IMPACT EVALUATION OF 2012 (PY5) AMEREN ILLINOIS COMPANY'S RETRO-COMMISSIONING PROGRAM

Final

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1. EXECUTIVE SUMMARY

This report presents results from the evaluation of the fifth program year (PY5, June 1, 2012, through May 31, 2013) of the Ameren Illinois Company (AIC) ActOnEnergy Business Retro-Commissioning Program for energy efficiency. The ActOnEnergy Retro-Commissioning Program helps customers evaluate their existing mechanical equipment, energy management, and industrial compressed air systems to identify no-cost and low-cost efficiency measures to optimize energy systems. Customers contract with pre-approved Retro-Commissioning Service Providers (RSPs) to perform an energy survey, resulting in a written report detailing the savings opportunities. Following verified implementation of measures with a payback of less than 12 months, AIC pays a survey incentive that covers 50% to 80% of the survey cost, based on the project type. A further implementation incentive is paid to the customer based on the energy saved, and a bonus is paid to the RSP based on timely measure implementation and energy saved.

Prior to PY4, the program focused on healthcare customers and compressed air for large industrials. PY5 continued the PY4 approach of expanding outreach to the commercial buildings and industrial refrigeration markets. For PY5, AIC planned to garner 1% of the portfolio electric energy savings and less than 1% of the portfolio therm savings from this program.[1]

The PY5 evaluation focuses on gross impact results. Other key evaluation components—net-to-gross ratio (NTGR) research and process evaluation—are scheduled for research in PY6. As a result, the evaluation applies the NTGR found through PY4 research to PY5 results. To support the general aspects of the evaluation, we also reviewed program materials and program-tracking data, and interviewed program administrators and implementation staff. Our quantitative impact research included engineering reviews of a stratified random sample of retro-commissioning projects.

Impact Results

Table 1 below summarizes reported and verified program participation by the different program components. During PY5, AIC included 34 electric and nine gas facilities (35 total facilities, including participants receiving both natural gas and electricity from AIC) as participants and paid them incentives from the Retro-Commissioning Program. No Commercial Buildings participated and among Healthcare participants one was gas-only and another was electric-only. The PY5 results include savings for one Compressed Air project that was paid for in PY4, but at that time resulted in no savings due to complementary effects with a pending Custom Program project. The Custom project was completed in PY5, and the Compressed Air retro-commissioning savings are therefore credited in PY5.[2]

[1] Planned portfolio level savings estimates are based on the AIC Plan 2 Filing (September 20, 2011).

[2] This arrangement is by agreement with AIC staff, the implementation team, ICC staff, and the evaluation team, October 2012.

Table 1. Summary of PY5 Program Verification Results

Program Component	Program Participation (N)		Verified Participants (N)		Realization Rate	
	Electric	Natural Gas	Electric	Natural Gas	Electric	Natural Gas
Ammonia Refrigeration	2	0	2	0	100%	NA
Commercial Building Retro Cx	0	0	0	0	100%	NA
Compressed Air Retro Cx	24	0	24	0	100%	NA
Healthcare Retro Cx	8[a]	8[b]	8	8	100%	100%
All Projects	34	8	34	8	100%	100%
Source: AIB database, September 2013.						

[a] One Healthcare project included only electric measures because the customer receives gas service from Nicor Gas. AIC and Nicor Gas co-funded this project, and gas savings is included in Nicor Gas's filed savings.

[b] Another Healthcare project included only natural gas because the customer receives electric service from another utility.

The evaluation team performed an engineering review of 18 of the 35 projects (including three of eight natural gas sites) to obtain gross realization rates for the program savings. The evaluation team modified the program *ex ante* gross savings for several reasons, although ultimately the gross realization rates were relatively high (0.93 electric energy, 0.88 demand, and 0.89 therms). NTGRs are applied to the gross savings estimates for program net impacts. Table 2 summarizes PY5 gross and net impacts.

