

Weatherizing Buildings: Carbon is the missing piece



MaineHousing Carbon Quantification Project

Jo-Ann Choate, National Policy Advisor, MaineHousing

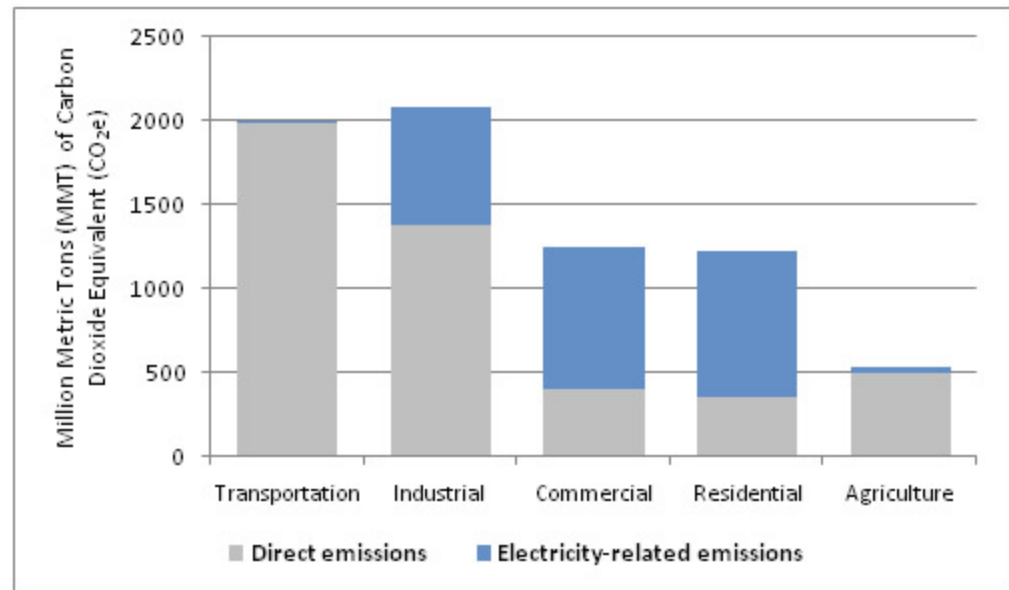
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Weatherization

- 🏠 Residences contribute ~20% of all GHG emissions in US
- 🏠 Older housing stock = high energy bills
- 🏠 Maine's goal: Weatherize all homes by 2030
- 🏠 Weatherization reduces energy costs and carbon emissions by 24%

GHG Emissions from Direct Combustion and Electricity by End-Use Sector (2007)



Source: EPA, [Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2007](#), Table 2-14, 2009.

