# IMPACT AND PROCESS EVALUATION OF AMEREN ILLINOIS COMPANY'S RESIDENTIAL ENERGY STAR NEW HOMES PROGRAM (PY4)

## Final

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# TABLE OF CONTENTS

# TABLE OF TABLES

# TABLE OF FIGURES

# 1. EXECUTIVE SUMMARY

Ameren Illinois Company's (AIC's) ENERGY STAR® New Homes Program targets builders through a package of services, which include training, technical information, marketing assistance, and incentives for the construction of ENERGY STAR new homes. Implemented by Conservation Services Group (CSG), the program targets builders of new single- and multifamily homes, heated with a fuel (natural gas or electricity) provided by AIC.

In PY4, AIC introduced a tiered incentive structure, allowing builders to qualify for financial incentives that differ based on the Home Energy Rating Score (HERS) of the home.

AIC and CSG recruit both builders and HERS raters to participate in the program. HERS raters also recruit builders. AIC, CSG, HERS raters, and builders all promote the program to customers interested in building new homes. Builders must work with raters, providing building plans for raters to review and assign an initial (plan-based) rating. Once an initial rating has been established, CSG approves the home, and reserves incentive funding. The HERS rater inspects the home during construction, then creates an energy analysis model (REM/Rate™ model) to estimate the home's energy savings. CSG pays the builder based on the actual rating received by the home, once the home has been completed. The PY4 ENERGY STAR New Homes Program had the greatest participation since the program started, with 65 new homes built.

This report addresses AIC's fourth year, which covered the period of June 1, 2011 through May 31, 2012. The expected savings from this program were 0.1% of the overall PY4 portfolio of electric savings and 0.2% of PY4 portfolio therm savings. To support the evaluation, we conducted in-depth interviews with program staff, REM/Rate model reviews, and a tracking database analysis.

## Impact Results

The evaluation team verified program participants and savings estimates by reviewing energy analysis model runs for a random sample of participating homes in the tracking database. We verified that the model runs were consistent with identifying information in the tracking database and that savings matched the model run outputs. All projects reviewed verified the information in the tracking database. Table 1 applies these results to the project population, showing 100% verification.

**Table 1. Summary of Program Verification Results**

| Measure | Units | Program Participation | Verified Participants | Verification Rate |
|---|---|---|---|---|
| E-Star Home: combo, HERS 71-85 | Per Home | 4 | 4 | 100% |
| E-Star Home: gas, HERS 56-70 | Per Home | 16 | 16 | 100% |
| E-Star Home: combo, HERS 56-70 | Per Home | 32 | 32 | 100% |
| E-Star Home: electric, HERS 56-70 | Per Home | 2 | 2 | 100% |
| E-Star Home: combo, HERS <=55 | Per Home | 5 | 5 | 100% |
| E-Star Home: electric, HERS <=55 | Per Home | 6 | 6 | 100% |
| **Total** | | **65** | **65** | **100%** |

The evaluation team applied fixed per unit savings for each participant, based on their HERS rating level, and summed those savings from the tracking database. We then applied a deemed 0.8 net-to-gross ratio (NTGR) to estimate net savings. As shown in Table 2, ex ante and ex post net savings are the same.

**Table 2. PY4 ENERGY STAR New Homes Program Net Impacts**

| Program Measure | PY4 Ex Ante Net Impacts | | | PY4 Ex Post Net Impacts | | |
|---|---|---|---|---|---|---|
| | MW | MWh | Therms | MW | MWh | Therms |
| ESNH Total | 0.072 | 189 | 12,800 | 0.072 | 189 | 12,800 |
| *Net Realization Rate* | | | | *1.00* | *1.00* | *1.00* |

Note: Realization Rate = Ex Post Net Value / Ex Ante Net Value

## Process Results

Participating homes had an average HERS rating of 60 (ranging from 38 to 78), and all were below the minimum 85 HERS level. This low average indicates builders went beyond the program's minimum requirements. Program homes also tended to be larger homes, with a mean home size of 3,700 square feet.

As a mature program, AIC's ENERGY STAR New Homes Program has developed a consistent group of trade ally partners and efficient processes. Program staff believes the number of trade allies to be adequate for the program's size.

Based on the PY4 evaluation, the team provides the following recommendations:

- **Increase targeted marketing.** Because market penetration remains lower than AIC would like, the utility should increase its targeted marketing efforts. The evaluation team recommends engaging builders in focus groups or discussions so they can help AIC identify the best marketing avenues. AIC might use participating builders' names in targeted advertising, offer cooperative advertising funds to builders, or involve builders in creating the advertising message. Because customers seem to be more motivated by saving money than by saving energy, marketing messages should focus on economics.

