



An Exelon Company



Defining the Baseline for Industrial Projects

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ComEd *Smart Ideas for Your Business*

- ✓ Problem summary
- ✓ Project examples
- ✓ Recommendation


CUSTOM APPLICATION
JUNE 1, 2011 THROUGH MAY 31, 2012
Custom Incentives



How to Participate in Smart Ideas for Your Business*

- 1. Check Project and Equipment Eligibility**
 - ✓ Project must be a new investment at an existing facility that results in a permanent reduction in electrical usage (kW).
 - ✓ All installed equipment must meet or exceed the specifications given in the application and be installed in facilities served by ComEd. Customers must have a valid ComEd account number on a ComEd non-residential rate.
- 2. Submit Pre-Approval Application to Reserve Funds**
 - ✓ An energy consultant that pre-submits a pre-approval application to set aside or "reserve" the incentive for your project. Pre-approval is required for some types of projects and for all custom applications. Check the specifications pages for details.
 - ✓ For pre-approval, fill out and submit the Applicant Information Form (check the "Pre-Approval" box) and the incentive reservation for the measures that you plan to install. Be sure to keep a copy of this application for your records.
 - ✓ Once submitted, your application will be reviewed. Upon approval, Incentive Funds will be set aside for your project for 90 days (or the end of the program year). A pre-installation inspection may be required. If no, you may be contacted to schedule a pre-installation inspection.
- 3. Install Equipment or Perform Project Work**
 - ✓ The incentive reservation allows you 90 days to complete your project. Contact ComEd's Smart Ideas team for specific questions about resurrections and extensions.
 - ✓ Verify that the equipment installed meets or exceeds the specifications and requirements found on the Specifications pages.
- 4. Submit Final Application**
 - ✓ Submit a final application after the project is completed. You may simply revise the pre-approval application and check the "Final Approval" box. The final application must be submitted within 60 days of the project completion date. The final application must include the final Application Agreement page signed by the customer. Additionally, attach the following documentation: a scope of work (detailed project description), dated and itemized invoice for the purchase and installation of all equipment installed, and specification sheets for all equipment installed, verifying that it meets the program specifications.
 - ✓ The program team will review your final application. You may be contacted during the final review to schedule a post inspection.
- 5. Receive Incentive Payment**
 - ✓ The incentive check will be sent four to six weeks after the final project approval.

Submit Application to: **E-mail: ComEdSmartIdeas@kema.com** **Fax: 630-480-3436**
ComEd Smart Ideas for Your Business* **Call: 888-806-2278**
120 E. Liberty Dr. #290 • Wheaton, IL 60187 **Visit our Website: www.ComEd.com/SmartIncentives**

*The incentive program is subject to change without notice. For more information, please visit our website at www.ComEd.com/SmartIncentives.
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Business Program


Clarifications for this PDF (Hard Copy) version of the Custom Application for the Ameren Illinois ActOnEnergy® business program
This application is valid through December 31, 2011.

This application is also available in an Excel format from the ActOnEnergy.com web site. This PDF version must be printed and completed by hand. The Excel version can be completed electronically. Select the format that you are most comfortable using.
To determine if your facility and/or project are eligible, and for directions on how to fill out this application, see the next page.
Use "Hard" checkboxes on the final application. Check the "Hard" box in this document, as customer choice.
Complete and file with "Hard" checkboxes as specified with pre-approval application.
Application for Participation ("Green Tag") - must be submitted with pre-approval application.
Required Documentation for Pre-Approval ("Green Tag") - must be submitted with pre-approval application.
Incentive Payment Request ("Green Tag") - must be submitted with your final application, when the project is complete.
Forms and documents that apply:
The application "header" is included in the bottom right corner of the footer of the printed version of this document, and also in the final file just under the page header.
The "Incentive" reservation form (Form 1001) is required.
Customer Consent Form (Required if you are a SME)
Payment Request Authorization (Required if the incentive is to be paid to someone other than the Ameren customer listed on the application)
Large Invoice Request Form (Required if your invoice request is greater than \$25,000)
Customer and Staff Information Sheet (Complete for your own reference documentation)
Final "Application" documents can be found on the ActOnEnergy.com web page in the terms library. <http://www.actonenergy.com/en/customer-service-energy-forms-library>

Application and Payment Request to:
 ActOnEnergy Business Program
 Attn: 1.309.077.7650 • ActOnEnergy@chp.com
www.actonenergy.com/en/customer-service-energy-forms-library • actonenergy.com

Application number to hard copy letter the Ameren Illinois tag on each page (Form #1001...)
Be sure you include your pre-approval application with each application.
Be sure to include your application purchase with each application.


