Illinois Department of Commerce and Economic Opportunity
Illinois Energy Now Programs

EPY4 / GPY1
Evaluation, Measurement, and Verification

June 2011 – May 2012

Prepared by:

ADM

Portfolio kWh Savings Summary

Program	Expected kWh Savings	Realized Gross kWh Savings	Gross Realization Rate	Realized Net kWh Savings	Net to Gross Ratio
Custom Incentives Program	59,793,548	57,254,082	96%	54,674,379	95%
Standard Incentives Program	56,151,930	66,357,365	118%	64,931,736	98%
New Construction Program	1,901,685	1,737,225	91%	1,675,634	96%
RCx Program	6,309,947	5,932,585	94%	5,932,585	100%
Residential Retrofit Program	11,454,529	9,046,554	79%	9,046,554	100%
Affordable Housing Construction Program	3,214,713	3,569,206	111%	3,569,206	100%
PHA Efficient Living Program	2,785,697	2,781,182	100%	2,781,182	100%
Lights for Learning	787,395	689,388	88%	524,986	95%
BOC Program	-	-	-	1,631,148	-

ADM

Portfolio Therm Savings Summary

Program	Expected Therm Savings	Realized Gross Therm Savings	Gross Realization Rate	Realized Net Therm Savings	Net to Gross Ratio
Custom Incentives Program	2,317,745	2,547,137	110%	2,198,007	86%
Standard Incentives Program	105,741	70,548	67%	61,608	87%
New Construction Program	12,710	13,981	108%	12,132	87%
Boiler Tune-Up Program	2,097,277	1,471,958	70%	1,422,270	97%
Residential Retrofit Program	328,268	328,862	100%	328,862	100%
Affordable Housing Construction Program	16,749	30,998	185%	30,998	100%
PHA Efficient Living Program	190,097	161,896	85%	161,896	100%
BOC Program	-	-	-	1,694	-

ADM

Portfolio Goals and Realized Net Savings

Goal for kWh Savings	Realized Net kWh Savings	Percent of kWh Goal Met
155,648,910	144,767,410	93%

Goal for Therm Savings	Realized Net Therm Savings	Percent of Therm Goal Met
3,016,488	4,217,467	140%

ADM

Portfolio Goals and Realized Net Savings

Utility	Goal for kWh Savings	Realized Net Kwh Savings	Percent of kWh Goal Met
Ameren	42,025,206	36,794,492	88%
ComEd	113,623,704	107,972,919	95%

Utility	Goal for Therm Savings	Realized Net Therm Savings	Percent of Therm Goal Met
Ameren	470,362	1,164,792	248%
Nicor	1,705,463	937,595	55%
North Shore	139,196	102,210	73%
Peoples	701,467	2,011,596	287%

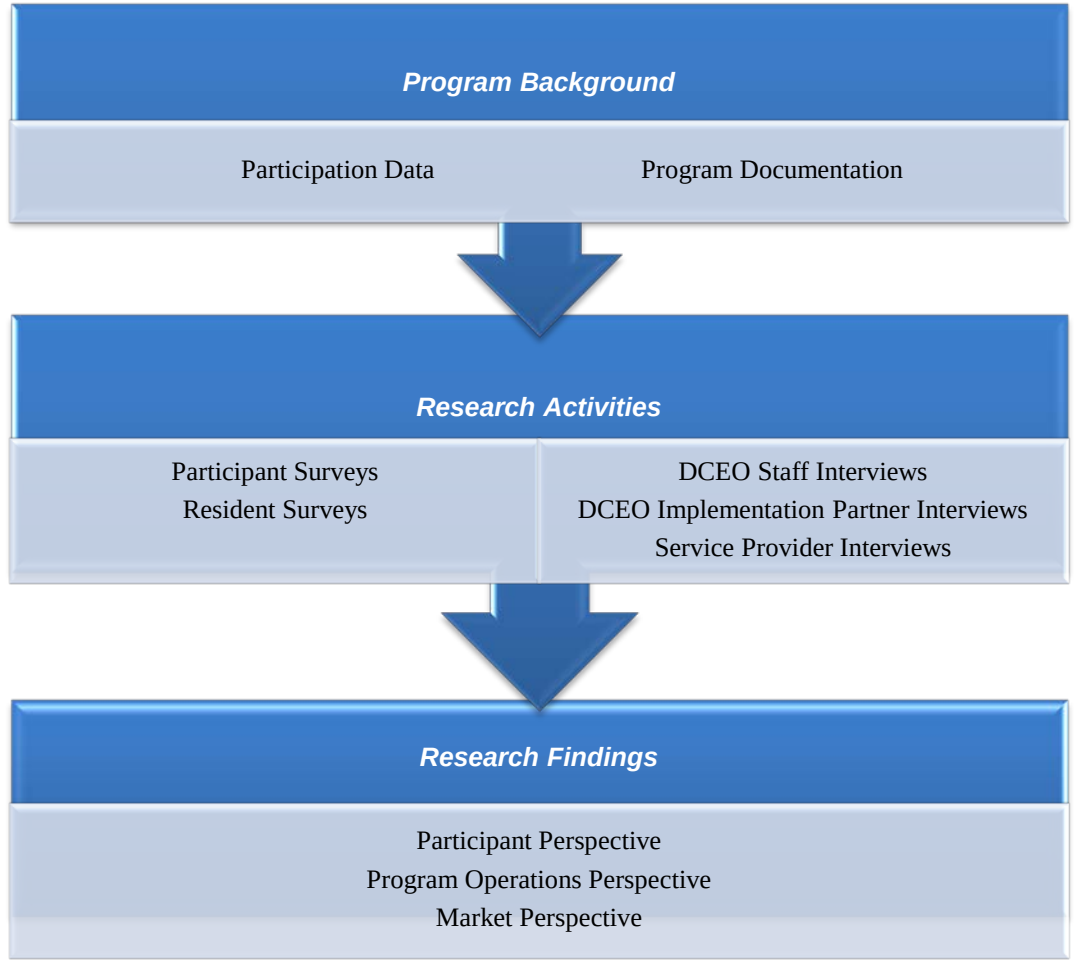
ADM

Impact Evaluation Methodology Overview

- M&V Site Visits (Custom, Standard, New Construction Programs)
  - Deployed monitoring equipment as needed
- Analytic Desk Reviews (RCx, Boiler Tune-Up, Low Income Programs, Lights for Learning, BOC)
- Net Savings Developed Using Self-Report Surveys
  - Net Savings for Low Income Programs 100%

ADM

Process Evaluation Methodology Overview



Public Sector Custom Incentives, Standard Incentives & New Construction Program

Public Sector Custom Incentives, Standard Incentives, & New Construction Programs (1 of 21)

Summary of kWh Savings: ***Custom Incentives Program***

Utility	Expected kWh Savings	Realized Gross kWh Savings	Gross Realization Rate	Realized Net kWh Savings	Net to Gross Ratio
Ameren	16,469,402	16,098,932	98%	15,131,791	94%
ComEd	43,324,146	41,155,149	95%	39,542,588	96%
Total	59,793,548	57,254,082	96%	54,674,379	95%

ADM

Public Sector Custom Incentives, Standard Incentives, & New Construction Programs (2 of 21)

Summary of Therm Savings: ***Custom Incentives Program***

Utility	Expected Therm Savings	Realized Gross Therm Savings	Gross Realization Rate	Realized Net Therm Savings	Net to Gross Ratio
Ameren	680,491	687,482	101%	596,333	87%
Nicor	442,426	244,438	55%	207,581	85%
North Shore	197,063	73,932	38%	63,798	86%
Peoples	997,764	1,541,285	154%	1,330,024	86%
Total	2,317,745	2,547,137	110%	2,198,007	86%

