1994 AGRICULTURAL ENERGY EFFICIENCY INCENTIVES PROGRAM

MISCELLANEOUS MEASURES

FIRST YEAR RETENTION STUDY

Study ID No. 929

Prepared for

San Diego Gas & Electric
San Diego, California

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SECTION 1 INTRODUCTION 1-1

1.1 Introduction 1-1

SECTION 2 RESULTS 2-1

2.1 Introduction 2-1

2.2 Findings 2-1

2.2.1 Retention Rate: Equipment Level 2-2
2.2.2 Retention Rate: Retained Energy Savings 2-2
2.2.3 Discrepancy Analysis 2-4
2.2.4 At Risk Resource Benefit 2-4

SECTION 3 METHODOLOGY 3-1

3.1 Overview 3-1

3.2 Procedures 3-1

3.2.1 Task 1: Review existing site documentation 3-1
3.2.2 Task 2: Sample Development 3-1
3.2.3 Task 3: Schedule on-site survey visit 3-2
3.2.4 Task 4: Conduct the on-site verification survey 3-2
3.2.5 Task 5: Perform database management and analysis tasks 3-2
3.2.6 Task 6: Analysis and Reports 3-2

1 INTRODUCTION

1.1 INTRODUCTION

San Diego Gas & Electric (SDG&E) commissioned XENERGY Inc. to investigate the retention of measures installed as part of its *1994 Agricultural Energy Efficiency Incentives Program* (*AEEI Program*). These measures were installed to provide resource value by improving the energy efficiency of the facilities that participated in the *AEEI Program*. XENERGY conducted the *1994 Agricultural Energy Efficiency Incentives Program First Year Retention Study of Miscellaneous Measures* on 1994 Agricultural sector*AEEI Program* participants with measures categorized as "Miscellaneous."

The overall objectives of the study were to:

- Verify the physical installation of the measures identified in the program tracking system (electronic and hard copy);
- Investigate reasons at the site for a measure not installed; and
- Investigate possible reasons for changes in operations or facilities which may result in unusual realized savings estimates.

XENERGY utilized an on-site survey methodology that relied on the direct observation of the installed measure to verify the installation.

The remainder of this report is organized as follows:

Section 2	Results and Findings
Section 3	Survey Methodology

2 RESULTS

2.1 INTRODUCTION

The *1994 Agricultural Energy Efficiency Incentives Program First Year Retention Study of Miscellaneous Measures* was conducted on EEI program participants from the Agricultural sector that installed "Miscellaneous" measures during the 1994 program year.

Program data and files had been reviewed and categorized as "Miscellaneous" or "Nonmiscellaneous" by SDG&E. SDG&E assessed information in program tracking databases and hard copy program files to determine what measures were installed, and how site and measure information should be categorized. XENERGY used both electronic and hard copy to provide the basis for verifying the measures installed at the site.

The methodology used for this study is described in Section 3.

2.2 FINDINGS

This section presents the findings of the *1994 Agricultural Energy Efficiency Incentive Program First Year Retention Study of Miscellaneous Measures*. Retention rates are used to describe the extent of the verified installations. The retention rates take the form shown in Equation 2-1.

(Eq. 2-1)

$$R = \frac{Q_{Verified}}{Q_{Tracking}},$$

where,

R = *Retention rate,*

$Q_{Verified}$ = *Quantity verified, and*

$Q_{Tracking}$ = *Quantity from tracking system.*

The retention rate was examined from two perspectives, the energy savings retained and retained equipment.

2.2.1 Retention Rate: Equipment Level

A total of 5 individual miscellaneous measures was installed by Agricultural sector customers through SDG&E's EEI Program in 1994. Each of these measures was selected for verification surveys. As shown in Table 2-1 80 percent of the measures were still in place and operating generally as intended.

Table 2-1
Agricultural Miscellaneous Measure Retention Rate
Equipment Perspective

Description	No. Installed Measures	No. Surveyed Measures	No, Verified Installed	Retention Rate
Overall	5	5	4	0.800

On an end use basis, Table 2-2 shows that the measures that were not verified were motors where three were not verified, or process, where one measure was not verified.

Table 2-2
Miscellaneous Measure Retention Rate
By End Use
Equipment Perspective

End Use	No. Installed Measures	No. Surveyed Measures	No. Verified	Retention Rate
Overall	5	5	4	0.800
Other	3	3	2	0.667
Process	2	2	2	1.000

2.2.2 Retention Rate: Retained Energy Savings

The energy savings of each measure installed was used as an indicator of the magnitude of the resource value of a measure. As shown in Table 2-3, the energy saved through the program was a little over 3,400 kWh and 55,728 Therms. The measures were installed at the only two sites where Agricultural Miscellaneous measures were installed.

