



Improving U.S. Residential Buildings – DOE's Approach

Dr. Kathleen Hogan

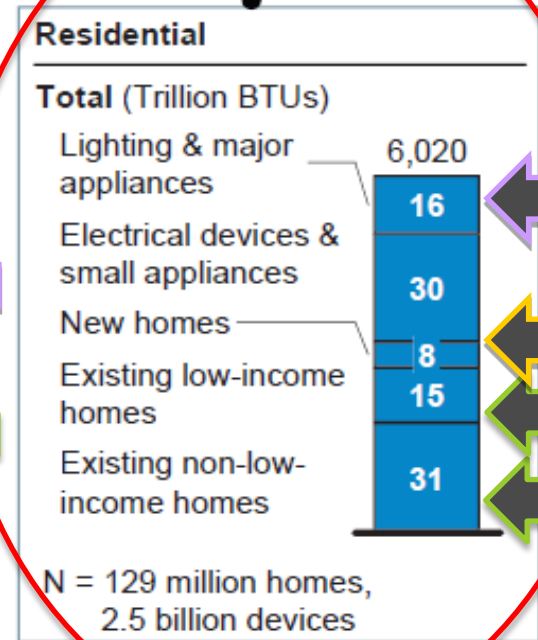
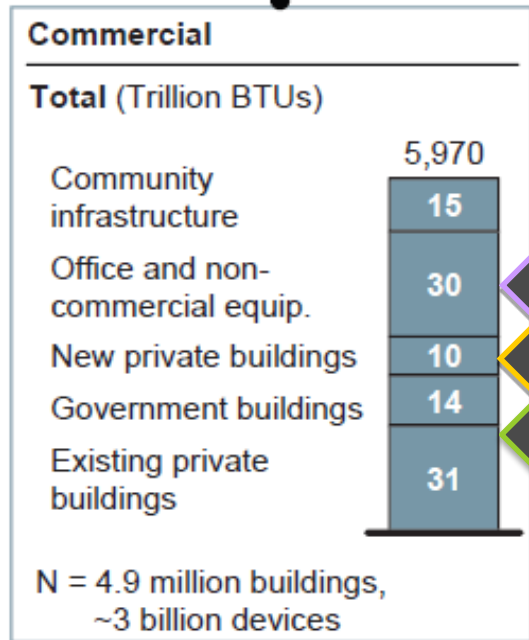
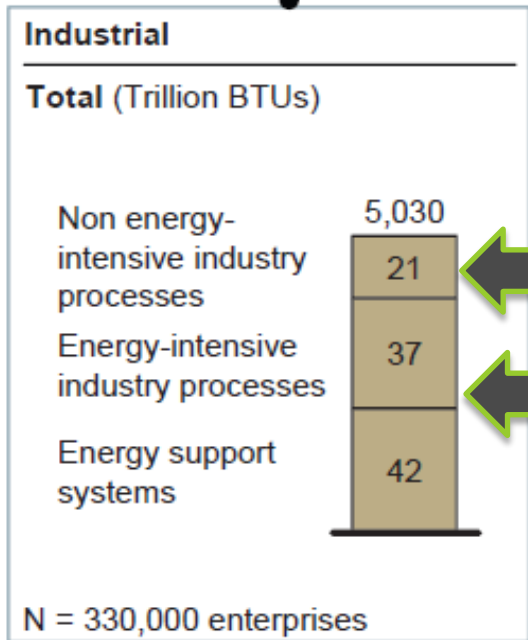
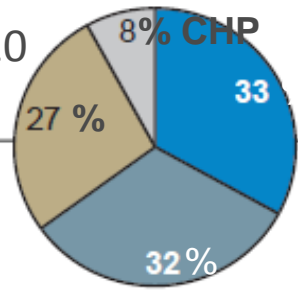
U.S. Department of Energy