ADM

Public Sector Custom Incentives, Standard Incentives, & New Construction Programs (3 of 21)

Summary of kW Savings: ***Custom Incentives Program***

Utility	*Realized Net Peak kW Savings*
Ameren	1,632
ComEd	4,264
Total	5,895

ADM

Public Sector Custom Incentives, Standard Incentives, & New Construction Programs (4 of 21)

Summary of kWh Savings: ***Standard Incentives Program***

Utility	Expected kWh Savings	Realized Gross kWh Savings	Gross Realization Rate	Realized Net kWh Savings	Net to Gross Ratio
Ameren	12,737,810	14,121,122	111%	13,696,163	97%
ComEd	43,414,120	52,236,242	120%	51,235,573	98%
Total	56,151,930	66,357,365	118%	64,931,736	98%

ADM

Public Sector Custom Incentives, Standard Incentives, & New Construction Programs (5 of 21)

Summary of Therm Savings: ***Standard Incentives Program***

Utility	Expected Therm Savings	Realized Gross Therm Savings	Gross Realization Rate	Realized Net Therm Savings	Net to Gross Ratio
Ameren	23,327	11,206	48%	10,359	92%
Nicor	58,337	36,699	63%	34,019	93%
North Shore	6,377	5,427	85%	2,196	40%
Peoples	17,700	17,215	97%	15,034	87%
Total	105,741	70,548	67%	61,608	87%

ADM

Public Sector Custom Incentives, Standard Incentives, & New Construction Programs (6 of 21)

Summary of kW Savings: ***Standard Incentives Program***

Utility	*Realized Net Peak kW Savings*
Ameren	1,979
ComEd	7,404
Total	9,384

ADM

Public Sector Custom Incentives, Standard Incentives, & New Construction Programs (7 of 21)

Summary of kWh Savings: ***New Construction Program***

Utility	Expected kWh Savings	Realized Gross kWh Savings	Gross Realization Rate	Realized Net kWh Savings	Net to Gross Ratio
Ameren	1,510,708	1,380,060	91%	1,331,132	96%
ComEd	390,977	357,165	91%	344,502	96%
Total	1,901,685	1,737,225	91%	1,675,634	96%

ADM

Public Sector Custom Incentives, Standard Incentives, & New Construction Programs (8 of 21)

Summary of Therm Savings: ***New Construction Program***

Utility	Expected Therm Savings	Realized Gross Therm Savings	Gross Realization Rate	Realized Net Therm Savings	Net to Gross Ratio
Ameren	3,929	4,322	110%	3,750	87%
Nicor	8,781	9,659	110%	8,382	87%
Total	12,710	13,981	108%	12,132	87%

ADM

Public Sector Custom Incentives, Standard Incentives, & New Construction Programs (9 of 21)

Summary of kW Savings: ***New Construction Program***

Utility	*Realized Net Peak kW Savings*
Ameren	144
ComEd	37
Total	181

ADM

Public Sector Custom Incentives, Standard Incentives, & New Construction Programs (10 of 21)

kWh Sample Design: ***Custom Incentives Program***

	Stratum 1	Stratum 2	Stratum 3	Stratum 4	Totals
Strata boundaries (kWh)	< 80,740	80,740 – 266,219	266,220 – 1,167,359	>1,167,360	
Number of projects	324	39	24	13	400
Total kWh savings	5,806,906	5,041,770	8,935,227	40,009,645	59,792,548
Average kWh Savings	17,923	129,276	372,301	3,077,665	149,484
Standard deviation of kWh savings	18,384	46,409	64,267	1,850,236	632,549
Coefficient of variation	1.03	0.36	0.17	0.60	4.23
Final design sample	3	7	3	13	26

ADM

Public Sector Custom Incentives, Standard Incentives, & New Construction Programs (11 of 21)

Therm Sample Design: ***Custom Incentives Program***

	Stratum 1	Stratum 2	Stratum 3	Totals
Strata boundaries (therm)	< 30830	30830 - 130979	> 130980	
Number of projects	55	11	3	69
Total therm savings	485,716	522,085	1,309,944	2,317,745
Average therm Savings	8,831	47,462	436,648	69
Standard deviation of therm savings	8,843	17,434	313,733	33,591
Coefficient of variation	1.00	0.37	0.72	3.08
Final design sample	9	9	3	21

ADM

Public Sector Custom Incentives, Standard Incentives, & New Construction Programs (12 of 21)

kWh Sample Design: ***Standard Incentives Program***

	Stratum 1	Stratum 2	Stratum 3	Stratum 4	Stratum 5	Totals
Strata boundaries (kWh)	< 20,070	20,070 – 46,319	46,320 – 141,579	141,580 – 528,879	> 528,880	
Number of projects	634	279	201	41	13	1,168
Total kWh savings	4,968,319	8,835,459	15,347,163	8,946,575	18,054,414	56,151,930
Average kWh Savings	7,836	31,668	76,354	218,209	1,388,801	48,075
Standard deviation of kWh savings	5,499	7,650	23,369	76,159	1,255,035	196,576
Coefficient of variation	0.70	0.24	0.31	0.35	0.90	4.09
Final design sample	4	2	6	3	13	28

ADM

Public Sector Custom Incentives, Standard Incentives, & New Construction Programs (13 of 21)

Typical Methods to Determine Savings for Measures

Type of Measure	Method to Determine Savings
Compressed Air Systems	Engineering analysis, with monitored data on load factor and schedule of operation
Lighting	Custom-designed lighting evaluation model, which uses data on wattages before and after installation of measures and hours-of-use data from field monitoring.
HVAC (including packaged units, chillers, cooling towers, controls/EMS)	eQUEST model using DOE-2 as its analytical engine for estimating HVAC loads and calibrated with site-level billing data to establish a benchmark.
Motors and VFDs	Measurements of power and run-time obtained through monitoring
Refrigeration	Simulations with EQuest engineering analysis model, with monitored data
Process Improvements	Engineering analysis, with monitored data on load factor and schedule of operation

ADM

Public Sector Custom Incentives, Standard Incentives, & New Construction Programs (14 of 21)

