

**Commercial & Industrial
New Construction Service
EPY7 and GPY4 Evaluation Report**

FINAL

**Energy Efficiency/Demand Response Plan:
Plan Year 7/4
(6/1/2014-5/31/2015)**

**Presented to
Commonwealth Edison Company and Nicor Gas
Company**

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Prepared by:

Jake Millette
Opinion Dynamics Corporation

Laura Tabor
Navigant Consulting, Inc.



www.navigant.com



Submitted to:

ComEd
Three Lincoln Centre
Oakbrook Terrace, IL 60181

Submitted by:

Navigant
30 S. Wacker Drive, Suite 3100
Chicago, IL 60606

Contact:

Randy Gunn, Managing Director 312.583.5714 Randy.Gunn@Navigant.com	Jeff Erickson, Director 608.497.2322 Jeff.Erickson@Navigant.com	Robert Neumann, Assoc. Dir. 312.583.2176 Rob.Neumann@Navigant.com
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E. Executive Summary

This report presents a summary of the findings and results from the impact and process evaluation of the Commonwealth Edison (ComEd) and Nicor Gas New Construction Service. The program is part of ComEd and Nicor’s energy efficiency business programs, which is in its seventh electric program year and fourth natural gas program year (EPY7/GPY4).¹

E.1. Program Savings

Table E-1 summarizes the gross and net electricity and gas savings from the New Construction Service by utility. Unless noted, the results in this report include interactive effects.

Table E-1. EPY7/GPY4 Total Program Electric and Gas Savings

Utility	Metric	Ex Ante Gross Savings	Gross Realization Rate	Evaluation-Adjusted Gross Savings	NTGR	Verified Net Savings
ComEd	MWh	30,217	93%	28,027	0.59	16,536
	MWh without interactive effects	30,821	93%	28,620	0.59	16,886
	Total MW	6.65	102%	6.81	0.59	4.02
	Total MW without interactive effects	6.65	104%	6.93	0.59	4.09
	Summer Peak MW	6.65	86%	5.72	0.59	3.37
	Winter Peak MW	6.65	83%	5.54	0.59	3.27
Nicor Gas	Therms	392,503	73%	285,772	0.52	148,601
	Therms without interactive effects	493,679	74%	366,956	0.52	190,817

Source: ComEd tracking data and Navigant team analysis.

E.2. Impact Estimate Parameters

In the course of estimating verified gross and net savings, the evaluation team used a variety of parameters in its calculations. Some of those parameters were deemed for this program year and others were adjusted based on evaluation research. The key parameters and data sources used in the analysis are shown in Table E-2.

¹ The EPY7/GPY4 program year began June 1, 2014 and ended May 31, 2015. The New Construction Service has been in operation for six years, as it began in EPY2.

Table E-2. Impact Estimate Parameters

Parameter	Data Source	Deemed or Evaluated
Program Model Inputs	Program supplied building models and savings calculation spreadsheets†	Evaluated
Evaluated Model Inputs	Desk reviews of project documentation	Evaluated
Evaluated Model Inputs	Illinois TRM Version 3.0	Deemed
Evaluation Model Results	eQuest/DOE2.2, IEC, TRACE700	Evaluated
Realization Rate	Program savings and evaluated savings	Evaluated
NTG – Electric and Gas	SAG agreement ‡	Deemed

† The program continues to use the systems track spreadsheet to calculate savings for simple project calculations, such as lighting and HVAC.

‡ Source: ComEd_NTG_History_and_PY7_Recommendation_2014-02-28_Final_EMV_Recommendations.xlsx, which is to be found on the IL SAG web site here: <http://ilsag.info/net-to-gross-framework.html>

E.4. Program Volumetric Detail

As shown in Table E-3, the program had 57 participants in EPY7/GPY4, consisting of 26 ComEd-only projects and 31 completed as ComEd and Nicor Gas joint projects. Of those 31 joint projects, 21 had therm savings eligible for incentives paid by Nicor Gas. Projects incorporated a variety of measures, including lighting, HVAC equipment and controls and building envelope measures. The average size of projects continued to increase from past program years, both in terms of energy savings and square footage. In EPY7/GPY4 the average square footage per project increased to 217,609, a 45 percent increase from the previous year (149,879 sq. ft. per project). However, the average evaluated gross energy savings per project increased only slightly in EPY7/GPY4 to 492 MWh, from 466 MWh in the previous year. Average per project evaluated therm savings (without interactive effects) for those in Nicor service territory increased to 13,608 therms from 7,714 therms during EPY6/GPY3. These increases represent a 5 percent change in MWh savings and a 76 percent change in therm savings (compared to EPY6/GPY3) without interactive effects on average per project.

Table E-3. EPY7/GPY4 Volumetric Findings Detail

Participation	Count of Projects
ComEd Only	26
Joint (electric savings only)	10
Joint (electric and gas savings)	21
Joint (gas savings only)	0
Total	57

Source: ComEd tracking data and Navigant team analysis.

The New Construction Service has evolved over the past several program years and will continue to do so in the future. In conjunction with attracting larger projects, in EPY5/GPY2, the program transitioned from three incentive tracks (Systems, Comprehensive and Small Building) to a single performance-based model. Additionally, Nicor Gas stopped accepting new gas projects under the joint allocation approach in December of 2014 and shifted to a dollars-per-therm payment model in January 2015. Beginning in

EPY8/GPY5, Nicor Gas, Peoples Gas and North Shore Gas coordinated with the program by purchasing therm savings from projects in their respective territories.

E.5. Results Summary

The following table summarizes the key results from the EPY7/GPY4 evaluation.

Table E-4. EPY7/GPY4 Results Summary

Participation	MWh	MW		Therms	
		Total	Summer Peak		Winter Peak
Net Savings with interactive effects	16,536	4.02	3.37	3.27	148,601
Net Savings without interactive effects	16,886	4.09	--	--	190,817
Gross Savings with interactive effects	28,027	6.81	5.72	5.54	285,772
Gross savings without interactive effects	28,620	6.93	--	--	366,956
Program Realization Rate	93%	102%	86%	83%	73%
Program NTG Ratio †	0.59	0.59	0.59	0.59	0.52
Building Area Served (Sq. ft.)	12,403,685				
Projects completed	57				
Applications Received in EPY7/GPY4	87				
Projects in the Pipeline	161				

Source: ComEd tracking data and Navigant team analysis.

† Source: ComEd_NTG_History_and_PY7_Recommendation_2014-02-28_Final_EMV_Recommendations.xlsx, which is to be found on the IL SAG web site here: <http://ilsag.info/net-to-gross-framework.html>

E.6. Findings and Recommendations

The following provides insight into key program findings and recommendations.²

Verified Gross Impacts and Realization Rates

Finding 1. One project (0370) included the installation of two chillers to replace two existing chillers as part of a chilled water plant. The original analysis was based on the savings by comparing the efficiency of the installed equipment to the existing equipment. However, the removed chillers were nearing the end of their useful life.

Recommendation 1. The program should exercise caution when using existing equipment as the baseline for projects completed in this program. Existing equipment should only be used in cases where a strong case can be made that the existing equipment is in good condition, has significant remaining useful life and could continue to meet the demands of the customer going forward. Otherwise, a baseline of the applicable energy code should be used.

² Numbered findings and recommendations in this section are the same as those found in the Findings and Recommendations section of the evaluation report for ease of reference between each section.

Finding 2. The evaluation team found several projects where the baseline equipment used to model ex-ante savings was inconsistent with building performance guidelines recommended in Illinois as paths to meet building energy codes. For example, the window to wall ratio for one project (0314) was set at 48 percent, greater than the 40 percent maximum from ASHRAE 90.1 Appendix G or IECC Section C407. The program did not claim savings for the reduction in window area in this project as in past years; however, no tradeoffs were taken into consideration to account for the energy penalty for the excess window area.

Recommendation 2. We recommend that the implementation team ensures that projects consistently follow the approaches set forth in ASHRE 90.1 or IECC when measuring ex-ante program savings.

Finding 3. The evaluation team found inconsistencies with some projects that claimed savings based on fuel sources inconsistent with installed systems. In these instances, customers had altered their original designs to include different equipment and changed fuel sources. Though the implementation team included the fuel change in their energy model, savings were still claimed on the old fuel source.

Recommendation 3. We recommend using baseline systems that use the same fuel source as installed systems, regardless of the initial design or existing conditions. Alternatively, we recommend developing a procedure or protocol to evaluate fuel switching projects to ensure appropriateness.

Finding 4. Five projects in the EPY7 program calculate savings for lighting or other efficiency improvements using spreadsheets and not building energy models. These projects used either custom calculations or the Systems Track calculation workbook from prior years. Although not necessarily inaccurate, these calculations were inconsistent with the approaches and resulting savings set forth in the Illinois TRM. Additionally, these projects did not use the lighting default hours of operation from the Illinois TRM. Furthermore, the evaluation team made several minor adjustments to savings for lighting measures due to inaccuracies in either the lighting wattage or the associated building area. These inaccuracies appeared to be due to either estimating the lighting power density or due to extrapolating it based on a portion of the building.

Recommendation 4. We recommend that if a calculated approach is used, the implementation team should employ the method and default values provided in the Illinois TRM, unless more accurate site-specific information is available. Also, the implementation team should use caution when estimating or extrapolating lighting power densities from a limited portion of the building. If this approach is used, ensure that the lighting power density is checked in a variety of space types to improve accuracy.

1 Introduction

1.1 Program Description

The New Construction Service aims to capture immediate and long-term energy efficiency opportunities that are available during the design and construction of new buildings, additions and renovations in commercial buildings. The program is jointly offered by Commonwealth Edison (ComEd) and Nicor Gas. The ComEd program has been operating since June 1, 2009 (EPY2). Nicor Gas joined the program to offer natural gas rebates in June 2011 (GPY1). In December 2014 (GPY4), Nicor Gas stopped accepting new gas projects under the joint allocation approach and shifted to a “dollars per therm” payment model in January 2015. Beginning in EPY8/GPY5, Nicor Gas, Peoples Gas and North Shore Gas will coordinate with the program by purchasing therm savings associated with the projects in each of the gas company’s respective service territories. Seventhwave implements the program for ComEd and the gas companies by reaching out to design professionals and customers at the beginning of the design process. The implementation team provides technical assistance in building designs that reduces energy use beyond what is required by existing building codes and standards.

