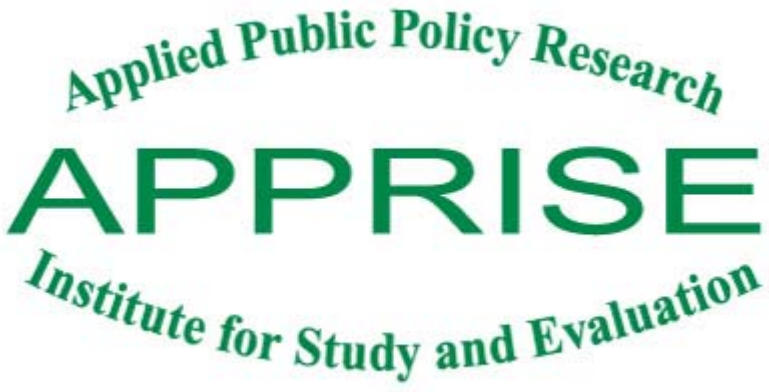

Comfort Partners Tracking System Evaluation

Final Report

Prepared for the New Jersey Residential Low Income Program Working Group

March 2002

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Executive Summary

This report presents the findings from the Tracking System Evaluation for the Comfort Partners Program. In the evaluation, we identified the Program's information needs; conducted research on the content and quality of information in the current tracking system; assessed the sufficiency, accuracy, and efficiency of the system; and developed recommendations for enhancements to the system. The Tracking System Evaluation is the first component of the comprehensive evaluation of the Comfort Partners Program.

Introduction

The New Jersey Clean Energy Collaborative consists of Public Service Electric and Gas, GPU Energy, Conectiv Power Delivery, Rockland Electric Company, New Jersey Natural Gas, NUI Elizabethtown Gas, and South Jersey Gas. The Collaborative has designed eight Residential Energy Efficiency Programs and three Nonresidential Energy Efficiency Programs to reduce the total amount of electricity and natural gas used in New Jersey and to reduce the summer peak demand for electricity. The Residential Low Income Program Working Group designed the Comfort Partners Program to meet the Collaborative's usage reduction goals and to improve energy affordability for low-income customers.

The Comfort Partners Program was designed to overcome the market barriers affecting energy usage and energy affordability for low-income customers. The program delivers comprehensive usage reduction and energy education services to low-income customers. The program also includes an arrearage forgiveness component designed to assist customers in retiring outstanding arrears.

The Residential Low Income Program Working Group commissioned a comprehensive evaluation "to determine the extent to which Program goals are being achieved and to provide feedback on how the Program might be modified to better achieve these goals." The Working Group contracted with APPRISE to conduct this evaluation. The evaluation team includes APPRISE, MaGrann Associates, Blasnik and Associates, and Renaissance Consulting and Analysis.

Comfort Partners Information Requirements

The Comfort Partners Program has extensive information requirements. The Working Group representatives and other utility staff are responsible for monitoring the program status and reporting to the Board of Public Utilities (BPU) and to utility management. Utility staff and program delivery staff must work together to identify eligible customers and to deliver high-quality energy efficiency services. Quality assurance staff and the evaluation team must work with the utilities and program delivery staff to obtain information on served customers and to assess the quality and impacts resulting from the program.

In this evaluation, we documented the Comfort Partners Program information requirements and categorized those requirements into three areas.

- *Program Management and Reporting*: Information needed by the utilities to ensure that the program is meeting its performance requirements, to assure the fiscal integrity of the program, and to coordinate with other utility programs and operations

- *Program Operations*: Information needed by the utilities, program delivery contractors, and quality assurance contractors to deliver high-quality services to appropriate customers

- *Program Evaluation*: Information needed by the evaluation team to assess the comprehensiveness of the Comfort Partners Program, to project the program impacts prior to the availability of postprogram billing data, and to measure the impact of the program on energy usage and affordability for program participants

In the body of the report, we furnish a detailed description of the data required to meet information needs in each of these areas. The challenge for the Comfort Partners Program is to fulfill these information requirements as efficiently as possible.

Tracking System Review

The Comfort Partners Program has an extensive tracking system. Information is generated for program operations in three ways.

- *Utility Customer Data*: Each utility furnishes customer data to the contractors to support recruitment and service delivery.

- *Program Operations Data*: The program delivery contractors generate information on each program participant, including the energy and payment needs of the household, the program measures, and the posttreatment conditions.

- *Program Reporting*: The program delivery contractors furnish reports to the utilities that give them information on service delivery and costs for their customers.

Two databases track data for the program.

- *HDMC Database*: HDMC has developed a database to support information-sharing among its office staff, crews, and subcontractors. The database captures almost all data recorded on the paper service delivery forms used by HDMC staff and its subcontractors. The database also generates reports for utilities. It is not directly accessible to the utilities.

- *GPU WARM2 Database*: GPU developed a database for the predecessor WARM program. The database captures information on household characteristics, housing

unit characteristics, installed measures, and costs. It has an extensive management reporting system that allows GPU to independently generate program statistics.

Our review of the program operations tracking system demonstrates that the current system is most consistent and comprehensive in those areas where it has been in place for the longest period of time. HDMC has been delivering a program similar to Comfort Partners for a number of years; its program delivery database is comprehensive. Similarly, GPU has been using the WARM2 system to deliver its WARM program in both Pennsylvania and New Jersey over a period of years. Its measures and cost reporting database is also comprehensive.

On the other hand, many of the utilities are attempting to generate program recruitment lists and screened customer data for the first time. Our system review showed that each utility has a somewhat different procedure for supplying customer information to the program delivery contractors and, in many cases, furnished different data elements. Over time, many procedures are likely to become more consistent across the utilities. However, to the extent that customer billing systems and IT/IS capabilities differ across utilities, we can expect that some differences will persist.

The program evaluation will also generate information about the Comfort Partners Program, including billing data retrieved from the utility companies, program data retrieved from the program operations databases, and data directly collected by the evaluation team through on-site inspections of completed jobs and follow-up interviews with program participants. In the short run, the program evaluation can furnish information for certain program reporting requirements. In the longer run, the evaluation can develop procedures for tracking program accomplishments and measuring program impacts directly from program operations and utility data.

Tracking System Assessment and Recommendations

The Working Group is interested in assessing "what is being tracked by all participating utilities, how the data are coordinated statewide, and whether the tracking system will meet the utilities' needs for future energy savings and affordability evaluations." They are concerned with the following.

- *Consistency*: Are the same data are being tracked by all participating utilities?
- *Sufficiency*: Will the data be sufficient for managing program operations, regulatory reporting, program assessment and enhancement, and assessment of lost revenues?
- *Accessibility*: Are the data accessible to utility program managers and the Working Group?
- *Accuracy*: How accurate and reliable are the data in the system?

- *Efficiency*: Are the data being captured by the system in the most cost-effective and reliable manner?

In the Tracking System Evaluation, we assessed the quality and completeness of the tracking system with respect to the requirements listed above and make recommendations for potential tracking system enhancements.

It is important to note that our suggestions and recommendations should not be interpreted as a critique of either the participating utilities or the program delivery contractors. Both sets of organizations have invested, and continue to invest, significant resources in information management and data tracking, and have made good suggestions for enhancement of the information tracking system. They have explicitly delayed some improvements so that any additional investments in the tracking system could take advantage of this evaluation.

1. Program Management and Reporting

Utility Comfort Partners Program managers have a joint responsibility for regulatory reporting through the Working Group and an individual reporting responsibility to utility management, shareholders, and customers. The most critical area to ensure consistency and quality in the tracking system is where the utilities have joint responsibilities. However, to the extent that a consistent approach to the tracking system facilitates good internal management and reporting, such tracking system enhancements are also important.

The information requirements for program management include:

- *Regulatory Reporting*
- *Utility Financial Management*
- *Coordination with Other Utility Programs*

The Tracking System Evaluation found that the existing systems record all of the information needed to support these reporting requirements. However, the tracking system reports from HDMC are not currently furnishing all of the recommended statistics in a systematic manner to the Working Group or to most of the individual program managers. (Note: The WARM2 system gives GPU reports that support proactive program management.)

We recommend that the Working Group make the development of a quarterly management report a top priority. A proposed format for such a report is included in the body of this report.

In the Tracking System Evaluation, we also found that under the current system, utilities do not have the capacity to electronically track program participation for

individual customers and share that information with other departments. In addition, under predecessor programs, some of the utilities experienced serious problems when a program delivery contractor went bankrupt and it became difficult for them to access the contractor's participant records. Currently, only GPU has an independent capacity to track program participants and program services. HDMC has made a datafile available to NUI Elizabethtown, but the data are not currently integrated into the customer information system.

We recommend that the Working Group set a longer-term goal to develop a system that enables each utility to independently track program participation by their customers.

2. Program Operations

Information is needed to support each of the program delivery steps, including:

- *Customer Targeting, Recruitment, and Screening*
- *Usage Reduction Program Service Delivery*
- *Arrearage Program Service Delivery*
- *Quality Assurance*
- *Arrearage Program Tracking*

The tracking system includes information transferred from the utilities to the program delivery contractors, information tracked by the program delivery contractors for their own purposes, and information transferred from the program delivery contractors back to the utility companies.

a) Customer Targeting, Recruitment, and Screening

The utilities furnish either recruitment lists or screened customers to the program delivery contractors. All parties have worked diligently to put systems in place so that the program can operate. While the existing systems meet the basic requirements, certain enhancements could improve program targeting and operational efficiency.

We recommend that the Working Group ask HDMC to specify the components of an efficient and effective system so that each utility has an appropriate model as they work to enhance their system.

b) Usage Reduction Program Service Delivery

HDMC and GPU have each established a set of paper forms and a database to manage program operations. In the Tracking System Evaluation, we found a high level of quality in both systems and a high level of consistency between the two systems. The systems meet the current requirements for supporting program operations.

We identified a number of ways in which we believe that the systems could be enhanced to furnish better quality information or more efficient procedures. However, we expect that additional enhancements will be identified through the Comprehensiveness Evaluation and the Process Evaluation. To make most efficient use of program resources, we recommend that the Working Group delay any system modifications until the fourth quarter of 2002.

We recommend that the Working Group plan to identify system and database enhancements during the fourth quarter of 2002 for implementation during 2003.

c) Quality Assurance

The evaluation found that the current system supports quality assurance procedures. There are two ways that enhancements in the system could increase the effectiveness of quality assurance.

- *Missed Opportunities*: The tracking system does not record sufficient data to allow the quality control inspector to quickly assess whether there are certain types of missed opportunities or to understand why the crew may have been unable to install a measure that appears appropriate.

- *Quantification*: With the exception of the GPU jobs, the tracking system does not support quantification of quality assurance reports in a way that would allow program managers to track changes in quality over time.

We recommend that the Working Group include quality assurance among those tracking system enhancements that they address in 2003.

d) Arrearage Program Delivery and Tracking

Each utility has designed and operates its own arrearage plan under the Comfort Partners Program. From that perspective, there are fewer demands for a consistent tracking system. However, value is realized by having the arrearage programs track the same performance statistics, so that the utilities can share information about which program components work best.

