

WEATHERIZATION AND THE CARBON MARKETS

June 2010

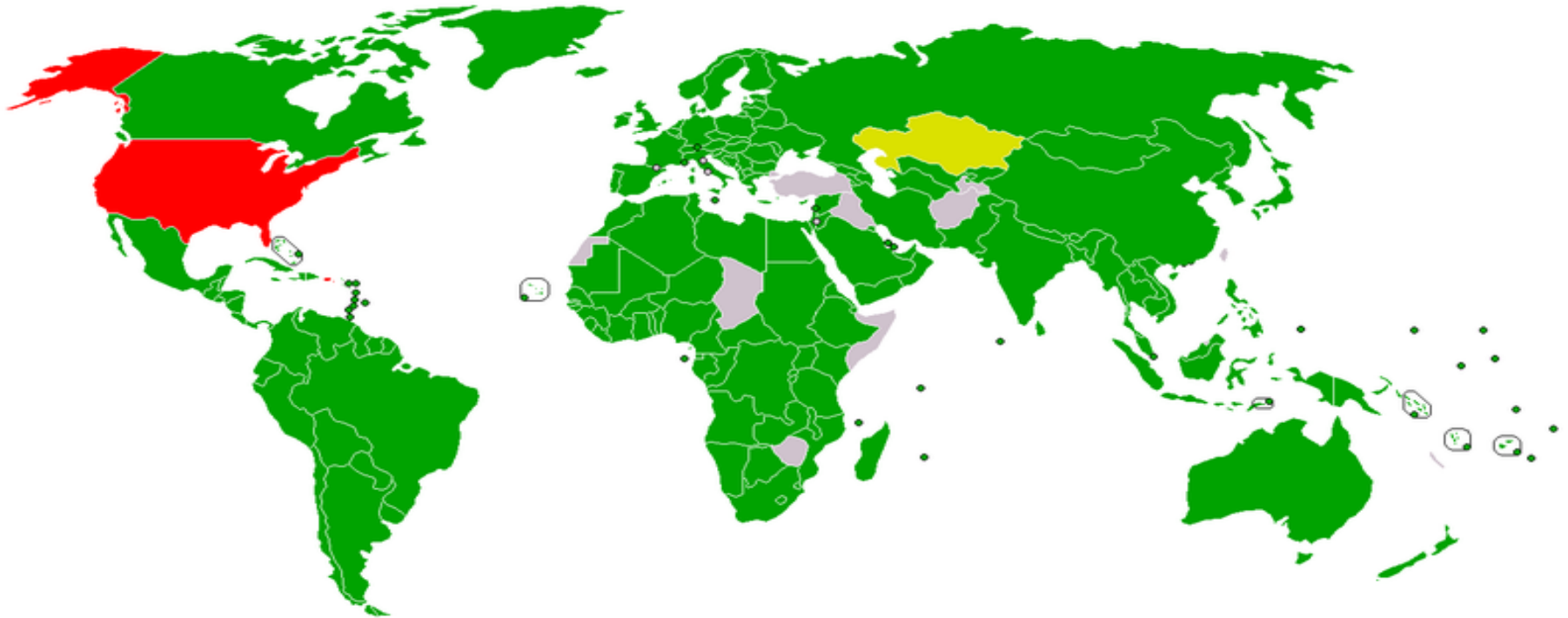
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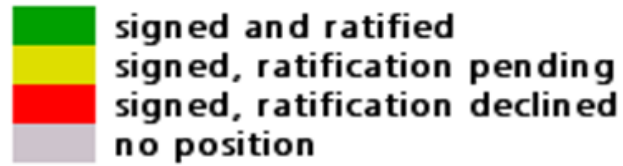
<http://weatherization.ornl.gov>

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?

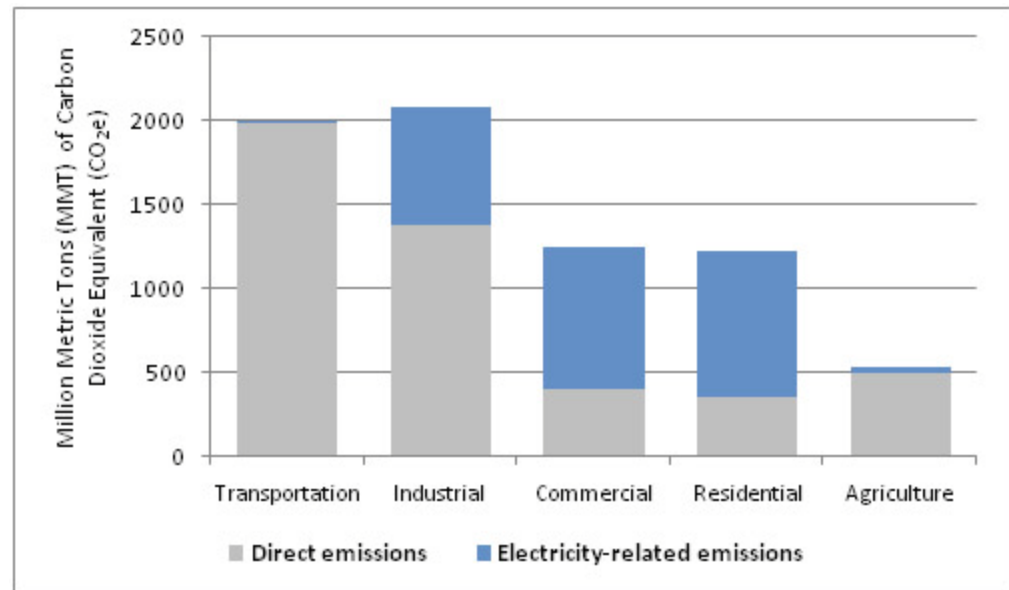
Acceptance of new offset categories with stringent rules?

