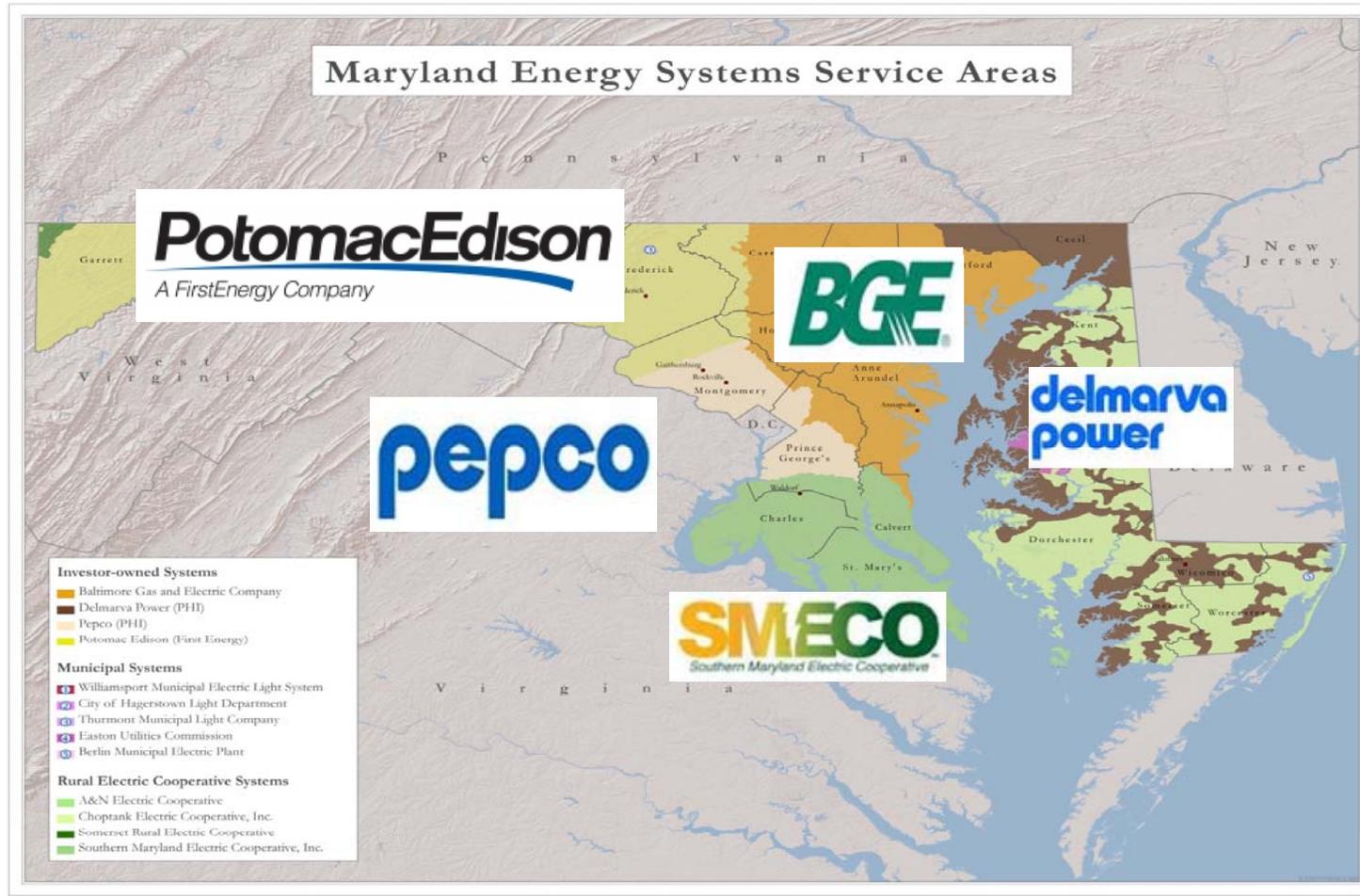


# Maryland ENERGY STAR<sup>®</sup> for New Homes Programs



**A CASE STUDY IN  
STATEWIDE MARKET  
TRANSFORMATION**

# The state of Maryland



# Agenda



- **2009: Getting Started**
  - BGE program launched
- **2010: The Transition to Version 2.5**
  - SMECO program launched
- **2011: Version 2.5 and Training for Retention**
- **2012: Version 3**
  - Pepco, Delmarva Power, and Potomac Edison programs launched
- **Results**
- **Key Lessons Learned**