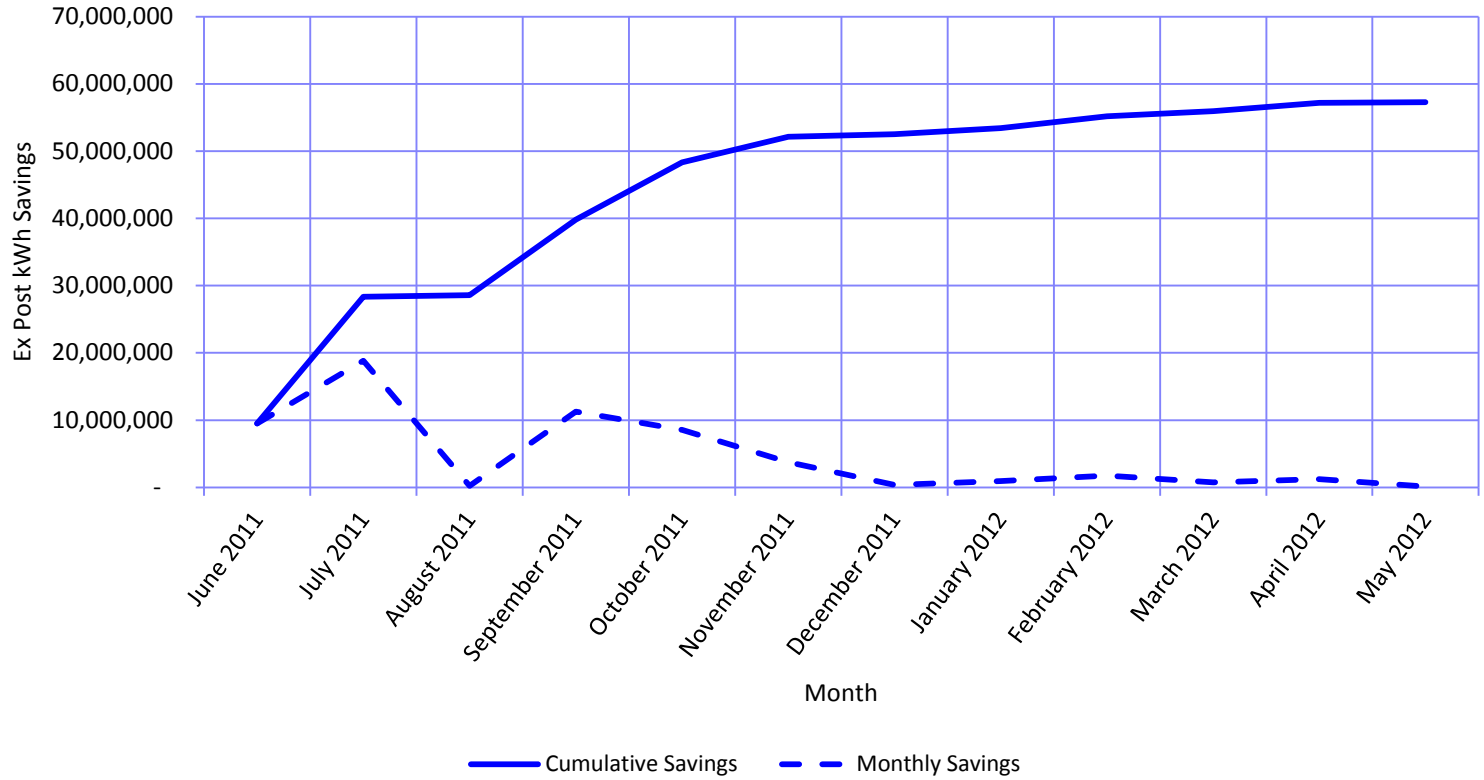
Weighted Average Indicator Variable Values

Program Component	Had Financial Ability	Had Plans and Intentions to Install Measure without C&S Program (Definition 1)	Had Plans and Intentions to Install Measure without C&S Program (Definition 2)	C&S Program had influence on Decision to Install Measure	Had Previous Experience with Measure
Custom kWh	50%	3%	8%	11%	0%
Custom Therm	31%	11%	30%	33%	0%
Standard kWh	29%	3%	8%	62%	0%
Standard Therm	88%	18%	18%	76%	0%

ADM

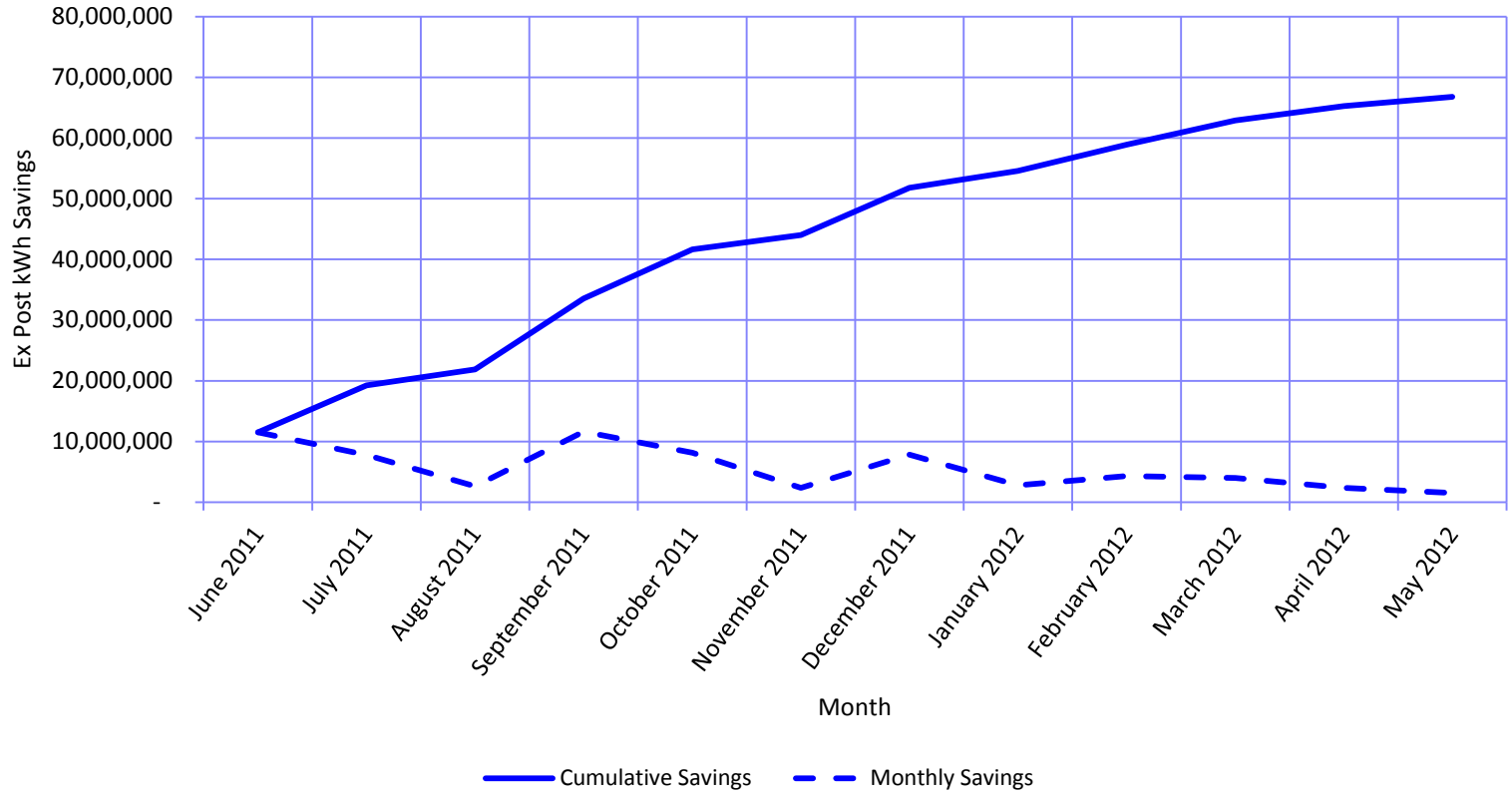
Public Sector Custom Incentives, Standard Incentives, & New Construction Programs (15 of 21)

Custom Incentives Program Cumulative Ex Post kWh Savings by Date of Application Submission



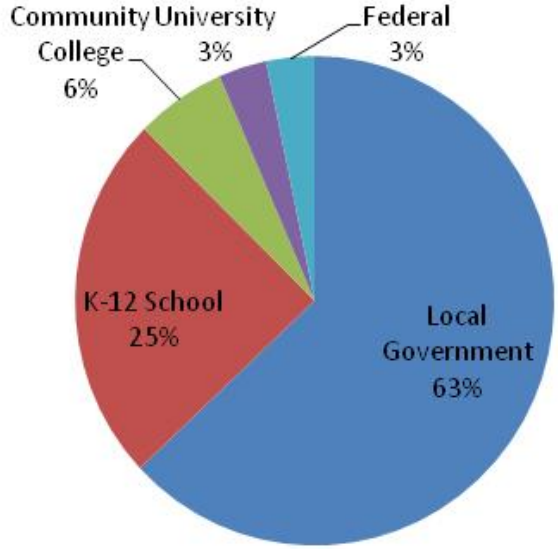
Public Sector Custom Incentives, Standard Incentives, & New Construction Programs (16 of 21)

