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Executive Secretary

AUG 29 2008

IOWA UTILITIES BOARD

OFFICE OF CONSUMER ADVOCATE

DIRECT TESTIMONY

and

EXHIBITS

OF

FASIL KEBEDE

In Re: INTERSTATE POWER AND LIGHT COMPANY

Docket No. EEP-08-1

August 29, 2008

1 **Q: Please state your name and business address.**

2 A: Fasil Kebede, 310 Maple Street, Des Moines, Iowa.

3 **Q: By whom, and in what capacity are you employed?**

4 A: I am employed by the Office of Consumer Advocate (OCA), as a Utility
5 Specialist.

6 **Q: What is your educational and professional background?**

7 A: I received a Bachelor of Arts Degree in Business Administration from
8 Wartburg College in 1979. Prior to joining the OCA in June 1989, I had
9 been a Utility Analyst for the Utilities Division of the Iowa Department
10 of Commerce since March 1987.

11 I have attended numerous meetings and seminars sponsored by the
12 National Association of Regulatory Utility Commissioners (NARUC);
13 and the National Association of State Utility Consumer Advocates
14 (NASUCA).

15 **Q: What are your job responsibilities?**

16 A: My duties include reviewing and analyzing rate increase proposals,
17 conducting field audits, and reviewing and investigating other utility
18 matters. I have testified in many electric, gas, telephone, fuel
19 procurement, and complaint proceedings.

20 **Q: What is the purpose of your testimony?**

1 A: I will address Interstate Power and Light Company's (IPL's) proposed
2 energy efficiency programs for large commercial and industrial
3 customers. Specifically, I will address issues concerning the
4 Performance Contracting Program, incentives to promote Combined Heat
5 and Power (CHP), and energy efficiency program opportunities for
6 transportation customers in relation to IPL's Energy Efficiency Plan
7 (Plan) submitted in this proceeding.

8 **Q: Are you sponsoring any exhibits in the filing?**

9 A: Yes. The exhibits will be labeled as OCA Exhibit_ (FK-1).

10 **Q: How does IPL's Performance Contracting program encourage**
11 **customers to install efficiency measures?**

12 A: In response to OCA data request #82, filed as OCA Exhibit_ (FK-1),
13 Schedule A, witness Mr. Nunez explains that through Performance
14 Contracting IPL encourages the implementation of efficiency measures
15 through a third party project developer. The project is financed through a
16 third party financial institution. The program is also designed to
17 overcome the obstacle of upfront project costs by allowing customers to
18 finance the project through energy savings generated by the project.

19 **Q: What is IPL's involvement in Performance Contracting?**

1 A: IPL offers Performance Contracting to nonresidential customers through
2 a qualified project developers group, which includes contractors,
3 manufacturers, affiliates, and distributors of energy efficiency products.
4 Customers cannot act as their own project developer. IPL promotes the
5 program through marketing, advertising and direct mail campaign. The
6 responsibility for project design, installation and proper operation lies
7 with the project developer.

8 **Q: How are these qualified project developers selected?**

9 A: In response to OCA data request #82, filed as OCA Exhibit_(FK-1),
10 Schedule A, Mr. Nunez explains companies that are interested in
11 becoming a project developer must submit a registration form. The
12 program administrator and IPL will make the final decision to admit the
13 project developer into the program.

14 **Q: How are the savings reported by qualified project developers**
15 **verified?**

16 A: The savings from the projects completed by qualified project developers
17 are verified by a third-party measurement and verification contractor who
18 will review the project documentation and invoices and also verify the
19 installation of the equipment.

20 **Q: What issues does IPL's Performance Contracting Program present?**

1 A: My first concern is that project developers seem to be interested in
2 narrowly scoped energy efficiency projects and less concerned with
3 addressing the total needs and more comprehensive energy efficiency
4 opportunities of commercial and industrial customers. Because project
5 developers are financially responsible for the estimated savings of a
6 project, the program tends to encourage single component projects that
7 result in relatively certain savings, such as lighting. Second, by not
8 allowing customers to define and manage their own project, the
9 Performance Contracting Program may be limiting the amount and scope
10 of projects that have the potential to achieve the goals set by company's
11 energy efficiency plan. Finally, IPL has struggled to develop a network
12 of active project developers (i.e., those who are actively bidding on and
13 developing projects within the program) for the Performance Contracting
14 Program. Consequently, IPL's affiliate Performance Edge has remained
15 the primary, if not sole, active project developer in this program.

16 **Q: What is wrong with IPL's affiliate being the primary or sole project**
17 **developer for this program?**

18 A: IPL's affiliate is paid incentives for the projects it develops. This
19 situation requires ongoing oversight to ensure that a level playing field
20 for project developers is maintained and ensure the credibility of IPL's

1 monitoring and evaluation process. There is a conflict of interest in IPL
2 overseeing the “independent evaluator” that verifies energy efficiency
3 incentives to be paid to IPL’s affiliate. Both of these concerns would
4 have been mitigated to some extent with more robust program
5 participation by project developers who are not affiliated with IPL.
6 Despite several years of effort toward that end, IPL has been unable (for
7 numerous reasons some of which are beyond IPL’s control) to develop an
8 active group of project developers.

9 **Q: What changes are needed to address these issues?**

10 **A:** These issues call for significant structural changes to the Performance
11 Contracting program. The program should be restructured to allow more
12 active customer participation in project development, and to encourage
13 more comprehensive efficiency projects. Customers should be more
14 actively involved in managing and defining their efficiency projects and
15 the type of incentives needed to implement the project. Under a
16 restructured program, project developers would no longer be solely
17 responsible for developing projects. The project developer entities
18 would, however, remain a significant component of the program in that
19 they will be the primary means of delivering and implementing efficiency
20 projects. The program’s objective to overcome the upfront cost hurdle of

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energy efficiency project costs can continue to be addressed through favorable financing opportunities, buy-down of the loan payback period, project implementation pursuant to a longer term efficiency plan, or some combination of these features depending on the customer's particular situation.

Q: Is there any potential for natural gas energy efficiency savings with industrial customers?

A: Yes, there is a potential for all customers to participate and benefit from energy efficiency programs, whether they are large system or transportation customers.

Q: Why are some transportation customers not included in Company's Energy Efficiency Plan?

A: In Company's response to OCA data request # 20, OCA Exhibit_ (FK-1), Schedule B, IPL witness Kim King refers to the Board's order issued in Docket No. RMU-90-27 on March 15, 1991 where the Board has specifically noted that feedstock and transportation utility service is not related to the end user's specific use of gas for energy, and that the Board excluded revenue from the sale of transportation service from the definition of "gross operating revenue". She further explains, because of this specific rule making, and that these groups of customers do not

1 contribute to company's energy efficiency programs for which they are
2 not eligible.

3 **Q: Does this continue to be a valid basis for excluding transportation**
4 **customers from funding and participating in energy efficiency**
5 **programs?**

6 A: No. While transportation service may be unrelated to the end user's
7 specific use of gas for energy, transportation service is an integral
8 component of natural gas consumption by transportation customers in
9 Iowa. The Board has expressed its commitment to the continuation of
10 aggressive energy efficiency programs already in place and to the
11 development of new plans to further increase savings to customers and
12 reduced natural gas consumption from energy efficiency. (Docket No.
13 NOI-06-1, "Order Addressing Issues and Closing Docket" p. 4 (Dec. 18,
14 2006)). The natural gas transportation class represents a significant (and
15 increasing) amount of the natural gas consumption in Iowa and must be
16 included in the effort to control and reduce natural gas consumption.

