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January 16, 1995

Ms. Mary Elizabeth Culpepper
Staff Counsel
Florida Public Service Commission
101 East Gaines Street
Tallahassee FL 32399-0863

Dear Ms. Culpepper:

RE: Docket No. **950002-EG**

Enclosed are an original and fifteen copies of Gulf Power Company's response to Staff's First Set of Interrogatories, Nos. 1-4, in the above docket.

Sincerely,



lw

Enclosures

cc: Beggs and Lane
Jeffrey A. Stone, Esquire

bc: J. T. Kilgore
R. G. Livingston
J. D. Mathis
M. D. Neyman

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FPSC-RECORDS/REPORTING

DIRECT TESTIMONY OF VERNON I. KRUTSINGER

FPSC DOCKET NO. 950002-EG, ENERGY CONSERVATION COST RECOVERY

1 Q: Please state your name and business address.

2 A: My name is Vernon I. Krutsinger, and my business address is
3 Peoples Gas System, Inc., 111 Madison Street, Tampa,
4 Florida 33601.

5

6 Qualifications of Vernon I. Krutsinger

7 Q: By whom are you employed and in what position?

8 A: I am employed by Peoples Gas System, Inc. as Manager of
9 Energy Utilization.

10

11 Q: Please summarize your educational background.

12 A: I received a Bachelor of Arts degree in Business
13 Administration from the University of South Florida in
14 1973. I have attended numerous short courses, seminars,
15 and training sessions in natural gas systems, marketing,
16 planning, end use technologies, demand-side management, and
17 general utility planning and management in my career.

18

19 Q: Please summarize your work experience in the natural gas
20 industry, including your experience with energy
21 conservation programs and planning activities.

22 A: I have 21 years of experience in the gas industry in
23 Florida. I joined Peoples in 1986 as Marketing Manager for
24 one of the Company's local operating divisions. My

DIRECT TESTIMONY OF VERNON I. KRUTSINGER

1 responsibilities in that position included development and
2 implementation of marketing strategies and sales of natural
3 gas and propane appliances and services, including the
4 Company's energy conservation programs. In 1992, I became
5 Manager of Energy Utilization; in my current position, I am
6 responsible for planning, implementation, coordination, and
7 maintenance of all of Peoples' energy conservation
8 programs.

9 From 1973 until joining Peoples in 1986, I was
10 employed as Vice President of the leading wholesale
11 distributor for gas equipment and appliances in Florida.
12 During that period, I was involved in sales and marketing
13 as well as various management activities, including
14 responsibilities for wholesale sales and distribution of
15 gas appliances and equipment for heating, air conditioning,
16 water heating, and cooking. I was also involved in
17 marketing and sales of gas components and equipment for
18 natural gas vehicles.

19
20 Purpose of Testimony

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

22 A: My testimony addresses certain concerns that Peoples has
23 with respect to advertising that Tampa Electric Company
24 ("TECO") has conducted in which it compares gas and
25 electricity and gas and electric end uses.

26

DIRECT TESTIMONY OF VERNON I. KRUTSINGER

Concerns Regarding TECO's Advertising

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Q: What is the basic nature of Peoples' concerns regarding TECO's advertising?

A: Basically, Peoples Gas System is concerned that TECO's advertising attempts to cast natural gas, and natural gas end use technologies, in a bad light; that TECO's advertisements attempt to portray Peoples, and perhaps other gas utilities, as engaging in false and misleading advertising of gas appliances and costs; that TECO's advertising attempts to imply that gas is unsafe; that TECO's advertising attempts to imply that gas appliances require more maintenance costs than their electric counterparts; and that TECO's advertising attempts to imply that using electric appliances is better for the environment than using gas appliances to meet the same end use energy applications.

Q: What documents have you reviewed in preparing your testimony?

A: I have reviewed TECO's responses to the Staff's discovery requests in this ECCR proceeding. Additionally, I have reviewed various documents available to me regarding the comparative energy usage and cost of gas and electric appliances.

