

To: Vincent Gutierrez, ComEd
CC: Jennifer Morris, ICC
 Randy Gunn, Jeff Erickson, Nishant Mehta, Kevin Grabner, Rick Berry; Navigant
From: Mallorie Gattie, Matt Drury; Opinion Dynamics
Date: March 14, 2019
Re: Nicor Gas and ComEd Residential New Construction CY2018 Impact Evaluation Preliminary Results Memo

INTRODUCTION

This memo presents the preliminary results of the impact evaluation of the joint Nicor Gas and ComEd CY2018 Residential New Construction (RNC) Program. The evaluation team is unable to deliver a draft report by March 15 due to continued investigation into preliminary results and findings. Preliminary results indicate lower than anticipated gas verified net savings, resulting in a program gross realization rate of 0.16 for therm savings. The evaluation team is investigating this lower than expected gross realization rate, but currently acknowledges the following:

- Verified gas savings are significantly smaller than ex ante savings. The evaluation team found that program homes did not exceed building code on a performance basis by at least 15%. The evaluation team observed that not all home characteristics met code requirements. Additionally, some characteristics met or exceeded code more consistently than others.
- On average, the annual billing data showed higher energy consumption than what ex ante models predicted in REM/Rate.
- The evaluation team is unable to confirm which REM/Rate report was used to determine ex ante savings.
- REM/Rate “design home” consumption is based on a model that automatically sizes HVAC capacity and reassigns window area equally by orientation.
- The average impact sample homes’ insulation R-values for attic, ceiling, above grade wall, basement, crawlspace, and slab are less than those specified in the International Energy Conservation Code (IECC 2015). However, as a performance tradeoff, the heating equipment efficiencies far exceed minimum standards, but cooling equipment efficiencies do not. The tradeoff between insulation R-values and heating equipment efficiencies are not equivalent, and therefore homes did not perform as expected.

The evaluation team continues to investigate these findings and will update our models to reflect Illinois-specific amendments to the code, which we anticipate will change both gas and electric savings. Table 1 includes preliminary CY2018 total annual incremental electric savings and Table 2 includes preliminary total annual incremental therm savings. We caution these numbers will likely change based on further investigation and updates to the models as discussed above (i.e., updates based on Illinois-specific amendments to the code).

Table 1. CY2018 Total Annual Incremental Electric Savings - ComEd

Savings Category	Energy Savings (kWh)	Demand Savings (kW)	Summer Peak Demand Savings (kW)
Electricity			
Ex Ante Gross Savings	470,194	NR	NR
Program Gross Realization Rate	0.92	NA	NA
Verified Gross Savings	430,245	49	-247
Program Net-to-Gross Ratio (NTG)	0.65	0.65	0.65
Verified Net Savings	279,659	32	-160
Converted from Gas*			
Ex Ante Gross Savings	NA	NA	NA
Program Gross Realization Rate	NA	NA	NA
Verified Gross Savings	NA	NA	NA
Program Net-to-Gross Ratio (NTG)	NA	NA	NA
Verified Net Savings	NA	NA	NA
Total Electric Plus Gas			
Ex Ante Gross Savings	470,194	NR	NR
Program Gross Realization Rate	0.92	NA	NA
Verified Gross Savings	430,245	49	-247
Program Net-to-Gross Ratio (NTG)	0.65	0.65	0.65
Verified Net Savings	279,659	32	-160

* Gas savings converted to kWh by multiplying therms * 29.31 (which is based on 100,000 Btu/therm and 3,412 Btu/kWh).

Note: The coincident Summer Peak period is defined as 1:00-5:00 PM Central Prevailing Time on non-holiday weekdays, June through August.

NA = Not applicable

NR = Not reported

Source: ComEd tracking data and Navigant team analysis.

Table 2. CY2018 Total Annual Incremental Therm Savings – Nicor Gas

Savings Category	Nicor Gas (therms)
Natural Gas	
Ex Ante Gross Savings*	214,750
Program Gross Realization Rate	0.16
Verified Gross Savings*	35,317
Program Net-to-Gross Ratio (NTG)	0.65
Verified Net Savings	22,956

* Ex ante savings generated using REM/Rate building models and verified savings generated using BEopt building models. Both ex ante and verified savings include interactive effects.

Source: Nicor Gas tracking data and Navigant team analysis.