Table 2. PY5 Retro-Commissioning Program Gross and Net Impacts

Program	*Ex Ante* Impacts			*Ex Post* Impacts		
	MWh	MW	Therm	MWh	MW	Therm
Gross Impacts[a]	29,257	3.389	577,834	27,5324	2.995	512,116
Net Impacts[b,c]	16,969	1.965	335,144	25,958	2.845	486,510
Gross Impact Realization Rate				0.934	0.884	0.886

[a] Gross impacts are based on tracking system data and evaluation research.

[b] *Ex ante* net savings use an NTGR of 0.58 for both fuels, based on "Ameren PY5 Filed Parameters."

[c] *Ex post* net savings use an NTGR of 0.95 for both electric and gas, based on PY4 research.

Process Results

The PY5 evaluation plan for the Retro-Commissioning Program did not call for a formal process evaluation of the program. Process questions will be the focus of the evaluation effort in PY6. Nonetheless, the evaluators noted some process-related observations based on our background research.

Three key findings from our PY5 impact evaluation effort fall into the process category. Based on our engineering review of the projects:

- As in PY4, *ex ante* savings calculations are frequently not included in reports, or simulation inputs are not detailed. The evaluation effort was greater due to the need to reproduce calculations from scratch to confirm approximate savings estimates, and evaluation estimates are less precise than we normally achieve. Including these initial calculations will ensure that the evaluation team understands all aspects of the project from the perspective of program staff conducting the program's technical review.

  - This concern is particularly pronounced with the Healthcare facilities sampled for impact review.

  - Consider encouraging RSPs to use more transparent calculations like spreadsheets, or require electronic input files for simulations when they are used for estimating savings. Require submitting electronic versions of calculations to ensure that evaluators understand how the RSPs obtain results. Consider issuing template calculators for common measures to ensure consistent approaches and the use of default parameters and weather data among service providers.

  - Despite the lack of supporting calculations, realization rates are relatively high. High realization rates do not necessarily reflect accuracy in the *ex ante* estimates; rather, our re-estimations using available data tended to confirm reported savings since there was insufficient documentation that would have allowed the evaluation team to arrive at a different estimate.

- Post-installation inspections by the implementation contractor were initiated in PY4 and continue in PY5. While the evaluation team applauds these steps to verify implementation, we find that the inspections lack sufficient detail, especially for HVAC retro-commissioning projects for Healthcare participants.

  - As-found measure parameters should be documented and supported with data. If controls are the mode for implementation, screen-captures of the control system should be included in the inspection report. If possible, post-installation trend logs should also be included and analyzed.

  - The program should standardize demand-savings estimating methods for HVAC retro-commissioning. Savings that impact primarily unoccupied hours do not generally affect peak demand.

  - If additional post-installation trend data are available for compressed air projects, they should be included in verification documentation.

- Among sampled projects, one measure with claimed savings was entirely manual[3] and subject to poor reliability and short persistence. The evaluation team recommends requiring automation for all controls measures. Allowing manual measures opens the door for spurious claims of savings.

[3] The noted measure was chilled water reset based on outdoor air temperature to be implemented manually by the operating engineer. *Ex ante* savings are approximately 11,000 kWh.

2. INTRODUCTION

2.1 PROGRAM DESCRIPTION

The ActOnEnergy Retro-Commissioning Program helps customers evaluate their existing mechanical equipment, energy management, and industrial compressed air systems to identify no-cost and low-cost efficiency measures to optimize energy systems. Customers contract with pre-approved RSPs to perform an energy survey, resulting in a written report detailing the savings opportunities. Following verified implementation of measures with a payback of less than 12 months, AIC pays a survey incentive that covers 50% to 80% of the survey cost, based on the project type. A further implementation incentive is paid to the customer based on the energy saved, and a bonus is paid to the RSP based on timely measure implementation and energy saved.

