AUSLEY & MCMULLEN

ATTORNEYS AND COUNSELORS AT LAW

ORIGINAL

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February 18, 1998

HAND DELIVERED

Ms. Blanca S. Bayo, Director Division of Records and Reporting Florida Public Service Commission 101 East Gaines Street Tallahassee, Florida 32399-0850

> Re: Environmental Cost Recovery Clause FPSC Docket No. 980007-EI

Dear Ms. Bayo:

JDB/pp Enclosures

On November 17, 1997 Tampa Electric Company submitted the Prepared Direct Testimony and Exhibit of Karen O. Zwolak regarding the Environmental Cost Recovery final true-ups for the period April through September 1997. On January 14, 1998 the company submitted the Prepared Direct Testimony and Exhibit of Karen O. Zwolak regarding Environmental Cost Recovery projections. Subsequently, revisions were made to both the November filing and the January filing. At Staff's suggestion and to facilitate reference to Ms. Zwolak's testimonies and exhibits, the company has prepared consolidated versions of both the true-up and projection testimonies and exhibits which include all of the previously made

ALA A	
APP	Enclosed for filing in the above docket are the original and fifteen (15) copies each of Ms. Zwolak's true-up testimony and
CAF	exhibit and projection testimony and exhibit, both marked "Revised
CMU	February 18, 1998." We request that these testimonies and exhibits be substituted in place of those previously filed.
CIR	- I See See See See See See See See See S
EAG	Please acknowledge receipt and filing of the above by stamping
LEG	the duplicate copy of this letter and returning same to this writer.
LIN	310/
OPC	Thank you for your assistance in connection with this matter.
	Sincerely, Sincerely, Sames D. Beasley high the formy
	Xum as 2007
	Fames D. Beasley
OTH	hart to town

cc: All Parties of Record (w/encls.)

FPSC-RECORDS/REPORTING

DOCUMENT NUMBER-DATE

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TAMPA ELECTRIC COMPANY DOCKET NO. 970007-EI FILED: NOVEMBER 17, 1997 REVISED: FEBRUARY 18, 1998

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION TAMPA ELECTRIC COMPANY DOCKET NO. 970007-Ei

ENVIRONMENTAL COST RECOVERY

FINAL TRUE-UPS

APRIL 1997 - SEPTEMBER 1997

TESTIMONY AND EXHIBIT OF
KAREN O. ZWOLAK

TAMPA ELECTRIC COMPANY DOCKET NO. 970007-EI SUBMITTED FOR FILING 11/17/1997 REVISED 2/18/1998

1		BEFORE THE PUBLIC SERVICE COMMISSION
2		PREPARED DIRECT TESTIMONY
3		OF
4		KAREN O. ZWOLAK
5		
6	Q.	Please state your name, address, occupation and employer.
7		
8	A.	My name is Karen O. Zwolak. My business address is 702
9		North Franklin Street, Tampa, Florida 33602. I am employed
10		by Tampa Electric Company in the position of Manager,
11		Energy Issues in the Electric Regulatory Affairs
12		Department.
13		
14	Q.	Please provide a brief outline of your educational
15		background and business experience.
16		
17	A.	I received a Bachelor of Arts Degree in Microbiology in
18		1977 and a Bachelor of Science degree in Chemical
19		Engineering in 1985 from the University of South Florida.
20		I began my engineering career in 1986 at the Florida
21		Department of Environmental Regulation and was employed as
22		a Permitting Engineer in the Industrial Wastewater Program.
23		In 1990, I joined Tampa Electric Company as an engineer in
24		the Environmental Planning Department and was responsible
25		for permitting and compliance issues relating to wastewater

treatment and disposal. In 1995, I transferred to Tampa Electric's Energy Supply Department and assumed the duties of the plant chemical engineer at the F. J. Gannon Station. In this position, I was responsible for boiler chemistry, management, and maintenance of environmental water equipment and general engineering support. In 1997, I was promoted to Manager, Energy Issues in the Electric Regulatory Affairs Department. My present responsibilities include the areas of fuel adjustment, capacity cost recovery, environmental filings and rate design.

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Q. What is the purpose of your testimony in this proceeding?

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A. The purpose of my testimony is to present, for Commission review and approval, the actual true-up amount and the calculations thereof associated with the environmental compliance activities for the period April 1997 through September 1997.

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Q. Do you wish to sponsor exhibits in support of your testimony?

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A. Yes. My Exhibit No. (KOZ-1) consists of 8 forms which were prepared under my direction and supervision. Form 42
1A reflects the final true-up for the April 1997 -

September 1997 period; Form 42-2A consists of the final true-up calculation for the period; Form 42-3A consists of the calculation of the Interest Provision for the period; Form 42-4A reflects the calculation of variances between actual and projected costs for 0 & M Activities; Form 42-5A presents a summary of actual monthly costs for the period for 0 & M Activities; Form 42-6A reflects the calculation of variances between actual and projected costs for Capital Investment Projects; Form 42-7A presents a summary of actual monthly costs for the period for Capital Investment Projects and Form 42-8A consists of the calculation of depreciation expense and return on capital investment.

Q. What is the source of the data which you will present by way of testimony or exhibits in this processing?

A. Unless otherwise indicated, the actual data is taken from the books and records of Tampa Electric Company. The books and records are kept in the regular course of our business in accordance with generally accepted accounting principles and practices, and provisions of the Uniform System of Accounts as prescribed by this Commission.

Q. Have the incremental costs for SO2 emission allowances incurred by Tampa Electric's wholesale sales to the Florida

Municipal Power Agency (FMPA) and the City of Lakeland (Lakeland) been identified and included in this true-up filing?