1.2 Evaluation Objectives

As described in the research plan, the evaluation of the New Construction Service for EPY7/GPY4 sought to answer several questions related to the program’s impacts and its implementation processes. These questions, broken into appropriate categories, are listed below.

1.2.1 Impact Questions

1. What are the gross energy and demand impacts?
2. What are the verified net impacts from the program using SAG-approved NTGRs?
3. Did the program meet its energy and demand savings goals?
4. What are the free ridership and spillover values to be used prospectively in the future program years?

1.2.2 Process Questions

1. What design or implementation changes, including changes to the programs’ marketing and outreach plan, occurred in EPY7/GPY4?
2. What challenges did the program face over the course of the program year and how did the program respond to them?

2 Evaluation Approach

This evaluation of the New Construction Service covers the sixth year of the program operation for ComEd and the fourth year for Nicor Gas. The impact evaluation work is utility-specific: the ComEd impact evaluation focuses on a sample of 26 EPY7 projects with electric savings, while the Nicor Gas impact evaluation focuses on a sample of 18 projects claiming gas savings. ComEd-only projects are those which do not fall within the Nicor Gas service territory, or do not claim gas savings. In subsequent program years, projects in Peoples and North Shore gas territories will also be eligible to claim their savings.

2.1 Overview of Data Collection Activities

Table 2-1 summarizes the primary data sources that the evaluation team used to answer impact, process and market effects questions for both the ComEd and Nicor Gas evaluations

Table 2-1. Primary Data Collection Activities

What	Who	Target Completes	Completes Achieved	When
In-Depth Interviews	Program Manager/Implementer Staff †	3	1	July 2015
Desk Review	Participants	26	26	August - September 2015
In-Depth Interviews	Participants	Census	30	May – October 2015

† The evaluation team conducted one interview with representatives from ComEd, Nicor Gas and Seventhwave, which built upon several meetings between the implementation team and evaluation team earlier in 2015.

Table 2-2. Additional Resources

Reference Source	Author	Application	Gross Impacts	Process
Program tracking database	Program implementer	Impact and Process Evaluations	X	X
Project narratives and correspondences	Program implementer	Impact and Process Evaluation	X	X
Building plans	Program implementer	Impact Evaluation	X	
Program marketing and outreach materials and events	Program implementer	Process Evaluation		X
Illinois Technical Reference Manual, Version 3.0	Vermont Energy Investment Corporation	Impact Evaluation: Gross Savings Estimates	X	
International Energy Conservation Code 2009	International Code Council	Impact Evaluation: Baseline Determination	X	
International Energy Conservation Code 2012	International Code Council	Impact Evaluation: Baseline Determination	X	

2.2 Verified Savings Parameters

The evaluation team calculated verified gross and net savings (e.g., energy, demand and coincident peak demand³) resulting from the EPY7/GPY4 New Construction Service using whole-building energy models to represent energy consumption for baseline and projected design scenarios. The estimated first year savings is the difference in annual electric and gas consumption between the two models. The energy performance baseline is the Illinois Energy Conservation Code for Commercial Buildings, which references and incorporates the applicable International Energy Conservation Code (IECC). This reference specifically allows for use of ASHRAE standard 90.1 as an alternate compliance method. The date of the construction permit is used to determine which version of the IECC is the most appropriate to use as baseline; however, the program assumes the appropriate baseline based on the date that the project applied to the program. Projects that applied prior to January 1, 2013 used the IECC 2009 as the baseline; those that applied after used the IECC 2012.

The following table presents the parameters that were used in the verified gross and net savings calculations and indicates which were examined through evaluation activities and which were deemed.

Table 2-3. Verified Savings Parameter Data Sources

Gross Savings Input Parameters	Data Source	Deemed † or Evaluated?
Program Model Inputs	Program supplied building models and Savings calculation spreadsheet‡	Evaluated
Evaluated Model Inputs	Desk reviews of project documentation	Evaluated
Evaluated Model Inputs	Illinois TRM Version 3.0	Deemed
Evaluation Model Results	eQuest/DOE2.2, IEC, TRACE700	Evaluated
Realization Rate – All Projects	Program savings and evaluated savings	Evaluated
NTG – Electric and Gas†	SAG agreement	Deemed

† Source: ComEd_NTG_History_and_PY7_Recommendation_2014-02-28_Final_EMV_Recommendations.xlsx, which is to be found on the IL SAG web site here: <http://ilsag.info/net-to-gross-framework.html>

‡ The program continues to use the systems track spreadsheet to calculate savings for simple project calculations, such as lighting and HVAC.

2.2.1 Verified Gross Program Savings Analysis Approach

The engineering analysis used existing building energy models listed in Table 2-3. The analysis included:

- 1) Adjusting the model inputs to match the as-built conditions identified in our review of the New Construction Service’s project files, and
- 2) Quantifying impacts by comparing two simulations representing the current building and the baseline building.

In cases where the implementation used a spreadsheet model for individual measures that are covered by the Illinois TRM, the team verified savings using the calculation approach dictated by the Illinois TRM.

³ The evaluation team estimated both summer and winter peak demand based on PJM’s peak periods.

The baseline building is one meeting (but not exceeding) the appropriate Illinois Energy Conservation Code for Commercial Buildings (this is to be distinguished from the IECC, the International Energy Conservation Code). The building codes used in the ex ante savings model were based on the codes in effect at the time of the application. Although, the applicable energy codes may change by the time the building permit is obtained, the evaluation team believes that this would likely be rare and the program’s approach of using the application date to determine the applicable building code is justifiable.

The evaluation team also calculated interactive effects, where applicable, for each fuel type. These are the resulting changes to savings that occur when the installation of one measure has a positive or negative effect on the savings for the other fuel type. The implementation team calculates savings for joint projects including interactive effects; however, the evaluation team also calculated savings both with and without interactive effects. *Unless noted, the results in this report include interactive effects.*

2.2.2 Verified Net Program Savings Analysis Approach

The evaluation team calculated verified net energy and demand (coincident peak and overall) savings by multiplying the verified gross savings estimates by a deemed net-to-gross ratio (NTGR). In EPY7/GPY4, the NTGR used to calculate the net verified savings was based on past evaluation research and established through a negotiation process completed by the SAG and documented on the SAG website.⁴

During the course of the EPY7/GPY4 evaluation, the evaluation team researched free-ridership and spillover using a real-time approach piloted in early EPY6/GPY3 and agreed upon as the preferred method for estimating free-ridership and spillover going forward. The methodology involves a two-step interview process to assess free-ridership and spillover at different stages of the project participation. Section 7.1.2.1 in the Appendix of this report provides additional detail on this real-time NTG methodology. Below, we provide an overview of how we calculate free-ridership and spillover.

2.2.2.1 Free-Ridership

Using a self-report method, the evaluation team measures free-ridership by assessing three different elements that are given a score based on participants’ answers to interview questions: Program Influence (PI), Program Components (PC) and Timing and Efficiency (PT). The PI element considers when in the design process participants signed up for the program. The PC element examines how much each of the program components influenced each individual projects’ efficient design. The PT score is reached by asking participants questions about when and if the same efficient design features would have been included in the project in the absence of the program. Section 7.1.2.2 of the Appendix contains detailed descriptions of these three elements, including the battery of free-ridership questions.⁵

⁴ Source: ComEd_NTG_History_and_PY7_Recommendation_2014-02-28_Final_EMV_Recommendations.xlsx, which is to be found on the IL SAG web site here: <http://ilsag.info/net-to-gross-framework.html>

⁵ In late 2015 and early 2016, the Illinois Evaluation Teams worked with the Illinois Stakeholder Advisory Group to create an Illinois Statewide Net-To-Gross Methodology. For interviews conducted for EPY8/GPY5 the evaluation team will use questions based on this statewide methodology.

2.2.2.2 Spillover

The evaluation team used a self-report method to quantify any spillover resulting from the program for EPY7/GPY4 participants. In addition, in our EPY6/GPY3 evaluation we assessed the potential for spillover arising from previous years' participants (EPY3 to EPY6) by administering online surveys to past program participants and training recipients from 2010 to 2014. The goal of the online survey was to flag potential cases of spillover to be targeted for follow-up interviews and desk reviews conducted by members of the evaluation team.

2.3 Process Evaluation

Given the program's maturity and historically high participant satisfaction, the EPY7/GPY4 process evaluation was limited to activities that provided information on participant characteristics, program implementation changes and program challenges.

2.3.1 Program Manager Interviews

The evaluation team conducted interviews with program management to collect information on EPY7/GPY4 program implementation changes and challenges for ComEd, Nicor Gas and Seventhwave. As in prior years, we conducted a group interview with representatives from all three organizations.

2.3.2 Program Participant In-Depth Interviews

The evaluation team collected and reviewed qualitative data from in-depth interviews with program participants to improve understanding of program processes and implementation. These interviews were conducted in conjunction with our net-to-gross research and were completed with participants that are currently in the pipeline and have moved past the program's reservation phase. We list verbatim responses to the process-related questions covered in these interviews in Section 0.

2.3.3 Review of Program Materials

The evaluation team reviewed new program documents, such as the updated program operations manual and the New Construction Service website, to assess any new approaches for EPY7/GPY4.

3 Gross Impact Evaluation

Participants completed 57 projects in the New Construction Service in EPY7/GPY4. The evaluation’s engineering desk review of a sample of 26 projects found minor discrepancies with some model inputs and ex ante savings calculations; however, for most of the projects in the sample, we made no adjustments to savings. Through our review, the evaluation team calculated realization rates with and without interactive effects. For MWh, the realization rate was 93 percent for both values and for MW the realization rates were 102 percent and 104 percent, respectively. For projects jointly administered by Nicor Gas, the therm realization rate was 73 percent for results both with and without interactive effects.

3.1 Program Volumetric Findings

The evaluation team reviewed the New Construction Service program tracking data for the projects completed in EPY7/GPY4. Table 3-1 presents the 57 project identified broken out by savings type and utility. Program participants completed a similar number of projects in EPY6/GPY3 (59) and the 161 projects in the pipeline indicates continued steady growth of the New Construction Service into EPY8/GPY5. Additionally, 37 percent of EPY7/GPY4 projects had representatives that have participated in the past. Repeat participation will likely increase as the program reaches out to more design professionals representing a growing share of the building design market in the greater Chicago area. Repeat participants, familiar with the program’s offerings, are also more likely to sign up and work with the implementation team earlier in the design process, allowing for greater savings opportunities. The program’s current outreach approach of focusing on cultivating existing relationships with developers and design professionals, while also identifying sources of new participants, therefore appears to be effective and is resulting in additional savings.

