



# Home Energy Scorecards in Massachusetts

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Alex Pollard  
EE Commercial Programs Manager  
Mass. Department of Energy Resources (DOER)



Massachusetts Department  
of Energy Resources

*Creating A Cleaner Energy Future For the Commonwealth*

# Presentation Topics

1. MA Home Energy Scorecard Legislation
2. Experience with scorecards – Home MPG
3. Moving toward the future - scorecard design and metrics

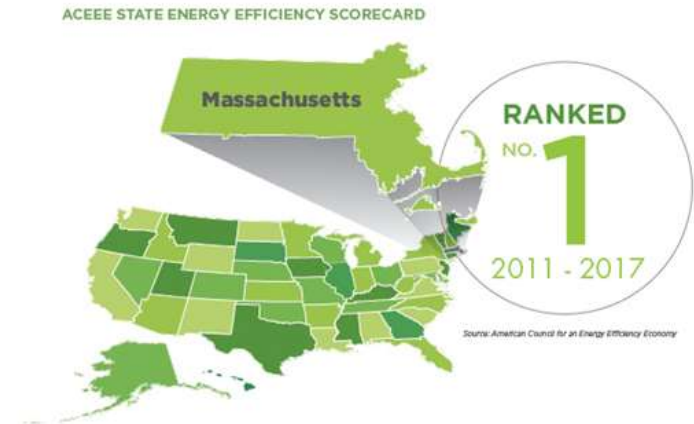
# Massachusetts Energy Approach

1. Reduce and **stabilize the rising cost** of energy for consumers
2. Continue the Commonwealth's commitment to a **clean energy future**
  - GWSA GHG reductions: 25% by 2020 and 80% by 2050 (1990 baseline)
3. Ensure that we have a **safe, reliable, and resilient** energy infrastructure



# Energy Efficiency Leadership Continues

- Ranked #1 by ACEEE for seven straight years (2011-2017) for our energy efficiency programs and policies
- All EE offered under 1 statewide brand – Mass Save
- 2016-2018 Three Year EE Plan has most aggressive energy efficiency goals in U.S.
  - Will deliver \$8 billion in economic, environmental and energy benefits
- 52,000 jobs and growing



DER

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# DOER Purpose and Organization

*Creating a Clean, Affordable and Resilient Energy Future*

Develops policies  
and manages  
RPS/APS programs

Chairs EEAC and  
supports innovation and  
development of EE



Tracks  
industry  
trends,  
develops  
policy for  
energy  
supply &  
security

Supports  
cities and  
towns with  
grants,  
technical  
assistance

Smart Grid, Storage,  
EVs



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# Building Sector Provides Substantial Opportunities to Reduce GHGs

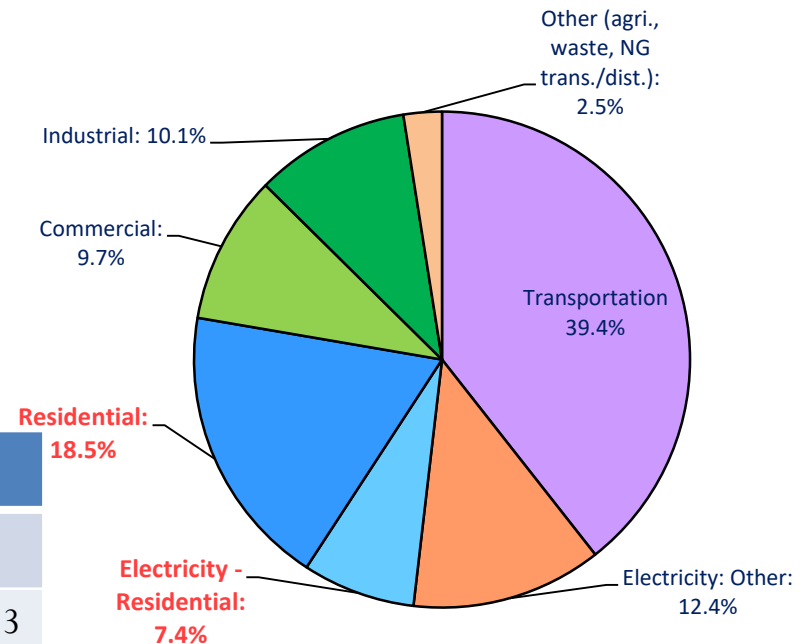
## How do we reduce emissions in the residential building sector?

