



Public Service Commission

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

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

RECEIVED-FPSC
JUG 24 PM 12:45

RECORDS AND REPORTING

DATE: AUGUST 24, 2000

TO: DIRECTOR, DIVISION OF RECORDS AND REPORTING (BAYÓ)

FROM: DIVISION OF SAFETY AND ELECTRIC RELIABILITY (COLSON, LEE, TB, JBJ)
BOHRMANN) TB WBM
DIVISION OF ECONOMIC REGULATION (E. DRAPER) EA RNT TJS
DIVISION OF LEGAL SERVICES (ISAAC) RJS

RE: DOCKET NO. 000697-EI - PETITION BY TAMPA ELECTRIC COMPANY FOR APPROVAL OF A PILOT GREEN ENERGY RATE RIDER AND PROGRAM.

AGENDA: SEPTEMBER 5, 2000 - REGULAR AGENDA - TARIFF FILING - INTERESTED PERSONS MAY PARTICIPATE

CRITICAL DATES: NONE

SPECIAL INSTRUCTIONS: NONE

FILE NAME AND LOCATION: S:\PSC\SER\WP\000697.RCM

CASE BACKGROUND

On June 8, 2000, Tampa Electric Company (TECO) filed a petition for a "customer optional" three-year pilot green energy rate rider and program. This program will provide TECO's residential, commercial and industrial customers an opportunity to purchase 50 kWh blocks of renewable, "green" energy from photovoltaic (PV) and biomass sources. This Petition was in response to the stipulation entered into by TECO and the Legal Environmental Assistance Foundation, Inc. (LEAF) as part of the Demand Side Management (DSM) goal-setting docket (Docket No. 971007-EG, Order No. PSC-99-1585-S-EG). The Commission has jurisdiction under the Florida Energy Efficiency and Conservation Act, Sections 366.80 - 366.85, Florida Statutes and Sections 366.04, 366.05, and 366.06, Florida Statutes.

DOCUMENT NUMBER-DATE

10446 AUG 24 8

FPSC-RECORDS/REPORTING

DISCUSSION OF ISSUES

ISSUE 1: Should the Commission approve Tampa Electric Company's (TECO) petition for approval of a Pilot Green Energy Rate Rider and Program?

RECOMMENDATION: Yes. TECO's proposed pilot is for a period of three (3) years. If approved, TECO's pilot program will be funded over the three-year period from two sources: customer contributions, and a one time \$100,000 allocation from its approved conservation R&D program. TECO estimates that the total cost of the three-year pilot to be approximately \$532,296. (COLSON, DRAPER)

STAFF ANALYSIS: TECO's green energy program and rate rider is a three-year pilot program which will allow customers to purchase energy generated from an 18kW photovoltaic (PV) array and existing steam generating facilities that are capable of utilizing biomass fuel. This 18kW PV array was put together using a 15kW PV array that was removed from a previous site plus a 3kW PV addition. This 18kW PV array was recently installed by TECO at Tampa's Museum of Science and Industry at a cost of approximately \$104,000. TECO plans to install an additional 18 kW PV facility as the program participation warrants new construction (projections indicate that a minimum of 32 kW of incremental PV capacity can be installed during the pilot period).

PV technology is considered one of the most environmentally friendly energy generating technologies. While PV cells convert sunlight into electricity with zero emissions, the cost to produce a kWh of electricity from PV is quite high. This is mainly due to high capital costs, and because PV can only generate energy in daylight hours. In contrast, energy produced from biomass fuel is relatively inexpensive. This is because the fuel is readily available, there is little or no incremental capital cost associated with additional generation, and energy can be produced at any hour of the day. Biomass fuel is any renewable plant-derived material (e. g., tree trimming and yard clippings, process waste material from agricultural crops such as sugar cane and rice, and energy crops grown specifically for the purpose) that can be used to produce energy with less SO₂ and NO_x emissions than would otherwise be produced from non-renewable fossil fuels. Therefore, TECO's portfolio of green energy combines the high-cost, limited quantity PV energy with lower-cost, higher volume biomass energy to produce a greater quantity of renewable energy at an average price more affordable to TECO's ratepayers.

