

# AUSLEY & McMULLEN

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June 25, 2001

HAND DELIVERED

Ms. Blanca S. Bayo, Director  
Division of Records and Reporting  
Florida Public Service Commission  
2540 Shumard Oak Boulevard  
Tallahassee, FL 32399-0850

010888-EG

Re: Petition by Tampa Electric Company for Approval of a Modification to the Residential Duct Repair Program


Dear Ms. Bayo:

Enclosed for filing in the above-styled matter are the original and fifteen (15) copies of Tampa Electric Company's Petition for Approval of a Modification to the Residential Duct Repair Program.

Please acknowledge receipt and filing of the above by stamping the duplicate copy of this letter and returning same to this writer.

Thank you for your assistance in connection with this matter.

Sincerely,

  
James D. Beasley

JDB/pp  
Enclosures

DOCUMENT NUMBER-DATE

07848 JUN 25 2001

FPSC-RECORDS/REPORTING

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Petition by Tampa Electric )  
Company for Approval of a Modification )  
to the Residential Duct Repair Program. )  
\_\_\_\_\_ )

DOCKET NO. \_\_\_\_\_  
FILED: June 25, 2001

**PETITION BY TAMPA ELECTRIC COMPANY FOR APPROVAL OF A  
MODIFICATION TO THE RESIDENTIAL DUCT REPAIR PROGRAM**

Tampa Electric Company ("Tampa Electric" or "the company") pursuant to Section 366.075, 366.82 (3), Florida Statutes and Rules 25-17.015 (4) and 28-106.201, Florida Administrative Code, files this petition with the Florida Public Service Commission ("the Commission") for approval of a modification to the company's residential duct repair program.

In support of this petition the company states:

1. The name, address and telephone number of the petitioner are as follows:

Tampa Electric Company  
Post Office Box 111  
Tampa, FL 33601  
(813) 228-4111  
(813) 228-1770 (fax)

2. Tampa Electric requests that copies of all pleadings, orders, notices and other documents submitted in this proceeding be furnished to the following:

Angela Llewellyn  
Administrator, Regulatory Coordination  
Tampa Electric Company  
Post Office Box 111  
Tampa, FL 33601  
(813) 228-1752  
(813) 228-1770 (fax)

Lee L. Willis  
James D. Beasley  
Ausley & McMullen  
Post Office Box 391  
Tallahassee, FL 32302  
(850) 224-9115  
(850) 222-7952 (fax)

DOCUMENT NUMBER-DATE

07848 JUN 25 01

3. In this petition, Tampa Electric seeks approval of a modification to the company's existing residential duct repair program which will increase customer participation, reduce program costs, simplify processes and enhance customer value. The modified program description, including standards and the Commission prescribed cost-effectiveness analysis, are provided as Exhibit "A" and Exhibit "B", respectively.

4. The existing program began in September 1992 and was modified to its current form in the company's 2000-2009 Ten Year Demand Side Management ("DSM") Plan in Docket No. 991791-EG, Order No. PSC-00-0754-PAA-EG, issued April 17, 2000. The existing program uses contractors to diagnose and identify the location of leaks in the air distribution system ("ADS"), provide the customer with an estimate for the repair of the system and ultimately perform the repair.

5. Currently the customer pays for a fixed portion of the duct diagnostic performed at their home and the balance of the repair costs not covered by the company incentive. The company pays the balance of the customer's duct diagnostic charge and 75% of the total repair cost up to a maximum of \$200.00 for each repair.

6. Although activity in this program has remained steady, the annual number of participating customers has been less than expected. Tampa Electric has increased its marketing efforts during the last two years in an effort to encourage more customer participation in a program that the company firmly believes has a positive impact on our customers' energy costs as well as the company's ability to accomplish its DSM goals. However, program participation has not increased significantly. The company believes the proposed modification will provide the impetus for greater levels of participation while reducing costs to the customer and simplifying the overall process.

7. Tampa Electric proposes to modify this program by eliminating the duct diagnostic and estimate of repairs performed by the contractor at the onset of program participation and simply offer a complete sealing of the ADS at a consistent, contracted, lower price to our customers than currently available. The company has negotiated with its contractors predetermined prices for the repair and sealing of all accessible joints, seams and connections in a “typical” customer’s ADS. On rare occasions where more complex repairs are needed (historically 3% of the participants), an estimate will be provided to the customer prior to ADS repairs or sealing. More complex repairs typically involve abandoning stud bay returns or replacing an entire duct system.

8. This modification will not only eliminate the diagnostic fee and reduce the out of pocket repair cost to the customer, it will also extend the integrity of the ADS by eliminating system degradation in future years subsequent to the repair.

9. The company anticipates a 44% reduction in overall customer costs by implementing this modification. In addition, the modification will simplify the process for the customer by eliminating one of two contractor visits to the residence currently necessary to provide an estimate and complete the repair.

10. Tampa Electric can minimize internal costs of the program and enhance processes by eliminating appointment setting for duct diagnostics, reducing the amount of data inputs currently needed and eliminating other back office routines. In addition, the program will be improved by simplifying the marketing effort and message of the program, the invoicing of payment for repairs and the approval process for payment by providing the contractor with the ability to request payment via the computer. Through these enhancements, the company

anticipates a 30% reduction in costs per participant. A comparison of current program costs to the proposed costs is provided as Exhibit "C" to this petition.