In prior years, the program only served the industrial compressed air and healthcare market segments. These two segments still represent the majority of projects and savings, but the program now includes a commercial building component and, within PY5, an ammonia refrigeration system optimization project. Participation requirements include:

- AIC customer served under applicable rate codes[4]
- Functioning Energy Management and Control System (EMCS) for HVAC equipment automation for commercial buildings and healthcare participants
- Size criteria
  - > 100,000 square-feet Healthcare and Commercial Building retro-commissioning
  - ≥ 200 horsepower (HP) connected compressor load for Compressed Air retro-commissioning
- Buildings must be at least five years old for Healthcare and Commercial Building retro-commissioning

[4] To be eligible for electric incentives, applicants must be a non-residential electric customer of AIC (electric delivery service rates DS-2, DS-3, DS-4, or DS-5) and have a Rider EDR surcharge on their AIC bill. To be eligible for gas incentives, applicants must be a non-residential gas customer of AIC (gas delivery service rates GDS-2, GDS-3, GDS-4, or GDS-5) and have a Rider GER surcharge on their AIC bill.

Table 3. Summary of Retro-Commissioning Program Incentives

Project Type	Survey Incentive (as Percent of Survey Cost)	Customer Implementation Incentive	Requirement for Implementation Incentive
Compressed Air	80%	➢ 1 cent/kWh (0-2 GWh saved) ➢ ½ cent/kWh (2-6 GWh saved)	Payback 0-1 year Measures must be complete before survey incentive is paid
Commercial Buildings, Healthcare, and Ammonia Refrigeration Projects	50-80%	➢ 1 cent/kWh (0-2 GWh saved) ➢ ½ cent/kWh (2-6 GWh saved) ➢ 20 cents/therm up to 50,000 therms ➢ 10 cents/therm from 50,000-150,000 therms	Payback 0-1 year Measures must be complete before survey incentive is paid

Commercial Building and Healthcare retro-commissioning projects go through a screening phase that examines the feasibility of retro-commissioning at the facility. Sites with good savings potential are eligible to apply to the program after AIC reviews the project. RSPs commit resources to this deliverable, which may or may not result in a viable retro-commissioning project. To defray the financial risk to the RSP and encourage more aggressive marketing of the program, AIC pays a screening stipend of 5-10% of the retro-commissioning study cost to the RSP for complex projects.

A secondary goal of the Retro-Commissioning Program is the identification of retrofit and capital improvement projects that can be channeled to the Standard and Custom incentive programs offered by AIC.

3. EVALUATION METHODS

This evaluation of the ActOnEnergy Retro-Commissioning Program reflects the fourth year of the program.[5] During PY5, 35 facilities were paid study incentives for participating in the Retro-Commissioning Program, including one PY4 participant that was moved to PY5 because the retro-commissioning project savings depended on completion of a Custom incentive project. The program-tracking database, AIB, also includes 14 pipeline-participants for PY5 where a stipend was paid to the service provider to defray the upfront analysis costs of promising projects, before they are under contract. The evaluation does not consider these pipeline-participants, as no savings are claimed and the stipend cost is deducted from the study incentive if the participant enrolls in the program. In most cases these pipeline projects will be program participants in future years. The stipends account for 3% of program incentive costs in PY5. As noted, the PY5 evaluation focuses on impact questions. We plan to conduct process-related research and update net-to-gross research in PY6.

3.1 DATA SOURCES AND ANALYTICAL METHODS

Even though the PY5 evaluation is focused on impacts, we reviewed many program materials to understand the context surrounding the program, including the business program marketing plan,[6] implementation plan,[7] and other program documents and forms. We also interviewed key program staff to obtain program background information. Table 4 summarizes the research activities conducted as part of the PY5 evaluation.

Table 4. Summary of Evaluation Methods

Task	PY5 Impact	PY5 Process	Forward Looking	Details
Program Staff In-Depth Interviews		✓		Program status and background
Database Review	✓			Analysis of *ex ante* estimates
Engineering Review	✓		✓	Key evaluation task including assessing engineering savings estimates and methods

The database review was used to confirm that key program inputs are being tracked and accurately recorded. The impact evaluation involved reviewing the reports and savings estimates from a sample of completed projects to verify that the estimates were based on sound engineering principles.

[5] PY1 was a pilot program . The full program implementation commenced in PY2.