Key findings include:

1. Program participation remained consistent in EPY7/GPY4, from 59 projects in EPY6/GPY3 to 57 projects over the past program year. The number of projects jointly administered by Nicor Gas (as a percentage of all projects) increased slightly from 34 percent to 37 percent in EPY7/GPY4. Additionally, projects only claiming electric savings through the program decreased as a percentage of all projects from 46 percent in EPY6/GPY3 to 37 percent in EPY7/GPY4.
2. The average size of projects continued to increase in EPY7/GPY4. On average, the square footage per project increased from 149,879 in EPY6/GPY3 to 217,609 in EPY7/GPY4 and the average incentive per project increased from \$49,984 to \$58,999 over the same period.

Table 3-1. EPY7/GPY4 Volumetric Findings Detail

Project Description	Count of Projects
ComEd Only	26
Joint (electric savings only)	10
Joint (electric and therm savings)	21
Joint (therm savings only)	0
Total	57

Source: ComEd tracking data and Navigant team analysis.

3.2 Verified Gross Program Impact Results

The resulting total program verified gross savings are shown in Table 3-2 below. Table 7-1 in the Appendix shows the gross ex ante gross savings and evaluation-adjusted gross savings by project, including individual project realization rates, for the sampled projects. The verified gross savings meet 90/10 confidence, or better, for MWh, MW, and therms.

Table 3-2. PY7 Verified Gross Impact Savings Estimates by Measure Type

Utility	Metric	Ex Ante Gross Savings	Gross Realization Rate†	Evaluation-Adjusted Gross Savings	NTGR‡	Verified Net Savings
ComEd	MWh	30,217	93%	28,027	0.59	16,536
	MWh without interactive effects	30,821	93%	28,620	0.59	16,886
	Total MW	6.65	102%	6.81	0.59	4.02
	Total MW without interactive effects	6.65	104%	6.93	0.59	4.09
	Summer Peak MW	6.65	86%	5.72	0.59	3.37
Nicor Gas	Winter Peak MW	6.65	83%	5.54	0.59	3.27
	Therms	392,503	73%	285,772	0.52	148,601
	Therms without interactive effects	493,679	74%	366,956	0.52	190,817

† Source: ComEd tracking data and Navigant team analysis.

‡ Source: ComEd_NTG_History_and_PY7_Recommendation_2014-02-28_Final_EMV_Recommendations.xlsx, which is to be found on the IL SAG web site here: <http://ilsag.info/net-to-gross-framework.html>

4 Net Impact Evaluation

The NTGR values for this program are deemed prospectively and used to calculate verified net savings. Table 4-1 shows the deemed NTGR values and the EPY7/GPY4 verified net savings. The deemed NTGR values of 0.59 for electricity and 0.52 for gas were agreed to by stakeholders in discussions in the SAG.

Table 4-1. EPY7/GPY4 Verified Net Impact Savings Estimates by Utility

Utility	Metric	Evaluation -Adjusted Gross Savings	NTGR†	Evaluation Net Savings
ComEd	MWh	28,027	0.59	16,536
	MWh without interactive effects	28,620	0.59	16,886
	Total MW	6.81	0.59	4.02
	Total MW without interactive effects	6.93	0.59	4.09
	Summer Peak MW	5.72	0.59	3.37
	Winter Peak MW	5.54	0.59	3.27
Nicor Gas	therms	285,772	0.52	148,601
	therms without interactive effects	366,956	0.52	190,817

Source: Evaluation Team analysis

† Source: ComEd_NTG_History_and_PY7_Recommendation_2014-02-28_Final_EMV_Recommendations.xlsx, which is to be found on the IL SAG web site here: <http://ilsag.info/net-to-gross-framework.html>

5 Process Evaluation

For the process evaluation of EPY7/GPY4, the evaluation team conducted interviews with program administrators, implementers and current program participants⁶. Program staff reported few changes in the program design and implementation over the past program year. However, in December of 2014, Nicor Gas stopped accepting new gas projects under the joint allocation approach and in January of 2015 shifted to a “dollars per therm” payment model. Beginning in EPY8/GPY5, Nicor Gas, Peoples Gas and North Shore Gas will coordinate with the program by purchasing therm savings that are identified by ComEd.

Overall, the program is well-designed and continues to operate effectively and in accordance with the program model. Similar to past program years, participants report very high levels of satisfaction with the program and its staff, providing a satisfaction rating of 9 out of 10 on average. Below, we summarize several findings drawn from our process evaluation. In addition, we list some of the verbatim responses to the process-related questions covered in these interviews in Section 0.

5.1 Program Participation

The number of projects completed has remained consistent over the past two years. Fifty-seven projects were completed during EPY7/GPY4, compared with 59 projects in EPY6/GPY3. Similar to the past two program years, the program is focusing on admitting larger projects. The total square footage served by the program increased from 8,842,843 in EPY6/GPY3 to 12,403,685 in EPY7/GPY4. This translates to an increase of 67,730 sq. ft. per project on average over the past program year, from 149,879 sq. ft. per project in EPY6/GPY3 to 217,609 sq. ft. in EPY7/GPY4.

Of the 57 projects completed in EPY7/GPY4, 37 percent were repeat participants and 63 percent were involved with the program for the first time. Further, the number of building owners participating in the program with multiple ongoing projects has increased over the past year, from 15 percent of projects in EPY6/GPY3 to 23 percent in EPY7/GPY4. These projects serve owners of a single franchise who are building at multiple locations, most of whom are repeat customers. The evaluation team expects the percentage of repeat participants to continue to grow as more design professionals, architects, developers and owners operating in the greater Chicago market become increasingly familiar with the program and realize its value. Repeat participants provide several benefits to the program. Given their experience with the program, they require less instruction and education on the program’s benefits and processes. In addition, they are aware of the benefit of working with the program as early as possible in the design process.

While the number of projects in the Nicor Gas service territory remained consistent from EPY6/GPY3 to EPY7/GPY4 (32 and 31 respectively), the average therm savings per project increased substantially over the course of the two year period. Projects in gas service territory that were completed in EPY7/GPY4 saved an average of 16,087 therms, compared with 9,383 therms in EPY6/GPY3.

⁶ Program participants targeted for our in-depth interviews are those currently in the BNC pipeline and are at least in the program’s reservation phase.

5.2 Coordinating with LEED Processes

The New Construction Service has made considerable efforts to coordinate the program’s technical assistance component with the LEED certification requirements and processes. Program implementation staff work on a project-by-project basis with owners and design professionals seeking LEED credentials to help refine existing energy-models and to highlight ways for projects to achieve their LEED goals.

Of the 30 projects interviewed during EPY7/GPY4, 14 are in the process of applying for some level of LEED certification (a similar proportion to those interviewed for the EPY6/GPY3 evaluation). Participants in half of these projects indicated that the program helped them to achieve their LEED goals in some way. All seven of those projects mentioned that the program provided guidance on ways that design teams and owners could achieve their LEED goals, while representatives of only three projects mentioned that the energy model used for the program helped refine the existing model used for the LEED process. The apparent lack of influence of the program’s building performance modeling during the LEED process was largely due to the New Construction Service’s modeling not necessarily overlapping with the range of different modeling required by LEED. For example, in mixed-use and multifamily projects there was very little overlap in the whole-building modeling approach employed by the program and the LEED for Homes process, which necessitated modeling the space within each residential unit.

5.3 Marketing and Outreach

Program staff continued to receive high praise from program participants for the individual attention and custom recommendations throughout the outreach process in EPY7/GPY4. According to in-depth interviews with participants who have passed the program’s reservation phase, staff’s knowledge of energy-related issues and commitment to providing technical assistance specific to the design circumstances of each project are consistently cited as having high degrees of influence on the overall energy efficiency of projects admitted to the program.

Similar to previous years, very few program participants mention receiving any formal training offered through the program. This may be, in part, due to the growing number of participants that have repeatedly gone through the program and feel no need to attend some of the workshops offered by the program, or have attended training in previous program years. Additionally, though few participants report receiving formal training, most cite the one-on-one interactions from the implementation team as more informative and valuable than workshops or webinars.

6 Findings and Recommendations

This section summarizes the key impact and process findings by topic and offers corresponding recommendations for each.

6.1 *Verified Gross Impacts and Realization Rate*

Realization rates remained high in EPY7/GPY3, though there were some projects that required some adjustments to gross savings. While there were some common themes in the adjustments made to some projects' ex-ante savings estimates (e.g., baseline assumptions used) many were case specific.

Finding 1. One project (0370) included the installation of two chillers to replace two existing chillers as part of a chilled water plant. The original analysis based on the savings by comparing the efficiency of the installed equipment to the existing equipment. However, the removed chillers were nearing the end of their useful life.

Recommendation 1. The program should exercise caution when using existing equipment as the baseline for projects completed in this program. Existing equipment should only be used in cases where a strong case can be made that the existing equipment is in good condition, has significant remaining useful life and could continue to meet the demands of the customer going forward. Otherwise, a baseline of the applicable energy code should be used.

Finding 2. The evaluation team found several projects where the baseline equipment used to model ex-ante savings was inconsistent with building performance guidelines recommended in Illinois as paths to meet building energy codes. For example, the window to wall ratio for one project (0314) was set at 48 percent, greater than the 40 percent maximum from ASHRAE 90.1 Appendix G or IECC Section C407. The program did not claim savings for the reduction in window area in this project as in past years; however, no tradeoffs were taken into consideration to account for the energy penalty for the excess window area.

Recommendation 2. The evaluation team recommends that the implementation team ensures projects consistently follow the approaches set forth in ASHRE 90.1 or IECC when measuring ex-ante program savings.

Finding 3. The evaluation team found inconsistencies with some projects that claimed savings based on fuel sources inconsistent with installed systems. In these instances, customers had altered their original designs to include different equipment and changed fuel sources. Though the implementation team included the fuel change in their energy model, savings were still claimed based on the old fuel source.

Recommendation 3. We recommend using baseline systems that use the same fuel source as installed systems, regardless of the initial design or existing conditions. Alternatively, we recommend developing a procedure or protocol to evaluate fuel switching projects to ensure appropriateness.