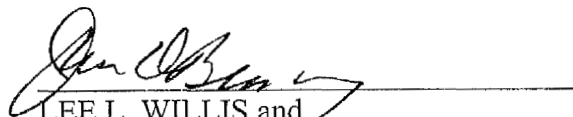
11. Finally, Tampa Electric seeks concurrent approval of the program standards included in Exhibit "A" along with this petition in order to expedite the implementation of the program modifications.

12. With the approval of this requested modification, Tampa Electric anticipates implementation of program changes by the beginning of the fourth quarter of 2001.

13. Tampa Electric is not aware of any disputed issues of material fact relative to the program modifications proposed herein.

WHEREFORE, Tampa Electric respectfully requests that the Commission grant approval of this modification to its residential duct repair program and to approve for conservation cost recovery funds prudently expended by Tampa Electric in furtherance of the proposed modified program.

DATED this 25<sup>th</sup> day of June, 2001.



LEE L. WILLIS and  
JAMES D. BEASLEY  
Ausley & McMullen  
Post Office Box 391  
Tallahassee, FL 32302  
(850) 224-9115

ATTORNEYS FOR TAMPA ELECTRIC COMPANY

## **Exhibit A**

**Program:** Residential Duct Repair

**Program Start Date:** September 1992

**Program Description:**

A conservation incentive program designed to reduce demand and energy by decreasing the load on residential air conditioning and heating (HVAC) equipment. This program eliminates or reduces areas of HVAC air distribution losses by sealing and repairing the air distribution system (ADS). ADS is defined as the air handler, air ducts, return plenums, supply plenums and any connecting structure.

Customers call Tampa Electric to request appointments for duct repair. A Tampa Electric appointed HVAC contractor will seal and repair all accessible components of the ADS in the residence. Tampa Electric's incentive is included in the payment to the participating contractor performing ADS repairs.

**Program Participation Standards:**

1. Residences must not be covered by any new home warranty.
2. ADS systems must be accessible for sealing and repair.
3. Residences must have a working central ducted HVAC system with electric heating or air conditioning. Residences with non-electric heating are eligible. Any safety issues will be identified prior to participation.
4. Tampa Electric Company will appoint a participating HVAC contractor to seal and repair existing problems.
5. A participating HVAC contractor must perform sealing and repairs.
6. Sealing of and repairs to ADS will use mastic techniques (adhesive with fibers embedded or adhesive with fabric reinforced tape). Air handler panels/openings will be sealed with tape or other approved materials. If ducts are replaced, mastic must be used to seal all joints, connections and seams in the ADS.
7. HVAC contractor submits work order for completed sealing and repair to Tampa Electric.

8. Tampa Electric will randomly perform full field verifications on a minimum of 10% of the participating residences. Work orders not selected for field review will have an office verification to validate information.
9. No payment will be made until Tampa Electric verifies or validates work orders.
10. The contractor incentive payment will be a contracted charge for typical repairs to the ADS.
11. There are no technical specifications on equipment eligibility with this program.
12. The reporting requirements for this program will follow Rule 25-17.0021 (5), Florida Administrative Code. Additionally, program expenses will be identified in the ECCR True-up and Projection filings.

**Program Savings and Costs:**

Historically, single-family central A/C units with resistance heat and heat pumps comprise 36% and 64% participation, respectively. In addition, multi-family, central A/C with resistance heat and heat pumps comprise 69% and 31%, respectively.

The analysis from the SRC data of ADS repair savings for the HVAC systems are as follows:

Single-family:

Type System	<u>Winter Demand (kW)</u>	<u>Summer Demand (kW)</u>	<u>Annual Energy (kWh)</u>
Central A/C with Strip	.447	.452	999
Central Heat Pump	.369	.453	991

Multi-family:

Type System	<u>Winter Demand (kW)</u>	<u>Summer Demand (kW)</u>	<u>Annual Energy (kWh)</u>
Central A/C with Strip	.255	.258	570
Central Heat Pump	.211	.259	566



By weighting these savings across the system types, the following reductions are rendered:

Single-family

Winter Demand:

Strip heat	(.447) (0.36)	=	0.161
Heat Pump	(.369) (0.64)	=	<u>0.236</u>
Average winter demand reduction		=	0.397 kW

Summer Demand:

Straight A/C	(.452) (0.36)	=	0.163
Heat Pump	(.453) (0.64)	=	<u>0.290</u>
Average summer demand reduction		=	0.453 kW

Multi-family

Winter Demand:

Strip heat	(.255) (0.69)	=	0.176
Heat Pump	(.211) (0.31)	=	<u>0.065</u>
Average winter demand reduction		=	0.241 kW

Summer Demand:

Straight A/C	(.258) (0.69)	=	0.178
Heat Pump	(.259) (0.31)	=	<u>0.080</u>
Average summer demand reduction		=	0.258 kW

Energy:

Single-Family

Straight A/C	(999) (0.36)	=	360
Heat Pump	(991) (0.64)	=	<u>634</u>
Average annual energy savings		=	994 kWh

Multi-family

Straight A/C	(570) (0.69)	=	393
Heat Pump	(566) (0.31)	=	<u>175</u>
Average annual energy savings		=	568 kWh

By weighting these savings across estimated participation the following reductions are rendered:

Winter Demand	=	0.37 kW
Summer Demand	=	0.42 kW
Annual Energy	=	923 kWh

Costs:

Incentive cost per participant:	\$178.00
Administrative cost per participant:	\$178.00
Customer cost	\$ 74.00

**Program Monitoring and Evaluation:**

Tampa Electric Company utilized the engineering estimates and computer modeling from the SRC study for the demand and energy savings of the program. Tampa Electric Company will monitor and evaluate this program through cost-effective techniques approved in the company's previously filed Demand Side Management Monitoring and Evaluation Plan, Docket No. 941173-EG.

