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December 8, 1995

ORIGINAL
FILE COPY

Blanca Bayó, Director
Division of Records and Reporting
Florida Public Service Commission
4075 Esplanade Way, Room 110
Tallahassee, Florida 32399-0850

Re: Florida Power & Light Company's Demand Side Management Monitoring and Evaluation Plan 941170-EG

Dear Ms Bayó:

Enclosed for filing on behalf of Florida Power & Light Company are the original and fifteen copies of the FPL DSM Evaluation Plan 1996-2003. This is the "updated monitoring plan identifying the specific approaches implemented for each program" required in Order No. PSC-95-0691-FOF-EG.

If you or your staff have any questions regarding this transmittal, please contact me.

Very truly yours,

Charles A Guyton

Charles A. Guyton
Attorney for Florida Power & Light Company

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FPL DSM EVALUATION PLAN
1996-2003

I. OVERVIEW

This document provides the plan for the evaluation of FPL's Demand-Side Management (DSM) Programs through the year 2003. The programs covered by this document are consistent with those filed in FPL's Demand Side Management Plan Document, January, 1995 (Docket No. 941170-EG) and include:

Residential Building Envelope
Residential Duct System Testing & Repair
Residential Air Conditioning
Residential Load Management (On Call)
Residential Heat Recovery Water Heating (HRU)
Residential Conservation Survey (RCS)
Commercial/Industrial HVAC (DX, Chiller, TES, Ventilation)
Commercial/Industrial Building Envelope
Commercial/Industrial Efficient Lighting
Commercial/Industrial Motors
Commercial/Industrial Off Peak Battery
Commercial/Industrial Load Control
GS Load Control
Business Custom Incentive
Business Energy Evaluation (BEE)

The level of evaluation efforts for each program will be based on three factors:

1. The amount of program dollars available for evaluation. This amount varies by program based on the cost-effectiveness calculation associated with each program. Because some programs have benefit/cost ratios very close to one, they can only afford minimal evaluation activities and expenses before they are no longer cost-effective.

2. The MW and GWH savings associated with each program. Those programs that are providing the majority of the savings will also receive a majority of the evaluation efforts. It is not cost-effective to have a high level of evaluation efforts for a program that is providing minimal aggregate savings relative to other programs.

3. The level of evaluation efforts performed up to this point. If a program has already had a significant amount of evaluation efforts conducted, and the new program does not significantly differ from the current program, the level of additional evaluation will be less than if no evaluation had been performed.

Although the programs listed above include the Residential Conservation Survey and the Business Energy Evaluation, FPL does not claim any KW or KWH savings for these programs and therefore no evaluation activities will be conducted. In addition, the Business Custom Incentive program will be evaluated on a case by case basis due to the uniqueness of the measures installed by the program.

The overall goal of FPL's Evaluation Plan is to maximize the productivity of DSM investments in both enhancing customer value and creating utility resources. In order to meet this overall goal, FPL's evaluation plan is segmented into three evaluation categories.

1. Impact Evaluation - Measures actual KW and KWH savings.

2. Market Evaluation - Assesses the effectiveness of the current and potential program designs.

3. Process Evaluation - Assesses the effectiveness of the current and potential program administration and life cycle management.

FPL's 12 step analysis approach is described in detail on the following pages. Steps 1-5 and 9-10 provide information that is included in the impact evaluation. Steps 1-4, 6-7, 11 and 12 provide information that is included in the market evaluation. Steps 1, 4, and 8 provide information that is included in the process evaluation.

II. ANALYSIS APPROACH

This section discusses the approach which FPL proposes to use in conducting its DSM program evaluations.

STEP 1 - SPECIFY CUSTOMER SEGMENT, SELECT ANALYSIS CATEGORY, AND BUILD CROSS REFERENCE (XREF) FILE

This step consists of analyzing program-related reports, analyzing participant tracking data, and conducting staff interviews. These activities will be used to establish program evaluation objectives and specify customer segmentation. Doing this at the beginning of the evaluation sets the stage for all activities that follow and allows for an efficient and effective use of the available resources. This step will be conducted on an bi-annual basis in order to update the evaluation objectives as each program matures.

