

**IMPACT EVALUATION
OF PROCCES AND SYSTEMS UPGRADE INITIATIVE
FOR 2012**

**Draft Report
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EXECUTIVE SUMMARY

This report presents and discusses the findings from an impact evaluation of the Process and Systems Upgrade Initiative (PSUI) for 2012. Through the Process Systems Upgrade Initiative (PSUI), OPA is working with local distribution companies (LDCs) in Ontario to provide energy efficiency services to the LDCs' distribution-connected industrial customers. The findings presented in this report pertain to the energy savings and peak demand reductions that resulted from projects completed in 2012 as part of the PSUI.

Customers participated in the PSUI during 2012 by completing preliminary engineering studies, detailed engineering studies, or by receiving assistance from embedded or distributed energy managers. Some customers who participated in the PSUI program received incentives through other programs and therefore the savings is claimed by the program through which they received incentives. Customers can also receive incentives through the PSUI program; however, no facilities completed incentive projects through the program. Consequently, this report presents the evaluation of program enabled savings projects completed during 2012. Program enabled savings projects are projects that were facilitated by the resources provided through the program such as assistance provided by energy managers or analyses completed through program funded engineering studies.

The realized gross and net energy savings of the PSUI Program during are summarized in Table ES-1 below. Realized gross energy savings for the 33 projects completed in 2012 totaled 4,455 MWh. Realized gross annual energy savings for projects completed in 2012 totaled 7,852 MWh. The realization rate is 115%.

2012 realized net savings were 4,087 MWh and the net to gross ratio is 92%. The annual realized net savings totaled 7,090 MWh. The net to gross ratio for the program is 90%.

Table ES-1 Summary of 2012 and Annual MWh Savings for PSUI Program

<i>Savings Period</i>	<i>Expected Gross MWh Savings</i>	<i>Realized Gross MWh Savings</i>	<i>Gross Realization Rate</i>	<i>Realized Net MWh Savings</i>	<i>Net to Gross Ratio</i>
2012	-	4,455	-	4,087	92%
Annual	6,817	7,852	115%	7,090	90%

The realized gross peak MW reductions of the PSUI Program during 2012 are summarized in Table ES-2 below. Realized gross peak demand savings for 2012 totaled 0.553 MW. Annual peak demand savings totaled 1.016 MW. The realization rate is 117%.

2012 realized net peak savings were .508 MW and the net to gross ratio is 92%. The annual realized net savings totaled .926 MWh. The net to gross ratio for the program is 91%.

2012 realized net peak savings were .508 MW and the net to gross ratio is 92%. The annual realized net savings totaled .926 MWh. The net to gross ratio for the program is 91%.

Table ES-2 Summary of 2012 and Annual Peak MW Demand Savings for PSUI Program

<i>Savings Period</i>	<i>Expected Gross MW Demand Savings</i>	<i>Realized Gross MW Demand Savings</i>	<i>Gross Realization Rate</i>	<i>Realized Net MW Demand Savings</i>	<i>Net to Gross Ratio</i>
2012	-	0.553	-	.508	92%
Annual	0.870	1.016	117%	.926	91%

1. INTRODUCTION AND PURPOSE OF STUDY

Under contract with the Ontario Power Authority (OPA), ADM Associates, Inc. (ADM) is conducting evaluations of two programs that OPA has developed for industrial facilities in Ontario. The Industrial Accelerator Program (IAP) is offered to OPA's transmission-connected customers. Through the Process Systems Upgrade Initiative (PSUI), OPA is working with local distribution companies (LDCs) in Ontario to provide energy efficiency services to the LDCs' distribution-connected industrial customers.

The subject of this report is program activity during 2012 for the OPA's PSUI. This initiative is targeted at OPA's distribution connected small industrial, commercial, and municipal customers. The initiative rolled out slowly due to an internal reorganization at OPA. The Technical Review Team was put in place in October 2011, and contracting with energy managers began in April 2012. The program is administered through the Local Distribution Companies (LDC).

The goal of the PSUI is to increase the efficient use of electrical energy and reduce the energy intensity of industrial facilities in Ontario. The program provides financial incentives for savings projects as well as non-financial support in the form of Enabling Initiatives. Energy Managers are a critical piece of the Enabling Initiatives provided through the PSUI. The program funds two types of Energy Managers: Embedded Energy Managers and Roving Energy Managers. Embedded Energy Managers are employed by industrial firms and assist in the identification energy saving opportunities, develop energy efficiency plans, and implement efficiency projects. Roving Energy Managers fill a similar role but are employed at an LDC and work to develop projects in multiple customer facilities. In addition to funding Energy Managers, the PSUI also funds preliminary and detailed engineering studies to identify energy efficiency opportunities and develop a business case for implementing the energy saving measure.

The purpose of this report is to present the findings from the evaluation effort undertaken to determine the gross and net energy savings and peak demand reductions that resulted from projects completed in the PSUI during the 2012 program year.

This report is organized as follows.

- Section 2 provides a description of the PSUI and participation in the program during 2012.
- Section 3 presents and discusses the methods used and findings from the verify MWh savings and MW reductions for projects implemented through the program.
- Section 4 presents the methods and findings for net energy savings.
- Section 5 summarizes the results of the evaluation effort.

2. DESCRIPTION OF PSUI AND PARTICIPATION IN 2012

This section provides a description of the PSUI and participation in the program during 2012.

2.1 DESCRIPTION OF PSUI

The Process and Systems Upgrade Initiative (PSUI) is targeted at OPA's distribution connected small industrial, commercial, and municipal customers.

Participating facilities can receive the following through the PSUI:

- Enabling Initiatives are intended to help distribution-connected customers identify and implement energy efficiency projects and increase uptake of capital incentive projects. Enabling initiatives for PSUI include funding preliminary and detailed engineering studies to identify energy efficiency opportunities at eligible industrial facilities and funding of Roving and Embedded Energy Managers who identify and implement energy saving projects
- Project incentives are provided for approved projects, based on the lowest of the following
 - \$200 per MWh for annualized electricity savings;
 - 70% of eligible project costs; or
 - achieving a one-year simple payback.

Participants may elect to complete non-incentive projects as a result of the Enabling Initiatives, either in addition to or instead of capital incentive projects.

As part of the evaluation process, the OPA seeks to verify the energy and demand savings that are achieved through capital incentive projects and savings from Enabling Initiatives, hereby known as Program Enabled Savings. Program Enabled Savings may be accrued both from participants who have completed additional non-incentive projects (outside of their capital incentive project) or from participants who have completed non-incentive projects instead of capital incentive projects.