17 **Q: Did IPL in its data response to OCA data request #20 explain that**
18 **small natural gas transportation customers are eligible for EEP and**
19 **are contributing to IPL's energy efficiency programs?**

20 A: Yes.

1 **Q: Are transportation customers under Board jurisdiction subject to**
2 **tariffs approved by the Board?**

3 **A: Yes.**

4 **Q: Has the Board approved a tariff to allow or direct transportation**
5 **customers to participate in Energy efficiency Cost Recovery (EECR)**
6 **after the Board order in Docket No. RMU-90-7 was issued on March**
7 **15, 1991?**

8 **A: Yes.** The Board in its order to filing of permanent small volume
9 transportation tariff in Docket No. SPU-04-1 issued on November 5,
10 2007, directed that permanent small volume transportation tariff
11 customers will pay the same EECR factor they would pay as a system
12 customer and they will be able to participate in the energy efficiency
13 programs offered by the utilities. In response to this directive the utilities
14 filed the tariffs. The Board in its approval of these tariffs for MEC and
15 IPL has included a provision by stating that small volume transportation
16 customers will be able to participate in the energy efficiency programs
17 offered by the companies on the same bases as system customers.

18 **Q: Do these small volume transportation customers participate in IPL's**
19 **EEP program and contribute to company's energy efficiency cost?**

1 A: Yes, The Company in its response to OCA data request #20 indicates that
2 effective June 1, 2008 these newly eligible small natural gas
3 transportation customers are charged the energy efficiency cost.

4 **Q: How does gas transportation volume compare in calendar year 1995**
5 **to calendar year 2007?**

6 A: I have filed a graph as OCA Exhibit_ (FK-1), Schedule C that shows the
7 volume of transportation of gas on IPL's system has consistently been
8 between 47% to 54% of company's total load for calendar year 1997
9 through calendar year 2007. The lowest being calendar 2002 at 47% and
10 the most recent calendar year 2007 was at 51%.

11 **Q: Why is transportation volume important in relation to Company's**
12 **Energy Efficiency Plan?**

13 A: As I have indicated above that the amount of gas that is transported is
14 51% of total gas sold and transported on IPL's system for calendar year
15 2007. The customers that transport gas are the customers that use the
16 volume of gas transported in addition to electric usage.

17 **Q: What is your opinion?**

18 A: It is important that this group of customers be included in the company's
19 plan. Transportation customers represent a significant portion of the gas
20 sold and transported on IPL's system. The fact that some of these

1 transportation customers have the opportunity to participate and are
2 included in energy efficiency program, and it is a major concern that
3 IPL's large transportation customers are not included in company's effort
4 of energy efficiency program.

5 **Q: What resolution do you propose?**

6 A: I recommend that IPL's transportation customers (as a class) be eligible
7 and contribute to funding for IPL's natural gas energy efficiency
8 programs. If it is necessary to waive any Board rule to allow this change,
9 the Board should waive such rule(s).

10 **Q: Please describe the Combined Heat and Power (CHP) component of**
11 **IPL's custom rebate program.**

12 A: IPL will provide an incentive on a kW basis for fuel cells, reciprocating
13 engines and turbines excluding those fueled by gasoline, diesel, oil, or
14 coal with a capacity less than 5MW and efficiency of at least 60%.

15 **Q: What is CHP?**

16 A: Combined heat and power is a term used to describe scenarios in which
17 waste heat from energy production is recovered and used as a source of
18 thermal energy. The goal of such programs should be to maximize the
19 energy use from fuel consumed and avoid additional green house

1 emissions by entities that operate base load generating stations like
2 utilities or utility customers that install their own generation.

3 **Q: Did you ask the company why it didn't provide incentive for certain**
4 **fuel type to be included in company's CHP pilot program?**

5 A: Yes.

6 **Q: What is the Company's response?**

7 A: In response to OCA data request #76 which is filed as OCA Exhibit_(FK-
8 1), Schedule D, Interstate Power states that only natural gas and
9 renewable sources like biomass and biogas are eligible for incentives, but
10 other fuels like propane are not eligible for incentives. I disagree with
11 IPL's exclusion of propane fueled CHP projects from its program.

12 **Q: Does IPL have a different policy or tariff for customers that**
13 **participate in CHP program?**

14 A: No.

15 **Q: What is your opinion?**

16 A: As a combined gas and electric company IPL could benefit from CHP
17 investments in customer facilities, particularly in emission reduction,
18 load management opportunities, customer satisfaction, and recruiting
19 suitable end users to the company's service territory. CHP was evaluated
20 as a distinct energy efficiency policy category in the assessment of

1 energy efficiency programs and policies conducted by the American
2 Council for an Energy-Efficient Economy (ACEEE).¹ The growth in the
3 ethanol industry, in conjunction with the rising demand for electricity and
4 the high cost of natural gas (and propane), creates unique opportunities to
5 utilize CHP for cost-effective “win-win” partnerships between ethanol
6 plants and utilities.² IPL should be proactively evaluating such CHP
7 opportunities. It is not evident from IPL’s plan that IPL intends to take
8 such a proactive approach. It would be useful to expand the Company’s
9 CHP pilot projects to test equipment, for example at ethanol plants, to get
10 a better idea of the costs and benefits of CHP and determine whether
11 IPL’s size limitation on CHP facilities eligible for incentives is sensible.

12 **Q: Does this conclude your testimony?**

13 **A:** Yes, it does.

¹ “The State Energy Efficiency Scorecard for 2006” (ACEEE Report No. E075) (June 2007) <http://aceee.org>
² http://www.epa.gov/chp/markets/ethanol_fs.html

STATE OF IOWA)
)
COUNTY OF POLK)

SS: AFFIDAVIT OF FASIL KEBEDE

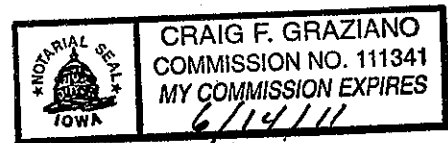
I, Fasil Kebede, being first duly sworn on oath, depose and state that I am the same Fasil Kebede identified in the foregoing Direct Testimony; that I have caused the foregoing Direct Testimony to be prepared and am familiar with the contents thereof, and that the foregoing Direct Testimony as identified therein is true and correct to the best of my knowledge, information and belief as of the date of this Affidavit.

Fasil Kebede
Fasil Kebede

Subscribed and sworn to before me, A Notary Public, in and for said County and State, this 28th day of August, 2008.

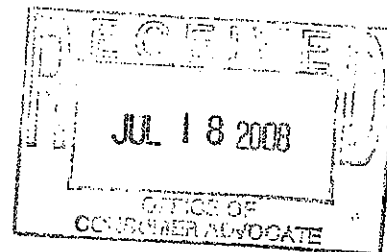
Craig F. Graziano
Notary Public

My Commission expires: 6/14/11



Response of
Interstate Power and Light Company
to
OFFICE OF CONSUMER ADVOCATE
Data Request No. 82

Docket Number: EEP-08-1
Date of Request: July 3, 2008
Response Due: July 11, 2008
Information Requested By: Jennifer Easler
Date Responded: July 17, 2008
Author: Gilbert Nunez
Author's Title: Product Manager
Author's Telephone No.: (319) 786-7237
Subject: Performance Contracting



Data Request No. 82

Through this program customers implement efficiency measures without initial capital costs, which are financed through a third-party financial institution facilitated by a project developer.

- A. Has IPL investigated the possibility of on-bill, positive cash flow, and other financing mechanisms?
- B. How are project developers qualified?
- C. How are savings verified?
- D. How are the independent verification contractors qualified?
- E. "This program's defining feature is paying a project developer a risk premium based on verified savings after energy-efficient equipment has been installed and is operational." How is the "risk premium" determined?