Also, as part of this step, FPL's Cross Reference (XREF) File will continue to be maintained and updated. The XREF File integrates information from different data sources, such as the Customer Information System (CIS), DSM Program Tracking System, Telephone/Mail Surveys, On-Site Surveys, and Metering Data. The XREF File is the key analysis dataset which provides information for segmentation, sample design, and sample implementation. In addition, because the XREF File contains information on almost every customer in FPL's service territory, it can be used to identify the most cost effective customers for target marketing.

This step will be conducted for each of FPL's DSM programs.

STEP 2 - SPECIFY BASELINE

This step consists of performing literature reviews, trade ally surveys, and target market surveys. These activities are used to develop a baseline for the program measure. The baseline for a DSM program is the action the customer would have taken in the absence of the program. Although baselines for each program were defined and used in the calculation of the DSM Goals estimates, these baselines will continue to change over time. In addition, new data sources will be available over the life of the programs that will allow FPL to update their respective baselines.

This step will be conducted for each of FPL's DSM programs.

STEP 3 - SPECIFY GROSS ENERGY/LOAD IMPACT AND NET ANALYSIS METHODS

In this step, program components are matched to specific gross per participant energy/load impact (excludes free-ridership and market transformation effects) and net analysis methods (the method to determine the effects of free-ridership and market transformation). Program components will vary by program. For example, program components in the residential HVAC program would include SEER level and AC size while program components for the residential Building Envelope program would include different levels of insulation. The methodology selected for each program is based on the level of evaluation prioritization criteria described on page 1. Gross per participant energy/load impact methods are described in detail in Steps 9 and 10. Net analysis methods are described in detail in Step 7.

This step will be conducted for each of FPL's DSM programs.

STEP 4 - DATA COLLECTION

This resource intensive step is the activity in which the majority of FPL's efforts will be expended. Each data collection activity will be conducted on a sample of customers and includes:

- *Post-Participation Telephone Surveys* - Customer follow-up surveys, fielded shortly after program participation, are designed to gather the process- and market-evaluation-oriented data (reasons for participation, satisfaction with the installation contractor, etc.) that are best obtained immediately after the DSM measure is installed. ***These surveys will be conducted for all the programs.***

- *Trade Ally Surveys* - In person and telephone interviews are conducted with key trade allies, primarily to provide input to both the market and process evaluations.
  Trade Ally surveys will be conducted for the Residential Building Envelope, Duct Test & Repair, and Air Conditioning programs and the C/I HVAC, Building Envelope and Efficient Lighting programs.

- *Stated Preference Survey* - Stated preference studies elicit customers' preferences about hypothetical products. The data are analyzed to determine which product features are more important to customers. In order to estimate the baseline adoption of measures in the absence of a program, these studies can be used to forecast what would have happened had the product features associated with a DSM program not been available. In addition, the results can be used to determine which program features are most cost-effectively inducing participation.
  Stated Preference surveys will be conducted for the Residential Building Envelope, Duct Test And Repair, Air-Conditioning, and On Call programs and the C/I HVAC, Building Envelope, Efficient Lighting, C/I Load Control and GS Load Control programs.

- *Post-Impact Survey* - Post Impact telephone surveys are conducted to support the impact and - to a lesser extent - market and process evaluations. Impact-related questions concentrate on verifying participation, assessing equipment saturation, and determining changes that have occurred in the household/business between the pre- and post-treatment period.
  Post-Impact surveys will be conducted for all programs.

- *Post-Impact Follow-up Survey* - Post-Impact follow-up surveys are designed to track longitudinal samples of program participants so that change questions and long-term persistence, long-term process and market issues can be addressed.
  Post-Impact Follow-up surveys will be conducted for all residential programs except HRU and all C/I programs except Motors and Off-Peak Battery Charging.