A. Yes, they have. As per Commission Order No. PSC-97-1273-FOF-EU, Docket No. 970171-EU, the incremental SO2 allowance costs incurred by the FMPA and Lakeland wholesale sales have been identified and are included on line 10b of Schedule 42-2A of this true-up filing.

Q. What are the incremental SO2 allowance costs of these two wholesale sales and how are they being treated?

A. Tampa Electric has calculated the incremental SC2 allowance costs incurred from making the FMPA and Lakeland wholesale sales to be \$189,442 for the period December 1996 through September 1997. This amount was then adjusted by \$29,013 to take into account the amount retail ratepayers were being credited due to the FMPA and Lakeland wholesale sales being included in the calculation of the jurisdictional separation factor. A net amount of \$160,429 will be credited to the retail ratepayers as shown on schedule 42-2A, line 10b.

O. How were the costs calculated?

A. As shown in my Exhibit No. (KOZ-1), the tons of SO2 emissions caused by the additional generation from Tampa Electric's system for the FMPA and Lakeland wholesale sales for the period December 1996 through September 1997 were calculated based on that percentage of generation which served these sales. That percentage was applied to the total tonnage of SO2 emitted by Tampa Electric's system. The dollar per megawatt-hour (\$/Mwh) was determined by applying the monthly incremental cost of an allowance to that portion of emissions calculated for each sale.

- Q. How was the adjusted amount of \$29,013 calculated?
- 14 A. The total monthly Mwh for the FMPA and Lakeland sales as a

 15 percentage of total sales was determined. This percent was

 16 applied to total monthly emission expense to determine the

 17 amount of emission expense related to these sales.
- 19 Q. Is this method of calculation the same method that will be 20 used on a go-forward basis?
 - A. No, it is not. In the future, Tampa Electric will use the actual data for the incremental SO2 allowance cost captured on an hourly basis for these sales.

Q. Has Tampa Electric made the necessary adjustments to its'
Environmental Cost Recovery Clause (ECRC) in order to
comply with Audit Disclosure No. 3 of the Florida Public
Service Commission's (FPSC) Environmental Compliance Cost
Adjustment Audit Report for the period ending March 31,
1997?

A. Yes. As per Commission Order No. PSC-97-1047-FOF-EI, Docket No. 970007-EI, Tampa Electric has agreed to remove payroll charges associated with modifications and expansions to employee workload due to the Big Bend Unit 3 Flue Gas Desulfurization Integration Project through the ECRC. (See line 10a of Schedule 42-2A).

Q. What is the actual true-up amount which Tampa Electric is requesting for the six-month period April 1997 through September 1997?

19 A. Tampa Electric has calculated and is requesting approval of
20 an over/(under) - recovery of (\$227,193) as the actual
21 true-up amount for the six-month period.

Q. What is the adjusted net true-up amount which Tampa Electric is requesting for the April 1997 through September 1997 period which is to be carried over and refunded/

recovered in the next projection period?

A. Tampa Electric has calculated and is requesting approval of an over/(under) recovery of \$616,353 as the adjusted net true-up amount for the six-month period. This adjusted net true-up amount is the difference between the actual over/(under) recovery of (\$227,193) for the period April 1997 through September 1997 and the actual/estimated true-up for the same period of an over/(under) recovery of (\$843,546) approved in FPSC Order No. PSC-97-1047-FOF-EI. This is shown on form 42-1A.

Q. Is this true-up calculation consistent with the true-up methodology used for other cost recovery clauses?

A. Yes, it is. The calculation of the true-up amount follows the procedures established by this Commission as set forth on Commission Schedule A-2 "Calculation of True-Up and Interest Provisions" for the Fuel Cost Recovery Clause.

Q. Are all costs listed in Forms 42-4A through 42-8A attributable to Environmental Compliance projects approved by the Commission?

25 A. Yes, they are.

1 How did actual expenditures for April 1997 through 2 compare with Tampa Electric's 1997 September 3 actual/estimated projections as presented in previous 4 testimony and exhibits? 5 6 Overall costs were \$102,790 lower than actual/estimated 7 projections. The variance created by the removal of 8 payroll expenses from the ECRC for the Rig Bend 3 FGD 9 increased O & M expenses due to system was offset by 10 unplanned outages and additional maintenance expense for 11 the Big Bend 3 FGD system. 12 13 Does this conclude your testimony? 14 15 Yes, it does. 16 A. 17 18 19 20 21 22 23

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TAMPA ELECTRIC COMPANY DOCKET NO. 970007-EI FILED: NOVEMBER 17, 1997 REVISED: FEBRUARY 18, 1998

FINAL TRUE - UP

ENVIRONMENTAL COST RECOVERY

COMMISSION FORMS 42-1A THROUGH 42-8A

APRIL 1997 - SEPTEMBER 1997

TAMPA ELECTRIC COMPANY DOCKET NO. 970007-EI FILED: NOVEMBER 17, 1997 REVISED: FEBRUARY 18, 1998

FINAL TRUE UP ENVIRONMENTAL COST RECOVERY COMMISSION FORMS 42-1A THROUGH 42-8A APRIL 1997 - SEPTEMBER 1997 INDEX

DOCUMENT NO.	TITLE	PAGE
1	Form 42-1 A	1
2	Form 42-2A	2
3	Form 42-3A	3
4	Form 42-4A	4
5	Form 42-5A	5
6	Form 42-6A	6
7	.n 42-7A	7
8	Form 42-8A	8
9	SO2 Allowance Cost- FMPA/Lakeland	11

Tampa Electric Company Environmental Cost Recovery Clause (ECRC) Calculation of the Final True-Up Amount for the Period April 1997 to September 1997