- **Assist HERS raters in becoming better communicators.** Because HERS raters play a central role in the program, the relationship between raters and builders is critical. HERS raters recruit builders and educate them about energy-efficiency options. They

also process all paperwork. AIC and CSG should first look for opportunities to simplify the paperwork, and then encourage HERS raters to prioritize paperwork, using financial incentives. Additional training on when and how to communicate with builders may also prove helpful.

- **Provide support for the transition to ES 3.0**. As the program transitions to ENERGY STAR 3.0, program staff needs to consider approaches to facilitate that transition, such as actively training builders on the new program checklists, and training raters on the new paperwork.

# 2. INTRODUCTION

This report presents results from the PY4 evaluation of the ENERGY STAR New Homes Program. To support the evaluation, we reviewed and analyzed the program database, reviewed energy simulation model runs for a sample of homes, and interviewed program management staff.

## *Program Description*

The ENERGY STAR New Homes Program targets builders using a package of services, including training, technical information, and marketing assistance and incentives for construction of ENERGY STAR new homes (homes with a HERS Index of 85 or lower). CSG implements the program for AIC.

The Residential Energy Services Network (RESNET) created the HERS Index scoring system, which rates homes home built to the HERS Reference Home specifications on a HERS Index score of 100.[1] A lower HERS Index score indicates higher energy efficiency. Each one-point decrease in the HERS Index corresponds to a 1% reduction in energy consumption, compared to the HERS Reference Home. Thus, a home with an 85 HERS Index would be 15% more energy efficient than the HERS Reference Home, and a home with an 80 HERS Index would be 20% more energy efficient. AIC's ENERGY STAR New Homes incentive seeks to defray the additional costs associated with building more efficient homes. The program also provides cooperative marketing support to builders.

The program targets builders of new single- and multifamily homes, heated with a fuel (natural gas or electricity) provided by AIC. In PY4, the program introduced a tiered incentive structure so builders could qualify for additional financial incentives by achieving higher efficiency levels in their new homes:

- For a home with a 71 to 85 HERS rating, builders receive $450 for a gas-only home, and $750 for a gas and electric home or electric-only home.
- For a 56 to 70 HERS rating, bonuses double: $900 for gas, and $1,500 for gas and electric or just electric.
- For homes with a 55 HERS rating or less, bonuses triple: $1,350 for gas, and $2,250 for gas and electric or just electric.

Incentives offered under the first tier have been designed to cover the costs builders incur in having homes rated. Further incentives contribute to covering the cost of time spent installing more expensive measures.

AIC and CSG recruit builders and HERS raters to participate in the program. HERS raters also recruit builders. AIC, CSG, HERS raters, and builders all promote the program to customers interested in building new homes. Builders must work with raters, providing building plans for raters to review and assign an initial (plan-based) rating. Once an initial rating has been established, CSG approves the home, and reserves incentive funding. The HERS rater inspects the home during construction and then creates an energy analysis model (REM/Rate™ model)

[1] A net-zero energy home scores a HERS Index of 0 (the HERS Reference Home has been based on the 2006 International Energy Conservation Code (ISBN-13.978-1-58001-270-6)

to estimate the home's energy savings. CSG pays the builder based on the home's' actual rating once it has been completed.

# 3. EVALUATION METHODS

## 3.1 DATA SOURCES AND ANALYTICAL METHODS

The evaluation team assessed the ENERGY STAR New Homes Program using the research activities outlined in Table 3.

**Table 3. Summary of Evaluation Methods**

| Task | PY4 Impact | PY4 Process | Forward Looking | Details |
|---|---|---|---|---|
| Program Staff In-Depth Interviews | | √ | | Interviews with program and implementation staff, gaining insights into design and delivery. |
| REM/Rate Model Reviews | √ | | √ | Reviewing a sample of model runs from the database, verifying participation and estimating savings for future evaluations. |
| Tracking Database Analysis | √ | √ | | Summarizing database information to determine participation and key statistics about the program. |

The following sections summarize the methodology employed for each activity.

### 3.1.1 PROCESS ANALYSIS

The evaluation team analyzed information from the program staff interviews, the tracking database, and the REM/Rate model runs to inform the process evaluation.

#### Program Staff Interviews

The evaluation team conducted interviews with AIC's program manager and CSG's implementation manager. These interviews addressed topics such as program operations; builder and HERS rater recruitment and training; marketing; and market factors affecting the program. Interviews also focused on effects of two major PY4 program changes: a tiered incentive structure, and the inclusion of AIC Electric customers. Stakeholder interviews addressed the program's design, implementation and delivery, marketing efforts, implementation barriers, and communications.