- *Nonparticipant Survey* - Nonparticipant surveys to be conducted for a system-wide sample of nonparticipants provide data for all aspects of evaluation, especially in helping to establish baseline assumptions. ***These surveys will be conducted for all programs.***

- *Nonparticipant Follow-up Mailer for Equipment Change Detail* - This survey process will be used to obtain market profile information (i.e., HVAC equipment specs) vital to identifying free drivers for market analyses. The process requires careful coordination of activities through a tracking database. An internal tracking system will ensure that customers completing core surveys are easily followed through the remainder of the telephone-mail-telephone survey project.
This mailer will be conducted for the Residential Air Conditioning Program and the C/I HVAC and Lighting programs.

- *Site Surveys* - Site surveys supplement survey and interview data with impact- and process related information, including quality of installations and data required to support detailed building simulation models. On-site data provide visible evidence of implementation practices, interaction between customers and program implementors, potential opportunities for energy-efficiency improvements, persistence of measure use, and the level of understanding and attitudes customers have about energy-efficiency options.
Site surveys will only be conducted for programs that have end-use metering. These include the Residential Building Envelope, Duct Test and Repair, Air Conditioning, and On Call programs and the C/I HVAC, Building Envelope, Lighting, Off-Peak Battery, C/I Load Control and GS Load Control programs.

- *End-Use Metering (EUM)* - End-use load data are the most accurate metered data that can be used for impact evaluation. End-use metering will be targeted to FPL's DSM programs which contribute significant summer on-peak impacts.
Participants will be metered for the Residential Building Envelope, Duct Test and Repair, Air Conditioning and On-Call programs and the C/I HVAC, Building Envelope, Lighting, Off-Peak Battery, C/I Load Control, and GS Load Control programs. In addition, heat recovery units (HR) have been and will continue to be monitored on an additional end-use metered channel for participants metered in other program samples. This will be used to evaluate the HRU program, although these end-use metered participants may not be part of the actual program.

STEP 5 - HELP DISAGGREGATION

Air conditioner loads were disaggregated from FPL's Rate Load Research (RLR) sample using the Heuristic End-Use Load Profiler (HELP™). Using HELP to disaggregate whole-premise loads is a cost-effective method for obtaining reliable air conditioner load profiles. HELP has been validated in numerous studies, where the results were compared to actual metered air conditioner data.[1] We will continue to use the results of the HELP study conducted for FPL in 1994 to provide baseline information for program segments that are not represented in the End-Use Metered sample. For example, limited data are available for the mobile home and single family attached building types. For these segments, the baseline data created from FPL's RLR sample can fill in areas where information is not directly available from evaluation results. Over time, the end-use and survey data resources will be rotated into segments where participation is significant, reducing the need over time to use the HELP based results.

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[1]Margossian, Bedig 1994. "Deriving End-Use Load Profiles Without End-Use Metering: Results of Recent Validation Studies." Demand and Load Shapes - *Proceedings from the ACEEE 1994 Summer Study on Energy Efficiency in Buildings.*

The Help Disaggregation will be conducted for the Residential Building Envelope, Duct Test & Repair and Air Conditioning programs.

STEP 6 - MARKET ANALYSIS: EXISTING PENETRATION

Market analysis activities provide: assessments of existing market penetration; estimates used to calculate program net impacts; and estimates of penetration under alternative program scenarios.

Analyzing existing penetration patterns assists in analyzing differences and similarities between participants and nonparticipants. Furthermore, segment-based penetration estimates measure the success of the program in reaching its optimal target market, thereby ensuring the cost-effectiveness of the program.

Profile Participants and Nonparticipants

Current market penetration will be analyzed to establish the participant and nonparticipant activity under current market conditions. Profiles of program participants and nonparticipants will be developed to identify key distinguishing demographic or market segment features of each group. Data used in this analysis include telephone survey data, tracking system participation records, staff surveys, and vendors surveys.