2009



**GETTING STARTED**

# 2009: Getting Started



- **EmPower Maryland Act: The driving force**
  - 2008 legislation
  - 15% reduction in per capita electricity consumption and 15% reduction in per capita peak demand by 2015, compared to 2007 levels
  - All Maryland utilities required to develop EE and DR programs
  - Programs are funded through public benefit charge to each consumer

# 2009: Getting Started



- **Considerations in designing the BGE Program**

- Goal of residential new construction market transformation to maximize energy savings
- ENERGY STAR for New Homes penetration 5.4%
- Large number of ENERGY STAR HERS raters
- ENERGY STAR builders were small regionals
- Majority of homes built by national builders



# 2009: Getting Started



- **BGE ESfNH Program launched June 1<sup>st</sup>**
- **Provided:**
  - Technical and sales training
  - Incentives to cover 50% - 75% of incremental costs
- **Tiered incentive structure:**
  - HERS Index  $\leq 85$  = \$400
  - HERS Index  $\leq 80$  = \$800
  - HERS Index  $\leq 75$  = \$1000



# 2009: Getting Started



- **Increased participation in state of Maryland**
  - Recruit largest builder, NVR
  - Leverage participation to recruit competitors
  - End of 2009:
    - ✦ 20 regional builders committed
    - ✦ 2 other national builders
    - ✦ Paid incentives on 59 homes



2010



**THE TRANSITION TO  
VERSION 2.5**

# 2010: SMECO Launch

- Program launched in February
- Designed to be consistent with BGE program, with the exception of higher entry tier of \$600
- Program goal – 212 homes



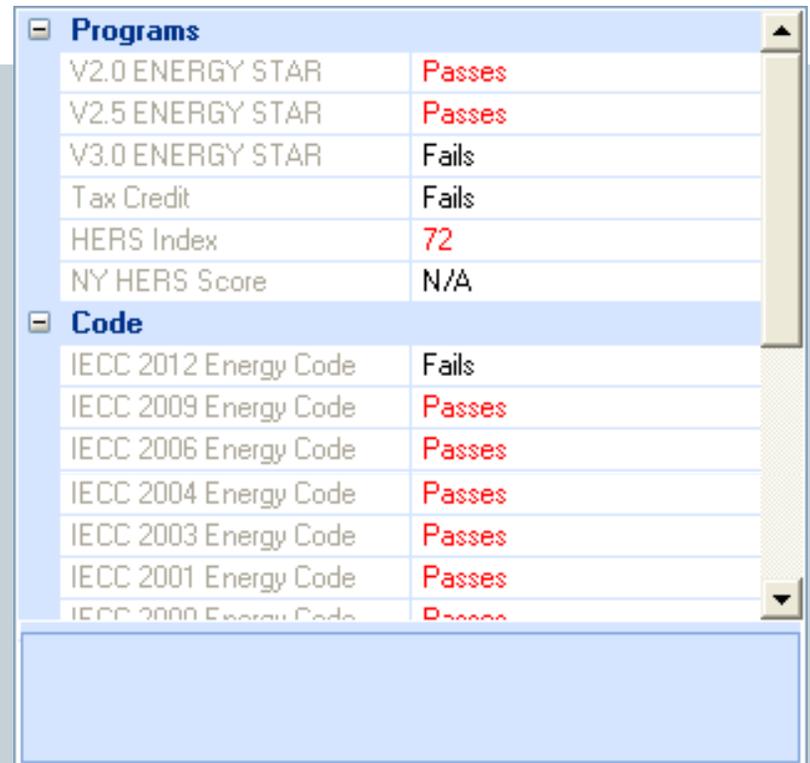
# 2010: The Transition to Version 2.5

- BGE incentivized pilot homes
- 3 builders participated
- Open houses during pre-drywall
- Tracked costs and savings associated with all builders



# 2010: The Transition to Version 2.5

- Ran REM/Rate on 20 popular house types
- Set homes to reference design house default
- Captured expected savings
- Based on pilot study results, re-filed with the PSC



The screenshot shows a software window with a table of energy code compliance results. The table is divided into two sections: 'Programs' and 'Code'. The 'Programs' section lists various energy codes and their compliance status. The 'Code' section lists specific energy codes and their compliance status. The 'HERS Index' is shown as 72, and the 'NY HERS Score' is N/A.