### 3.1.2 IMPACT ANALYSIS

#### REM/Rate Model Review

The evaluation team reviewed REM/Rate model outputs drawn from a sample of program participants. The review examined model inputs and outputs to assess reasonableness, and compared model-predicted energy savings and HERS ratings to those tracked in the database.

### Database Analysis

CSG tracks information about each participating home using a database, including the following:

- Homeowners, builders, and HERS raters involved;
- Home square footage;
- HERS rating; and
- Project completion dates.

The evaluation team summarized and analyzed the projects to compute relevant totals for PY4.

### Gross Impacts

The evaluation team verified program participation by reviewing a sample of the REM/Rate model runs, and comparing estimated savings to those in the tracking database. The team also examined the program tracking database, computing overall program savings.

### Net Impacts

The evaluation team applied the deemed NTGR value of 0.8 to determine net impacts.

## 3.2 SAMPLING AND SURVEY COMPLETES

### 3.2.1 REM/RATE FILE REVIEW

For this program, participating homes qualified under the ENERGY STAR Version 2.0 program, with a HERS rater performing data collection and analysis to insure homes qualified for the program and provided the builder/owner with a HERS score. Under the program, HERS raters receive training and certification under the RESNET Standard, and are subject to an internal, third-party quality assurance program.

The evaluation team's review focused on determining whether tracking database savings and home size remained consistent with REM/Rate model inputs and HERS ratings. REM/Rate is a software program, developed for HERS raters to determine a home's HERS rating. A score of 100 represents a home built to International Energy Conservation Code (IECC) 2006;[2] a score of 0 represents net-zero homes, which offset annual energy consumption with on-site generation. Out of 65 participants, the evaluation team reviewed 20 randomly chosen REM/Rate files.

[2] Kelly Schultz. Evaluating Residential Energy Efficiency Programs with a Universal Metric. http://www.fas.org/programs/energy/btech/policy/Evaluation%20energy%20efficiency%20programs.pdf

**Table 4. Completed REM/Rate File Review Sample Points**

| Customer Type | Database Population | Sample Projects |
|---|---|---|
| Electric Only | 8 | 4 |
| Gas Heat | 16 | 3 |
| Gas Heat & Electric combo | 41 | 13 |
| **Total** | **65** | **20** |

