



## Building America Overview

**ERIC WERLING**

Building America Program Coordinator  
Building Technology Office

- **New Homes Goal**

Demonstrate at scale market-relevant strategies for *new* homes offering savings of 50% or more by 2025

- **Existing Homes Goal**

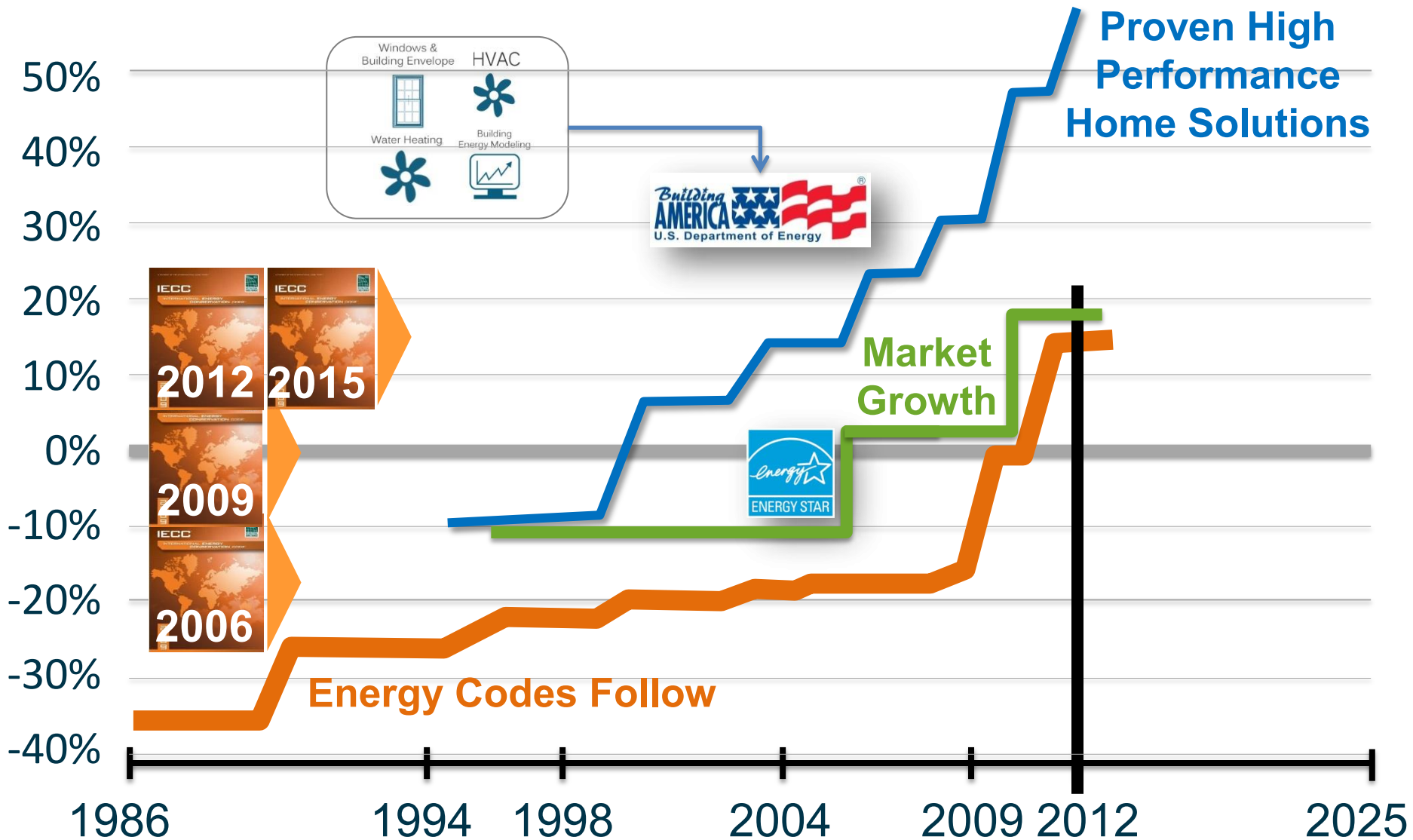
Demonstrate at scale market-relevant strategies offering existing home savings of:

- 20% or more by 2020
- 25% or more by 2025, and
- 40% or more by 2030

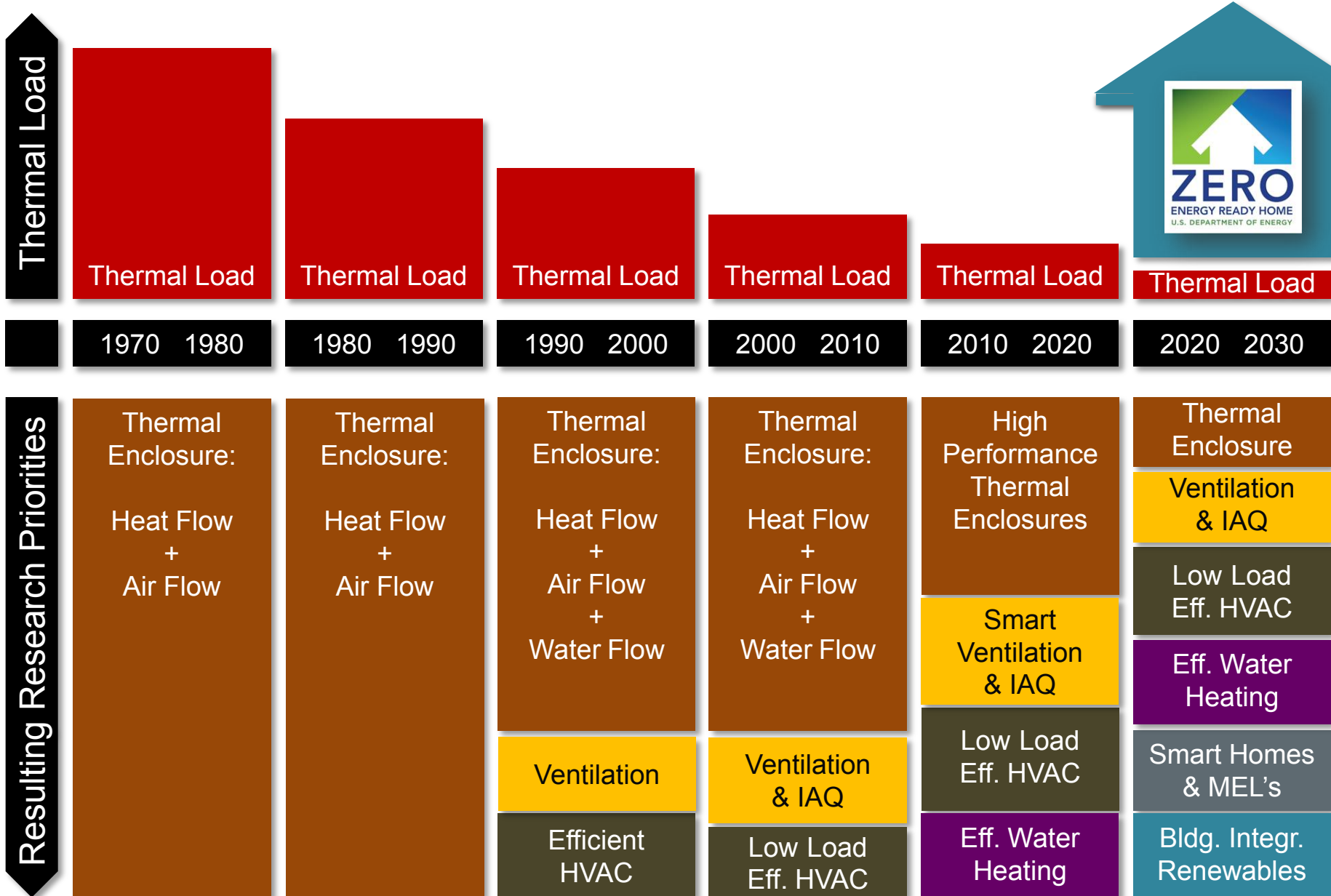
# Building Technologies Office Ecosystem