Customers taking service under this green energy ("GE") rate rider will pay \$5.00 in addition to their applicable tariff rates for each 50 kWh block of green energy purchased. TECO has projected that 6,546 blocks of green energy per month will be sold over the three years of the program. TECO is proposing that a customer may purchase up to a maximum of five blocks of green energy aggregated from TECO's renewable portfolio. TECO is requesting a limitation on the number of blocks per customer in order to provide subscription to a larger number of customers desiring to purchase GE.

The pilot green energy rate rider and program ("PGERRP") will be funded over the three years by projected revenues of \$492,760 from two sources: projected revenues of \$392,760 collected from customer contributions (GE rate rider), and a one time \$100,000 allocation from TECO's approved R&D Conservation Program. During the three-year pilot, TECO is projecting to spend approximately \$532,296 on the program (See Attachments). TECO has not requested recovery of the deficit of approximately \$39,537 at this time. TECO believes that the pilot program will be successful and plans to add it to its demand side management programs after the completion of the pilot.

The PGERRP will be optional and will be available to all of TECO's retail customers. The initial term of service under the GE rate rider is 12 months. If a customer elects to terminate service after one year, then the customer must provide a two-month notice. After the initial 12 months the customer can terminate service after giving TECO a two months notice. TECO will develop and provide regular communications regarding the GE offering to all customers. This includes establishing and maintaining an environmental web site, bill inserts, an interactive voice response unit, printed advertisements, press releases, trade shows, internal publications, and direct customer contact.

Most proposed Green Pricing Pilots require customer donations over a period of time before the energy is delivered to the participants. TECO's proposed PGERRP is designed to serve customers from its portfolio of green energy at the time the customer signs up. Staff believes that TECO's proposed PGERRP is a good test to measure a Green Pricing initiative. Therefore, staff recommends that the Commission approve TECO's PGERRP.

ISSUE 2: Should the Commission approve TECO's request for an allocation of \$100,000 from its approved Conservation R&D Program?

RECOMMENDATION: Yes. Staff believes that TECO's allocation of \$100,000 to its PGERRP is consistent with the approved R&D program participation standards. (COLSON)

STAFF ANALYSIS: The Commission approved TECO's R&D Program in Docket No. 991791-EG (Order No. PSC-00-0754-PAA-EG). The R&D program participation standards state that:

"Most technology measures are eligible for consideration including renewable and green energy sources, energy efficient construction, etc.... The R&D Program costs are estimated to be \$150,000 per year for a five year period. Expenses for a given year may exceed \$150,000, however, total cost shall not exceed \$750,000 for five years."

TECO is requesting to recover, on average, approximately \$33,333 of the annual cost of the PGERRP from its R&D Program. The three-year total of \$100,000 will reduce the total R&D Program cost TECO is allowed to recover over five years to \$650,000. Staff believes that TECO's allocation of \$100,000 to its PGERRP is consistent with the approved R&D program participation standards. Also, as stated in Issue 1, most proposed Green Pricing Pilots require customer donations over a period of time before the green energy is delivered to the participants. TEC's proposed allocation will enable TECO to supply green energy immediately. Therefore, staff recommends that TECO's allocation request be approved.

ISSUE 3: Should the Commission approve TECO's request for adjustments to the Fuel and Purchased Power Cost Recovery Clause (Fuel Clause) and the Environmental Cost Recovery Clause (ECRC) as a means of crediting the program for the incremental differences in cost and SO₂ emissions between the green energy and energy otherwise generated or purchased from traditional resources?

RECOMMENDATION: Yes. Also, staff recommends that TECO should collect data throughout the three-year pilot program to determine the extent that its ratepayers benefit from the pilot program. (BOHRMANN, LEE)

STAFF ANALYSIS: TECO is requesting authorization to make adjustments to the Fuel and Purchased Power Cost Recovery Clause ("Fuel Clause") and the Environmental Cost Recovery Clause ("ECRC") as a means to credit the green energy pilot program for the incremental differences in cost between the green energy and energy otherwise generated or purchased from traditional resources.

Through the Fuel Clause, the pilot program would receive two types of credits: 1) a credit for the differential costs (\$/MMBtu) between the biomass fuel cost and the coal displaced by the use of the biomass; and 2) a credit equal to the avoided system average fuel and purchased power cost (\$/MWH) for energy generated by the PV facilities. Staff has reviewed the methodology that TECO used to derive the projected credits and found it to be reasonable.