We recommend that the Working Group set up a standard reporting format and performance measures for the Arrearage Programs and commit to sharing information on program results.

3. Program Evaluation

Five components to the evaluation rely on the tracking system:

- *Comprehensiveness Evaluation*
- *Usage Impact Projections*
- *Affordability Impact Projections*
- *Billing Usage Impact Analysis*
- *Affordability Usage Impact Analysis*

Three types of data will be used to support the evaluation:

- *Utility Billing Data*
- *Program Delivery Data*
- *Data Collected by the Evaluation Team*

a) Utility Billing Data

Utility billing data are critical to the long-term evaluation of the Comfort Partners Program. The evaluation team is working with individual utilities to set up data retrieval procedures. To date, there have been no long-term barriers to data retrieval. However, we will need the continued support of the Working Group to ensure that the data are obtained.

b) Program Delivery Data

Both HDMC and GPU have set up good systems for recording program delivery data and putting them into a database. The systems, as presently configured, will support most evaluation goals. However, the data systems could be improved in ways that would further enhance the quality of the evaluation. Given the other priorities for the Comfort Partners Program, and understanding that the Comprehensiveness and Process Evaluations will generate more suggestions for system improvements, we recommend that most reporting system and database enhancements be delayed until 2003.

c) Evaluation Data Collection

The evaluation data collection (on-site inspections and customer interviews) is designed to supplement the information already collected in the tracking system. Such information will be collected for a sample of Comfort Partners participants. Since it is collected for only a sample of customers, we do not recommend incorporating these data into the overall tracking system. However, we will key and store data from the research activities so that they will be accessible to the Working Group.

We recommend that the Working Group continue to support evaluation data retrieval efforts.

4. Summary

The Tracking System Evaluation demonstrated that the current tracking system collects most of the information needed to effectively manage the Comfort Partners Program. Our research suggests an immediate need for management reports that present the data from the tracking system in a way that helps the utility Program Managers to proactively manage the program. We also find a longer-term need to establish the capacity to track and report data independently of the program delivery contractors. Finally, we have identified a number of system enhancements that should add value to the tracking system, but that should not represent the top priority for the Working Group at this time.

I. Introduction

This report presents the findings from the Tracking System Evaluation for the Comfort Partners Program. In the evaluation, we identified the Program's information needs, conducted research on the content and quality of information in the current tracking system, assessed the sufficiency, accuracy, and efficiency of the current tracking system, and developed recommendations for enhancements to the tracking system. The Tracking System Evaluation is the first component of the comprehensive evaluation of the Comfort Partners Program.

A. Background

The New Jersey Clean Energy Collaborative consists of Public Service Electric and Gas, GPU Energy, Conectiv Power Delivery, Rockland Electric Company, New Jersey Natural Gas, NUI Elizabethtown Gas, and South Jersey Gas. The Collaborative has designed eight Residential Energy Efficiency Programs and three Nonresidential Energy Efficiency Programs to reduce the total amount of electricity and natural gas used in New Jersey and to reduce the summer peak demand for electricity. The Residential Low Income Program Working Group designed the Comfort Partners Program to meet the Collaborative's usage reduction goals and to improve energy affordability for low-income customers.

The Comfort Partners Program was designed to overcome the market barriers affecting energy usage and energy affordability for low-income customers, including:

- Lack of information on how to improve energy efficiency and on the benefits of energy efficiency,
- Lack of capital to upgrade energy efficiency and, in many cases, to keep up with regular bills,
- Inadequate targeting of low-income customers by market-based residential service providers, and
- Split incentives between renters and landlords.

The Comfort Partners Program addresses the market barriers through:

- Direct installation of all cost-effective energy efficiency measures (addressing all fuels),
- Comprehensive, personalized customer energy education and counseling, and
- Arrearage forgiveness for participants who agree to payment plans.

The Comfort Partners Program is targeted to customers with income at or below 150% of the federal poverty income guidelines or who are receiving benefits from certain public assistance programs.

B. Evaluation

The Residential Low Income Program Working Group commissioned a comprehensive evaluation "to determine the extent to which Program goals are being achieved and to provide feedback on how the Program might be modified to better achieve these goals." The Working Group contracted with APPRISE to conduct this evaluation. The evaluation team includes APPRISE, MaGrann Associates, Blasnik and Associates, and Renaissance Consulting and Analysis.

The comprehensive evaluation of the Comfort Partners Program consists of seven evaluation components.

1) *Tracking System Evaluation*: Assessment of the consistency of information tracked by the utilities, the sufficiency of the data for management and reporting, the accuracy of the data in the system, and the efficiency of the tracking system procedures

2) *Comprehensiveness Evaluation*: Examination of the appropriateness of Comfort Partners protocols and practices, and the comprehensiveness of service delivery

3) *Process Evaluation*: Review of the effectiveness of the Program design and implementation, measurement of customer reactions to the energy component and customer satisfaction with program services, and identification of barriers to program delivery and low-income customer participation

4) *Baseline Affordability Impact Projections*: Projections of the affordability impacts of the program using baseline usage data, program service delivery data, and engineering models of program impacts

5) *Baseline Usage Impact Projections*: Projections of the usage impacts of the program using baseline usage data, program service delivery data, and engineering models of program impacts

6) *Affordability Impact*: Analysis of affordability impacts of the program for 2002 based on customer billing and payment data, service delivery data, and affordable payment program data

7) *Usage Impact*: Analysis of usage impacts of the program for 2002 based on customer billing and payment data and service delivery data

The Tracking System Evaluation will be completed by 3/15/02. The Comprehensiveness Evaluation and the Process Evaluation will be completed by 8/15/02. The Baseline Affordability Impact Projections and the Baseline Usage Impact Projections will be

completed by 12/31/02. The Affordability Impact and the Usage Impact analyses will be completed by 2/28/04.

C. Organization of the Report

Three sections follow this introduction.

1) *Section II – Information Requirements*: Examines the information needs for program management and reporting, operations, and evaluation

2) *Section III – Tracking System Review*: Documents the components of the current tracking system

3) *Section IV – Tracking System Assessment and Recommendations*: Reports on the sufficiency, accuracy, and efficiency of the current tracking system and makes recommendations for modifications and enhancements

APPRISE prepared this report under contract to the participating utilities of the New Jersey Clean Energy Collaborative. The statements, findings, conclusions, and recommendations are solely those of analysts from APPRISE and do not necessarily reflect the views of the Collaborative or the member utilities.

II. Information Requirements

The Comfort Partners Program has extensive information requirements. The Working Group representatives and other utility staff are responsible for monitoring the Program status and reporting to the Board of Public Utilities (BPU) and to utility management. Utility staff and program delivery staff must work together to identify eligible customers and to deliver high-quality energy efficiency services. Quality assurance staff and the evaluation team must work with the utilities and program delivery staff to obtain information on served customers and to assess the quality and impacts resulting from the program. In this section, we document the Comfort Partner Program information requirements and group the information requirements into three areas.

- *Program Management and Reporting*: Information needed by the utilities to ensure that the program is meeting its goals within the limits of available resources
- *Program Operations*: Information needed by the utilities, program delivery contractors, and quality assurance contractors to deliver high-quality services to appropriate customers
- *Program Evaluation*: Information needed by the program evaluation team assess the comprehensiveness of the program, to project the impacts of the program, to measure the impacts of the program, and to recommend program enhancements

The research activities that furnished insights on the program information requirements included: review of program filings to the BPU and program planning documents; interviews with utility managers, program delivery contractors, and quality assurance contractors; on-site inspection of data collection forms and on-site observations of service delivery; and review of program delivery databases.

A. Program Management and Reporting

Utility Comfort Partner Program managers have management and reporting responsibilities in three areas.

- *Program Commitments*: Through the Residential Low Income Program Working Group, the utility program managers have made explicit performance commitments to the BPU in their 2002 program filing. The Working Group needs information to track the status of the program with respect to those commitments.
- *Utility Financial Management*: Each utility program manager is responsible for overseeing his or her utility's Comfort Partners Program budget and for ensuring that Comfort Partners Program funds are spent in a manner consistent with program guidelines.

- *Utility Operations*: Each utility program manager needs information to support the other utility program responsibilities, including utility recruitment and screening activities, and coordination of Comfort Partners with other programs.

Each of these management areas has an explicit set of information requirements.

1. Program Commitments

In the 2002 program filing, the Collaborative commits to explicit program goals. These goals are:

- *Participation Goals*: Each utility commits to participation goals for its gas and/or electric customers.

- *Performance Goals*: The overall program savings goals in 2002 are "to achieve 10% average electric savings for participants with electric space heat and 15% average natural gas savings for participants with natural gas heat."

The minimum requirements for the program administration in the filing are to "reach a minimum of 60% of the program goals," including both the participation and performance goals. Utility program managers need information that will allow them to actively manage the program status, including current participation numbers, projected participation numbers, and savings performance indicators. Table 2.1 lists the key information requirements and timing of the reports.

Table 2.1 – Program Commitments Information Requirements

Information Requirement	Data Required	Responsibility	Timing	Notes
Participation	Number of jobs and arrearage agreements completed year to date	Program delivery contractors and CBOs	Monthly	For 2002, the statistic has changed from jobs started to jobs completed / GPU uses CBOs for arrearage program enrollment
Projected participation	Projected number of jobs completed and arrearage agreements by month	Program delivery contractors	Quarterly	Must demonstrate the capacity to meet projections
Estimated performance	Engineering estimate of average savings per household	Program delivery contractor and evaluation team	Quarterly	In the long run, design a system that generates performance estimates

2. Utility Financial Management

Each utility has its own management control systems. However, there are common information requirements across all utilities.

- *Budgets*: Each utility has a budget for the Comfort Partners Program service delivery. The tracking system should support management of that budget.
- *Fiscal Integrity*: The utility managers must ensure that program funds are being spent according to program guidelines and that invoiced measures were installed.

The tracking system should enable to the utility program managers to fulfill these responsibilities. Table 2.2 lists the key information requirements and timing of the reports.

Table 2.2 – Utility Financial Management Information Requirements

Information Requirement	Data Required	Responsibility	Timing	Notes
Cost year to date	Average cost per completed job by type and monthly fixed program costs for other services	Program delivery contractors	Quarterly	Allows manager to project annual costs for targeted number of completed jobs
Detailed monthly invoices	Sufficient detail to allow manager to assess whether expenditures were consistent with program guidelines	Program delivery contractors	Monthly	Level of detail must be specified by utility manager
Quality assurance data	Confirmation that billed measures were installed	Quality assurance contractors	Monthly	A sampling procedure is appropriate

3. Utility Operations

Since Comfort Partners Program participation (11,686 in 2002) is modest when compared to the total number of utility customers in New Jersey (about 4.2 million)[1], some utility managers expressed the opinion that there is little need to track Comfort Partners Program participation through utility customer information systems. However, there are several reasons why tracking might be appropriate. First, cumulative participation will become significant over time. Second, if the program delivery contractor is replaced for some reason, it will be impossible to identify which customers

[1] Both participation and utility customer statistics presented here double-count customers served by separate electric and gas utilities.

have previously been served. Third, if utility customer service staff get calls from customers regarding service delivery issues, it is important for them to be aware of the customer's participation in the Comfort Partners Program.