# 4. RESULTS AND FINDINGS

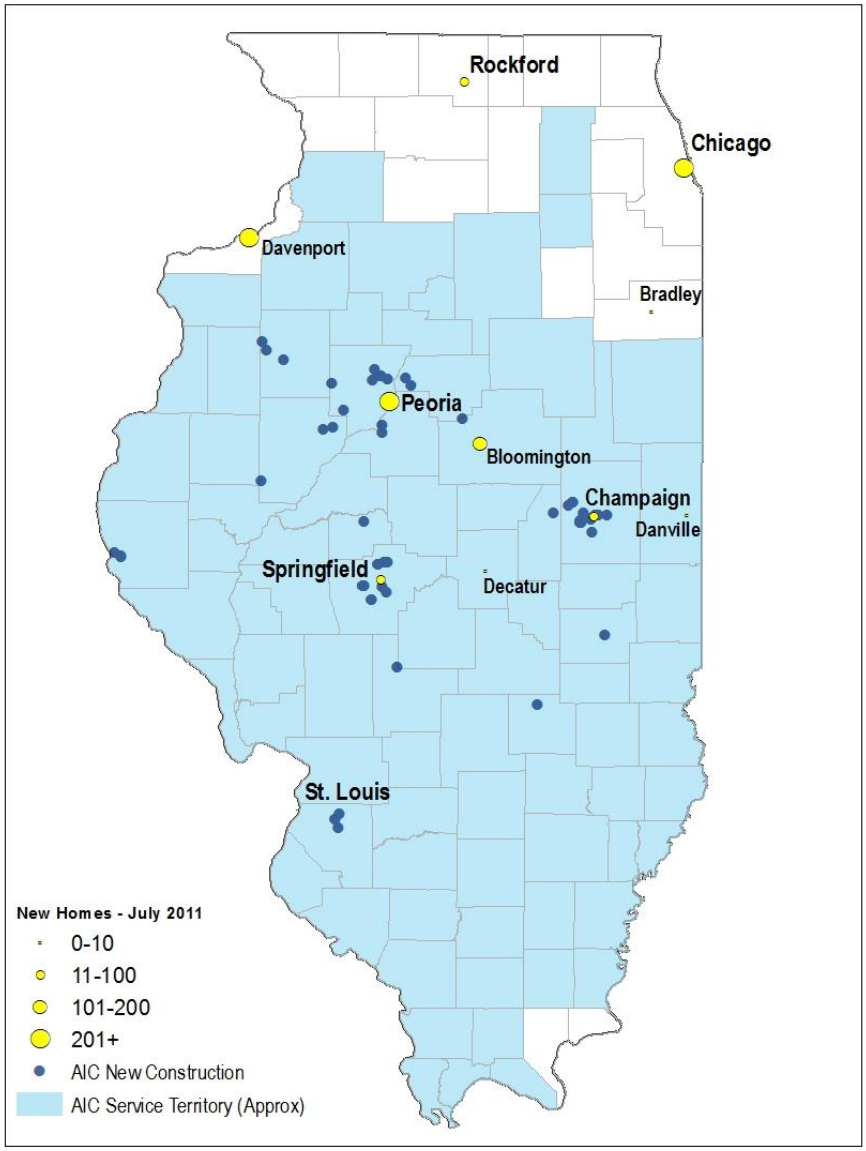
## 4.1 PROCESS FINDINGS

### 4.1.1 RECRUITMENT

AIC's ENERGY STAR New Homes Program recruits HERS raters and homebuilders. Much of the program focuses on recruiting HERS raters, who then recruit homebuilders. HERS raters process paperwork, a step intended to reduce the burden on builders, who, according to program staff, are generally averse to more paperwork. Other builder participation barriers include added building costs for energy-efficient homes and requirements to register as AIC program allies. Builders must also complete ENERGY STAR training provided by the Environmental Protection Agency (EPA) via webinar. Program staff report that AIC's builder allies are a mix of custom and tract homebuilders.

While AIC and CSG would prefer to convene builders for centralized training or information sessions, they acknowledge this is impractical because AIC's service territory is so large. PY4's completed projects utilized seven HERS rating companies and 23 builders, and the builder ally list contains 61 members. The blue dots in Figure 1 below show where the ENERGY STAR participants are located in Illinois; the shaded area is the approximate area of AIC's service territory. The yellow dots show the number of building permits issued in the noted area during the year ending July 2011. AIC's program participants are in most new construction locations except for the Bloomington area, Decatur, and Danville, all areas in which no participating new homes were built. Bloomington saw 132 single-family building permits for the year ending July 2011, while Decatur and Danville had 4 and 1, respectively. Because there is a significant amount of new construction in the Bloomington area that has not participated in the program, AIC should increase marketing efforts there.

**Figure 1. ENERGY STAR New Homes Locations**




## 4.1.2 MARKETING AND OUTREACH

The program seeks to attract homebuyers by providing homes with lower and more predictable energy bills. Program staff believes direct marketing to homebuyers is sufficient for the program's size. AIC and CSG conduct some targeted advertising, seeking to find homebuyers interested in energy efficiency. For example, program staff purchased pay-per-click advertising so the AIC program website would appear as a link for those using Google search in Illinois and typing in "energy efficiency." Program staff believes the online advertising to be valuable, although they have not actually measured its effectiveness. Many builders also marketed ENERGY STAR through their own channels.

Program staff continues to consider market penetration very low, however, and wants to

better understand the profiles of customers in the market to build a new home during the next year. Based on building permit statistics[3], home starts for the year ending July 2011 (which were likely completed during PY4) totaled 449 around cities in AIC service territory, equating to an approximate 14% market penetration. Based on current participation, the program appears to appeal to builders focusing on larger homes, which tend to be custom-built for higher-income purchasers.

### 4.1.3 PROGRAM PROCESS

Program staff expressed few concerns about the program delivery process. HERS raters conduct initial reviews of home plans or actual homes before insulation and drywall are installed. If homes do not meet the lowest ENERGY STAR tier, HERS raters work with builders to improve plans so that they do qualify. Raters also educate builders about alternative building options to achieve greater efficiency for less money. Relying on HERS raters minimizes administrative burdens for CSG and the builders. One potential drawback is that some builders may assume HERS raters audit their work, rather than seeing them as partners. Encouraging raters to offer technical assistance as part of inspections would emphasize their role as a builder's ally, rather than as an auditor.

According to program staff, 16 HERS raters have registered as program allies, with 10 currently active. Stakeholders considered this level sufficient to support the program at its current size.