2.2 PSUI PARTICIPATION IN 2012

The PSUI funds preliminary and detailed engineering studies to assist participants with the identification of energy savings opportunities. As shown in Table 2-1, there were 23 engineering studies completed during 2012. Four of these projects were preliminary engineering studies and 19 were detailed engineering studies. Additionally 33 Embedded Energy Managers and 13 Roving Energy Managers were hired through the initiative.

Table 2-1 Energy Managers Hired and Engineering Studies Completed by Local Distribution Company

Local Distribution Company	Embedded Energy Managers Hired	Roving Energy Managers Hired	Engineering Studies Completed
Brantford Power Inc.	-	-	1
Cambridge and North Dumfries Hydro	-	-	2
CK Hydro	-	-	1
Hydro Ottawa	3	1	-
Entegrus	1	-	-
Enersource	5	2	1
Enwin	2	-	2
Erie Thames	1	-	1
Hydro One	1	-	4
London Hydro	3	-	-
Toronto Hydro	9	4	-
Cambridge Powerstream	1	-	-
Horizon	5	2	-
Innisfil Hydro	2	3	1
Guelph Hydro Electric System Inc	-	1	-
Haldimand County Hydro	-	-	2
Hawkesbury Hydro Inc	-	-	1
Norfolk Power	-	-	1
North Bay Hydro	-	-	1
North Bay Hydro Distribution Ltd	-	-	1
Oshawa PUC Networks Inc.	-	-	1
Welland Hydro	-	-	1
Total	33	13	23

2.3 MEASURES IMPLEMENTED BY PSUI PARTICIPANTS IN 2012

The Technical Reviewer provided ADM with a list of 59 Program Enabled Savings projects that were completed during 2012. The majority of these projects were attributed to an Embedded or Roving Energy Manager by the Technical Reviewer.

Because the level of documentation available on these projects varied substantially, in many cases ADM contacted the energy managers to acquire additional preliminary information about the projects such as date of completion and whether or not the project received an incentive from another OPA program. Based on these contacts, it was determined that a number of the

projects did not count for 2012 Program Enabled Savings. The most common reason why projects did not count for savings was that projects were not yet completed or completed during 2013. 14 projects had not yet been completed or had been completed during 2013. There were an additional 11 projects that the respondent reported that they had received an incentive for. Lastly, one contact had no knowledge of one of the two projects completed by the participant. After these exclusions, 33 projects remained as 2012 Program Enabled Savings Projects.

The Program Enabled Savings projects involved a variety of measure types including the implementation of variable frequency drives, lighting projects, compressed air leak identification and repair, and behavioral programs to reduce energy use.

3. ESTIMATION OF GROSS SAVINGS

This chapter addresses the estimation of gross MWh savings and peak MW demand reductions resulting from measures implemented in facilities of OPA customers that participated in the PSUI program during 2012.

3.1 METHODS FOR ESTIMATING SAVINGS

3.1.1 Sampling Plan

Data used to estimate the gross savings achieved through the PSUI Program were collected for a sample of projects completed during 2012. Data provided by OPA and the Technical Reviewer showed that during 2012, there were 33 projects completed, which were expected to provide savings of 6,817 MWh annually.

Inspection of data on MWh savings for individual projects indicated that the distribution of savings was generally positively skewed, with a relatively small number of projects accounting for a high percentage of the estimated savings. Estimation of savings is based on a ratio estimation procedure, which allows precision/confidence requirements to be met with a smaller sample size. ADM selected a sample with a sufficient number of projects to estimate the total achieved savings with 10% precision at 90% confidence. For the sample, the actual precision is $\pm 6.4\%$.

For each sample project, the evaluation work produced two estimates of gross savings: an expected gross savings estimate, as reported in the program records, and the realized gross savings estimate, as developed through impact evaluation. Total realized gross savings were determined by applying savings realization rates to the program total expected gross savings. The ratio estimate of total savings for each program is given by the formulation,

$$\hat{T}_R = \frac{t_R}{t_E} T_E = \frac{T_E}{t_E} t_R$$

where \hat{T}_R is the estimate for total program realized gross savings, t_R is the sample total for realized gross savings, t_E is the sample total for expected gross savings (the auxiliary variable), and T_E is the population total for the program expected gross savings auxiliary variable.

This ratio estimation of program savings calculates expected gross savings from the program records.

3.1.2 Data for Analysis

Documentation pertaining to the project was obtained from OPA and the Technical Reviewer as well as from Energy Managers responsible for implementing the projects. In many cases the documentation available was limited to a description of the project and the estimated savings.

- Documentation for the operating characteristics of the equipment after the operational change was implemented, including (1) descriptions, (2) schematics, (3) performance data, and (4) other supporting information
- Information about the savings calculation methodology, including (1) what methodology was used, (2) specifications of assumptions and sources for these specifications, and (3) correctness of calculations

After additional review of the documentation, ADM worked with OPA and the Technical Reviewer to obtain further information to ensure that the M&V analysis was based on proper information.

3.1.3 Procedures for Estimating Savings from Measures Sampled through PSUI Program

ADM uses a specific set of methods to determine gross savings for projects that depend on the type of measure being analyzed. These typical methods are summarized in Table 3-1.

Table 3-1 Typical Methods to Determine Savings

<i>Type of Measure</i>	<i>Method to Determine Savings</i>
Lighting	Custom-designed lighting evaluation model, which uses data on wattages before and after installation of measures and hours-of-use data from field monitoring
Motors and VFDs	Pre and post one time power measurements in conjunction with provided facility sequence of operations are used to determine energy demand requirements of the motors and drives. Annual saving is determined by extrapolating data to an entire year typical operation profiles.
HVAC (including packaged units, chillers, cooling towers, controls/EMS)	Standard engineering heat transfer equations are used to determine pre and post energy requirements using TMY3 weather for the appropriate climate zone.
Dryer Drums	Pre and post monitoring data used to determine typical operating profiles before and after retrofit. Annual saving is determined by extrapolating data to an entire year using production data.
Behavior Based Programs	Variable base heating and cooling degree day regressions are used to determine typical annual building consumption. Savings are based on % reduction for given program as a result of literature research.

The activities specified in Table 3-1 produced two estimates of gross savings for each sample project: an expected gross savings estimate (as reported in the project documentation and program tracking data) and the verified gross savings estimates developed through the M&V procedures employed by ADM. ADM developed estimates of gross savings by applying a ratio estimation procedure in which achieved savings rates estimated for the sample projects were applied to the expected savings.

Energy savings realization rates¹ were calculated for each project for which on-site data collection and engineering analysis are conducted.

3.1.4 Procedures for Estimating Peak Demand Savings

The peak period for this program is defined as the average load reduction occurring between 1:00 PM and 7:00 PM during June, July, and August weekdays. The methodology described in section 3.1.1 was used to extrapolate sample peak demand savings to the population of projects.