July 10, 2012

Map of the Low Hanging Fruit: 20% Savings thru 2020

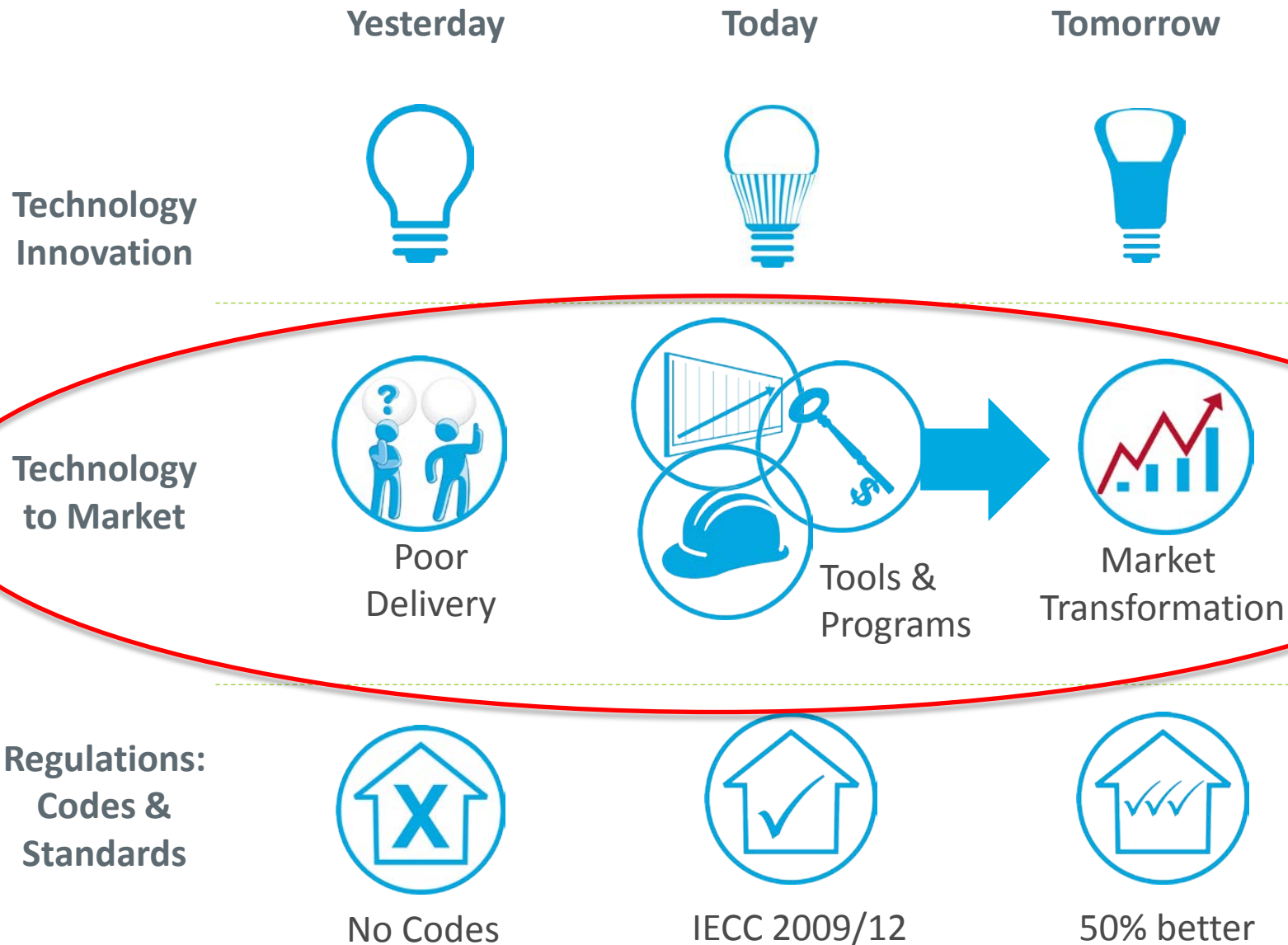
- Residential buildings accounted for 22% of U.S. energy consumption in 2011
- But 33% of the opportunity for cost-effective energy savings through 2020