Standard Incentives Program Cumulative Ex Post kWh Savings by Date of Application Submission

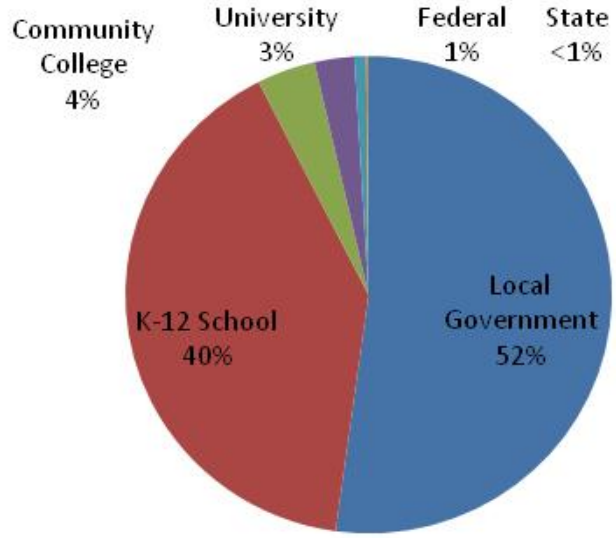


Public Sector Custom Incentives, Standard Incentives, & New Construction Programs (17 of 21)

Program Applications by Facility Type



Custom Incentives Program



Standard Incentives Program

ADM

Public Sector Custom Incentives, Standard Incentives, & New Construction Programs (18 of 21)

Process Evaluation Activities

- Data and Project Documentation Review
- Program Document Review
- Interviews with DCEO Staff
- Surveys of Participants

ADM

Public Sector Custom Incentives, Standard Incentives, & New Construction Programs (19 of 21)

Participant Satisfaction

Element of Program Experience	Very Satisfied	Somewhat Satisfied	Neither Satisfied nor Dissatisfied	Somewhat Dissatisfied	Very Dissatisfied	Don't Know	Average
Performance of the equipment installed	65%	33%	-	-	-	3%	4.7
Quality of the work conducted by your contractor	60%	30%	1%	1%	-	8%	4.6
Information provided by DCEO Representative	46%	39%	8%	-	-	8%	4.4
Incentive amount	41%	47%	8%	1%	1%	3%	4.3
Elapsed time until you received the incentive	40%	48%	8%	1%	1%	3%	4.3
Effort required for the application process	38%	49%	9%	2%	-	3%	4.3
Savings on your monthly bill	41%	44%	9%	1%	-	4%	4.3
Information provided by Smart Energy Design Assistance Center (SEDAC)	31%	31%	14%	2%	-	21%	4.2
Information provided by the Energy Resource Center (ERC)	22%	37%	16%	1%	-	24%	4.1
Overall program experience	51%	45%	2%	-	1%	1%	4.5

ADM

Public Sector Custom Incentives, Standard Incentives, & New Construction Programs (20 of 21)

Process Evaluation Findings

- High Program Satisfaction
- Few Process Issues Noted by Participants
- Incentives Address Barrier of Lack of Available Funding for Efficiency Projects
- Program Staff Identify and Address Program Administration Issues

ADM

Public Sector Custom Incentives, Standard Incentives, & New Construction Programs (21 of 21)

Recommendations

- Consider Providing Additional Communication Support to Increase Participation
- Improve Documentation and Project Tracking Data
- Better Documentation of Methods Used to Estimate Project Savings
- Target New Construction Projects Early in the Design Process

ADM

Retro-Commissioning Program

Retro-Commissioning Program (1 of 8)

Summary of kWh Savings: ***Retro-Commissioning Program***

Utility	Expected kWh Savings	Realized Gross kWh Savings	Gross Realization Rate	Realized Net kWh Savings	Net to Gross Ratio
Ameren	1,336,740	1,058,326	79%	1,058,326	100%
ComEd	4,973,207	4,874,259	98%	4,874,259	100%
Total	6,309,947	5,932,585	94%	5,932,585	100%

ADM

Retro-Commissioning Program (2 of 8)

Summary of kW Savings: ***Retro-Commissioning Program***

Utility	Expected kW Savings	Realized Gross kW Savings	Gross Realization Rate	Realized Net kW Savings	Net to Gross Ratio
Ameren	9.20	8.35	91%	8.35	100%
ComEd	376.60	213.67	57%	213.67	100%
Total	385.80	222.02	58%	222.02	100%

ADM

Retro-Commissioning Program (3 of 8)

Methodology for Estimating Gross Savings

- **Review of Documentation**
- **Analytical Desk Review of Each Project**
  - Ex Ante savings reviewed
  - Custom calculations for ex post savings
  - Realization rate determined for each measure in each project
- **13 projects total**

ADM

Retro-Commissioning Program (4 of 8)

Weighted Average Indicator Variable Values

Had Financial Ability	Had Plans and Intentions to Install Measure without Retro-Commissioning Program (Definition 1)	Had Plans and Intentions to Install Measure without Retro-Commissioning Program (Definition 2)	Retro-Commissioning Program had Influence on Decision to Install Measure	Had Previous Experience with Measure
26%	0%	0%	100%	100%

ADM

Retro-Commissioning Program (5 of 8)

Process Evaluation Activities

- Data and Project Documentation Review
- Program Document Review
- Interviews with DCEO Staff
- Interviews with DCEO Implementation Partner Staff
- Surveys of Participants

ADM

Retro-Commissioning Program (6 of 8)

Participant Satisfaction

Element of Program Experience	Very Satisfied	Somewhat Satisfied	Neither Satisfied nor Dissatisfied	Somewhat Dissatisfied	Very Dissatisfied	Don't Know	Average
Energy efficiency of the facility since the retro-commissioning	14%	86%	-	-	-	-	4.1
Savings on your monthly bill	14%	57%	-	-	-	29%	4.2
Effort required for the application process	14%	71%	14%	-	-	-	4.0
Information provided by the retro-commissioning service provider	57%	29%	14%	-	-	-	4.4
Retro-commissioning service provider's level of professionalism	86%	14%	-	-	-	-	4.9
Quality of the work conducted by the contractor implementing the measures	14%	43%	14%	-	-	29%	4.0
Information provided by DCEO	14%	57%	14%	-	-	14%	4.0
Information provided by Smart Energy Design Assistance Center (SEDAC)	29%	57%	14%	-	-	-	4.2
Overall program experience	29%	57%	14%	-	-	-	4.2

ADM

Retro-Commissioning Program (7 of 8)

Process Evaluation Findings

- Incentive Structure is Well Designed to Reduce Uncertainty and Perceived Risk in Investing in RCx
  - RCx at no-cost, commit $10k to efficiency improvements
- Participants More Aware of Performance Deficiencies than Solutions
- The Retro-Commissioning Program is Marketed Well
- Program Improving Regional Capacity for Energy Efficiency through Staff and Service Provider Educational Efforts

ADM

Retro-Commissioning Program (8 of 8)

Recommendations

- Fine-Tune Marketing Message
  - Promote variety of benefits, develop success stories
- Continue Developing Retro-commissioning Service Provider Network
- Consider Independent Verification of Measure Installation

ADM

Natural Gas Boiler Tune-Up Incentive Program

Boiler Tune-Ups Program (1 of 7)

Summary of Gross Therm Savings: ***Boiler Tune-Up Program***

Utility	Expected Therm Savings	Realized Gross Therm Savings	Gross Realization Rate	Realized Net Therm Savings	Net to Gross Ratio
Ameren	619,083	343,147	55%	342,816	100%
Nicor	633,664	557,210	88%	550,126	99%
Peoples	840,562	569,174	68%	527,118	93%
North Shore	3,968	2,427	61%	2,210	91%
Total	2,097,277	1,471,958	70%	1,422,270	97%