The tracking system should facilitate the utility's customer service responsibilities. Table 2.3 lists the type of information and procedures that would be required to identify customers in the program and to assist other departments in using that information.

Table 2.3 – Utility Operations Information Requirements

Information Requirement	Data Required	Responsibility	Timing	Notes
Customers currently being served	Customer name and account number	Program delivery contractors	Monthly	
Customer information system notes	Program participation code	Utility	Monthly	Some utilities also track service dates
Communications to other departments	Basic information on program requirements and services	Utility	As needed	

B. Program Operations

Information is required to support each of the program delivery steps, including:

- *Customer Targeting, Recruitment, and Screening*
- *Usage Reduction and Arrearage Program Service Delivery*
- *Quality Assurance*
- *Arrearage Program Tracking*

The information flow for program operations is complex; utilities furnish data to program delivery contractors and CBOs, program delivery contractors and CBOs track data for their own staff and for their subcontractors, and program delivery contractors and CBOs report data back to the utility companies.

1. Customer Targeting, Recruitment, and Screening

Utility customer information systems are the best source of information for targeting and recruiting low-income customers into the Comfort Partners Program. However, each customer information system captures a different set of information about low-

income customers. In addition, locating information (mailing address and telephone numbers) are also required for recruitment efforts. The better the targeting and locating information on customers, the more efficient and effective the targeting and recruitment efforts will be. Table 2.4 lists the key information requirements.

Table 2.4 – Targeting, Recruitment, and Screening Information Requirements

Information Requirement	Data Required	Responsibility	Timing	Notes
Customer locating information	Name, telephone number, mailing address, and service address	Utility IT/IS department	Periodic	
Customer eligibility markers	Information on income and/or program participation for customers	Utility IT/IS department	Periodic	Markers can be direct (obtained from customer) or derived (obtain from payment types)
Customer targeting markers	Information to identify arrearage customers and/or high usage customers	Utility IT/IS department	Periodic	Program goals include arrearage program participation / high usage participants are expected to have the greatest savings

2. Usage Reduction and Arrearage Program Service Delivery

The amount of information generated and used during the service delivery process is extensive. Moreover, the data recording procedures must facilitate accurate transfer of knowledge from one service delivery crew to other crews or subcontractors. Table 2.5 outlines the types of information that must be effectively and accurately captured and communicated during the service delivery process.

Table 2.5 – Service Delivery Information Requirements

Information Requirement	Data Required	Responsibility	Timing	Notes
Customer usage and payment profile	Electric and gas usage by month and either arrearage level or payment history	Utility IT/IS department	Close to program enrollment date	Up-to-date usage and arrearage data are critical to delivery of appropriate energy efficiency services and payment plans
Initial audit data	Customer knowledge and attitudes, baseline conditions, shell conditions, funding targets, recommended measures	Program delivery contractor	Obtained at the initial visit	

Information Requirement	Data Required	Responsibility	Timing	Notes
Service delivery measures	Customer commitments, baseload measures, shell measures, health and safety actions	Program delivery contractor	Recorded during installation visits	
Arrearage program guidelines	Program qualifications, payment guidelines, and forgiveness algorithm	Utility program manager	During audit or arrearage program intake	Program delivery and CBO staff and must be able to explain and correctly calculate the customer's payment agreement terms

3. Quality Assurance

The third party quality assurance contractors need to review the service delivery data to assess the quality and completeness of the work completed by the program delivery contractor. From that perspective, the information requirements for the quality assurance contractor are equivalent to those for the service delivery contractor.

4. Arrearage Program Tracking

The arrearage program usually runs for 12 or 24 months after the initial visit to the household. The basic agreement must be recorded in the utility's billing systems and customer payments must be tracked for compliance with the agreement. Table 2.6 lists the information required for operation of the arrearage program.

Table 2.6 – Arrearage Program Tracking Information Requirements

Information Requirement	Data Required	Responsibility	Timing	Notes
Customer agreement terms	Budget billing amount, arrearage amount, and number of months of agreement	Utility program manager	Defined at program enrollment	Draft agreement prepared by program delivery contractor or CBO; final agreement from utility representative
Monthly payment information	Customer payments	Utility program manager	Monthly	Compare to program agreement
Program status	Active, in default, dismissed, or completed program	Utility program manager	At status change	

C. Program Evaluation

The evaluation for the Comfort Partners Program is comprehensive. Usage impacts will be examined in three ways, and affordability impacts will be assessed in two ways. In addition, the evaluation plan includes a "components" analysis to determine the performance of individual parts of the Comfort Partners Program.

The usage impact evaluation will be performed in three phases, including:

- *Comprehensiveness Evaluation*: Assessment of the quality and comprehensiveness of the program through on-site inspections
- *Usage Impact Projections*: Engineering estimates of the expected savings from the installed program measures
- *Billing Impact Analysis*: Measures of program usage impacts through a pre/post billing analysis with a test and comparison group

The payment impact evaluation will be performed in two phases, including:

- *Affordability Impact Projections*: Projections of affordability impacts based on usage reduction projections and payment agreements
- *Billing Impact Analysis*: Measures of program affordability impacts through a pre/post billing analysis with a test and comparison group

The comprehensiveness evaluation, the usage and affordability projections, and the impact analysis have a number of overlapping information requirements. The requirements for each of the analyses are listed separately below.

1. Comprehensiveness Analysis

The comprehensiveness analysis will assess the quality, appropriateness, and comprehensiveness of the installed measures. For each installed measure, the evaluator must assess whether the measure was appropriate given the housing unit conditions and the program guidelines and whether the measure was installed in a way that would achieve the intended effect. To assess the appropriateness of the measure, the evaluator needs the baseline housing unit data. To assess the quality of the installation, the evaluator must directly observe the installed measures. In addition, the evaluator must assess whether some appropriate measures were not installed during service delivery. As part of this assessment, the evaluator will need exceptions data that describe the reason that the program delivery contractor decided not to install certain measures, or was not allowed to install them by the occupant or landlord. Table 2.7 summarizes the types of information that are required to complete the comprehensiveness evaluation.

Table 2.7 – Comprehensiveness Information Requirements

Information Requirement	Data Required	Responsibility	Timing	Notes
Housing unit baseline conditions	Lighting watts and hours, water heater status, refrigerator usage, air infiltration rates and definition of the thermal envelope, insulation levels	Program delivery contractor	Recorded during service delivery	Includes customer knowledge and practices
List of installed measures	Specific numbers and or amounts of items installed	Program delivery contractor	Recorded during service delivery	Includes customer commitments
Installation exceptions reports	Reasons for installing something different from protocols or for not installing an item	Program delivery contractor	Recorded during service delivery	Occupant preferences can limit comprehensiveness of installed measures
Housing unit posttreatment conditions	Air infiltration rates and definition of the thermal envelope	Program delivery contractor	Recorded after service delivery	

2. Usage and Affordability Projections

The usage and affordability projections have the highest level of information requirements, including detailed pre and posttreatment data on housing unit conditions, installed measures, and baseline usage data. Table 2.8 summarizes the types of information that are required to complete the usage and affordability projections.

Table 2.8 – Usage and Affordability Projections Information Requirements

Information Requirement	Data Required	Responsibility	Timing	Notes
Housing unit baseline conditions	Lighting watts and hours, water heater status, refrigerator usage, air infiltration rates and definition of the thermal envelope, insulation levels	Program delivery contractor	Recorded during service delivery	
List of installed measures	Specific numbers or amounts of items installed	Program delivery contractor	Recorded during service delivery	Includes customer commitments

Information Requirement	Data Required	Responsibility	Timing	Notes
Housing unit posttreatment conditions	Air infiltration rates and definition of the thermal envelope	Program delivery contractor	Recorded after service delivery	
Baseline usage data	Monthly bills to measure baseline consumption	Utility IT/IS department	Periodic	Needs to be captured on a schedule that facilitates creation of a one year history
Baseline billing and payment data	At least one year of bills and payments to measure payment patterns	Utility IT/IS department	Periodic	Needs to be captured on a schedule that facilitates creation of a one year history
Arrearage program payment terms	Payment levels and arrearage forgiveness schedule	Utility IT/IS department or collections department	Periodic	

3. Billing Impact Analysis

The core usage and affordability billing impact analyses depend on the availability of utility usage, billing, and payment data. However, the analysis planned for this evaluation extends the information requirements to include measures data for allocation of savings to measures, program cost data to measure cost-effectiveness, and participant and building characteristics to identify populations with higher or lower levels of program effectiveness. Table 2.9 summarizes the types of information that are required to complete the billing impact analysis.

Table 2.9 – Billing Impact Analysis Information Requirements

Information Requirement	Data Required	Responsibility	Timing	Notes
List of installed measures	Specific numbers and or amounts of items installed	Program delivery contractor	Recorded during service delivery	Includes customer commitments
Cost of installed measures	Cost of individual measures by group and total service delivery charge	Program delivery contractor	Recorded during invoicing	
Pre and postprogram usage data	Monthly bills to measure consumption	Utility IT/IS department	Periodic	Data capture schedule must facilitate creation of a one year of pre and postprogram usage data

Information Requirement	Data Required	Responsibility	Timing	Notes
Pre and postprogram billing and payment data	One year of pre and postprogram bills and payments to measure payment patterns	Utility IT/IS department	Periodic	Data capture schedule must facilitate creation of one year of pre and postprogram usage data
Arrearage program status indicator	Active, defaulted, dismissed, or complete	Utility IT/IS department or collections department	Periodic	
Participant characteristics	Household type, number of occupants, income	Program delivery contractor	Recorded during service delivery	
Housing unit characteristics	Type of housing unit, geographic location, size of housing unit	Program delivery contractor	Recorded during service delivery	

D. Summary

We have categorized the information requirements for the Comfort Partners Program in the context of the specific uses for the data. It is clear that individual data elements can be used for several different purposes. The challenge for the Comfort Partners Program tracking system will be to fulfill as many of the information requirements as possible in the most efficient way possible.

In the next section, we review the existing Comfort Partners Program tracking system. In Section IV we assess the tracking system and make recommendations for modifying and enhancing it.

III. Tracking System Review

In this section, we review the components of the existing Comfort Partners Program tracking system. We furnish detailed information on the type of information tracked, the source of the information, and whether the information is stored on paper or electronically.

Information is generated on the Comfort Partners Program in two ways.

- *Program Operations*: Most of the information for the Comfort Partners Program is generated to support program service delivery.
- *Program Evaluation*: Some of the information on the Comfort Partners Program is generated by the evaluation team or by the utilities or program delivery contractors to support the work of the evaluation team.

Two data systems are in place.

- *HDMC Database*: HDMC, the primary program delivery contractor, has developed a database system to manage program operations and to generate reports for individual utilities and the Working Group.
- *WARM2 Database*: GPU developed the WARM2 database for a predecessor program and continues to use the database for the GPU's Comfort Partners tracking.

Our review documents the current configuration of the databases. Both databases have additional capacity. However both organizations – HDMC and GPU – have delayed some parts of their database enhancements so as to work with the recommendations from this report.

