

# WEATHERIZATION AND THE CARBON MARKETS

**June 2010**

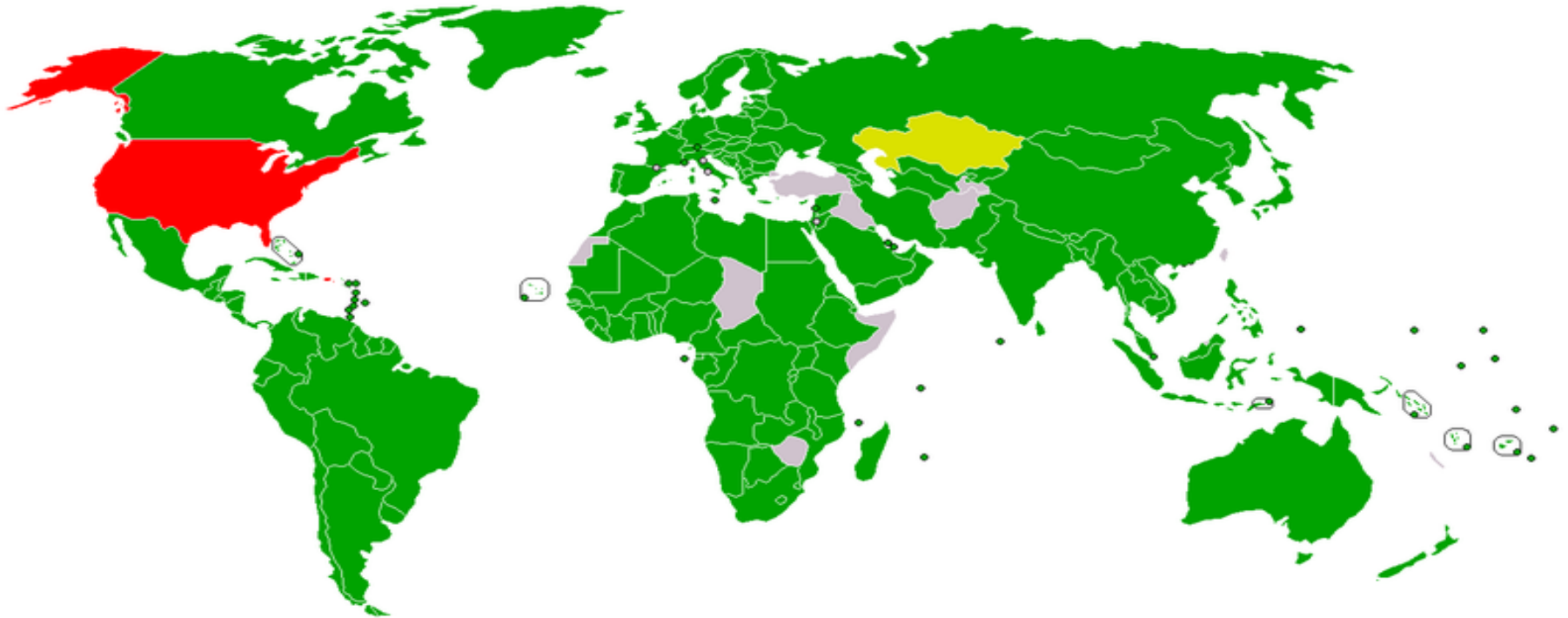
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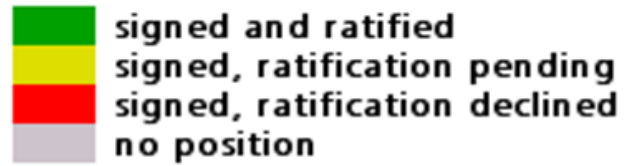
<http://weatherization.ornl.gov>

**6-A**

International Cap and Trade Agreements form the basis of the Market:  
**The UNFCCC, the Kyoto Protocol and the EU ETS**



The Kyoto Protocol:



# WHAT IS AN OFFSET?

IT IS A WAY FOR A POLLUTER TO SATISFY CARBON EMISSIONS REDUCTION OBLIGATIONS OR COMMITMENTS WITHOUT REDUCING CARBON EMISSIONS OR BUYING AN ALLOWANCE FROM WITHIN THE CAP & TRADE MARKET

# Offset Credits: Where do they come from?

Kyoto Protocol (Clean Development Mechanism)

EU ETS (almost 4% of credits come from CDM)