Response

- A. Yes, IPL has investigated the possibility of on-bill financing; however, due to billing system constraints, IPL is currently unable to offer this feature to its customers. IPL's Performance Contracting program offers customers the ability to complete projects with no upfront capital expenses through verified and guaranteed energy savings that provide positive cash flow to customers. IPL's Performance Contracting program recently added a financial partner to help customers and project developers finance energy efficiency projects. IPL is continuing to pursue partnerships with other financial institutions to assist customers and project developers in easily obtaining the necessary financing.

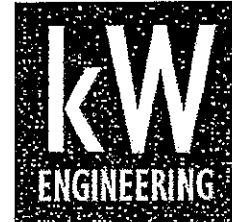
Docket No. EEP-08-1
OCA Data Request No. 82
Page 2 of 2

- B. Companies that are interested in becoming a project developer must submit a registration form and provide at least two customer references to the Program Administrator. IPL then completes a thorough background check showing company history, credibility and good financial status. The Program Administrator, in combination with IPL, reviews the information for accuracy and the Program Administrator and IPL jointly come to a final decision on whether to admit the project developer into the program.
- C. Savings are verified by a third-party measurement and verification contractor who reviews the project documentation and invoices. Depending on the complexity and size of the project, a site visit may also be conducted to verify the installation of equipment, and data loggers may be installed and monitored. Please see **Attachment A** for the specifics on how Performance Contracting savings are verified.
- D. IPL's Performance Contracting program has only one independent measurement and verification (M&V) contractor. This contractor was qualified and selected through a competitive RFP process, and had extensive experience with other Performance Contracting programs. IPL found that kW Engineering had experience in short and long-term monitoring at numerous facilities in California, Utah, Oregon, and Iowa and is well-versed in the leading M&V protocols including the International Performance Measurement and Verification Protocol (IPMVP), the Federal Energy Management Program's (FEMP) application of the protocol.
- E. Risk premium incentives are determined by the level of energy savings, type of service provided to the customer and the customer's applicable energy tariff. The risk premium equals 150 percent of the customer's verified annual energy bill savings resulting from installing the energy-efficient equipment as reported by the contractor described in IPL's response to Part D above.

Performance Contracting Program Annual Report #5 January 2007 through December 2007

prepared for

Alliant Energy



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*focus on energy
on energy*

February 19, 2008
Draft Report

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1.0 REPORT OVERVIEW

1.1 Introduction

This report summarizes the results, activities and program modifications for measurement and verification (M&V) activities conducted for projects under Alliant Energy-Interstate Power and Light's (Alliant Energy-IP&L) performance contracting program in Iowa. Projects submitted under the program consist of one or more energy efficiency measures (EEMs) that are designed to reduce the energy use at the customer's facility. Since M&V activities are often different for each measure in a given project, results are summarized by measure as opposed to project. This report begins with a review of the measures installed and the M&V activities performed during the 2007 program year. Tables and charts are provided throughout the report to illustrate the relationship between the types of measures installed and the M&V activities performed. The remainder of the report is segmented into Program Results, Project Verification and Process Modifications.

This is the fifth annual report developed for Alliant Energy-IP&L by kW Engineering while conducting savings verification for the program. It covers M&V activities performed for the period from January through December 2007. All the data used to create the tables in this report are provided in the appendices.

1.2. Definitions

Throughout the report there are two different estimates of savings that are discussed. "Estimated" refers to the savings documented on the Project Completion forms. "Verified" refers to the savings determined through M&V activities and documented in the Verification Report. Finally, "AR" is defined as the Actualization Rate, which is the Verified savings divided by the Estimated savings and represents the percentages of savings that are realized under the program.

2.0 PROGRAM RESULTS

2.1. Program Overview

Alliant Energy-IP&L's performance contracting program is designed to save energy and encourage the growth of the energy efficiency industry in the state of Iowa by providing incentives to Project Developers that helps offset the risks associated with performance contracts. The program's incentives are based on the actual performance of installed energy efficiency measures and are intended to give Project Developers an added incentive to initiate comprehensive projects and develop long term relationships with their customers. To establish the performance of installed efficiency measures, the savings are verified by a third party M&V consultant, kW Engineering.

Measures installed under the program are verified through a multi-step process that begins with the Project Developer submitting a Project Notification form to Alliant Energy-IP&L. This form notifies Alliant Energy-IP&L that a performance contract is being developed and provides basic information about the project. This information is also used to help determine the verification activities that must occur before the measures are installed (i.e. the existing conditions altered).

After the measures are installed, the Project Developer submits a Project Completion form that provides the Estimated savings for the project. Next, the Project Developer provides kW Engineering with more detailed information that includes savings calculations, information about the site and measures installed, and any data that has been collected. kW Engineering reviews this information and develops an M&V approach to verify the savings. Depending on the installed technology and the size of the energy savings, the M&V approach may include a site visit and post-installation monitoring. After all the data has been collected, Verified savings are calculated and the results are compared to the original estimate to determine the program's Actualization Rate.

2.2. Savings Summary

Projects have been implemented under the program since 2001, with kW Engineering providing the verification of savings for installed measures. This verification involves numerous M&V activities culminating in a project "Verification Report" that describes the measures installed and estimates the actual savings achieved by the measures. During the 2007 program year, 35 projects were verified. Table 1 below summarizes the cumulative Estimated and Verified program savings for the entire 2007 program period.

Table 1: Cumulative Savings for the 2007 Program Year

Total End Use	Estimated	Verified	AR
Demand (kW)	1,498.4	1,536.5	102.5%
Energy (kWh)	8,897,705	8,066,557	90.7%
Natural Gas (Therms)	152,986	144,739	94.6%
Annual Dollars (\$)	\$688,089	\$628,857	91.4%
Risk Premium (\$)	\$789,025	\$731,931	92.8%

Total electric energy (kWh) savings verified was approximately 84% of the energy savings verified in the previous program year. The total natural gas (therms) savings verified was 73% of the gas savings verified in the previous program year. In addition to the summary provided in Table 1, the data are presented in several additional tables in the appendices.

In general, the types of measures installed in 2007 were similar to those installed in previous years. Again, lighting made up a majority of the total projects account for 71% of the projects in 2007, whereas lighting made up 72% of the projects in the 2006 program year. The main difference in the 2007 program year was the verification of two large, new construction refrigeration projects that accounted for 849,553 kWh of energy savings. The remaining sections of the report provide additional details.

2.3. Summary of Installed Measures

The projects installed under the program consist of one or more energy efficiency measures (EEMs) designed to reduce the energy use at the customer’s facility. Each measure in a project was assessed to determine the appropriate level of M&V required to verify savings. The level of M&V depended on the *Measure Category*, *Measure Size* as well as the *Measure Risk* assigned to the savings estimate. These are defined in more detail in the following subsections and are used in subsequent tables and pie charts.

Measure Category

Measures installed under the program were grouped into four major categories for purposes of M&V and reporting: Lighting, HVAC, Process, and Refrigeration. These categories are used to group similar measures together to help determine what M&V activities should be performed and how results are reported. These categories correspond to the categories listed in Alliant Energy-IPL’s 2007 Technical Guidebook. Measures installed that are not listed specifically in the guidebook were included in the M&V category deemed most appropriate. Appendix C provides a table listing each project and the categories selected for the measures installed.

Since some projects involved more than one measure, the number of measures listed is greater than the number of projects. In 2007, 38 measures were verified for 35 projects. This is consistent with previous years and shows that most of the projects submitted under the program were for a single measure. In addition, it should be noted that 35 projects were submitted at 33 different sites, which shows that most projects were for single measures at individual sites.

The total number of measures installed and the total energy savings reviewed for each measure category are shown in Table 3.