The existing tracking system for the Comfort Partners Program has evolved over time and is still in the process of changing to meet program reporting, operations, and evaluation needs. Some components of the tracking system were originally designed for predecessor programs and some use tools that were developed by the utilities and contractors for other purposes. Certain parts of the tracking system are currently using an interim data retrieval process, but more extensive and/or automated procedures are being developed. Therefore, this report characterizes the tracking system's current form and content. It also discusses planned and proposed changes. The report would need to be updated periodically to furnish consistent documentation for the tracking system for the Comfort Partners Program.

A. Program Operations Tracking System

We categorize the program operations tracking system in terms of three different program interfaces:

- *Utilities to Program Delivery Contractors*: Information on customers furnished by the utilities to the program delivery contractors to support program delivery
- *Program Delivery Contractor to Crews and Subcontractors*: Information tracked by the program delivery contractors to manage service delivery with their crews, subcontractors, and other operations staff
- *Program Delivery Contractors to Utilities*: Information on customers served, services provided, and costs of services furnished to utilities by the program delivery contractors

The information tracked varies by utility and by program delivery contractor.

1. Utility Information Furnished to Program Delivery Contractors

The first interface between the utility and the program delivery contractor is for customer recruitment/screening data. The level of data varies, with some utilities furnish screened customers and others supplying targeted customer lists. Table 3-1 documents the level and type of recruitment/screening data furnished by each utility.

Table 3.1 – Recruitment / Screening Data by Utility

Utility	Type of Information	Media	Notes
Conectiv	Recruitment list; restricted to LIHEAP and LIFELINE customers with usage over a threshold	Electronic	One download in 2001; Conectiv also furnishes referrals from the Collections Department
Elizabethtown	Recruitment list; restricted to moratorium customers, checked for eligibility, supplemented with other information	Electronic	Daily download; also receive referrals from CBOs and local customer service offices
GPU	Screened customer list	Electronic	Mail recruitment to HEAP, LIFELINE, Safety Net, and moratorium; HDMC logs onto GPU's WARM2 system to obtain a list of customers
NJNG	Screened customer list	Paper list	All cases were recruited by GPU for 2001; NJNG mail recruitment for 2002; list sent two times a month
PSE&G	Customer recruitment list; LIHEAP recipients	Electronic	Query run as needed by HDMC; HDMC prioritizes by usage and targets customers with gas usage over 1200 therms

Utility	Type of Information	Media	Notes
Rockland Electric	Will provide a list of LIHEAP and LIFELINE customers for joint recruitment with PSE&G	Paper list	No customers yet recruited
SJG	Recruitment list; restricted to seven low-income markers	Electronic	One download in 2001; download includes annual usage; HDMC targets high usage

The second interface between the utility and the program delivery contractor is for usage and arrearage/payment data. The usage data are used for customer education and computing guidelines. The arrearage/payment data are used for establishing payment plans with arrearage customers. Table 3-2 documents the type of usage data and arrearage/payment data furnished by each utility. Note that payment history data give the educator more information than simply the arrearage amount.

Table 3.2 – Usage and Arrearage/Payment Data by Utility

Utility	Type of Information	Media	Notes
Conectiv	Monthly usage, payment history, and arrearage	Fax	HDMC request; return fax no later than 72 hours
Elizabethtown	Monthly usage history and current arrears amount	Electronic data from web site	HDMC has direct access
GPU	Monthly usage, payment history, and arrearage amount	Electronic data from web site	HDMC and BBI have direct access
NJNG	Monthly usage and payment history	Fax	Sends with list of screened customers
PSE&G	Monthly usage, payment history, and arrearage data	Electronic data	HDMC has direct access
Rockland Electric	Monthly usage and arrearage data	Fax or e-mail	No customers yet recruited
SJG	Monthly usage, payment history, and arrearages	Fax	HDMC makes request; return fax no later than 24 hours

2. Information Generated by Program Delivery Contractors

In the process of delivering program services, the program delivery contractors generate a very large amount of information about the customer's home, including baseline conditions, actions taken and measures installed, and posttreatment conditions. In this section, we document the extent to which those data are documented on the paper data collection forms and identify whether they are entered into a database.

As noted earlier, HDMC has a program database and GPU has the WARM2 database. All HDMC jobs are entered into the HDMC database. All GPU jobs, from both HDMC and BBI, are entered into the WARM2 database. As will be evident from the following tables, the HDMC database is more comprehensive than the WARM2 database in that it currently includes more data elements. However, the WARM2 database furnishes GPU with direct access to the data and with certain management reports that are not currently generated on a production basis by the HDMC database.

Information on baseline conditions is important if program managers want to understand how the program is changing the conditions in treated housing units. In addition, some of the information is important for making projections of program impacts. Table 3.3 documents the recording and database procedures for baseline conditions for HDMC, and Table 3.4 documents the recording and database procedures for baseline conditions for BBI. Note that the information reported here identifies what can be recorded on the data collection forms and entered into the database, rather than what we have confirmed to be recorded consistently.

Because HDMC has multiple crews and subcontractors, almost all of the data that is recorded on paper is put into the database. In that way, crews in remote locations can get access to information without transfer of paperwork. Since BBI has more limited staff, it is easy to communicate among crewmembers using the paper forms. BBI records data in the WARM2 database when the job is complete.

Table 3.3 – HDMC Housing Unit Baseline Data by Area

Area	On Paper?	In Database?	Data items	Notes
Household characteristics	Yes	Yes	Language, type of account, program participation, tenure, time in home, occupants	
Housing unit characteristics	Yes	Yes	Location, dwelling type, stories, age, fuels, equipment, and distribution systems, heated area, cooled rooms, attic characteristics, ventilation	
Participant knowledge and behaviors	No	No		The current audit protocol does not systematically document customer knowledge
Health, safety, and comfort	Yes	Yes	Uncomfortable areas, moisture problems, health issues, and other problems	Notes about conditions

Area	On Paper?	In Database?	Data items	Notes
CO testing	Partial	Partial	Extensive data measures	Baseline only for units that pass or are left as failed; posttreatment is recorded for corrected problems
Lighting	Partial	Partial	Location, quantity, watts, hours	For replaced bulbs only
Water	Partial	Partial	None	Baseline water temperature recorded, but baseline flow is not
Thermostats	No	No	None	Baseline status not recorded
Envelope diagnostics	Yes	Yes	Blower door test, zone pressure tests	
Air sealing needs	No	No		Can be derived from installed and recommended measures
Duct testing	Yes	Yes	Pressure pan testing	
Ventilation	No	No		
Attic and Wall Insulation	Partial	Partial	Location, R-value, and square feet	For areas to be insulated only
Refrigerator, freezer	Yes	Yes	kWh/24 hours, location	
Water beds	Partial	Partial	Size, heater watts	For water beds to be replaced only

Table 3.4 – BBI Housing Unit Baseline Data by Area

Area	On Paper?	In Database?	Data items	Notes
Household characteristics	Yes	Yes	Race, age, disability, number of occupants, income, income sources, tenure	
Housing unit characteristics	Yes	Yes	Location, dwelling type, stories, age, fuels, equipment, and distribution systems, heated area, cooled rooms	

Area	On Paper?	In Database?	Data items	Notes
Participant knowledge and behaviors	No	No		The current audit protocol does not systematically document customer knowledge
Health, safety, and comfort	Yes	No	Uncomfortable areas, moisture problems, health issues, and other problems	Notes about conditions
CO testing	Yes	No	Extensive data measures	
Lighting	Partial	Partial	Location, quantity, watts, hours	For replaced bulbs only
Water	No	No	None	Baseline status not recorded
Thermostats	No	No	None	Baseline status not recorded
Envelope diagnostics	Yes	No	Blower door test, zonal pressure tests	
Air sealing needs	Yes	No	Detailed infiltration checklist	
Duct testing	Yes	No	Pressure pan testing	
Ventilation	Yes	No	Existing conditions	Available from notes
Attic and Wall Insulation	Yes	No	Existing conditions for all except wall insulation	
Refrigerator, freezer	Yes	No	kWh/24 hours, location	
Water beds	Partial	No	Size, heater watts	For water beds to be replaced only

There is a considerable overlap between information on installed measures and information on posttreatment conditions. For example, a water heater wrap is the installed measure and the posttreatment condition. However, in some cases, there is a measurement of posttreatment conditions different from the installed measures. For example, in air sealing, the measures are the air sealing activities, but the posttreatment condition is the final blower door reading. In Table 3.5, we document the measure and posttreatment conditions data available in the HDMC system. In Table 3.6 we document the measure and posttreatment conditions available in the BBI system. Since measure data are required for invoicing, they are almost always entered into the database in both systems.

Table 3.5 – HDMC Housing Unit Measures and Posttreatment Data by Area

Area	On Paper?	In Database?	Data items	Notes
Participant knowledge and commitments	Partial	No	Specific customer actions	Hours of education is recorded as a measure / customer knowledge is not measured
Health, safety, and comfort	No	No		Measurement of change would require follow-up visit
CO testing	Yes	Yes	Extensive data measures	
Lighting	Partial	Partial	CFL location, quantity, watts, hours	For replaced bulbs only
Water	Yes	Yes	Heater wrap, pipe wrap, water temperature	
Thermostats	Partial	Partial	Thermostat type, settings	For installed thermostats only
Envelope diagnostics	Yes	Yes	Blower door test information, zonal pressure tests	
Air sealing measures	Yes	Yes	Hours of sealing work, separately invoiced items	
Duct measures	Yes	Yes	Hours of sealing work, separately invoiced items	
Duct testing	Yes	Yes	Pressure pan testing	
Attic and wall Insulation	Partial	Partial	Location, R-value, and square feet	For insulated areas only
Refrigerator, freezer	Yes	Yes	Refrigerator replacement type	Can derive consumption from specifications
Water beds	Partial	Partial	Size, heater watts	For replaced water beds only

Table 3.6 – BBI Housing Unit Measures and Posttreatment Data by Area

Area	On Paper?	In Database?	Data items	Notes
Participant knowledge and commitments	Partial	No	Specific customer actions	Hours of education is recorded as a measure / customer knowledge is not measured
Health, safety, and comfort	No	No		Measurement of change would require follow-up visit
CO testing	Yes	Yes	Extensive data measures	
Lighting	Partial	Partial	CFL quantity, watts, hours	For replaced bulbs only, hours not in database
Water	Yes	Yes	Heater wrap, pipe wrap, water temperature	Water temperature not in database
Thermostats	Partial	Partial	Thermostat type, settings	For installed thermostats only, settings not in database
Envelope diagnostics	Yes	No	Blower door test information, zonal pressure tests	
Air sealing measures	Yes	Yes	Hours of sealing work, separately invoiced items	
Duct measures	Yes	Yes	Hours of sealing work, separately invoiced items	
Duct testing	Yes	No	Pressure pan testing	
Attic and wall Insulation	Yes	No	Location, R-value, and square feet	Location and R-value is not in database
Refrigerator, freezer	Yes	Yes	Refrigerator replacement type	Can derive consumption from specifications
Water beds	Partial	No	Size, heater watts	For replaced water beds only

One way to review the type of information captured by the program delivery contractors is to review the data collection forms used in the auditing and service delivery

processes. The forms used by HDMC and the forms used by BBI in its work for GPU are included in the Appendix.

