



# PY3 Evaluation

THE  
**CADMUS**  
GROUP, INC.

## Residential ENERGY STAR New Homes Program Evaluation

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# Table of Contents

- 1. Executive Summary ..... 1**
- 2. Program Description ..... 2**
  - Program Overview ..... 2
  - Program Process and Requirements ..... 2
  - Program Incentives ..... 3
- 3. Review Methods ..... 4**
  - Tracking Database Review ..... 4
  - Data Sources ..... 4
- 4. Program Results ..... 5**
  - Program Savings ..... 5
  - Program Challenges and Changes ..... 5

## 1. Executive Summary

The Ameren Illinois Residential ENERGY STAR® New Homes Program's objective is to increase consumer awareness of and demand for ENERGY STAR version 2.0 single family homes while increasing the building industry's willingness and ability to construct ENERGY STAR homes.

The Program is based on an energy efficiency standard developed by the U.S. Environmental Protection Agency (EPA). The services and incentives offered by Ameren Illinois allow builders to market their homes as having greater value, lower operating costs, increased durability, comfort, and safety.

The Cadmus Group Inc.'s (Cadmus') review of electricity savings for Program Year 3 (PY3), which ran from June 2010 through May 2011, consisted of reviewing and summarizing the tracking database from this program and speaking with two program stakeholders: Ameren Illinois's program manager and Conservation Services Group(CSG), the program implementer. Below are the summary and results of the review process.

Table ES-1 summarizes the program's gross and net savings. For a home that uses Ameren Illinois electricity as its primary source of heating, the program offers the builder an incentive amount of \$650. If the home uses Ameren Illinois electricity and Ameren Illinois gas for eating, the incentive is \$200 from the electric program budget and \$450 from the gas program budget.

Out of the 74 completed homes for PY3, three homes used Ameren Illinois electricity as their primary source of heating and 15 homes used only Ameren Illinois gas (non-Ameren Illinois electric supplier) source (these homes are not addressed in this report). There were 56 participating homes that used both Ameren Illinois gas and electricity. Total electric incentives paid out through the program were \$13,150. Total gross kWh savings were estimated to be 126,525 and total net kWh saved was 101,220.

**Table ES-1. Program Electric Gross and Net Savings**

Electric Savings	Electric Incentive Amount	Total Quantity	Total Electric Incentive Amount	Gross Savings (kWh)	Net Savings (kWh)
Gas and Electric	\$200	56	\$11,200	117,600	94,080
Electric Only	\$650	3	\$1,950	8,925	7,140
Total - PY3	N/A	59	\$13,150	126,525	101,220

## 2. Program Description

### Program Overview

The Ameren Illinois Residential ENERGY STAR New Homes Program's objective is to increase consumer awareness of and demand for ENERGY STAR version 2.0 single-family homes while increasing the building industry's willingness and ability to construct ENERGY STAR homes.

The Program is based on an energy efficiency standard developed by the U.S. Environmental Protection Agency (EPA). The services and incentives offered by Ameren Illinois to home builders allow builders to market their homes as having greater value, lower operating costs, increased durability, comfort, and safety.

New construction covers the building of new energy-efficient homes, including the new home's envelope (outer walls, windows, doors, skylights, roof and insulation), HVAC system, ductwork, lighting, and appliances. The program targets builders with a package of training, technical, and marketing assistance and incentives for construction of ENERGY STAR homes.

### Program Process and Requirements

The Conservation Service Group (CSG) manages the program by establishing relationships with independent Home Energy Raters (also known as HERS raters) and builders, educating the public and contractors about the benefits of ENERGY STAR qualified homes, and promoting ENERGY STAR building code trainings to builders when they are available. Raters are paid production bonuses. Sign-on bonuses are also offered to builders; signing builders on early in the process provides CSG time to prove to builders that participating in the program is advantageous for them. Ameren Illinois assists builders in advertising and posts their contact information on its Website. The independent Home Energy Raters, with whom builders must work, provide energy modeling and design assistance and a verification report for builders that choose to take advantage of the \$2,000 federal tax credit. The \$2,000 federal tax credit requires higher energy savings than required to achieve the ENERGY STAR label. In most cases, a home must have a HERS Index less than 55 to qualify for the tax credit, whereas it must only have an Index of 85 or less to earn the ENERGY STAR. Only five of the homes completed in PY3 scored in this level. As a result, the tax credit is not considered to be a parallel motivating factor for most ENERGY STAR New Homes.

In order to participate in the program, a builder must select a participating yet independent Home Energy Rater and complete the EPA partnership agreement as well as sign an ally agreement with Ameren Illinois. A rater will then review the builder's home plans and work with the builder to make any needed changes to assure the home will meet the minimum program requirements. The rater will then enroll the project in the Ameren Illinois Residential ENERGY STAR New Homes Program for the builder. Once this is done, the builder will receive an enrollment confirmation from Ameren Illinois verifying the availability of incentives. The rater will conduct the required site inspections and testing to verify the home meets the program requirements. If the requirements are met, the rater will submit a data collection form and the REM/Rate<sup>1</sup> file to Ameren Illinois so that incentives can be paid to the builder.