Program staff also reports that completing paperwork and status updates presents a major bottleneck in the program process. For example, at the time of our interviews, 29 of the homes enrolled in the program had been completed, but their incentive paperwork had not been submitted. While the incentives go to builders, the HERS raters must submit the paperwork, and may not always do so in a timely manner. The resulting delays in receiving incentives have upset some builders. As HERS raters currently get incentives to recruit builders, paying incentives upon completion of paperwork could help alleviate this bottleneck. Furthermore, program staff complained that HERS raters did not provide timely communications to builders so additional training focused on key communication points may be required.

## Changing Codes and Standards

AIC's PY4 program was based on ENERGY STAR Version 2.0, which requires a 15% improvement over the IECC 2006 building energy code. ENERGY STAR Version 3.0 is based on a minimum 15% improvement over the more stringent IECC 2009 building energy code. In theory, building to IECC 2009 is approximately equivalent to a Version 2 HERS Index of 85. All the projects AIC processed during PY4 were certified under Version 2.0, since they were all permitted before January 1, 2012.

IECC 2009 was the building energy code in effect during PY4. However according to program staff, IECC 2009 represents a significant jump from IECC 2006 and few building departments actually enforce it. Typical building methods in PY4 remained more closely aligned with IECC 2006. Accordingly, projects certified under ENERGY STAR Version 2.0 were compared to IECC 2006 for PY4 savings estimates.

[3] http://www.nahb.org/generic.aspx?sectionID=869&genericContentID=74388&channelID=311

According to program staff, since IECC 2012 is slated to take effect January 1, 2013, code officials are now more motivated to enforce the 2009 code. Officials are trying to train and establish appropriate processes to begin enforcing IECC 2012 in 2013. Projects permitted during the latter half of 2012 (and completed during the first half of 2013) will be held to IECC 2009.

As AIC's program shifts to comply with new ENERGY STAR 3.0 requirements, the program will make changes to modeling, design, and required checklists, as described in more detail below.

- **Modeling**. The current ENERGY STAR program (Version 2.0) uses the HERS Index as its primary gauge of efficiency, with the current requirement of an 85 HERS Index. Version 3.0 changes the reference home, incorporating a Size Adjustment Factor (size penalty) when computing the index. Once the target HERS Index has been established, the energy analysis model for the project will be rerun, using the project's expected specifications "as designed." Again a HERS Index is generated. If the "as designed" HERS Index falls at or below the target HERS Index, the project passes the energy modeling requirements. Requiring the additional modeling increases costs for complying with program requirements.

- **Design Changes**. New design requirements in the reference home include increased window efficiency; requiring 80% of lighting from ENERGY STAR lighting or compact fluorescent lamps; and HVAC equipment with a SEER of at least 14.5. All of these specific features are not required; however, the performance of each new home must be just as efficient as a home that has these features.

- **Additional Checklist Requirements**. Builders will have to complete additional checklists under version 3.0, which include the Thermal Enclosure Checklist; the HVAC Quality Installation Contractor Checklist; the HVAC System Quality Installation Rater Checklist; and the Water Management System Builder Checklist.

To help builders and HVAC contractors become familiar with Version 3.0, AIC added an "entry-level" tier to the program offering for PY5. This new tier allows builders to forego ENERGY STAR Version 3.0 certification, but still access the base program incentives as long as they have the home rated and achieve a HERS Index of 70 or less. These projects will not qualify for the bonus incentives available to homes that meet ENERGY STAR 3.0 requirements.

### 4.1.4 MARKET CONTEXT

According to program staff, the housing market in AIC's territory has once again become active after the recession. Participating builders may have weathered the new construction downturn better than traditional builders as the program has helped builders differentiate themselves. Stakeholders report the builder community has adapted as customers ask for energy-efficient homes.

Staff are concerned that, while builders understand the current ENERGY STAR Program, they see less value in ENERGY STAR 3.0 because of its more stringent requirements. The roll-out of ENERGY STAR Version 3.0 for PY5 has raised some resource concern for both AIC and CSG. Nationally, ENERGY STAR 3.0 has not been as well received as have earlier versions. Some other utilities are choosing not to use the ENERGY STAR brand because of these many

requirements.

## 4.2 IMPACT RESULTS

### 4.2.1 PARTICIPANT VERIFICATION

The evaluation team's verification activities indicate all participants in the 20 project sample frame had reasonable data, and were accurately represented in the tracking database. Our review of the tracking database documented savings and participation for 65 participants.