ADM

Boiler Tune-Ups Program (2 of 7)

Gross Therm Savings by Measure

Utility	Boiler Tune-Ups	Steam Traps	Pipe Insulation	Total
Ameren	3,705	174,032	165,411	343,147
Nicor	79,141	475,783	2,287	557,210
Peoples	469,834	n/a	99,340	569,174
North Shore	2,427	n/a	n/a	2,427
Total	555,107	649,814	267,038	1,471,958

ADM

Boiler Tune-Ups Program (3 of 7)

Methodology for Estimating Gross & Net Savings

- **Review of Documentation**
- **Analytical Desk Review of Each Project**
  - Ex ante savings reviewed
  - TRM deemed calculations for ex post savings
  - Therm savings determined for each measure in each project
- **Participant Survey for NTGR**
  - NTGR applied to gross savings = net savings

ADM

Boiler Tune-Ups Program (4 of 7)

Process Evaluation Activities

- Data and Project Documentation Review
- Program Document Review
- Interviews with DCEO Staff
- Interviews with DCEO Implementation Partner Staff
- Surveys of Participants

ADM

Boiler Tune-Ups Program (5 of 7)

Participant Satisfaction

Element of Program Experience	Very Satisfied	Somewhat Satisfied	Neither Satisfied nor Dissatisfied	Somewhat Dissatisfied	Very Dissatisfied	Don't Know	Average
Performance of the [boiler tune-up/ pipe insulation/ steam trap repair or replacement] since the project was completed	75%	25%	-	-	-	-	4.8
Quality of the contractor's work	50%	38%	-	-	-	13%	4.6
Savings on your monthly bill	25%	38%	-	-	-	38%	4.4
Incentive amount	25%	75%	-	-	-	-	4.3
The effort required for the application process	29%	71%	-	-	-	-	4.3
Information provided by the DCEO	25%	50%	-	-	-	25%	4.3
Overall program experience	29%	71%	-	-	-	-	4.3
Information provided by the ERC	13%	25%	13%	-	-	50%	4.0
The elapsed time until you received the incentive	13%	63%	25%	-	-	-	3.9
Information provided by SEDAC	13%	25%	25%	-	-	38%	3.8

ADM

Boiler Tune-Ups Program (6 of 7)

Process Evaluation Findings

- Participants Satisfied with Program Delivery, Incentives, and Work Performed by Contractors
- Program is Promoted through Multiple Channels
- High Market Potential in Schools and Universities
- Program has Increased Awareness of Boiler Maintenance Best Practices

ADM

Boiler Tune-Ups Program (7 of 7)

Recommendations

- Continue to Grow Existing Partnerships and Leverage Network of DCEO Participants
- Consider Multiple Year Planning Cycles to Maintain Availability of Funds
  - Multiple year cycles would likely reduce the need reduce the frequency of requests for additional funding, and therefore reduce the delay of project completions.
  - Also would potentially facilitate more participation by entities that have annual budgeting protocols.

ADM

Low Income Residential Retrofit Program

Residential Retrofit Program (1 of 9)

Summary of kWh Savings: ***Residential Retrofit Program***

Program Component	Utility	Units	Expected kWh Savings	Realized Gross kWh Savings	Gross Realization Rate	Realized Net kWh Savings*
Weatherization	Ameren	42,059	3,783,813	2,913,301	77%	2,913,301
	ComEd	75,539	6,714,047	5,528,655	82%	5,528,655
Home Improvement	Ameren	1,386	416,055	290,253	70%	290,253
	ComEd	1,049	540,614	314,346	58%	314,346
Total		120,033	11,454,529	9,046,554	79%	9,046,554

ADM

Residential Retrofit Program (2 of 9)

Summary of Therm Savings: ***Residential Retrofit Program***

Program Component	Utility	Units	Expected Therm Savings	Realized Gross Therm Savings	Gross Realization Rate	Realized Net Therm Savings*
Weatherization	Ameren	886	65,986	96,337	146%	96,337
	Nicor Gas	369	40,846	39,558	97%	39,558
	Peoples Gas	275	30,419	29,483	97%	29,483
	North Shore Gas	22	2,366	2,363	100%	2,363
Home Improvement	Ameren	381	39,869	40,355	101%	40,355
	Nicor Gas	289	35,528	30,746	87%	30,746
	Peoples Gas	739	111,287	88,317	79%	88,317
	North Shore Gas	16	1,967	1,702	87%	1,702
Total		2,977	328,268	328,862	100%	328,862

ADM

Residential Retrofit Program (3 of 9)

Summary of kW Savings: ***Residential Retrofit Program***

Program Component	Utility	Units	Realized Gross kW Savings	Realized Net kW Savings
Weatherization	Ameren	42,059	347	347
	ComEd	75,539	702	702
Home Improvement	Ameren	1,386	93	93
	ComEd	1,049	134	134
Total		120,033	1,280	1,280

ADM

Residential Retrofit Program (4 of 9)

Methodology for Estimating Gross & Net Savings

- **Review of Documentation & Database**
  - Ex ante savings reviewed for reasonableness and accuracy (stipulated savings values from PY3)
  - As-used baseline conditions were assessed by reviewing program baseline assumptions and testing the validity of those assumptions
- **Engineering Desk Review of Each Measure**
- **NTGR assumed to be 100% for all measures**
  - Program targets residents who would not have funded new energy efficiency measures on their own.

ADM

Residential Retrofit Program (5 of 9)

Process Evaluation Activities

- Data and Project Documentation Review
- Program Document Review
- Interviews with DCEO Staff
- Surveys of Grant Recipients
- Surveys of Residents

ADM

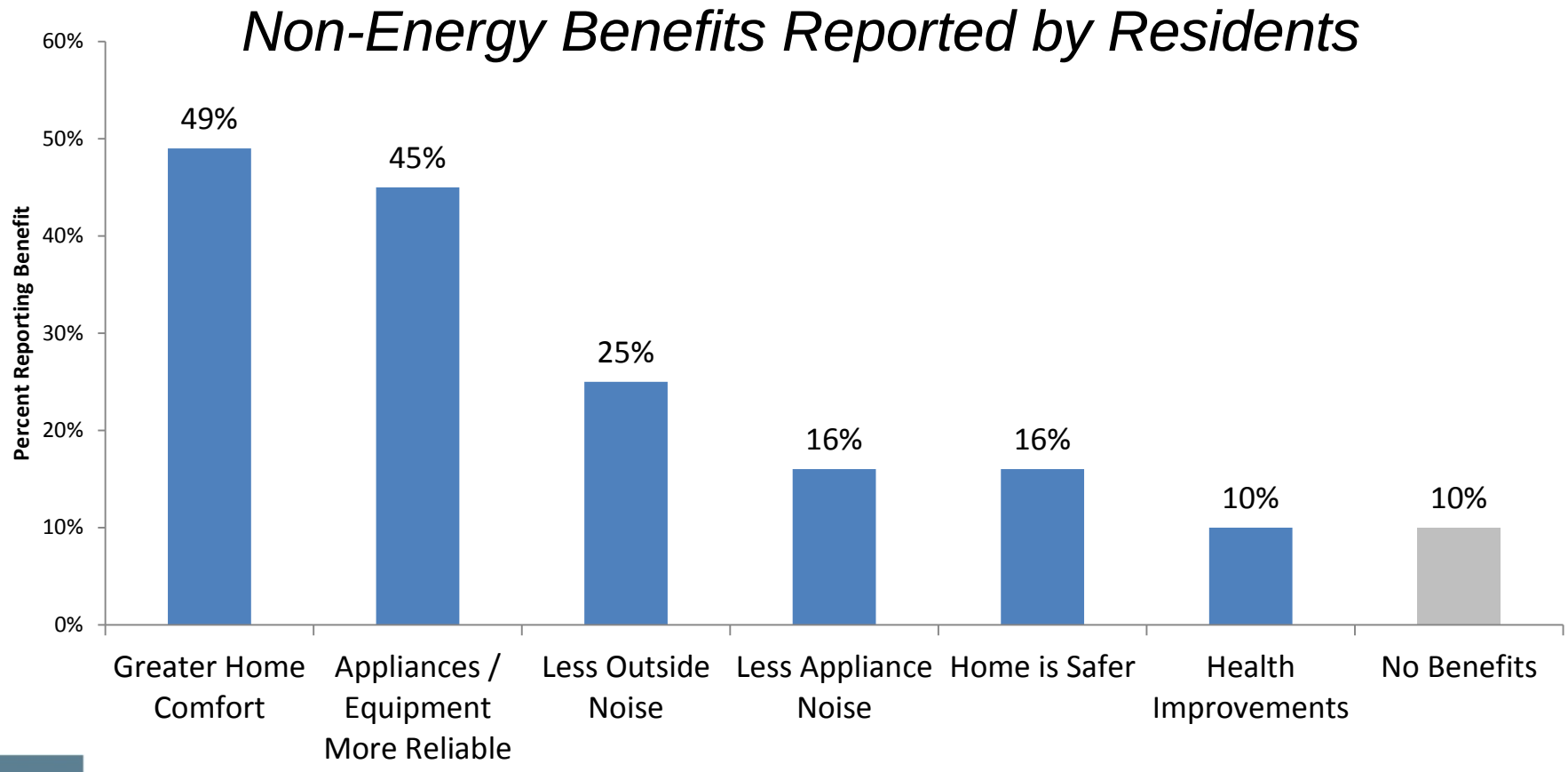
Residential Retrofit Program (6 of 9)