Page 1 of 20
Custom Application PDF Document


PUBLIC SECTOR ENERGY EFFICIENCY PROGRAM - 2011-2012
 Electric and Natural Gas

GUIDELINES APPLICATION WORKSHEETS

Program Year 2011-12 Start Date: June 1, 2011

STANDARD & CUSTOM INCENTIVES for LOCAL GOVERNMENT, PUBLIC SCHOOLS (K thru 12), COMMUNITY COLLEGES, PUBLIC UNIVERSITIES, & STATE/FEDERAL FACILITIES



Pat Quinn, Governor • Warren Silby, Director
 ILLINOIS DEPARTMENT OF COMMERCE AND ECONOMIC OPPORTUNITY
 Illinois Energy Office
 300 East Monroe Street, Springfield, Illinois, 62701

- ✓ The energy savings baseline is not easily determined for most industrial equipment
 - Energy use is a function of production volumes, schedules and product mix
 - Equipment is specialized and unique to the process
 - Industrial customers have staff who are skilled at maintaining process equipment indefinitely
 - Industry standards for equipment efficiency do not exist for most process equipment (e.g., air compressors)

✓ Evaluators lack a consistent method to establish the baseline, but generally use one of two approaches:

- **Useful life of existing equipment**

- Problem: With regular maintenance and life-extending strategies, industrial equipment can be used many years past its useful life
- Inability to offer Custom incentives to replace equipment past its useful life results in inefficient equipment being used until it fails



Workers rewind an industrial motor

- **Metered data**

- Problem: Changes in production skew data, making an “apples-to-apples” comparison difficult
- For a metered data analysis to be effective, the implementation team and evaluation team must conduct their analyses over the same time period

- ✓ Lack of a defined approach to establishing the baseline hampers the program's ability to accurately estimate a project's energy savings
- ✓ Evaluators' estimates of energy savings from industrial retrofits have been highly variable, with kWh substantially reduced or eliminated in some cases and increased in others
- ✓ If the program relies on evaluator feedback on baseline conditions, opportunities to reduce energy use in the industrial sector will be lost
 - Inability to count on predictable energy savings from industrial retrofits makes the program less likely to incentivize such projects
- ✓ Industrial customers are frustrated and unhappy when energy efficiency incentives cannot be used because their equipment is too old

Facility type: Manufacturing/heavy industry

Project type: Replace induction furnaces

Ex Ante kWh savings: **2,549,903**

Ex Post kWh savings: **0**

Utility Baseline Assumption: Existing Equipment

Evaluator Baseline Assumption: Induction furnace available in the market today

Summary

- ✓ Implementation team's Custom analysis assume existing equipment was the appropriate baseline because the customer stated that, without the incentive, he would continue to use the furnaces beyond their effective useful life (EUL) and beyond their remaining useful life (RUL).
- ✓ The evaluator's Final Site Report stated the EUL for this type of equipment is 20 years and that, according to the customer, the equipment is 35 years old. The evaluator stated the RUL was two or three years and concluded the old furnaces were not a viable option for the baseline.

- ✓ The Final Site Report stated a modern furnace currently available on the market was the appropriate baseline and that the efficiencies of the furnaces installed and the baseline were comparable—thus, no savings were realized.

Conclusion

- ✓ Metered data (pre- and post-) and subsequent implementation team analysis demonstrated energy savings at the customer site, but the program was not able to claim these savings.

Facility type: Automotive Manufacturing

Project type: Replace two compressors

Customer kWh savings: **921,000**

Ex Post kWh savings: **204,859**

Utility Baseline Assumption: Equipment Available in Market Today

Evaluator Baseline Assumption: Equipment Available in Market Today

Summary

- ✓ Working with a Trade Ally, customer requested an incentive of \$70,000, based on estimated savings of 921,000 kWh from replacing 19 year old equipment.
- ✓ Utility rejected the existing equipment as baseline and established a baseline based on what the customer could purchase today, resulting in an incentive of \$14,000.

Conclusion

- ✓ Customer was angry and disappointed with the reduced incentive. He stated he does not plan to participate in our programs again and will not return our phone calls.

