



# Residential Energy Rating Initiative

# Background

- DOE-funded (\$2.6 million rec'd October 2010)
- Implemented April 2012 through March 2014
- 8 MA municipalities
  - Belchertown, East Longmeadow, Hampden, Longmeadow, Monson, Palmer, Springfield, and Wilbraham
- “Extras” into Home Energy Services Program
- Savings tracked by unique site ID

# Home MPG Partners

- National Grid
- Columbia Gas of MA
- Western Massachusetts Electric Company
- Conservation Services Group
- Honeywell Home Energy Solutions
- Pioneer Valley Planning Commission
- Center for Eco Technology
- Sagewell
- Earth Advantage Institute
- National Association of State Energy Officials



Massachusetts Department  
of Energy Resources

# Home MPG “Extras”

- Energy Performance Scorecard before & after efficiency improvements
- Thermal imaging analysis
- Local outreach & marketing
- Bonus insulation incentives & equipment rebates
- Technical assistance service for customers considering equipment upgrades
- Real estate broker & appraiser trainings

# Why building energy rating ?

Informing  
Consumers

Product  
Differentiation

Motivating  
Investment

Sustainability Facts		
Area: 2800 ft <sup>2</sup>		
<b>Annual Energy Consumption (kBtu)</b>	<b>37,472*</b>	
Percentage of national average 30%		
<b>Annual CO2 Emissions (lbs)</b>	<b>10,292**</b>	
Percentage of national average 41%		
<b>Average Annual Water Use (gal/day)</b>	<b>86</b>	
Percentage of regional average 24%		
Insulation (R-value)		
		% State Minimum
<b>Wall Assembly</b>	22.5	175%
<b>Roof</b>	38.0	126%
<b>Floor</b>	32.0	164%
Windows (R-value)		
Dual-pane, low-E glazing	3.6	240%
<b>U-Value</b>	<b>0.28</b>	

\* Projected usage based on total energy usage for heating, cooling, domestic hot water, appliances and lighting  
\*\* Projected emissions based on both on site and remote energy conversion



# Scorecard Design Criteria

- Asset rating (not billing data)
- Energy performance: MMBtu/year
- Carbon footprint: carbon metric tons/year
- Compared to area average & expected score after implementing recommended measures
- Expected cost savings associated w/recommendations
- Post-implementation scores based on what was implemented & compared to prior scores

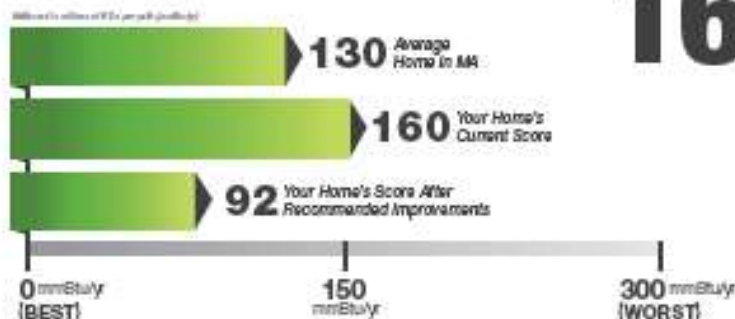


## YOUR HOME'S ENERGY PERFORMANCE SCORE

Home MPG, a program within Mass Save®, provides you with your home's "miles per gallon" energy performance rating, called an "energy performance score" or EPS. By helping you better understand your home's energy use, Home MPG helps you make smart decisions about implementing improvements that make your home more energy efficient and reduce your energy costs.

### Your Home's ENERGY PERFORMANCE SCORE

This score shows the estimated total energy use (electricity and heating fuel) of your home for one year. The lower the score, the better!



# 160

Estimated percentage of energy use by fuel type: Electric: <XXXX%>, Natural Gas: <XXXX%>

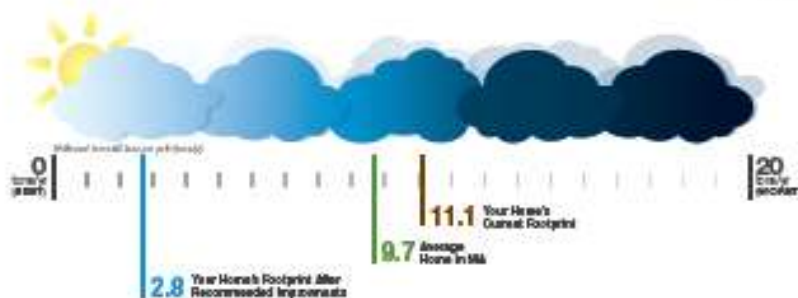
PREPARED FOR  
<Customer Name>  
<Customer Address>  
<City>, <State> <Zip>  
Ref #: <Site ID>