[6] *ActOnEnergy Business Program, Program Year Five (PY5) Marketing Plan*, SAIC, November 19, 2012.

[7] *ActOnEnergy Business Program, Program Year Five (PY5) Implementation Plan*, SAIC, June 14, 2012.

3.1.1 PROCESS ANALYSIS

As previously stated, the evaluation plan for the Retro-Commissioning Program did not call for a formal process evaluation of the program in PY5. Process questions will be addressed for the program in PY6. Nonetheless, the evaluators noted some process-related observations based on our background research.

3.1.2 IMPACT ANALYSIS

Gross Impacts

The evaluation based gross impacts on a review of a stratified random sample of program projects using ratio estimation[8]. The review consisted of analyzing data included in reports and re-estimating savings using engineering algorithms. Among the 18 projects included in the engineering review, we reviewed Compressed Air and Healthcare facilities, as they formed the bulk of electric savings, plus one Ammonia Refrigeration project.

Table 5. PY5 Population and Sample *Ex Ante* Gross Impacts by Project Type

Program Component	Program (N)	Program *Ex Ante* Impacts		Sample (n)[a]	Sampled *Ex Ante* Impacts	
		MWh	Therm		MWh	Therm
Ammonia Refrigeration	2	441	0	1	312	0
Comm'l Building Retro Cx	0	0	0	0	0	0
Compressed Air Retro Cx	24	21,206	0	14	16,798	0
Healthcare Retro Cx	9[a]	7,610	577,834	3	3,668	204,228
Total	**35**	29,257	**577,834**	**18**	**20,778**	**204,228**

[a] Sampling was performed from strata based on project savings, not program component; therefore, component savings realization rates are not valid to report.

Net Impacts

The *ex ante* NTGR for the program is the PY3 value of 0.58[9] for both electricity and natural gas. PY4 research combined results from participant and service provider surveys, and applied the NTGR of 0.95 retrospectively in PY4. Following the NTGR framework, since no further research was completed in PY5 to update the PY4 research, we applied the PY4 NTGR in PY5.

[8] *The California Evaluation Framework* (2004), pp. 361-371. A full discussion of separate ratio estimation can be found in Sampling: Design and Analysis, Lohr, 2010 2nd Edition, pp. 144-145.

[9] File: [Ameren PY5 Filed Parameters], August 2013.

3.2 SAMPLING AND REVIEW COMPLETES

3.2.1 ENGINEERING REVIEW VERIFICATION

For the impact evaluation, the team sampled projects using the stratified ratio estimation method. [10] This method is based on the anticipated realization rate with a conservative error ratio assumption of 0.40, and involves stratifying the population based on project *ex ante* electricity savings to ensure that our 90/10 (confidence/precision) strategy captures a significant proportion of program savings. The ratio estimation method tends to create a sample with a near-census of the largest savings customer stratum and a balanced sample between the remaining strata to achieve the desired precision. Within each stratum, we selected projects randomly. In our final sample, the expected precision is 8.4% at the 90% confidence level. We reviewed 71% of program kWh savings and 47% of program therm savings.

Table 6. Impact Evaluation Samples

Stratum	Program Population	Population MWh Savings	Sample Size	Sample MWh Savings
A	5	11,958	5	11,958
B	8	9,936	5	5,323
C	22	7,364	8	3,498
Total	**35**	**29,257**	**18**	**20,778**

Three of the eight natural gas projects were included in the engineering review. These three totaled 204,228 therms out of the program total of 432,209 therms.

We did not conduct any on-site work for the PY5 evaluation, though we did call service providers and participants to clarify inputs for several measures.

[10] Strata were defined by equal cumulative standard deviation in the population in each stratum.

4. RESULTS AND FINDINGS

4.1 PROGRAM INSIGHTS

The PY5 impact evaluation included reviews of more than half of the projects (18 of 35). The impact evaluation of the PY5 ActOnEnergy Retro-Commissioning Program has many findings similar to the PY4 evaluation. This is partly due to the delay between the program year-end and the evaluation that does prevents incorporating evaluation recommendations before the subsequent program year kick-off.