## **Exhibit B**

I. PROGRAM DEMAND SAVINGS AND LINE LOSSES

(1) CUSTOMER KW REDUCTION AT THE METER .....	0.42 KW /CUST
(2) GENERATOR KW REDUCTION PER CUSTOMER .....	0.45 KW GEN/CUST
(3) KW LINE LOSS PERCENTAGE .....	6.6 %
(4) GENERATION KWH REDUCTION PER CUSTOMER ....	982 KWH/CUST/YR
(5) KWH LINE LOSS PERCENTAGE .....	6.0 %
(6) GROUP LINE LOSS MULTIPLIER .....	1.0000
(7) CUSTOMER KWH PROGRAM INCREASE AT METER ....	0.0 KWH/CUST/YR
(8)* CUSTOMER KWH REDUCTION AT METER .....	923 KWH/CUST/YR

II. ECONOMIC LIFE & K FACTORS

(1) STUDY PERIOD FOR CONSERVATION PROGRAM .....	30 YEARS
(2) GENERATOR ECONOMIC LIFE .....	30 YEARS
(3) T & D ECONOMIC LIFE .....	30 YEARS
(4) K FACTOR FOR GENERATION .....	1.7164
(5) K FACTOR FOR T & D .....	1.7164
(6)* SWITCH REV REQ(0) OR VAL-OF-DEF (1) .....	0

III. UTILITY & CUSTOMER COSTS

(1) UTILITY NONRECURRING COST PER CUSTOMER ....	178.00 \$/CUST
(2) UTILITY RECURRING COST PER CUSTOMER .....	0.00 \$/CUST/YR
(3) UTILITY COST ESCALATION RATE .....	2.5 %
(4) CUSTOMER EQUIPMENT COST .....	252.00 \$/CUST
(5) CUSTOMER EQUIPMENT ESCALATION RATE .....	2.5 %
(6) CUSTOMER O & M COST .....	0.00 \$/CUST/YR
(7) CUSTOMER O & M ESCALATION RATE .....	2.5 %
(8)* CUSTOMER TAX CREDIT PER INSTALLATION .....	0.00 \$/CUST
(9)* CUSTOMER TAX CREDIT ESCALATION RATE .....	0.0 %
(10)* INCREASED SUPPLY COSTS .....	0.00 \$/CUST/YR
(11)* SUPPLY COSTS ESCALATION RATE .....	0.0 %
(12)* UTILITY DISCOUNT RATE .....	9.51%
(13)* UTILITY AFUDC RATE .....	7.79%
(14)* UTILITY NON RECURRING REBATE/INCENTIVE ...	178.00 \$/CUST
(15)* UTILITY RECURRING REBATE/INCENTIVE .....	0.00 \$/CUST/YR
(16)* UTILITY REBATE/INCENTIVE ESCAL RATE .....	0.0 %

\* SUPPLEMENTAL INFORMATION NOT SPECIFIED IN WORKBOOK

IV. AVOIDED GENERATOR, TRANS. AND DIST. COSTS

(1) BASE YEAR .....	2001
(2) IN-SERVICE YEAR FOR AVOIDED GENERATING UNIT	2004
(3) IN-SERVICE YEAR FOR AVOIDED T & D .....	2004
(4) BASE YEAR AVOIDED GENERATING UNIT COST .....	280.46 \$/KW
(5) BASE YEAR AVOIDED TRANSMISSION COST .....	0.00 \$/KW
(6) BASE YEAR DISTRIBUTION COST .....	0.00 \$/KW
(7) GEN, TRAN, & DIST COST ESCALATION RATE ....	2.6 %
(8) GENERATOR FIXED O & M COST .....	2.13 \$/KW/YR
(9) GENERATOR FIXED O&M ESCALATION RATE .....	2.5 %
(10) TRANSMISSION FIXED O & M COST .....	0.00 \$/KW/YR
(11) DISTRIBUTION FIXED O & M COST .....	0.00 \$/KW/YR
(12) T&D FIXED O&M ESCALATION RATE .....	2.5 %
(13) AVOIDED GEN UNIT VARIABLE O & M COSTS .....	0.299 CENTS/KWH
(14) GENERATOR VARIABLE O&M COST ESCALATION RATE	2.5 %
(15) GENERATOR CAPACITY FACTOR .....	19.3 %
(16) AVOIDED GENERATING UNIT FUEL COST .....	4.182 CENTS/KWH
(17) AVOIDED GEN UNIT FUEL ESCALATION RATE .....	3.69 %
(18)* AVOIDED PURCHASE CAPACITY COST PER KW .....	0.00 \$/KW/YR
(19)* CAPACITY COST ESCALATION RATE .....	0.0 %