Estimate Existing Penetration of Target Market

This assessment builds on data collected for the participation profiles and adds target market specification, technical eligibility screens, and CIS data to estimate the target market size.

Step 6 will be performed for all programs.

STEP 7 - MARKET ANALYSIS: NET PARTICIPATION/ALTERNATIVE SCENARIOS

The goals of net analysis are to determine a program's net effect on the market to date and to predict how the program will affect the market in the future. Net impacts are the difference - over the utility's planning horizon - between demand/usage with and without the program in place. The net-to-gross ratio for a program is the ratio of net impacts to gross impacts. Net impacts incorporate market transformation and free-ridership effects. Free-riders are program participants who would have purchased the energy efficient technology even if the utility program were not in place. Market transformation is the effect the presence of the utility program had on accelerating the availability of the technology due to increasing customers' awareness of the technology.

Methods for analyzing net benefits range from relying on customer self-reports of actions without the program to in-depth market assessments and market penetration modeling.

Self-Reported Data

For programs with limited participation, responses from customer telephone surveys (participants and nonparticipants) and vendor surveys will be used to establish market trends and program free ridership.

These self-reports of customers' purchase plans will tend to produce biased estimates of net-to-gross ratios (and program net impacts). Estimation errors occur because of customers' misattribution of equipment efficiency, cognitive dissonance effects when reporting past actions, the hypothetical question bias that often accompanies "what if" questions, and the assumption that free drivership is negligible.

This step will be performed for all programs except the Residential Water Heating Heat Recovery Unit (HRU).

Analysis of Primary and Secondary Data

Assessing the effects of programs on the demand and supply of the targeted technologies through an analysis of available primary and secondary data is many times the cost-effective method recommended to determine retrospective net program impacts, and provide an indication of potential net program impacts. Examples of primary data include research studies that FPL has conducted. Manufacturer's shipping data is an example of secondary data that would be analyzed.

This step will be performed for all programs except Residential HRU, C/I GS Load Control and C/I Off Peak Battery.

Market Penetration Modeling

Running controlled market experiments and then using the results of the controlled experiments as inputs to models of the demand for and supply of targeted technologies (market penetration modeling) is the preferred approach to assessing net program benefits. These regression based purchase decision models are designed to identify and quantify those factors that are likely predictors of customers selecting the energy efficient technology over the baseline. Some examples of these factors include demographics, usage levels, dwelling age, age of old equipment, household size, payback criteria, etc. However, the primary drawback to this approach is that the data needed to calibrate the model is relatively expensive to obtain.

Stated preference studies -- or product concept testing tradeoffs -- gather information about customers' preferences for hypothetical DSM products, and are a key input to market penetration models. Using conjoint data analysis techniques it is possible to predict customer measure adoptions under various scenarios including the scenario of no program incentive. These comparisons of predicted behavior under alternative scenarios are used to estimate customer behavior in the absence of the DSM program, as well as to estimate the effects of alternative program scenarios on the targeted market.

Stated preference analysis will be performed for the Residential Building Envelope, Duct Test and Repair, Air Conditioning and On Call programs and the C/I HVAC, Building Envelope, Efficient Lighting, C/I Load Control and GS Load Control programs. Market Penetration Modeling will be performed for the C/I HVAC, Efficient Lighting, and GS Load Control programs and all Residential programs except HRU.

Calibration of the stated preference/penetration models to actual data will be accomplished as data allows (ideally, data on market activity under a number of different scenarios will be available).

The result of the market analysis will be a ratio that can be applied to the per participant gross kw and kwh impacts to calculate the net kw and kwh impacts for each program. This ratio will include an estimate of both free-ridership and market transformation effects.

STEP 8 - PROCESS ANALYSIS

Process evaluation assesses the effectiveness of the DSM program administration and life cycle management, and ranks the relative effect of product features on customers' overall satisfaction with the program.