3. Program Delivery Contractor Information Furnished to Utilities

The primary interface from the contractors to the utilities is through the invoicing system; the contractors must document the services that they provided and furnish invoices for those services. However, the utilities also have requested other types of information from the contractors, including periodic production statistics and other ad hoc reports. In addition, GPU requires contractors to enter data on household characteristics, housing unit characteristics, and installed measures and costs into the WARM2 data system.

Currently, HDMC delivers all of the program services for six of the utilities in the Collaborative and the majority of the program services for GPU. The primary reporting tool from HDMC to the utilities is the monthly invoice. The invoices follow the same general format for each of the utilities, except for GPU. The invoices include:

- *Summary of Charges*: Total charges by category for the month
- *Summary Documentation*: Documentation of the number of charges and unit prices (if applicable) for each category of charges
- *Charges by Activity*: Detailed documentation of the charges by visit (i.e., audit, measure visit, insulation visit, refrigerator installation)
- *Charges by Participant*: Documentation of the charges by individual housing unit, including both the charges for the billed utility and for the cost sharing utility (for reference)
- *Average Charges per Participant*: Table with documentation of average guideline per participant, average charges, and average baseline usage (seasonal and baseload)
- *Completed Jobs Cost Summary*: Cost summary for jobs completed during the month

This report furnishes exhaustive information about the Comfort Partners activities for the month. It does not appear, however, to contain cumulative data for the year to date.

HDMC and BBI enter data on completed jobs into the WARM2 systems. This system gives GPU the name and account numbers of served customers, detailed information on household characteristics and housing unit characteristics, and complete documentation of the installed measures and costs for each housing unit. In addition, through the existing reporting system developed by a contractor for GPU, GPU can generate detailed statistics on program production.

B. Evaluation Tracking System

The program evaluation will generate additional data and information. The evaluation will contribute to the tracking system in three ways.

- *Utility Billing Data*: The utilities will supply usage, billing, and payment data for customers served under the Comfort Partners Program. In addition to furnishing data to develop impact projects and measure program impact, the utility data also will help to profile customers served under the Program.

- *Program Delivery Data Reporting*: The program delivery contractors have a certain level of reporting capacity. However, since data analysis and reporting is the primary function of the evaluation team, some reports generated by the evaluation team will generate information not currently available in the existing tracking system.

- *Data Collection*: A number of the evaluation components, including the on-site inspections and the customer follow-up survey involve direct data collection from a sample of program participants.

We outline the specific data that will be generated from each of those sources.

1. Utility Information Furnished to the Evaluation Team

Each of the utilities will supply usage, billing, and payment data, as well as information on the performance of the customers on arrearage payment plans. Table 3.7 documents the type of data that will be obtained, the schedule for data retrieval, and the specific information that will be generated from the data.

Table 3.7 – Utility Information for Evaluation

Utility	Type of Information	Media	Timing	Target Information
Baseline data	Usage, billing, and payment data for 12 months prior to enrollment and arrears data at the time of enrollment	Electronic	Proposed quarterly download for new participants	Baseline statistics on usage, payment behaviors, and arrearages
Periodic billing data	Usage, billing, and payment data	Electronic	Quarterly after enrollment	Statistics on population served and baseline service needs
Comparison group data	Usage, billing, payment, and arrearage data for LIHEAP and LIFELINE customers	Electronic	Baseline download will quarterly update of data	Will be used to develop comparison group, treated households will move to treatment group

Utility	Type of Information	Media	Timing	Target Information
Arrearage program data	Program status, date of status change, and arrearage forgiveness	Electronic	Annually	Will be used to document payment program performance and arrearage forgiveness

2. Program Information Furnished to the Evaluation Team

HDMC and GPU are downloading program delivery data from their databases. Table 3.8 documents the type of data that will be obtained, the schedule for data retrieval, and the specific information that will be generated from the data.

Table 3.8 – Program Delivery Information for Evaluation

Utility	Type of Information	Media	Timing	Notes
Baseline data	Household characteristics, housing unit characteristics, and other available baseline conditions	Electronic	Proposed quarterly download for completed jobs	Profile of population served and service needs
Measures data	Detailed list of measures and measure costs	Electronic	Proposed quarterly download for completed jobs	Measure installation rates
Posttreatment conditions	Available posttreatment conditions	Electronic	Proposed quarterly download for completed jobs	Profile of population after service delivery
Cost data	Cost for procedures and for each installed measure	Electronic	Proposed quarterly download for completed jobs	Average cost by treatment area and average investment per household

Together with the baseline billing data, the program delivery data will be used to generate engineering estimates of the energy savings and affordability impacts from the program. Together with the baseline and posttreatment billing data, the program delivery data will be used to measure program impacts.

3. Data Developed by Evaluation Team

In addition to data retrieval and analysis, the evaluation team is generating data for a sample of program participants through the on-site inspection of completed jobs and the follow-up interviews with program participants.

- *Inspections*: The inspections will generate quantitative data on the comprehensiveness and quality of the work performed. During the inspections, we will assess the extent to which all opportunities were addressed, examine the appropriateness and quality of each installed measure, and measure the posttreatment conditions of the housing unit.

- *Interviews*: The interviews will generate quantitative data on the changes in knowledge and behaviors among program participants. They will serve as a second check on the persistence of measures that are vulnerable to participant behavior, such as CFLs, water temperature, air sealing measures, and removal of a second refrigerator.

These data collection tasks will enhance the overall understanding of the program and will facilitate measurement on specific issues.

C. Summary

We have furnished a detailed review of the information generated by the current tracking system. While most of the information is generated to support, or as a result of program operations, a considerable amount of information will be generated by the evaluation. The data currently tracked by this program are extensive. At this time, only limited management reports are routinely available to the utilities (except through the WARM2 system). However, in part, the development of reports was limited until this Tracking System Evaluation is completed.

The next section develops an assessment of the tracking system and makes recommendations for modify and enhancing the system.

IV. Tracking System Assessment and Recommendations

The Working Group is interested in assessing "what is being tracked by all participating utilities, how the data are coordinated statewide, and whether the tracking system will meet the utilities' needs for future energy savings and affordability evaluations." Specifically, they are concerned with the systems -

- *Consistency*: Are the same data are being tracked by all participating utilities?
- *Sufficiency*: Will the data be sufficient for managing program operations, regulatory reporting, program assessment and enhancement, and assessment of lost revenues?
- *Accessibility*: Are the data accessible to utility program mangers and the Working Group?
- *Accuracy*: How accurate and reliable are the data in the system?
- *Efficiency*: Are the data being captured by the system in the most cost-effective and reliable manner?

In this section of the report, we assess the quality and completeness of the tracking system with respect to the requirements listed above and make recommendations for potential tracking system enhancements. As in Section II, we organize our discussion around three main areas.

- *Program Management and Reporting*
- *Program Operations*
- *Program Evaluation*

We examine the extent to which the tracking system supports the activities in each area and make specific recommendations on how it could better meet the program's information requirements. In our recommendations, we also suggest the priority for proposed enhancements, relative to the other tracking system needs.

It is important to note that our suggestions and recommendations should not be interpreted as a critique of either the participating utilities or the program delivery contractors. Both sets of organizations have invested significant resources in information management and data tracking and have made good suggestions for enhancement of the information tracking system. They have explicitly delayed some improvements so that any additional investments in the tracking system can take advantage of this evaluation.

A. Program Management and Reporting

Utility Comfort Partners Program managers have a joint responsibility for regulatory reporting through the Working Group and an individual reporting responsibility to utility management, shareholders, and customers. The most critical area in which to ensure consistency and quality in the tracking system is where the utilities have joint responsibilities. However, to the extent that a consistent approach to the tracking system facilitates good internal management and reporting, such tracking system enhancements are also important.

1. Regulatory Reporting

Through program filings, the Collaborative has committed to the following Comfort Partners production and performance goals.

- Number of usage reduction participants by utility
- Explicit energy savings targets for the overall program
- Number of arrearage program participants by utility

The systems available for tracking information on program participation and program performance are the HDMC database and the WARM2 database (for GPU participants only). For each area, we examine the extent to which the tracking systems can support both the reporting requirement and the utility managers' ability to ensure that the program commitments are met.

a) Usage Reduction Program Participation

Both the HDMC database and the WARM2 database can furnish information on completed usage reduction program jobs. They differ primarily in the way in which the data are available to utility program managers.

- *Consistency*: Program participation is tracked by the HDMC and WARM2 databases. Both databases can track information on partial completes (jobs underway, but not yet complete). In 2001, all utilities except GPU counted program participation as jobs started in 2001 (GPU counted only completed jobs in 2001). In 2002, all utilities are defining program participation as jobs completed during 2002.
- *Sufficiency*: Both databases contain adequate information to support program participation reports.
- *Accessibility*: The HDMC system is not directly accessible to utility program managers. Monthly reports document participation. The WARM2 system furnishes GPU managers with reports that do not rely on the contractor.

- *Accuracy*: Reports from the quality assurance contractors indicate that the systems adequately report completed jobs.

- *Efficiency*: The data systems capture the required information in a reasonable manner and furnish participation reports in a timely way.

While both of the systems report participation and the WARM2 system can generate pipeline reports, neither system currently facilitates the development of participation projections with respect to staffing capacity. At some level, a utility program manager can project annual program participation by computing the average monthly production rate and multiplying by 12. However, there may be reasons it is inappropriate to extrapolate from monthly production levels. It appears appropriate for contractors to furnish reports on projected participation and to supply information on barriers to meeting participation goals. Since the utilities are "sharing" program delivery contractors, quality assurance contractors, and program participants, it is important for the Working Group to have reports on participation projections for the entire program so that they can work jointly to meet program commitments.

Recommendation: Set up a common participation reporting framework for all utilities and both reporting systems

Two contractors are delivering Comfort Partners services for seven different utilities. There may be more program delivery contractors in the future. The data on participation reported to each utility should be consistent with the data reported by the Working Group to the BPU. At a minimum, we recommend that the Working Group establish a common participation reporting framework so that reporting expectations are consistent and efficient reporting systems can be put into place. If possible, we recommend that the Working Group consider the development of a centralized reporting database that would facilitate consistent and accurate joint program reporting. The details on a possible reporting framework and database structure are outlined later in this section.

b) Usage Reduction Program Performance

Based on evaluations from one of the predecessor programs – E-Team Partners – it appears that the Working Group has set challenging but attainable goals for the Comfort Partners Program performance. There are two ways to assess whether the program is on track to meet those performance goals.

- *Engineering Estimates*: An engineering model can furnish estimates of energy savings. The most comprehensive model would use data on baseline consumption, installed measures, indicators of pre and posttreatment housing unit conditions, and customer commitments to estimate the potential energy savings from the energy efficiency services. Less sophisticated models could use data on installed measures to estimate savings percentages.

- *Measure Installation Rates*: The program might also track measure installation rates in the aggregate as an indicator of the savings potential for the program. Based on analysis of savings ranges for measures from other programs, one could project the expected savings for the Comfort Partners Program.

Both the HDMC database and the WARM2 database can furnish the information required for a basic engineering model and a projection based on measure installation rates. Since more testing data are entered into the HDMC database, it would support a more comprehensive engineering model.