Table 2-3
Energy Savings of Agricultural Miscellaneous Measures

Description	Energy Savings (kWh)	Percent	Energy Savings (Therms)	Percent
All Agri. Miscellaneous measures	3,423	100%	55,728	100%
Sites surveyed	3,423	100%	55,728	100%
Sites not surveyed	n/a		n/a	

Table 2-4 shows that measures representing both measures that use electricity were still installed and operating. Thus, 100 percent of the kWh savings were retained. On the other hand, about a quarter of the natural gas savings were not retained, since one piece of equipment was not in working condition at the time of the survey.

Table 2-4
Agricultural Miscellaneous Measure
Retention Rates
Energy Savings Perspective

Description	Energy Savings	Verified	Retention Rate
Electricity (kWh)	3,423	3,423	1.00
Natural Gas (Therms)	55,728	41,814	0.75

Table 2-5 shows the energy savings by end use.

Table 2-5
Agricultural Miscellaneous Measure Retention Rates
By End Use
Energy Savings Perspective

End Use	Energy Savings (kWh)	Verified (kWh)	Retention Rate	Energy Savings (Therms)	Verified (Therms)	Retention Rate
Process measures	3,423	3,423	1.00	34,088	34,088	1.00
Other	-	-	-	21,640	7,726	0.36

2.2.3 Discrepancy Analysis

The onsite surveys showed that each of the five measures remained installed. However, a heat recovery unit was not functioning properly at the time of the survey. The customer had made efforts to get the equipment in working condition, and continues to make efforts to return the equipment to operating condition, but has been unsuccessful. The non-operating heat recovery measure represents savings of 13,914 Therms, of a total of 55,728 in Therm savings for the Agricultural sector. This is 25 percent of the total Therm savings for Agricultural Miscellaneous measures installed.

Table 2-6
Reasons For Discrepancy of Verified Missing Measures

End Use	Energy Savings	Business Type	Reason For Discrepancy
Other	13,914 Therm	Nursery	Heat recovery unit remains installed, but was not functioning properly, therefore was not being used. Efforts to return the equipment to operating condition have been undertaken, and efforts to repair continue.

2.2.4 At Risk Resource Benefit

All Agricultural sites with Miscellaneous measures were surveyed. Thus, there is no resource value at risk. The resource value of the one measure that is currently inoperative is considered to be unretained. It could, however, provide benefits if it is successfully returned to proper operating condition.

3 METHODOLOGY

3.1 OVERVIEW

This section describes the methodology used for conducting the *1994 Agricultural Energy Efficiency Incentive Program First Year Retention Study of Miscellaneous Measures.* The major tasks conducted were the:

- Reviewing existing site documentation, usually comprised of electronic program tracking data and hard copy files;
- Scheduling on-site survey visits;
- Conducting the on-site verification survey;
- Performing database management; and
- Analyzing and reporting.

3.2 PROCEDURES

This section describes the tasks performed to conduct the *1994 Agricultural Energy Efficiency Incentive Program First Year Retention Study of Miscellaneous Measures.*

3.2.1 Task 1: Review existing site documentation

To assemble a site profile that was as complete as possible, existing site documentation was compiled and reviewed. The documentation consisted of electronic database extracts of the *AEEI Program* tracking system, as well as hard copy program files with information such as applications, energy analysis, and technical information on the measures. This information helped to ascertain the location of the measures, site contact, and accurate description of the measures. These steps facilitated the site recruitment and scheduling, as well as the on-site survey.

3.2.2 Task 2: Sample Development

A census of the Agricultural Miscellaneous measures was conducted. Only two sites were identified that had participated in the *AEEI Program* in 1994. Table 3-1 shows the measures by end use.

Table 3-1
Agricultural Miscellaneous Measures Installed in 1994
By End Use

End Use	Measure Description	Number of Measures	Percentage
Other	Heat Recovery	1	0.20
	Boiler	2	0.40
Process	Boiler	2	0.40

3.2.3 Task 3: Schedule on-site survey visit

The site was typically recruited and scheduled for the on-site survey by telephone.

3.2.4 Task 4: Conduct the on-site verification survey

The on-site surveys were conducted to verify the installation of the measures.

3.2.5 Task 5: Perform database management and analysis tasks

Data gathered during the on-site survey were entered into a data management system for analysis. Quality control routines were executed to assure the quality of the data, including customer callbacks to verify some values.

3.2.6 Task 6: Analysis and Reports

Retention rates are used to describe the extent of the verified installations. The retention rates take the form shown in Equation 3-1.

(Eq. 3-1)

$$R = \frac{Q_{Verified}}{Q_{Tracking}},$$

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