- Accelerate home energy efficiency improvements; and
- Improve the energy performance of new construction.

**Mass Save® has succeeded with “low-hanging fruit” of energy efficiency:**

	2015	2016	2017
# of Full HEAs	100,539	76,758	83,873
Lighting #	1,796,239	896,795	1,062,423
# Customers who Install Measures	35,284	29,900	25,360
Air Sealing Jobs #	30,849	25,894	22,910
Closure Rate	35.1%	39.0%	30.2%

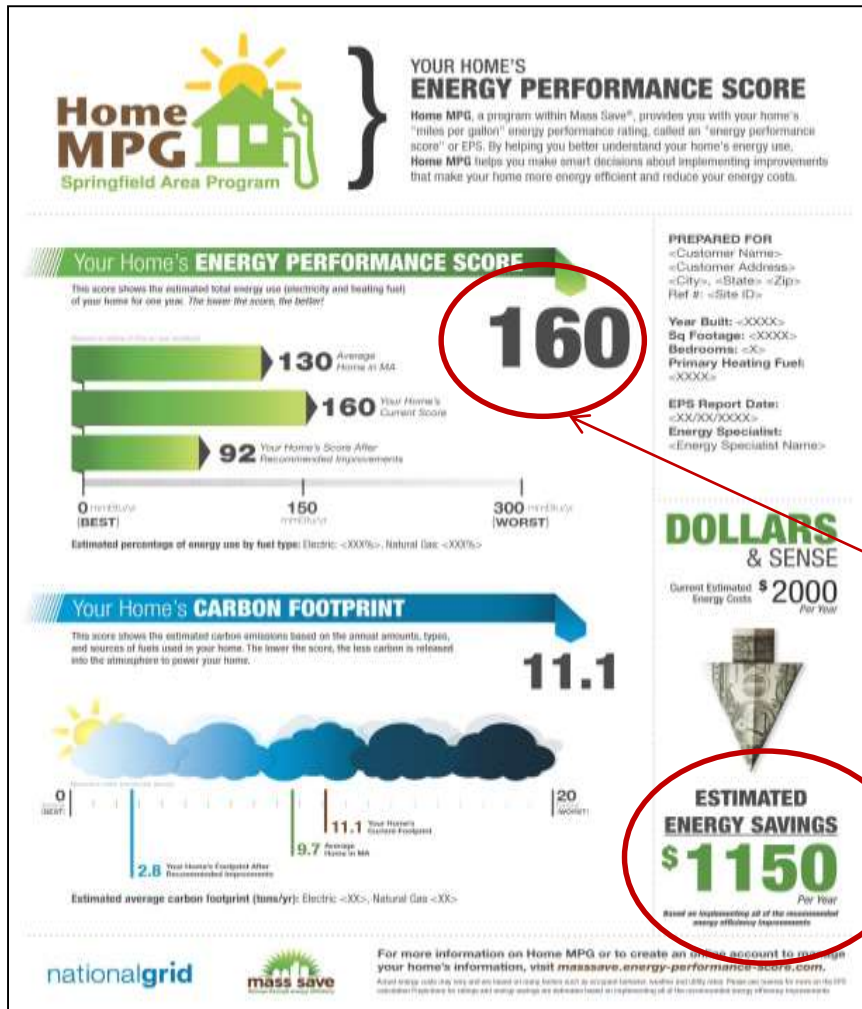
2014 MA GHG Emissions by Sector  
74.5 MMTCO<sub>2</sub>e



# Why Scorecards in Massachusetts?

- Create Transparency for Consumers
- Help drive residential energy improvements, which will:
  - Lower energy bills for homeowners & renters
  - Improve home values; and
  - Reduce greenhouse gas emissions

# Overview of Scorecard Proposal



## What does the bill Propose?

Authorizes DOER to develop a home energy scorecard program for residential homes (1-4 units) that requires:

1. Scorecards to be produced following any home energy assessment in MA;
2. scorecards to be provided to potential buyers during a home sale.