- *Consistency and Sufficiency*: Installed measures are tracked by both the HDMC and WARM2 databases. The HDMC database tracks information on the results of diagnostic tests, while the WARM2 database does not. However, the WARM2 paper audit form actually captures slightly more information on preexisting conditions than does the HDMC paper audit forms. Neither system captures information on customer commitments. The HDMC database includes a usage history. However, usage data are also available from another tracking system that GPU has in place.

- *Accessibility*: The HDMC system is not directly accessible to utility program managers. HDMC has indicated that it has the capacity to develop reports of energy savings projections. HDMC also is working with the evaluation team to furnish a download of the Comfort Partners data that could enable the evaluation team to generate performance projections.

- *Accuracy*: Reports from the quality assurance contractors indicate that the error rates in the HDMC and the WARM2 systems are low. The comprehensiveness analysis will develop quantitative estimates of the error rates. Based on current contractor reports, however, it appears that the data are sufficiently accurate to furnish engineering projections.

- *Efficiency*: Both data systems record the information that is required to meet the current objectives of the information system, i.e., program operations, program invoicing, and participation reporting. Additional information might be needed to support sophisticated engineering models. For both systems, data that can be added to existing database tables can be made part of the system.

Recommendations:

Minimum – Report on average preprogram participant energy consumption and the average installation rates for key measures for completed units on a quarterly basis. Use savings algorithms to develop basis program savings estimates from the program databases.

Enhancement – Use the evaluation team capabilities to develop energy savings projections and to validate the models through billing analysis. Over the long

run, furnish algorithms to tracking databases to facilitate generation of quarterly energy savings projections from the tracking system.

Previous evaluations identified three barriers to achievement of target savings levels. 1) The program did not target high users. 2) The program did not install the most effective measures at a high enough rate. 3) There were quality problems with certain types of installed measures. In the current Comfort Partners Program, the quality assurance contractors can be expected to focus on quality and to report to the utilities when quality is inadequate. However, the tracking system must support the manager's ability to assess the effectiveness of program targeting and the comprehensiveness of installed measures. The minimum recommendation would support more proactive management by the utility program managers. The enhanced approach would actually make monitoring easier for the utility program manager since it would project percentage savings for the program, rather than a series of numbers that are indicative of program savings.

c) Arrearage Program Participation

While HDMC and CBOs work with program participants to complete arrearage program application forms, a customer cannot be counted as enrolled in the arrearage program until the utility Collections Department or Customer Service Department finalizes enrollment. Though the customer may be recorded as an arrearage program participant in the HDMC database, he or she may not have completed enrollment. As a result, data from the HDMC database are only an indicator of the number of arrearage program participants. To generate arrearage program participation statistics, each utility has to track program participation separately.

- *Consistency*: It is clear from a review of the January 2002 report to the Working Group that it is a challenge to define exactly what the arrearage program goals entail. While the program filing shows a participation target, it is not clear whether that target is for the number of customers enrolled during the year or the number of customers enrolled at the end of the year.

- *Sufficiency*: Each utility is working to develop a tracking system for its arrearage payment program. At this point, most utilities are still working with their IT and/or Collections Departments to determine the most feasible approach to tracking program participation and performance.

- *Accessibility*: The tracking systems are still being developed. It is unlikely that a utility's system will be accessible to other members of the working group.

- *Accuracy*: We have not determined the accuracy of these systems. This will be done as part of the Arrearage Program Process Evaluation.

- *Efficiency*: We have not determined the efficiency of these systems. This will be done as part of the Arrearage Program Process Evaluation.

As with all of the joint program commitments, it is useful for the utility program managers to share experiences on arrearage program enrollment, monitoring, and management. To the extent possible, it would be useful to track key program participation and performance statistics to assess the differential performance across utility programs and to examine the reasons for the performance differential.

Recommendation: Set up a common arrearage program participation reporting framework for all utilities

In designing a system, it will be important to keep the data requirements modest and to make the participation and performance definitions clear. The details on a reporting framework and database structure are outlined later in this section.

2. Utility Financial Management

Each utility has its own management control systems. The tracking system for the Comfort Partners Program should support those control systems to the extent possible. Supporting information should include:

- *Detailed Cost Data*
- *Quality Assurance Data*
- *Cost Summary Data*

Both the HDMC database and the WARM2 database furnish exhaustive detail on program costs and have the capacity to supply appropriate cost summary statistics.

a) Detailed Cost Data

Both the HDMC database and the GPU WARM2 database capture the costs for each individual measure.

- *Consistency*: The data systems capture essentially the same measure level cost data. HDMC sends a report in a common format to each of the utilities.
- *Sufficiency*: The invoices are sufficiently detailed to document charges. The individual case reports allow program managers to check expenditures against program guidelines.
- *Accessibility*: If invoices are prepared in a timely way, the data are accessible to program managers. However, it may be difficult for a utility program manager

to find the expenditures for an individual program participant, if that were important.

- *Accuracy*: HDMC has an extensive quality control system. Field supervisors provide an initial review of forms. A case manager is responsible for reviewing all forms and database entries. The staff who are responsible for data entry have an understanding of the program and can identify anomalous entries. Based on our review to date, we expect that any errors in the data system are likely to have been recording mistakes in the field.

- *Efficiency*: The HDMC and WARM2 databases support efficient data entry and report generation procedures. Currently, there is inefficiency in the transfer of data on GPU jobs completed by HDMC from the HDMC database to the GPU database.

With the exception of the HDMC to GPU database transfer problem, the system seems to be comprehensive, accurate, and efficient. The solution for the transfer problem is subordinate to the larger issue of the development of a statewide database that is accessible to a utility managers.

b) Quality Assurance Data

A quality assurance system is being put in place. There are defined procedures for the number of completed jobs that are checked.

- *Consistency and Sufficiency*: The format, quality, and completeness of the procedures will be checked as part of the Comprehensiveness Evaluation. However, the presence of quality assurance inspections meets the fiscal integrity requirement.

- *Accessibility*: The quality assurance data are entered in WARM2 in a way that gives access to estimates of failure rates and failure rates by reason. However, it does not facilitate the assessment of the fiscal component of job failures. Quality assurance tracking is still being planned for most of the utilities working with HDMC. The existing quality assurance results for PSE&G are not tracked in the HDMC database.

- *Accuracy*: This will be assessed as part of the Comprehensiveness Evaluation.

- *Efficiency*: The basic procedure is efficient. However, the database details are inadequate to support the development of management information. Managers must review notes from failed jobs to ascertain reasons for failure.

From the fiscal integrity perspective, it is important to develop statistics on fiscal failure rates (i.e., invoiced items not present in jobs, items installed but not invoiced) in order to document the appropriateness of bills.

Recommendation: Revise the database system so that it captures both quality assurance failures and reasons for failures (already done by GPU). Be sure that fiscal failure statistics account for mistakes in favor of utilities, as well as mistakes in favor of contractors, and that the dollar value of the invoicing mistake is documented.

c) Cost Summary Statistics

In order to project costs for the year, a utility program manager needs statistics on completed jobs. Using these statistics, the manager can project expenditures for the year for the target number of completed jobs.

Consistency: HDMC is providing consistent summary information to all utilities. The WARM2 system furnishes information to GPU.

Sufficiency: The HDMC reports focus on expenditures for the month and total costs for jobs completed during the month. The report does not furnish year-to-date statistics. The WARM2 system can generate the required reports.

Accessibility: Most of the utilities do not have "on demand" reporting. However, it seems adequate to have these data on a monthly basis. GPU has "on demand" reporting.

Efficiency: Both reporting systems are automated and efficient.

The HDMC reports serve the monthly invoicing purpose very effectively. However, they do not furnish the cost summary statistics that would facilitate effective financial management by program managers. The WARM2 system has those capabilities.

Recommendation: Include cost-to-date summary statistics in the standard reporting framework for all utilities.

The details of a possible reporting framework and database structures are outlined later in this section.

3. Utility Operations

Utility program managers must consider how the Comfort Partners Program affects its customers and must be able to keep other operations departments informed about customer participation. For example, since many Comfort Partners customers have difficulty paying their bills, a customer who is being served under Comfort Partners could become a target for collections actions. In such a situation, it is important for the two activities to support one another, rather than work at cross-purposes. The tracking system should facilitate communication among utility departments regarding customers who are served under the Comfort Partners Program.

Consistency and Sufficiency: With the exception of the GPU system, there is no automated approach by which HDMC can furnish the utilities with information about which customers are served.

Accessibility: Detailed monthly invoices list individual customer names and account numbers. However, these paper reports do not facilitate transfer of data to a utility system. The WARM2 database information is transferred to the GPU CCS system.

Accuracy: The data that are available are accurate.

Efficiency: The HDMC system does not currently have an efficient procedure for data transfer. (Note: Such a capacity has not been requested by the utilities.) The WARM2 system has an efficient data transfer mechanism.

Note that HDMC has the capacity to generate electronic reports on served customers and has expressed a willingness to do so. However, no utilities are currently taking advantage of that capability.

Recommendation: The Working Group should develop plans for a common database format for served customers. Each utility could have its own database or access to centralized database. The centralized database could be problematic because issues such as cost and confidentiality.

The details of a possible reporting framework and database structure are outlined later in this section.

B. Program Operations

Information is needed to support each of the program delivery steps.

- *Customer Targeting, Recruitment, and Screening*
- *Usage Reduction Program Service Delivery*
- *Arrearage Program Service Delivery*
- *Quality Assurance*
- *Arrearage Program Tracking*

The tracking system includes information transferred from the utilities to the program delivery contractors, information tracked by the program delivery contractors for their own purposes, and information transferred from the program delivery contractors back to the utility companies.

1. Customer Targeting, Recruitment, and Screening

The utility customer information systems furnish the data for targeting and recruiting customers for the Comfort Partners Program. Each utility system captures different information about customers. In addition, each utility is asking HDMC and/or BBI to undertake a different level of responsibility in recruitment. However, given performance expectations and cost considerations, any recruitment effort should focus on the following issues.

- *Targeting*: Prior research has shown that customers with high baseline usage tend to have the highest percentage savings. In addition, customers with the highest energy bills have the greatest difficulty paying those bills. While the Comfort Partners Program is available to all low-income customers, the best strategy for maximizing the impact of the program is to target high-use customers in recruitment efforts. It must be recognized, however, that the program is required to serve any customer who meets the eligibility criteria.

- *Efficiency*: Some utility CIS systems have markers that indicate customer participation in means-tested programs. Some are derived from payment records (i.e., received LIHEAP or LIFELINE payment), while others are recorded from information furnished by the customer. If a recruitment list is restricted to those customers, it can make the program recruitment efforts more efficient.

In the current system, many of the recruitment efforts use targeting procedures and eligibility markers. However, in many cases, automation of procedures is inconsistent.

Consistency and Sufficiency: NJNG and GPU conduct their own recruitment and screening efforts. The other utilities supply information to HDMC to facilitate recruitment. Most of the utilities either restrict their recruitment lists to high usage customers or furnish usage on the recruitment file so that HDMC can prioritize on usage. The recruitment lists generally contain the information required for recruitment.