DIRECT TESTIMONY OF VERNON I. KRUTSINGER

1 Q: Do you wish to state any qualifications or limitations to
2 your testimony?

3 A: Yes. Since I do not have most of the information sources
4 referenced in TECO's responses to Staff's Interrogatories
5 Nos. 1, 2, and 3, I cannot attest to the validity of many
6 of the sources cited therein or to the accuracy of
7 calculations underlying claims made in TECO's
8 advertisements. For example, Staff's Interrogatory No. 4
9 asked TECO to "demonstrate how the reduction [energy and
10 cost] was calculated" when electric appliances and/or
11 equipment is used to replace gas appliances and/or
12 equipment. TECO did not "demonstrate" the calculation;
13 they merely referenced, again, the same information
14 sources. TECO should have submitted the actual
15 calculations in the form which they utilized; hopefully,
16 they will do so when they submit their revised or expanded
17 interrogatory responses.

18
19 Q: What, if anything, do you propose to do to address these
20 qualifications and limitations?

21 A: Peoples is advised that TECO is in the process of preparing
22 either revised interrogatory responses, or an addendum to
23 its previous interrogatory responses, in which it will
24 provide additional detail regarding the sources and
25 calculations underlying its advertisements. Peoples
26 proposes (via a motion for leave to file supplemental

DIRECT TESTIMONY OF VERNON I. KRUTSINGER

1 Q: Do you have any specific comments with respect to specific
2 TECO advertisements?

3 A: Yes. As to TECO's Attachment 1 to its responses to the
4 Staff's interrogatories, I have the following comments.
5 First, this advertisement states three (3) times on one
6 page "without the hot air" -- the apparent implication is
7 that the gas industry is promulgating "hot air" as concerns
8 the merits of gas water heating. "Hot air" is generally
9 associated with false and/or misleading information. Since
10 the gas industry, and particularly Peoples Gas System, is
11 not promulgating false or misleading information concerning
12 gas water heating, I believe that this advertisement
13 represents an effort by TECO to create false impressions
14 regarding gas utilities' advertising.

15 Second, this advertisement refers to electric water
16 heating as "flameless operation" in the context of safety.
17 The strong implication within this advertisement is that
18 gas water heating is unsafe because of the flame. Unless
19 TECO can produce information which supports their
20 implication and claim that gas water heating is less safe
21 than electric water heating and attribute this unsafe
22 condition to the "flame", then this, too, represents false
23 or misleading information by TECO. Third, this
24 advertisement refers to "no burner maintenance" associated
25 with electric water heating, with the apparent implication
26 that the heating element and/or the gas vapor compression

DIRECT TESTIMONY OF VERNON I. KRUTSINGER

1 system (heat pump water heater) require less and/or no
2 maintenance as compared to the gas burner. Unless TECO can
3 produce information which supports this implication or
4 claim, then this represents false and/or misleading
5 information by TECO. Fourth, the latest and most efficient
6 gas water heaters do not have pilot lights which "burn 24
7 hours a day, 365 days a year" as TECO states in the
8 advertisement. The gas water heaters which do have pilot
9 lights are more efficient than electric resistance water
10 heaters when compared on a complete fuel cycle basis; most
11 of the energy consumed by the pilot light is captured and
12 used to heat water, so the inference of the TECO
13 advertisement that the pilot light causes the gas water
14 heater to be less efficient and, also, less safe than the
15 electric water heater, is false and misleading. Fifth,
16 TECO's statement that electric water heating is "clean for
17 your home and our environment" and does not create
18 "emission in your home" because "Tampa Electric uses state-
19 of-the-art cleaning equipment and systems at its power
20 plants" is false and misleading. TECO's power plants are
21 the single largest contributor of environmental pollutants
22 within Hillsborough County, and the pollution emanating
23 from the TECO power plants infiltrates every home in the
24 County. On an annual incremental basis, an electric
25 resistance water heater produces the following:
26 a) 5,042 times as much SO2 as a gas water heater;

DIRECT TESTIMONY OF VERNON I. KRUTSINGER

- 1 b) 11.05 times as much NOx as a gas water heater;
2 c) 36 times as much TSP as a gas water heater;
3 d) 2.4 times as much CO as a gas water heater; and
4 e) 3.14 times as much CO2 as a gas water heater;

5 Note, too, that these are national average values
6 based upon a fossil fuel generation mix of 52% coal and
7 TECO is over 95% coal so the actual TECO values will be an
8 order of magnitude greater than these national values.
9 Reference is the EPA "Compilation of Air Pollutant
10 Factors", 3d Edition.