Energy Performance Rating (0-300)

Potential Customer Savings



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# Massachusetts Experience With Scorecards



## DOER Home MPG Pilot

MA Department of Energy Resources (DOER) conducted a pilot program in 8 municipalities with the Mass Save home audit program, between 2013-2014.

Home energy scorecards were provided in conjunction with a homeowner's Mass Save audit and again after making efficiency improvements.

### The Results:

- 3,800+ homes received scorecards
- 1,593 homes implemented energy efficiency improvements, which resulted in:
  - 32,000 MMbtus/year or \$650,000/year in energy savings; and
  - reduction in each homes annual energy consumption by an average of 20 MMbtus or \$400+/year
- Increased energy efficiency implementation:
  - 25% more households completed installations over Mass Save (business as usual);
  - 25% more savings per household over Mass Save.
- The vast majority of surveyed homeowners agreed
  - a scorecard should be included with an audit
  - a scorecard would be useful in the home-buying process



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# Scorecard Design & Metrics

- Asset rating (not operational)
- Energy use metric: 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



## Home MPG Pilot Examples – Large Home

### Oil Home in Wilbraham, MA

Year Built: 1956

Sq Footage: 2,891ft<sup>2</sup>

Bedrooms: 5

Heating Fuel: Oil

Score BEFORE: 195

Score AFTER: 156

Est. Energy Savings: \$908/year

Est. GHG savings: 3.5 tons/year

### Total Mass Save incentive of \$3672 for:

21 CFLs, and 1 LED bulb

11 hours of air sealing

Wall insulation (\$2,740 from Mass Save)

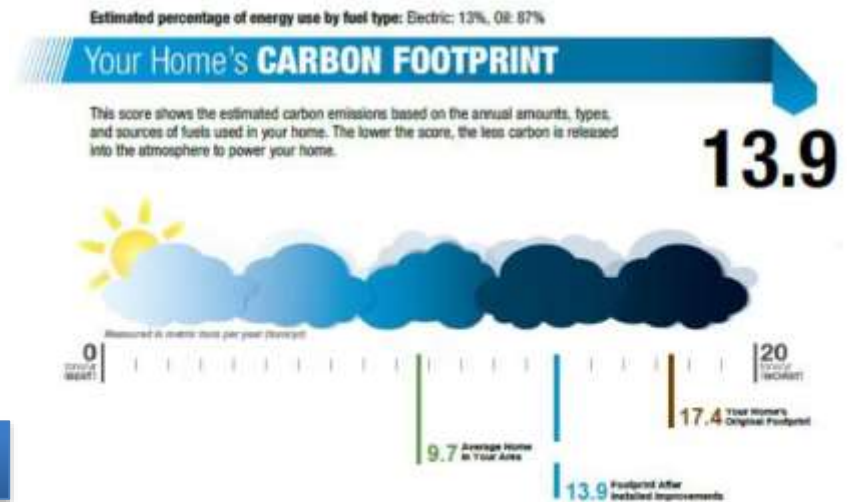
### Homeowner cost:

This household\*\* - \$913

Low-income household - \$0

Moderate income household\* - \$274

**2017 Zillow Home Value: \$293,000**



\* Mass Save covers up to 90% of insulation costs, up to \$3,000 for households at 61-80% of median income

\*\* Mass Save covers up to 75% of insulation costs, up to \$2,000 for households above 81% of median income

This scorecard compares home energy use and carbon footprint to an average home in MA, and shows improvements based on recommended technology.