3.1.5 Procedures for Estimating First Year (2012) Savings

First year savings were estimated for each project implemented under the program. ADM used completion dates provided in the tracking data to create a factor that represents the portion of the program year during which the project was installed and accruing energy savings. For projects for which completion dates were not provided in tracking data, ADM inquired about project completion through energy managers and/or facility staff.

3.2 RESULTS OF GROSS SAVINGS ESTIMATION

To estimate gross MWh savings for the program, ADM completed analyses for a sample of 12 projects. Additional information led to three of the 12 projects being dropped from the sample, as two had not been completed during 2012 and the other participant had no knowledge of the project in question.

The projects were analyzed using the methods described in Section 3.2 to estimate project energy savings and to determine realization rates for the program. The results of the analysis are reported in this section.

3.2.1 Realized Gross MWh Savings

The realized gross and net energy savings of the PSUI Program during are summarized in Table 3-2 below. Realized gross energy savings for the 33 projects completed in 2012 totaled 4,455

¹ The savings realization rate for a project is calculated as the ratio of the achieved savings for the project (as measured and verified through the M&V effort) to the expected savings (as determined through the project application procedure and recorded in the tracking system for the program).

MWh. Realized gross annual energy savings for projects completed in 2012 totaled 7,852 MWh.

Table 3-2 Summary of 2012 MWh Savings for PSUI Program

<i>Savings Period</i>	<i>Expected Gross MWh Savings</i>	<i>Realized Gross MWh Savings</i>	<i>Gross Realization Rate</i>
2012	-	4,455	-
Annual	6,817	7,852	115%

3.2.2 Realized Gross MW Demand Savings

The realized gross peak MW reductions of the PSUI Program during 2012 are summarized in Table 3-3 below. Realized gross peak demand savings for 2012 totaled 0.553 MW. Annual peak demand savings totaled 1.016 MW.

Table 3-3 Summary of 2012 Peak MW Demand Savings for PSUI Program

<i>Savings Period</i>	<i>Expected Gross MW Demand Savings</i>	<i>Realized Gross MW Demand Savings</i>	<i>Gross Realization Rate</i>
2012	-	0.553	-
Annual	0.870	1.016	117%

4. ESTIMATION OF NET SAVINGS

This chapter reports the results from estimating the net impacts of the Process and Systems Upgrade Initiative (PSUI) during the period January 2012 through December 2012, where net savings represents the portion of gross savings achieved by program participants that can be attributed to the effects of the program.

4.1 PROCEDURES USED TO ESTIMATE NET SAVINGS

The basic issue in net savings analysis is determining what part of gross savings achieved by program participants can be attributed to the effects of the program. The savings induced by the program are the “net” savings that are attributable to the program.

Net savings may be less than gross savings because of free ridership impacts, which arise to the extent that participants in a program would have adopted energy efficiency measures and achieved the observed energy changes even in the absence of the program. Free riders for a program are defined as those participants that would have installed the same energy efficiency measures without the program.

The goal of the net-to-gross analysis was to estimate the impacts of energy efficiency measures attributable to the PSUI that were net of free ridership. That is, because the energy savings realized by free riders are not induced by the program, these savings should not be included in the estimates of the PSUI’s actual impacts. Without adjustment for free ridership, some savings that would have occurred naturally would be attributed to the initiative. The measurement of the net impact of the initiative requires estimation of the marginal effect of the program over and above the “naturally occurring” patterns for installation and use of energy efficient equipment.

The Technical Reviewer for the PSUI identified projects that resulted in Program Enabled Savings. That is, the projects were believed to be attributable to the enabling initiatives provided through the PSUI. In most cases, the project tracking data identified an Energy Manager as the driver of the savings.

To verify that the savings were attributable to the Energy Manager or another component of the PSUI, a sample of program participants was interviewed using a survey instrument designed to assess the influence of the program and other factors on the decision to complete the projects. ADM contacted energy managers to request contact information for an individual with knowledge of the decision making for the projects. For six of the nine survey respondents, the Energy Manager indicated that he or she would be the best person to speak with. For the other three cases, the Energy Manager provided the contact information for a member of the organization.

Appendix A provides a copy of the survey instrument, and Appendix B presents tabulated responses for each survey question.

Three factors were analyzed to determine what percentage of savings may be attributed to free ridership. The three factors are:

- Plans and intentions of firm to install a measure even without support from the program;
- A firm's previous experience with a measure installed under the program; and
- Influence that the program had on the decision to install a measure.

In practice, the third factor was comprised of three sub-factors: the influence of Energy Managers, Key Account Managers, and engineering studies funded by the PSUI on the projects. For each of these factors, rules were applied to develop binary variables indicating whether or not a participant's behavior showed free ridership. These rules made use of answers to questions on the decision maker survey questionnaire. (A copy of the questionnaire is provided as Appendix A.)

The first factor required determining if a participant stated that his or her intention was to install an energy efficiency measure even without the program. The answers to a combination of several questions were used with a set of rules to determine whether a participant's behavior indicates likely free ridership. The criteria indicating prior plans that likely signify free-ridership are as follows:

- The respondent answered "yes" to the following two questions, "Did [participating organization name] have plans to complete the program enabled savings projects before participating in the Process and Systems Upgrade Initiative?" and "Would [participating organization name] have gone ahead with the project even if they had not received the informational support or guidance through the Process and Systems Upgrade Initiative?"
- The respondent answered "definitely would have installed" to the following question: If the informational support or guidance had not been available through the program, how likely is it that [participating organization name] would have completed the energy efficiency project anyway?

The second factor required determining if a participant in the program indicated that the firm had previously installed an energy efficiency measure similar to one that they installed under the program without an energy efficiency program incentive during the last three years. A participant indicating that the organization had previously installed a similar measure is considered to have a likelihood of free ridership.

- The respondent answered "yes" to "Prior to completing the program enabled savings project(s) in 2012, had [participating organization name] implemented similar energy efficiency projects?"
- The respondent answered "yes, implemented energy efficiency projects but did not receive assistance" to "Has [participating organization name] implemented any energy efficiency

projects in the last three years for which they did not receive guidance or informational assistance from a utility program?”

The third factor required determining if a customer reported that information and support provided by the PSUI were influential in the decision to implement the measure. Participants were asked whether or not Key Account Managers, Energy Managers, or program funded engineering studies were influential in the decision to complete a project. The influence of these factors decreases the likelihood of free ridership.

The criteria indicating that a key account manager influenced the decision to complete the project are:

- The respondent answered “yes” to “Did a Key Account Manager from [LDC] recommend that [participating organization name] complete the program enabled savings projects?” and “definitely would not have” or “probably would not have” to the question “If the Key Account Manager had not recommended completing the project, how likely is it that [participating organization name] would have completed the project anyway?”