Grant Recipient Satisfaction

Element of Program Experience	Very Satisfied	Somewhat Satisfied	Neither Satisfied nor Dissatisfied	Somewhat Dissatisfied	Very Dissatisfied	Don't Know	Average
Performance of the equipment installed	67%	33%	-	-	-	-	4.7
Savings on your monthly bill	33%	-	33%	-	-	33%	4.0
Grant amount	33%	33%	33%	-	-	-	4.0
The effort required for the application process	67%	33%	-	-	-	-	4.7
Quality of the work conducted by your contractor	67%	33%	-	-	-	-	4.7
Information provided by DCEO	33%	67%	-	-	-	-	4.3
The elapsed time until you received the grant payment	33%	33%	33%	-	-	-	4.0
Overall program experience	33%	67%	-	-	-	-	4.3

ADM

Residential Retrofit Program (7 of 9)



Residential Retrofit Program (8 of 9)

Key Process Evaluation Findings

- Grant Recipients Satisfied with Program Overall
  - Less satisfaction with grant amount
- Most Residents Reported Non-Energy Benefits
- Residents Satisfied with Efficiency Measures Installed
- Program is Addressing Staffing Challenges

ADM

Residential Retrofit Program (9 of 9)

Recommendations

- Improve Project Tracking and Documentation
- Perform Sample of Site Verification Visits
- Continue to Invest in Partnerships to Promote Program

ADM

Affordable Housing Construction Program

Affordable Housing Construction Program (1 of 8)

Summary of kWh Savings:
Affordable Housing Construction Program

Utility	Units	Expected kWh Savings	Realized Gross kWh Savings	Gross Realization Rate	Realized Net kWh Savings*
Ameren	100	206,320	267,249	130%	267,249
ComEd	1,474	3,008,394	3,301,957	110%	3,301,957
Total	1,574	3,214,713	3,569,206	111%	3,569,206

ADM

Affordable Housing Construction Program (2 of 8)

Summary of Therm Savings:
Affordable Housing Construction Program

Utility	Units	Expected Therm Savings	Realized Gross Therm Savings	Gross Realization Rate	Realized Net Therm Savings*
Ameren	-	-	-	-	-
Nicor Gas	85	6,787	11,934	176%	11,934
Peoples Gas	-	-	-	-	-
North Shore Gas	101	9,962	19,064	191%	19,064
Total	186	16,749	30,998	185%	30,998

ADM

Affordable Housing Construction Program (3 of 8)

Summary of kW Savings:
Affordable Housing Construction Program

Utility	Units	Realized Gross kW Savings	Realized Net kW Savings*
Ameren	100	841	841
ComEd	1,474	1,551	1,551
Total	1,574	2,392	2,392

ADM

Affordable Housing Construction Program (4 of 8)

Methodology for Estimating Gross & Net Savings

- **Review of Documentation & Database**
  - Ex ante savings reviewed for reasonableness and accuracy
  - As-used baseline conditions were assessed by reviewing program baseline assumptions and testing the validity of those assumptions
- **Engineering Desk Review of Each Measure**
- **NTGR assumed to be 100% for all measures**
  - Program targets residents who would not have funded new energy efficiency measures on their own.

ADM

Affordable Housing Construction Program (5 of 8)

Process Evaluation Activities

- Data and Project Documentation Review
- Program Document Review
- Interviews with DCEO Staff
- Surveys of Grant Recipients

ADM

Affordable Housing Construction Program (6 of 8)

Grant Recipient Satisfaction

Element of Program Experience	Very Satisfied	Somewhat Satisfied	Neither Satisfied nor Dissatisfied	Somewhat Dissatisfied	Very Dissatisfied	Don't Know	Average
Performance of the equipment installed	50%	50%	-	-	-	-	4.5
Savings on your monthly bill	33%	17%	-	-	-	50%	4.7
Grant amount	0%	67%	17%	17%	-	-	3.5
The effort required for the application process	17%	33%	17%	33%	-	-	3.3
Quality of the work conducted by your contractor	33%	67%	-	-	-	-	4.3
Information provided by DCEO	50%	33%	17%	-	-	-	4.3
The elapsed time until you received the grant payment	17%	33%	17%	33%	-	-	3.3
Overall program experience	20%	80%	-	-	-	-	4.2

ADM

Affordable Housing Construction Program (7 of 8)

Key Process Evaluation Findings

- Grant Recipients Satisfied with Program Overall
  - Less satisfied with grant amount and application effort
- Partnerships are Critical to Increasing Program Awareness
- Program is Addressing Staffing Challenges

ADM

Affordable Housing Construction Program (8 of 8)

Recommendations

- Improve Project Tracking and Documentation
- Continue to Invest in Partnerships

Public Housing Authority
Efficient Living Program

Efficient Living Program (1 of 8)

Summary of kWh Savings:

Public Housing Authority Efficient Living Program

Utility	Expected kWh Savings	Realized Gross kWh Savings	Gross Realization Rate	Realized Net kWh Savings*
Ameren	1,526,706	1,739,570	114%	1,739,570
ComEd	1,258,991	1,041,612	83%	1,041,612
Total	2,785,697	2,781,182	100%	2,781,182

ADM

Efficient Living Program (2 of 8)

Summary of Therm Savings:

Public Housing Authority Efficient Living Program

Utility	Expected Therm Savings	Realized Gross Therm Savings	Gross Realization Rate	Realized Net Therm Savings
Ameren	71,875	74,842	104%	74,842
Nicor	72,498	55,082	76%	55,082
Peoples	32,581	21,143	65%	21,143
North Shore	13,142	10,829	82%	10,829
Total	190,097	161,896	85%	161,896

ADM

Efficient Living Program (3 of 8)

Summary of kW Savings:

Public Housing Authority Efficient Living Program

Utility	Realized Gross kW Savings	Realized Net kW Savings*
Ameren	270	270
ComEd	179	179
Total	448	448

ADM

Efficient Living Program (4 of 8)

Methodology for Estimating Gross & Net Savings

- **Review of Documentation & Database**
  - Ex ante savings reviewed for reasonableness and accuracy
  - As-used baseline conditions were assessed by reviewing program baseline assumptions and testing the validity of those assumptions
- **Engineering Desk Review of Each Measure**
- **NTGR assumed to be 100% for all measures**
  - Program targets residents who would not have funded new energy efficiency measures on their own.