# Research to Market to Standard Practice



# Building America Technology Roadmap



# Building America Innovations

## ADVANCED TECHNOLOGIES



**Building  
Science Solutions**

**Energy Efficient  
Components**

**Assured Health  
and Safety**

## HOUSE-AS-A-SYSTEM BUSINESS CASE



**New Homes  
with Whole-House  
Packages**

**Existing  
Homes with Whole-  
House Packages**

**Whole-House  
Program Support**

## EFFECTIVE GUIDANCE AND TOOLS



**High  
Performance  
Home Solutions**

**High  
Performance  
Home Metrics**

**Research  
Tools**

## INFRASTRUCTURE DEVELOPMENT



**Educating  
Professionals**

**Recognizing  
Value in  
Transaction Process**

**Informing  
Codes and  
Standards**

We Are On the Road to ...

**Zero Energy Homes!**







We already know how to  
build Zero Energy Homes



“In theory, there is no difference between theory and practice. In practice, there is.”


**Yogi Berra**



# The Road to Zero Energy Homes?

- Probably <500 built to date  
(but who's counting?)
- It still costs more than code
- Infrastructure favors low first cost
- Too risky for most builders
- Workforce is not skilled enough
- Utilities are worried about the grid

More Like a Dirt Road ...

A photograph of a dirt road winding through a dense forest. The trees are tall and thin, with a thick canopy of green leaves. The road is unpaved and leads into the distance. The overall scene is lush and green.

Zero  
Energy  
Homes

Paving the Road to ...



# Zero Energy Homes



- DOE Energy Efficiency Goal is 50% Savings
  - Relative to 2009 IECC
  - 50% savings target is technically feasible/optimal
  - Focus on technical and market barriers to adoption



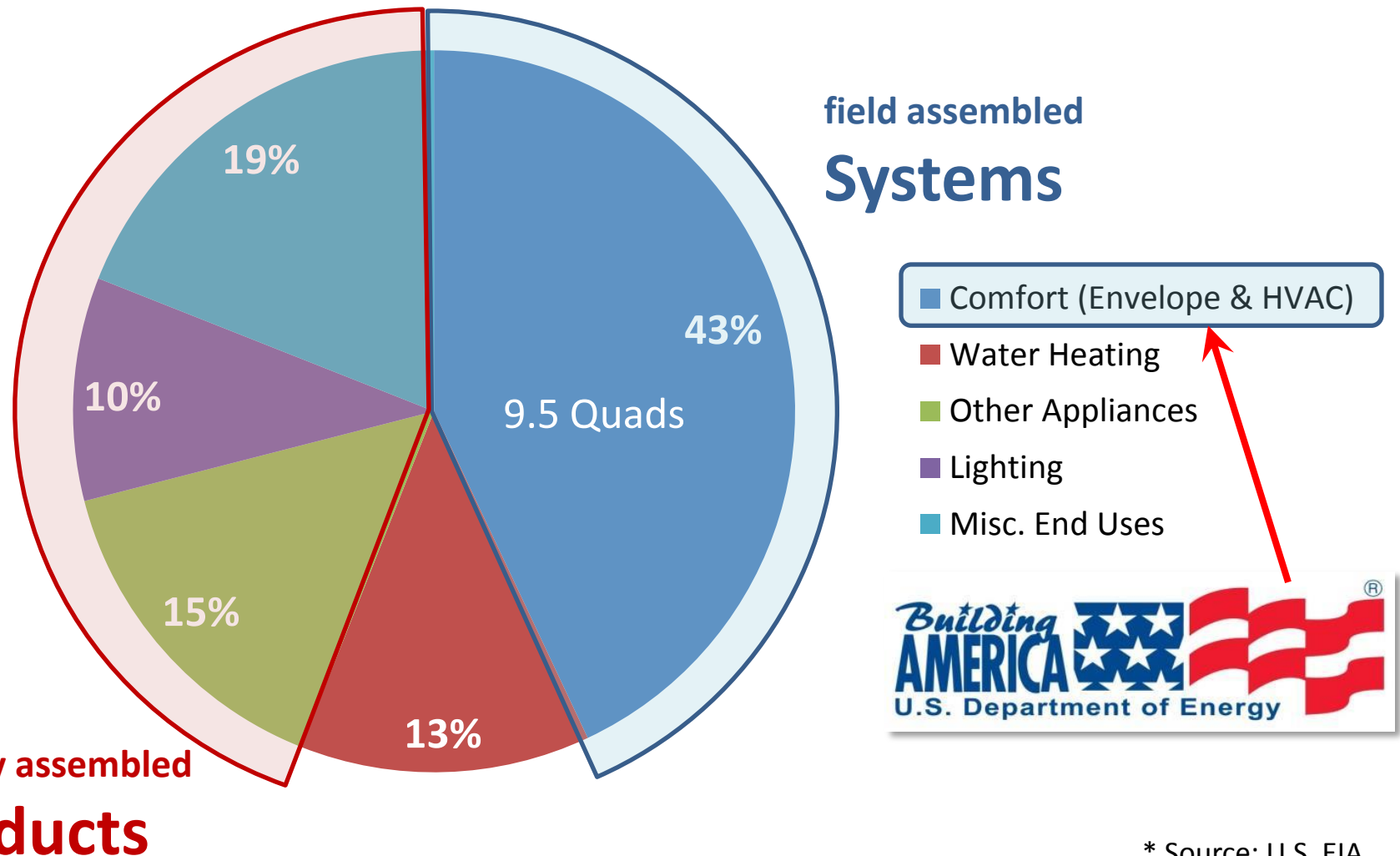
- PV Will Cover the Other 50%
  - SunShot Goal: cost competitive PV by 2020
  - Focus on BOS & “Soft Costs”