\$1.2 trillion in benefit for \$500 B in investment

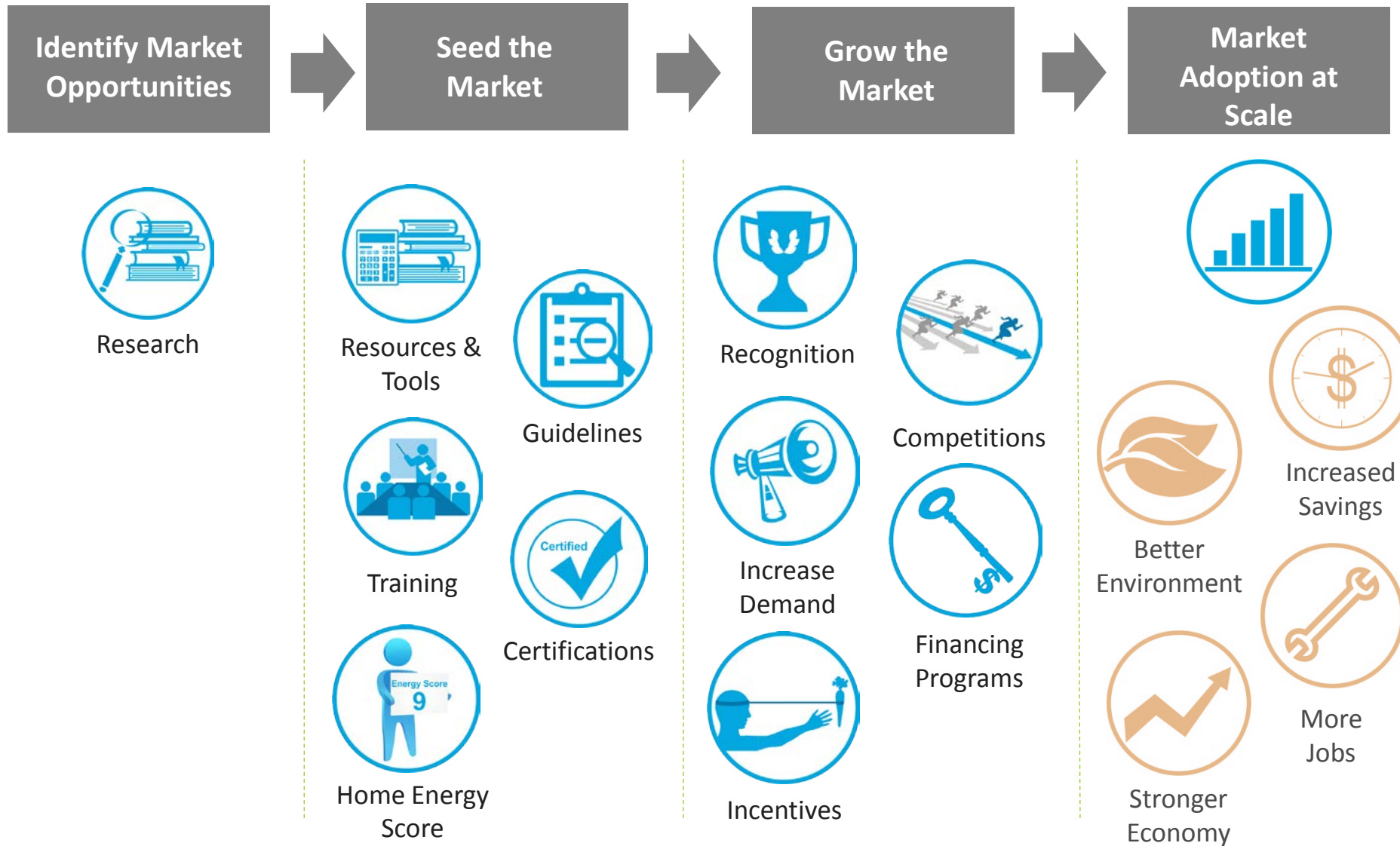


Source: EIA AEO 2008, McKinsey analysis

The DOE Residential Strategy Focuses on the Overall Approach – Three Major Components to Make Big Impacts Over Time



Residential Portfolio Takes a Market Driven Approach to Saving Energy



Residential Portfolio Takes a Market Driven Approach to Saving Energy

Identify Market Opportunities



Seed the Market

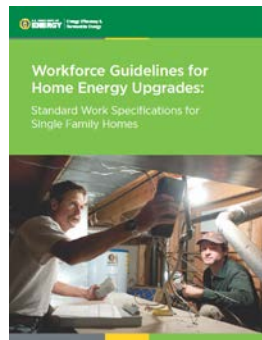
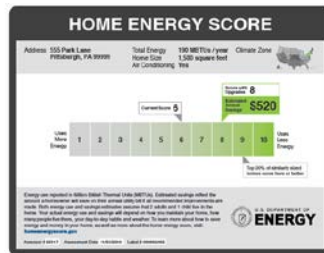


Grow the Market



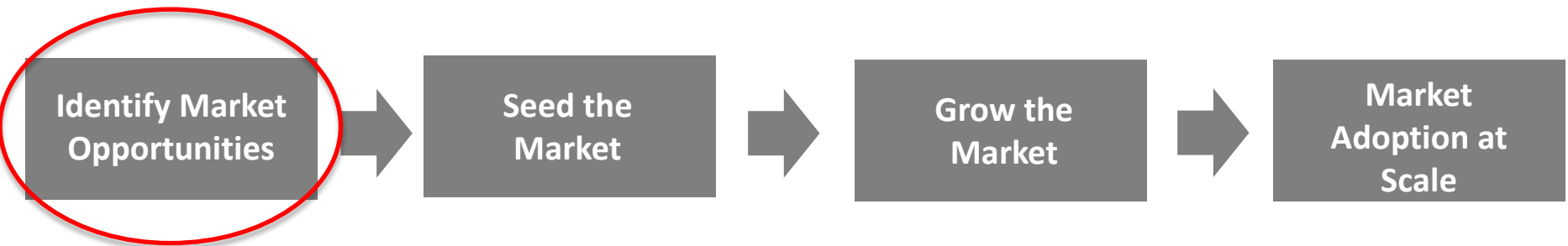
Market Adoption at Scale

DOE Emerging Technology Research



Local & Utility Programs

Market Opportunities



Market Opportunities: DOE Invests in Expert-Developed Tools and Resources based on Energy Efficiency Research