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<sup>1</sup> REM/Rate: a software designed to rate the performance of a home according to the HERS Index. The HERS index is a scoring system developed by the Residential Energy Services Network, where a score of 100 is assigned to a "reference home" built according to the 2006 International Energy Conservation Code.

## Program Incentives

Table 1 shows the incentive amounts that the program offered in PY3. For a home that receives Ameren Illinois electricity as its primary source of heating, the program offers the builder an incentive amount of \$650. This incentive is a new program component as of January 2011. If the home receives Ameren Illinois electricity for uses other than the primary source of heating, the electric incentive amount is \$200 and the additional \$450 incentive is paid from the gas budget.. This report does not address savings for project homes that use Ameren Illinois gas as their primary source of heating; however, an incentive of \$450 is provided for such homes. Participants must heat with either Ameren Illinois gas or electricity to qualify for incentives.

**Table 1. Incentive Amounts**

Ameren Illinois Energy Source	Incentive
Electricity Only	\$650
Ameren Illinois Gas and Electric	\$650 (\$200 Electric, \$450 Gas)
Ameren Illinois Gas Only	\$450

### **3. Review Methods**

#### **Tracking Database Review**

CSG tracks details about its program allies, the homes that qualify for program incentives, and the incentives and estimated energy savings accrued from program participation.

Cadmus reviewed the database and summarized the number of participants and their estimated savings for homes completed in PY3. Cadmus did not independently verify savings as this program has lower participation and estimated savings than most others in the portfolio.

#### **Stakeholder Interview**

Cadmus interviewed the CSG Program manager for this program to understand the program delivery, its challenges and plans for the future.

#### **Data Sources**

The following data sources informed the review process:

- Final PY3 program database (provided by CSG); and,
- Information gathered through program manager interviews.

## 4. Program Results

### Program Savings

Table 2 summarizes the program's gross and net savings for gas and electric homes. As the electric-only incentive of \$650 was added to the program part way through the program year, only three completed electric-only homes in PY3.<sup>2</sup>

Out of the 74 completed homes for PY3, three homes used Ameren Illinois electricity as their primary source of heating and 15 homes used only Ameren Illinois gas, meaning their electricity came from a non-Ameren Illinois source. There were 56 participating homes that used both Ameren Illinois gas and electricity. Incentives paid out by the program to builders totaled \$45,100. Total electric incentives paid out through the program were \$13,150. Total estimated gross kWh savings were 126,525 and total estimated net kWh saved was 101,220.

**Table 2. Program Electric Gross and Net Savings**

Electric Savings	Incentive Amount	Total Quantity	Total Incentive Amount	Gross Savings (kWh)	Net Savings (kWh)
Gas and Electric	\$200	56	\$11,200	117,600	94,080
Electric Only	\$650	3	\$1,950	8,925	7,140
Total - PY3	N/A	59	\$13,150	126,525	101,220

### Program Challenges and Changes

For PY3, the program's goal was to complete 162 homes. This goal was not reached; only 74 homes were completed. There were, however, an additional 17 homes enrolled in the program in PY3; they were just not completed as of the end of the program year. The number of completed homes in PY3 was also an increase from the 17 homes completed in PY2.

Up until January 2011, only homes whose primary source of heat came from Ameren Illinois gas were eligible for the program. Since then, however, homes with Ameren Illinois electricity as their primary source of heat have been eligible to participate as well.

The biggest challenge that the program faced in attempting to achieve its goal was the poor housing market. Since the program was originally conceived, the housing market has been on a downward slope. As an example, the number of housing starts in PY3 was only 10 percent of what it was in 2006. Ameren Illinois and CSG stakeholders predict that the market will take another three to four years to recover.

Ameren Illinois and CSG predict that two program changes will help increase the number of homes completed in the program. The first is the modification that makes homes whose primary source of heating is Ameren Illinois electricity eligible for the program. The builders of these homes will receive \$650 as an incentive for their participation. The second change is a switch to a tiered incentive structure. Beginning in PY4, if a home has a HERS rating of 71 to 85, instead of the current incentives, the builder will receive \$450 for a gas-only home and \$750 for a gas

<sup>2</sup> Homes for which construction was incomplete at the end of PY3 will be counted in PY4.



and electric home or just an electric home. If the HERS rating is 56 to 70, then bonuses will double: \$900 for gas and \$1,500 for gas and electric or just electric. If the home has a rating of 55 or less, then the bonuses will triple: \$1,350 for gas and \$2,250 for gas and electric or just electric. The incentives offered under the first tier are designed to cover the costs builders incur to have a home rated. Any incentive beyond that will contribute to covering the cost of time spent installing more rigorous measures.

These two new program structures, along with the fact that new Home Energy Raters and program allies continue to increase in number and the program continues to build upon its already strong relationship between Ameren Illinois and CSG employees, indicate that Ameren Illinois is taking steps to influence its future success.