V. NON-FUEL ENERGY AND DEMAND CHARGES

(1) NON-FUEL COST IN CUSTOMER BILL .....	4.342 CENTS/KWH
(2) NON-FUEL ESCALATION RATE .....	1.0 %
(3) CUSTOMER DEMAND CHARGE PER KW .....	0.00 \$/KW/MO
(4) DEMAND CHARGE ESCALATION RATE .....	1.0 %
(5)* DIVERSITY and ANNUAL DEMAND ADJUSTMENT FACTOR FOR CUSTOMER BILL .....	1.0

\*\*\* CALCULATED BENEFITS AND COSTS \*\*\*

(1)* TRC TEST - BENEFIT/COST RATIO .....	2.56
(2)* PARTICIPANT NET BENEFITS (NPV) .....	5.502
(3)* RIM TEST - BENEFIT/COST RATIO .....	1.39

CALCULATION OF AFUDC AND IN-SERVICE COST OF PLANT  
 PLANT: 2004 AVOIDED UNIT

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
YEAR	NO. YEARS BEFORE INSERVICE	PLANT ESCALATION RATE (%)	CUMULATIVE ESCALATION FACTOR	YEARLY EXPENDITURE (%)	ANNUAL SPENDING (\$/KW)	CUMULATIVE AVERAGE SPENDING (\$/KW)	CUMULATIVE SPENDING WITH AFUDC (\$/KW)	YEARLY TOTAL AFUDC (\$/KW)	INCREMENTAL YEAR-END BOOK VALUE (\$/KW)	CUMULATIVE YEAR-END BOOK VALUE (\$/KW)
1995	-9	0.0%	1.0000	0.0%	0.00	0.00	0.00	0.00	0.00	0.00
1996	-8	0.0%	1.0000	0.0%	0.00	0.00	0.00	0.00	0.00	0.00
1997	-7	0.0%	1.0000	0.0%	0.00	0.00	0.00	0.00	0.00	0.00
1998	-6	0.0%	1.0000	0.0%	0.00	0.00	0.00	0.00	0.00	0.00
1999	-5	0.0%	1.0000	0.0%	0.00	0.00	0.00	0.00	0.00	0.00
2000	-4	0.0%	1.0000	0.0%	0.00	0.00	0.00	0.00	0.00	0.00
2001	-3	2.6%	1.0260	9.0%	25.90	12.95	12.95	0.50	26.40	26.40
2002	-2	2.6%	1.0527	26.0%	76.76	64.28	64.78	2.54	79.30	105.70
2003	-1	2.6%	1.0800	35.0%	106.02	155.67	158.71	6.30	112.32	218.02
2004	0	2.6%	1.1081	30.0%	93.24	255.30	264.64	9.35	102.59	320.61
				1.00	301.92			18.69	320.61	

IN-SERVICE YEAR =

2004

PLANT COSTS (2001 \$)

\$280.46

AFUDC RATE:

7.79%

INPUT DATA – PART 2  
 PROGRAM: Duct Repair

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
YEAR	CUMULATIVE TOTAL PARTICIPATING CUSTOMERS	ADJUSTED CUMULATIVE PARTICIPATING CUSTOMERS	UTILITY AVERAGE SYSTEM FUEL COSTS (C/KWH)	AVOIDED MARGINAL FUEL COST (C/KWH)	INCREASED MARGINAL FUEL COST (C/KWH)	REPLACEMENT FUEL COST (C/KWH)	PROGRAM KW EFFECTIVENESS FACTOR	PROGRAM KWH EFFECTIVENESS FACTOR
2001	3,000	3,000	2.62	4.05	0.00	0.00	1.00	1.00
2002	6,000	6,000	2.38	4.02	0.00	0.00	1.00	1.00
2003	9,000	9,000	2.27	3.34	0.00	0.00	1.00	1.00
2004	9,000	9,000	2.23	3.40	0.00	0.00	1.00	1.00
2005	9,000	9,000	2.39	3.52	0.00	0.00	1.00	1.00
2006	9,000	9,000	2.53	3.60	0.00	0.00	1.00	1.00
2007	9,000	9,000	2.63	3.66	0.00	0.00	1.00	1.00
2008	9,000	9,000	2.77	3.81	0.00	0.00	1.00	1.00
2009	9,000	9,000	2.87	4.12	0.00	0.00	1.00	1.00
2010	9,000	9,000	2.99	4.14	0.00	0.00	1.00	1.00
2011	9,000	9,000	3.18	4.41	0.00	0.00	1.00	1.00
2012	9,000	9,000	3.22	4.45	0.00	0.00	1.00	1.00
2013	9,000	9,000	3.34	4.80	0.00	0.00	1.00	1.00
2014	9,000	9,000	3.47	5.03	0.00	0.00	1.00	1.00
2015	9,000	9,000	3.60	5.64	0.00	0.00	1.00	1.00
2016	9,000	9,000	3.77	5.59	0.00	0.00	1.00	1.00
2017	9,000	9,000	3.89	5.79	0.00	0.00	1.00	1.00
2018	9,000	9,000	4.05	5.89	0.00	0.00	1.00	1.00
2019	9,000	9,000	4.22	6.32	0.00	0.00	1.00	1.00
2020	9,000	9,000	4.41	6.68	0.00	0.00	1.00	1.00
2021	9,000	9,000	4.52	6.84	0.00	0.00	1.00	1.00
2022	9,000	9,000	4.68	7.10	0.00	0.00	1.00	1.00
2023	9,000	9,000	4.81	7.27	0.00	0.00	1.00	1.00
2024	9,000	9,000	4.96	7.43	0.00	0.00	1.00	1.00
2025	9,000	9,000	5.11	7.91	0.00	0.00	1.00	1.00
2026	9,000	9,000	5.27	8.04	0.00	0.00	1.00	1.00
2027	9,000	9,000	5.42	8.38	0.00	0.00	1.00	1.00
2028	9,000	9,000	5.65	8.73	0.00	0.00	1.00	1.00
2029	9,000	9,000	5.78	8.93	0.00	0.00	1.00	1.00
2030	9,000	9,000	5.91	9.12	0.00	0.00	1.00	1.00

