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April 29, 1996

HAND DELIVERED

IN REPLY REFER TO:

Tallahassee

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

Re: Approval of Demand-Side Management Plan of
Tampa Electric Company; FPSC Docket No. 941173-EG

Dear Ms. Bayo:

Enclosed for filing are fifteen (15) copies of Tampa Electric Company's Demand Side Management Monitoring and Evaluation Plan.

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
James D. Beasley

- ACK _____
- AFA _____
- APP _____
- CAF _____ JDB/pp
- CMU _____ cc: Roland Floyd (w/enc.)
- CTR _____ Mark Futrell (w/enc.)
- EAC Futrell All Parties of Record (w/enc.)
- LEG 1 Angie Llewellyn (w/enc.)
- LIN 5
- OPC _____
- RCH _____
- SEC 1
- WAS _____
- OTH _____

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Tampa Electric Company's Demand Side Management Monitoring and Evaluation Plan

Introduction

Tampa Electric Company has developed this Demand Side Management (DSM) Monitoring and Evaluation (M&E) Plan in response to requirements established in Docket No. 941173-EG. The DSM programs identified in this M&E plan were filed in February 1995 to meet the DSM goals established by the Florida Public Service Commission (FPSC) for Tampa Electric. The programs are as follows:

- Residential Alternate Audit (Free),
- Residential Conservation Service (RCS) Audit,
- Residential Mail-in Energy Audit,
- Residential Ceiling Insulation,
- Residential Duct Repair,
- Residential Heating and Cooling,
- Residential Load Management (Prime Time),
- Commercial/Industrial Audit (Free),
- Comprehensive Commercial/Industrial Audit (Paid),
- Commercial Mail-in Energy Audit,
- Commercial Indoor Lighting,
- Commercial/Industrial Load Management,
- Commercial Standby Generator, and
- Conservation Value.

Tampa Electric Company's approach to M&E is driven by a desire to be prudent with the resources needed to accomplish the work. Programs that have cost-effectiveness calculations just slightly greater than one will receive less of an effort than those with higher benefit/cost ratios to avoid creating non-cost-effective programs. Also, programs that offer relatively small demand and energy savings should not receive a significant amount of evaluation. Therefore, the greater the savings, the higher the intensity of evaluation.

A program's history of evaluation may also dictate the level of activity it will receive. For example, the residential load management program entitled Prime Time is quite mature having been established in 1983. Since that time, extensive load survey data has been accumulated for sample sets as well as the entire participant population. This eliminates the need to "re-invent the evaluation wheel" for purposes of impact evaluation (defined below).

Typically, M&E plans center around two distinct areas - process evaluation and impact evaluation. Process evaluation is an examination of how well a program has been implemented including the efficiency of the delivery mechanism, the level of Customer satisfaction including the usefulness and quality of the services delivered, and the effectiveness of promotional activity. Impact evaluation is a determination of the change in demand (KW) and energy (KWH) consumption achieved through

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program participation. At first glance, these areas may appear to be unrelated; however, upon detailed examination, it becomes obvious they are not mutually exclusive.

Tampa Electric Company's plan is no different. It is designed to examine each of these two areas and utilize a tracking database as well as other data sources such as the Customer Information System (CIS), survey methodologies and instruments, equipment manufacturers' literature and specifications, and metering data. The details are delineated below as they relate to the various programs in the company's DSM Plan.

Process Evaluation

As previously stated, Customer satisfaction (usefulness and quality of services rendered) is a key aspect of process evaluation. Mail, on-site and telephone surveys are planned to be the primary instruments used for this determination.

Post-participation surveys will be geared toward identifying the Customer's satisfaction with the company's staff responsible for program delivery (such as Audits) as well as contractors responsible for service and product/equipment installation (Heating & Cooling, Ceiling Insulation, Duct Repair, Prime Time, Commercial Indoor Lighting, C&I Load Management, Standby Generator). With this survey activity, Tampa Electric should also have the opportunity to determine the effectiveness of various program promotional activities.

Just as it is important to survey participants, there is a need to survey non-participants. This effort should provide insight as to why Customers have chosen not to participate and may suggest a change is necessary to the promotional and/or delivery mechanism. Additionally, information to verify program baselines can be gathered.

Integral to the process evaluation is an examination of the service delivery cost for the company and any costs incurred by the Customer from their participation. The tracking database and the company's accounting system that provides resource costs per program are utilized to provide this data for all programs.