ADM

Efficient Living Program (5 of 8)

Process Evaluation Activities

- Data and Project Documentation Review
- Program Document Review
- Interviews with DCEO Staff
- Interviews with DCEO Implementation Partner Staff
- Surveys of Participants

ADM

Efficient Living Program (6 of 8)

Grant Recipient Satisfaction

Element of Program Experience	Very Satisfied	Somewhat Satisfied	Neither Satisfied nor Dissatisfied	Somewhat Dissatisfied	Very Dissatisfied	Don't Know	Average
Performance of the equipment installed	44%	56%	-	-	-	-	4.4
Savings on your monthly bill	22%	44%	11%	-	-	22%	4.1
Grant amount	56%	44%	-	-	-	-	4.6
The effort required for the application process	56%	33%	-	-	-	11%	4.6
Quality of the work conducted by your contractor	56%	33%	-	-	-	11%	4.6
Information provided by DCEO	56%	33%	-	-	-	11%	4.6
The elapsed time until you received the grant payment	44%	56%	-	-	-	-	4.4
Overall program experience	67%	33%	-	-	-	-	4.7

ADM

Efficient Living Program (7 of 8)

Key Process Evaluation Findings

- Grant Recipients Satisfied with the Program
- Distribution of Utility Funds Results in Fewer Resources for PHAs in Ameren's Service Territory
- PHA Decision Makers Respond Well to Word of Mouth Promotion
- Participants Value Information about Energy Efficiency Provided through Program

ADM

Efficient Living Program (8 of 8)

Recommendations

- Facilitate Collaboration among PHAs to Promote Additional Savings
- Promote Program Emphasizing Benefits to Residents
- Continue Outreach Targeting Southern Part of State

ADM

Lights for Learning Program

Lights for Learning Program (1 of 8)

Summary of kWh Savings: ***Lights for Learning Program***

Utility	Expected kWh Savings	Realized Gross kWh Savings	Gross Realization Rate	Realized Net kWh Savings	Net to Gross Ratio
Ameren	-	90,640	-	78,857	-
ComEd	-	512,793	-	446,129	-
Total	787,395	689,388	88%	524,986	95%

ADM

Lights for Learning Program (2 of 8)

Summary of kW Savings: ***Lights for Learning Program***

Utility	*Realized Net Peak kW Savings*
Ameren	7.34
ComEd	40.13
Total	47.47

Lights for Learning Program (3 of 8)

Program Overview

- Youth-oriented program that raises money for K-12 schools through the sale of energy efficient products including ENERGY STAR qualified CFLs, LED strands and nightlights, power strips, conserve sockets, and kilowatt meters.

Program Activities	Quantity Performed in PY
Participating schools and organization	176
Student fundraising	1,898
Energy efficiency products sold or distributed	22,654
Fundraisers	183
Presentations	284
Attendance	22,018

ADM

Lights for Learning Program (4 of 8)

Methodology for Estimating Gross & Net Savings

- **Review of Documentation**
- **Analytical Desk Review of Each Project**
  - Ex ante savings reviewed
  - ADM's engineering calculations for ex post savings
  - Ex ante savings not provided for conserve sockets, power strips, and kilowatt meters. No ex post savings calculated.
- **Telephone survey with sample of participants**
  - Used to calculate ISR, NTGR, process evaluation questions

ADM

Lights for Learning Program (5 of 8)

Process Evaluation Activities

- Data Review
- Program Document Review
- Interviews with DCEO Implementation Partner Staff
- Surveys of Participants

Lights for Learning Program (6 of 8)

Product Purchaser Satisfaction

Element of Program Experience	Very Satisfied	Somewhat Satisfied	Neither Satisfied nor Dissatisfied	Somewhat Dissatisfied	Very Dissatisfied	Don't Know	Average
The time it took to receive the products	46%	47%	-	2%	-	5%	4.4
The price of the products	41%	54%	2%	2%	-	2%	4.4
The performance of the products	51%	39%	3%	-	-	7%	4.5
Overall experience with the Lights for Learning® Program	54%	37%	3%	-	2%	3%	4.5

Lights for Learning Program (7 of 8)

Key Process Evaluation Findings

- Product Purchasers were Satisfied with the Program and the Products Purchased
- Staff Promote the Program in a Wide Variety of Ways
- Participants Motivated to Purchase Products to Support Schools/Students
- Program is Increasing Awareness of Benefits of Efficient Products
  - A sizable share of participants purchased products they had not previously used

ADM

Lights for Learning Program (8 of 8)

Recommendations

- Improve Tracking of Product Purchased Including Purchaser Contact Information
- Assume a 75% Installation Rate Rather than 90%
- Consider Additional Products
  - May be Some Interest in LED Bulbs Despite Cost

Building Operator Certification Program

Building Operator Certification Program (1 of 9)

Summary of kWh Savings: ***BOC Program***

Utility	Realized Net kWh Savings
Ameren	287,850
ComEd	1,343,298
Total	1,631,148

ADM

Building Operator Certification Program (2 of 9)

Summary of Therm Savings: ***BOC Program***

Utility	Realized Net Therm Savings
Ameren	167
Nicor	477
Peoples	48
North Shore	1,694
Total	167

ADM

Building Operator Certification Program (3 of 9)

Summary of kW Savings: ***BOC Program***

Utility	Realized Net kW Savings
Ameren	81.84
ComEd	381.90
Total	463.74

Building Operator Certification Program (4 of 9)

- **Program Summary:** BOC Program is a nationally recognized, competency based training and education program for building operators.
- Program participants attend the courses and complete projects to receive Level I or Level II certification.
  - Level I training: must complete 7 courses for 74 hours instructional time and 5 projects
  - Level II training: must complete 6 courses for 61 hours of instruction and three projects.

ADM

Building Operator Certification Program (5 of 9)

Summary of Participation: ***BOC***

Certification Level	Number of Graduates
Level I	112
Level II	7
Level I and Level II	3
Total	122*

**For purposes of savings extrapolation, participants who attended both Level I and Level II of the BOC training were treated as separate participants, because they received a tuition rebate for each level.*

ADM

Building Operator Certification Program (6 of 9)

Process Evaluation Activities

- Data Review
- Course Materials / Program Document Review
- Interviews with DCEO Implementation Partner Staff
- Surveys of Participants

ADM

Building Operator Certification Program (7 of 9)

Participant Satisfaction

Element of Program Experience	Very Satisfied	Somewhat Satisfied	Neither Satisfied nor Dissatisfied	Somewhat Dissatisfied	Very Dissatisfied	Don't Know	Average
Course instructors	69%	29%	3%	-	-	-	4.7
Course schedule	63%	34%	3%	-	-	-	4.6
Overall BOC Program experience	63%	37%	-	-	-	-	4.6
Time elapsed to receive tuition rebate	40%	29%	3%	-	-	29%	4.5

ADM

Building Operator Certification Program (8 of 9)

Key Process Evaluation Findings

- Participants were Satisfied with the BOC Course Relevance and Effectiveness
- MEEA Incorporates Quality Assurance Processes such as Course Surveys

ADM

Building Operator Certification Program (9 of 9)