11 TECO's participation in the "Pollution Credits" market
12 is as a net purchaser as opposed to a net seller of these
13 credits. This allows TECO to exceed the level of
14 atmospheric pollution within its service area without
15 adding expensive emission control equipment at the power
16 plants which are referenced in this advertisement and
17 described as "state-of-the-art and clean". Since TECO's
18 average power plant is neither "state-of-the-art" nor
19 "clean", and since a comparison of full-cycle emissions
20 (full fuel-cycle) is the perspective of the advertisement,
21 this advertisement is blatantly false and misleading.

22 This TECO advertisement states that "heat pump water
23 heaters can slash electric water heating energy use and
24 cost by up to 66 percent. Giving you all the hot water you
25 need at one-third of the cost". TECO's answers to Staff's
26 1st set of interrogatories in Docket No. 941165-PU indicate

DIRECT TESTIMONY OF VERNON I. KRUTSINGER

1 an energy savings of 36% (183% reduction in calculated
2 savings) when a heat pump water heater is substituted for a
3 resistance water heater.

4
5 Q: Do you have any comments about TECO's Attachment 2 to its
6 responses to the Staff's interrogatories?

7 A: Yes. TECO's advertisement "Clean Energy - Clean
8 Environment" (attachment #2) states "Look to electric heat
9 pump water heaters....for hot water at two-thirds the cost
10 of....standard electric technologies". This latter
11 advertisement indicates a 200% reduction in calculated
12 electric water heating costs as compared to this
13 advertisement (attachment #1). Either this advertisement
14 is false and misleading, or attachment #2 is false and
15 misleading advertising, or TECO has submitted false and
16 misleading information to the PSC Staff in Docket No.
17 941165-PU.

18
19 Q: Do you have any comments with respect to Attachment 4 to
20 TECO's responses to the Staff's interrogatories?

21 A: Yes. This advertisement states that "much" gas space
22 cooling equipment was replaced with electric equipment at
23 the University of South Florida, and that this has resulted
24 in \$1.8 million in operational savings and lower emissions;
25 however, TECO did not state precisely how much gas
26 equipment was replaced by electric equipment, nor what the

DIRECT TESTIMONY OF VERNON I. KRUTSINGER

1 final mix of gas and electric equipment was, or over what
2 period the claimed savings were realized. This
3 advertisement also states that electric cooling equipment
4 "offers substantial reductions [as compared to gas] in
5 Carbon Dioxide (CO2), Nitrogen Oxides (NOx), and Volatile
6 Organize Compound (VOC) emissions, even considering the
7 power plant." Since the consumption of gas, even in
8 slightly greater full fuel-cycle BTU equivalent amounts
9 than coal, results in significantly less -- in most cases,
10 over 200 percent less -- emission of the pollutants
11 referenced in this advertisement, this advertisement
12 promulgates misleading information.

13
14 Q: Does this conclude your prefiled intervenor testimony?

15 A: Yes, subject to Peoples' request for the opportunity to
16 file supplemental testimony addressing TECO's revised or
17 expanded interrogatory responses, this concludes this part
18 of my testimony.

19

20

21

22

COLD FACTS ABOUT HOT WATER

Residential Customer Brochure
July '94

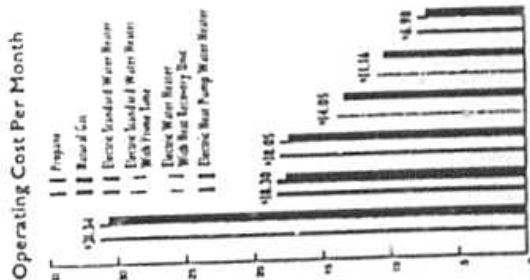
The Full Story on Electric Water Heating: Clean, Safe, Low Cost.

The Complete Look At Costs

The graph at right offers a monthly cost comparison of operating electric, natural gas and propane water heating equipment for a family of three.

Easy Steps to Save With Electric Water Heating

- Receive a \$4 monthly bill credit on your electric bill for joining Tampa Electric's Prime Time energy management program. It allows us to temporarily interrupt service to your water heater during critical times.
- Wrap the water heater tank with an insulation blanket.
- Repair leaky faucets and install flow restrictors.
- Set thermostat at 120° F (140° F for dishwash- er if more than 10 years old. Many newer dishwashers have pre-heat.)
- Turn off water heater when gone 3 days or more.