energy efficiency = energy savings = avoided carbon emissions

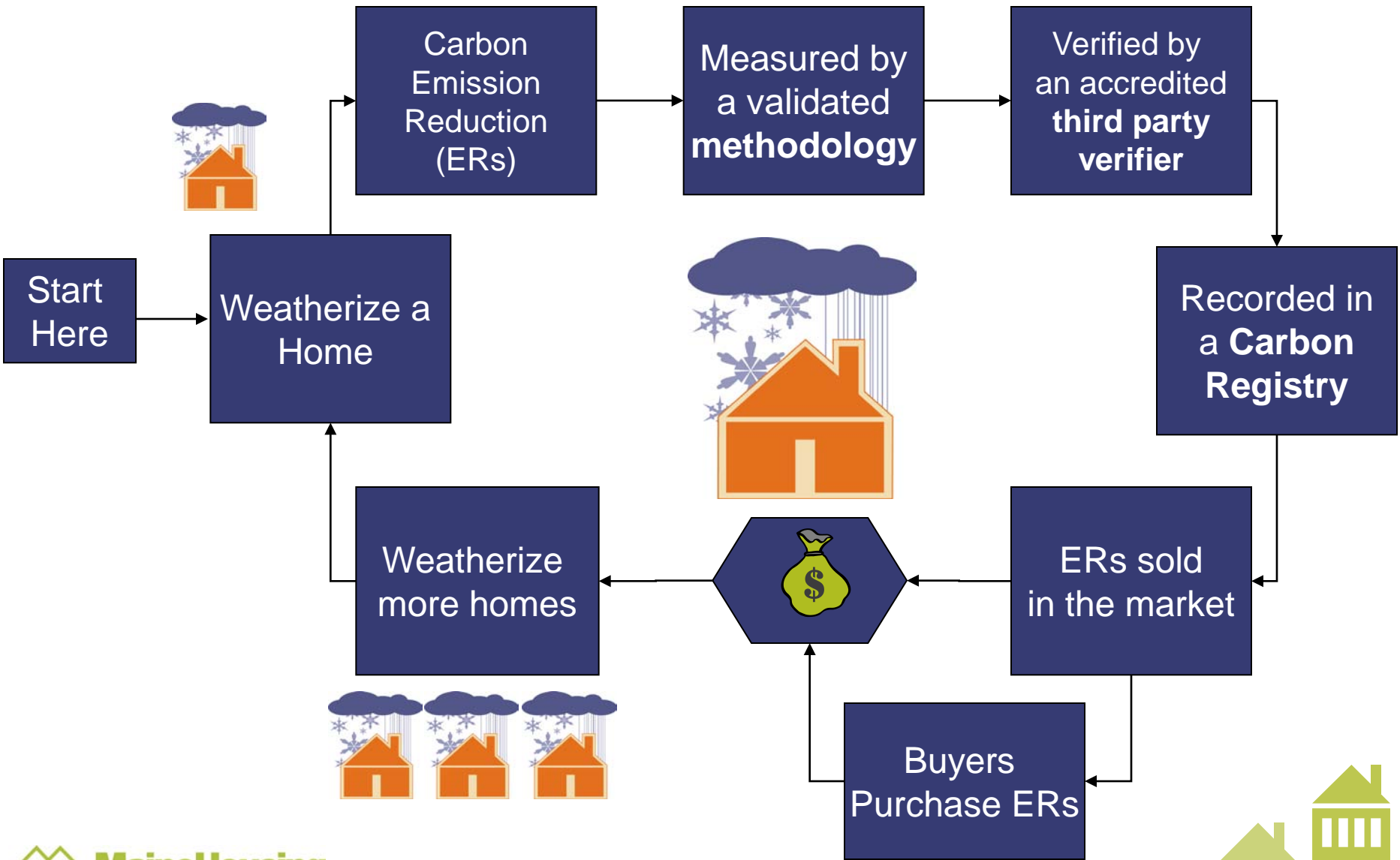


Weatherization Programs

- 🏠 Typically underfunded
- 🏠 Minimal market penetration
- 🏠 National committees, local programs all looking for alternative funding options
- 🏠 Carbon finance is a new, real revenue stream



Carbon Quantification Project: Here's How It Works



The Carbon Quantification Project

🏠 New framework and tools

- 🏠 1. Methodology

- 🏠 2. Centralized Database

🏠 To be opened up to other weatherization programs and state entities

Main goals of the Project:

- 🏠 to create compliance quality carbon emission reductions within the housing sector,

- 🏠 to gain access to carbon market revenue to extend energy efficiency programs,

- 🏠 to demonstrate that the housing sector can play a meaningful role in addressing climate change.



The Carbon Quantification Project

🏠 Project Elements

- 🏠 Voluntary Carbon Standard

- 🏠 New Methodology to ensure reductions are: **Real, Measurable, Verifiable, Surplus, Permanent**

- 🏠 Independent Third Party Validation

- 🏠 Credits tracked in a Registry

- 🏠 Pilot: Bringing Emission Reductions to market to generate new revenue sources to expand weatherization activities

- 🏠 Guidance Document for interested parties



Options for Methodology

🏠 Options for where methodology could fit in to carbon market:

🏠 Offset category

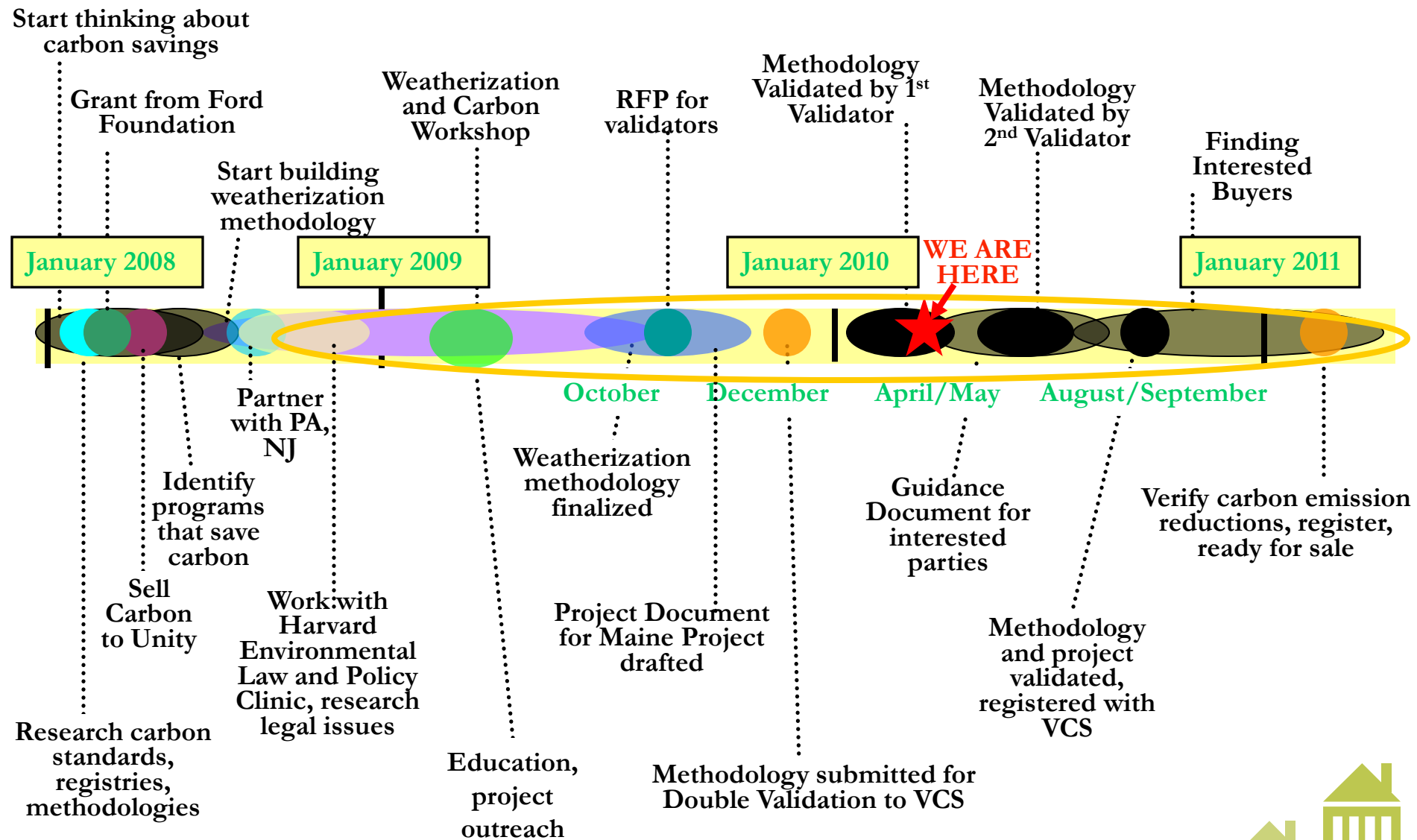
🏠 Set-aside

🏠 Allowance revenue allocation

🏠 Quantification of GHG emissions reduced to avoid purchasing allowances



The Carbon Quantification Project Timeline



Project Partners and Advisors



FORD FOUNDATION

HMFA



HARVARD LAW SCHOOL



CLIMATE FOCUS




INTERNATIONAL



Carbon Methodology for Weatherization

The methodology covers:

 installing weatherization measures in existing dwellings, replacing appliances, and replacing mobile homes

 Dwellings include: single family homes, units in multi-family buildings, and mobile/manufactured homes.



Carbon Methodology for Weatherization

🏠 Eligible Categories:

- 🏠 **Category A**--All energy retrofit: A combination of energy efficiency measures directed at the building envelope, improving the efficiency of the central heating and/or cooling system and reducing energy consumption of appliances
- 🏠 **Category B**--Efficiency enhancement of the building envelope and central heating and/or cooling system only.
- 🏠 **Category C**--Replacement of appliances currently in service.
- 🏠 **Category D**--Replacement of a mobile home currently occupied.



Carbon Methodology for Weatherization

- 🏠 There are five approaches to calculating carbon emission reductions:
 1. The adjusted consumption approach
 2. The pre-and post-retrofit audit approach
 3. The control group approach
 4. The deemed savings approach
 5. The mobile homes approach



Carbon Quantification Pilot

- 🏠 Pilot the Carbon Quantification Project's Methodology.
- 🏠 Pilot the use of the centralized Carbon Database
- 🏠 Aggregate and sell carbon emission reductions.
- 🏠 Conduct education and outreach to other states' weatherization programs.
- 🏠 Adapt, and improve the Project for nationwide replication and scalability.



How big is the Carbon Piece?

Maine's Goal: Weatherize all homes

🏠 Weatherization Costs = \$3.24 billion

🏠 Work Force Investment = \$18 million

🏠 Energy Savings = \$8.4 billion

🏠 Total Savings = \$12.3 billion

🏠 Carbon Money = \$300-\$500 million

🏠 Subsidy Needed = \$750 million



You Can Get Ready!

🏠 Methodology application

🏠 Data collection

🏠 Based on weatherization best practices

🏠 Data monitoring, verification

🏠 Aggregation





Questions?

Jo-Ann Choate
National Policy Advisor
jchoate@mainehousing.org
207.626.4600

Lucy Van Hook
Carbon Project Manager
Lvanhook@mainehousing.org
207.626.4601

Visit our Website

<http://www.mainehousing.org/ABOUTGreenCarbon.aspx>