Year Built: <XXXX>  
Sq Footage: <XXXX>  
Bedrooms: <X>  
Primary Heating Fuel:  
<XXXX>

EPS Report Date:  
<XX/XX/XXXX>  
Energy Specialist:  
<Energy Specialist Name>

### Your Home's CARBON FOOTPRINT

This score shows the estimated carbon emissions based on the annual amounts, types, and sources of fuels used in your home. The lower the score, the less carbon is released into the atmosphere to power your home.



# 11.1

Estimated average carbon footprint (tons/yr): Electric <XX>, Natural Gas <XX>

## DOLLARS & SENSE

Current Estimated Energy Costs: **\$2000** Per Year



ESTIMATED ENERGY SAVINGS  
**\$1150** Per Year

*Based on implementing all of the recommended energy efficient improvements*

Massachusetts Department of Energy Resources



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## PREPARED FOR

123 Test Street  
Testville, NY 14050  
Ref #: GSN637

**Year Built:** 1975  
**Sq Footage:** 1800  
**Bedrooms:** 3  
**Primary Heating Fuel:** Electricity

**Assessment Date:** 9/12/2012  
**Energy Specialist:** Performance Manager

## 208 Your Home's ENERGY PERFORMANCE SCORE

This score shows the estimated total energy use (electricity and heating fuel) of your home for one year. The lower the score, the better!



Estimated percentage of energy use by fuel type: Electric: 88%, Natural Gas: 14%.  
Estimated percentage of energy use by end use: Heating 80%, Cooling 5%, Hot Water 25%,  
Appliances and Lighting 10%.

## THE BOTTOM LINE

PER YEAR

**\$0**

ESTIMATED ENERGY SAVINGS

Based on implementing all of the recommended energy efficiency improvements

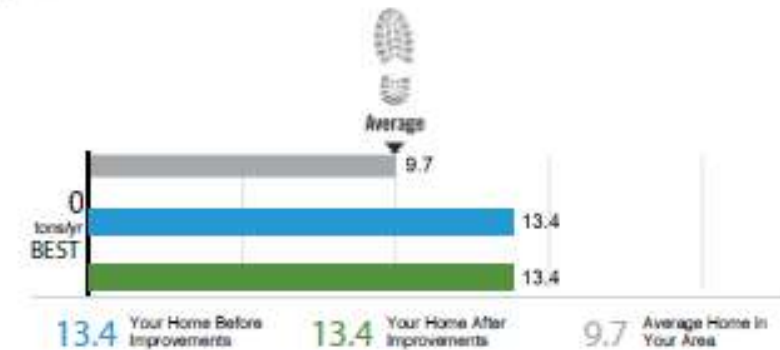
PER YEAR

**\$9989**

CURRENT ESTIMATED ENERGY COSTS

## 13.4 Your Home's CARBON FOOTPRINT

This score shows the estimated carbon emissions based on the annual amounts, types, and sources of fuels used in your home. The lower the score, the less carbon is released into the atmosphere to power your home.



For more information on Home MPG or to create an online account to manage your home's information, visit [masssave.energy-performance-score.com](http://masssave.energy-performance-score.com)

Actual energy costs may vary and are based on many factors such as occupant behavior, weather and utility rates. Please see reverse for more on the EPS calculation. Projections for savings and energy savings are estimates based on implementing all of the recommended energy efficiency improvements.