The criteria indicating that an energy manager influenced the decision to complete the project are:

- In cases where the contact identified to complete the survey was not an energy manager, the respondent answered “yes” to “Did an Embedded or Roving Energy Manager who was funded by the Process and Systems Upgrade Initiative provide assistance in developing and / or completing the energy efficiency project?” and “definitely would not have” or “probably would not have” to the question “If the Embedded or Roving Energy Manager had not provided the assistance, how likely is it that [participating organization name] would have completed the project anyway?”
- In cases where the contact identified to complete the survey was an energy manager, the respondent answered “definitely would not have” or “probably would not have” to the question “If you had not provided assistance to [participating organization name] how likely is it that they would have completed the project anyway?”

The criteria indicating that an engineering study influenced the decision to complete the project are:

- The respondent answered “yes” to the question “Was the program enabled savings project(s) identified in a Preliminary Engineering Study or Detailed Engineering Study that was funded through the Process and Systems Upgrade Initiative?” and “definitely would not have” or “probably would not have” to the question “If the project(s) had not been identified in the Preliminary Engineering Study or Detailed Engineering Study, how likely is it that [participating organization name] would have completed the project anyway?”

The binary variables developed to represent these factors were weighted by respondents’ ranking of the importance of the factors to the decision to complete the project. In practice, the ranks were developed based on ratings of importance of the different factors. Specifically,

participants were asked to rank on a scale of “not important at all” to “very important” the following factors:

- Prior plans to implement the project(s);
- Company's past experience with energy efficient equipment;
- Assistance provided by Roving or Embedded Energy Manager;
- Program funded engineering study; and
- Recommendation from [LDC] key account manager.

Participant responses were ranked from the highest rated factor to the least rated factor. Weights for each of the factors were developed using the following equation:

$$w_i = \frac{(n - r_i + 1)}{\sum_{k=1}^n (n - r_k + 1)}$$

Where,

n is the number of factors ($i = 1$ to 5), and

r is the rank number of factor i .

Free ridership scores were calculated by summing the weighted factors indicating a higher likelihood of free ridership and subtracting the weighted factors indicating a lower likelihood of free ridership. Free ridership rates were assigned on a scale of 0% to 100% based on the comparison of attribution factors. Total inclination for free ridership was weighted against total program influence to develop a free ridership value for each participant.

4.2 FINDINGS FROM NET SAVINGS ANALYSIS

The procedures described in the preceding section were used to estimate free ridership rates and net-to-gross ratios for the PSUI for the period January 2012 through December 2012.

4.2.1 Realized Net Peak MW and MWh Savings

The data used to assign free ridership scores were collected through a customer survey of 9 customer decision makers for projects completed during the period January 2012 through December 2012. These survey responses accounted for 87% of the total annualized gross MWh savings.

Table 4-1 shows the percentage of survey respondents who relayed the following: They had plans and intentions to install the measures without any program incentive (under two alternative definitions as described in the preceding section), that the program influenced their decision to install the measure, or that they previously installed a similar energy efficiency measure without an energy efficiency program incentive during the last three years. Percentages reported are averages weighted by project gross realized annualized savings.

Table 4-1 Weighted Average Indicator Variable Values

<i>Had Plans and Intentions to Install Measure without Tune-up Program</i>	<i>Had Previous Experience with the Measure</i>	<i>PSUI Influenced the Decision to Install the Measure</i>
10%	0%	82%

*Two participant’s responses met the criteria for prior plans and intentions, previous experience with the measure, or that the projects were influenced by the PSUI. These projects represented 9% of the savings for the program. Because the projects were initially identified as driven by an Energy Manager, the free ridership was assumed to be zero.

Table 4-2 shows percentages of total realized gross electrical savings that are associated with different combinations of free ridership indicator variable values. Eighty-two percent of the savings is associated with respondents who indicated that the PSUI influenced the decision to install. The contribution of these responses to the calculation of net savings was weighted individually for each participant based on their ratings of the importance of the factors.

Table 4-2 Estimated Free Ridership for MWh Savings from Projects

<i>Had Previous Experience with the Measure</i>	<i>Had Prior Plans to Implement the Measure</i>	<i>PSUI Influenced the Decision to Install the Measure</i>	<i>Percentage of Total Realized Gross MWh Savings</i>
Y	Y	Y	0%
Y	N	Y	1%
Y	Y	N	0%
Y	N	N	10%
N	Y	Y	0%
N	N	Y	82%
N	Y	N	0%
N	N	N	8%
Total			100%

The realized annual electrical savings for the PSUI for the 2012 program year are summarized in Table 4-3. During this period, realized annual net energy savings totaled 7,090 MWh. The net to gross ratio is 90%.

Table 4-3 Summary of Annual MWh Savings from Projects

<i>Expected MWh Savings</i>	<i>Realized Gross MWh Savings</i>	<i>Gross Realization Rate</i>	<i>Realized Annual Net MWh Savings</i>	<i>Net to Gross Ratio</i>
6,817	7,852	106%	7,090	90%

The realized annual peak savings are displayed in Table 4-4. During the period, realized annual net peak savings are .82 MW. The net to gross ratio is 99.6%.

Table 4-4 Summary of Annual Peak MW Savings from Projects

<i>Annual Realized Gross Peak MW Savings</i>	<i>Annual Realized Net Peak MW Savings</i>
1.016	.926

The 2012 realized net peak MW and MWh savings are displayed in Table 4-5. The 2012 peak savings are .51 MW. The 2012 MWh savings are 4,087.

Table 4-5 Summary of 2012 Realized Net Peak MW and MWh Savings

<i>2012 Realized Net Peak MW Savings</i>	<i>2012 Realized Net MWh Savings</i>
0.508	4,087

5. SUMMARY OF FINDINGS AND CONCLUSIONS

The findings from the impact evaluation of the PSUI are summarized in Table 5-1 and Table 5-2.

Table 5-1 Summary of 2012 and Annual MWh Savings for PSUI Program

<i>Savings Period</i>	<i>Expected Gross MWh Savings</i>	<i>Realized Gross MWh Savings</i>	<i>Gross Realization Rate</i>	<i>Realized Net MWh Savings</i>	<i>Net to Gross Ratio</i>
2012	-	4,455	-	4,087	92%
Annual	6,817	7,852	115%	7,090	90%

Table 5-2 Summary of 2012 and Annual Peak MW Demand Savings for PSUI Program

<i>Savings Period</i>	<i>Expected Gross MW Demand Savings</i>	<i>Realized Gross MW Demand Savings</i>	<i>Gross Realization Rate</i>	<i>Realized Net MW Demand Savings</i>	<i>Net to Gross Ratio</i>
2012	-	0.553	-	.508	92%
Annual	0.870	1.016	117%	.926	91%

As shown in Table 5-1 and Table 5-2, major findings were as follows:

- Realized gross annual savings were 7,852 MWh and realized gross 2012 savings were 4,455 MWh. Net annual savings were 7,090 MWh and net savings were 4,087 MWh.
- Realized gross annual peak savings were 1.016 MW and realized gross 2012 peak savings were 0.553 MWh. Net annual peak savings were .508 MW and net 2012 peak savings were 0.926 MW.