Based upon the following assumptions, TECO would credit \$28,046 to the pilot program through an adjustment to the Fuel Clause factor over the three-year period. First, TECO has estimated that electricity generated from its PV and biomass sources will displace approximately 118 MWH and 3,811 MWH of system generation, respectively. Second, TECO projects that the average avoided system fuel and purchased power cost attributable to PV during the three-year pilot program to be \$21.23/MWH. Third, TECO projects that the cost differential (on a per MWH basis) between biomass fuel and coal to be \$6.70/MWH during the three-year pilot period. Staff believes, TECO's projection that the pilot program would receive \$28,046 during the three-year period is reasonable.

Through the ECRC, the pilot program would receive two types of credits: 1) the credit for avoided SO₂ allowances for burning biomass fuel is calculated based on the displaced coal in Gannon Unit 3 (i.e., the unit in which the biomass will be used as fuel); and 2) the credit for avoided SO₂ allowances for the PV system is calculated on the avoided SO₂ allowances from the entire TECO

generating system. TECO projects the market price of SO₂ allowances to be \$232.98 per ton during the three-year pilot program. TECO projects that the pilot program would receive \$3,173 from the ECRC over the three-year period. Staff believes the methodology that TECO used to derive the projected credit is based on sound engineering principles.

Through the fuel clause and the ECRC, all of TECO's ratepayers (participants and non-participants alike) will pay part of the pilot program's costs. However, due to the pilot program's design, TECO's fuel costs and SO₂ allowance costs will fall by a commensurate amount. Therefore, a non-participating ratepayer should be indifferent from an economic perspective. Although non-participating ratepayers may benefit from the pilot program, it is unclear the extent that the non-participating ratepayers would benefit as compared to the participating ratepayers. From a historic regulatory perspective, TECO should match the cost responsibilities of the pilot program to those ratepayers who would benefit from the pilot program. Therefore, staff recommends that TECO should collect data throughout the three-year pilot program to determine the extent that its ratepayers benefit from the pilot program. TECO should report these data regarding the benefits and costs of the pilot program to the Commission on an annual basis in Docket No. 010002-EG and succeeding dockets.

DOCKET NO. 000697-2
DATE: AUGUST 24, 2000

ISSUE 4: Should this docket be closed?

RECOMMENDATION: Yes, if no protest is filed within 21 days of the issuance of the order. (ISAAC)

STAFF ANALYSIS: If a protest is filed within 21 days of the Commission order approving this tariff, the tariff should remain in effect pending resolution of the protest, with any charges held subject to refund pending resolution of the protest. If no protest is filed, this docket should be closed upon the issuance of a Consummating Order.

Cost Support for Tampa Electric Company's Green Energy Pilot Program

Annual Revenue Requirements (1)	Year 1			Year 2			Year 3			Three-Year Average		
	\$	¢/kWh	% of Total	\$	¢/kWh	% of Total	\$	¢/kWh	% of Total	\$	¢/kWh	% of Total
Photovoltaic Systems												
O&M	1,200	0.1	0.7%	2,400	0.2	1.3%	3,600	0.2	1.9%	2,400	0.2	1.4%
Credit from Fuel Recovery Clause (2)	(406)	(0.0)	-0.2%	(833)	(0.1)	-0.5%	(1,256)	(0.1)	-0.7%	(832)	(0.1)	-0.5%
Credit for Avoided SO2 Allowances (3)	(20)	(0.0)	0.0%	(44)	(0.0)	0.0%	(62)	(0.0)	0.0%	(42)	(0.0)	0.0%
Cost of Capital	28,307	3.0	17.4%	70,241	5.2	38.1%	109,155	6.7	58.8%	69,234	5.3	39.0%
Sub-Total Photovoltaic Systems	29,080	3.1	17.9%	71,765	5.4	38.9%	111,435	6.8	60.1%	70,760	5.4	39.9%
Biomass												
O&M and Fuel Handling Expense	10,660	1.1	6.5%	15,237	1.1	8.3%	18,891	1.2	10.2%	14,930	1.1	8.4%
Cost of Capital (Dust Suppression Equipment)	1,351	0.1	0.8%	1,283	0.1	0.7%	1,180	0.1	0.6%	1,275	0.1	0.7%
Credit for Avoided SO2 Allowances (3)	(684)	(0.1)	-0.4%	(1,032)	(0.1)	-0.6%	(1,321)	(0.1)	-0.7%	(1,018)	(0.1)	-0.6%
Credit from Fuel Recovery Clause (4)	(5,840)	(0.6)	-3.6%	(8,807)	(0.6)	-4.7%	(11,802)	(0.7)	-9.0%	(6,516)	(0.7)	-4.8%
Sub-Total Biomass	5,488	0.6	3.4%	6,882	0.5	3.7%	7,648	0.5	4.1%	8,872	0.5	3.8%
Green Energy Program												
Administrative (5) (6)	25,100	2.6	15.4%	25,830	1.9	13.9%	26,170	1.6	14.1%	25,833	2.0	14.4%
Billing Set-up (6)	23,100	2.4	14.2%	0	0.0	0	0	0.0	7,700	0.6	4.3%	
Marketing and Sales	60,000	6.4	49.1%	80,000	6.0	43.4%	40,000	2.4	21.6%	68,667	5.1	37.6%
Sub-Total Program	128,200	13.5	78.8%	105,830	7.9	57.3%	66,170	4.0	35.7%	100,000	7.6	58.3%
Total Revenue Requirements	162,767	17.2	100%	184,278	13.7	100%	185,254	11.3	100%	177,432	13.6	100%