Programs	
V2.0 ENERGY STAR	Passes
V2.5 ENERGY STAR	Passes
V3.0 ENERGY STAR	Fails
Tax Credit	Fails
HERS Index	72
NY HERS Score	N/A

Code	
IECC 2012 Energy Code	Fails
IECC 2009 Energy Code	Passes
IECC 2006 Energy Code	Passes
IECC 2004 Energy Code	Passes
IECC 2003 Energy Code	Passes
IECC 2001 Energy Code	Passes
IECC 2000 Energy Code	Passes

# 2010: The Transition to Version 2.5

- **June 2010 presentation on pilot findings**
- **Discuss different approaches, costs, labor**
- **Debuted expected incentives**



# 2010: The Transition to Version 2.5

- **New incentive January 1<sup>st</sup>, 2011**
  - HERS Index  $\leq 75$  = \$1000
  - HERS Index  $\leq 70$  = \$1300
  - HERS Index  $\leq 65$  = \$1600
- **October 2010, engaged HVAC contractors on checklist**
  - Delivered training to 40 builders and contractors



# 2010: Summary



- 2009: BGE paid incentives on 59 homes
- 2010:
  - BGE paid incentives on 1421 homes
  - SMECO paid incentives on 244 homes
- Increased builders to 32 total, 6 national builders

The Lennar logo, featuring the word "LENNAR" in a bold, blue, sans-serif font with a registered trademark symbol (®) to the right.

The KJ Iovnianian Homes logo, featuring the text "KJ Iovnianian" in a stylized, serif font with a horizontal line through the middle of the letters, and the word "Homes" in a smaller, sans-serif font below it. The entire logo is enclosed in a double-lined oval border.

2011



**VERSION 2.5 AND  
TRAINING FOR  
RETENTION**

# 2011: Training for Retention



Version 3.0 Requirement for reference home	Current Trinity Homes Building Practice	Difference in HERS Index
Air Conditioner $\geq$ 13 Seer	Air Conditioner = 13 Seer	No change needed
Furnace $\geq$ 90% AFUE	Furnace = 92% AFUE	Getting additional point on HERS index.
Heat Pump $\geq$ 8.5 HSPF and $\geq$ 14.5 SEER	Heat Pump = 7.7 HSPF and 13.0 SEER	By upgrading the Heat Pump you are earning 2 points on the HERS index.
Insulation Levels to meet IRC 2009 level and achieve Grade 1 installation.	Installation is Grade 2 or Grade 3 on insulation	<ul style="list-style-type: none"> <li>Grade 1 insulation drops HERS index 1 to 2 points.</li> </ul>
Infiltration levels must be $\leq$ 5 ACH50.	Currently Infiltration levels have been between 4 and 7 ACH50	<ul style="list-style-type: none"> <li>Lowering the ACH50 can drop the HERS index between 1 and 2 points.</li> </ul>
Window U Value $\leq$ .31 Window SHGC Value $\leq$ .33	Window U Value = .35 Window SHGC Value = .38	<ul style="list-style-type: none"> <li>U Value no change.</li> <li>SHGC lower by .05 to be compliant.</li> </ul>
Total Duct Leakage to outside $\leq$ 4 CFM25 per 100 square feet.  Total Duct Leakage for entire system must be $\leq$ 6 CFM25 per 100 square feet	Ducts currently leaking between 4% and 6% for the building envelope.	<ul style="list-style-type: none"> <li>Ducts brought inside the conditioned house can lower the HERS index by 3-5 points.</li> </ul>
80% of all light fixtures must have energy efficient CFL's.	0% of light fixtures have energy efficient CFL's	<ul style="list-style-type: none"> <li>80% CFL can lower HERS index between 3 and 4 points.</li> <li>90% CFL can lower HERS index between 4 and 6 points.</li> </ul>

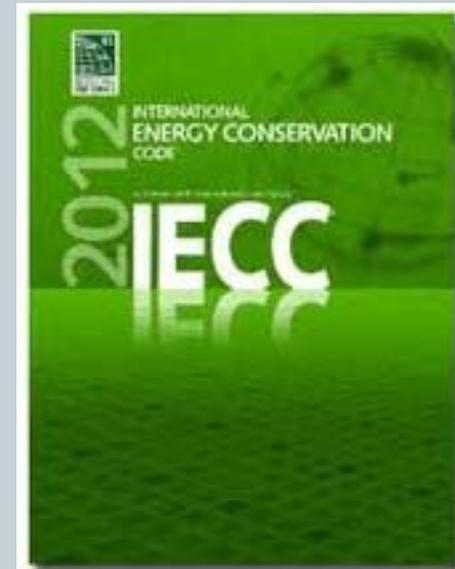
# 2011: Training for Retention

- **Train contractors**
  - April 2011 - paid for HVAC orientation fee
  - Cost \$600 for 20 contractors
- **Train HERS Raters**
  - May 2011 - paid \$1500 for all 30 current Raters to attend
- **Train sales staff**
  - Webinar highlighted the upgrades associated with Version 3
  - Customized sales training available for all builders