The following presents a selection of key conclusions from the evaluation effort:

- No incentive projects were completed through the PSUI during the 2012 program year. As noted in the process evaluation of the initiative, the firms targeted by the PSUI may be discouraged from participating in the PSUI because the requirements are perceived as onerous. Additionally, these firms have other OPA incentive programs available through which they can receive project funding.
- Energy managers were important drivers of Program Enabled savings projects. Eight of the nine respondents indicated that the assistance provided by energy managers was very important or somewhat important to implementing the projects. However, there were a few cases where survey respondents noted that the participant had prior plans to complete the Program Enabled savings projects and that these programs would have likely been completed without the support provided through the PSUI. Two of the

respondents elaborated that the projects completed during 2012 were on a list of projects that the firm had planned on implementing. One of the respondents indicated that overall the Energy Manager support provided through the program has been critical for developing energy saving projects but that the project completed during 2012 was the one exception where the project would have likely occurred without the PSUI.

- Survey respondents were asked to provide any additional feedback or comments they had on the PSUI. Three of these respondents provided additional comments. Two of these comments noted the importance of the Energy Managers' assistance in developing energy savings projects. The third comment was from an Energy Manager who suggested that it would be beneficial if the program could provide guidance to Energy Managers to help them influence the adoption of energy efficiency measures by the participants they are assisting.
- Program enabled savings projects varied substantially in how well they were documented. In some cases, substantial project information was provided. In other cases, important information such as the in-service date for the project was not reported. Based on conversations with energy managers, it was determined that a number of the Program Enabled savings projects were not yet completed, were completed in 2013, or had received incentives from other programs. Additionally, the Technical Reviewer noted that the level of certainty in the estimated savings for the projects varied due to how well the savings calculations were substantiated.

In addition to more project documentation and detailed descriptions of the savings calculation methodology, additional project-level information, such as facility type and location, would greatly help facilitate evaluation efforts. This information can be helpful in providing additional context to site contacts who are asked for additional information needed to complete the evaluation.

The evaluation of net savings would be facilitated if contact information was provided for project decision makers. This information would be used for the administration of the attribution survey used in evaluating net savings.

The PSUI would benefit from consistent procedures for identifying Program Enabled savings projects. Energy Managers could play an important role in identifying these projects, substantiating the savings estimates, and verifying project completion dates and whether or not incentives were received.

APPENDIX A

PROGRAM ATTRIBUTION QUESTIONNAIRE

[Introductory text for Participant Decision Maker contacts]

Hello, my name is _____. I am calling on behalf of Ontario Power Authority. Through its Process and Systems Upgrade Initiative, Ontario Power Authority has been working with commercial and industrial firms to help them improve the energy efficiency of their operations. Because your organization has participated in the Process and Systems Upgrade Initiative, we are interested in receiving feedback from you regarding your experience with that program.

[Introductory text for Embedded Energy Manager contacts]

Hello, my name is _____. I am calling on behalf of Ontario Power Authority. According to our records you are an Embedded Energy Manager knowledgeable about the decision to implement one or more program enabled savings projects at [participating organization name] We are interested in receiving feedback from you regarding the decision to implement these projects.

[Introductory text for Roving Energy Manager contacts]

Hello, my name is _____. I am calling on behalf of Ontario Power Authority. According to our records you are a Roving Energy Manager knowledgeable about the decision to implement one or more program enabled savings projects at [participating organization name] We are interested in receiving feedback from you regarding the decision to implement these projects.

Many of our questions focus on [participant organization]'s decision to implement the program enabled savings projects during 2012. These projects were: [project descriptions]

Are you the best person to talk to about the decision to implement these projects?

[If needed: Program enabled savings projects are projects that were implemented without receiving a financial incentive.]

Yes

No

Is there someone else who would be better for us to contact regarding these projects?

Who is that?

Name: _____

Title: _____

Phone Number: _____

1. Did [participating organization name] receive a financial incentive from [LDC] or the Ontario Power Authority for the [description of project] completed in 2012?

Yes (If checked, go to 1a)

No

Don't know

1a. Which of the program enabled savings projects did [participating organization] apply or receive an incentive for?

1b. Through which program did you receive the financial incentive?

2. [Ask if contact is not an energy manager] How did you first hear of the Process and Systems Initiative?

Called by [LDC] or Ontario Power Authority

Used saveonenergy.ca website

Was contacted by [LDC] or Ontario Power Authority account manager

Heard a presentation by [LDC] or Ontario Power Authority staff member or consultant

Received a program mailing or brochure

Equipment vendor or consultant told me about it

Referred to the program by a contractor

Heard about the program from a colleague or friend

Other (please explain) _____

Don't remember / Don't know

3. [Ask if contact is not an energy manager] In deciding to do an energy efficiency project, do you or others in your company seek or use information from any of the following resources (*Check all that apply*):

Don't seek any information about the technologies

Case studies on the web

Knowledgeable colleague or friend

[LDC] or Ontario Power Authority representative

Government or consultant websites about energy efficiency

- [LDC] or Ontario Power Authority brochure or advertisement
- Trade association or journal
- Architect, engineer, or energy consultant
- Owners or engineers from firms like yours
- Equipment vendor
- Contractor
- Report(s) from [LDC] or Ontario Power Authority
- Other sources (please explain) _____

3a. [Ask if more than 1 is selected]

Which is the most influential to your decisions on energy efficiency projects?

Which is the second most influential source?

Which is the third most influential source?

4. Does [participating organization name] have a written energy policy?

- Yes (*If checked, ask 4a*)
- No
- Don't know/ No answer

4a. Can you please describe this energy policy, including any relevant requirements or savings targets?

5. Independent of the Process and Systems Upgrade Initiative, does [participating organization name] have a person whose responsibilities include monitoring energy consumption on an hourly, daily, weekly, or monthly basis at the locations where the program enabled savings projects were completed?

- Yes
- No
- Don't know / No answer

6. Independent of the Process and Systems Upgrade Initiative, does [participating organization name] have a person whose responsibilities include identifying energy efficiency improvements at the locations where the program enabled savings projects were completed?