Arrount	(\$227,193)	(842,546)	CS4 9149
ī	1 End of Period Actual True-Up for the Period April 1997 to September 1997 (Form 42-2A, Lines 5 + 6 +10s + 10b)	 Estimated/Actual True-Up Amount approved for the Period April 1997 to September 1997 (Order No. PSC-97-1047-FOF-E) 	3 Final True-Up Amount to be refunded/(recovered) in the projection period April 1998 to September 1998
Line	-		n

EXHIBIT NO
DOCKET NO 970007-EI
TAMPA ELECTRIC COMPANY
(KOZ-1)
DOCUMENT NO 1
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Environmental Cost Recovery Clause (ECRC) Calculation of the Final True-Up Amount for the Period April 1997 to September 1997 Tampa Electric Company

End-of-Period True-Up Amount (in Dollars)

								Endo
		April 1997	May 1997	June 1997	July 1997	August 1997	September 1997	Period
-	ECRC Revenues (net of Revenue Taxes)	\$372,541	\$387,363	\$456,888	\$478,249	\$459,168	\$483,733	\$2,637,942
44	2 True-Up Provision (Order No. 97-2093-FOF-EI)	(39,862)	(39,882)	(39,882)	(39,882)	(39,882)	(39,884)	(239,294)
63	3 ECRC Revenues Applicable to Period (Lines 1 + 2)	332,659	347,481	417,006	438,367	419,286	443,849	2,398,648
4	4 Jurisdictional ECRC Costs							
	a. O.S. M. Activities (Form 42-5A, Line 9)	218,647	286,164	373,317	311,933	478,117	534,110	2,202,288
	 b. Capital Investment Projects (Form 42-7A, Line 9) 	149,596	149,529	148,746	145,424	145,945	147,990	887,230
	c. Total Jurisdictional ECRC Costs	368,243	435,693	522,063	457,357	624,062	682,100	3,089,518
w	5 Overfunder Recovery (Line 3 - Line 4c)	(35,584)	(88,212)	(105,057)	(18,990)	(204,776)	(238,251)	(690,870)
9	6 Interest Provision (Form 42-3A, Line 10)	1,365	1,298	1,139	1,132	891	131	5,946
-	7 Beginning Balance True-Up & Interest Prevision	(239,294)	133,545	920'96	55,546	97,578	(46,080)	(239,294)
	a. Determen nue-up from Cotabon 1990 to warch 1997 (Order No. PSC-97-1047-FOF-EI)	156,449	156,449	156,449	156,449	156,449	156,449	156,449
60	8 Trus-Up Collected/(Refunded) (see Line 2)	39,862	39,862	39,882	39,882	39,882	39,884	239,294
a	9 End of Period Total True-Up (Lines 5+6+7+7a+8)	(77,192)	242,952	190,441	234,019	80,024	(87,867)	(528,475)
5	10 Adjustments to Period Total True-Up a. Payroll Adjustment due to Audit	297,302	0	0	0	0	0	297,302
	b. SO2 Credit Differential - FMPA/Lakeland (12/95 - 9/97)	69,884	11,515	21,554	20,008	20,345	17,123	160,429
Ξ	11 End of Period Total True-Up (Lines 9 + 10a + 10b)	\$260,994	\$254,477	\$211,995	\$254,027	\$110,369	(\$70,744)	(\$70,744)

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Line

Tampa Electric Company
Environmental Cost Recovery Clause (ECRC)
Calculation of the FinalTrue-Up Amount for the Period
Arpil 1997 to September 1997

Interest Provision (in Dollars)

								End of
Lhe	1	April 1997	May 1997	June 1997	July 1987	August 1997	August 1997 September 1997	Period
11.571	1 Beginning Trus-Up Amount (Form 42-24, Line 7 + 7a + 10a + 10b)	\$284,341	\$301,508	\$276,031	\$232,003	\$274,372	\$127,492	
2.5.70	2 Ending True-Up Amount Before Interest (Line 1 + Form 42-2A, Lines 5 + 8)	288,639	253,179	210,856	252,895	109,478	(70,875)	
#. 5 0	3 Total of Beginning & Ending True-Up (Lines 1 + 2)	572,980	554,668	486,887	484,898	383,850	56,617	
	4 Average True-Up Amount (Line 3 x 1/2)	286,490	277,344	243,444	242,449	191,925	28,309	
	5 Interest Rate (First Day of Reporting Business Month)	5,74%	5,62%	5.60%	5.62%	5.58%	5.56%	
. 	6 Interest Rate (First Day of Subsequent Business Month)	5.62%	5.60%	5.62%	5.58%	5.56%	5.53%	
3	7 Total of Beginning & Ending Interest Rates (Lines S + 6)	11.36%	11.22%	11.22%	11.20%	11,14%	11.09%	
	8 Average Interest Rate (Line 7 x 1/2)	5.680%	5.610%	5.610%	5.600%	5.570%	5.545%	
	9 Monthly Average Interest Rate (Line 8 x 1/12)	0.473%	0.468%	0.458%	0.467%	0.484%	0.462%	
-	10 Interest Provision for the Month (Line 4 x Line 8)	\$1,356	\$1,298	\$1,139	\$1,132	\$391	\$131	\$5.946

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Tampa Electric Company Environmental Cost Recovery Clause (ECRC) Calculation of the FinalTrue-Up Amount for the Period April 1997 to September 1997

Variance Report of OLM Activities (in Dollars)

	(1)	Actual	(3)	(a)
Line	Actual	Estimated	Amount	Percent
Description of O&M Activities By Brind Unit 3 Fase Gas Desulfurization integration	\$694,588	\$771,778	(\$77,190)	-10.0%
2. Big Bend Units 1 & 2 Flue Ges Conditioning	11,664	26,808	(15,144)	-56.5%
Big Band Unit 4 Continuous Emissions Monitors	0	0	0	0.0%
4. SC2 Emissions Allowences	1,672,663	1,683,119	(10,456)	49.0
2 Total O&M Activities	\$2,378,915	\$2,481,705	(\$102,790)	4.1%
3 Recoverable Costs Alecated to Energy 4 Recoverable Costs Alecated to Demand	\$2,378,915			

Column(1) is the End of Period Totals on Form 42-5A.