AVOIDED GENERATION UNIT BENEFITS  
PROGRAM                      Duct Repair

\* UNIT SIZE OF AVOIDED GENERATION UNIT =                      4,090 0 KW  
\* INSERVICE COSTS OF AVOIDED GEN UNIT (000) =                      \$1,311 3

(1)	(1A)*	(2)	(2A)*	(3)	(4)	(5)	(6)	(6A)*	(7)
REVENUE REQUIREMENT FACTOR		AVOIDED GEN UNIT CAPACITY COST \$(000)	AVOIDED ANNUAL UNIT KWH GEN (000)	AVOIDED UNIT FIXED O&M COST \$(000)	AVOIDED GEN UNIT VARIABLE O&M COST \$(000)	AVOIDED GEN UNIT FUEL COST \$(000)	REPLACEMENT FUEL COST \$(000)	AVOIDED PURCHASED CAPACITY COSTS \$(000)	AVOIDED GEN UNIT BENEFITS \$(000)
YEAR									
2001	0.000	0	0	0	0	0	0	0	0
2002	0.000	0	0	0	0	0	0	0	0
2003	0.000	0	0	0	0	0	0	0	0
2004	0.199	261	6,915	9	22	322	0	0	615
2005	0.193	252	6,915	10	23	334	0	0	619
2006	0.185	242	6,915	10	23	347	0	0	622
2007	0.177	232	6,915	10	24	359	0	0	626
2008	0.170	223	6,915	10	25	373	0	0	631
2009	0.164	215	6,915	11	25	386	0	0	637
2010	0.158	207	6,915	11	26	401	0	0	644
2011	0.151	199	6,915	11	26	415	0	0	652
2012	0.145	191	6,915	11	27	431	0	0	660
2013	0.139	183	6,915	12	28	447	0	0	669
2014	0.133	175	6,915	12	29	463	0	0	678
2015	0.127	167	6,915	12	29	480	0	0	689
2016	0.121	159	6,915	13	30	498	0	0	700
2017	0.115	151	6,915	13	31	516	0	0	711
2018	0.109	143	6,915	13	31	535	0	0	723
2019	0.104	137	6,915	14	32	555	0	0	738
2020	0.101	132	6,915	14	33	576	0	0	755
2021	0.099	129	6,915	14	34	597	0	0	774
2022	0.096	126	6,915	15	35	619	0	0	794
2023	0.094	123	6,915	15	36	642	0	0	815
2024	0.091	120	6,915	15	37	665	0	0	837
2025	0.089	117	6,915	16	37	690	0	0	860
2026	0.087	114	6,915	16	38	715	0	0	883
2027	0.084	111	6,915	17	39	742	0	0	908
2028	0.082	108	6,915	17	40	769	0	0	934
2029	0.080	105	6,915	17	41	798	0	0	961
2030	0.077	101	6,915	18	42	827	0	0	989
<b>NOMINAL</b>		<b>4,421</b>	<b>186,693</b>	<b>355</b>	<b>845</b>	<b>14,503</b>	<b>0</b>	<b>0</b>	<b>20,124</b>
<b>NPV</b>		<b>1,576</b>		<b>93</b>	<b>221</b>	<b>3,562</b>	<b>0</b>	<b>0</b>	<b>5,451</b>