- Yes
- No
- Don't know / No answer

7. Can you please describe the overall decision making process that took place during the identification, planning, and implementation of the program enabled savings projects?
8. Who (by title) is involved in the decision-making on energy efficiency projects and what is their role (by title)?

Title: _____

Role: _____

Title: _____

Role: _____

Title: _____

Role: _____

Title: _____

Role: _____

9. Who is most important in terms of deciding to do an energy efficiency project?
-

10. On a scale of 1 to 5, where "5" is very important and "1" is not at all important, how important were the following factors to implement the program enabled savings projects?

- Recommendation from [LDC] or Ontario Power Authority report or consultant
- Company policy regarding efficiency
- Company's past experience with energy efficient equipment
- Assistance provided by Roving or Embedded Energy Manager
- Past experience with energy efficiency programs
- Energy cost savings
- Program funded engineering study
- Prior plans to implement the project(s)
- Recommendation from [LDC] key account manager
- Some other benefits such as increased reliability, improved product quality or reduced waste

11. Which financial methods does [participating organization name] typically use to evaluate energy efficiency improvements?

- Initial Cost
- Simple payback (If checked, go to 11a)
- Internal rate of return (If checked, go to 11b)
- Life cycle cost (If checked, go to 11c)
- Other (please explain)

Don't know

11a. What payback (length of time) does [participating organization name] normally require in order to consider an energy investment cost effective?

11b. What rate of return does [participating organization name] normally require in order to consider an energy investment cost effective?
(Expect answers 10 to 30 %.)

11c. What discount rate does [participating organization name] normally use in determining the life-cycle costs of various equipment options?
(Expect answers 3 to 30 %.)

12. Prior to completing the program enabled savings project(s) in 2012, had [participating organization name] implemented similar energy efficiency projects?

- Yes (*If checked, go to 12a*)
- No
- Don't know / No answer

12a. How important was this previous experience with energy efficiency projects in [participating organization name]'s decision to undertake the program enabled savings projects?

- Very important
- Somewhat important
- Only slightly important
- Not important at all
- Don't know / No answer

13. Did [participating organization name] have plans to complete the program enabled savings projects before participating in the Process and Systems Upgrade Initiative?

- Yes (*If checked, go to 13a*)
- No
- Don't know / No answer

13a. Would [participating organization name] have gone ahead with the project even if they had not received the informational support or guidance through the Process and Systems Upgrade Initiative?

- Yes
- No
- Don't know / No answer

14. Would [participating organization name] have been able to complete the energy efficiency project without the informational support or guidance from the Process and Systems Upgrade Initiative?

- Yes
- No
- Don't know / No answer

15. If the informational support or guidance had not been available through the program, how likely is it that [participating organization name] would have completed the energy efficiency project anyway?

- Definitely would have
- Probably would have
- Probably would not have
- Definitely would not have
- Don't know / No answer

16. Would [participating organization name] have had the staff resources to identify the program enabled savings projects without the support and assistance provided through the Process and Systems Upgrade Initiative?

- Yes
- No
- Don't know

17. Has [participating organization name] implemented any energy efficiency projects in the last three years for which they did not receive guidance or informational assistance from a utility program?

- Yes, implemented energy efficiency projects but did not receive assistance (*If checked, go to 17a*)
- Yes, implemented energy efficiency projects and received assistance
- No projects were implemented
- Don't know / No answer

17a. Why didn't they receive guidance or informational assistance for the project?

- Didn't know assistance was available for the project
- Didn't know about utility assistance until after the project was completed
- Didn't have time to complete paperwork for the utility assistance
- Too much paperwork for the utility assistance
- Other (please specify): _____
- Don't know / No answer

18. Did a Key Account Manager from [LDC] recommend that [participating organization name] complete the program enabled savings projects?

- Yes (If checked, go to 18a)
- No
- Don't know / No answer

18a. If the Key Account Manager had not recommended completing the project, how likely is it that [participating organization name] would have completed the project anyway?

- Definitely would have
- Probably would have
- Probably would not have
- Definitely would not have
- Don't know / No answer

19. [Ask if contact is not an Energy Manager] Did an Embedded or Roving Energy Manager who was funded by the Process and Systems Upgrade Initiative provide assistance in developing and / or completing the energy efficiency project?

- Yes (If checked, go to 19a)
- No
- Don't know / No answer

19a. If the Embedded or Roving Energy Manager had not provided the assistance, how likely is it that [participating organization name] would have completed the project anyway?

- Definitely would have
- Probably would have
- Probably would not have
- Definitely would not have
- Don't know / No answer

19. [Ask if contact is an Energy Manager] If you had not provided assistance to [participating organization name], how likely is it that they would have completed the project anyway?

- Definitely would have
- Probably would have
- Probably would not have
- Definitely would not have
- Don't know / No answer

20. Was the program enabled savings project(s) identified in a Preliminary Engineering Study or Detailed Engineering Study that was funded through the Process and Systems Upgrade Initiative?

- Yes (If checked, go to 20a)
- No
- Don't know/ No answer

20. 20a. If the project(s) had not been identified in the Preliminary Engineering Study or Detailed Engineering Study, how likely is it that [participating organization name] would have completed the project anyway?

- Definitely would have
- Probably would have
- Probably would not have
- Definitely would not have
- Don't know / No answer

21. Were the energy savings achieved through the program greater than what would have been achieved without the guidance and information available through the Process and Systems Upgrade Initiative?

- Yes (If checked, go to 21a)
- No, program did not affect the project's energy savings
- Don't know / No answer

21. 21a. What part of the project would [participating organization name] have not completed without the assistance and information available through the Process and Systems Upgrade Initiative?

22. Did [participating organization name] complete the project earlier than they otherwise would have without the information and guidance provided through the Process and Systems Upgrade Initiative?

- Yes (If checked, go to 22a)
- No, program did not affect did not affect timing of project
- Don't know / No answer

22a. When would [participating organization name] otherwise have completed the project?

- Less than 6 months later
- 6-12 months later
- 1-2 years later
- 3-5 years later

- More than 5 years later
- Don't know / No answer

23. Has [participating organization name] participated in any other [LDC] or OPA energy efficiency programs?

- Yes (*If checked, go to 23a*)
- No
- Don't know / No answer

23a. Which programs has [participating organization name] participated in?

24. That concludes my questions.

Do you have any comments that you would like to relay to [LDC] or Ontario Power Authority about energy efficiency in commercial and industrial facilities or about their programs?