Column(2) is the approved Estimated/Actual emount in accordance with FPSC Order No. PSC-97-1047-FDF-E1

Column(3) = Column(1) - Column(2) Column(4) = Column(3) / Column(2)

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Environmental Cost Recovery Clause (ECRC) Calcusttion of the Actual Period Amount April 1997 to September 1997 Tampa Electric Company

O&M Activities

1a Big Band Unit 3 Flue Gas Desulfurbation Integration 1b Big Band Units 1 and 2 Flue Gas Conditioning 1c Big Band Unit 4 Continuous Emissions Monitors Description of O&M Activities 1d SO2 Allowances

eg.

1,672,663 11,664

> 0 360,839

\$694,588

\$109,150

116,163

\$133,071

2,907

3,407

\$132,541

End of Period Total

August 1997 September 1997

July 1997

June 1997

May 1997

April 1997

2,378,915 2,378,915

573,188

409,629 521,391 521,391

307,533

268,014

306,516 306,518

234,585 234,585

98,637

208,011

342,107

342,107

401,128 401,128

573,188

0.9318235

0.9170034

0.9117989

0.9306675

0.9339034

0.9320584

MA

MA

N/A

N/A

M/A

2,202,288

534,110

478,117

311,833

373,317

286,164

218,647

\$2,202,288

\$534,110

\$478,117

\$311,933

\$373,317

\$286,164

\$218,647

Total Investment Projects - Recoverable Costs 3 Recoverable Costs Alichated to Energy

4 Recoverable Costs Allocated to Demand

Retail Energy Jurisdictional Factor

8 Jurisdictional Demand Recoverable Costs (B) 7 Jurisdictional Energy Recoverable Costs (A)

Retail Demand Jurisdictional Factor

Total Jurisdictional Recoverable Costs for O&M Activities (Lines 7 + 8)

Works:

(A) Line 3 x Line 5 (E) Line 4 x Line 6

EXHIBIT NO DOCKET NO 970007-EL TAMPA ELECTRIC COMPANY (KOZ-1)
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5

Environmental Cost Recovery Clause Calculation of the Final True-Up Amount for the Period April 1997 to September 1997 Tampa Electric Company

Variance Report of Capital Investment Projects - Recoverable Costs (in Dollars)

	£	Actual Actual	(5)	(4)
Line	Actual	Estimated	Amount	Percent
Description of Investment Projects Big Bend Unit 3 Flue Ges Desuffurtration Integration	\$568,804	\$566,804	8	0.0%
2. Big Bend Units 1 & 2 Flue Gas Conditioning	344,946	344,946	0	960.0
3. Big Bend Unit 4 Continuous Emissions Monitors	44,203	44,203	٥	0.0%
2 Total Investment Projects - Recoverable Costs	\$967,963	\$367,953	0\$	960'0
3 Recoverable Costs Allocated to Energy	\$957,953			
4 Recoverable Costs Allocated to Demand	S.			

Column(1) is the End of Period Totals on Form 42-7A.

Column(2) is the approved Estimated/Actual amount in accordance with

FPSC Order No. PSC-87-1047-FOF-E!

Column(3) = Column(1) - Column(2) Column(4) = Column(3) / Column(2)

6

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End of

Environmental Cost Recovery Clause (ECRC) Celcustion of the Actual Period Amount April 1997 to September 1997 Tampa Electric Company

Capital Investment Projects-Recoverable Costs (in Dollars)

Che

							Period
1	April 1997	May 1997	June 1997	July 1997	August 1997	July 1997 August 1997 September 1997	Total
1 Description of Investment Projects (A)							
1a Bio Bend Unit 3 Flue Gas Desulfurbation Integration	\$95.287	\$95,080	\$94,894	\$94,706	\$94,521	\$500,334	\$568,804
1b Big Bend Units 1 and 2 Pars Gas Conditioning	57,821	57,659	57,557	57,425	57,283	57,161	344,946
to Big Bend Unit 4 Continuous Emissions Monitors	7,413	7,394	7,376	7,358	7,340	7,322	44,203
2 Total Investment Projects - Recoverable Costs	160,501	160,163	159,827	158,491	159,154	158,817	857,953
3 Recoverable Costs Allocated to Energy	160,501	160,163	158,827	158,491	159,154	158,817	857,963
4 recoverable Costs Associated to Associated	7 10000	, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	26.300000	0 0447080	7 001,000,00	300000	
6 Retail Demend Autholictional Factor	N/A	NA	N/A	NVA	N/A	NA	
7 Jurisdictional Energy Recoverable Costs (B)	149,596	149,529	143,746	145,424	145,945	147,990	867,230
8 Jurisdictional Darmand Recoverable Costs (C)	0	0	0	0	0	0	0
Total Jurisdictional Recoverable Costs for Investment Prelects (Jnes 7 + 8)	\$149,596	\$149,529	\$148,745	\$145,424	\$145,945	\$147,990	\$867,23
	STREET, SQUARE, SQUARE						

(A) Each project's Total System Recoverable Expenses on Form 42-8A. Line 9 (B) Line 3 x Line 5 (C) Line 4 x Line 6 (C) Line 4 x Line 6

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End of

Tampa Electric Company Environmental Cost Recovery Clause (ECRC) Calculation of the Actual Period Amount

Calculation of the Actual Period Amount April 1997 to September 1997

Return on Capital Investments, Depreciation and Taxes For Project: Big Bend Unit 3 Flue Ges Desulfurization Integration (in Dollars)