The ultimate measure of program performance from the standpoint of process evaluation is customer satisfaction. The effectiveness of various aspects of program design and delivery can be gauged by their impact on the satisfaction of program participants. There are, however, vital aspects of the program process flow which do not directly impact the customer; these too are evaluated. An example of one of the aspects is the internal processing of incentive payments. An integrated set of analysis tools -- including qualitative interview-based assessment and quantitative survey-based statistical modeling -- are employed in process evaluation. Analytical methods are selected based on the level of precision supported by the data and the evaluation objectives. Among the methods used:

- Qualitative analysis will be used for open-ended survey questions and comments.

- Univariate analysis -- for example, examining frequency distributions or summary statistics -- will be used to gauge overall levels of program satisfaction and program delivery effectiveness.

- Bivariate analyses -- such as analysis of variance (ANOVA) and post hoc statistical comparisons -- will be used to investigate differences in survey responses among various segments of the market.

- Multivariate analysis, which involves modeling program satisfaction, will be used to determine the extent to which customer attributes and product features affect customer satisfaction with the program.

Customer Satisfaction Model

Customer satisfaction with a program overall can be explained as a function of features of the program process, customer attributes, and the technology:

- Features of the Program Process. The participants' satisfaction with the program will be affected by features of the program design. Potentially significant factors might include;

  - program information sources and support;

  - customers' program measure selection process;

  - incentives that include rebates and other features affecting the financing or cost of the measure;

  - the quality and time taken for measure installation; and,

  - rebate receipt time.

- Attributes of the Participant. A participant's satisfaction with the program is, in part, dependent upon his personal decision making criteria and expectations about the program. These include but are not limited to the participants';

  - economic concerns, including expected payback, capital availability, and the value placed upon current vs. future financial benefit;

  - environmental orientation or conservation ethic;

  - demographics and dwelling characteristics; and,

  - opinion of the utility and prior experience with similar utility programs.

- Technology. The state of the customers' existing technology and the features of their new technology can also influence program satisfaction. These include:

  - the remaining useful life and efficiency level of the existing or replaced technology;

  - the cost and actual savings of the replacement; and,

  - the measure type, quality, reliability, and performance.

A satisfaction model is developed to identify features of the program process, customer attributes, and technology which have a significant effect on customer satisfaction with the program.

Satisfaction models will be developed for the Residential Building Envelope, Duct Test & Repair, Air Conditioning, and On Call Programs and the following C/I Programs: HVAC, Building Envelope, Efficient Lighting and GS Load Control.

STEPS 9 AND 10 - IMPACT ANALYSIS

Calculating per-participant gross kw and kwh impact estimates is the key step where the intermediate analysis results are combined. The gross impact estimates and program realization rates will be obtained through various methods. The least accurate method consists of using existing engineering algorithms in performing the impact estimates. A more accurate method includes performing engineering analysis based on calibrated engineering models. The most accurate method entails performing statistically-adjusted engineering (SAE) analysis.

In this step, gross impacts are estimated as the following products:

TMY[2] Energy Impact = (Unadjusted TMY kWh Impact) * (SAE Realization Rate)[3]

TMY Demand Impact = (Unadjusted TMY kW Impact) * (Operating Factor).[4]

The major steps that will be undertaken are described below:

- The analysis begins with the specification of the program components and segments. Program components and segments will vary by program. For example, program components in the residential HVAC program would include SEER level and AC size while program components for residential Building Envelope would include different levels of insulation. Program segments for residential programs would include different house types and geographic areas while program segments for commercial programs would include different building types and geographic areas.

- Two key outputs of the load analysis will be used to calibrate engineering models and calculate operating factors which will in turn be used to adjust engineering demand impact estimates.

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[2]TMY - Typical Meteorological Year

[3]SAE Realization Rate - Statistically Adjusted Engineering analysis that provides an indication of the percentage of the predicted savings which can actually be realized through the application of a particular DSM measure within a given program segment.