Finding 4. Five projects in the EPY7 program calculate savings for lighting or other efficiency improvements using spreadsheets and not building energy models. These projects used either custom calculations or the Systems Track calculation workbook from prior years. Although not necessarily inaccurate, these calculations were inconsistent with the

approaches and resulting savings set forth in the Illinois TRM. Additionally, these projects did not use the lighting default hours of operation from the Illinois TRM. In addition, the evaluation team made several minor adjustments to savings for lighting measures due to inaccuracies in either the lighting wattage or the associated building area. These inaccuracies appeared to be due to either estimating the lighting power density or due to extrapolating it based on a portion of the building.

Recommendation 4. We recommend that if a calculated approach is used, the implementation team should employ the method and default values provided in the Illinois TRM, unless more accurate site-specific information is available. Also, the implementation team should use caution when estimating or extrapolating lighting power densities from a limited portion of the building. If this approach is used, ensure that the lighting power density is checked in a variety of space types to improve accuracy.

6.2 Process Evaluation

Finding 5. Projects that become involved in the New Construction Service earlier in their design process have more flexibility to implement energy saving measures recommended by program implementation staff and are more likely to experience greater benefit from the program. Therefore, early intervention in the projects is a critical part of the program theory and a priority for the implementation team as stated in the program guidance. Nevertheless, according to interviews with project representatives, 47 percent of the 30 projects included in the EPY7/GPY4 net-to-gross analysis signed up for the program late in the design process (i.e., after the schematic design for the project had been developed and finalized), while 3 percent were already in construction. Many interviewees indicated that they understand the benefits of applying to the program early on in the design process. While some project representatives only learned of the program later in the project design process, an increasing number of projects are represented by repeat participants. When lack of awareness was not the primary barrier to early participation, participants stated that convincing building ownership of the program's value could delay participation.

Recommendation 5. Program staff have made considerable efforts to reach and build relationships with those operating in the business new construction market in the greater Chicago area, but there are still design professionals who are unaware of the program and are, therefore, prevented from signing up until later in the design or construction process. The New Construction Service should continue to engage with building owners, developers and design professionals to educate them on the short- and long-term benefits of participating in the program.

7 Appendix

7.1 *Evaluation Research Impact Approaches and Findings*

7.1.1 Evaluation Research Gross Impact Findings

The researched gross program savings for sampled projects are presented in Table 7-1 below. Realization rates below 100 percent indicate that energy savings were adjusted downward; those above 100 percent indicate that the energy savings were adjusted upward; and, those equal to 100 percent indicate that no changes were made. Note that all savings values (kW, kWh and therm) include interactive effects.

Table 7-1: Researched Gross Savings for Sampled Projects

Project ID	Ex Ante kW	Ex Post kW	Realization Rate	Ex Ante kWh	Ex Post kWh	Realization Rate	Ex Ante therms	Ex Post therms	Realization Rate	Findings
38	-	71	N/A	268,663	268,663	100%	-	-	N/A	No changes to the analysis
128	401	462	115%	1,735,389	1,472,603	85%	-	-	N/A	<p>The savings for the chilled water plant upgrade were reduced. The baseline used was single speed cooling tower fans, instead of two speed as required by code. This reduces the savings by 11,000 kWh. Also, the claimed savings already have the penalties removed.</p> <p>In addition, similar to project 363, the claimed savings for this project did not include the savings for the heat recovery chiller measure, which did not receive any program incentives. The ex post savings reflect the savings including the interactive penalties (and no savings for the heat recovery chiller). This is the majority of the reduction for this project.</p>
241	22	22	100%	78,359	78,359	100%	-	-	N/A	No changes to the analysis

Project ID	Ex Ante kW	Ex Post kW	Realization Rate	Ex Ante kWh	Ex Post kWh	Realization Rate	Ex Ante therms	Ex Post therms	Realization Rate	Findings
294	1,161	430	37%	819,268	409,511	50%	-	-	N/A	<p>1) The ex ante analysis uses an electric heating baseline case for most of the measures, then converts to a gas baseline. No savings or penalty is given for this conversion. This is appropriate, however, because this change occurs after many of the other measures, the heating reductions for those measures are reflected in decreased electric usage. To be consistent with the methodology from ASHRAE 90.1 Appendix G, the baseline for this measure was set to gas heating, since the installed system is gas heating.</p> <p>2) The ex ante analysis uses DX cooling as the baseline. However, based on Appendix G, for a building of this size, a chiller is the appropriate baseline.</p> <p>3) The original analysis assumed a full load efficiency of 0.4 kW/ton instead of and integrated part load value of 0.4 kW/ton. The ex post analysis instead uses the rated full load kW/ton, but then changes the chiller to a VSD chiller to achieve the 0.4 kW/ton IPLV.</p>
314	265	400	151%	1,074,522	945,482	88%	-	-	N/A	<p>The constructed building has a 48% window to wall ratio. However, no penalty for this was taken in the original model. The ex post analysis sets the baseline to 40% window to wall ratio then increases it as a penalty on the first measure.</p>
332	27	28	102%	336,469	336,469	100%	-	-	N/A	No changes to the analysis
336	332	332	100%	1,867,369	1,867,369	100%	-	-	N/A	No changes to the analysis

Project ID	Ex Ante kW	Ex Post kW	Realization Rate	Ex Ante kWh	Ex Post kWh	Realization Rate	Ex Ante therms	Ex Post therms	Realization Rate	Findings
362	349	351	100%	822,759	674,439	82%	-	-	N/A	<p>The HVAC units were set to a constant dedicated air temperature of 55F. This was changed to reflect a 5F reset in the baseline case, which was increased to 10F in the efficient condition. This has a significant effect on the savings for this project since the units are very lightly loaded operating room units. Due to this light load, the units deliver more cooling than required due to the temperature and the minimum box positions resulting in excessive cooling. This is then offset by baseboard heating in the space. The addition of the reset lets the units more adequately meet the load, which results in reduced cooling and reheating.</p>
363	118	149	126%	152,171	211,495	139%	-	-	N/A	<ol style="list-style-type: none"> 1) The full load efficiency of the chiller was input at 10.2 kW/ton. However, based on the supplied spec sheet, the chiller full load efficiency was 9.6 kW/ton, only slightly better than code. However, the part load IPLV for the installed chiller was 18.5 kW/ton, significantly better than the 12.5 kW/ton required. No improvement to part load efficiency was considered in the original model. The change to the curve increases the chiller savings from approximately 3,000 kWh to approximately 75,000 kWh. 2) Based on the provided drawings, the installed LPD was slightly better than the LPD claimed in the model, at 0.78 instead of 0.82. Correcting this increases the project savings. 3) The savings in the tracking system are the savings after removing the interactive penalty. This is not consistent with the reporting for the other projects. Correcting these decreased the project's savings.

Project ID	Ex Ante kW	Ex Post kW	Realization Rate	Ex Ante kWh	Ex Post kWh	Realization Rate	Ex Ante therms	Ex Post therms	Realization Rate	Findings
370	36	320	889%	2,140,377	2,787,702	130%	97,129	-	0%	This project was changed due to two counteracting errors. First, the existing analysis used the existing equipment as the basis of comparison. However, the installed equipment was 20+ years old and near the end of useful life. This equipment was not the correct baseline for the new construction program. Therefore, the ex post analysis changed the baseline to two new code minimum chillers of the same size as the installed chillers. This increases the electric savings significantly, but removes the gas savings from this project.
392	91	79	87%	596,555	441,483	74%	31,609	32,989	104%	For this project, the original analysis assumed a 0.35 W/sf for the overall lighting power density, largely due to 0.2 W/sf in the guest rooms. However, based on a review of the project document this did not account for the plug in lamps, etc. that were being installed and should be included in the overall lighting design and lighting power density. Adding in these fixtures increases the LPD to 0.5 W/sf for these spaces and 0.59 W/sf overall.
400	12	12	100%	64,661	64,661	100%	889	889	100%	No changes to the analysis
438	14	-	0%	108,114	-	0%	-	-	N/A	The savings for this project were set to zero. The original analysis included lighting in tenant spaces even though minimal lighting is installed in tenant spaces. Based on that, it is assumed that the installed lighting is not the complete lighting design and the space lighting is expected to be provided by lamps or other tenant installed lighting. Therefore, the ex post analysis removed the tenant lighting and areas from the analysis. The remaining lighting and area resulting in an LPD of 0.89 W/sf, slightly greater than the IECC 2012 healthcare facilities, using the Advanced Lighting path.

Project ID	Ex Ante kW	Ex Post kW	Realization Rate	Ex Ante kWh	Ex Post kWh	Realization Rate	Ex Ante therms	Ex Post therms	Realization Rate	Findings
455	111	90	81%	885,611	861,155	97%	-	-	N/A	<p>The ex post analysis followed the same approach as the ex ante approach, with some minor changes. First, the area of level 2 was reduced from ~166k sq. ft. to ~159k sq. ft. This is because there was an area that was attributed to this floor that was being double counted with the roof, as it was "open" to the roof level. This change reduces the savings for the lighting by 14,454 kWh or 1.6%.</p> <p>Additionally, the ex ante analysis assumed a baseline LPD for the sign lighting of 3.59 W/sf, based on 60-400W MH fixtures being installed for a larger sign. This was then reduced to ~20.25-400W MH fixtures for the signs installed. The ex post analysis used the recommended light layout from Holophane for the sign sizes installed, which reduced the number of baseline fixtures from 20.25 to 15. This change reduces the savings by an additional 10,002 kWh, or 1.1% of the ex ante savings.</p> <p>Finally, the coincidence factor for the roof and sign lighting was set to zero since these fixtures only operate overnight.</p>
458	9	9	100%	39,765	39,765	100%	3,492	3,492	100%	No changes to the analysis
469	454	481	106%	1,129,384	1,007,741	89%	39,821	40,933	103%	No changes were made to this analysis. However, the ex ante savings did not include the negative electric savings for the rooftop monitors with continuous dimming controls. The ex post savings include those penalties, resulting in a slightly lower kWh realization rate
480	89	84	94%	762,003	712,090	93%	-	-	N/A	Based on the supplied plans, the proposed LPD was increased from 0.63 to 0.92 W/sf.