Investments \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	End of Period Total	September 1997	August 1997	July 1997	June 1997	May 1997	April 1997	Beginning of Period Amount	Description	Line
Description to Plant Description Descr		-		1221	1722	74.00			1 Investments	
c. Retirements c. Retirements d. Other c. Retirements d. Other 2 Plant-in-Service/Depreciation Base 3 Less: Accumulated Depreciation (083,03) 4 CVIVP - Non-travest Bearing 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0									a. Expenditures/Additions	
Color Colo					1.5				b. Clearings to Plant	
2 Plant-in-Service/Depreciation Base \$8,239,658 8,239,65		W	_		100					
3 Less: Accumulated Dennication 3 Less: Accumulated Dennication 4 CWIP - Non-Interest Bearing 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		0	0	0	0	0	0		d. Other	
4 CVVIP - Non-Interest Bearing 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0					8,239,658	8,239,658	8,239,658	\$8,239,658	2 Plant-in-Service/Depreciation Base	
5 Net Investment (Lines 2 + 3 + 4) 5 Net Investment (Lines 2 + 3 + 4) 6 Average Net Investment 7,836,742 7,817,516 7,780,290 7,779,084 7,759,225 7,730,999 6 Average Net Investment 8 Equity Component Gressed Up For Texes (A) 5 Debt Component (Line 6 x 2.82% x 1/12) 8 Investment Expenses 8 Depreciation 9 Investment 19,226 19,2		(508,659)	(489,433)	(470,207)	(450,981)	(431,755)	(412,529)	(393,303)	3 Less: Accumulated Depreciation	
6 Average Net Investment 7,836,742 7,817,516 7,798,290 7,779,064 7,759,838 7,740,612 7 Return on Average Net Investment a. Equity Component Grossed Up For Taxes (A) 57,625 57,483 57,342 57,201 57,059 56,918 b. Debt Component (Line 6 x 2,82% x 1/12) 18,416 18,371 18,326 18,281 18,236 18,291 18,236 18,190 8 Investment Expenses a. Depreciation 19,226 19,228 19,228 19,226 19,226 19,226 b. Armortization 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		of the last of the				00	0	0	4 CWIP - Non-Interest Bearing	
7 Return on Average Net Investment a. Equity Component Grossed Up For Toxes (A) b. Debt Component (Line 6 x 2.82% x 1/12) 8 Investment Expenses a. Depreciation 19,226 19		7,730,999	7,750,225	7,769,451	7,788,677	7,807,903	7,827,129	\$7,846,355	5 Net Investment (Lines 2 + 3 + 4)	
a. Equity Component Grossed Up For Taxes (A) 57,625 57,483 57,342 57,201 57,059 56,918 b. Debt Component (Line 6 x 2.82% x 1/12) 18,416 18,371 18,326 18,281 18,236 18,190 18,190 18,416 18,371 18,326 18,281 18,286 18,281 18,286 18,190		7,740,612	7,759,838	7,779,084	7,798,290	7,817,516	7,836,742		6 Average Net Investment	
a. Equity Component Grossed Up For Tisses (A) 57,825 57,483 57,342 57,201 57,059 56,818 b. Debt Component (Line 6 x 2.82% x 1/12) 18,416 18,371 18,326 18,281 18,236 18,190 18,416 18,371 18,326 18,281 18,236 18,190 18,190 18 Investment Expenses a. Depreciation 19,226 19,226 19,226 19,226 19,226 19,226 19,226 b. Amortization 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0									7 Return on Ausrana Net Inventment	00
b. Delet Component (Line 6 x 2.62% x 1/12) 18,416 18,371 18,326 18,281 18,236 18,281 18,236 18,190 8 Investment Expenses a. Depreciation 19,226 19,	\$343,628	56,918	57,059	57,201	57,342	57,483	57,625			
a. Depreciation b. Amortization c. Dismantlement d. Disma	109,820	18,190	18,236	18,281	18,326	18,371	18,416			
a. Depreciation b. Amortization c. Dismantierment d. Dismantiermen									8 Investment Expenses	