As in PY4, the key PY5 impact evaluation finding is the lack of transparent calculations of savings that show which parameters are measured and which are estimated by the RSP. Without this information, the evaluation team must estimate savings independently and judge whether differences constitute estimation errors or judgment differences in input parameters. The evaluation team needs to understand the basis of *ex ante* estimates reported by the RSPs in order to perform our due diligence.

As in PY4, key elements of PY5 comprehensive reports were often absent or incomplete. To decrease the possibility of unwarranted changes to the RSP estimates of savings, we suggest the following:

- The RSPs should organize reports so a reader can easily trace the inputs to savings calculations and savings estimates. Savings calculations should be explicit in the report and all assumptions should be included. We prefer that calculations be included electronically in the project files to make it easier to find differences between the *ex ante* and *ex post* values.

- For compressed air projects, documentation should include compressor performance curves and performance metrics for each compressor. If generic curves are used, they should still be included and justified. Performance curves are usually available from compressor manufacturers.

- For Healthcare and Commercial Building projects, there are many elements where clear presentation of critical aids the evaluation. For example, reporting such information as the gross conditioned area, annual and monthly energy consumption for all energy sources, the climate data source, detailed operating hours for each piece of equipment addressed in the report, and an equipment list with unit ID, drive power, design flow, and power and control type would help the evaluator better assess the claimed savings.

Our findings indicate that the program would benefit from establishing key default parameter inputs when measured data are not available. Defaults would reduce the burden on RSPs in their savings estimates, and those estimates would be more consistent and reliable across service providers. For example, motor loading, motor efficiency, and modifications for fan and pump affinity laws are areas where improper use of these factors can incorrectly estimate savings.

Project data show that the program savings are heavily reliant on very few projects. Figure 1 below shows that seven projects comprise more than 50% of program electric kWh savings, and 13 projects comprise 75% of electric kWh savings. Gas savings (not shown) are even more skewed, with two projects accounting for 58% of program savings, and the top three projects accounting for 81% of program savings.

Figure 1. Annual Project and Cumulative Program *Ex Ante* Electric Savings

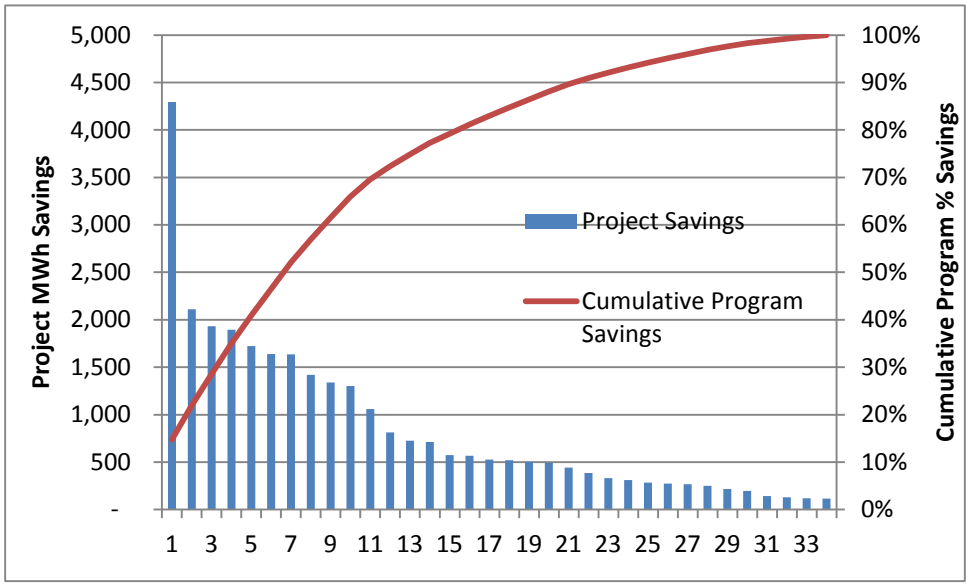
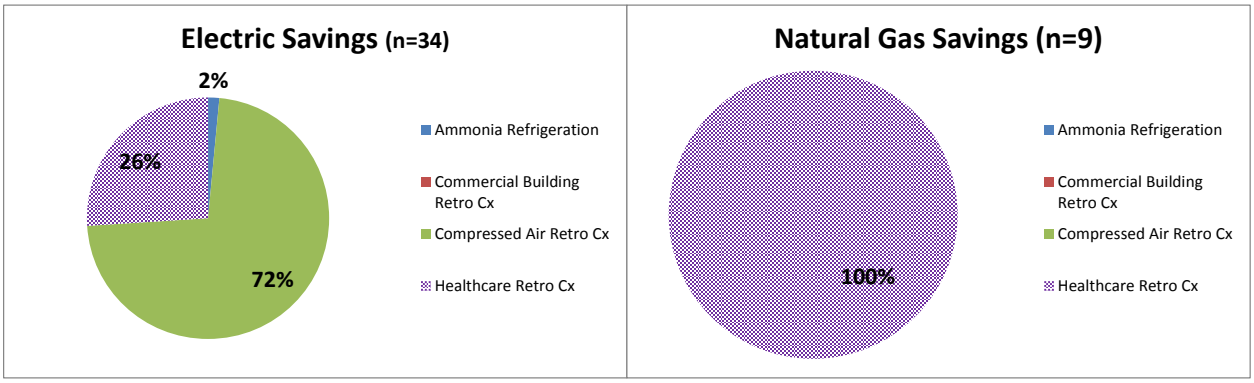