**Table 5. ENERGY STAR New Homes Verified Participation**

| Home Type | Program Tracking | | Verified | | Verification Rate |
|---|---|---|---|---|---|
| | Participants | Per Unit kWh/Therms | Verified Participants | Per Unit kWh/Therms | |
| Combo, HERS 71-85 | 4 | 2,100/140 | 4 | 2,100/140 | 100% |
| Gas, HERS 56-70 | 16 | 0/280 | 16 | 280 | 100% |
| Combo, HERS 56-70 | 32 | 4,200/280 | 32 | 4,200/280 | 100% |
| Electric, HERS 56-70 | 2 | 5,950/0 | 2 | 5,950 | 100% |
| Combo, HERS <=55 | 5 | 6000/400 | 5 | 6000/400 | 100% |
| Electric, HERS <=55 | 6 | 8,500/0 | 6 | 8,500 | 100% |
| **Total** | **65** | | **65** | | **100%** |

### 4.2.2 GROSS IMPACTS

The PY4 gross impacts associated with all 65 participants were 235.7 MWh, 91 kW, and 16,000 Therms. The evaluation team estimated energy savings by applying the fixed savings estimates from the ICC Order for Docket 10-0568. The demand savings estimates were provided by AIC and assumed a 27% coincidence factor. We multiplied these values by total participants to estimate total kW savings. Table 6 below presents verified participation and gross impacts.

**Table 6. PY4 ENERGY STAR New Homes Program Gross Impacts**

| Home Type | Ex Ante Gross Database Impacts | | | Ex Post Gross Impacts[a] | | | Verification Rate |
|---|---|---|---|---|---|---|---|
| | **kWh** | **KW** | **Therms** | **kWh** | **KW** | **Therms** | |
| Combo, HERS 71-85 | 8,400 | 3.5 | 560 | 8,400 | 3.5 | 560 | 100% |
| Gas, HERS 56-70 | - | - | 4,480 | - | - | 4,480 | 100% |
| Combo, HERS 56-70 | 134,400 | 56 | 8,960 | 134,400 | 56 | 8,960 | 100% |
| Electric, HERS 56-70 | 11,900 | 3.5 | - | 11,900 | 3.5 | - | 100% |
| Combo, HERS <=55 | 30,000 | 12.5 | 2,000 | 30,000 | 12.5 | 2,000 | 100% |
| Electric, HERS <=55 | 51,000 | 15 | 0 | 51,000 | 15 | 0 | 100% |
| **Total** | **235,700** | **90.5** | **16,000** | **235,700** | **90.5** | **16,000** | **100%** |

[a] Ex post verified results are based on a review of the program tracking database.

### 4.2.3 NET IMPACTS

As described in the methodology section, the team applied a deemed NTGR of 0.8 to determine PY4 net impacts. Table 7 presents net savings by measure attributable to the ENERGY STAR New Homes Program.

**Table 7. PY4 ENERGY STAR New Homes Program Net Impacts (Gas)**

| Program | Ex Ante Gross Therms | Ex Post Gross **Therms** | NTG | Ex Ante Net **Therms** | Ex Ante Post **Therms** |
|---|---|---|---|---|---|
| ENERGY STAR New Homes | 16,000 | 16,000 | 0.80 | 12,800 | 12,800 |
| | | | | *Net Realization Rate* | 1.0 |

Note: Realization Rate = Ex Post Net Value / Ex Ante Net Value

**Table 8. ENERGY STAR New Homes Net Program Impacts (Electric)**

| Program | Ex Ante Gross | | Ex Post Gross | | NTGR | Ex Ante Net | | Ex Post Net | |
|---|---|---|---|---|---|---|---|---|---|
| | **kWh** | **kW** | **kWh** | **kW** | | **kWh** | **kW** | **kWh** | **kW** |
| ENERGY STAR New Homes | 235,700 | 91 | 235,700 | 91 | 0.8 | 188,560 | 72 | 188,560 | 72 |
| | | | | | | | *Net Realization Rate* | 1.0 | 1.0 |

Note: Realization Rate = Ex Post Net Value / Ex Ante Net Value

## 4.3 INPUTS FOR FUTURE PROGRAM PLANNING

The evaluation team estimated savings for ENERGY STAR Version 3.0 by using the REM/Rate Model outputs which calculated savings based on the 2009 IECC building energy code. Table 9 shows these values.