# 2011: Preparation for 2012 Code

- **2012 code adopted by Maryland**
  - Ran simulation on 300 homes compared to code
  - Capture savings from HVAC checklist
  - Require 90% CFL
  - No savings lost for failed code compliance



# 2011: Summary



- **2009: BGE paid incentives on 59 homes**
- **2010:**
  - BGE paid incentives on 1421 homes
  - SMECO paid incentives on 244 homes
- **2011:**
  - BGE paid incentives on 1677 homes
  - SMECO paid incentives on 400 homes
- **End of program cycle**
  - BGE = 89% of goal savings
  - SMECO = 417% of goal savings

2012



**LOTS OF BEGINNINGS &  
VERSION 3**

## 2012: New Beginnings



- **Beginning of new PSC program cycle**
- **Pepco, Delmarva Power, and Potomac Edison all launch programs in February 2012**
  - All Maryland utilities collaborated to provide simple program for builders, raters, and PSC
- **Creation of new Home Registration and Rebate Tool, used across all five programs**

# 2012: Creation of New Tool



HOME NEW REGISTRATION SEARCH REGISTRATIONS IMPORT LOGOUT

## Welcome to the BGE Home Registration Web Application

Welcome to the home registration web portal for the BGE ENERGY STAR® for New Homes Program! We are pleased to offer this new web service to make it more convenient for you and your company to participate and apply for incentives. The system will verify that your application materials are complete and accurate, and shorten the time it takes to process and return your incentives.

We value your participation in the BGE ENERGY STAR for New Homes Program. Thank You!

Create new registration Review registrations Change password?

HOME NEW REGISTRATION SEARCH REGISTRATIONS IMPORT LOGOUT

## Welcome to the SMECO Home Registration Web Application

Welcome to the home registration web portal for the SMECO ENERGY STAR® for New Homes Program! We are pleased to offer this new web service to make it more convenient for you and your company to participate and apply for incentives. The system will verify that your application materials are complete and accurate, and shorten the time it takes to process and return your incentives.

We value your participation in the SMECO ENERGY STAR for New Homes Program. Thank You!

Create new registration Review registrations Change password?

HOME NEW REGISTRATION SEARCH REGISTRATIONS IMPORT LOGOUT

## Welcome to the Potomac Edison Home Registration Web Application

Welcome to the home registration web portal for the Potomac Edison for New Homes Program! We are pleased to offer this new web service to make it more convenient for you and your company to participate and apply for incentives. The system will verify that your application materials are complete and accurate, and shorten the time it takes to process and return your incentives.

HOME NEW REGISTRATION SEARCH REGISTRATIONS IMPORT

HOME NEW REGISTRATION SEARCH REGISTRATIONS IMPORT LOGOUT

## Welcome to the Pepco Home Registration Web Application

Welcome to the home registration web portal for the Pepco ENERGY STAR® for New Homes Program! We are pleased to offer this new web service to make it more convenient for you and your company to participate and apply for incentives. The system will verify that your application materials are complete and accurate, and shorten the time it takes to process and return your incentives.

We value your participation in the Pepco ENERGY STAR for New Homes Program. Thank You!

Create new registration Review registrations Change password?

## Welcome to the Delmarva Power Home Registration Web Application

Welcome to the home registration web portal for the Delmarva Power ENERGY STAR® for New Homes Program! We are pleased to offer this new web service to make it more convenient for you and your company to participate and apply for incentives. The system will verify that your application materials are complete and accurate, and shorten the time it takes to process and return your incentives.

We value your participation in the Delmarva Power ENERGY STAR for New Homes Program. Thank You!

Create new registration Review registrations Change password?