Western Massachusetts Electric  
A Northern Utilities Company



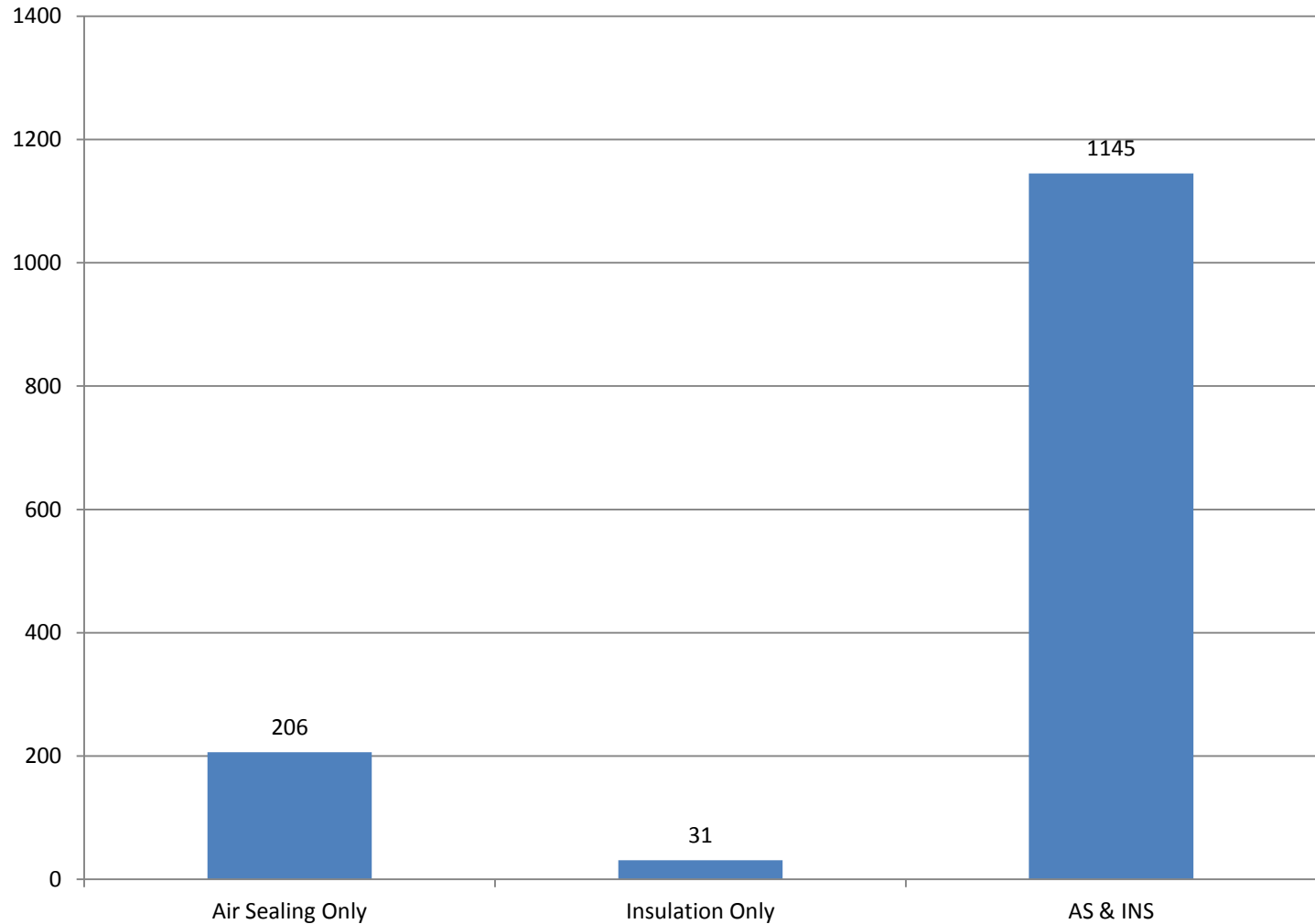
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# Home MPG Results