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 3RD 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



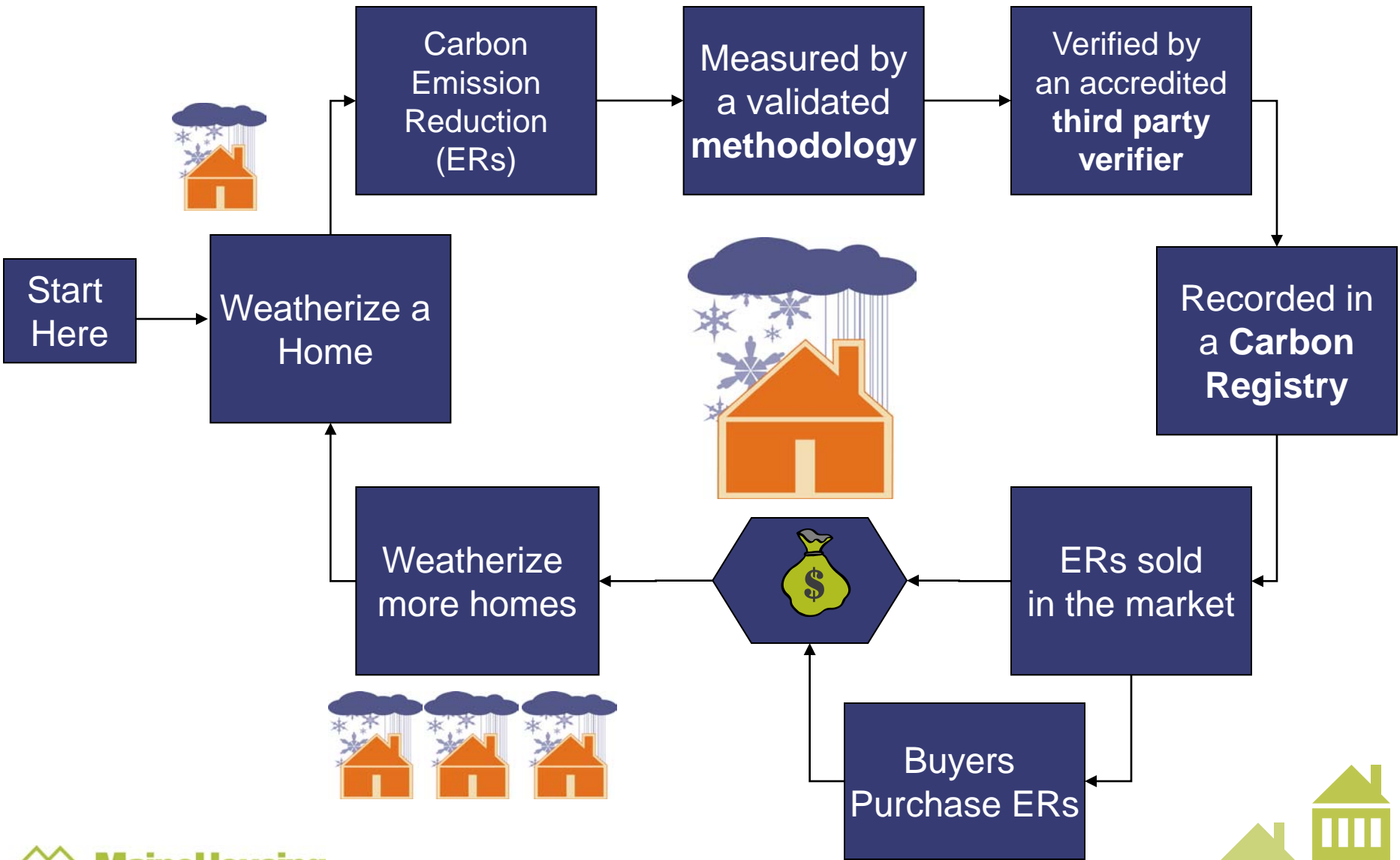
CLIMATE FOCUS



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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