Project ID	Ex Ante kW	Ex Post kW	Realization Rate	Ex Ante kWh	Ex Post kWh	Realization Rate	Ex Ante therms	Ex Post therms	Realization Rate	Findings
496	158	42	27%	627,162	371,193	59%	-	-	N/A	<p>1) The operation of the lighting in the tenant space was reduced from the 2,166 hours assumed in the ex ante analysis to 938 hours per the Illinois TRM. Similarly, the common spaces were reviewed and based on the plans, many of the spaces are switched and likely to operate less than the 8,760 assumed in the ex ante analysis. Therefore, the hours of operation for the lighting in the common spaces was reduced from 8,760 hours to 5,950 hours per year, per the Illinois TRM.</p> <p>2) The area for the tenant spaces was reduced. Based on the supplied plans, approximately 47% of the area is not lit by the included overhead lights. Therefore, to be consistent with the Energy Star guidelines, no savings are credited for these spaces.</p> <p>3) The coincidence factor for the exterior lighting was set to zero since the lights are not expected to operate during the peak period.</p> <p>4) The analysis was updated to include the energy and demand interactive effects from the Illinois TRM.</p>
506	33	36	109%	274,283	312,918	114%	-	-	N/A	<p>1) The area was changed to include all areas in the building and the lighting for the originally excluded areas was added as well. This increase the savings by approximately 15%.</p> <p>2) The area for the drive was decreased from 8,000 sq. ft. to 7,000 sq. ft. based on measurements taken by Google Earth.</p> <p>3) The CF was set to zero for the drive lights and the roof lights, since these lights are not expected to operate during the peak period.</p>
518	118	125	106%	863,171	905,929	105%	-	-	N/A	<p>Based on the supplied plans, the proposed LPD was decreased slightly from 0.8 to 0.75 W/sf.</p>

Project ID	Ex Ante kW	Ex Post kW	Realization Rate	Ex Ante kWh	Ex Post kWh	Realization Rate	Ex Ante therms	Ex Post therms	Realization Rate	Findings
522	112	76	68%	823,818	558,265	68%	-	-	N/A	Based on the supplied plans, the proposed LPD was increased from 0.74 to 0.951 W/sf.
529	233	219	94%	900,108	831,728	92%	16,376	17,782	109%	Based on supplied plans, the proposed case LPD was increased from 0.31 to 0.35 W/sf. This decreased the savings for the efficient interior lighting measure but increased the savings for the occupancy sensor measure.
545	350	386	110%	879,784	986,420	112%	40,216	37,039	92%	Based on a review of the plans, the LPD was reduced from 0.75 to 0.68 W/sf, due to errors in fixture wattage and 75 fixtures being neglected from the original analysis.
557	200	149	75%	1,225,637	1,225,637	100%	25,692	25,692	100%	No changes to the analysis

Project ID	Ex Ante kW	Ex Post kW	Realization Rate	Ex Ante kWh	Ex Post kWh	Realization Rate	Ex Ante therms	Ex Post therms	Realization Rate	Findings
575	75	75	101%	658,623	654,386	99%	57,716	59,591	103%	<p>The savings for this project were calculated using a custom calculation methodology.</p> <ol style="list-style-type: none"> 1) The savings for the IR heaters was calculated using a custom approach. The savings were changed to reflect the savings from the Illinois TRM. 2) The ex ante analysis calculated the savings for the DCV measure using a space temperature of 65F. However, based on the information in the project file the warehouse is maintained at 60F. It should be noted that the TRM methodology for the DCV measure was not used since the TRM does not list a warehouse building type. 3) The ex ante analysis for the cooling used a baseline EER of 12.1 for VFD systems. However, per the manufacturer information, these units are single zone heat pumps and not VRF, so the baseline was changed to and EER of 13 per 90.1-2010. 4) The savings for the wall insulation were decreased due to changing the heating efficiency from 80% to 92% since the installed units are condensing IR heaters. In addition, the space temperature was also decreased as noted above. 5) The hours in heating and cooling conditions for wall insulation were changed to better match weather data.
589	212	170	80%	901,736	901,736	100%	8,421	8,421	100%	No changes to the analysis
38	-	71	N/A	268,663	268,663	100%	-	-	N/A	No changes to the analysis

7.1.2 Evaluation Research Net Impact Findings

7.1.2.1 *Net-to-Gross Methodology*

NTG research methods in EPY7/GPY4 combine participant and service provider survey results. Research for both groups uses a self-report method where participants and trade allies answer questions about the program. The participant survey instrument asks about awareness of the measures identified and their inclination to pursue corrective actions for those measures absent the program. Discussion in April 2013 between program implementation staff and the evaluation team inspired a new “real-time” approach for deriving the NTGR, the goal of which is to capture data as projects progress through the stages of participation. This methodology included the following components:

- 1) **Documentation Review.** The evaluation team will begin by reviewing the documentation on each sampled project provided by Seventhwave to identify potential points of influence. This component will include:
 - a. Reviewing email correspondence for indications of program influence
 - b. Reviewing building plans from throughout the project’s participation to identify changes in efficiency throughout the construction process
 - c. Discussing the project with Seventhwave to confirm areas where Seventhwave believes the program was influential
- 2) **Post-Reservation Interview.** Once a sampled project reaches the reservation stage, Seventhwave will provide the evaluation team contact information for key decision makers and the team will conduct a post-reservation interview within 30 days or as soon as possible. We will also incorporate customized questions for each project linked to the points of influence identified in the documentation review. The team will use the in-depth interview guide used in the “real time” NTGR interviews piloted in 2013.
- 3) **Post-Verification Interview.** Once the project is complete, we will conduct a post-verification interview. This interview will check for program influence not captured in the first interview. For example, in the first interview the participant may not have realized the role the program’s incentives or technical assistance would play in maintaining energy efficient design elements throughout the project. During these interviews, the team will also collect process data.

7.1.2.2 *Net-to-Gross Algorithm*

The net analysis creates a ratio to account for attribution of the program activities in the gross savings results—that is, it identifies how much of the gross savings are due to program activities. Our NTGR analysis of the program’s energy impacts progressed through three stages.

The researched NTGR for EPY7/GPY4 is based on in-depth interviews with representatives from program participants that are either decision-makers themselves, or have some insight into the project’s design or the decision-making process. As noted in Section 7.1.2.1, the evaluation team conducted interviews with representatives of participating projects at two different times in the project’s timeline. In some cases, our team spoke with several different representatives from projects’ design and ownership teams.

Interviewees were asked a battery of questions about how the program influenced the project’s design and the relative efficiency of the project had the program not been available. Responses to our NTG questions are used to calculate three different scores, which, in turn, are used to calculate project-specific free ridership (FR) and NTGR. Each of these scores, the corresponding questions used to calculate them and the overall equation for determining our NTGR is provided below in Table 7-2. Furthermore, guides for in-depth interviews with participants (both post-reservation and post-verification) are included in this appendix and can be found in Section 7.1.2.3.⁷

Table 7-2: Net-to-Gross Analysis Plan (Free Rider Question Concept Map)

$$NTGR=1 - FR, \text{ where } FR = PI * ((PC+PT)/2)$$

Concept	Question	Algorithm Notes
Program Influence (PI score)	FR7	<ul style="list-style-type: none"> Customers who learned about the program after construction documentation or during construction phase are full Free Riders. All others PI scores are based on FR5 or FR9. If data collected through the IDI contradicts the assumptions regarding the phases made above, the PI scores are based on FR5 or FR9.
Program Components (PC score)	FR8 a-gg	<ul style="list-style-type: none"> The max influence score is taken from across these items and counts as the PC score.
Program Timing and Efficiency (PT score)	FR11	<ul style="list-style-type: none"> The max of these three will become the base PT score which may be increased by the additive items (FR13 and FR14) below.
	FR12	<ul style="list-style-type: none"> In all cases the final PT score will be reversed to keep it aligned with the other concepts.
	FR10	<ul style="list-style-type: none"> FR10 is factored into the PT score, however, it is not reversed.
	FR13	<ul style="list-style-type: none"> These items each add either 10% or 20% to the base PT score for a possible additive range of 0 to 40%. If the respondent states that the counterfactual was “not at all likely” (score of 0-2) then the additive is 20%; if the score is 3-5, then the additive is 10%. As FR cannot fall below 0, when additives created a negative per-project FR, the value was adjusted to 0.
Additives	FR14	

7.1.2.3 Researched Net-to-Gross Findings

Over the past two evaluation cycles, our net-to-gross interviews reached participants representing 57 unique projects, accounting for roughly 48 percent of ex post gross kWh impacts, 64 percent of ex post gross KW impacts and 47 percent of ex post gross therm impacts of EPY7/GPY4 projects.⁸ Additionally, we have interviewed participants representing 22 percent of ex ante gross kWh impacts, 19 percent of ex ante kW impacts, and 28 percent of ex ante therm impacts of post-EPY7/GPY4 projects in the pipeline as of December 2015. To obtain overall NTGR, the project-level NTGR values were weighted by ex ante gross kWh savings and gross Nicor Gas therm savings (for joint projects, using savings without interactive effects).⁹ The results of our analysis are included in Table 7-3 below.

The researched NTGRs presented in Table 7-3 were developed using the “real-time” approach described in Section 7.1.2.1, for which the evaluation team conducts interviews with program participants both after each project passes the reservation phase and again after it passes the verification phase. The NTGR

⁷ In late 2015 and early 2016, the Illinois Evaluation Teams worked with the Illinois Stakeholder Advisory Group to create an Illinois Statewide Net-To-Gross Methodology. For interviews conducted for EPY8/GPY5 the evaluation team will use questions based on this statewide methodology.

⁸ As part of the “real-time” NTG interviewing approach, our team interviews project contacts at the beginning of the project. Because commercial new construction projects can take a year or longer to complete, many of the interviews we conducted in EPY6/GPY3 completed construction and claimed savings in EPY7/GPY4. Similarly, many interviews conducted in EPY7/GPY4 will claim savings in future years.

⁹ Only one NTGR was calculated per project. Overall NTGR was calculated by weighting each project’s NTGR by its relative contribution to total electric or Nicor Gas therm savings.

presented below are based upon the 30 first round interviews completed in EPY7/GPY4. In addition, we completed 17 second round interviews, 12 of which were projects included in the NTGR presented in the EPY6/GPY3 evaluation report. There were no changes in any of the components outlined in Section 7.1.2.2 and no incidences of program attributable spillover. The evaluation team, therefore, recommends that the researched values below be used as the deemed NTGRs for calculating net savings for EPY9/GPY6.

Table 7-3: Researched Net-to-Gross Findings

	NTGR†
kWh/kW	0.77
Therm	0.57

Source: Navigant team analysis.

7.2 Data Collection Instruments

7.2.1 Participant In-depth Interview Guide (Post-Reservation)

Purpose

This in-depth interview guide will be used shortly after the project reaches the Reservation Phase. This interview asks questions about the participant’s experience with the program so far, including the start of the project, the program’s technical assistance and its influence on the project’s design and planned measures. Many of these questions will be used as a baseline for the second interview conducted following the Verification Phase. Comparing responses between the two interviews will help to identify which questions may only need to be asked once in the future as well as when they should be asked.