**Table 9. Savings by HERS Rating Relative to 2009 IECC**

| HERS Index relative to 2009 IECC | Consumption | Units | HERS 85-71 (17.5% Savings) | HERS 70-56 (35% Savings) | HERS <=55 (50% Savings) |
|---|---|---|---|---|---|
| Average gas consumption (home with gas heat) | 800 | therms | 140 | 280 | 400 |
| Average electric consumption (with gas heat) | 12,000 | kWh | 2,100 | 4,200 | 6,000 |
| Average electric consumption (with electric heat) | 17,000 | kWh | 2,975 | 5,950 | 8,500 |
| Average electric demand gas or electric heat | 5 | kW | 0.875 | 1.75 | 2.5 |

# A. APPENDIX – IMPLEMENTATION MODEL

The evaluation team created an implementation model for the Residential ENERGY STAR New Homes program that was evaluated in PY4. An implementation model is a graphic presentation of the intervention—what occurs and who undertakes the program's functional activities.

The model, created in a multi-level Visio format, displays various functions in rows, with the key stakeholders and processes in the columns. We determined these functions, stakeholders, and processes by reviewing the available program documentation, which we further refined in interviews with program staff. This model does not attempt to assess the effects of the program.

The model is organized by functions and stakeholders.

- **Functions** represent the discrete purposes established by the program. They include program design, marketing, customer education, service delivery customer facing activities, service delivery rebates and incentives, and service delivery QA/QC and reporting. "Service delivery" encompasses activities that are directed toward intervention recipients and, as shown in this model, is a catch-all for any activity that does not fit in another function.

- **Stakeholders** are the various providers who deliver the program or who receive program services. Stakeholders include homebuyers, AIC, CSG, residential home builders, HERS Raters, who are certified to test and inspect a home to determine the homes energy efficient performance, and HVAC contractors who provide and install HVAC equipment.

For the ENERGY STAR New Homes Program, key program functions include:

- **Program Administration and Design:** AIC personnel and its implementation subcontractor, CSG work together to establish program goals, budgets and marketing plans.

- **Marketing and Outreach:** AIC and CSG conduct general marketing at home shows and through on-line click-ads. Builders promote the program directly to customers. HERS Raters promote the program to builders.

- **Education:** Builders attend training sessions provided by CSG and then educate their customers' one-on one about the program benefits and requirements.

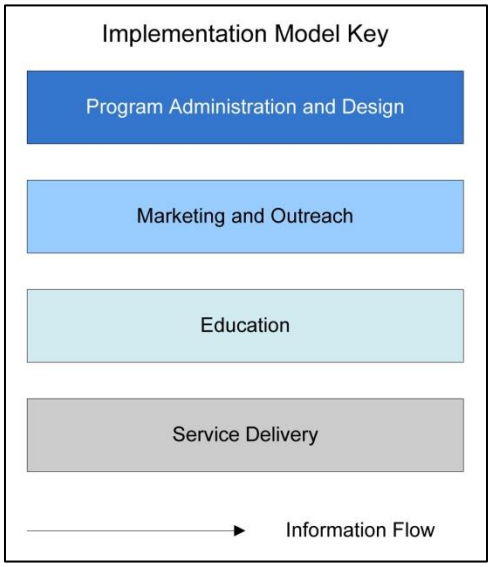
- **Service Delivery (Customer Facing Activities):** Customers decide on specific new home features. Builders develop initial building plans. HERS Raters review the building plans, perform the initial HERS Rating and create a REMRate model for that home. CSG reviews the initial plans and model run, and assigns a specific project number to track the project through the program process.