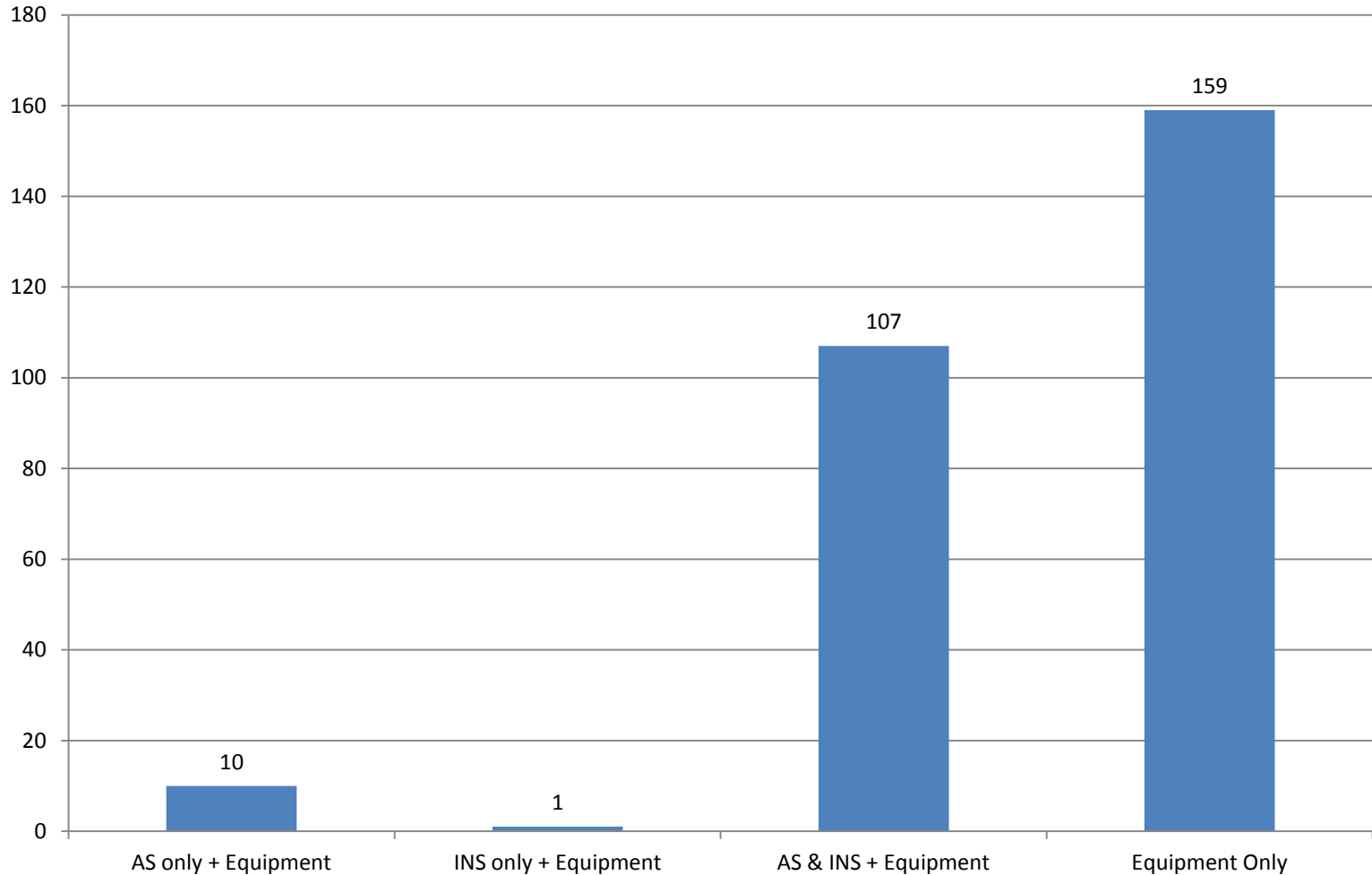
- 3866 initial scorecards issued via energy assessment
- 1452 updated scorecards to participants that completed efficiency work
- 38% of participants completed work to date
- Penetration rate ~6-8%
- 1252 homes completed multiple measures
- Deeper savings: 20% average total energy
  - May be revised upwards with HEHE data