This interview will be used to attribute the effects of the New Construction Service on the projects under the purview of the respondent. It will also support the process analysis for this program. They will be performed by Navigant and Opinion Dynamics analytical staff via the telephone. We will call the primary contact person as provided by Seventhwave, but it may be necessary to expand our calls to include other individuals within the project if it appears that others were highly involved in the decision-making process. The numbered questions in this depth interview guide will definitely be asked, while non-numbered questions are prompts for the analyst to help ensure a complete response that adequately addresses the purpose of the numbered question. As such, not all questions in this guide will be asked as written.

Respondent name:	
Respondent phone number:	
Respondent title:	
Respondent type: (circle one):	Developer/owner, A&E Design Professional, Other
Company name:	
Project (in sample)	
Utility	ComEd only ComEd/Nicor Joint
In Nicor Service Territory	Yes No Don't Know
Incentive Amount	
EE Equipment incented	
Interviewer:	
Date:	
Time Start:	

Introduction

Thank you for taking the time to talk with me today. The Opinion Dynamics [If joint participant, “and “Navigant”] evaluation team is currently conducting a study for ComEd [If joint participant, “and Nicor Gas”]. There are two aims of this interview: first, we’d like to get your perspective on the New Construction Service and find ways to improve it as much as possible; and second we’d like to understand the decision-making around the energy efficient design and equipment that went into the

[PROJECT NAME] project. We'd like to get your insight by asking you some questions that should take about 30 minutes.

Role on Program Projects

Throughout this interview when I ask about the "program" or "New Construction Service" please consider your experience with the Seventhwave, ComEd, [If joint participant, "Nicor Gas"], or any combination of these as they relate to the [PROJECT NAME].

1. Please tell me about your involvement in the New Construction Service. Specifically:
 - How long have you been working with the program in relation to the [PROJECT NAME] project?
 - What is your role on the project and what are you responsible for?
 - Could you give me a brief overview of the [PROJECT NAME] project?

2. Are you involved now or were you involved in other projects that have participated in the New Construction Service?
 - Please give me a brief overview of those project(s).

3. We know there are several people involved in the project, but who is the main decision-maker for choices regarding the energy efficiency of the building design and equipment?
 - [IF NOT THE INTERVIEWEE, TAKE NAME AND CONTACT INFORMATION OF MAIN DECISION-MAKER.]
 - [IF NOT THE INTERVIEWEE, CONFIRM INTERVIEWEE HAS GOOD PERSPECTIVE ON THE DECISION-MAKING.] Although you are not the main decision maker, do you think you can still provide a lot of the rationale for choices regarding the energy efficiency of the building design and equipment?
 - [IF THE INTERVIEWEE LACKS GOOD PERSPECTIVE ON THE DECISION-MAKING, EXPLORE PROCESS QUESTIONS TO THE EXTENT POSSIBLE.]

Project Background

4. Program records show that the program is planning to offer [INSERT INCENTIVE AMOUNT] in incentives for the [INSERT PROJECT NAME] project. Does this sound about right?

5. [ASK A or B IF ENERGY MODEL WAS DEVELOPED] Program records also show that:
 - A. the program provided energy modeling or calculations for the project before one existed for the project. Is that true?
 - B. the program helped refine an existing energy model or calculations. Is that true?

- (If necessary, “This would have been a computerized whole-building energy model Seventhwave used to represent the building energy consumption for a baseline design scenario and the energy efficient design scenario in order to highlight potential savings through system interactions.”)
- 6. Is this project intended to be a LEED project? (If no, “Was it ever intended to be at an earlier point in the design?”)
- 7. Were items cut from the project to control up-front project costs? (i.e., value engineering)?
 - (If no, follow up with, “Were design items ever cut due to budget shortfalls?”)

NET-TO-GROSS (Attribution) SECTION

Free Ridership Factor (FR)

Now I’d like to ask a few questions about the design process that resulted in the energy efficient design or installations (i.e., HVAC, envelope and lighting) that will be incented by the program. We need to understand how you (and your client) thought about energy efficiency and what influenced you (and your client) to incorporate energy efficient design or installations into this project.

- FR1. So first could you give me an overview of how the energy efficient design or installations incented by the program were initiated? What were the main reasons they became or have stayed a part of this project?
- FR1a. What were the roles of natural gas and electricity prices in the decision-making around energy efficient design or equipment if any?
- FR1b. The program records show that the following types of measures are planned into the project and the program provided the following technical assistance. [READ MEASURES/ASSISTANCE] Is this correct? Were any other measures included or assistance provided?
- FR2. Now could you give me an overview of the influence, if any, of the program on the energy efficiency components of the building design?
 - What are the main ways the program has helped you bring energy efficiency into the project, if any?
 - [If nothing specific described, then ask] Can you provide me with specific examples of the ways the program helped bring energy efficiency into the project?
 - How would the energy efficiency of the project be different if it had not been submitted to the program?
- FR3. Would you say you have worked with the program staff more around changes to design or changes to specific equipment? We know that design changes often mean equipment changes, but simple equipment changes do not tend to have extensive changes in design (if any).

[NOTE: we need to then ask the attribution questions in line with the answer to this question, i.e., a design change or equipment changes (by Measure #1, Measure #2).]

[ASK FR3a IF LEED PROJECT]

FR3a. Since the project is intended to meet LEED standards, we are interested in knowing how the program may have helped support or enhance the LEED goal. Please answer yes or no to the following questions.

- i. Did the program help to refine an existing energy model?
- ii. Did program staff provide technical assistance that highlighted ways to achieve LEED design plans?
- iii. Did program incentives or technical assistance help the project to receive more energy and atmosphere credits than was originally planned?

[SKIP IF KNEW ABOUT THE PROGRAM FROM PREVIOUS PROJECT]

FR7. When did you first learn about the New Construction Service and the incentives available for energy efficient installation and design? Was it during the...

1. pre-design?
2. schematic design?
3. design development?
4. construction documentation? (Total free rider, SKIP TO SO1)
5. construction phase? (Total free rider, SKIP TO SO1)
8. Don't know

FR7b. And in what phase is the project now?

1. pre-design?
2. schematic design?
3. design development?
4. construction documentation?
5. construction phase?
8. Don't know

FR7c. When do you anticipate construction will be complete for this building?

FR8. Next, I'm going to ask you to rate the influence of the program as well as other factors that might have influenced the decision to include the [*per FR3*: energy efficient design/Measure #1] that will be incented by the program. Please think of a scale from 0 to 10, where 0 means 'no influence at all' and 10 means 'extremely influential'. If something did not pertain to your project please let me know. [FOR FR8a-g, RECORD 0 to 10; 96=Not Applicable; 98=Don't Know; 99=Refused]

(If needed: "How influential was/were _____ in the DECISION to include the energy efficient design/Measure #1 in the project(s)?)

Q	Question	Response
FR8a	[ASK IF PARTICIPANT ATTENDED TRAINING] Training sponsored by the program	
FR8b	The availability of financial incentives	
FR8c	The program's technical assistance and building performance modeling	
FR8d	Recommendations from a program representative	
FR8e	Program information from program forms/website	
FR8f	Program outreach including Lunch & Learns, press releases, email or phone calls from Seventhwave	

FR8g. Were there any other program factors we haven't discussed that were influential in the decision to [per FR3: use this design/install Measure #1]?

1. Yes; "please specify": _____
96. Nothing else influential
98. Don't Know

[ASK IF FR8g = YES]

FR8gg. Using the same zero to 10 scale, how would you rate the influence of this factor on the decision to [per FR3: use this design/install Measure #1]? [RECORD 0 to 10; 98=Don't Know]

[ASK IF VALUE ENGINEERING HAS OCCURRED OR IS ANTICIPATED]

FR10. How influential, if at all, do you think the program (i.e., incentives, ComEd [if joint participant, "and Nicor Gas"] or Seventhwave recommendations) was/will be in keeping [per FR3: energy efficient design/Measure#1] on the table when aspects of the original design were being cut to control costs? Please use a 0 to 10 scale where, where 0 is "Not at all influential" and 10 is "Extremely influential." [RECORD 0 to 10; 98=Don't know, 99=N/A]

Now I want to ask you a few questions about how this project may have been different if the program had not existed.

FR11. Using a likelihood scale from 0 to 10, where 0 is "Not at all likely" and 10 is "Extremely likely", if the program had not existed, what is the likelihood that the project would have included the same level of energy efficiency in the [per FR3: design/ Measure #1]? [RECORD 0 to 10; 98=Don't know]

FR12. Using the same scale from 0 to 10, where 0 is "Not at all likely" and 10 is "Extremely likely", if the program had not existed, what is the likelihood that the project would have included [[per FR3: the same number of energy efficient design features in the final project/ the same number of energy efficient (Measure #1)]? [RECORD 0 to 10; 98=Don't know]

[ASK IF SEVENTHWAVE DEVELOPED THE FIRST ENERGY MODEL FOR THE PROJECT]

FR13A. Using the same scale from 0 to 10, where 0 is "Not at all likely" and 10 is "Extremely likely", if the program had not existed, what is the likelihood that an energy model would have been used as a design tool? [RECORD 0 to 10; 98=Don't know]

[ASK IF SEVENTHWAVE HELPED REFINE AN EXISTING ENERGY MODEL]

FR13B. Using the same scale from 0 to 10, where 0 is “Not at all likely” and 10 is “Extremely likely”, if the program had not existed, what is the likelihood that the final energy model would have included as many efficiency savings as it did? [RECORD 0 to 10; 98=Don't know]

FR14. And using the same scale from 0 to 10, where 0 is “Not at all likely” and 10 is “Extremely likely”, what is the likelihood that independent, third party data supporting the design vision would have been available if the program had not been involved in this project? [RECORD 0 to 10; 98=Don't know; NOTE: This could include financial and energy data]

[For projects with multiple measures ask:]

FR15. Now I'd like to ask you about [Measure #2]. In terms of how the program or other factors influenced its selection or installation, would you say that this measure reflected the same or nearly the same decision-making as [Measure #1]?

1. Yes (Continue to Process Section)
2. No (Ask FR16)

FR16. [If measure 1 and 2 are different fuels] Did the fuel type (electricity or natural gas) of [Measure #2] affect the decision-making at all?