## ABOUT

Address  
123 Main St., Whatley, MA, 01903

Year Built <b>1850</b>	Sq. Footage <b>2735</b>
# of Bedrooms <b>3</b>	Primary Heating Fuel <b>Fuel Oil</b>
Assessment Date <b>N/A</b>	Energy Specialist <b>Dave Saves</b>

## YEARLY ENERGY USE

Electricity <b>3,613 kWh</b>	Fuel Oil <b>1,324 gallons</b>
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## YEARLY COSTS & SAVINGS\*

**\$ 4,343**

Pre-upgrade  
Energy cost  
per yr.



Before

**\$ 2,798**

Post-upgrade  
Energy Cost  
per yr.



After

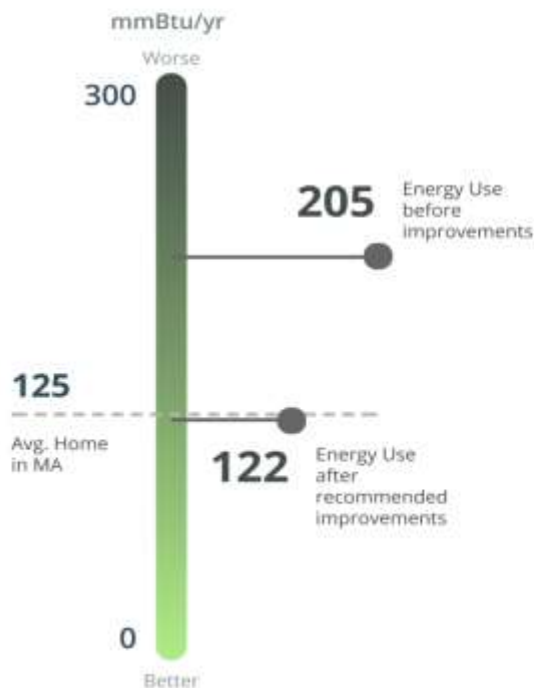
**SAVE  
\$ 1,545**

Estimated  
Energy Savings  
per yr.

Electricity: \$ 0.19/kWh, Propane: \$ 2.98/gallon, Oil: \$ 2.57/gallon.

## HOME ENERGY USE

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

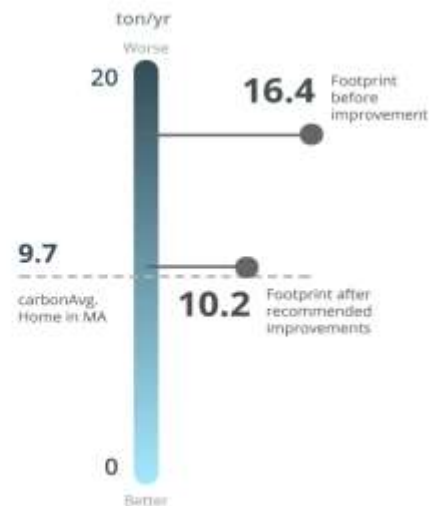


Estimated percentage of energy use by fuel type:

4% Propane      90% Fuel Oil      6% Electricity

## HOME 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.



Estimated average carbon footprint (tons/yr):

93% Fuel Oil      7% Electricity

\* Estimated costs and savings. Actual energy costs may vary and are based on many factors such as occupant behavior, weather and utility rates. Please see next page for more on the EPS calculation. Projections for score improvements and energy savings are estimates based on implementing all of the recommended energy efficiency improvements. Ref# 91997.

# Where are we now with scorecards in Massachusetts?

- DOER is requiring scorecards to be integrated into the Mass Save home audit program
  - “before” and “after” EE implementation
- DOER to develop scorecard design & requirements with input from Mass Save Program Administrators
- Scorecards electronically provided to DOER on a quarterly basis
- Current MA Administration plans to re-file scorecard legislation in December



# Thank You!

**Alex Pollard**

Energy Efficiency Commercial Programs Manager

MA Department of Energy Resources

(617) 626-7360

Alexander.Pollard@mass.gov