Table 2: Measures Installed

Measure Category	Number of Installations	Verified Savings		
		Demand Savings (kW)	Energy Savings (kWh)	Gas Savings (Therms)
HVAC	2	27.4	32,019	0
Lighting	27	1,359.6	6,456,082	0
Process	6	53.4	573,011	144,739
Refrigeration	3	96.0	1,005,445	0
Total	38	1,536.5	8,066,557	144,379

The types of measures installed were consistent with 2006, except that there were three refrigeration projects in the 2007 program year. There were no refrigeration projects in the 2006 program year. These three refrigeration projects accounted for 994,026 kWh of energy savings.

Measures Size

For reporting and analyses purposes, the size of a measure is defined by its annual dollar savings. Based on this, the measures are grouped by size classification and presented in Table 2, which shows the number of measures installed by size for each measure category. Typically, the larger the project the more rigorous the verification required.

Table 3: Size of Measures Installed

Measure Category	Project Size			
	Very Small (< \$10K)	Small (\$10K - \$20K)	Medium (\$20K - \$50K)	Large (>\$50K)
HVAC	2	0	0	0
Lighting	12	8	6	1
Process/Machine	2	1	1	2
Refrigeration	1	0	0	0
Total	17	9	9	3

This project size breakdown is consistent with the project sizes installed in 2006.

Measure Risk

All of the measures submitted under the program were evaluated to determine the *Measure Risk*. This is an assessment of the likelihood that the measure will achieve the energy savings estimated and depends considerably on the type of measures installed and the methodology used to estimate the savings. Simple measures (e.g. lighting) that have a long history of consistent and quantifiable energy savings are considered low risk and verifying the energy savings for these projects is typically straight forward. Complex measures do not have the same consistent results and require more rigorous verification.

Although measure risk is more difficult to quantify, it is largely related to the measure category. In 2007, most projects were in low risk categories and verification was simple and straight forward. This is consistent with the projects completed in previous program year.

Distribution of Installed Measures

The distribution of measures installed, based on measure category, is illustrated through the three figures on the following page. Figure 1 shows the percentage of measures installed, Figure 2 the electric energy savings, and Figure 3 shows the annual dollar savings. Demand savings are not shown in a separate figure because they had approximately the same percentage distribution as the electric savings.

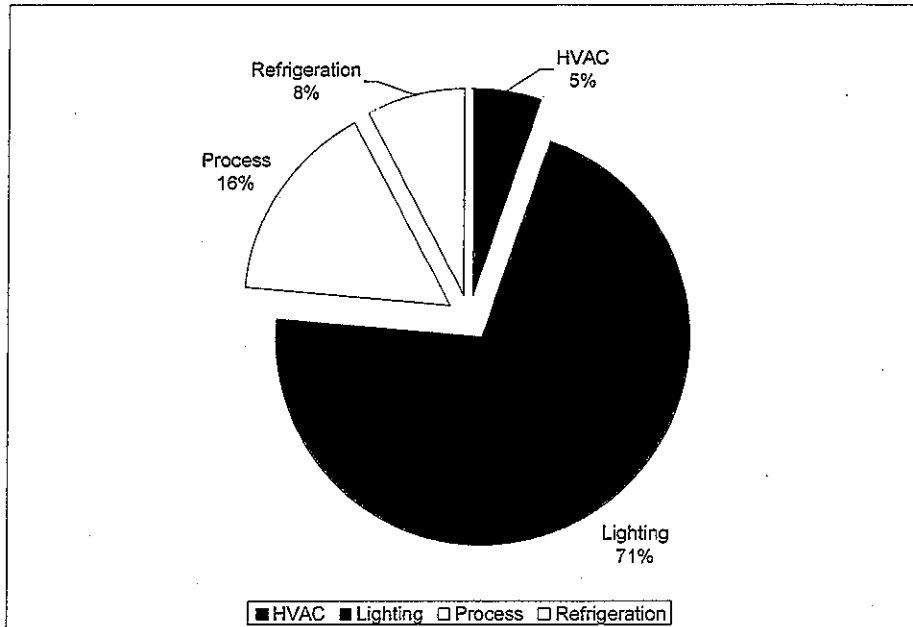


Figure 1. Percentage of Measures Installed by Category

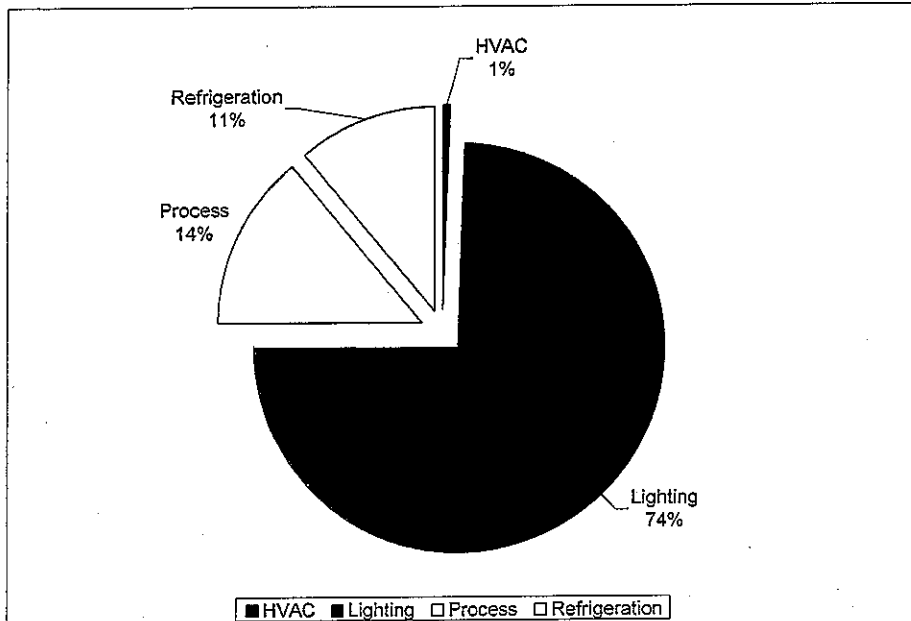


Figure 2. Percentage of Energy Savings by Measure Category

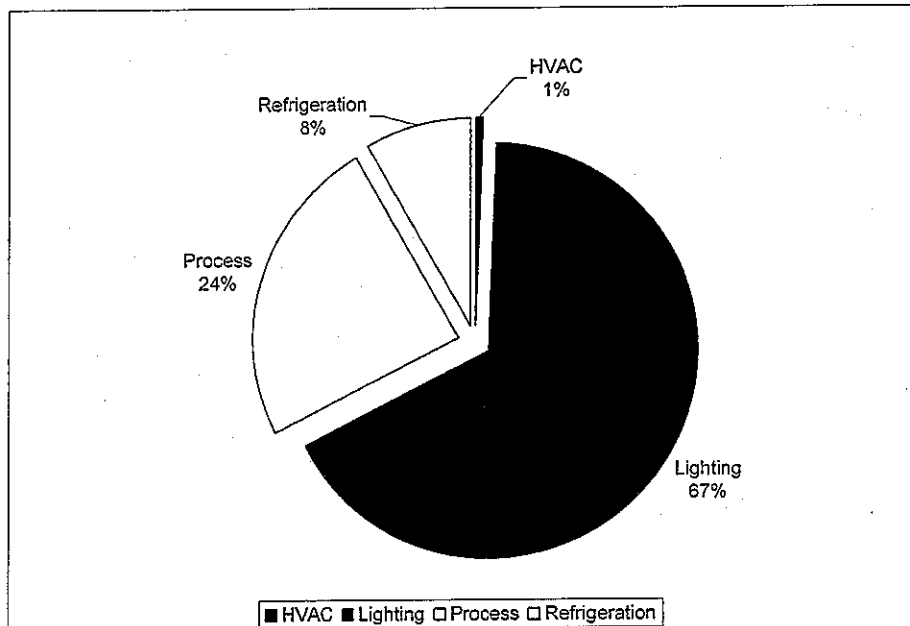


Figure 3: Percentage of Annual Dollar Savings by Measure Category

The most common measure was lighting, which accounted for 71% of the measures installed and 74% of the electric savings. Compared with 2006, lighting measures accounted for a slightly smaller percentage of the savings – 74% (2007) versus 84% (2006) and process measures were comparable – 14% (2007) versus 16% (2006). There was a large increase in the energy savings associated with refrigeration in the 2007 program year. In the 2007 program year 11% of the verified savings were from refrigeration, whereas no refrigeration savings were verified in 2006.

