

Memorandum - FINAL

**To:** Jim Jerozal, Scott Dimetrosky, Jennifer Hinman, David Brightwell, and Ted Weaver  
**From:** Tim Stanton, Navigant Consulting  
**CC:** Randy Gunn, Julianne Meurice, Jennifer Barnes, Navigant Consulting  
**Date:** November 18, 2013  
**Re:** Nicor Gas Economic Redevelopment GPY2 Fast Track Impact Memo

This memorandum presents the findings from the Economic Redevelopment Program (ERP) gas program year (GPY2) fast track impact assessment. Final Order in Docket 10-0562 requires that at least one impact evaluation be done on each program by August 1, 2013.

**Summary of Findings**

Navigant evaluated 14 ERP projects completed in Gas Program Year 2 (GPY2) between June 1, 2012 and April 30, 2013<sup>1</sup> as part of this fast track impact evaluation. Navigant’s review found a realization rate of 85%, which yielded research findings gross savings totaling 111,541 therms (**Error! Reference source not found.**). Applying the deemed net-to-gross ratio (NTGR) of 0.70 resulted in net research findings savings of 78,079 therms.

**Table 1: ERP PY2 Fast Track Impact Evaluation Savings Summary**

Category	Nicor Gas Energy Savings (Therms)
Ex-Ante Gross Savings	130,961
Research Findings Gross Savings	111,541
Research Findings Net Savings	78,079
Realization Rate <sup>2</sup>	0.85
Deemed Net-to-Gross Ratio <sup>3</sup>	0.70

*Source: ERP Tracking System and Navigant’s analysis*

<sup>1</sup> Due to time constraints, an additional PY2 project completed between May 1, 2013 and May 31, 2013 is not included in this fast track impact evaluation but will be reconciled retroactively in the final impact evaluation.

<sup>2</sup> Realization Rate = Research Findings Gross Savings / Ex Ante Gross Savings

<sup>3</sup> Document provided by Nicor Gas to the SAG summarizing the SAG-approved NTGR for Nicor Gas for GPY1-GPY3 as negotiated in March-August 2013. Distributed in the SAG Meeting on August 5-6, 2013. [http://ilsagfiles.org/SAG\\_files/Meeting\\_Materials/2013/August 5-6, 2013 Meeting/Nicor\\_Gas\\_NTG\\_Results\\_and\\_Application\\_GPY1-3.pdf](http://ilsagfiles.org/SAG_files/Meeting_Materials/2013/August 5-6, 2013 Meeting/Nicor_Gas_NTG_Results_and_Application_GPY1-3.pdf).

## **Introduction**

### PROGRAM DESCRIPTION

The ERP targets existing commercial, industrial, and commercial-sized multifamily facilities and properties undergoing major renovation in established “redevelopment areas” and encourages that they incorporate energy efficiency measures into the renovation process. The program provides technical assistance and enhanced incentives to render energy efficiency projects more affordable within these economically challenged communities. The Energy Center of Wisconsin (ECW) is the implementation contractor (IC) for this program.

The ERP experienced slow participation uptake rates in GPY1 but, due to a successful marketing and outreach campaign, significantly increased program participation from one project in GPY1 to 15 projects in GPY2. However, the ERP will be discontinued as a separate program after GPY3, and only the remaining projects in the pipeline will be completed with additional projects being directed to another Nicor Gas program. Details behind and reasons for the ERP’s discontinuation will be outlined in Navigant’s process evaluation in the final evaluation report.

### EVALUATION QUESTIONS

The fast track impact evaluation sought to answer the following key researchable questions.

#### *Impact Questions*

1. What is the level of gross annual energy (therm) savings induced by the program?
2. What are the net impacts from the program?
3. Are the assumptions and calculations in compliance with standard engineering practice? If not, what changes are required?

## **Evaluation Methods**

Navigant used the following activities to assess the gross and net impacts of the ERP:

- Engineering File Reviews
  - Navigant reviewed the project-level tracking data and methodology (e.g., energy simulation modeling, energy savings algorithms, etc.) used to calculate the ex-ante energy savings.
  - Navigant adjusted the inputs fed into the savings algorithms and/or energy models based on the evaluation team’s review of the project files.
- Onsite Measurement and Verification (M&V)
  - Navigant developed an M&V Plan for each site visit to specify the information to be collected onsite (e.g., building characteristics, HVAC equipment identification, photographs, etc.).
  - The evaluation team used the information collected during M&V activities to adjust the algorithms and/or energy models used in the ex-ante savings calculations.

- Billing Analysis
  - Navigant used billing data for to compare the pre- and post-implementation period gas consumption to determine savings. Navigant only used billing analysis methodology if the team could make a direct comparison between the pre- and post-implementation periods without outside factors affecting gas consumption (e.g., gas leaks, non-ERP energy efficiency measures, change in building use, etc.) or changes in occupancy. Navigant confirmed the validity of using this method by interviewing the site representative and acquiring occupancy data.
- NTG Analysis
  - Navigant did not perform a net-to-gross analysis because the NTGR was deemed by the Illinois SAG at 0.70.