[4]For a given period, operating factor (OF) is the fraction of the end-use equipment that is operating during the period.

- End-use load profiles derived from metered participants with "operating" units on the appropriate day will be calculated for use in the calibration step in the engineering analysis of demand impacts.

- Seasonal end-use data and/or billing data will be used to calibrate the models for the energy analyses.

- An engineering analysis will then be conducted to estimate unadjusted levels of energy and demand usage prior to and after the installation of the DSM measure(s) for two types of facilities -- prototypical facilities when statistical analyses are being conducted, and each individual metered participant when "unique" engineering-only analyses are conducted.

  - Prototypical facilities will be developed as inputs to the building energy use simulation model using data collected during the on-site inspections.

  - The calibrated models will then be used to estimate electricity usage for "always operating" appliances with efficiency levels corresponding to pre- and post-treatment equipment. The results of these model runs will be specified as gross kWh and kW usage "per unit" of measure (kWh/SEER/Ton, for example), facilitating calculation of participant-specific pre- and post-treatment changes in energy and demand.

- The "per unit" engineering analysis results will then be used to calculate post-participation changes in usage and demand for each program participant.

  - Post-participation changes in energy usage are key inputs to the SAE regression models. The unadjusted kWh engineering estimates - calculated using actual weather data for the post-participation periods - are based on data contained in the participant/nonparticipant survey and FPL's program tracking system. These data will then be combined with the "per unit" engineering estimates to determine post-participation changes for each surveyed participant.

  - Similarly, post-participation changes in demand will be calculated as inputs to the gross demand impact calculation --in which adjustments for behavior are made using the operating factors derived in the load analysis.

These engineering analyses will be conducted on all programs except Residential Load Management (On Call), C/I Load Control, and GS Load Control.

- Statistically adjusted engineering models -- which explain changes in participants' energy usage as a function of the engineering estimates of usage change and other factors that affect energy usage -- will then be estimated.

  - A set of regression-based statistically adjusted engineering models will be used to estimate realization rates on expected changes. This will be accomplished by fitting customer-specific post-participation monthly billing series to engineering estimated usage changes for each key program measure and premise specific variable. In parallel to the SAE analysis input calculations, unadjusted TMY impact estimates will be calculated using the engineering analysis. The method is similar to that used to estimate post participation change, with two exceptions.

1.) Impact estimates will be based on customer-specific data for all participants with valid data in FPL's customer tracking system. The calculation will use the per-unit engineering estimates in the same way as described above for the survey sample.

2.) The TMY impact estimates will be adjusted to the program baseline.

- The unadjusted TMY energy estimates will be statistically adjusted for variations from the engineering assumptions by applying the SAE realization rates. Analogously, the unadjusted TMY demand impacts will be adjusted by applying operating factors. Aggregate gross energy and demand impact estimates will then be calculated by weighting the segment-specific estimates obtained for participants with valid data by the total number of participants in the appropriate segment

Statistically adjusted engineering billing (KWH) analyses will be performed for all Residential programs except On Call. It will also be performed for the C/I HVAC, Building Envelope and Efficient Lighting programs. Statistically adjusted engineering load (KW) analyses will be conducted for the C/I HVAC and Building Envelope programs, and all Residential programs except On Call.

Duty Cycle Approach

The duty cycle approach is specific to direct load control programs, such as the On Call Program. The duty cycle of an appliance is a convenient transformation of the standard kilowatt-hour (kWh) measure of energy use. Given the appliance size, or capacity, in kW of connected load, a duty cycle for a specified time interval is determined by the ratio of the average appliance load to the connected load. Before a duty cycle can be calculated, appliance energy-use data (kWh) must be converted to average appliance load (kW). For a given time interval, t, average appliance loads and average duty cycles are calculated as follows:

$$\text{Average Appliance Load}_t = \frac{\text{Appliance Energy Usage}_t}{\text{time}}$$

$$\text{Average Duty Cycle}_t = \frac{\text{Average Appliance Load}_t}{\text{Appliance Connected Load}}$$

The average duty cycle may be regarded as the percentage of time the appliance was operating during the time interval.