3.0

PROJECT VERIFICATION

Every project submitted under Alliant Energy-IP&L's Performance Contracting Program is verified by kW Engineering. The verification of each project application requires the submittal of two items. The first is the Project Completion Form, which provides basic information on the Project Developer, customer and project. kW Engineering enters the information on this form into a tracking database and uses the savings listed as the Estimated savings. The second item required is the Savings Verification Documentation, which includes the details involved in estimating the energy savings. The information on both of these documents needs to be complete and consistent to begin the review and determine the appropriate M&V activities. After receiving all the required documentation, kW Engineering develops and implements the M&V for the project.

3.1 Review Savings Verification Documentation

The Savings Verification Documentation provides the project details and most importantly the calculations and assumptions used to estimate the energy savings. These documents typically are received in hard copy from the Project Developer. The documents are date stamped upon arrival at kW Engineering and given a preliminary review to establish that enough information has been provided to verify the savings estimate. These documents typically include:

- General project information (Site Contact, Address, etc.)
- A description of the measures involved
- Existing and proposed equipment affected by the measure
- The savings calculations
- Any baseline data that has been collected
- The utility bills for at least the past year

Upon receiving the Savings Verification Documentation, kW Engineering performs an initial review to verify that enough information has been provided to determine the method for M&V. If additional information is required, kW Engineering contacts the Project Developer directly to get this information. After completing the initial review, an approach for verifying the savings for the project is developed. The approach may include, depending on the measures installed, a visit to the site and pre- and post-installation data collection. Finally, the approach is implemented and a Verification Report written.

3.2 Develop M&V Approach

Following the review of the savings verification documents, kW engineering develops the M&V approach to guide the analysis and necessary activities for each project. Development involves a critical assessment of the energy efficiency measures proposed in conjunction with an evaluation of the balance between accuracy (savings risk) and verification costs. The approach selected depends on the type of equipment installed, the site data available and the

variability of the process.

The methods chosen are based on the four major M&V options provided in the FEMP guidelines of the IPMVP protocols. Brief descriptions of the different methods are provided below along with a summary of how the method is utilized in the program.

- **Option A – Stipulated:** This method uses a combination of engineering analysis and little to no post-installation measurement. This method is usually implemented with smaller (usually under \$10,000) and simpler (e.g. lighting) projects that have low risk. In addition, Option A is more likely to be used if the measure savings were estimated with the calculations in Alliant Energy's Technical Guidebook.
- **Option B - Isolated Metering:** Savings are determined by measuring the post-installation performance of the individual pieces of equipment involved in the retrofit. This option is often used when the equipment energy use can be isolated and, when necessary, a relationship between energy use and an independent variable (e.g. pounds of production) identified. This method is more likely to be used on newer technologies that do not have a long history of verified savings, or measures that are site specific (e.g. process measures). The measures involved usually have cost savings that are greater than \$10,000 to justify the added expense of metering.
- **Option C - Whole Building Analysis:** This option involves measurement of the energy use of the whole facility. Usually this is done with utility bills, an independent variable (e.g. weather), and some type of regression analysis. This method is typically used on measures with a cost savings greater than \$10,000 and when the energy use of the equipment involved in the measure can not be isolated. Also, the savings for the measure(s) installed must be a significant percentage (15% or greater) of the utility bills. Savings from multiple measures are sometimes combined when using this method because the energy use for the equipment involved is on the same billing meter. This method is typically used to verify the general level of savings (i.e. calculate billing savings within 10% of Verified savings), relying then on engineering equations to calculate the Verified savings. This is due to the inherent variability associated with utility bill analysis, which can show the general level of savings, but does not necessarily provide a definitive number.
- **Option D – Calibrated Simulation:** This analysis involves estimating procedures that follow the guidelines set forth by ASHRAE Technical Committee 4.7. Typical analyses use DOE-2, ASHRAE Toolkits, and kW Engineering analysis templates. Option D is typically used for measures that have savings greater than \$20,000, are difficult to isolate and have savings that are less than 15% of the utility bills.

Table 4. shows the number of times each M&V method was implemented per measure category.

Table 4: M&V option selected

Measure Category	Option A	Option B	Option C	Option D
HVAC	2	0	0	0
Lighting	21	6	0	0
Process	2	3	1	0
Refrigeration	3	0	0	0
Total	28	9	1	0

In general, the options selected in 2007 were slightly different than the options used in previous years. A majority of the measures (74%) used Option A because there were a lot of smaller and simpler projects that did not require a more rigorous analysis. This was up 16% from 2006. In addition, Option B was used 23% of time, 13% less than 2006. Option C was used 3% (one project). Option D was not used at all in 2007. This is very similar to previous years as Option A has been predominately the M&V approached used since a majority of the projects seen in the Performance Contract program are small lighting projects. Appendix C provides a table listing the project name, measure category and M&V option selected.

3.3. Site Visits, Monitoring and Verification Reports

After the M&V approach has been selected, the activities required to implement the strategy are completed. As with the M&V method utilized, the activities performed are based on the measures installed. The activities are grouped by measure category to look at the relationship between the types of measures installed and the level of M&V implemented. The M&V activities have been classified into four major components described below.

- **Site Visits:** Site visits are used to provide visual verification of the energy efficiency measure(s) implemented. This includes an inspection of the new equipment installed and an appraisal of how it operates. Site visits are coordinated with all of the Project Developers to maximize the number of site visits per trip and minimize interference with customer schedules and activities. Site visits are typically reserved for projects with cost savings greater than \$10,000 and more complex measures.
- **Post-Installation Data Collection:** This activity involves the collection of any measured data, except billing data, after the installation is complete. This primarily consists of equipment runtime and power data. Post-Installation data collection is usually done for larger projects that include equipment with long runtimes and/or a variable load. Data is also more likely to be collected for projects that have unique or new measures (e.g. process measures). Typically, data logging equipment is installed during the site visit by kW Engineering. After the designated monitoring period is over, the equipment is removed by onsite personnel and returned to kW Engineering.

- Analysis and Verification Reports:** After collecting all the required project data, the M&V analysis is completed. This task culminates in a Verification Report submitted to the Product Manager. These reports begin with a description of the project, followed by the data collection and analysis plan developed previously. The collected data and savings analysis are then summarized in a report that includes a discussion of any differences in the methods used to calculate savings as well as the resulting Verified savings. Finally, a recommended adjustment, if any, to the risk premium paid to the Project Developer is provided.

Table 5 provides a summary of the number of verification activities performed for the different measure categories.

Table 5: M&V Activities By Number of Projects

Measure Category	Analysis and Verification Report	Site Visits	Post-Installation Data Collection
HVAC	2	2	0
Lighting	27	7	6
Process	6	4	4
Refrigeration	3	3	0
Total	38	16	10

During this reporting period 38 measures were analyzed and received a Verification Report. Site visits were completed for 16 of the verified measures. Post-installation data were collected on 10 of the projects that were visited (6 used stipulated values). Data were typically collected on larger projects involving equipment with long runtimes and/or variable loads. The only exception to this was the refrigeration measures, which were verified using weather data. Site visits and monitoring were performed on approximately 22% of the lighting measures installed. In contrast, four out of six process measures were inspected and all but one of these measures were verified with either short-term monitoring or production data. This reflects the variability (and increased risk) associated with process measures. The one measure that did not receive short-term monitoring was a small lighting measure. Table 6 also illustrates the verification activities based on the annual dollar savings.