# 2012: Strong Start



<b>Utility</b>	<b>2012 Goal</b>	<b>Commitments</b>
Delmarva	275	175
Pepco	350	600
Potomac Edison	300	502
SMECO	375	876
BGE	1250	2875
<b>TOTAL</b>	<b>2550</b>	<b>5028</b>

## 2012: Final Preparations for V3

- **Held HVAC training in field for contractors**
- **Additional trainings planned based on feedback**
- **Check in meetings scheduled with each builder**
- **Monthly technical bulletin based on field QA/QC**



# Results

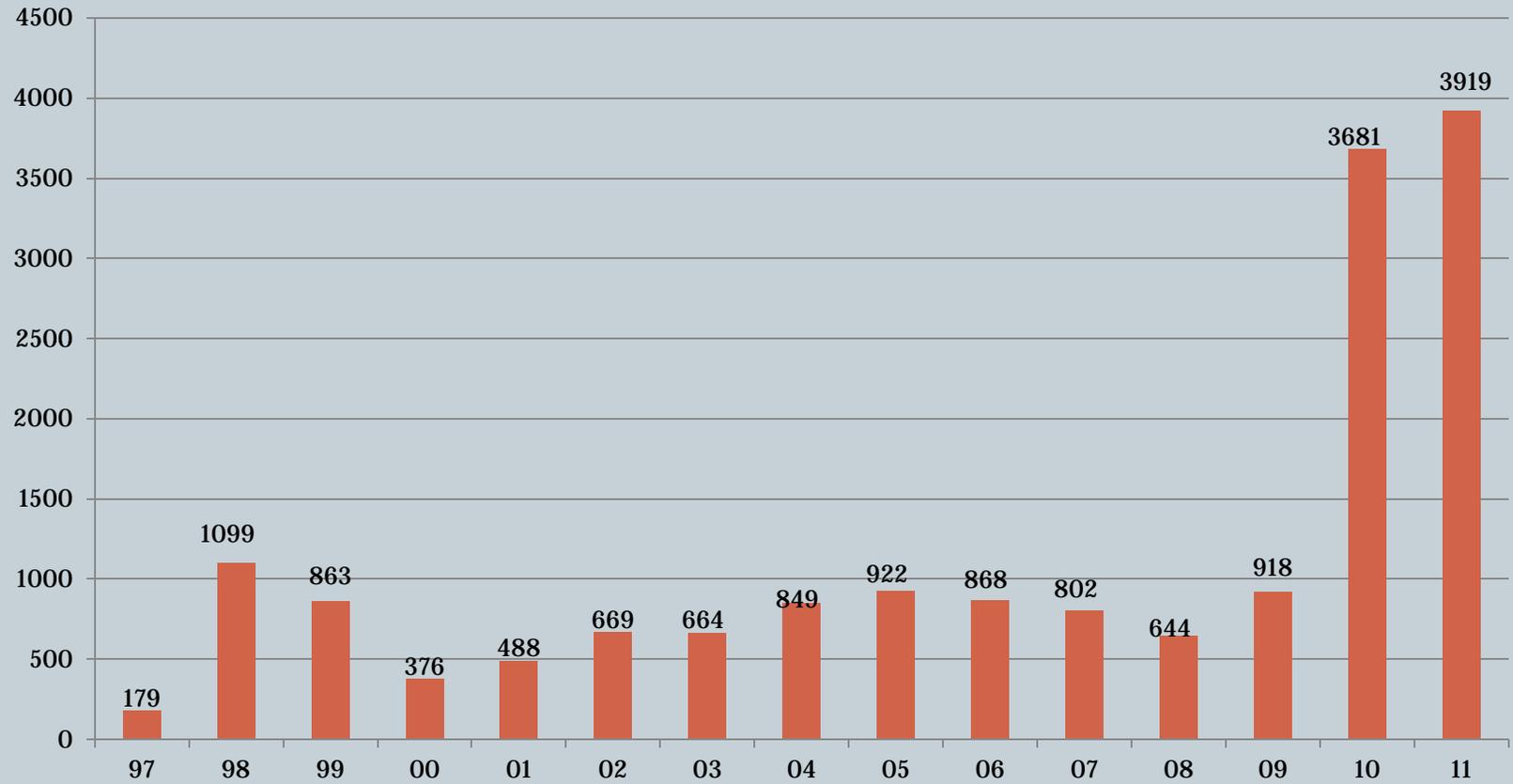
- Increased ENERGY STAR market penetration
  - 2008 = 5.4%
  - 2010 = 42%
  - 2011 = 50%
- Statewide participants:
  - 43 builders (10 national)
  - 12 Raters
  - 23 trained / credentialed HVAC companies
- >5000 ENERGY STAR homes committed in 2012