C. Dismantiement d. Property Texes 0 0 0 0 0 0 0 0 0 d. Property Texes 0 0 0 0 0 0 0 0 d. Property Texes 0 0 0 0 0 0 0 0 0 d. Property Texes 0 0 0 0 0 0 0 0 0 d. Property Texes 0 0 0 0 0 0 0 0 0 d. Property Texes 0 0 0 0 0 0 0 0 0 d. Property Texes 0 0 0 0 0 0 0 0 0 d. Property Texes 0 0 0 0 0 0 0 0 0 d. Property Texes 0 0 0 0 0 0 0 0 0 d. Property Texes 0 0 0 0 0 0 0 0 0 d. Property Texes 0 0 0 0 0 0 0 0 0 d. Property Texes 0 0 0 0 0 0 0 0 0 d. Property Texes 0 0 0 0 0 0 0 0 0 d. Property Texes 0 0 0 0 0 0 0 0 0 d. Property Texes 0 0 0 0 0 0 0 0 0 d. Property Texes 0 0 0 0 0 0 0 0 d. Property Texes 0 0 0 0 0 0 0 0 0 d. Property Texes 0 0 0 0 0 0 0 0 0 d. Property Texes 0 0 0 0 0 0 0 0 0 d. Property Texes 0 0 0 0 0 0 0 0 0 d. Property Texes 0 0 0 0 0 0 0 0 0 d. Property Texes 0 0 0 0 0 0 0 0 0 0 d. Property Texes 0 0 0 0 0 0 0 0 0 0 d. Property Texes 0 0 0 0 0 0 0 0 0 0 d. Property	115,356	19,226	19,226	19,226	19,226	19,226	19,226		-7 J D T T T T T T T T T T T T T T T T T T	
d. Property Taxes d. Property Taxes e. Other 9 Total System Recoverable Expenses (Lines 7 + 8) 9 Total System Recoverable Expenses (Lines 7 + 8) 9 Total System Recoverable Expenses (Lines 7 + 8) 9 Total System Recoverable Expenses (Lines 7 + 8) 9 Total System Recoverable Expenses (Lines 7 + 8) 9 Total System Recoverable Expenses (Lines 7 + 8) 9 Total System Recoverable Expenses (Lines 7 + 8) 9 Total System Recoverable Expenses (Lines 7 + 8) 9 Total System Recoverable Expenses (Lines 7 + 8) 9 Total System Recoverable Costs Allocated to 9 Total System Recoverable Costs Allocated to 9 Total 9	0	0	0	0	0	0	0		b. Amortization	
e. Other 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0	. 0	0	0	0	0	0		c. Dismantlement	
8 Total System Recoverable Expenses (Lines 7 + 8) 95.267 95.080 94.894 94.706 94.521 94.334 a. Recoverable Costs Allocated to Energy 95.267 95.080 94.894 94.708 94.521 94.334 b. Recoverable Costs Allocated to Demand 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0	8 150	1.0	1.00	77/7		0		d. Property Taxes	
a. Recoverable Costs Allocated to Energy b. Recoverable Costs Allocated to Demand 0 0 0 0 0 0 0 0 10 Energy Jurisdictional Factor 11 Demand Jurisdictional Factor 12 Retail Energy-Related Recoverable Costs (B) 95.267 95.080 94.894 94.708 94.521 94.334 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 10 Energy Jurisdictional Factor N/A	0	0	0	0	0	0	0	9	a. Other	
a. Recoverable Costs Allocated to Energy b. Recoverable Costs Allocated to Demand 95,267 95,080 94,894 94,708 94,521 94,334 0 0 0 0 0 0 0 0 10 Energy Jurisdictional Factor 0,9320584 0,9336034 0,9306675 0,9117989 0,9170034 0,9318235 11 Demand Jurisdictional Factor N/A	568,804	94.334	94 521	94 706	94 894	95.080	95.287		S. Total Souten Bermanble Emerce & hee 7 a 80	
b. Recoverable Costs Allocated to Demand 0 0 0 0 0 0 0 0 0 10 0 0 10 10 Energy Jurisdictional Factor 0.9320584 0.9336034 0.9306675 0.9117989 0.9170034 0.9318235 11 Demand Jurisdictional Factor N/A	568,804									
11 Demand Jurisdictional Factor N/A N/A N/A N/A N/A N/A N/A N/A N/A 12 Retail Energy-Related Recoverable Costs (B) 88,794 88,767 88,315 86,305 86,676 87,903	0			7,050			-		그리고 되었다. 리아이에 하다 나가 하는데 이 사람이 하지 않아 그리고 있어야 하는데 하다 하다.	
11 Demand Jurisdictional Factor N/A N/A N/A N/A N/A N/A N/A N/A N/A 12 Retail Energy-Related Recoverable Costs (B) 88,794 88,767 88,315 86,305 86,676 87,903		0.9318235	0.9170034	0.9117989	0 9306675	0.9336034	0.9320584		10 Ename Initialidianal Earlier	
12 Herzis Energy-Nemied Necoversion Costs (b)				2.20.00						
15 Lights Charles Language pages (c)	526,810	87,903	86,676	86,355	88.315	88.767	88 794		12 Ratal Engra-Rabited Recoverable Costs (R)	
13 Retail Dermand-Related Recoverable Costs (C) 0 0 0 0 0 0	0	0 0	0	0	0	0	0		13 Retail Demand-Related Recoverable Costs (C)	
14 Total Jurisdictional Recoverable Costs (Lines 12 + 13) \$88,794 \$88,767 \$88,315 \$86,355 \$86,676 \$87,903	\$526,810	\$87,903	\$86,676	\$86,355	\$88,315	\$88,767	\$88,794	9	[[] [[[[[[[[[[[[[[[[[