Table 6: M&V Activities By Dollar Savings

Measure Category	Analysis and Verification Report	Site Visits	Post-Installation Monitoring
HVAC	\$3,490	\$3,490	\$0
Lighting	\$420,123	\$209,763	\$197,879
Process	\$152,295	\$142,353	\$84,061
Refrigeration	\$52,950	\$52,950	\$0
Total	\$628,857	\$408,556	\$281,940

4.0

VERIFICATION MODIFICATIONS

As projects were installed and verified, recommendations were developed to help improve the verification process as well as the program's actualization rate. The modifications to the verification process have been grouped into two major categories: *Process* and *Information* Modifications.

Process

Modification #1: Project Reviews replace M&V plans.

The M&V plans that were completed in previous years were replaced with Project Reviews. Project Reviews are completed before projects are installed and outline the M&V approach to be used to verify the energy savings. However, since the Project Reviews occur prior to installation, the M&V approach may include a pre-installation site visit to verify the existing equipment and operation.

The Project Reviews also include an initial review of the submitted energy savings calculations. Therefore, if the Evaluator's estimate of the energy savings differs from the Project Developer's, the Project Developer can be notified earlier. This provides time for the Project Developer and Evaluator to identify and resolve many issues before installation and expedites the Verification Report after installation.

A Project Review can only be completed if the energy savings and supporting information are submitted to the Evaluator with the Project Notification. Because of this, Project Reviews are optional, but highly recommended for larger or complex projects.

Information

Modification #1: Collect Utility Bills with the Project Notification Form.

In order to expedite Early Involvement and Project Reviews, utility bills are now collected with the Project Notification form. This enables kW Engineering to immediately identify whether the savings will be apparent in future billing data and helps determine whether a utility bill analysis will be required.

MORE INFORMATION

This analysis was prepared by kW Engineering. Contact information is provided below:

kW Engineering
287 17th Street, Suite 300
Oakland, CA 94612
ph. (510) 834-6420
fax (510) 834-6421
www.kw-engineering.com

Please direct all contract or performance related questions to the following:

ALLIANT ENERGY CORPORATION
c/o Gilbert Nunez
Product Manager
Alliant Energy - GO 8
200 First Street SE
Cedar Rapids, IA 52401
(319) 786-7237
gilbertnunez@alliantenergy.com

**APPENDIX A
 PROJECT DATES**

Project Name	Notification Date	Pre-Install Site Visit	Completion Date	Post-Install Site Visit	Verification Report	Funds Transfer
American Profol	11/1/2005	N/A	11/9/2005	N/A	12/28/06	1/25/07
Echo Plus Inc.	8/8/2006	N/A	11/1/2006	N/A	1/17/07	1/25/07
Cedarapids, Inc	7/5/2006	8/23/2006	9/28/2006	11/28/06	12/20/06	2/27/07
MaxYield Cooperative	12/22/2005	N/A	12/27/2005	10/6/06	12/20/06	2/27/07
Cornell College	8/9/2006	N/A	10/19/2006	N/A	3/26/07	3/28/07
Fisher Controls	8/23/2006	N/A	9/22/2006	N/A	3/6/07	3/28/07
Harper Brush Works	10/3/2006	N/A	11/8/2006	N/A	3/7/07	3/28/07
Mid-States Steel Corp	8/29/2006	N/A	12/11/2006	N/A	3/15/07	3/28/07
Mount Ayr Community Schools	10/30/2006	N/A	12/13/2006	N/A	3/23/07	3/28/07
Woodward-Granger Community School Di	11/16/2006	N/A	1/23/2006	N/A	3/6/07	3/28/07
Energy Mfg Co Inc - 2b	12/20/2006	N/A	2/8/2007	N/A	4/6/07	4/26/07
Energy Mfg. Company Inc. - 2a	12/20/2006	N/A	1/19/2007	N/A	4/17/07	4/26/07
Firsco Inc	6/20/2006	7/10/2006	12/28/2006	2/20/07	4/13/07	4/26/07
Hy-Vee Food Stores #4	8/30/2006	N/A	11/9/2006	N/A	4/4/07	4/26/07
Cargill Corn Sweeteners	8/21/2006	N/A	12/27/2006	N/A	5/9/07	5/29/07
Dubuque Stamping & Manufacturing, Inc	6/14/2006	N/A	10/31/2006	2/21/07	5/17/07	5/29/07
Newton	12/8/2006	N/A	2/1/2007	N/A	4/18/07	5/29/07
Romeo Rim Inc	11/29/2006	N/A	4/26/2007	N/A	5/24/07	5/29/07
Skyline Center Inc.	10/9/2006	N/A	2/9/2007	N/A	5/10/07	5/29/07
Bennett Machine and Fabricating	1/3/2007	N/A	5/9/2007	N/A	6/21/07	6/28/07
Burlington, City of	12/13/2006	N/A	3/15/2007	N/A	6/15/07	6/28/07
Hy-Vee Food Stores - Creston	12/8/2006	N/A	4/26/2007	N/A	6/8/07	6/28/07
Madrid Community School	12/29/2006	N/A	3/21/2007	N/A	6/29/07	7/26/07
Nash Finch Company	11/30/2006	N/A	3/2/2007	N/A	8/23/07	8/29/07
Alverno Health Facility	12/21/2006	N/A	7/27/2007	5/29/07	10/23/07	10/29/07
Cargill Corn Sweeteners	3/18/2007	N/A	7/27/2007	N/A	12/11/07	12/27/07
Creative Edge Mastershop, Inc	8/8/2007	N/A	10/9/2007	11/13/07	12/17/07	12/27/07
DeBruce Grain, Inc.	7/16/2007	N/A	11/16/2007	11/15/07	12/17/07	12/27/07
Hy-Vee Food Store - Cedar Rapids #7	12/5/2006	N/A	3/22/2007	7/18/07	12/17/07	12/27/07
Hy-Vee Food Store - Dubuque IA #3	12/5/2006	N/A	3/22/2007	7/18/07	12/14/07	12/27/07
JELD-WEN Doors - Grinnell	12/15/2006	2/20/2007	9/12/2007	11/14/07	12/14/07	12/27/07
JELD-WEN Doors - Grinnell	12/11/2006	2/20/2007	9/12/2007	11/14/07	12/14/07	12/27/07
Lester Feed & Grain	7/12/2007	N/A	10/3/2007	N/A	12/18/07	12/27/07
North Iowa Cooperative Elevator	5/21/2007	N/A	6/22/2007	7/17/07	12/21/07	12/27/07
Riceville High School Bldg	12/29/2006	N/A	10/4/2007	N/A	12/18/07	12/27/07



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APPENDIX B
SAVINGS BY TECHNOLOGY

IPL Projects	2007 Demand Savings (kW)			2007 Energy Savings (kWh)		
	Estimated	Verified	RR	Estimated	Verified	RR
HVAC	50.0	27.4	54.8%	60,642	32,019	52.8%
Lighting	1,170.5	1,359.6	116.2%	6,600,949	6,456,082	97.8%
Process	182.2	53.4	29.3%	1,242,088	573,011	46.1%
Refrigeration	95.6	96.0	100.4%	994,026	1,005,445	101.1%
Total	1,498.4	1,536.5	102.5%	8,897,705	8,066,557	90.7%