# Weatherization by Household (1452)



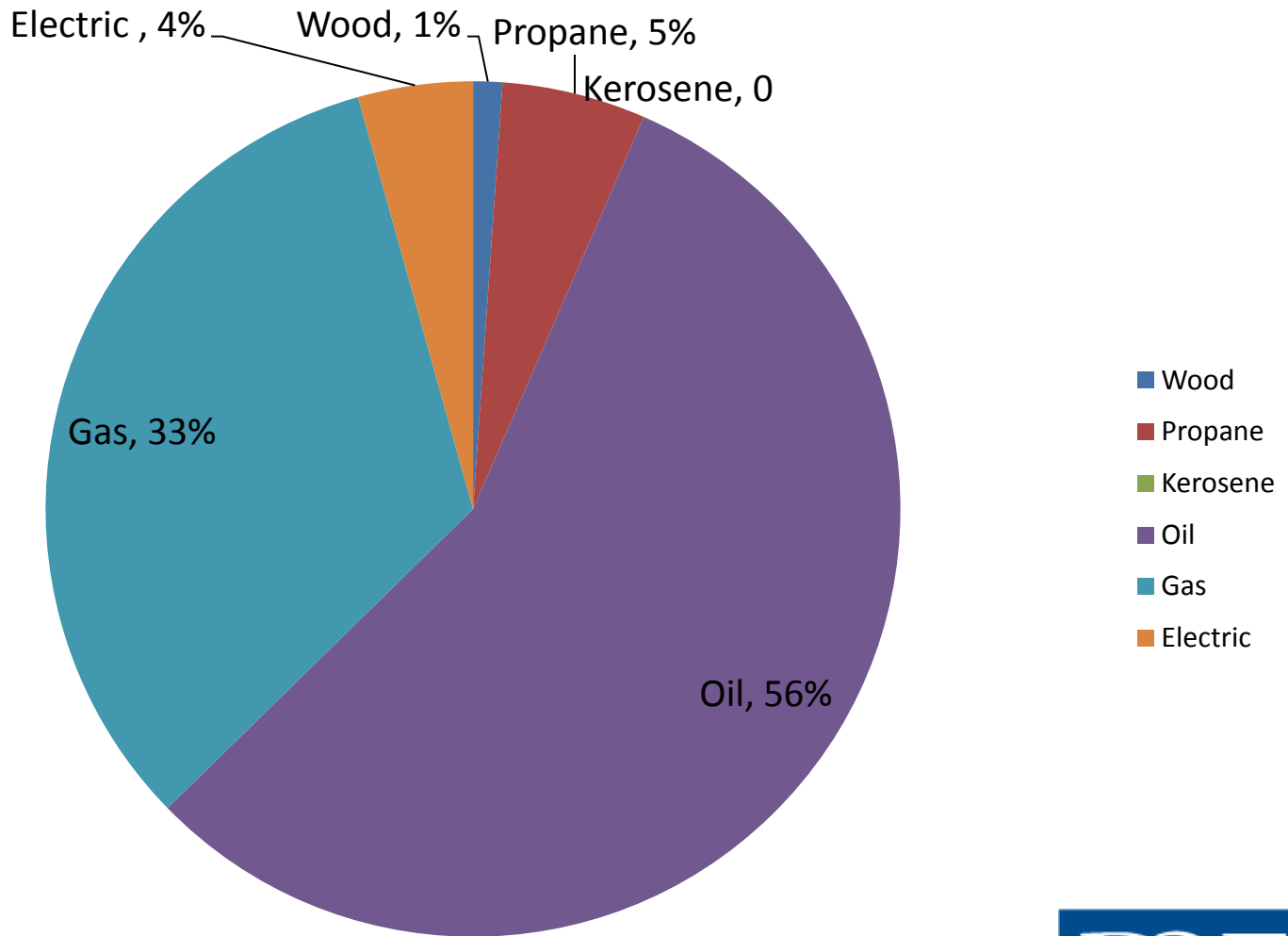
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# Bonus Rebate Equipment (277)



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# Completed Work by Fuel Type



# Scorecard integration

- CSG and PSD software currently have scorecard capability
- API allows scorecard add-on to any audit software
- 150 real estate professionals received training on green real estate including scorecards
- Similar scorecards being used in VT and OR
  - Slightly different scorecard used in CT

# Customer Feedback on Scorecard

- EPS helped customers decide to make energy-saving improvements to their home:
  - 67% “very useful”
  - 31% “somewhat useful”
- 74% said the EPS would be “very useful” when buying a house
- Additional feedback in June

# What's next?

- Further analysis of Home MPG data
- Feedback from customers & partners
- Scorecards in MA beyond Home MPG?
  - Other local MA initiatives (Worcester and Belmont)
  - Discussions with PAs/lead vendors
- Collaboration with DOE and other states

# Thank You!



# Bonus Incentives and Rebates

- Insulation bonus incentive of 75% up to \$3,750
  - \$2,000 from Mass Save
  - Additional \$1,750 from Home MPG if needed
- High efficiency equipment rebates
  - Focused on most efficient models
- Higher bonus rebates for renewable thermal technologies
  - Cold Climate Air Source Heat Pumps
  - Heat Pump Water Heaters
  - Central Biomass Pellet Systems



# Scorecard Development

- Spring 2012-Fall 2012: Energy specialists use Earth Advantage software to generate scorecard
  - Dual-data entry
- October 2012: CSG audit software generates scorecard
- June 2013: Honeywell (PSD) audit software links to EA software to generate scorecard