\* SUPPLEMENTAL INFORMATION NOT SPECIFIED IN WORKBOOK

AVOIDED T & D AND PROGRAM FUEL SAVINGS  
PROGRAM Duct Repair

\* INSERVICE COSTS OF AVOIDED TRANS (000) = \$0 0  
\* INSERVICE COSTS OF AVOIDED DIST (000) = \$0.0

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
YEAR	AVOIDED TRANSMISSION CAPACITY COST \$(000)	AVOIDED TRANSMISSION O&M COST \$(000)	TOTAL AVOIDED TRANSMISSION COST \$(000)	AVOIDED DISTRIBUTION CAPACITY COST \$(000)	AVOIDED DISTRIBUTION O&M COST \$(000)	TOTAL AVOIDED DISTRIBUTION COST \$(000)	PROGRAM FUEL SAVINGS \$(000)
2001	0	0	0	0	0	0	60
2002	0	0	0	0	0	0	178
2003	0	0	0	0	0	0	246
2004	0	0	0	0	0	0	300
2005	0	0	0	0	0	0	311
2006	0	0	0	0	0	0	318
2007	0	0	0	0	0	0	323
2008	0	0	0	0	0	0	337
2009	0	0	0	0	0	0	364
2010	0	0	0	0	0	0	366
2011	0	0	0	0	0	0	390
2012	0	0	0	0	0	0	393
2013	0	0	0	0	0	0	424
2014	0	0	0	0	0	0	445
2015	0	0	0	0	0	0	498
2016	0	0	0	0	0	0	494
2017	0	0	0	0	0	0	512
2018	0	0	0	0	0	0	521
2019	0	0	0	0	0	0	559
2020	0	0	0	0	0	0	590
2021	0	0	0	0	0	0	604
2022	0	0	0	0	0	0	627
2023	0	0	0	0	0	0	642
2024	0	0	0	0	0	0	657
2025	0	0	0	0	0	0	699
2026	0	0	0	0	0	0	711
2027	0	0	0	0	0	0	741
2028	0	0	0	0	0	0	771
2029	0	0	0	0	0	0	789
2030	0	0	0	0	0	0	806
NOMINAL	0	0	0	0	0	0	14,676
NPV:	0	0	0	0	0	0	3,837

\* SUPPLEMENTAL INFORMATION NOT SPECIFIED IN WORKBOOK



(1)	(2)	(3)	(4)	(5)	(6)	(7)
YEAR	REDUCTION IN KWH GENERATION NET NEW CUST KWH (000)	AVOIDED MARGINAL FUEL COST - REDUCED KWH \$(000)	INCREASE IN KWH GENERATION NET NEW CUST KWH (000)	INCREASED MARGINAL FUEL COST - INCREASE KWH \$(000)	NET AVOIDED PROGRAM FUEL SAVINGS \$(000)	EFFECTIVE PROGRAM FUEL SAVINGS \$(000)
2001	1,473	60	0	0	60	60
2002	4,419	178	0	0	178	178
2003	7,364	246	0	0	246	246
2004	8,837	300	0	0	300	300
2005	8,837	311	0	0	311	311
2006	8,837	318	0	0	318	318
2007	8,837	323	0	0	323	323
2008	8,837	337	0	0	337	337
2009	8,837	364	0	0	364	364
2010	8,837	366	0	0	366	366
2011	8,837	390	0	0	390	390
2012	8,837	393	0	0	393	393
2013	8,837	424	0	0	424	424
2014	8,837	445	0	0	445	445
2015	8,837	498	0	0	498	498
2016	8,837	494	0	0	494	494
2017	8,837	512	0	0	512	512
2018	8,837	521	0	0	521	521
2019	8,837	559	0	0	559	559
2020	8,837	590	0	0	590	590
2021	8,837	604	0	0	604	604
2022	8,837	627	0	0	627	627
2023	8,837	642	0	0	642	642
2024	8,837	657	0	0	657	657
2025	8,837	699	0	0	699	699
2026	8,837	711	0	0	711	711
2027	8,837	741	0	0	741	741
2028	8,837	771	0	0	771	771
2029	8,837	789	0	0	789	789
2030	8,837	806	0	0	806	806
NOMINAL	251,861	14,676	0	0	14,676	14,676
NPV:		3,837		0	3,837	3,837