The duty cycle representation of energy use is particularly well-suited to analysis of load control programs because direct load control programs achieve load and energy reductions by altering appliances' natural duty cycles. The effects of load control programs on appliance duty cycles are both direct and indirect. Implementation of a cycling or shedding strategy directly affects an appliance's duty cycle by limiting and scheduling its operation during the control period. Operation of load control indirectly affects appliance duty cycles by inducing changes in the intensity of appliance use before and after the hours of control (i.e., precooling and payback).

The duty cycle approach will be performed for the Residential On Call and C/I GS Load Control programs.

The result of Steps 9 and 10 will be per participant gross kw and kwh impacts for each program.

STEP 11 - ESTIMATE NET IMPACTS AND GENERALIZE TO ALL PARTICIPANTS

This analysis step consists of applying the Net-To-Gross Ratio, calculated in the market evaluation described in Steps 6 and 7, to estimate the net program impacts. The per-unit impact results -- obtained in Steps 9 and 10 -- will also be aggregated across all participants to obtain a program- or segment-level impact estimate.

Net impacts will be estimated for all programs.

STEP 12 - CONDUCT INTEGRATED ANALYSIS TO DEVELOP RECOMMENDATIONS FOR PROGRAM REDESIGN

Comparison between the net program impact estimates and the original program design estimates will be conducted to yield the realization rate. The realization rate will be computed at both program and the segment level. It provides an indication of the percentage of the predicted savings which can actually be realized through application of a particular DSM measure within a given program segment. A realization rate close to one implies that the original estimate provided an accurate forecast of the savings attributable to a given program segment. A realization rate significantly lower than one implies that the original design estimates overstate the actual impacts while a realization rate greater than one implies that the original design estimates understate the actual impacts.

This step will be performed for all programs.

If the realization rate for a program segment is found to be less than one, it is important to understand why. An advantage of the proposed integrated evaluation approach is that it supports detailed investigation of this important question. Based on the evaluation results, FPL will develop specific recommendations to improve the impact calculation, program marketing, delivery, and program cost effectiveness. Specific recommendations may lead to changes in either the fullscale program or the development of a limited pilot program that tests the affects of the recommendation.

SUMMARY OF PROGRAM SPECIFIC EVALUATION PLANS

The application of these steps to each of the DSM Programs is summarized in Exhibits 1-1 and 1-2 and will support the following overall evaluation objectives:

- Annual verification reports that use the best estimates to track program accomplishments relative to annual goals.
- Integrated evaluation results that can support program revisions or refinements to assure on-going cost-effectiveness of the programs, delivery of customer value, and response to market transformation .

III. EVALUATION BUDGET

Based on the cost-effectiveness analysis, the 1995 year-end net present value of each program's evaluation budget for the time period 1996-2003 is as follows:

Residential Programs	
Air Conditioning	$2,402,730
Building Envelope	$ 792,154
Duct System Test & Repair	$1,604,644
On Call	$ 240,173
HRU	$ 65,055
Total Residential	**$5,104,756**
Commercial/Industrial Programs	
HVAC (DX, Chiller, TES, Ventilation)	$1,850,253
Efficient Lighting	$1,705,279
Building Envelope	$ 310,763
Off Peak Battery	$ 31,067
Commercial/Industrial Load Control	$ 113,846
Efficient Motors	$ 230,683
GS Load Control	$ 260,838
Total Commercial/Industrial	**$4,502,729**

Evaluation activities will be conducted jointly by FPL and outside consultants. FPL will apportion the evaluation activities across the time period 1996-2003 in the manner that most cost-effectively meets the evaluation objectives.

TRACKING COSTS

Utility program incentives will be tracked in individual program databases. Program administrative costs will tracked in FPL budget systems. Baseline costs will be tracked through periodic vendor/dealer literature reviews and trade ally/manufacturer input.