Accessibility: Two utilities send paper records to HDMC. The other four send electronic files.

Accuracy: CIS records for phone numbers are sometimes missing or out of date. For those utilities that implement one large download for HDMC to use, the information can become outdated.

Efficiency: HDMC has developed efficient procedures for handling the different data and formats supplied by the utility companies.

In the long run, program recruitment and scheduling could be made more efficient if all utilities developed automated systems for delivery of recruitment lists and screened customers.

For recruitment lists, the following elements would be required.

- *Regular Downloads*: Quarterly downloads would keep the information accurate and up to date.
- *Targeting Indicators*: Recruitment lists should include targeting indicators (usage and arrearages) and eligibility markers (LIHEAP, LIFELINE, etc..).
- *Served Customer Exclusions*: The utility should keep information on served customers and exclude those customers from recruitment lists. (Assignment of this responsibility to the utility overcomes the problems associated with data loss if contractors are no longer serving a particular territory.)

For screened customer lists, the following elements would be required.

- *Regular Downloads*: A commitment for a certain caseload of screened customers would give appropriate predictability for program delivery contractors. (It is difficult to obtain a constant number of screened customers given that the success of recruitment efforts often varies by time of year.)
- *Billing, Payment, and Arrearage Data*: Automatic reporting of required data in a standard format. (Payment data are not required for GPU; CBOs serve as intake agencies for the arrearage program.)
- *Special contact instructions*: A notes field that allows HDMC or other program delivery contractors to understand potential contact problems, including language barriers.

In general, these are cost-reducing, rather than quality-enhancing improvements.

Recommendation: Make it a long-term goal to develop consistent and automated recruitment and screening procedures.

2. Usage Reduction Program Service Delivery

For HDMC, the Comfort Partners Program is a multistep, multicrew, and multiutility activity. As a result, the data tracking system must facilitate complete, accurate, and efficient information transfer from step to step and crew to crew, across all utility programs. For BBI, the Comfort Partners Program is a multistep activity. The tracking system requirements are lower for BBI than for HDMC.

Consistency: The data forms and tracking system are consistent across jobs completed by HDMC. A comparison of the GPU audit and measure recording forms (used by BBI) and HDMC forms demonstrates modest differences that may affect service delivery. In particular, the GPU forms have an extensive checklist of infiltration, documentation of ventilation, and documentation of insulation conditions.

Sufficiency: Both forms are sufficient for the purpose of recording information on what measures need to be addressed. The GPU form used by BBI is better for recording baseline conditions on air infiltration, ventilation, and insulation. This may facilitate more consistent application of a systematic procedure for assessment and measurement in these areas. The HDMC form appears to be better formatted for identifying the installed and recommended measures in each area. Neither form furnishes a comprehensive statement of baseline conditions, particularly for baseload end uses. Neither form records systematic "exceptions" data that would help a reviewer to understand why a particular measure was not installed.

Accessibility: The HDMC system allows HDMC crews and managers immediate access to individual records. The GPU paper system works effectively for a single crew operation or for several crews that are closely supervised by a manager.

Accuracy: We will assess the accuracy of the recorded data during the on-site inspections for the Comprehensiveness Evaluation. However, we found that HDMC has extensive data checking systems in place during our on-site visit to HDMC's Marlton Office.

Efficiency: HDMC's system is very efficient for a multistep, multicrew, and multiutility operation. GPU's system is very efficient for a multi-step single crew operation.

Both systems are well designed and are consistent enough to facilitate the use of a common service delivery protocol. The automation associated with the HDMC system is attractive in that it supports a program of the magnitude and complexity of Comfort Partners. Certain elements of each form facilitate efficient and systematic application of protocols in the home.

The real test of any form is its effectiveness in the field. The Comprehensiveness Evaluation will include 100 on-site inspections. During those inspections, we will assess the extent to which there are any consistent missed opportunities or misdiagnosis of usage reduction needs. If audit forms contribute to problems (if any are identified), the Working Group should consider changes that help to improve program performance.

Recommendation: Leave the current data collection forms and systems in place until the Comprehensiveness Evaluation is complete.

3. Arrearage Program Service Delivery

Each utility has designed its own arrearage program. However, all share the common characteristics that the agreement is formula-driven and that the primary determinant of the formula is the arrearage amount. (Note: GPU has CBOs independently enroll customers in the arrearage payment program.) To explain the arrearage program to a potential participant, the HDMC and CBO staff need the customer's arrearage amount to perform a sample calculation. However a billing and payment history is very useful for payment counseling and education purposes.

Consistency: All utilities provide arrearage data to HDMC and the CBOs to allow them to calculate the arrearage payment schedule. Billing and payment histories are furnished by some utilities.

Sufficiency: Arrearage data are sufficient. Billing and payment data enhance the ability of the educator to counsel the program participant.

Accessibility: The data are made available when an initial visit is scheduled.

Accuracy: Since the data are furnished within days of the scheduled visit, they are up-to-date.

Efficiency: The data retrieval process is not consistently automated. Some utilities make web sties available for data retrieval, thereby eliminating a manual retrieval and faxing process at the utility end. Even these systems require intervention by the program delivery contractor. But, given the need for up-to-date information, further automation is unlikely in those systems.

Recommendation: All utilities should furnish billing and payment histories to the program delivery contractors to facilitate payment counseling.

4. Quality Assurance

The third-party quality assurance contractors need to review the service delivery data to assess the quality and completeness of the work. In general, they have the same information requirements as the crews and subcontractors of the program delivery contractors. However, since it is their job to assess why a particular action was not recommended, it would be easier for them to do their jobs if notes were made in the files whenever there was an exception to the Comfort Partners protocol.

Consistency: The quality assurance contractors can receive all of the paperwork on the job. To the extent that the paperwork is consistent across contractors, the information used by the quality assurance contractors is consistent.

Sufficiency: The paperwork is sufficient to allow the quality assurance contractor to assess the program performance in the context of a direct inspection in the home.

Accessibility: The contractors get access to the paper files. Pure Energy, the GPU contractor, has access to the WARM2 database.

Accuracy: In general, the contractors find that the data are accurate. In some cases, they find that an item that was invoiced was not installed, or that an item that was installed was not invoiced. This appears to be a problem with field recording. There is not currently documentation on the rate at which these errors occur or the net financial value of these errors.

Efficiency: A failure to record exceptions data makes this process less efficient than it could be. When something does not meet protocol, the quality control contractor may need to follow-up with the program delivery contractor to determine the reason. Exceptions data might reduce the number of such calls.

If the quality assurance model is to have the contractor go to the home to complete the inspection, the quality assurance contractor can assess both quality and comprehensiveness from the current audit forms. However, only a limited amount of baseline data are recorded for end uses where no measures are recommended. For example, there is no lighting inventory, only a list of the lights that the auditor determined were cost-effective to replace. In addition, the forms generally do not record why something was not done. That makes it more challenging for the quality assurance contractor to truly assess the comprehensiveness of the work completed without an on-site inspection.

Recommendation: The Working Group needs to assess the relative importance of the comprehensive treatment of homes. If it is a high priority, they should consider changing the data collection forms to support an ongoing assessment of comprehensiveness.

5. Arrearage Program Tracking

Arrearage program tracking is primarily the responsibility of the individual utilities. Most arrearage tracking programs are still under development. Once the programs are established, there is value in reporting common statistics to the Working Group so that they can assess the effectiveness of different program models.

Recommendation: After conducting the Process Evaluation on the arrearage programs, the evaluation team should develop a basic set of performance indicators that furnish meaningful information about the performance of the programs. The Working Group can use those statistics to assess the performance of the programs and to consider ways to modify their individual programs.

C. Program Evaluation

Five components to the evaluation rely on the tracking system:

- *Comprehensiveness Evaluation*
- *Usage Impact Projections*
- *Affordability Impact Projections*
- *Billing Usage Impact Analysis*
- *Affordability Usage Impact Analysis*

Three types of data will be used to support the evaluation.

- *Utility Billing Data*
- *Program Delivery Data*
- *Data Collected by the Evaluation Team*

For each evaluation component, we report on whether a particular type of data are used and whether the current or planned data systems meet the information requirements of the evaluation.

1. Comprehensiveness Evaluation

The goal of the comprehensiveness evaluation is to assess the quality and comprehensiveness of the program. The primary measurement tool in this part of the evaluation is 100 on-site inspections of completed jobs.

a) Utility Billing Data

The only utility billing data required for this analysis is the billing data furnished to the contractor at the time of program delivery. Since those data are part of the job paperwork and, for HDMC, part of the database, the information to support the evaluation is adequate.

b) Program Delivery Data

As for the quality assurance contractors, the forms completed during service delivery will form the basis for judgment with respect to the quality and comprehensiveness of the job. The work of the evaluation team would be facilitated by the presence of inventory data on baseline conditions (e.g., an inventory of baseline insulation conditions) and an "exceptions" report on the reason for not completing certain items that fit within the protocol. However, since the Comprehensiveness Evaluation will be completed in the second quarter of 2002, no action can be taken at this time to resolve this issue.

c) Evaluation Team Data Collection

The primary data collection tool used for this evaluation is the on-site inspection. The inspection will include review of all paperwork, an interview with the household, measurement of housing unit conditions (e.g., blower door test, zonal pressure tests), and direct inspection of installed measures. The results from each inspection will include a quantitative assessment of the impacts of any quality or comprehensiveness issue with respect to its expected impact on the overall

effectiveness of the completed work. In addition, each problem identified by the inspector will be reviewed with HDMC or BBI prior to final assessment.

Consistency: The same protocol will be applied to all jobs.

Sufficiency: The procedures will allow us to assess quality and comprehensiveness for individual jobs. We will select a sample of jobs that will be representative of all jobs. Therefore, a sampling variance will be associated with any quantitative estimates developed from the study.

Accessibility: The inspectors will complete data sheets for each inspection. Those sheets will be available for review by program delivery contractors, quality control inspectors, and utilities.

Accuracy: Supervisors at MaGrann will train the inspection staff and will monitor their work throughout the project.

Efficiency: If the database had a more complete inventory of baseline conditions, more comprehensiveness analysis could be done through database analysis.

The Comprehensiveness Evaluation procedures should meet the Working Group's requirements with the proposed procedures and existing tracking system.

2. Usage Impact Projections

The discussion of program performance management on pages 29 and 30 reviews the alternatives for developing usage impact projections, identifies the capacity of the tracking system to support the different approaches to projecting usage impacts, and makes recommendations with respect to the best short run and long run approaches. The existing tracking system is adequate to support engineering projections.

Some enhancements to the HDMC data recording process would improve the quality of the engineering estimates.

- *Customer Commitments*: Document meaningful behavioral changes (e.g., plan to turn off electric water heater during extended periods away from homes)
- *Water Heating*: Record flow levels for treated faucets and showerheads, water heater setback degrees
- *Thermal Envelope*: Information on changes in the thermal envelope resulting from air sealing to eliminate basements, attics, porches, and/or other ancillary areas from the building's heated square footage
- *Insulation*: Better documentation of the total insulated area and the pretreatment level of insulation

Some enhancements to the GPU data recording process and/or additional entry of key fields into the database would improve the quality of the engineering estimates.