Cost Calculations: These cost calculations are based on the average price per kilowatt-hour of electricity and average price per therm of gas in 1993, excluding any franchise fees or taxes. The gas cost includes the required monthly 17 Customer Service Charge to provide gas service to the home. Electric meters already have electric service established to provide handmaiden services such as lighting, refrigeration, appliance operation (TV, stereo, clock, hair dryer, etc.), heating, cooling, and cooking, the monthly Customer Service Charge for electric service is not included. Please remember that your household's size and hot water usage habits will greatly determine your actual monthly costs.



Nothing beats the comfort of a steamy, hot shower on a wintry cold morning. Or piping hot water to tackle the toughest cleaning jobs or dirty hands. Or a soothing hot bath to soak away the stress of the day.

And now, advances in electric technologies offer you even more options for low-cost, energy-efficient electric hot water for your home.

So here's the full story on hot water — without the hot air.



Safe for You and Your Family

- Flameless
- No burner maintenance

Electric water heaters offer flameless operation. You simply get quick, hot water, all day, all night, at the turn of the faucet. Without keeping a pilot light burning 24 hours a day, 365 days a year.

Electric water heaters also offer you the utmost in appliance safety for you and your family.

Clean for Your Home and Our Environment

- No emissions in your home

With electricity as your energy source, you get clean, dependable hot water without creating emissions in your home.

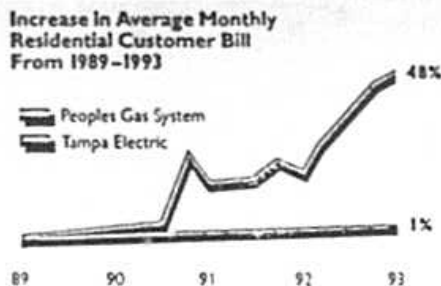
Tampa Electric uses state-of-the-art cleaning equipment and systems at its power plants to reduce these emissions directly at the power plant where your electricity is generated. So that we deliver, clean, efficiently produced electricity right to your home whenever you need it.

Low Cost and Stable Price

Electricity prices have changed very little in recent years. And we expect them to remain stable in the decades ahead. Because Tampa Electric relies on coal, the most abundant fuel source available in our nation.

This means Tampa Electric's pricing isn't subject to the volatility of foreign fuel prices or the scarcity of other domestic fuel supplies.

Here's a closer look at the stability of electric and natural gas prices in the past five years:



Based on Florida Public Service Commission's cost of 1,000 kilowatt hours of electric power and 30 therms of natural gas used for a Florida residence. Data available through mid-1994 shows Tampa Electric's prices had increased by 2.1% and Peoples Gas by 41.2% over 1989 levels.

New Electric Technologies Save Energy and Money

- Heat Pump Water Heaters
- Heat Recovery Units

A new generation of "heat pump water heaters" can slash electric water heating energy use and costs by up to 66 percent! Giving you all the hot water you need at one-third the cost.

Or, consider adding a "heat recovery unit" to your central heating and air conditioning system to help produce hot water. This special technology captures the exhaust heat from your electric heating and cooling equipment to generate hot water — providing an essentially free hot water supply during the summer.

The Complete Story on Hot Water Without the Hot Air

If you'd like more information on water heating technologies and energy costs, give us a call at 228-4128.

We want you to have the full story on water heating — without the hot air — so you can make the best energy choice for your family and home.





**HOW ELECTRIC
TECHNOLOGIES
CAN HELP
YOUR BUSINESS
TAKE OFF...**

**A HOT TECHNOLOGY
FOR YOUR BUSINESS'S
COOLING NEEDS:
ELECTRIC COOLING.**

*Today's hottest choice for cooling
has been around for half a century.*

*For more than 50 years, electric cooling
systems have been the technology of
choice for small and large commercial
cooling installations.*

**...WITH
CLEANER, MORE
RELIABLE AND
MORE EFFICIENT
ENERGY.**

Our energy
you on
work for
energy-
from in
equipm
All at n
Call us
813-225

Electric technologies have powered the
space-conditioning market since the 1940s,
and today electric equipment remains the
most efficient and economical choice for
cooling.

In 1996, more than 95 percent of building
cooling systems in the United States were
electric driven.