Exhibit 1-1
Integrated Evaluation Methods
For FPL's Residential Programs

PROGRAM	Building Envelope	Duct System Test & Repair	Air Conditioning	Load Management	Heat Recovery
Options for Completing Analysis Steps					
STEP 1 - Specify Customer Segments, Select Analysis Category, Build XREF File					
Program Related Reports	■	■	■	■	■
Analyze Customer Tracking Data & Participant Information	■	■	■	■	■
Conduct Staff Interviews	■	■	■	■	■
STEP 2- Specify Gross/Net Analysis Method					
Literature Reviews	■	■	■	■	■
Trade Ally/Stocking Analysis	■	■	■		
STEP 3 - Specify Energy/Load Change Method					
Engineering Estimates with Some Simulations/Bill Analysis					
Simulations with some Metered Data/Bill Analysis					
Engineering Analysis/Statistical M/V	■	■	■	■	■
STEP 4 - Data Collection					
Data Collection Primarily for Gross/Net Analysis					
Post-Participation Telephone Surveys	■	■	■	■	
Trade Ally Surveys	■	■	■		
Stated Preference Surveys	■	■	■	■	
Data Collection for Both Gross/Net and Change Analysis					
Post Impact Participant Telephone Surveys	■	■	■	■	■
Post Impact Follow-up Telephone Surveys	■	■	■	■	
Nonparticipant Telephone Surveys	■	■	■	■	
HP follow-up Mailer for Equipment Change Detail					
Site Surveys -- Participant	■	■	■	■	
Site Surveys -- Non-Participant					
Site Surveys - with Spot Metering					
Data Collection Primarily for Conducting Energy/Demand Analysis					
Billing Data	■	■	■	■	■
End-Use Load Data: Existing Sites, Program Specific		■			■
End-Use Load Data: New Sites, Program Specific	■		■	■	

PROGRAM	Building Envelope	Duct System Test & Repair	Air Conditioning	Load Management	Heat Recovery
Options for Completing Analysis Steps					
STEP 5 - Disaggregation of Whole-Premise Load Data					
HELP Disaggregation of Whole-Premise Load Data	■	■	■		
STEP 6 - Market Analysis -- Existing Penetration					
Profile Participant and Nonparticipants	■	■	■	■	■
Estimate Existing Penetration of Target Market	■	■	■	■	
STEP 7 - Market Analysis -- Net Participation/Alternative Scenarios					
Penetration Modeling	■	■	■	■	
Stated Preference Analysis	■	■	■	■	
Primary Data Analysis	■	■	■	■	
Self-Reports	■	■	■	■	
STEP 8 - Process Analysis					
Analyze Internal Program Delivery	■	■	■	■	
Analyze External Program Delivery	■	■	■	■	
Estimate Satisfaction Model	■	■	■	■	
Verify Installation Quality/Tracking System	■	■	■	■	■
STEP 9 - Impact Analysis -- M/V Analysis					
Estimate Changes from Calibrated Engineering Model	■	■	■		
Estimate Payback Model				■	
Conduct SAE Billing Analysis	■	■	■		■
STEP 10 - Impact Analysis -- M/V Analysis					
Estimate Operating Factors	■	■	■		■
Estimate Changes from Calibrated Engineering Model	■	■	■		
Conduct SAE Load Analysis	■	■	■		■
Conduct Load Management Analysis (e.g. Duty Cycle)				■	
Estimate Response Curve	■	■	■	■	
STEP 11 - Estimate Net Impacts and Generalize to All Participants					
Estimate Net Impacts	■	■	■	■	
STEP 12 - Conduct Integrated Analysis to Develop Recommendations for Program Redesign					
Conduct Integrated Analysis	■	■	■	■	■

■ Primary Evaluation Activities

Exhibit 1-2
Integrated Evaluation Methods
For FPL's C/I Programs