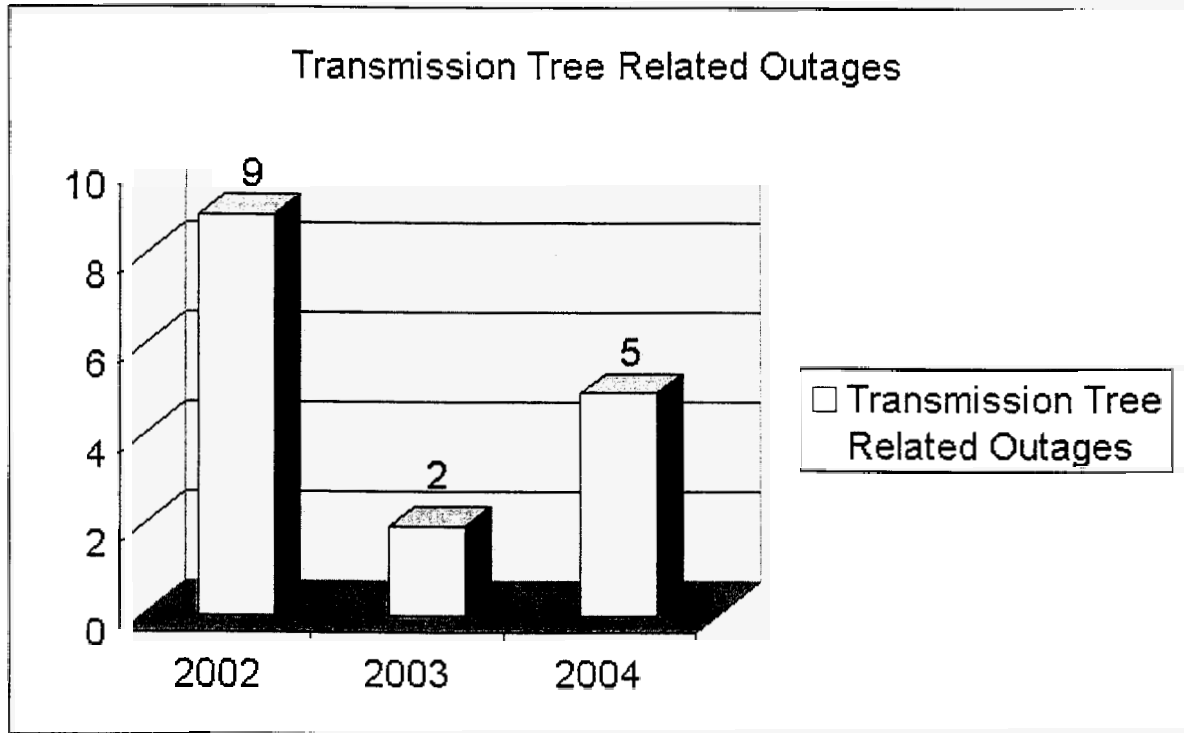
**MINIMUM FILING REQUIREMENT SCHEDULES**  
**Sponsored, All or In Part, by Ray F. DeSouza**

<u>Schedule #</u>	<u>Schedule Title</u>
B-7	Plant Balances by Account and Sub-Account
B-8	Monthly Plant Balances Test Year - 13 Months
B-9	Depreciation Reserve Balances by Account and Sub-Account
B-13	Construction Work in Progress
B-15	Property Held for Future Use - 13 Month Average
B-24	Leasing Arrangements
C-6	Budgeted Versus Actual Operating Revenues and Expenses
C-7	Operation and Maintenance Expenses - Test Year
C-8	Detail of Changes in Expenses
C-9	Five Year Analysis - Change in Cost
C-15	Industry Association Dues
C-16	Outside Professional Services Contributions
C-19	Amortization / Recovery Schedule - 12 Months
C-33	Performance Indices
C-36	Non-Fuel Operation and Maintenance Expense Compared to CPI
C-37	O & M Benchmark Comparison by Function
C-38	O & M Adjustments by Function
C-39	Benchmark Year Recoverable O & M Expenses by Function
C-41	O & M Benchmark Variance by Function

### Transmission Florida Reliability Graphs









**TRANSMISSION FLORIDA ACCELERATED & PROACTIVE RELIABILITY INITIATIVES**

NOTE: AMOUNTS REPRESENT ANNUAL INCREMENTS TO BASE FUNDING.

PROJECT	ACCELERATED REFURBISH/ REPLACEMENT		MODERNIZE OUTDATED DESIGNS/EQUIPMENT		TOTAL	
	O&M (\$ in 000's)	CAPITAL (\$ in 000's)	O&M (\$ in 000's)	CAPITAL (\$ in 000's)	O&M (\$ in 000's)	CAPITAL (\$ in 000's)
ACCELERATED VEGETATION AND ENCROACHMENT MANAGEMENT	2,100				2,100	
ACCELERATED TRANSMISSION LINE REPAIRS AND UPGRADES	1,500	800		700	1,500	1,500
ACCELERATED LINE BONDING AND GROUNDING						
ACCELERATED LINE INSPECTION AND REFURBISHMENT						
ACCELERATED HELICOPTER AERIAL PATROL						
ACCELERATED OHG REPLACEMENT						
ACCELERATED SUSPENSION INSULATOR REPLACEMENT						
ACCELERATED WEDGE CONNECTOR REMOVAL						
ACCELERATED TRANSMISSION TOWER REFURBISHMENT						
ACCELERATED MOTOR OPERATED SWITCH INSTALLATION						
ACCELERATED UPGRADE OF SWITCHES WITH CURRENT INTERRUPTERS						
ACCELERATED WOOD POLE AND CROSS ARM REPLACEMENTS						
ACCELERATED SUBSTATION REPAIRS AND MODERNIZING	5,900	1,100	500	9,800	6,400	10,900
ACCELERATED TRANSFORMER REPLACEMENT AND PROACTIVE REFURBISHMENT						
ACCELERATED RENOVATION AND MODERNIZING SUBSTATION EQUIPMENT						
PROACTIVE INSPECTION AND MAINTENANCE OF BREAKERS						
PROACTIVE BUSHING REFURBISHMENT AND REPLACEMENT						
PROACTIVE TRANSFORMER REGASKETING						
ACCELERATED SUBSTATION ANIMAL MITIGATION						
PROACTIVE BREAKER REPLACEMENT						
INSTALL MONITORS ON CRITICAL TRANSFORMERS						
PROACTIVE RELAY PROTECTION AND CONTROL REPAIRS AND UPGRADES		100		2,500		2,600
ACCELERATED BATTERY BANK REPLACEMENT						
MODERNIZE RTUS AND SERVERS						
MODERNIZE CARRIER TRAPS AND TUNERS						
INSTALL ADDITIONAL DIGITAL FAULT RECORDERS AND RELAYS						
MODERNIZE VARIOUS RELAYS						
MODERNIZE TRANSFER -TRIP TONE EQUIPMENT						
INSTALL EQUIPMENT FOR REMOTE DIAL UP ACCESS						
<b>TOTAL</b>	<b>\$ 9,500</b>	<b>\$ 2,000</b>	<b>\$ 500</b>	<b>\$ 13,000</b>	<b>10,000</b>	<b>15,000</b>