\* SUPPLEMENTAL INFORMATION NOT SPECIFIED IN WORKBOOK

(1)	(2) (3) (4)			(5)	(6)	(7)	(8) (9) (10) (11) (12)						(13)	(14)	(15)	(16)	(17)	(18)		
← UTILITY PROGRAM COSTS & REBATES →							← PARTICIPATING CUSTOMER COSTS & BENEFITS →													
YEAR	UTIL NONREC COSTS \$(000)	UTIL RECUR COSTS \$(000)	TOTAL UTIL PGM COSTS \$(000)	UTIL NONREC REBATES \$(000)	UTIL RECUR REBATES \$(000)	TOTAL REBATE/ INCENT. COSTS \$(000)	PARTIC. CUST EQUIP COSTS \$(000)	PARTIC CUST O & M COSTS \$(000)	TOTAL COSTS PARTIC CUST \$(000)	REDUCT IN CUST KWH (000)	RED. REV - FUEL PORTION \$(000)	RED REV NONFUEL PORTION \$(000)	EFFECT. REV REDUCT. TO CUST \$(000)	INC IN CUST. KWH (000)	INC REV - FUEL PORTION \$(000)	INC REV NONFUEL PORTION	EFFECT REVENUE INC IN BILL \$(000)			
2001	534	0	534	534	0	534	756	0	756	1,385	36	60	96	0	0	0	0			
2002	547	0	547	534	0	534	775	0	775	4,154	99	182	281	0	0	0	0			
2003	561	0	561	534	0	534	794	0	794	6,923	157	307	464	0	0	0	0			
2004	0	0	0	0	0	0	0	0	0	8,307	185	372	557	0	0	0	0			
2005	0	0	0	0	0	0	0	0	0	8,307	199	375	574	0	0	0	0			
2006	0	0	0	0	0	0	0	0	0	8,307	210	379	589	0	0	0	0			
2007	0	0	0	0	0	0	0	0	0	8,307	218	383	601	0	0	0	0			
2008	0	0	0	0	0	0	0	0	0	8,307	230	387	617	0	0	0	0			
2009	0	0	0	0	0	0	0	0	0	8,307	238	391	629	0	0	0	0			
2010	0	0	0	0	0	0	0	0	0	8,307	248	394	643	0	0	0	0			
2011	0	0	0	0	0	0	0	0	0	8,307	264	398	663	0	0	0	0			
2012	0	0	0	0	0	0	0	0	0	8,307	267	402	670	0	0	0	0			
2013	0	0	0	0	0	0	0	0	0	8,307	277	406	684	0	0	0	0			
2014	0	0	0	0	0	0	0	0	0	8,307	288	410	699	0	0	0	0			
2015	0	0	0	0	0	0	0	0	0	8,307	299	415	714	0	0	0	0			
2016	0	0	0	0	0	0	0	0	0	8,307	313	419	732	0	0	0	0			
2017	0	0	0	0	0	0	0	0	0	8,307	323	423	746	0	0	0	0			
2018	0	0	0	0	0	0	0	0	0	8,307	336	427	764	0	0	0	0			
2019	0	0	0	0	0	0	0	0	0	8,307	351	431	782	0	0	0	0			
2020	0	0	0	0	0	0	0	0	0	8,307	366	436	802	0	0	0	0			
2021	0	0	0	0	0	0	0	0	0	8,307	375	440	816	0	0	0	0			
2022	0	0	0	0	0	0	0	0	0	8,307	389	445	833	0	0	0	0			
2023	0	0	0	0	0	0	0	0	0	8,307	400	449	849	0	0	0	0			
2024	0	0	0	0	0	0	0	0	0	8,307	412	453	865	0	0	0	0			
2025	0	0	0	0	0	0	0	0	0	8,307	424	458	882	0	0	0	0			
2026	0	0	0	0	0	0	0	0	0	8,307	438	463	900	0	0	0	0			
2027	0	0	0	0	0	0	0	0	0	8,307	450	467	917	0	0	0	0			
2028	0	0	0	0	0	0	0	0	0	8,307	469	472	941	0	0	0	0			
2029	0	0	0	0	0	0	0	0	0	8,307	480	477	957	0	0	0	0			
2030	0	0	0	0	0	0	0	0	0	8,307	491	481	972	0	0	0	0			
	1,642	0	1,642	1,602	0	1,602	2,325	0	2,325	236,750	9,236	12,003	21,239	0	0	0	0			
	1,502	0	1,502	1,467	0	1,467	2,126	0	2,126		2,448	3,714	6,161		0	0	0			

\* SUPPLEMENTAL INFORMATION NOT SPECIFIED IN WORKBOOK

TOTAL RESOURCE COST TESTS

PROGRAM: Duct Repair

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	
YEAR	INCREASED SUPPLY COSTS \$(000)	UTILITY PROGRAM COSTS \$(000)	PARTICIPANT PROGRAM COSTS \$(000)	OTHER COSTS \$(000)	TOTAL COSTS \$(000)	AVOIDED GEN UNIT BENEFITS \$(000)	AVOIDED T & D BENEFITS \$(000)	PROGRAM FUEL SAVINGS \$(000)	OTHER BENEFITS \$(000)	TOTAL BENEFITS \$(000)	NET BENEFITS \$(000)	CUMULATIVE DISCOUNTED NET BENEFITS \$(000)	
2001	0	534	756	0	1,290	0	0	60	0	60	(1,230)	(1,230)	
2002	0	547	775	0	1,322	0	0	178	0	178	(1,145)	(2,276)	
2003	0	561	794	0	1,355	0	0	246	0	246	(1,109)	(3,201)	
2004	0	0	0	0	0	615	0	300	0	916	916	(2,503)	
2005	0	0	0	0	0	619	0	311	0	930	930	(1,856)	
2006	0	0	0	0	0	622	0	318	0	940	940	(1,260)	
2007	0	0	0	0	0	626	0	323	0	949	949	(709)	
2008	0	0	0	0	0	631	0	337	0	967	967	(197)	
2009	0	0	0	0	0	637	0	364	0	1,001	1,001	287	
2010	0	0	0	0	0	644	0	366	0	1,010	1,010	733	
2011	0	0	0	0	0	652	0	390	0	1,041	1,041	1,153	
2012	0	0	0	0	0	660	0	393	0	1,053	1,053	1,540	
2013	0	0	0	0	0	669	0	424	0	1,093	1,093	1,908	
2014	0	0	0	0	0	678	0	445	0	1,123	1,123	2,252	
2015	0	0	0	0	0	689	0	498	0	1,187	1,187	2,585	
2016	0	0	0	0	0	700	0	494	0	1,194	1,194	2,891	
2017	0	0	0	0	0	711	0	512	0	1,223	1,223	3,177	
2018	0	0	0	0	0	723	0	521	0	1,244	1,244	3,442	
2019	0	0	0	0	0	738	0	559	0	1,296	1,296	3,695	
2020	0	0	0	0	0	755	0	590	0	1,345	1,345	3,934	
2021	0	0	0	0	0	774	0	604	0	1,379	1,379	4,158	
2022	0	0	0	0	0	794	0	627	0	1,422	1,422	4,369	
2023	0	0	0	0	0	815	0	642	0	1,458	1,458	4,567	
2024	0	0	0	0	0	837	0	657	0	1,494	1,494	4,752	
2025	0	0	0	0	0	860	0	699	0	1,559	1,559	4,928	
2026	0	0	0	0	0	883	0	711	0	1,594	1,594	5,092	
2027	0	0	0	0	0	908	0	741	0	1,649	1,649	5,248	
2028	0	0	0	0	0	934	0	771	0	1,705	1,705	5,394	
2029	0	0	0	0	0	961	0	789	0	1,750	1,750	5,532	
2030	0	0	0	0	0	989	0	806	0	1,795	1,795	5,661	
NOMINAL	0	1,642	2,325	0	3,968	20,124	0	14,676	0	34,799	30,832		
NPV:	0	1,502	2,126	0	3,628	5,451	0	3,837	0	9,288	5,661		
Discount Rate		9.51%	Benefit/Cost Ratio - [col (11)/col (6)]:					2.56					