Notes

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⁽A) Lines 6 x 8.8236% x 1/12. Based on ROE of 11.75% and weighted income tax rate of 35.575% (expansion factor of 1.626002)

⁽B) Line 9a x 1.ine 10

⁽C) Line 9b x Line 11

Form 42-8A Page 2 of 3

Tampa Electric Company Environmental Cost Recovery Clause (ECRC) Calculation of the Actual Period Amount April 1997 to September 1997

Return on Capital Investments, Depreciation and Taxes For Project: Big Bend Units 1 and 2 Flue Gas Conditioning (in Dollars)

Line	Description	Beginning of Period Amount	April 1997	May 1997	June 1897	July 1997	August 1997	September 1997	End of Period Total
	1 Investments								
	a. Expenditures/Additions		\$0	\$0	\$0	\$0	\$0	\$0	
	b. Clearings to Plant		0	0	0	0	0	0	
	c. Retirements		0	0	0	0	0	0	
	d. Other		0	0	0	0	0	0	
	2 Plant-In-Survice/Depreciation Base	\$5,017,734	5,017,734	5,017,734	5,017,734	5,017,734	5,017,734	5,017,734	
	3 Less: Accumulated Depreciation	(454,010)	(467,614)	(481,218)	(494,822)	(508, 426)	(522,030)	(535,634)	
	4 CWIP - Non-Interest Bearing	0	00	0	0	0	0	0	
	5 Net Investment (Lines 2 + 3 + 4)	\$4,563,724	4,550,120	4,536,516	4,522,912	4,509,308	4,495,704	4,482,100	
	6 Average Net Investment		4,558,922	4,543,318	4,529,714	4,516,110	4,502,506	4,488,902	
	7 Return on Average Net Investment								
9	a. Equity Component Grossed Up For Taxes (A)		33,508	33,408	33,308	33,208	33,108	33,008	\$199,548
	b. Debt Component (Line 6 x 2.82% x 1/12)		10,709	10,677	10,645	10,613	10,581	10,549	63,774
	8 Investment Expenses								
	a. Depreciation		13,604	13,604	13,604	13,604	13,604	13,604	81,624
	b. Amortization		0	0	0	0	0	0	0
	c. Dismantlement		0	0	0	0	0	0	0
	d. Property Taxes		0	0	0	0	0	0	0
	e. Other		0	0	0	0	0	00	0
	9 Total System Recoverable Expenses (Lines 7 + 5)		57,821	57,689	57,557	57,425	57,293	57,161	344,946
	a. Recoverable Costs All-cated to Energy		57,821	57,689	57,557	57,425	57,293	57,161	344,946
	b. Recoverable Costs Allocated to Demand		0	0	0	0	0	0	0
	10 Energy Jurisdictional Factor		0.9320584	0.9336034	0.9306675	0.9117989	0.9170034	0.9318235	
	11 Demand Jurisdictional Factor		N/A	N/A	N/A	N/A	N/A	N/A	
	12 Retail Energy-Related Recoverable Costs (B)		53,893	53,859	53,568	52,360	52,538	53,264	319,480
	13 Retail Demand-Related Recoverable Costs (C)		0	0	0	0	0	0	0
	14 Total Jurisdictional Recoverable Costs (Lines 12 + 13)		\$53,893	\$53,859	\$53,566	\$52,360	\$52,538	\$53,264	\$319,480

Notes

- (A) Lines 6 x 8.8238% x 1/12. Based on ROE of 11.75% arx1 weighted income 1:xx rate of 38.575% (expension factor of 1 628002)
- (B) Line 9a x Line 10
- (C) Line 9b x Line 11

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Tampa Electric Company Environmental Cost Recovery Clause (ECRC) Calculation of the Actual Period Amount April 1997 to September 1997

Return on Capital Investments, Depreciation and Taxes For Project: Big Bend Four Continuous Emissions Monitor (in Dollars)

Line	Description	Beginning of Period Amount	April 1997	May 1997	June 1997	July 1997	August 1997	September 1997	End of Period Total
	1 Investments								
	a. Expenditures/Additions		\$0	\$0	\$0	\$0	\$0	\$0	
	b. Clearings to Plant		0	0	0	0	0	0	
	u. Retirements		0	0	0	0	0	0	
	d. Other		0	0	0	0	0	0	
	2 Plant-In-Service/Depreciation Base	\$866,211	886,211	866,211	886,211	868,211	866,211	866,211	
	3 Less: Accumulated Depreciation	(58,364)	(60,241)	(62,118)	(83,995)	(65,872)	(67,749)	(69,626)	
	4 Other (A)	(236,408)	(236,408)	(236,408)	(236,408)	(236,408)	(236,408)	(236,408)	
	5 Net Investment (Lines 2 + 3 + 4)	\$571,439	569,562	567,685	565,808	563,931	562,054	560,177	
	6 Average Net Investment		570,501	568,624	566,747	564,870	562,993	561,116	
	7 Return on Average Not Investment								
10	a. Equity Component Grossed Up For Taxes (B)		4,195	4,181	4,167	4,154	4,140	4,126	\$24,963
0	b. Debt Component (Line 6 x 2.82% x 1/12)		1,341	1,336	1,332	1,327	1,323	1,319	7,978
	8 Investment Expenses								
	s. Depreciation		1,877	1,877	1,877	1,877	1,877	1,877	11,262
	b. Amortization		0	0	0	0	0	0	0
	c. Dismantiement		0	0	0	0	0	0	0
	d. Property Texas		0	0	0	0	0	0	0
	e. Other (D)		00	0	0	0	0	0	0_
	9 Total System Recoverable Expenses (Lines 7 + 8)		7,413	7,394	7,376	7,358	7,340	7.322	0 44,203
	s. Recoverable Costs Allocated to Energy		7,413	7,394	7,376	7,358	7,340	7,322	44,203
	b. Recoverable Costs Allocated to Demand		0	0	0	0	0	0	0
	10 Energy Jurisdictional Festor		0.9320584	0.9336034	0.9306675	0.9117989	0.9170034	0.9318235	
	11 Demend Juris-fictional Factor		N/A	N/A	N/A	N/A	N/A	N/A	
	12 Retail Energy-Related Recoverable Costs (C)		6,909	6,903	6,865	6,709	6,731	6,823	40,940
	13 Retail Demand-Related Recoverable Costs (D)		0	0	0	0	0	0	0
	14 Total Jurisdictional Recoverable Costs (Lines 12 + 13)		\$6,909	\$6,903	\$6,865	\$6,709	\$6,731	\$6,823	\$40,940

Notes

- (A) Represents the Net Book Value of the replaced Big E and Unit 4 CEMs which is currently recovered through base rates.
- (B) Lines 6 x 8.8236% x 1/12. Based on ROE of 11.75% and weighted income tax rate of 38.575% (expansion factor of 1.628002)
- (C) Line 9a x Line 10
- (D) Line 9b x Line 11

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SO2 ALLOWANCE COST FOR FMPA

(DECEMBER 1996 THROUGH SEPTEMBER 1997)