- *Customer Commitments*: Document meaningful behavioral changes (e.g., plan to turn off electric water heater during extended periods away from homes)
- *Lighting*: Key lighting hours for CFLs into database
- *Refrigeration*: Key daily usage for replaced refrigerator
- *Water Heating*: Record and key information on flow levels for treated faucets and showerheads, key water heater setback degrees
- *Air Infiltration Rate*: Key information on pretreatment and posttreatment infiltration rates
- *Thermal Envelope*: Record and key information on changes in the thermal envelope resulting from air sealing to eliminate basements, attics, porches, and/or other ancillary areas from the building's heated square footage
- *Insulation*: Key information on the insulated areas and the pretreatment levels of insulation

The existing tracking system furnishes adequate information to make at least basic usage impact projections. Moreover, some changes in recording procedures and databases are expensive and time-consuming. Therefore, any major changes should be scheduled to coincide with other enhancements to the recording procedures and/or databases.

As part of the Comprehensiveness Evaluation, we will capture more detailed data for a sample of 100 treated housing units. Using the data gathered during those inspections, we will examine the difference between projections based on the existing database and projections based on more complete data. If the differences are significant, we will recommend a set of program changes at that time.

Recommendation: Delay major changes in recording procedures and/or database structure and content until the impact of potential changes can be tested.

3. Affordability Projections

Three pieces of data are needed for affordability projections.

- *Baseline Billing and Payment Data*: To document affordability problems
- *Usage Reduction Estimates*: To estimate savings and compare to current bill shortfall

- *Arrearage Payment Terms*: To document the arrearage retirement savings

The tracking system will include billing data for program participants, the data to make usage reduction estimates, and data on arrearage payment terms. As long as planned data capture procedures are put in place, the data will be available to conduct this analysis.

Recommendation: The Working Group should continue to support data retrieval efforts, including capture of billing and payment data and arrearage payment terms.

4. Billing Usage Impact Analysis

Several different kinds of data will be used to conduct the comprehensive billing usage analysis.

- *Baseline Consumption Data*: To document pretreatment usage patterns
- *Posttreatment Consumption Data*: To document posttreatment usage patterns
- *Comparison Group Consumption Data*: To measure net impacts
- *Detailed Measures Data*: To develop a components analysis of savings
- *Engineering Estimates*: To calculate the realization rates for key measures
- *Detailed Cost Data*: To develop cost-effectiveness estimates for program components

The current tracking system furnishes measures data and detailed cost data. We are putting procedures in place to obtain billing data for program participants. As described above, the data are available to generate engineering estimates. As long as planned data capture procedures are put in place, the data will be available to conduct this analysis.

Recommendation: The Working Group should continue to support data retrieval efforts, including capture of pre and posttreatment usage data.

5. Billing Affordability Impact Analysis

Several different kinds of data will be used to conduct the comprehensive billing affordability analysis.

- *Baseline Billing and Payment Data*: To estimate pretreatment payment patterns and affordability

- *Posttreatment Billing and Payment Data*: To document posttreatment usage patterns
- *Comparison Group Data*: To measure net impacts
- *Usage Reduction Estimates*: To document the usage reduction component of affordability changes
- *Arrearage Program Payment Status*: To document the impact on demonstrated affordability

We are putting procedures in place to obtain billing and payment data for program participants and a comparison group. As describe above, the data are also being retrieved so as to generate usage impact estimates. As long as planned data capture procedures are implemented, the data will be available to conduct this analysis.

Recommendation: The Working Group should continue to support data retrieval efforts, including capture of pre and posttreatment billing and payment data.

D. Prioritized Recommendations

We have made a series of tracking system recommendations in this section. Here we summarize and prioritize the recommendations.

1. Quarterly Management Report

In our judgment, the highest priority for the tracking system is the development of a quarterly management report.

The existing reports do not furnish utility managers with enough information to ensure that the Comfort Partners Program will achieve participation and performance goals, nor with the information needed to ensure that the program will meet the budgets set by their individual utilities. The monthly invoices prepared by HDMC and by the WARM2 system are valuable and necessary. However, they best serve the purpose of billing for monthly activities, rather than for assessing current program performance.

The managers need a quarterly report with management information. Managers should get information for their utility's program and summary information for the entire Comfort Partners Program. The information that should be included in such a report is described below.

Usage Program Participation

- *Participation*: Cumulative program participation, participation by quarter, and participation by month for electric, gas, and an unduplicated count

- *Participation Projections*: Realistic projections of participation based on cases in the pipeline and available staffing.

- *Participation Barriers*: Issues that need to be resolved to facilitate meeting participation goals

Performance

- *Usage Targeting*: Average gas usage for customers using gas, average electric usage for electric heating customers, average electric usage for baseload electric customers

- *Demographic Targeting*: Share of customers enrolled in public assistance programs, share of customers who are elderly

- *Measures Penetration*: Percent of customers receiving services by area, including lighting, refrigerators, water heater wraps, thermostats, air sealing measures, attic insulation, and wall insulation

- *Quality Control*: Some indicator of quality control – possibly job failure rates or job failure rates by reason

Cost

- *Fixed Costs to Date and Fixed Cost Projections*

- *Cost Statistics for Completed Jobs*: Total cost, average cost per job, average cost by job type, and cost projections consistent with participation projections

- *Cost Performance Statistics*: Table comparing actual costs to cost allowance guidelines for jobs by job type

Arrearage Program Participation

- *Participation*: Cumulative participation, participation by quarter

- *Participation Projections*: Realistic projections of participation based on cases in the pipeline and available staffing.

- *Participation Barriers*: Issues that need to be resolved to facilitate meeting participation goals

Under the current program structure, HDMC would supply much of the information for this report. However, the Working Group must prepare for the possibility of having multiple contractors under the Comfort Partners Program. Each contractor should furnish this information in an electronic format for the utility programs served. The Working Group or their designee should compile the data and distribute the final report.

2. Usage Impact Projections

The program filing for 2002 sets energy savings goals for the program. While the goals seem achievable given performance in other usage reduction programs, the Comfort Partners Program is being implemented on a scale that few other usage reduction programs attempt. As such, it is important for the Working Group to have as much information as possible about program performance and any barriers to effective performance.

The Process Evaluation and the Comprehensiveness Evaluation will help the Working Group to understand some of the barriers to program effectiveness. However, usage impact projections developed from engineering models will supply quantitative statistics that can help the Working Group to understand how the Program is performing against the goals.

We recommend that the Evaluation Team use the existing program databases to generate preliminary usage impact projections to assist the Working Group in assessing the expected performance level of the Comfort Partners Program.

3. Evaluation Data Retrieval

In our judgement, retrieval of data to support the evaluation is the second highest priority activity. The evaluation team will take responsibility for communicating data needs, clarifying data availability and definitions, and checking data quality. However, the team needs the support of utility program managers to emphasize that the data are necessary for program management and regulatory reporting purposes.

Several types of data are needed for the evaluation.

- *Program Delivery Data*: The team needs to retrieve detailed information on completed cases. The managers of the HDMC database and the WARM2 database have been very responsive to our information requests.

- *Utility Billing, Payment, and Usage Data*: The team needs to retrieve data from the utility customer information systems. We are at different stages with different utilities. No major restrictions have been placed on data retrieval.

- *Direct Customer Contact*: The team needs to directly observe the work of the program delivery contractors, inspect work in the homes of program participants, and conduct interviews with program participants. To date, there have been no difficulties in conducting this research.

The most challenging component of data retrieval is with the seven utility IT/IS Departments. We will ask members of the Working Group to intervene when it is appropriate.

4. Tracking System Enhancements

In this evaluation, we identified several types of data that should contribute to better management of, and reporting on, the Comfort Partners Program. However, since the existing system is working effectively at this time, we recommend that enhancements wait until the Comprehensiveness and Process Evaluation Reports are complete. Those evaluation elements can be expected to identify additional tracking system enhancements. It would be more efficient to make all of these changes at the same time. We recommend that the Working Group address these issues during the fourth quarter of 2002.

Some of the areas for enhancement of the tracking system include:

- *Examination of the Health and Safety Data*: The program is spending considerable resources on health and safety measures but does not have good data on program accomplishments.

- *Quality Assurance Tracking*: More detailed information about the types of quality assurance failures would furnish better management information for prioritizing and addressing program quality issues.

- *Data to Support Engineering Models*: Certain data fields could enhance the quality of usage impact projections.

Within these areas, it will be important to prioritize system changes to address those changes that will deliver the greatest value to the program.

5. Tracking System Database

The current database systems meet the immediate needs to support program management, program operations, and program evaluation. However, there are two ways in which the systems make the Working Group vulnerable.

- *Proprietary Database*: Currently, most of the electronic information about the program resides in a proprietary database owned by HDMC. HDMC has developed an excellent database and has been very responsive to Working Group information needs. However, with the exception of the data captured by the WARM2 system, the Working Group is dependent on this system for information. Since the Working Group plans to rebid the Comfort Partners work periodically, they are vulnerable to data loss if other contractors are selected to run the program.

- *Multiple Providers*: One potential outcome of contracting procedures is that multiple contractors could provide Comfort Partners services. Under such a scenario, it becomes increasingly complex to track program information without a common tracking system format.

In the short run, the greatest concern is that utilities do not have electronic data on customers who have been served in the program. It would be appropriate for the Working Group to ask HDMC to supply a datafile on a quarterly basis that includes the name, address, and account number of all program participants.

In the long run, we recommend that the Working Group design a common database format to which each program delivery contractor would supply data. The database could be implemented and supported by each utility for its own program participants or the database could be maintained by a third party and each utility could have access to it.

We recommend that the Working Group consider the issue of a common database format and/or a joint database during the fourth quarter of 2002 when they are considering other tracking system enhancements.

6. Program Targeting, Recruitment, and Screening

In the current system, program targeting, recruitment, and screening activities are only partially automated. It takes time to design and implement automated systems. Moreover, since this is primarily an efficiency issue, other tracking system needs take precedence.

We recommend that, over time, the Working Group encourage all participating utilities to automate these systems. However, to do that, the utilities need to understand the most critical areas for automation. To assist in this process, we recommend that the Working Group ask HDMC to give them a model of what the most efficient system would look like. Then the individual program managers could work incrementally over time to move their systems in that direction.

While improvements in systems might be a priority in 2003, it would be useful for HDMC to propose a model during 2002.

E. Summary of Findings and Recommendations

The Tracking System Evaluation found that the existing and planned information systems support most of the required program management, program operations, and program evaluation requirements. We identified specific areas where enhancement in the tracking system could facilitate better management or service delivery in the Comfort Partners Program. We outlined a schedule for tracking system enhancements that calls for:

- *Quarterly Management Reports*
- *Support of Evaluation Data Retrieval*
- *Targeted Tracking System Enhancements*

- *Development of a Tracking System Database Format*
- *Program Target, Recruitment, and Screening Automation*

It is our contention that all of these activities are valuable to the Comfort Partners Program, have a reasonable cost, and are attainable over the next two years.

Appendix

- HDMC Program Delivery Forms
- GPU Program Delivery Forms

HDMC Program Delivery Forms

GPU Program Delivery Forms