Since seven of Tampa Electric's programs (Heating & Cooling, Ceiling Insulation, Duct Repair, Prime Time, Commercial Indoor Lighting, C&I Load Management, Standby Generator) involve contractor participation, the good working relationship between the company, the trade allies and the Customer is vital. Surveys of the trade allies assist with this assessment and should provide input as to what is available or changing in the marketplace. Also, how some Customers make their choices concerning program participation should be revealed.

Survey instruments play an important role in process evaluation and through their usage, Tampa Electric Company will also seek data to evaluate persistence and free ridership. Currently, free ridership is an issue for verification with the Heating and Cooling, Ceiling Insulation and Commercial Indoor Lighting Programs. The derivation of this data is expected to come from trade ally, participant and non-participant surveys.

Impact Evaluation

Impact evaluation is the process of determining the change in demand (KW) and energy (KWH) consumption accomplished through a DSM program. Tampa Electric Company has and will continue to take a comprehensive approach to this area of M&E. Typical methodologies utilized include sub-metered sample groups, billing analysis of participants versus control groups, pre- and post-billing analysis of participants, and savings estimation models and engineering estimates adjusted by weather and actual field data collected.

Sub-metering Customers provides one of the most accurate techniques for identifying consumption changes. This method has been applied to the Prime Time, Heating and Cooling and Duct Repair Programs. For Prime Time, data collection occurs for loads such as air-conditioning, heating (strip heating and heat pumps), water heating and pool pumps. This data is used for calibration purposes when compared to our system level reductions attained through winter and summer notch tests. Sub-metered data also gives the load differential between strip heat and heat pump equipment for use in the Heating and Cooling Program.

Billing analysis can be of two types. First, groups of participants are compared to groups of non-participants (control groups) for the same billing period. A significant benefit to this method is the mitigation of weather impacts to the analysis since both the control group and participant group are exposed to the same weather conditions. Generally, the period of evaluation can be annual or seasonal depending on the measure promoted by the program. This methodology readily lends itself to our residential and commercial energy audit program evaluations.

The second type of billing analysis is a pre- and post-billing evaluation. This method examines the differential in consumption before and after the measure is installed. Pre- and post-analysis will be utilized in conjunction with sub-metered data for the Duct Repair Program.

Demand and energy reductions generated through a simulation model typically are adjusted for actual field data collected for a specific program. Field data stored in our tracking database provides input to the model which allows for an engineering analysis to be performed for the Ceiling Insulation, Heating and Cooling and Duct Repair Programs.

Program design can create a built-in self-monitoring feature when planned correctly. Tampa Electric has three programs with this characteristic, namely, Standby Generator, Commercial/Industrial Load Management and the Commercial Indoor Lighting Programs. The Standby Generator and Commercial/Industrial Load Management Programs require metered data from all participants to generate their monthly credits. This gives an accurate accounting for the savings gained from all Customers in both programs.

The Commercial Indoor Lighting Program requires the calculation of demand savings attained through the installation of permanent, high-efficiency lighting technologies over the existing lighting fixture configurations. This is used to establish every Customer's incentive, therefore the lighting demand reduction is calculated for the entire program. The energy reduction is then identified by the hours of operation and can be determined by the use of hourly data loggers sensitive to illumination.

Tampa Electric Company offers commercial/industrial Customers an opportunity for customized installation of measures to qualify for incentives through our Conservation Value Program. These measures are quite unique to the Customer's operation and require an individual analysis for cost-effectiveness. Additionally, verification of savings is a pre-requisite for incentive payments; therefore, program evaluation will be done on a case by case basis.

M&E Plan Integration

When the results of an M&E plan are compared to previous estimates of programs contained in a DSM plan, insight is gained as to the direction that should be taken. Tampa Electric Company will be able to effectively refine decisions on marketing strategies, service delivery mechanisms, program standards and overall program cost-effectiveness for value-added contributions to both the company and the Customer. Furthermore, the plan results will provide annual data necessary to identify program accomplishments in comparison to annual goals.

Projected Evaluation Costs

<u>Residential Programs</u>	<u>Annualized Cost</u>
Audits	\$ 7,828
Ceiling Insulation	\$ 5,023
Duct Repair	\$34,798
Heating and Cooling	\$11,939
Prime Time	<u>\$46,418</u>
Total:	\$106,006
<u>Commercial Programs</u>	
Audits	\$ 3,044
Indoor Lighting	\$ 7,539
C/I Load Management	\$ 1,562
Standby Generator	\$ 1,464
Conservation Value	<u>\$ 3,211</u>
Total:	\$16,820