RATE IMPACT TEST  
PROGRAM: Duct Repair

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
YEAR	INCREASED SUPPLY COSTS \$(000)	UTILITY PROGRAM COSTS \$(000)	INCENTIVES \$(000)	REVENUE LOSSES \$(000)	OTHER COSTS \$(000)	TOTAL COSTS \$(000)	AVOIDED GEN UNIT UNIT & FUEL BENEFITS \$(000)	AVOIDED T & D BENEFITS \$(000)	REVENUE GAINS \$(000)	OTHER BENEFITS \$(000)	TOTAL BENEFITS \$(000)	NET BENEFITS TO ALL CUSTOMERS \$(000)	CUMULATIVE DISCOUNTED NET BENEFIT \$(000)
2001	0	534	534	60	0	1,128	60	0	0	0	60	(1,068)	(1,068)
2002	0	547	534	182	0	1,263	178	0	0	0	178	(1,086)	(2,060)
2003	0	561	534	307	0	1,402	246	0	0	0	246	(1,156)	(3,024)
2004	0	0	0	372	0	372	916	0	0	0	916	544	(2,609)
2005	0	0	0	375	0	375	930	0	0	0	930	555	(2,223)
2006	0	0	0	379	0	379	940	0	0	0	940	561	(1,867)
2007	0	0	0	383	0	383	949	0	0	0	949	566	(1,539)
2008	0	0	0	387	0	387	967	0	0	0	967	581	(1,232)
2009	0	0	0	391	0	391	1,001	0	0	0	1,001	610	(936)
2010	0	0	0	394	0	394	1,010	0	0	0	1,010	615	(665)
2011	0	0	0	398	0	398	1,041	0	0	0	1,041	643	(406)
2012	0	0	0	402	0	402	1,053	0	0	0	1,053	651	(166)
2013	0	0	0	406	0	406	1,093	0	0	0	1,093	687	65
2014	0	0	0	410	0	410	1,123	0	0	0	1,123	712	284
2015	0	0	0	415	0	415	1,187	0	0	0	1,187	773	500
2016	0	0	0	419	0	419	1,194	0	0	0	1,194	775	698
2017	0	0	0	423	0	423	1,223	0	0	0	1,223	800	885
2018	0	0	0	427	0	427	1,244	0	0	0	1,244	817	1,060
2019	0	0	0	431	0	431	1,296	0	0	0	1,296	865	1,228
2020	0	0	0	436	0	436	1,345	0	0	0	1,345	910	1,390
2021	0	0	0	440	0	440	1,379	0	0	0	1,379	939	1,543
2022	0	0	0	445	0	445	1,422	0	0	0	1,422	977	1,688
2023	0	0	0	449	0	449	1,458	0	0	0	1,458	1,009	1,824
2024	0	0	0	453	0	453	1,494	0	0	0	1,494	1,040	1,953
2025	0	0	0	458	0	458	1,559	0	0	0	1,559	1,101	2,078
2026	0	0	0	463	0	463	1,594	0	0	0	1,594	1,131	2,194
2027	0	0	0	467	0	467	1,649	0	0	0	1,649	1,182	2,306
2028	0	0	0	472	0	472	1,705	0	0	0	1,705	1,234	2,412
2029	0	0	0	477	0	477	1,750	0	0	0	1,750	1,273	2,512
2030	0	0	0	481	0	481	1,795	0	0	0	1,795	1,313	2,606
NOMINAL	0	1,642	1,602	12,003	0	15,247	34,799	0	0	0	34,799	19,553	
NPV:	0	1,502	1,467	3,714	0	6,682	9,288	0	0	0	9,288	2,606	
Discount rate:				9.51%		Benefit/Cost Ratio - [col (12)/col (7)]:			1.39				

## **Exhibit C**

## Cost Comparison per Customer

	Existing Program	After Proposed Modification	Percent Reduction
<b>Customer Cost</b>	\$132	\$74	44%
<b>Company Cost (1)</b>	\$508	\$356	30%

(1) This includes administration, marketing, advertising, and incentive.