IPL Projects	2007 Gas Savings (Therms)			2007 Annual Dollar Savings (\$)		
	Estimated	Verified	RR	Estimated	Verified	RR
HVAC	0	0	0.0%	\$6,516	\$3,490	53.6%
Lighting	0	0	0.0%	\$431,155	\$420,123	97.4%
Process	152,986	144,739	94.6%	\$203,601	\$152,295	74.8%
Refrigeration	0	0	0.0%	\$46,817	\$52,950	113.1%
Total	152,986	144,739	94.6%	\$688,089	\$628,857	91.4%

**APPENDIX C
 PROJECT MEASURE INFORMATION**

Project Name	End Use	Demand Savings	Electrical Savings	Gas Savings	Annual Dollar Savings	M&V Method	Site Visit	Data Collected
American Profol	Process	15.0	122,294	0	\$5,672.86	Option B	Yes	Yes
Echo Plus Inc.	Lighting	8.0	15,968	0	\$1,422.90	Option A	N/A	No
Cedarapids, Inc	Lighting	220.8	888,584	0	\$63,828.95	Option B	Yes	Yes
MaxYield Cooperative	Process	0.0	79,689	49,624	\$50,967.65	Option B	Yes	Yes
Cornell College	Lighting	42.5	267,170	0	\$15,570.25	Option A	N/A	No
Fisher Controls	Lighting	42.7	373,702	0	\$18,270.95	Option A	N/A	No
Harper Brush Works	Lighting	26.5	122,760	0	\$10,939.60	Option A	N/A	No
Mid-States Steel Corp	Lighting	47.8	120,137	0	\$10,705.86	Option A	N/A	No
Mount Ayr Community Schools	Lighting	70.1	149,323	0	\$12,567.00	Option A	N/A	No
Woodward-Granger Community School District	Lighting	5.2	12,930	0	\$1,152.22	Option A	N/A	No
Energy Mfg Co Inc - 2b	Lighting	23.6	162,263	0	\$9,079.61	Option A	N/A	No
Energy Mfg. Company Inc. - 2a	Lighting	18.4	126,466	0	\$10,396.13	Option A	N/A	No
Firstco Inc	Lighting	221.0	721,579	0	\$57,354.13	Option B	Yes	Yes
Hy-Vee Food Stores #4	Lighting	21.3	158,182	0	\$8,523.07	Option A	N/A	No
Cargill Corn Sweeteners	Lighting	0.0	138,135	0	\$4,322.75	Option A	N/A	No
Dubuque Stamping & Manufacturing, Inc	Process	26.0	285,947	0	\$11,894.13	Option B	Yes	Yes
Newton	Lighting	48.3	114,031	0	\$9,947.25	Option A	N/A	No
Romeo Rim Inc	Lighting	44.3	231,191	0	\$20,602.26	Option A	N/A	No
Skyline Center Inc.	Lighting	45.0	173,238	0	\$10,133.29	Option A	N/A	No
Bennett Machine and Fabricating	Lighting	41.7	183,840	0	\$12,723.54	Option A	N/A	No
Burlington, City of	Lighting	37.3	101,471	0	\$7,702.83	Option A	N/A	No
Hy-Vee Food Stores - Creston	Lighting	41.0	359,353	0	\$18,013.85	Option A	N/A	No
Madrid Community School	Lighting	19.0	57,582	0	\$5,131.38	Option A	N/A	No
Nash Finch Company	Lighting	92.2	541,562	0	\$31,803.26	Option B	Yes	Yes
Alverno Health Facility	Lighting	19.2	107,564	0	\$5,952.29	Option A	Yes	No
Cargill Corn Sweeteners	Lighting	10.4	136,756	0	\$5,881.98	Option B	Yes	Yes
Creative Edge Mastershop, Inc	Lighting	22.9	215,620	0	\$11,883.35	Option A	Yes	No
DeBruce Grain, Inc.	Process	0.0	0	79,743	\$63,965.45	Option A	N/A	No

Continued on following page.



Hy-Vee Food Store - Cedar Rapids #7	Refrigeration	52.3	466,516	0	\$26,415.10	Option A	Yes	No
Hy-Vee Food Store - Cedar Rapids #7	Refrigeration	0.0	155,892	0	\$6,140.26	Option A	Yes	No
Hy-Vee Food Store - Cedar Rapids #7	HVAC	23.6	29,970	0	\$3,143.91	Option A	Yes	No
Hy-Vee Food Store - Cedar Rapids #7	HVAC	3.8	2,049	0	\$346.33	Option A	Yes	No
Hy-Vee Food Store - Dubuque IA #3	Refrigeration	43.7	383,037	0	\$20,394.18	Option A	Yes	No
JELD-WEN Doors - Grinnell	Lighting	14.4	109,546	0	\$5,391.00	Option B	Yes	Yes
JELD-WEN Doors - Grinnell	Lighting	85.0	702,915	0	\$33,620.00	Option B	Yes	Yes
Lester Feed & Grain	Process	12.4	78,763	0	\$4,268.67	Option A	N/A	No
North Iowa Cooperative Elevator	Process	0.0	6,338	15,372	\$15,526.24	Option C	Yes	Yes
Riceville High School Bldg	Lighting	90.9	164,214	0	\$17,203.00	Option A	N/A	No
		1,536.5	8,066,557	144,739	\$628,857			



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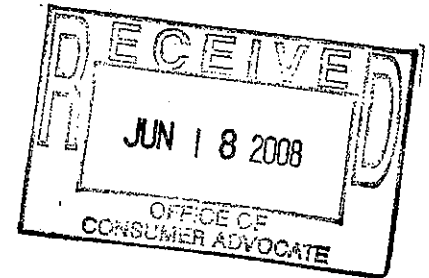
7/17/08

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ORIGINAL

Confidential/Trade Secret

Response of
Interstate Power and Light Company
to
OFFICE OF CONSUMER ADVOCATE
Data Request No. 20



Docket Number: EEP-08-1
Date of Request: June 11, 2008
Response Due: June 18, 2008
Information Requested By: Ben Stead
Date Responded: June 18, 2008
Author: Kim King
Author's Title: Manager Energy Efficiency and DSM
Author's Telephone No.: (319) 786-7649
Subject: Natural Gas Transportation Customer Eligibility

Data Request No. 20

The Board has expressed its commitment to the continuation of aggressive energy efficiency programs already in place and to the development of new plans to further increase savings to customers and reduced natural gas consumption from increased energy efficiency.

In light of these objectives, please explain why natural gas transportation customers on Interstate Power and Light Company's system should not be eligible for and contribute funding to Interstate's energy efficiency programs?

Response

Natural gas transportation customers have not been eligible for and have not paid for IPL's energy efficiency programs, because the Iowa Administrative Code specifically excludes revenues from the sale of transportation service in its definition of "gross operating revenues" and the Board in Docket No. RMU-90-27 defined gross operating revenues and specified that contributors to gross operating revenues are the entities who participate in energy efficiency programs and pay for the programs through the energy efficiency cost recovery factors. "Order Adopting and Filing Rules on an Emergency Basis," issued on March 15, 1991, in Docket. No. RMU-90-27.