C B

D

MONTH	BB1/BB2 EMISSION AVERAGES * TONS	EMISSION ALLOCATION FOR BB2 TONS (BB2 % GEN x A)	EMISSION ALLOCATION FOR BB3 TONS	EMISSION ALLOCATION FOR FMPA (BB2) (BB2% GEN x B)	EMISSION ALLOCATION FOR FMPA (BB3) (BB3% GEN x C)	ALLOWANCE COST (\$/TON)	ALLOWANCE COST FOR FMPA TOTAL COST (D + E) x F	
Dec-96	5,912	1,791	369	56	6	\$91.50	\$5,654.82	
Jan-97			1,389	147	53	\$90.50 \$97.00 \$104.00 \$112.50	\$18,114.51 \$20,405.31 \$13,276.22 \$13,773.16	
Feb-97			1,770	123	87 27 20			
Mar-97 6,676 Apr-97 4,221		4,175	936	101				
		4,221	890	102				
May-97	5,232	3,925	1,474	100	37	\$114.00	\$15,655.7	
Jun-97 7,680		3,629	843	219	47	\$96.00	\$25,497.9	
Jul-97	3,704	4,212	139	227	43	\$89.50	\$24,129.64	
Aug-97	7,766	3,946	1,073	213	85	\$89.75	\$26,725.14	
Sep-97	7,572	3,697	603	219	33	\$90.31	\$22,732.21	
TOTAL	65,967	36,215	9,486	i,507	437		\$185,964 66	

NUMBER OF ALLOWANCES CONSUMED

A

SO2 ALLOWANCE COST FOR LAKELAND

(DECEMBER, 1996 THROUGH SEPTEMBER, 1997)

A

B

C

D

E

F

G

ALLOWANCE LAKELAND TOTAL TOTAL TOTAL LAKELAND **EMISSIONS** ALLOWANCE COST FOR % OF **EMISSIONS** MONTH SYSTEM MONTHLY LAKELAND BB STATION | FROM LAKELAND COST GENERATION TOTAL SYSTEM GENERATION (TONS) (S/TON) (S/TON) (MWH) GENERATION (TONS) (MWH) (E x F) (C x D) \$91.50 \$228.51 2.50 6.938 0.04% 1,389,062 500 Dec-96 \$255.06 \$90.50 8,430 2.82 540 0.03% 1,615,185 Jan-97 \$97.00 \$146.29 8,254 1.51 0.02% 1.313,551 240 Feb-97 0.00 \$104.00 \$0.00 0.00% 8,400 0 1,362,250 Mar-97 \$0.00 0.00 \$112.50 0 0.00% 5,684 1,364,202 Apr-97 0.00 \$114.00 \$0.00 7,287 0 0.00% May-97 1,556,151 \$603.34 \$96.00 0.07% 9,380 6.28 1,020 Jun-97 1,522,350 \$1,103.55 \$89.50 9,485 12.33 0.13% Jul-97 1,538,501 2,000 \$89.75 \$681.95 9,361 7.60 0.08% 1,290 1,589,249 Aug-97 \$458.30 5 07 \$90.31 8,704 830 0.96% 1,423,578 Sep-97 \$3,477.00 38.11 81,923 6,420 TOTAL. 14,674,079

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SO2 ALLOWANCE COST FOR FMPA / LAKELAND (DECEMBER, 1996 THROUGH SEPTEMBER, 1997)

MONTH	FMPA	LAKELAND	TOTAL
Dec-96	\$5,654.82	\$228.51	
Jan-97	\$18,114.51	\$255.06	
Feb-97	\$20,405.31	\$146.29	
Mar-97	\$13,276.22	\$0.00	
Apr-97	\$13,773.16	\$0.00	
May-97	\$15,655.76	\$0.00	
Jun-97	\$25,497.90	\$603.34	
Jul-97	\$24,129.64	\$1,103.55	
Aug-97	\$26,725 14	\$681.95	
Sep-97	\$22,732.21	\$458.30	
SUBTOTAL	\$185,964.66	\$3,477.00	\$189,441.66
Adjusted to account for separation factor			(\$29,013.00)
TOTAL			\$160,428.66

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			Apr-97	May-97	Jun-97	Jul-97	Aug-97	Sep-97	TOTAL
1	FMPA / LAK MWH	(1)	25,165	26,040	26,220	28,040	27,170	26,030	
2	Loss Expansion Factor for Wholesale Sales	- 1 1	1.0158795	1.0158795	1.0158795	1.0158795	1.0158795	1.0158795	
3	Adjusted MWH for FMPA / LAK	(2)	25,565	26,454	26,636	28,485	27,601	26,443	
4	Total Retail Sales (MWH)	(3)	1,133,913	1,179,102	1,388,824	1,453,055	1,395,479	1,469,990	
5	Energy Loss Expansion Factor	(4)	1.0520752	1.0520752	1.0520752	1.0520752	1.0520752	1.0520752	
6	Adjusted MWH for Retail Sales	(5)	1,192,962	1,240,504	1,461,147	1,528,723	1,468,149	1,546,540	
7	Wholesale Sales w/o BB4/HPP		72,351	72,565	83,368	94,626	92,929	85,966	
8	Wholesale Loss Expansion Factor	(4)	1.0158795	1.0158795	1.0158795	1.0158795	1.0158795	1.0158795	
9	Adjusted MWH for Wholesale sales	(6)	73,500	73,717	84,692	95,129	94,405	87,331	
10	BB4/HPP Sales*		13,460	14,506	24,160	51,719	38,475	25,821	
11	Wholesale Sales Plus BB4/HPP Sales	0	86,960	88,223	108,852	147,848	132,880	113,152	
12	Total Sales	(8)	1,279,922	1,328,727	1,569,999	1,676,571	1,601,028	1,659,692	
13	FMPA / LAK % of Line 13		0.0199736	0.0199089	0.0169658	0.0169902	0.0172398	0.0159327	
14	Total Emission Costs	(9)	\$98,637	\$208,011	\$268,014	\$307,533	\$409,629	\$380,839	
15	Adjustment Factor	(10)	\$1,970	\$4,141	\$4.5	\$5,225	\$7,862	\$6,068	\$29.0

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