### Evaluation Results

Table 2 summarizes Navigant’s project-level findings and the associated onsite M&V, engineering file review, and/or billing analysis activities performed for each project. The Navigant team verified a research findings gross savings of 111,541 therms and a realization rate of 0.85.

**Table 2: ERP GPY2 Fast Track Project-level Savings Summary**

Project Code	Verification Method			Ex Ante Gross Savings (therms)	Research Findings Gross Savings (therms)	Realization Rate
	Engineering File Review	Onsite M&V	Billing Analysis			
ERP-01	X	X	X	8,650	6,780	0.78
ERP-02	X	X		779	779	1.00
ERP-03	X	X		21,870	19,720	0.90
ERP-04	X	X	X	18,131	7,522	0.41
ERP-05	X	X		24,600	21,560	0.88
ERP-06	X	X		5,855	4,902	0.84
ERP-07	X	X	X	4,036	3,501	0.87
ERP-08	X			940	931	0.99
ERP-09	X			10,267	9,619	0.94
ERP-10	X			18,877	18,375	0.97
ERP-11	X			1,175	1,105	0.94
ERP-12	X			7,487	7,375	0.99
ERP-13	X			4,027	4,402	1.09
ERP-14	X			4,267	4,970	1.16
<b>Total</b>				<b>130,961</b>	<b>111,541</b>	<b>0.85</b>

*Source: ERP Tracking System and Navigant’s analysis*

ERP-04, ERP-01, and ERP-06 had the lowest realization rates at 0.41, 0.78, and 0.84, respectively. For ERP-01 and ERP-04, Navigant used monthly gas billing data to compare the site’s pre- and post-implementation weather-normalized gas usage. The evaluation team

assessed the validity of this savings calculation method by interviewing the project representative to determine if any external factors (e.g., gas leaks, change in building use, building envelope upgrades, etc.) or occupancy differences affected the pre- and post-implementation site gas usage comparison. For ERP-6, Navigant modified the savings methodology to include the guidelines presented by the Illinois TRM<sup>4</sup>.

Detailed reviews of ERP-01, ERP-04, ERP-06, and all other projects are provided in a separate document<sup>5</sup>.

### Findings and Recommendations

As shown in Table 3, savings verification of the GPY2 ERP found that research findings gross energy savings were approximately 15% lower than ex-ante gross savings reported in the IC's tracking system, resulting in a realization rate of 0.85. Table 3 provides the evaluation research findings net energy savings based on a deemed NTGR of 0.70.

**Table 3: GPY2 ERP Fast Track Gas Savings Estimates**

Category	Nicor Gas Energy Savings (Therms)
Ex Ante Gross Savings	130,961
Research Findings Gross Savings	111,541
Research Findings Net Savings	78,079
Deemed Net-to-Gross Ratio	0.70

*Navigant Analysis of Nicor Gas ERP tracking database (05/09/2013 data extract)*

Navigant evaluated all of the projects completed through the ERP; thus there is no sampling error.

The primary impact findings and recommendations are as follows:

**Finding:** Projects with the lowest realization rates were evaluated using billing data to directly compare the pre- and post-implementation periods (ERP-01 and ERP-04).

**Recommendation:**

- Prior to approving incentive payment for a project, Navigant recommends that Nicor Gas compare the claimed savings to the site's billed energy usage to assess the reasonability of the claimed savings.

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<sup>4</sup> State of Illinois Energy Efficiency Technical Reference Manual. Final as of September 14, 2012, effective June 1, 2012.

[http://ilsagfiles.org/SAG\\_files/Technical\\_Reference\\_Manual/Illinois\\_Statewide\\_TRM\\_Version\\_1.0.pdf](http://ilsagfiles.org/SAG_files/Technical_Reference_Manual/Illinois_Statewide_TRM_Version_1.0.pdf)

<sup>5</sup> Nicor ER Appendix 08-01-2013

- For projects that claim savings based on energy models, Navigant recommends that Nicor Gas considers providing site-level billing data to the IC in order to accurately calibrate the energy model to reflect actual pre-implementation gas consumption.

**Finding:** Seven ERP projects were implemented by the same customer in GPY2. While this customer initially provided thorough documentation of their savings algorithms, Navigant observed a decline in the quality of documentation of savings algorithms after multiple projects from this customer were accepted into the ERP.

**Recommendation:**

- Navigant recommends that Nicor Gas maintains sufficient levels of due diligence in reviewing projects prior to accepting them into the ERP, even if the project application is from a repeat customer who has established credibility in providing proper savings calculation documentation.