- **Net Zero Homes** become common place
- Builders offer extended **Warranties** (>30 years)
- All housing **Trades offer Energy Efficiency** services
- **“House Doctor”** businesses emerge
- Americans pay for home **Preventative Maintenance**
- **Internet of Things** will help optimize home energy use, comfort & IAQ

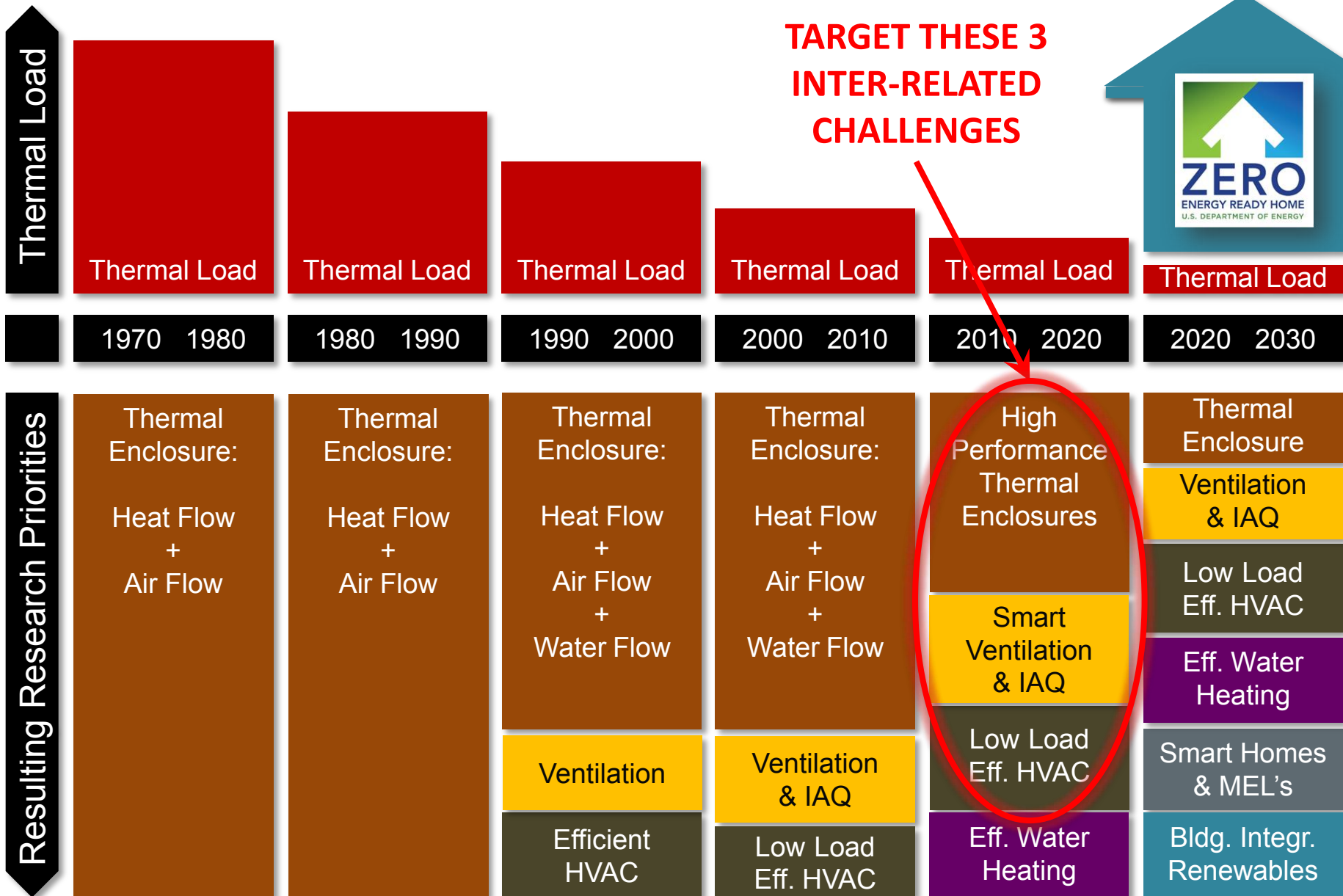
# U.S. Residential Buildings Primary Energy Consumption (22 Quads)\*