1. Yes (Ask FR5 to FR14 for Measure #2)
[If so] How?
2. No (Ask FR5 to FR14 for Measure #2)

Process Section

Awareness of Program

8. How did you first hear about the New Construction Service?

Motivation to Participate

9. Why did you or your team decide to participate in the program?

- [If necessary] Who on your team first decided to participate in the program?

10. What was your team's initial perception of the program?

- What did they believe to be valuable about participating in the program?

11. Has your team's perception of the program changed as you participated in it?

- [If so] How?

Satisfaction

12. Overall, how satisfied are you with the program so far? Please use a scale where 0 is 'not satisfied at all' and 10 is 'extremely satisfied'.

- [If <7, ask] Why are you not more satisfied with the program?

Training

13. Have you or any of your colleagues attended any program-related training events, such as classroom events, webinars or lunch and learns hosted by Seventhwave?

[ASK IF THEY HAVE NOT ATTENDED]

14. Are you aware of any training events available through the program?

[ASK IF AWARE OF, BUT NOT ATTENDED A TRAINING EVENT]

15. Why have you or any of your colleagues not attended any training events? Under what conditions might you or any of your team members attend one in the future?

[ASK IF ATTENDED]

16. How did you hear about the event?

17. Did you attend the first training before or after you had submitted a project to the program?

18. Did you learn anything in the training that helped you design or build energy efficiency into the project? If so, please describe.

- [If interviewee is connected with other program projects, ask] How about for other projects? Did you share anything you learned with your workplace colleagues?

Program Processes

19. Have the program requirements been clearly explained to you?

20. Are there any ways you think the program can explain requirements or participation more clearly to participants in the future?

21. Do you think there are any requirements the program should adjust or change?
- If so, which ones and how?

22. Did you fill out the program application for the project? If so, what do you think of it?
- Do you have any suggestions for how to improve it?

23. How would you describe your experience with the technical assistance component of the program?
[If necessary, "Technical assistance refers to the range of analysis, advice and support Seventhwave

provided and may have included energy modeling; design assistance; technology and system recommendations; and an analysis of preliminary savings estimates and incentive levels.”

- Do you have any suggestions for how to improve it?

24. Could you describe the program staff’s knowledge of energy efficient design?

[ASK IF ENERGY MODEL WAS DEVELOPED]

25. Could you describe the role the program’s whole building energy modeling (simulation) played in your project?

26. Throughout your involvement with the program, has your communication with program staff been what you wanted?

- If no, what were your expectations for communication with program staff and how did communication differ from your expectations?

27. When you called or emailed staff, did they respond to you quickly?

28. Were they able to communicate with you effectively?

Alignment of Program Design with Participant New Construction Practices

29. Based on how you normally conduct your **business** in the new construction industry, which aspects of the program did you find:

- Especially valuable? Why?
- Especially efficient or smooth? Why?
- Especially difficult or tedious? Why?

30. Based on your standard new construction **design processes**, which aspects of the program did you find:

- Especially valuable? Why?
- Especially efficient or smooth? Why?
- Especially difficult or tedious? Why?

31. Is the evaluation of energy efficiency a component of your standard new construction design process? If so, how?

32. At what point in your standard new construction design process do you consider participating in energy efficiency programs?

33. If you were to participate in the program again, do you think you or your project team would contact the program earlier in the design process? Why or why not?

34. Considering future projects, how could the program engage you or your peers in the new construction industry earlier during the project's pre-design phase?

35. Will you use Seventhwave for future projects? If not, why not?

CLOSING SECTION

36. Is there anything else that you would like to let us know based on the topics we covered today, including any ways to improve the program if possible or how the program has affected your use of energy efficient measures or design in projects?

37. As part of this study, the evaluation team may seek to inspect the facilities and equipment for which the program incentives were received. Is there a site-level staff person you can refer me to who might be able to work with the evaluation site lead? This might be a facilities manager or a site engineer?

Name

Role

Contact Information

On behalf of ComEd (If joint project, "and Nicor Gas"), we thank you for your time today. If in reviewing my notes, I discover a point I need to clarify, is it all right if I follow-up with you by phone or email?

Time End

7.2.2 Participant In-depth Interview Guide (Post-Verification)

Purpose

This in-depth interview guide will be used following the Verification Phase. Participants will have already been interviewed shortly after the Reservation Phase. This interview asks many of the same questions as the first interview to verify or update the original responses. Comparing responses between the two interviews will also help to identify which questions may only need to be asked once in the future as well as when they should be asked.

As with the first interview, this interview will be used to attribute the effects of the New Construction Service on the projects under the purview of the respondent. It will also support the process analysis for this program. They will be performed by Navigant and Opinion Dynamics analytical staff via the telephone. We will call the primary contact person we interviewed after the reservation phase. If this contact is not with the firm anymore, we will ask the contact or SEVENTHWAVE for a new contact to interview. The numbered questions in this depth interview guide will definitely be asked, while non-numbered questions are prompts for the analyst to help ensure a complete response that adequately addresses the purpose of the numbered question. As such, not all questions in this guide will be asked as written.

Respondent name:	
Respondent phone number:	
Respondent title:	
Respondent type: (circle one:)	Developer/owner, A&E Design Professional, Other
Company name:	
Project (in sample)	
Utility	ComEd only ComEd/Nicor Joint
In Nicor Service Territory	Yes No Don't Know
Project Type (circle one:)	System Comprehensive
Incentive Amount	
EE Equipment incented	
Interviewer:	
Date:	
Time Start:	

Introduction

Thank you for taking the time to talk with me today. The Opinion Dynamics [If joint participant, “and “Navigant”] evaluation team is currently conducting a study for ComEd [If joint participant, “and Nicor Gas”]. This interview is a follow up to our conversation in the Fall of 2013. I would like to ask you about the decision-making around the energy efficient design and equipment that went into [PROJECT NAME] project and any changes in the project since we last spoke. We’d like to get your insight by asking you some questions that should not take any longer than about 30 minutes.

Many of the questions I have are similar to what we discussed in our first conversation, but I am interested in learning if your experience has changed over the course of the project.

Role on Program Projects

Throughout this interview when I ask about the “program” or “New Construction Service” please consider your experience with the Seventhwave —“SEVENTHWAVE”, ComEd, [If joint participant, “Nicor Gas”], or any combination of these as they relate to the [PROJECT NAME].

- 38. Has your involvement in the New Construction Service changed at all since the reservation phase?
[If needed, probe for current role and responsibilities.]

- 39. Are you involved now or were you involved in other projects in this program?
- Please give me a brief overview of those project(s).

- 40. When we last spoke, you identified [NAME/yourself] as the primary decision maker for this project?
Has this changed at all since the reservation phase?
- [IF NOT THE INTERVIEWEE, TAKE NAME AND CONTACT INFORMATION OF MAIN DECISION-MAKER.]
- [IF NOT THE INTERVIEWEE, CONFIRM INTERVIEWEE HAS GOOD PERSPECTIVE ON THE DECISION-MAKING.] Although you were not the main decision maker, can you still provide a lot of the rationale for choices regarding the energy efficiency of the building design and equipment?
- [IF THE INTERVIEWEE LACKS GOOD PERSPECTIVE ON THE DECISION-MAKING, EXPLORE PROCESS QUESTIONS TO THE EXTENT POSSIBLE.]

Project Background

- 41. Program records show that the program provided [INSERT INCENTIVE AMOUNT] in incentives for [INSERT PROJECT NAME] project. Does this sound about right?

- 42. In our previous conversation, you said that the project [WAS/WAS NOT] intended to be a LEED project. Did the project end up receiving LEED certification?

NET-TO-GROSS (Attribution) SECTION

Free Ridership Factor (FR)

In our previous conversation, you answered a number of questions about the design process that resulted in the energy efficient design or installations (i.e., HVAC, envelope and lighting) that were incented by the program. The next set of questions will help us see if there have been any changes to your decision making process and, if so, what influenced you (and your client) to incorporate energy efficient design or installations into this project.

- FR1. Could you first give me an overview of how the energy efficient design or installations incented by the program that changed over the course of the project? What were the main reasons they changed? [PROBE FOR ANY CHANGES FOUND IN PROJECT REVIEW]
- FR2. Now could you give me an overview of the influence, if any, of the program on the energy efficient components of the building design?
- What were the main ways that the program helped you bring energy efficiency into the project, if any?
 - [If nothing specific described, then ask] Can you provide me with specific examples of the ways the program helped bring energy efficiency into the project?
 - How would the energy efficiency of the project be different if it had not been submitted to the program?
 - [ASK ABOUT ANY SPECIFIC ASSISTANCE IDENTIFIED BY SEVENTHWAVE OR IN THE REVIEW OF THE PROJECT]

[IF FR1 and FR2 INDICATES THAT THERE HAS BEEN NO CHANGE IN THE DESIGN OR INSTALLATIONS OR THE INFLUENCE OF THE PROGRAM OVER THE COURSE OF THE PROJECT, SKIP TO SPILLOVER MODULE. IF CHANGES OCCURRED, ASK THE REMAINING FREE RIDERSHIP QUESTIONS.]

- FR3. Would you say you worked with the program staff more around changes to design or changes to specific equipment? We know that design changes often mean equipment changes, but simple equipment changes do not tend to have extensive changes in design (if any).

[NOTE: we need to then ask the attribution questions in line with the answer to this question, i.e., a design change or equipment changes (by Measure #1, Measure #2).]

[ASK FR3a IF LEED PROJECT]

- FR3a. Since the project was intended to meet LEED standards, we are interested in knowing how the program may have helped support or enhance the LEED goal. Please answer yes or no to the following questions. [PROBE FOR REASONS FOR DIFFERENCES, IF ANY, FROM FIRST INTERVIEW]
- iv. Did the program help to refine an existing energy model?
 - v. Did the program staff provide technical assistance that highlighted ways to achieve LEED design plans?
 - vi. Did program incentives or technical assistance help the project receive more energy and atmosphere credits than was originally planned?

- FR8. Next, I'm going to ask you to rate the influence of the program as well as other factors that might have influenced the decision to include the [*per FR3*: energy efficient design/Measure #1] that was incented by the program. Please think of a scale from 0 to 10, where 0 means 'no influence at all' and 10 means 'extremely influential'. If something did not pertain to your project please let me know. [FOR FR8a-g, RECORD 0 to 10; 96=Not Applicable; 98=Don't Know; 99=Refused]

(If needed: "How influential was/were _____ in the DECISION to include the energy efficient design/Measure #1 in the project(s)?)