Annual Green Energy Produced (kWh)	Year 1	Year 2	Year 3	Three-Year Average
Photovoltaic Systems (7)	18,748	39,192	59,636	39,192
Biomass	829,432	1,301,205	1,580,034	1,270,224
Total Annual Energy Produced	848,180	1,340,397	1,639,670	1,309,416

Annual Revenues	Year 1	Year 2	Year 3	Three-Year Average
Green Energy Block Size (kWh)	50	50	50	50
Green Energy Blocks Purchased (# per month)	1,580	2,234	2,733	2,182
Green Energy Monthly Charge per Block (\$)	5.00	5.00	5.00	5
Effective Rate (¢/kWh)	10	10	10	10
Green Energy Program Revenues (\$)	94,818	134,040	163,987	130,942
Conservation R&D Program (ECCR)	48,200	25,630	28,170	33,333
Total Annual Revenues (\$)	143,018	159,669	190,137	164,275

Notes:

- (1) Annual refers to each 12 consecutive month period beginning in the month of program implementation.
- (2) Credit based on system average fuel and purchased power expense (\$/MWh).
- (3) Credit based on market price for SO2 allowances (\$/ton).
- (4) Calculated by subtracting the biomass cost (\$/MWh) from displaced coal cost for Green Unit No. 3 (\$/MWh).
- (5) Administration functions include monitoring and evaluating program progress, market research, and investigating other incrementally new renewable resources.
- (6) Recovered via Conservation R&D program (ECCR).
- (7) Annual PV energy based on a total PV capacity of 16 kW 34 kW, and 60 kW for Years 1, 2, and 3, respectively.

The SO₂ credits were calculated differently for biomass and photovoltaic energy.

The biomass is assumed to avoid SO₂ emissions from displaced coal in Gannon Unit No. 3, the unit in which the biomass will be used as fuel.

The photovoltaic energy is assumed to avoid SO₂ emissions from the entire Tampa Electric generating system.

Biomass - SO₂ Credit Calculations

Year 1

Based on our test burn of biomass in Gannon Unit No. 3:

A	Avoided SO ₂ emissions from using biomass	5.98 lbs SO ₂ per Ton of Biomass
B	Projected Biomass Tons	1,000 Tons
C	Avoided SO ₂ (A x B) / 2000	2.98 Tons
D	Forecasted Market Price for SO ₂ Allowances *	\$ 232.98 \$ per Ton
	Value of avoided SO ₂ emissions (C x D)	\$ 694.28

Photovoltaic - SO₂ Credit Calculation

Year 1

E	Total Projected System SO ₂ Emissions	64,657.5 Tons
F	Total Projected Energy	18,149.1 GWH
G	SO ₂ Emissions Rate E / (F x 1000)	0.004665 Tons/MWH
H	Photovoltaic Energy	18.748 MWH
	Value of avoided SO ₂ emissions (H x G x D)	\$20

* Based on SO₂ allowance price forecast - current market prices are lower. Actual credit will be based on current market price.