Figure 2 shows that Compressed Air projects account for 72% of electricity savings and Healthcare accounts for 100% of gas savings.

Figure 2. Program *Ex Ante* Savings by Project Type



4.2 IMPACT RESULTS

The impact analysis looked at the program impact tracking from application acceptance through project savings verification. *Ex ante* impacts and project documentation are tracked in the AIB database. The AIB database includes the key data needed to track project milestones and impacts.

4.2.1 GROSS IMPACTS

Table 7 below shows the *ex ante* and *ex post gross* energy and demand impacts of the program as well as the realization rates. The *ex post* impacts are based on our engineering review of the sampled projects.

Table 7. PY5 Program Gross Impacts

Gross Impacts	Energy Savings (MWh)	Demand Savings (MW)	Therm Savings
Ex Ante	29,257	3.389	577,834
Ex Post	27, 324	2.995	512,116
Gross Realization Rate	93.4%	88.4%	88.6%

The evaluation team analyzed the reports and re-estimated savings with data in the documentation and our own best estimates. As shown by the relatively high realization rates, in most cases our re-estimations confirm reported savings with the available data since there was insufficient documentation that would have allowed the evaluation team to arrive at a different estimate. In cases, where sufficient documentation was available, the evaluation team estimated ex post project savings that differed from the *ex ante* estimates. Reasons for these adjustments include:

- Commercial and Healthcare projects:
  - Some reset schedules in estimates did not acknowledge physical limitations of equipment, such as heat exchanger approach temperatures or comfort for dehumidification.
  - Hours of operation were not consistent within the same site analysis. We used consistent hours for our analysis.
  - Demand savings were frequently reported for off-peak operation. However, the demand savings needed for impacts are peak savings. As such, the evaluation reduced or eliminated the demand savings due to the reported value being off-peak. Our evaluation determined peak demand savings.
  - In one case involving 11 MWh of savings, manual control resets are the basis of the savings estimates. However, manual control resets are behavioral measures with no guarantee of reliable implementation or persistence.
- Compressed Air projects:
  - The *ex ante* savings included measures that the project documentation specifically excluded. This type of adjustment included incomplete leak repairs claimed as complete in *ex ante* estimates. In both cases, the incomplete repairs were less than 10% of the leak repairs claimed at the site.
  - RSPs frequently estimated savings based on average compressor performance (CFM/kWh) as observed during the retro-commissioning inspection, rather than expected equipment performance at part-load. Using the average performance metric over-estimates savings.