RGGI

## Types of Offset Projects

Landfill gas capture

Afforestation/reforestation

Fuel switching

End use energy efficiency

Program of Activities now accepted under Kyoto Protocol

# What's Happening in the Voluntary Market?

## Flight to Standards in the Voluntary Market



CLIMATE  
ACTION  
RESERVE

Attracting many projects that don't have time/money for the compliance market

# The Global Carbon Market

Total Value in 2008: \$126 billion

The Compliance Market was \$120 billion in 2008

Kyoto Protocol including the Clean Development Mechanism (CDM)

EU Emissions Trading Scheme

The Voluntary Market was \$705 million in 2008

Projected for 2009: \$850 million

**If the US implements a cap-and-trade system, the voluntary market could reach billions of dollars annually.**

# Offset Projects: Where WILL they come from in the future?

## **CDM:**

New categories being considered: CCS, nuclear, forestry

Phase out CDM for advanced developing countries or highly competitive economic sectors

Multiply or discount CER's by scope, technology, GHGs targeted

US national compliance market: 2 billion offsets annually

## **The next frontier: Energy Efficiency**

In low income housing

In ALL housing

In commercial buildings

# What Happens Next?

Copenhagen failed to expand the market

Bilateral carbon trading agreements between USA and other countries?

US eventually gets a national cap and trade scheme?

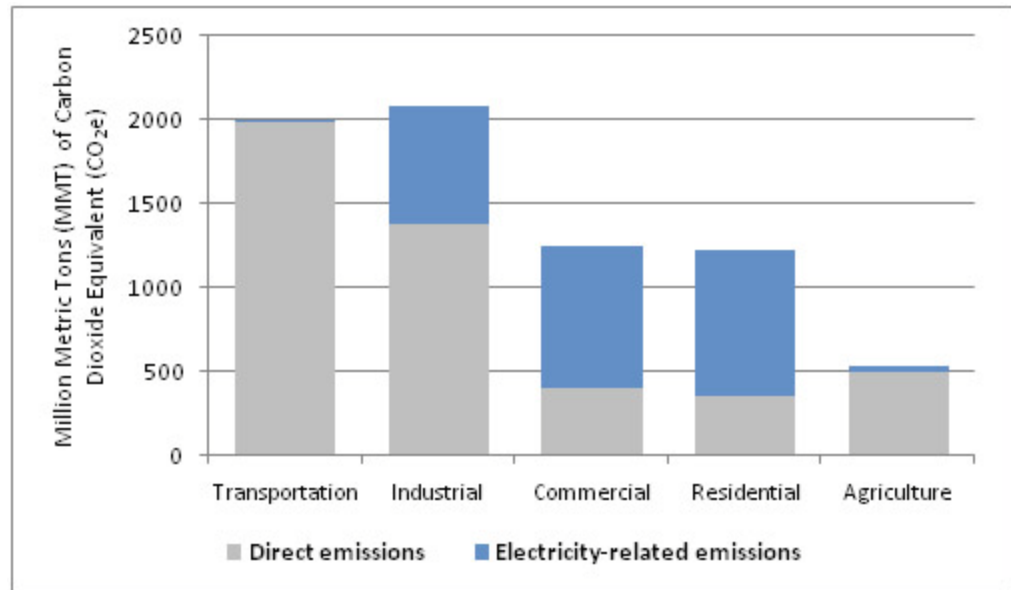
Acceptance of new offset categories with stringent rules?

Voluntary Market continues to expand?

# Weatherization!

- 🏠 Residences contribute ~18% of all GHG emissions in US
- 🏠 Older housing stock has high energy bills
- 🏠 Maine's goal: Weatherize all homes by 2020 (?)

## 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**

# WHERE IS THE CARBON?

FUEL OIL- 161.38 LBS PER MBTU

NATURAL GAS- 117.08 LBS PER MBTU

PROPANE- 139.178 LBS PER MBTU

# WHERE CAN I SELL ONE?

THERE ARE 60 COMPANIES AROUND THE WORLD  
BUYING AND SELLING OFFSETS

REQUIRE 3<sup>RD</sup> PARTY CERTIFICATION

VOLUNTARY MARKET NOW SELLS OFFSETS AT ABOUT  
\$3.50 PER TON

LAND USE, LAND USE CHANGE, AND FORESTRY  
CURRENTLY DOMINATES THE MARKET

# NOT SO FAST!

MEASUREMENT

ADDITIONALITY

LEAKAGE

PERSISTENCE

COST

OWNERSHIP

# The Carbon Quantification Project

- 🏠 ME, NJ and PA Housing Authorities developing a methodology to measure carbon emission reductions from weatherization of low income homes
- 🏠 Supported by the Ford Foundation
- 🏠 To be opened up to other HFAs
  