Q	Question	Response
FR8a	[ASK IF PARTICIPANT ATTENDED TRAINING] Training sponsored by the program	
FR8b	The availability of financial incentives	
FR8c	The program's technical assistance and building performance modeling	
FR8d	Recommendations from a program representative	
FR8e	Program information from program forms/website	
FR8f	Program outreach including Lunch & Learns, press releases, email or phone calls from SEVENTHWAVE	

- FR8g. Were there any other program factors we haven't discussed that were influential in the decision to [per FR3: use this design/install Measure #1]?
- 1. Yes; "please specify": _____
 - 96. Nothing else influential
 - 98. Don't Know

[ASK IF FR8g = YES]

FR8gg. Using the same zero to 10 scale, how would you rate the influence of this factor on the decision to [per FR3: use this design/install Measure #1]? [RECORD 0 to 10; 98=Don't Know]

[ASK IF VALUE ENGINEERING OCCURRED]

FR10. How influential, if at all, was the program (i.e., incentives, ComEd [if joint participant, "and Nicor Gas"] or SEVENTHWAVE recommendations) in keeping [per FR3: energy efficient design/Measure#1] on the table when aspects of the original design were being cut to control costs? Please use a 0 to 10 scale where, where 0 is "Not at all influential" and 10 is "Extremely influential." [RECORD 0 to 10; 98=Don't know, 99=N/A]

Now I want to ask you a few questions about how this project may have been different if the program had not existed.

FR11. Using a likelihood scale from 0 to 10, where 0 is "Not at all likely" and 10 is "Extremely likely", if the program had not existed, what is the likelihood that the project would have included the same level of energy efficiency in the [per FR3: design/ Measure #1]? [RECORD 0 to 10; 98=Don't know]

FR12. Using the same scale from 0 to 10, where 0 is "Not at all likely" and 10 is "Extremely likely", if the program had not existed, what is the likelihood that the project would have included [[per FR3: the same number of energy efficient design features in the final project/ the same number of energy efficient (Measure #1)]? [RECORD 0 to 10; 98=Don't know]

[ASK IF SEVENTHWAVE DEVELOPED THE FIRST ENERGY MODEL FOR THE PROJECT]

FR13a. Using the same scale from 0 to 10, where 0 is “Not at all likely” and 10 is “Extremely likely”, if the program had not existed, what is the likelihood that an energy model would have been used as a design tool? [RECORD 0 to 10; 98=Don't know]

[ASK IF SEVENTHWAVE HELPED REFINE AN EXISTING ENERGY MODEL]

FR13b. Using the same scale from 0 to 10, where 0 is “Not at all likely” and 10 is “Extremely likely”, if the program had not existed, what is the likelihood that the final energy model would have included as many efficiency savings as it did? [RECORD 0 to 10; 98=Don't know]

FR14. And using the same scale from 0 to 10, where 0 is “Not at all likely” and 10 is “Extremely likely”, what is the likelihood that independent, third party data supporting the design vision would have been available if the program had not been involved in this project? [RECORD 0 to 10; 98=Don't know; NOTE: This could include financial and energy data]

[For with multiple measures ask:]

FR15. Now I'd like to ask you about [Measure #2]. In terms of how the program or other factors influenced its selection or installation, would you say that this measure reflected the same or nearly the same decision-making as [Measure #1]?

1. Yes (Continue to Spillover Module)
2. No (Ask FR16)

FR16. [If measure 1 and 2 are different fuels] Did the fuel type (electricity or natural gas) of [Measure #2] affect the decision-making at all?

1. Yes (Ask FR5 to FR14 for Measure #2)
 - [If so] How?
2. No (Ask FR5 to FR14 for Measure #2)

[ASK IF LARGE DIFFERENCE BETWEEN FREE RIDERSHIP RESPONSES BETWEEN 1st and 2nd INTERVIEW]

FR16. It seems that you are attributing [MORE/LESS] influence of the program on the project than when we first spoke. Can you please describe why this changed?

SPILLOVER MODULE

SO1. Was there any other energy efficient design or equipment installation that took place on this project that was influenced by the program but did not receive incentives? [IF YES, “COULD YOU PLEASE DESCRIBE IT?”]

SO2. Since participating in the New Construction Service, have you (or your client) incorporated any energy efficient systems or equipment you into other new construction projects in ComEd or Nicor territory?

[ASK IF SO2=YES]

SO3. [Has it or will it/ Have they or will they] receive incentives through the program?

[ASK IF SO₃=NO]

SO4. Why not?

[ASK IF SO₃=NO]

SO5. How influential was the program in incorporating energy efficient systems or equipment into these other new construction projects? Please use a 0 to 10 scale where 0 is 'not influential at all' and 10 is 'extremely influential'.

[ASK IF SO₃=NO AND PARTICIPANT ATTENDED TRAINING]

SO6. How influential was the training in incorporating energy efficient systems or equipment into these other new construction projects? Please use a 0 to 10 scale where 0 is 'not influential at all' and 10 is 'extremely influential'.

Process Section

Motivation to Participate

43. Did your team's perception of the program change as you participated in it?

- [If so] How?

Satisfaction

44. Overall, how satisfied are you with the program now? Please use a scale where 0 is 'not satisfied at all' and 10 is 'extremely satisfied'.

- [If <7, ask] Why are you not more satisfied with the program?

Training

[ASK IF THEY HAD NOT ATTENDED TRAINING AS OF THE FIRST INTERVIEW]

45. Have you or any of your team members attended any program-related training events, such as classroom events, webinars, or lunch and learns hosted by SEVENTHWAVE?

[ASK IF THEY HAVE NOT ATTENDED]

46. Are you aware of any training events available through the program?

[ASK IF AWARE OF, BUT NOT ATTENDED A TRAINING EVENT]

47. Why have you or any of your colleagues not attended any training events? Under what conditions might you or any of your team members attend one in the future?

[ASK IF ATTENDED]

48. How did you hear about the event?

- 49. Did you attend the first training before or after you had submitted a project to the program?
- 50. Did you learn anything in the training that helped you design or build energy efficiency into the project? If so, please describe.
 - [If interviewee is connected with other program projects, ask] How about for other projects? Did you share anything you learned with your workplace colleagues?

Program Processes

- 51. Do you think there are any requirements the program should adjust or change?
 - If so, which ones and how?
- 52. How would you describe the verification process (post-installation on-site inspection or document review) of the program?
 - Do you have any suggestions for how to improve it?
- 53. Following the project verification, did the program provide the incentive in a timely manner? [If no,] When did the incentive arrive?
 - Do you have any suggestions for how to improve it?
- 54. Throughout your involvement with the program, was your communication with program staff what you wanted?
 - If not, please describe why not.

Barriers

- 55. What are the main drawbacks of the program, if any?
 - What do you think others like you may find to be barriers to participating in the program?
 - Is it a challenge to meet the 10%-against-baseline level of savings?
 - What might prevent others from participating?
- 56. Has participating in the New Construction Service impacted your project’s design delivery process or timeliness?
 - If so, how?
- 57. Can you think of any ways the program could improve?
 - Do you see any ways that the program could help realize greater potential energy saving in the market?
 - Are the program incentives appropriate?
 - If you could change one thing about the program what would it be?
- 58. Would you work with the program again in the future?

- If no, why not?

CLOSING SECTION

59. Is there anything else that you would like to let us know based on the topics we covered today, including any ways to improve the program if possible or how the program has affected your use of energy efficient measures or design in projects?

60. As part of this study, the evaluation team may seek to inspect the facilities and equipment for which the program incentives were received. Is there a site-level staff person you can refer me to who might be able to work with the evaluation site lead? This might be a facilities manager or a site engineer?

Name

Role

Contact Information

On behalf of ComEd (If joint project, "and Nicor Gas"), we thank you for your time today. If in reviewing my notes, I discover a point I need to clarify, is it all right if I follow-up with you by phone or email?

Time End

7.3 Verbatim Responses

The following table presents verbatim responses to process-related questions participants in the ComEd/Nicor Gas Business New Construction Service. We organized the responses into three main categories: Technical Assistance, Marketing and Outreach, LEED and Program Staff.

Table 7-4: Participant Verbatim Responses to Process Questions

Topic	Response
Technical Assistance	"[The program] came through. Allows us to provide a client with a nice return on their investment...The dollars and the way that it impacted them was very positive...It has made the development aware...that the program has real benefit and that there are real dollars to be saved here."
Technical Assistance	"[Without the program] we probably would not have had the level of detail to know to do [these upgrades]. The program did educate us a little bit as to what the options were."
Technical Assistance	"The documents that we received that identified some of the incentives and laid out how the project compared to the baseline was very influential."
Technical Assistance	"It helps to have someone look at the design with a little more of a critical eye. Seventhwave brings up things that aren't where they should be and often times those are energy efficiency measures...[The technical assistance] is probably where the program has more impact because there may be things that you don't think of. Just having that third party arguing for things and being critical of the design and that ends up saving energy."
Marketing and Outreach	"The program could be even better if it were flexible enough to be tailored...to the end user. I think there is some assumption that the person who builds it is the person who is going to occupy and use it and in truth that is probably the exception...I think if there is a place where they could be more effective, it is not in the analysis part, it would be getting to the right [decision maker] and understanding the influence they have."
Marketing and Outreach	"One reason [the architecture firm] has so many projects [that go through the program]...is that we are the first and sometimes the only ones to bring it up. I'm not really sure why it's not on the radar of the mechanical engineers. But often times we bring it up and do everything and nobody else gets involved."
Marketing and Outreach	"[The program] allows you to have certain conversations with owners. Allows us to bring value to some of the things that we are already doing and show that we are looking out for the owners interest."
LEED	"It helped us make informed decisions with regards to this program. Obviously the energy model was required to complete our LEED points...but the energy model also helped to be a little more efficient to let us know what we could achieve...[Seventhwave] served as a check to what we were trying to achieve. They also provided some tips or some areas to consider, mainly for the ownership."
LEED	"The energy model for LEED for homes is very different from other energy models that I am more familiar with, so I don't know there was a lot of overlap [with the program] there. That wasn't expected on our end...but maybe there is a way there could be some parallel efforts."
LEED	"I wish we could have done one model to achieve both [the program and LEED]. Honestly, I don't know if it was that LEED wouldn't recognize the [model done through the program], or it was done differently than the one that we needed to do for LEED, but it would have been nice to only have to do one of those."
Program Staff	"The people that we were working with were based on out of Madison, WI, so more familiarity with our energy code would have been helpful."