Savings are not proportional to reduced airflow for most compressed air systems,[11] so reducing airflow due to leak repair does not save the proportional amount of energy.

Overall, the impact evaluation adjusted the program *ex ante* gross savings for several reasons. Among Commercial and Healthcare projects, all verification adjustments represented isolated cases of miscalculated savings and not systematic problems. Additional documentation with electronic versions of calculations would help ensure reliable savings estimates.

4.2.2 NET IMPACTS

The PY4 research retrospectively applied the PY4 NTGR. As such, this value is the *ex post* NTGR for PY5 and future program years, until it is researched again. See the PY4 Evaluation Report for more discussion of the NTGR research and results. The PY4 research found an overall NTGR of 0. 95 to apply to PY5 gross results, a value that is higher than what AIC had applied for planning purposes (0.58).

Table 8. PY5 Net Program Impacts

Program	*Ex Ante* Net Impacts[a]			*Ex Post* Net Impacts		
	MWh	MW	Therm	MWh	MW	Therm
Retro-Cx	16,969	1.965	335,144	25,958	2.845	486,510
			Net Realization Rate	*1.53*	*1.45*	*1.45*

[a] *Ex ante* net savings use an NTGR of 0.58 electric and 0.58 gas, based on file: Ameren PY5 Parameters.pdf.

4.3 RECOMMENDATIONS

While realization rates in PY5 are relatively good at greater than 90% confidence, there are opportunities to increase the confidence in the *ex ante* estimates. Many of these opportunities are carryover recommendations from PY4 to better document and organize the baseline and post-implementation conditions and estimation methods. Based on the PY5 evaluation effort, the evaluation team makes the following key recommendations.

Finding 1: Project reports are inconsistent in content and analysis.

Recommendation 1: AIC should consider issuing a template report with required sections, and elements of data and analysis required for each section. This would encourage more standardization among reports to include critical data and organization that facilitates internal program review and evaluation, and may reduce the omission of critical information. AIC should consider providing default calculation parameters when measurements are not made and the RSP must apply assumptions. The evaluation team suggests the following standardizations:

[11] Constant speed rotary machines consume about 70% of rated power when delivering no compressed air. Constant speed centrifugal machines blow-off excess compressed air when delivering less than 70-80% of design airflow.

- Issuing parameters for motor and VFD efficiency, chiller and DX cooling efficiency by vintage, boiler and steam distribution efficiency, motor loading based on application and motor size, and affinity law exponents
- Establishing a clear priority for measured data used in calculations, followed by equipment-specific performance curves, generic performance curves, and finally program defaults
- Including performance curves in the report or electronically in submitted calculations

Finding 2: *Ex ante* savings calculations are often not included in reports, or simulation inputs are not detailed enough to replicate and verify the models. The evaluation effort was greater due to the need to reproduce calculations from scratch to confirm approximate savings estimates.

Recommendation 2: Encourage RSPs to use more transparent calculations like spreadsheets, or include electronic input files for simulations when they are used for estimating savings. Require submitting electronic versions of calculations. Consider issuing template calculators for common measures.

Finding 3: Post-implementation inspections are good, and evaluators strongly encourage continuing this practice; however, these inspections, as currently executed, are inadequate for verification.

Recommendation 3: Encourage inclusion of data that confirm implementation in post-implementation inspection reports: screen-captures of control system displays that demonstrate implementation, and trend data that show the effects of retro-commissioning changes. Encourage RSPs to continue trend logs used for the studies for use in verification steps.

Finding 4: Savings based on manual adjustments were claimed in PY5 for one measure. In this instance, the measure was a chilled water temperature reset regime. Not only is this difficult to perform manually (several adjustments per day may be required), but failure to make the correct adjustments can also lead to excess energy use and the loss of comfort for building occupants.

Recommendation 4: Consider prohibiting *ex ante* savings from manual adjustments and resets. Allowing manual measures opens the door for claims from unreliable measures, such as manually turning off lights, etc.