\* Source: U.S. EIA



# Building America Technology Roadmap



**TARGET THESE 3 INTER-RELATED CHALLENGES**



# Building America Program 5-Year Research-to-Market Plan

U.S. DEPARTMENT OF  
**ENERGY**

Energy Efficiency &  
Renewable Energy



## “v2”

- Focused on reducing heating & cooling energy use in new & existing homes (highest impact end use)
- RD&D of low-risk, high performance envelopes, optimized HVAC systems, & IAQ solutions
- FY15-17 FOA's: new Building America Industry Teams will demonstrate solutions in real world houses
- New integrated ***Technology-to-Market Roadmaps*** will link research to market to improved industry standards & codes
- Stakeholder Input & Expert Meetings will help refine roadmaps and leverage industry collaboration



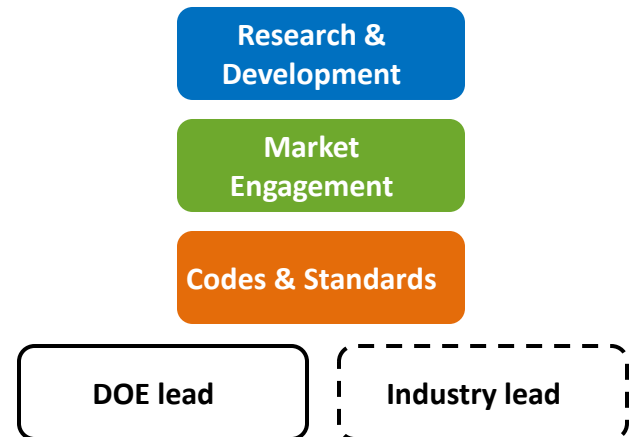
# Integrated Roadmaps

- A. High Performance, Moisture Managed Envelope Systems
- B. Optimal Comfort Systems for Low Load Homes
- C. Optimal Ventilation Systems and IAQ Solutions for Low Load Homes

## Overall Roadmap Objectives:

- Codes and Standard practice as endpoints
- Manage risks to minimize problems of adoption
- Address optimal performance & cost-effectiveness
- Solutions must be practical & profitable for builders and home improvement contractors

## KEY:



**EERE Exchange FOA #:**

**DE-FOA-0001326**

Request for Information: Building America Program Technology-to-Market Roadmaps

**Comment period closes:**

**5 PM (ET) on April 30<sup>th</sup>, 2015**

**Submit comments to:**

**[BuildingAmericaRFI@ee.doe.gov](mailto:BuildingAmericaRFI@ee.doe.gov)**

# Thank You

**For More Information:**

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