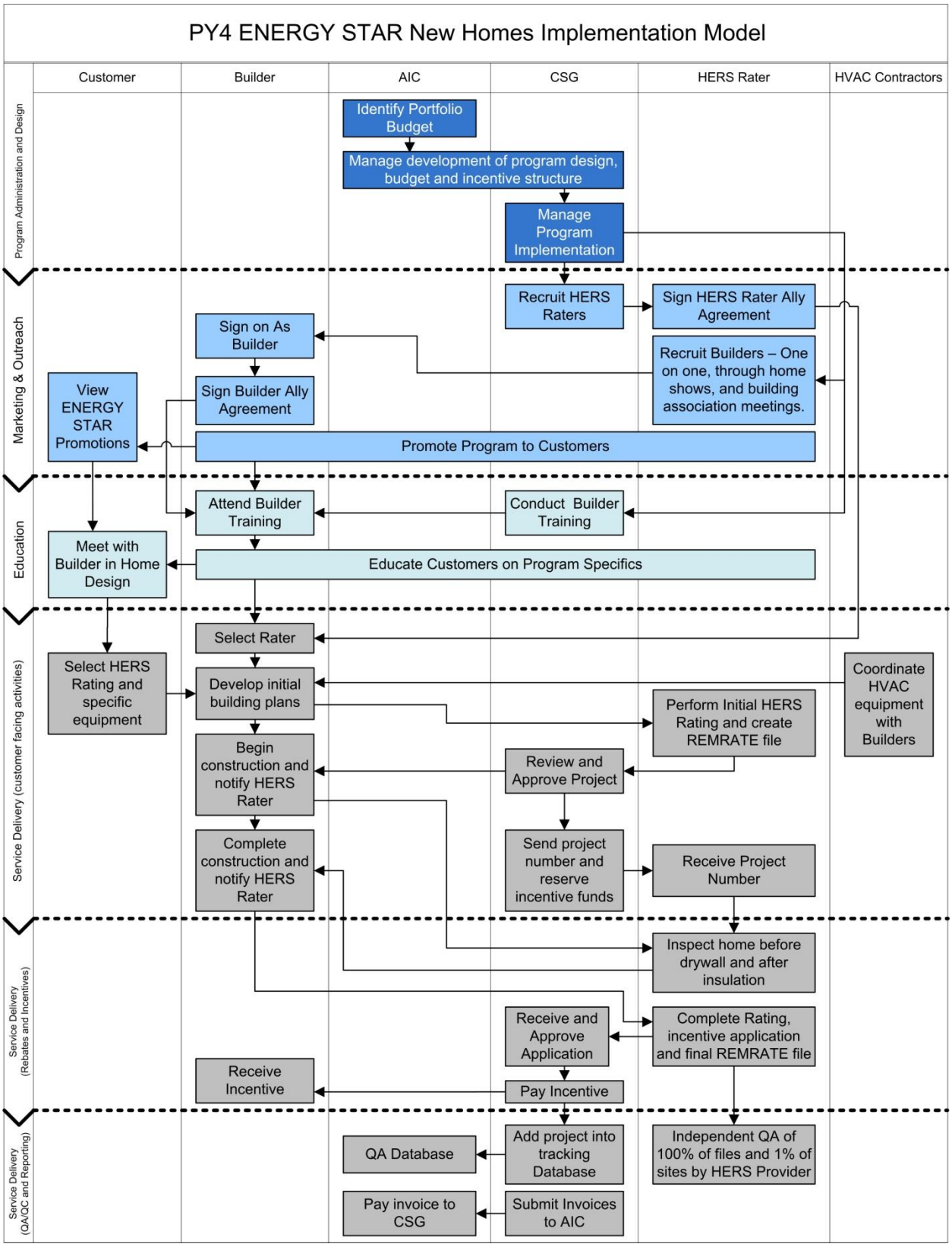
- **Service Delivery (Rebates and Incentives):** Once the home has been built, the builder notifies the HERS Rater who then inspects the home and completes the final HERS Rating, incentive application, and final REMRate model run. The HERS Rater then submits the final application and associated attachments to CSG. CSG reviews the file,

approves it, and pays the incentive to the builder.

- **Service Delivery (QA/QC and Reporting):** CSG adds the project information into the tracking database, which AIC then checks as part of the quality assurance procedures. CSG submits the invoice for work completed and incentives are disbursed.

The Residential ENERGY STAR Homes Implementation model and key follow.




PY4 ENERGY STAR New Homes Implementation Model
Customer
Builder
AIC
CSG
HERS Rater
HVAC Contractors
Program Administration and Design
Marketing & Outreach
Education
Service Delivery (customer facing activities)
Service Delivery (Rebates and Incentives)
Service Delivery (QA/QC and Reporting)
Identify Portfolio Budget
Manage development of program design, budget and incentive structure
Manage Program Implementation
Recruit HERS Raters
Sign HERS Rater Ally Agreement
Sign on As Builder
Recruit Builders – One on one, through home shows, and building association meetings.
View ENERGY STAR Promotions
Sign Builder Ally Agreement
Promote Program to Customers
Attend Builder Training
Conduct Builder Training
Meet with Builder in Home Design
Educate Customers on Program Specifics
Select Rater
Select HERS Rating and specific equipment
Develop initial building plans
Coordinate HVAC equipment with Builders
Perform Initial HERS Rating and create REMRATE file
Begin construction and notify HERS Rater
Review and Approve Project
Complete construction and notify HERS Rater
Send project number and reserve incentive funds
Receive Project Number
Inspect home before drywall and after insulation
Receive and Approve Application
Complete Rating, incentive application and final REMRATE file
Receive Incentive
Pay Incentive
QA Database
Add project into tracking Database
Independent QA of 100% of files and 1% of sites by HERS Provider
Pay invoice to CSG
Submit Invoices to AIC