APPENDIX A. DATA COLLECTION INSTRUMENTS

Ameren Illinois Evaluation: C&I Retro-Commissioning Program

Program/Implementation Staff In-Depth Interview Guide

Final 7/11/13

Background: We are getting ready to conduct the PY5 evaluation of the Retro-Commissioning Program. We are hoping to get information from you about any changes to program design, implementation, or processes – in PY5 compared to PY4 – that we should be aware of as we are conducting our research. This interview will constitute the majority of the process evaluation research as we are not planning to interview RSPs or participants in PY5. Also, if there are any impact-related topics you'd like us to explore, please let us know and we will do our best to address them in the course of our impact research.

Program Adjustments and Enhancements

1. Could you give us a brief overview of PY5? Did participation meet expectations? – by market segment? Did the program meet its savings goals?

	Participants	Savings est. (MWh)
Health Care		
Compressed Air		
Commercial Bldg		
Leak Survey / Repair		
Other		
Total		

   Did the program exhaust its budget? What went well, what didn't go well?

2. For PY5, were there any major changes in the design or implementation of the program? Please describe, if applicable.
   a. *Usefulness and administration of QuickStart Screening*
   b. *Expansion to other segments beyond compressed air and healthcare – more refrigeration and/or commercial buildings*
   c. *Incentive level (still 50-80% of survey cost, $0.01 to $0.005/kWh, $0.20-$0.10/therm, XX bonus?)*
   d. *Application or participation processes (application /review process streamlined to eliminate redundancy in effort or paperwork)*
   e. *Roles of program and implementation staff*
   f. *Implementation deadlines*

g. Report templates

If changes were made: Why were they made? What was the effect on the program and participation?

3. In addition to savings goals, did you have other goals for the program for PY5 (number of RSPs, number of projects)? What were they?

Program Processes

4. What were key challenges in program implementation in PY4? How were they handled?

5. How were most of the projects generated in PY4? Were they generated through leads (i.e., "solicited"), through RSPs, Ameren presentations/marketing?

6. What type of interaction and communication takes place among the RSPs, SAIC, Ameren IL program staff, Ameren IL Account Managers and gas utility personnel? *[Probe for both formal and informal communication.]* How has this communication changed since PY4?

7. Last year you indicated that scheduling was an issue. Was this still an issue in PY5 *[probe did it get better, worse, how was it addressed]*? Did you find that a lot of participants struggled to meet the project deadline during PY5? Was seasonality of measure impacts a problem? For example, were boiler and heating measures too hard to implement and test before the winter months or was there enough summer season during the program to implement and verify cooling-related measures?

8. What feedback, if any, do you receive on the value of the program and it services from customers? From RSPs? Are the subsidized services and incentives sufficient to attract participants?

Retro-Commissioning Service Providers (RSPs)

9. How many registered and active RSPs work with the program?

Program	**Registered RSP**	**Active RSP**
Commercial		
Health Care		
Compressed Air		

10. Is there sufficient geographic distribution of RSPs? Have you brought on more RSPs with specific expertise or has your existing roster been adequate?

11. What do you perceive to be the level of satisfaction among participating RSP with the program? Have you received any feedback? Please describe.

RSP Training

12. What sort of training does the program provide or require for RSPs? How often must RSPs participate in training? Have all RSPs participated in the required level of training?

13. What is the process for reviewing RSP performance and retention with the program? How many PY3 RSPs were retained for PY4?

Data Tracking

14. From your point of view, how well does data tracking for the program work? Do you get the information you need? In a timely manner? Is there any information that is not currently tracked but that would be useful to you? Has data tracking changed since PY4? If so, how?

Success and the Future of These Efforts

15. How effective is the program in channeling customers into other programs? Is this a key objective of the program? How often does this happen?

16. What do you see as the main barriers for participation in the program? For customers? For RSPs? Do you have any thoughts on how these could be addressed?

Other

Anything else you want us to share about the program? If not, please feel free to email us if anything comes to mind.

Thank you very much for your time today.

Do you mind if we follow-up with you by phone later, if additional questions arise?