Continuing technology and efficiency
improvements make electric systems the
number one choice of engineers, architects
and building owners.

ologies can play a key
ing your business's
a number of areas
ns:

ament
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aste disposal
urine

Denver physical therapy "Gardens" "Wright"
by "Wood" building conservatory by
Bob Wasielewski, Culinary Cypress Gardens



Stories of success
See how these two area
businesses are profiting
from their choice for
cooling:

• **Over the past three years, the University of South Florida (USF) in Tampa has installed 3,100 tons of high-efficiency electric cooling. Much of it replaced gas equipment.**

Faced with rapid growth and shrinking budgets, USF needed to control its capital expenditures and lower its operation and maintenance costs.

The electric chillers installed at the university have resulted in reduced initial cost, enhanced reliability, lower emissions and \$1.8 million in operational savings.

• **At Cypress Gardens in Winter Haven, electric cooling technologies took flight at its new "Wings of Wonder" butterfly greenhouse conservatory, generating a perfect climate and substantial savings.**

The new multi-million-dollar attraction houses countless varieties of butterflies and plants. Cypress Gardens had a critical need for a reliable space-conditioning system for the exhibit's winged wonders and visitors.

Tampa Electric worked closely with Cypress Gardens engineers to evaluate the design and cost-effectiveness of various gas and electric alternatives. Cypress Gardens selected an 85-ton electric chiller for Wings of Wonder – a choice that brought down installation costs, generates \$8,500 in annual savings, and assures trouble-free operations.



THE ADVANTAGES

Electric cooling technology offers:

• Lower installation costs

The installed cost of electric cooling is significantly lower than for absorption and engine-driven systems.

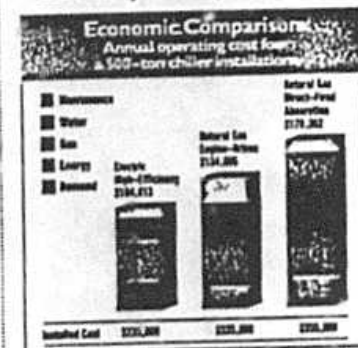
• A long-standing record of high reliability

Maintenance costs for electric systems are lower than for fuel-fired applications.

• Reduced energy use

Electric cooling saves up to 75 percent of the energy used on site versus fuel-fired equipment. And electric cooling results in substantial energy savings even when you consider the energy used at the power plant to produce electricity.

• Lower operating costs



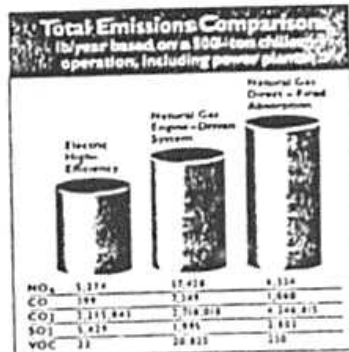
• Lowest lifecycle costs

Lower installation and operating costs coupled with reduced maintenance requirements make electric

technologies the most cost-effective approach to your cooling needs.

• A cleaner environment

These high-efficiency electric technologies carry significant environmental advantages over gas. There are zero combustion emissions at the point of use. And most electric cooling equipment, particularly chillers, offer substantial reductions in Carbon Dioxide (CO₂), Nitrogen Oxide (NO_x) and Volatile Organic



Compound (VOC) emissions, even considering the power plant.

And that's especially important today with growing environmental concerns over global climate change, acid rain, clean air and other issues.

• Available with environmentally friendly refrigerants.

Older electric centrifugal chillers can often be modified to accept the new, CFC-free refrigerants, and conventional refrigerants will still be usable for many years. And the opportunity to replace old, inefficient equipment with a new, high-efficiency electric chiller may be very attractive.

Electric systems offer you maximum flexibility in a fast-changing business environment. They're the hot choice to keep cool.

CLEAN ENERGY FOR A BETTER BOTTOM LINE

Electricity is powering America toward a stronger economy and a cleaner environment.

The link is simple: Electric technologies often are much more energy efficient than the fossil-fuel burning processes they replace. And they improve product quality and boost productivity.