Recommendations

- Consider Sharing Savings for Projects Prompted by the BOC Course that Receive Incentives
- Consider Real-time Project Tracking that Records Graduates Energy Saving Activities
- Consider Including an Online Component for Some Course Segments

ADM

Building Energy Code Compliance Program

Building Energy Code Compliance Program (1 of 5)

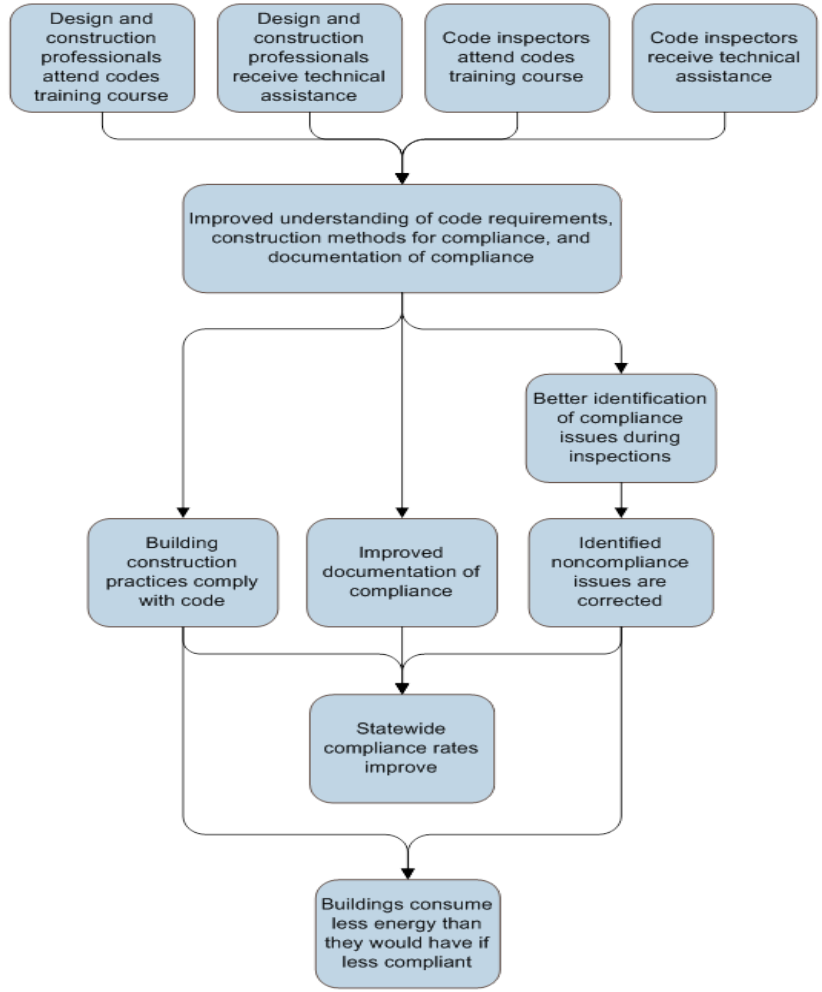
Process Evaluation Activities

- Course Materials / Program Document Review
- Review of Literature on Building Codes Programs
- Survey of Program Participants

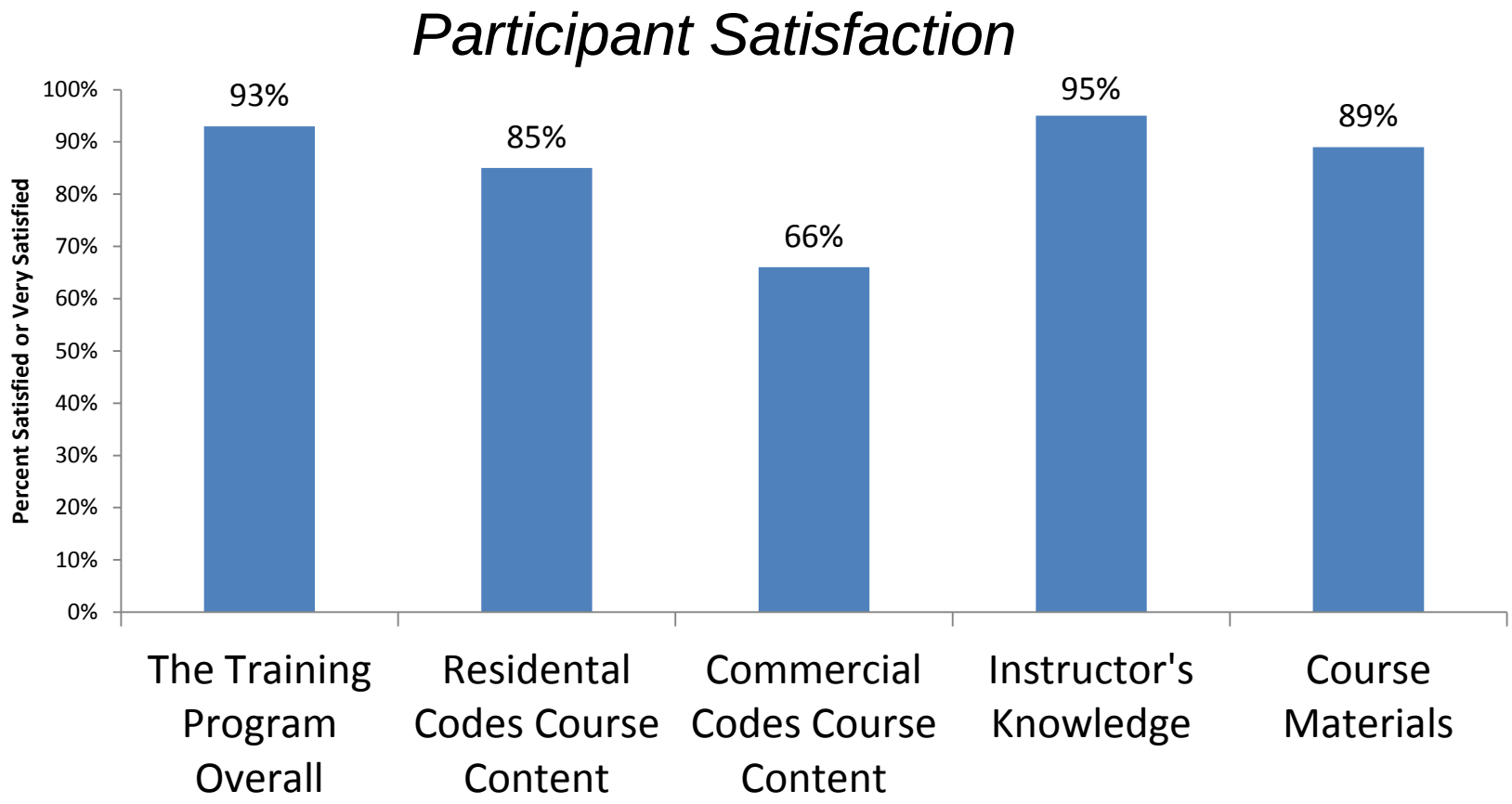
ADM

Building Energy Code Compliance Program (2 of 5)

Building Energy Code Compliance Program Logic



Building Energy Code Compliance Program (3 of 5)



Building Energy Code Compliance Program (4 of 5)

Key Process Evaluation Findings

- Course is Highly Valued by Participants
- Participants Satisfied Overall
  - Less satisfaction with coverage of commercial codes
- Participants Found Instructors to be Knowledgeable
- High Demand for the Course
- Participants use Other Code Compliance Resources but find the Program to be of Equal or Greater Value

ADM

Building Energy Code Compliance Program (5 of 5)

Recommendations

- Consider Increasing Number of Courses to Meet High Demand
- Consider Separate Courses Covering Commercial and Residential Codes
- Improve Promotion of Technical Assistance Provided

ADM