# Results



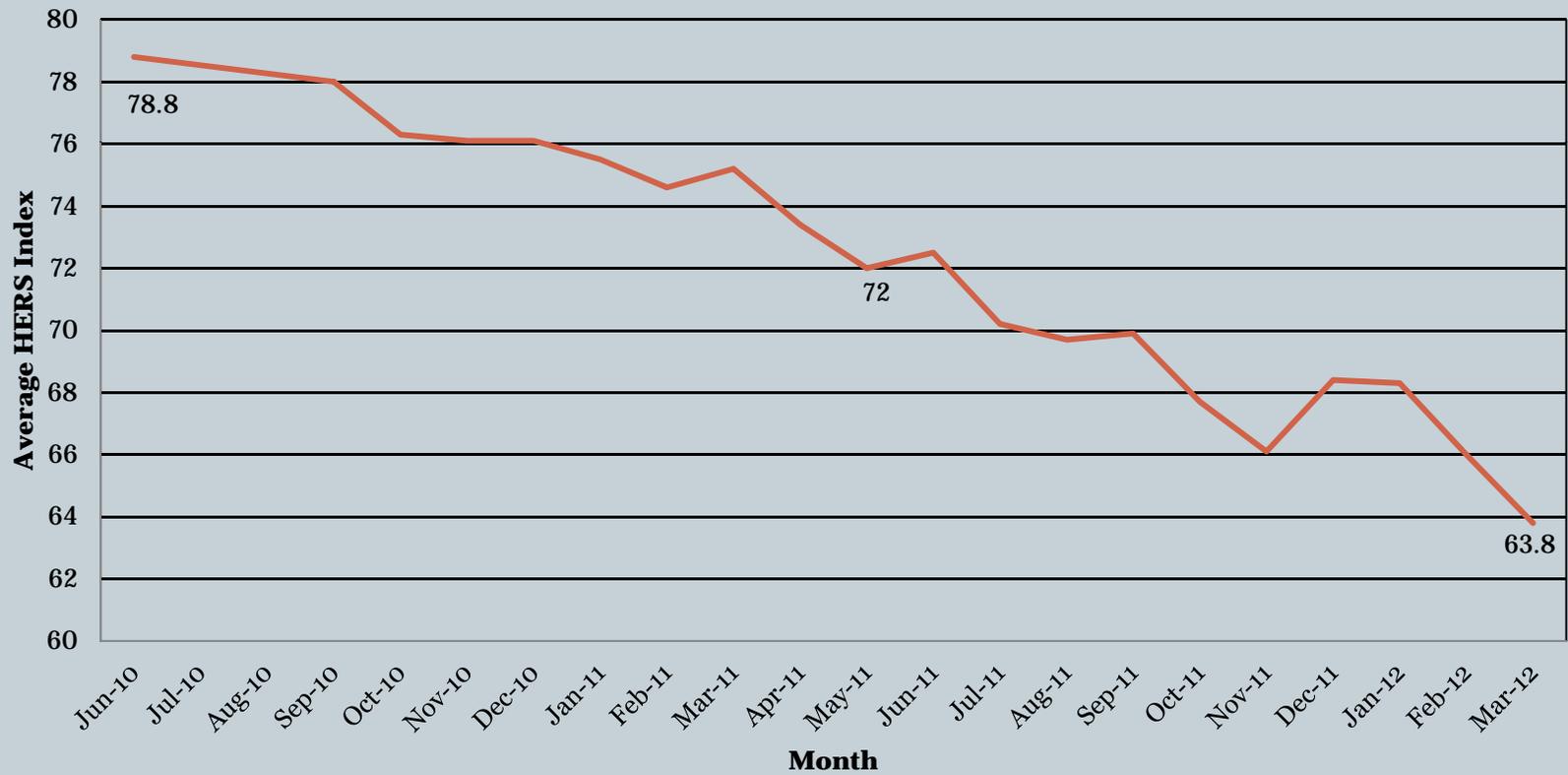
## ENERGY STAR Qualified Homes in MD



# Results



## Average HERS Index in Maryland Program Homes



# Key Lessons Learned



- Plan the trainings as soon as possible
- Present specification as a partner
- Research expected costs - compare across builders
- Partners find value above and beyond rebate

**PotomacEdison**  
A FirstEnergy Company

**delmarva  
power**

**BGE**

**pepco**

**SMECO**  
Southern Maryland Electric Cooperative