At Tampa Electric, we'll work with you to evaluate options and design an energy plan that will help you tap

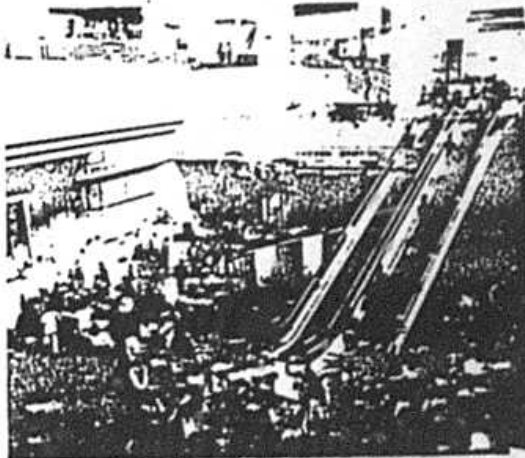
into the powerful business resource of energy-efficient technologies, no matter what size your business.

Consider the full picture when weighing electricity-versus-gas for your cooling, heating and other equipment needs.

Think about your:

- Initial investment in the equipment
- Operation and maintenance costs
- Fuel/energy costs
- Environmental aspects

Over the long run, electricity offers the best energy value.



The Tampa Convention Center, which hosts events ranging from computer expos to car shows, has installed high-efficiency electric cooling equipment to provide a comfortable meeting place for its thousands of convention-goers each year.

GIVE YOUR BUSINESS THE POWER TO STAY AHEAD OF THE COMPETITION.

FILL OUT THIS CARD AND RETURN TO US TODAY!

Yes, I'd like more information about high-efficiency electric technologies.

Please contact me to arrange a free on-site analysis by Tampa Electric energy experts.

I'm interested in more information about high-efficiency electric technologies for these applications:

Space Cooling & Heating Electronic Process Control Automation

Manufacturing Cooling Environmental

Other (Specify) _____

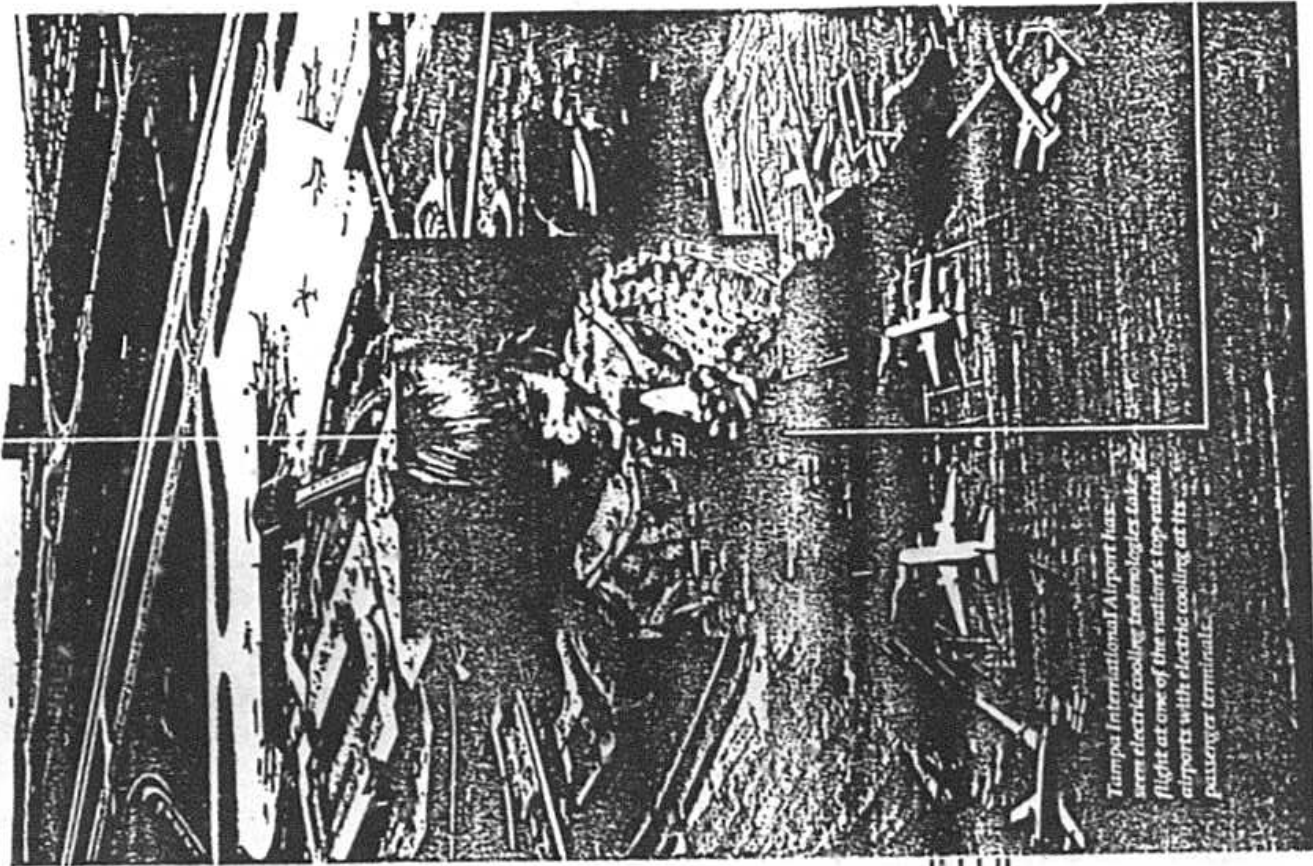
NAME _____ TITLE _____

COMPANY _____

TELEPHONE AREA _____ NUMBER _____

CELL _____

BUSINESS ADDRESS _____ STATE _____ ZIP _____



Tampa International Airport has
seven electric cooling towers that take
flight at one of the nation's top-rated
airports with electric cooling at its
passenger terminals.



NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL
FIRST CLASS MAIL PERMIT NO 133 TAMPA FL

POSTAGE WILL BE PAID BY ADDRESSEE

ATTN COMMERCIAL MARKETING P5
TAMPA ELECTRIC COMPANY
PO BOX 111
TAMPA FL 33601-9829



GET THE POWER TO SUCCEED

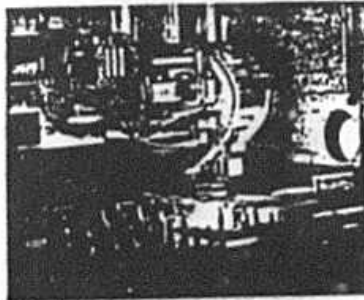
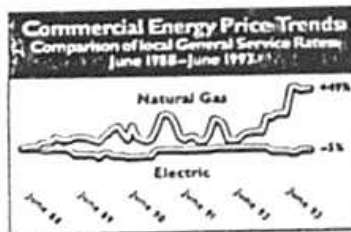
From laser cutters to electronic noise mufflers to FlashBake ovens – hundreds of new and emerging electric technologies are entering the market, and they offer effective and economic energy solutions to challenges facing your business.

Over the long term, electricity is the more economical energy option when compared to other fuels.

Electric technologies can play a key role in improving your business's bottom line in a number of areas and applications:

- Water treatment
- Automation
- Air quality
- Medical waste disposal
- Manufacturing
- Variable speed motors

So, when you're considering changing out, replacing or upgrading your older, inefficient equipment, think



Left:
A high-tech, high-precision electric laser cuts time, money and energy on jobs for business customers of the Tampa Bay Laser Center in Tampa.

about tapping the power of electricity – your best energy choice – and call us at Tampa Electric.

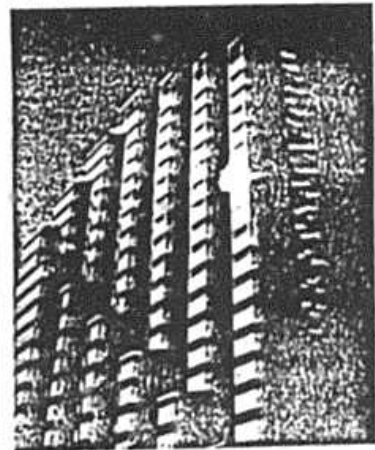
Our energy experts will consult with you on new technologies that can work for you. We'll analyze the energy- and money-saving potential from installing energy-efficient equipment at your business.

All at no cost to you.

Call us at 813-228-4508 or 813-228-4163. Or, just fill out the attached postage-paid reply card and return it to us.

WE'LL GIVE YOU THE POWER TO SUCCEED AND KEEP YOUR COMPETITIVE EDGE.

Below:
Electric cooling systems are the hot choice in downtown Tampa high-rises to keep the office towers cool.



TAMPA ELECTRIC
A TECO ENERGY COMPANY

We Put Energy Into Business Solutions

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a true and correct copy of the foregoing has been served by hand delivery (*) or by United States Mail, postage prepaid, on the following individuals this 25th day of January, 1995:

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Florida Public Service Commission
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ROBERT SCHEFFEL WRIGHT