According to Chapter 35 of the Iowa Administrative Code, Utilities Division [199], "*Transportation volume*" means the volume of natural gas flowing through the utility's distribution system which is not owned or sold by the utility' and "*Gross operating revenues*" means all revenues from intrastate operations includable in the operating revenue accounts of the prescribed uniform system of accounts **except:**

1. Provisions for uncollectible revenues;

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OCA DR No. 20
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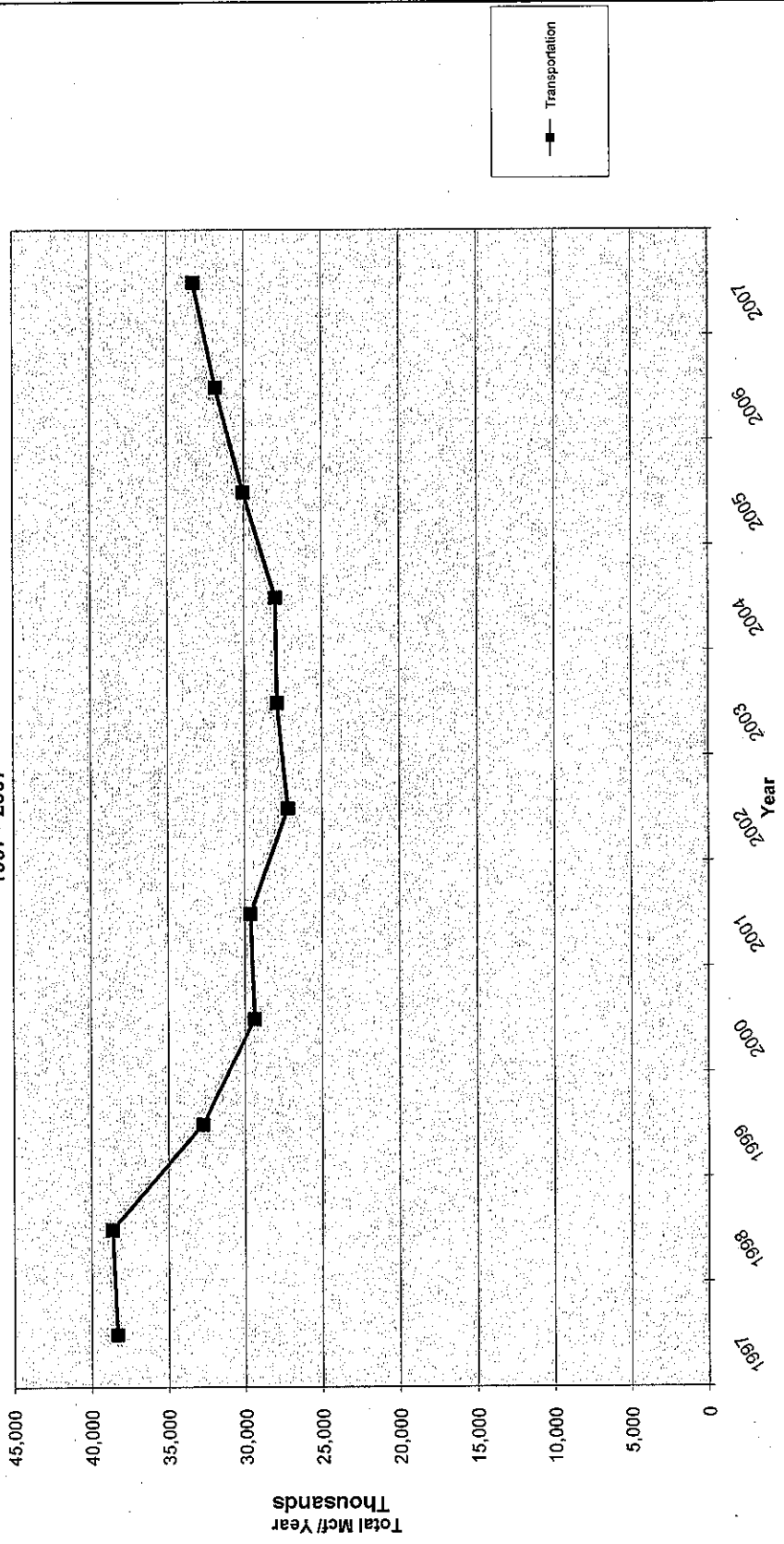
2. Amounts included in the accounts for interdepartmental sales and rents;
3. Wholesale revenue;
4. Revenues from the sale of natural gas used as a feedstock by customers; and
5. **Revenues from the sale of transportation service.** (emphasis added)

Therefore, in compliance with the Administrative rules, IPL has historically not included natural gas transportation customers in its cost recovery for energy efficiency programs and these customers do not participate in IPL's energy efficiency programs.

IPL remarks that on November 5, 2007, the Board issued an order in Docket No. SPU-04-1, In re: Iowa Joint Utility Management Program, Inc., directing IPL to file a proposed permanent small volume gas transportation tariff to replace the existing Small Volume Gas Transportation Pilot Project tariff (Pilot Project). In the November 5, 2007, order, the Board directed that the proposed tariff include additional provisions including customers taking service under the tariff would pay the same energy efficiency cost recovery (EECR) factor they would pay as system customers and they would be allowed to participate in energy efficiency programs offered by IPL.

As such, IPL small natural gas transportation customers, whose usage does not exceed 25,000 therms in any billing month and does not exceed 100,000 therms in any consecutive 12 month period, are eligible for and begin contributing to IPL's energy efficiency programs. Effective June 1, 2008, these newly eligible small natural gas transportation customers, on rate codes 720, 920, 950, 960 and 970, are charged the Energy Efficiency Cost Recovery Charge.

IPL
 Transportation
 Annual Sales Volumes (Mcf)
 1997 - 2007



IPL
 ANNUAL SALES (MCF) (1997 - 2007)
 BY CUSTOMER CLASS

Customer Class	1997 (Mcf)	1998 (Mcf)	1999 (Mcf)	2000 (Mcf)	2001 (Mcf)	2002 (Mcf)	2003 (Mcf)	2004 (Mcf)	2005 (Mcf)	2006 (Mcf)	2007 (Mcf)
Residential	19,575,490	16,369,450	16,590,308	17,686,676	16,622,705	16,711,773	17,632,696	15,585,453	15,244,157	13,962,779	15,568,297
Commercial / Industrial-Small	11,649,687	9,812,271	9,680,647	10,235,844	9,761,585	9,966,276	10,574,587	9,780,918	9,842,701	9,795,475	10,456,736
Commercial / Industrial-Large	4,027,199	3,643,666	3,941,025	3,392,763	3,667,652	3,595,380	3,452,429	3,574,903	3,029,192	3,225,097	3,504,051
Interdepartmental	718,209	990,909	1,038,020	996,768	1,262,390	1,028,260	631,269	289,477	509,873	351,665	326,671
Transportation	38,344,765	38,660,112	32,746,169	29,391,173	29,635,995	27,192,241	27,878,889	27,981,382	30,050,383	31,840,734	33,267,123
Total	74,315,350	69,476,408	63,996,169	61,703,224	60,950,327	58,493,930	60,169,870	57,212,133	58,676,306	59,175,750	63,112,878

**Response of
Interstate Power and Light Company
to
OFFICE OF CONSUMER ADVOCATE
Data Request No. 76**

Docket Number: EEP-08-1
Date of Request: July 3, 2008
Response Due: July 11, 2008
Information Requested By: Jennifer Easler
Date Responded: July 15, 2008
Author: Gilbert Nunez
Author's Title: Product Manager
Author's Telephone No.: (319) 786-7237
Subject: Custom Rebates – CHP Program Component

Data Request No. 76

IPL will provide an incentive on a kW basis for fuel cells, reciprocating engines and turbines excluding those fueled by gasoline, diesel, oil, or coal with a capacity less than 5MW and efficiency of at least 60%.

- A. Are propane fueled systems eligible?
- B. How are the savings calculated for these systems, what is the baseline, and how are they allocated in cases where natural gas is already used to provide thermal energy or in cases where some other fuel provides thermal energy?

Response

- A. No, only natural gas-fueled systems and renewable source (biomass or biogas) are eligible.
- B. The baseline is a natural gas heated boiler or furnace, coupled with grid-provided electricity. The baseline boiler is assumed to be an 80% efficient system. In this case, the savings are primarily from the offset electric load. The thermal energy savings are generally not considered, as the energy used to run the boiler is now used to run the generator