APPENDIX B

TABULATED SURVEY RESPONSES

1. Did [participating organization name] receive a financial incentive from [LDC] or the Ontario Power Authority for the [project description] completed in 2012?	<i>Response</i>	<i>(n=9)</i>	<i>Percent of Respondents</i>
	Yes	0	0%
	No	9	100%
	Don't know	0	0%

2. [Ask if contact is not an energy manager] How did you first hear of the Process and Systems Initiative?	<i>Response</i>	<i>(n=3)</i>	<i>Percent of Respondents</i>
	Called by LDC or Ontario Power Authority	1	33%
	Used saveonenergy.ca website	0	0%
	Was contacted by [LDC] or Ontario Power Authority account manager	0	0%
	Heard a presentation by [LDC] or Ontario Power Authority staff member or consultant	0	0%
	Received a program mailing or brochure	0	0%
	Equipment vendor or consultant told me about it	0	0%
	Referred to the program by a contractor	0	0%
	Heard about the program from a colleague or friend	1	33%
	Other (please explain)	0	0%
	Don't remember / Don't know	0	0%

	<i>Response</i>	<i>(n=3)</i>	<i>Percent of Respondents</i>
3. [Ask if contact is not an energy manager] In deciding to do an energy efficiency project, do you or others in your company seek or use information from any of the following resources:	Don't seek any information about the technologies	0	0%
	Case studies on the web	0	0%
	Knowledgeable colleague or friend	1	33%
	[LDC] or Ontario Power Authority representative	3	100%
	Government or consultant websites about energy efficiency	0	0%
	[LDC] or Ontario Power Authority brochure or advertisement	1	33%
	Trade association or journal	0	0%
	Architect, engineer, or energy consultant	1	33%
	Owners or engineers from firms like yours	1	33%
	Equipment vendor	1	33%
	Contractor	1	33%
	Report(s) from [LDC] or Ontario Power Authority	1	33%
	Other sources (please explain)	0	0%

	<i>Response</i>	<i>(n=9)</i>	<i>Percent of Respondents</i>
4. Does [participating organization name] have a written energy policy?	Yes	4	44%
	No	5	56%
	Don't Know/No Answer	0	0%

	<i>Response</i>	<i>(n=9)</i>	<i>Percent of Respondents</i>
5. Independent of the Process and Systems Upgrade Initiative, does [participating organization name] have a person whose responsibilities include monitoring energy consumption on an hourly, daily, weekly, or monthly basis at the locations where the program enabled savings projects were completed?	Yes	7	78%
	No	2	22%
	Don't know / No answer	0	0%

	<i>Response</i>	<i>(n=9)</i>	<i>Percent of Respondents</i>
6. Independent of the Process and Systems Upgrade Initiative, does [participating organization name] have a person whose responsibilities include identifying energy efficiency improvements at the locations where the program enabled savings projects were completed?	Yes	8	89%
	No	1	11%
	Don't know / No answer	0	0%

	<i>Response</i>	<i>(n=9)</i>	<i>Percent of Respondents</i>
10a. How important is the recommendation from [LDC] or Ontario Power Authority report or consultant in implementing the program enabled savings projects?	Very important	0	0%
	Somewhat important	2	22%
	Neither important or unimportant	2	22%
	Somewhat unimportant	1	11%
	Not important at all	4	44%
	Don't know or No answer	0	0%

	<i>Response</i>	<i>(n=9)</i>	<i>Percent of Respondents</i>
10b. How important is the company policy regarding efficiency in implementing the program enabled savings projects?	Very important	3	33%
	Somewhat important	1	11%
	Neither important or unimportant	3	33%
	Somewhat unimportant	1	11%
	Not important at all	0	0%
	Don't know or No answer	0	0%

	<i>Response</i>	<i>(n=9)</i>	<i>Percent of Respondents</i>
10c. How important is the company's past experience with energy efficient equipment in implementing the program enabled savings projects?	Very important	1	11%
	Somewhat important	5	56%
	Neither important or unimportant	1	11%
	Somewhat unimportant	0	0%
	Not important at all	1	11%
	Don't know or No answer	1	11%

	<i>Response</i>	<i>(n=9)</i>	<i>Percent of Respondents</i>
10d. How important is the assistance provided by Roving or Embedded Energy Manager in implementing the program enabled savings projects?	Very important	6	67%
	Somewhat important	2	22%
	Neither important or unimportant	1	11%
	Somewhat unimportant	0	0%
	Not important at all	0	0%
	Don't know or No answer	0	0%

	<i>Response</i>	<i>(n=9)</i>	<i>Percent of Respondents</i>
10e. How important is past experience with energy efficiency programs in implementing the program enabled savings projects?	Very important	1	11%
	Somewhat important	4	44%
	Neither important or unimportant	3	33%
	Somewhat unimportant	0	0%
	Not important at all	1	11%
	Don't know or No answer	0	0%

	<i>Response</i>	<i>(n=9)</i>	<i>Percent of Respondents</i>
10f. How important is energy cost savings in implementing the program enabled savings projects?	Very important	3	33%
	Somewhat important	6	67%
	Neither important or unimportant	0	0%
	Somewhat unimportant	0	0%
	Not important at all	0	0%
	Don't know or No answer	0	0%

	<i>Response</i>	<i>(n=9)</i>	<i>Percent of Respondents</i>
10g. How important is the program funded engineering study in implementing the program enabled savings projects?	Very important	1	11%
	Somewhat important	1	11%
	Neither important or unimportant	0	0%
	Somewhat unimportant	1	11%
	Not important at all	4	44%
	Don't know or No answer	2	22%

	<i>Response</i>	<i>(n=9)</i>	<i>Percent of Respondents</i>
10h. How important is the prior plans to implement the project(s) in implementing the program enabled savings projects?	Very important	3	33%
	Somewhat important	0	0%
	Neither important or unimportant	2	22%
	Somewhat unimportant	1	11%
	Not important at all	3	33%
	Don't know or No answer	0	0%

	<i>Response</i>	<i>(n=9)</i>	<i>Percent of Respondents</i>
10i. How important is the recommendation from [LDC] key account manager in implementing the program enabled savings projects?	Very important	1	11%
	Somewhat important	0	0%
	Neither important or unimportant	1	11%
	Somewhat unimportant	2	22%
	Not important at all	4	44%
	Don't know or No answer	1	11%

	<i>Response</i>	<i>(n=9)</i>	<i>Percent of Respondents</i>
10j. How important are some other benefits such as increased reliability, improved product quality or reduced waste in implementing the program enabled savings projects?	Very important	4	44%
	Somewhat important	4	44%
	Neither important or unimportant	1	11%
	Somewhat unimportant	0	0%
	Not important at all	0	0%
	Don't know or No answer	0	0%

	<i>Response</i>	<i>(n=9)</i>	<i>Percent of Respondents</i>
11. Which financial methods does [participating organization name] typically use to evaluate energy efficiency improvements?	Initial Cost	1	11%
	Simple payback	7	78%
	Internal rate of return	2	22%
	Life cycle cost	0	0%
	Other (please explain)	0	0%
	Don't know	0	0%