Facility type: Manufacturing/Heavy Industry
Project type: Replace 300 HP water-cooled motor with 300 HP air-cooled motor
Customer kWh savings: **524,000** (assuming existing equipment)
Ex post kWh savings: **3,800**
Utility Baseline Assumption: 94.1 % motor efficiency
Evaluator Baseline Assumption: Not evaluated

Summary

- ✓ Customer requested an incentive of \$37,000 based on estimated savings of 524,000 kWh, calculating savings using the existing motor as baseline.
- ✓ Utility rejected existing equipment as baseline and established a baseline based on what the customer could purchase today, resulting in an incentive of \$264.

- ✓ The customer expressed concern regarding the basis for calculating payback for the *Smart Ideas* Custom Application Incentive Program and requested an individual site evaluation to determine the remaining useful life of the 300 HP motor under consideration for replacement.
- ✓ The customer stated that this equipment was in good to excellent working condition and would have another 10 years or more useful life. Without the incentive, they would not replace the motor.
- ✓ The customer also stated the requested incentive would help them achieve the required internal payback to make the project viable.

Conclusion

- ✓ The project is currently on “hold” while we attempt to develop a solution that is acceptable to the customer, utility, evaluation team and SAG.

Facility type: Manufacturing/heavy industry

Project type: Replace compressed air and nitrogen systems

Ex Ante kWh savings: **1,042,265**

Ex Post kWh savings: **473,640**

Utility Baseline Assumption: Existing Equipment/Metered Data

Evaluator Baseline Assumption: Existing Equipment Specs

Evaluator Post-Installation Assumption: Metered data

Summary

- ✓ Implementation team's custom analysis assumed existing equipment performance supplemented with metered pre-retrofit data. As the savings estimates were prepared prior to new equipment installation, the savings estimates used the new equipment specifications and assumed that the new equipment would be meeting similar nitrogen and compressed air loads.

- ✓ The evaluator used existing equipment specifications and assumed that the existing equipment met similar nitrogen and compressed air loads determined in post-retrofit data collection to establish baseline usage. Then, post-installation metered data were used to determine usage after the new equipment was installed.
- ✓ However, due to production changes, the plant had increased nitrogen and compressed air loads following the new equipment installation. And it appears that the evaluator's analysis did not account for the change in loading which resulted in decreased apparent project savings.

Conclusion

- ✓ Metered data (pre- and post-) would demonstrate energy savings at the customer site. However, production differences pre- and post-retrofit need to be properly accounted for to determine appropriate levels of savings. Relying on post-installation metered data only and not adjusting for production differences can unfairly influence project savings.

Facility type: Waste Water Treatment Plant

Project type: Replace aeration blower system

Ex Ante kWh savings: **490,122**

Ex Post kWh savings: **204,035**

DCEO Baseline Assumption: Existing Equipment/Metered Data

Evaluator Baseline Assumption: New Equipment

Evaluator Post-Installation Assumption: Metered data compared to new equipment

Summary

- ✓ Custom analysis assumed a baseline of existing equipment with energy use based on metered pre-retrofit data. The energy savings estimates used the new equipment specifications and assumed that, on average, one aeration blower operating at 100% would meet the required load. Post-installation metered data showed that energy savings were actually 25% greater than estimated.

- ✓ The evaluator rejected the baseline calculation, stating that the EUL of this type of equipment is 15 years and that, according to the customer, the equipment is 25 years old. The evaluator calculated a baseline based on two new 75 hp blowers operating without any flow controls or sequencing control. Then, post installation metered data were used to determine usage after the new equipment was installed. The net result was a NTG ratio of 42%.

Conclusion

- ✓ DCEO's experience with many of its public sector clients, and in particular water treatment plants, is that the large energy-using equipment is nearly always maintained far past its theoretical useful life.
 - Blowers on water plants are typically 30 years old or more.
 - Despite efforts of building engineers to get replacement equipment into the budget, such equipment is replaced on a regular schedule.
 - DCEO incentives enable such equipment to survive the budget process.
 - EUL should not be used in a Municipal setting. Baselines should reflect that existing equipment will be used for at least several more years.

- ✓ Obtain consensus on whether the issue of how the industrial project baseline is determined should be addressed
- ✓ If there is consensus that it this is an issue that should be addressed, convene a team of evaluators, program implementers and SAG representatives to propose a solution