- 🏠 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 Verification

 Credits tracked in a Registry

 To be sold in voluntary market and revenue used for more weatherization

 Guidance Document



# Project Partners and Advisors



**FORD FOUNDATION**

**HMFA**



**HARVARD LAW SCHOOL**



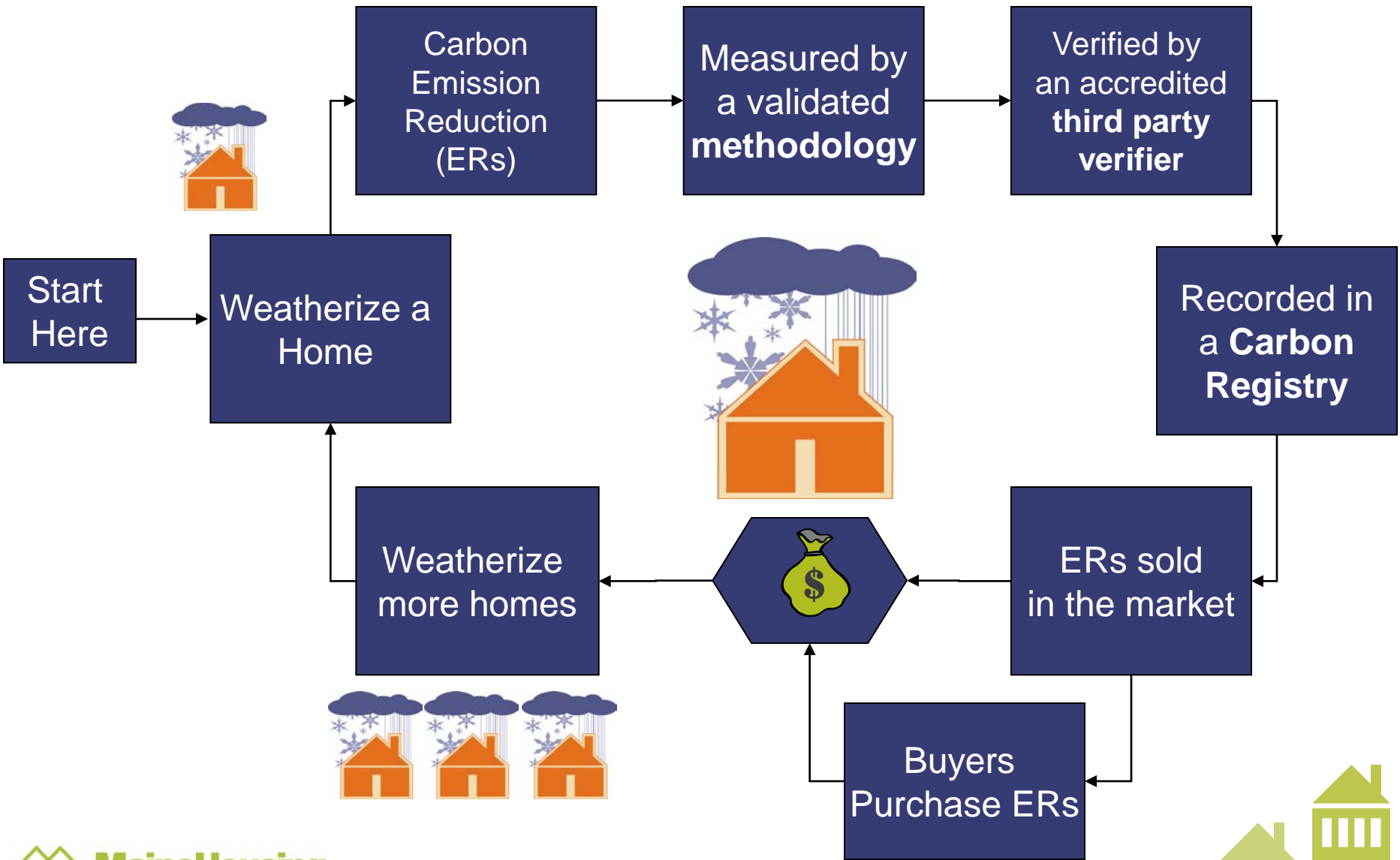
**CLIMATE FOCUS**



INTERNATIONAL



# Carbon Quantification Project: Here's How It Works



# 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



# Energy Efficiency Programs

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



# 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



- 🏠 3-FER: ENERGY SAVINGS, REDUCING GREENHOUSE GASES, EXTERNAL FUNDING SOURCE FOR PROJECTS





Questions?

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