	<i>Response</i>	<i>(n=9)</i>	<i>Percent of Respondents</i>
12. Prior to completing the program enabled savings project(s) in 2012, had [participating organization name] implemented similar energy efficiency projects?	Yes	9	100%
	No	0	0%
	Don't know / No answer	0	0%

	<i>Response</i>	<i>(n=9)</i>	<i>Percent of Respondents</i>
12a. How important was this previous experience with energy efficiency projects in [participating organization name]'s decision to undertake the program enabled savings projects?	Very important	5	56%
	Somewhat important	2	22%
	Only slightly important	1	11%
	Not important at all	0	0%
	Don't know / No answer	0	0%

	<i>Response</i>	<i>(n=9)</i>	<i>Percent of Respondents</i>
13. Did [participating organization name] have plans to complete the program enabled savings projects before participating in the Process and Systems Upgrade Initiative?	Yes	7	78%
	No	2	22%
	Don't know / No answer	0	0%

	<i>Response</i>	<i>(n=7)</i>	<i>Percent of Respondents</i>
13a. Would [participating organization name] have gone ahead with the project even if they had not received the informational support or guidance through the Process and Systems Upgrade Initiative?	Yes	5	71%
	No	1	14%
	Don't know / No answer	0	0%

	<i>Response</i>	<i>(n=9)</i>	<i>Percent of Respondents</i>
14. Would [participating organization name] have been able to complete the energy efficiency project without the informational support or guidance from the Process and Systems Upgrade Initiative?	Yes	6	67%
	No	3	33%
	Don't know / No answer	0	0%

	<i>Response</i>	<i>(n=9)</i>	<i>Percent of Respondents</i>
15. If the informational support or guidance had not been available through the program, how likely is it that [participating organization name] would have completed the energy efficiency project anyway?	Definitely would have	4	44%
	Probably would have	2	22%
	Probably would not have	3	33%
	Definitely would not have	0	0%
	Don't know	0	0%

16. Would [participant name] have had the staff resources to identify the program enabled savings projects without the support and assistance provided through the Process and Systems Upgrade Initiative?	<i>Response</i>	<i>(n=9)</i>	<i>Percent of Respondents</i>
	Yes	4	44%
	No	5	56%
	Don't know	0	0%

17. Has [participating organization name] implemented any energy efficiency projects in the last three years for which they did not receive guidance or informational assistance from a utility program?	<i>Response</i>	<i>(n=9)</i>	<i>Percent of Respondents</i>
	Yes, implemented energy efficiency projects but did not receive assistance	3	33%
	Yes, implemented energy efficiency projects and received assistance	5	56%
	No projects were implemented	1	11%
	Don't know / No answer	0	0%

17a. Why didn't they receive guidance or informational assistance for the project?	<i>Response</i>	<i>(n=3)</i>	<i>Percent of Respondents</i>
	Didn't know assistance was available for the project	0	0%
	Didn't know about utility assistance until after the project was completed	0	0%
	Didn't have time to complete paperwork for the utility assistance	0	0%
	Too much paperwork for the utility assistance	0	0%
	Other (please specify)	2	67%
	Don't know / No answer	0	0%

18. Did a Key Account Manager from [LDC] recommend that [participating organization name] complete the program enabled savings projects?	<i>Response</i>	<i>(n=9)</i>	<i>Percent of Respondents</i>
	Yes	4	44%
	No	2	22%
	Don't know / No answer	0	0%

18a. If the Key Account Manager had not recommended completing the project, how likely is it that [participating organization name] would have completed the project anyway?	<i>Response</i>	<i>(n=4)</i>	<i>Percent of Respondents</i>
	Definitely would have	1	25%
	Probably would have	2	50%
	Probably would not have	1	25%
	Definitely would not have	0	0%
Don't know / No answer	0	0%	

19. [Ask if contact is not an Energy Manager] Did an Embedded or Roving Energy Manager who was funded by the Process and Systems Upgrade Initiative provide assistance in developing and / or completing the energy efficiency project?	<i>Response</i>	<i>(n=3)</i>	<i>Percent of Respondents</i>
	Yes	0	0%
	No	1	33%
	Don't know / No answer	0	0%

19a. If the Embedded or Roving Energy Manager had not provided the assistance, how likely is it that [participating organization name] would have completed the project anyway?	Response	(n=2)	Percent of Respondents
	Definitely would have	0	0%
	Probably would have	2	100%
	Probably would not have	0	0%
	Definitely would not have	0	0%
	Don't know / No answer	0	0%

19. [Ask if contact is an Energy Manager] If you had not provided assistance to [participating organization name], how likely is it that they would have completed the project anyway?	Response	(n=6)	Percent of Respondents
	Definitely would have	1	17%
	Probably would have	1	17%
	Probably would not have	4	67%
	Definitely would not have	0	0%
	Don't know / No answer	0	0%

20. Was the program enabled savings project(s) identified in a Preliminary Engineering Study or Detailed Engineering Study that was funded through the Process and Systems Upgrade Initiative?	Response	(n=9)	Percent of Respondents
	Yes	2	22%
	No	7	78%
	Don't know/ No answer	0	0%

20a. If the project(s) had not been identified in the Preliminary Engineering Study or Detailed Engineering Study, how likely is it that [participating organization name] would have completed the project anyway?	Response	(n=2)	Percent of Respondents
	Definitely would have	0	0%
	Probably would have	1	50%
	Probably would not have	1	50%
	Definitely would not have	0	0%
	Don't know / No answer	0	0%

21. Were the energy savings achieved through the program greater than what would have been achieved without the guidance and information available through the Process and Systems Upgrade Initiative?	Response	(n=9)	Percent of Respondents
	Yes	4	44%
	No, program did not affect the project's energy savings	5	56%
	Don't know / No answer	0	0%

22. Did [participating organization name] complete the project earlier than they otherwise would have without the information and guidance provided through the Process and Systems Upgrade Initiative?	Response	(n=9)	Percent of Respondents
	Yes	4	44%
	No, program did not affect did not affect timing of project	4	44%
	Don't know / No answer	0	0%

22a. When would [participating organization name] otherwise have completed the project?	Response	(n=4)	Percent of Respondents
	Less than 6 months later	1	25%
	6-12 months later	1	25%
	1-2 years later	1	25%
	3-5 years later	1	25%
	More than 5 years later	0	0%
	Don't know / No answer	0	0%

23. Has [participating organization name] participated in any other [LDC] or OPA energy efficiency programs?	<i>Response</i>	<i>(n=9)</i>	<i>Percent of Respondents</i>
	Yes	7	78%
	No	2	22%
	Don't know / No answer	0	0%