Conduct research to develop market-ready energy solutions that improve efficiency of new and existing homes in each U.S. climate zone, while increasing comfort, safety, and durability

Research Teams

Top Innovations “Hall of Fame”

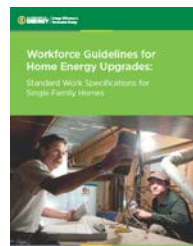
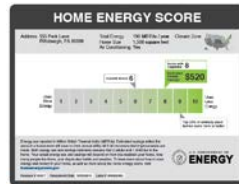
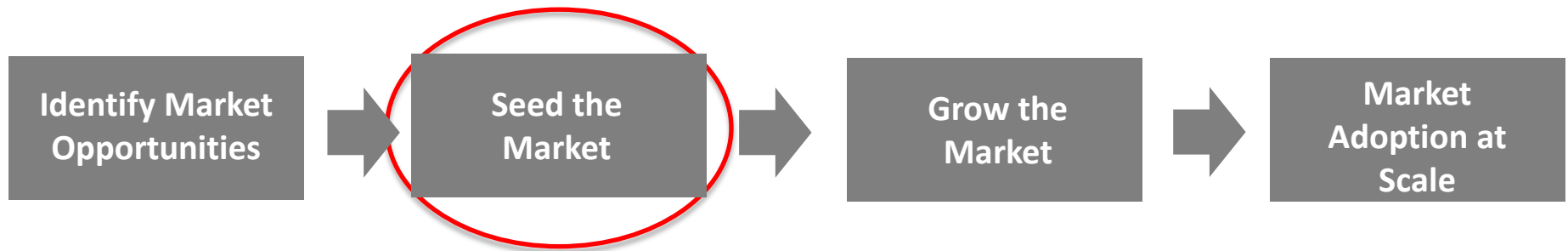
Solution Center



Research Organized by Topic Area

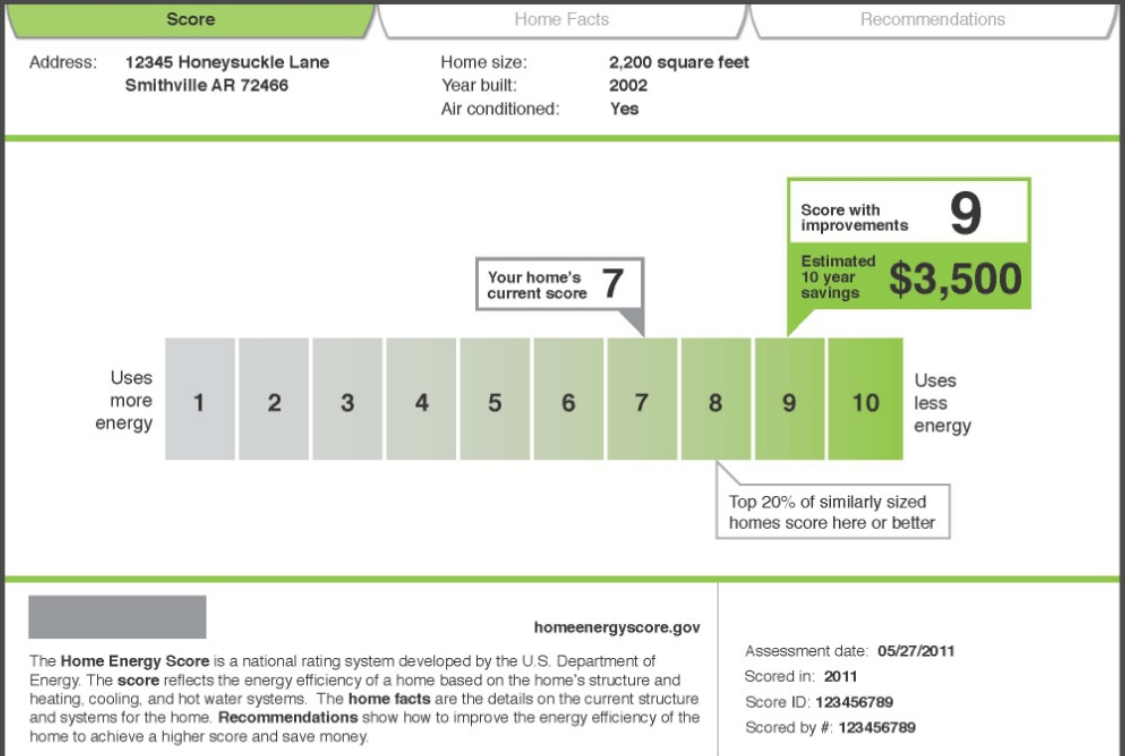
Solution Center Accessed Electronically from Field

Seed the Market



Seed the Market: The Home Energy Score Standardizes Energy Use and Compares Usage with Neighbor Homes

Home Energy Score

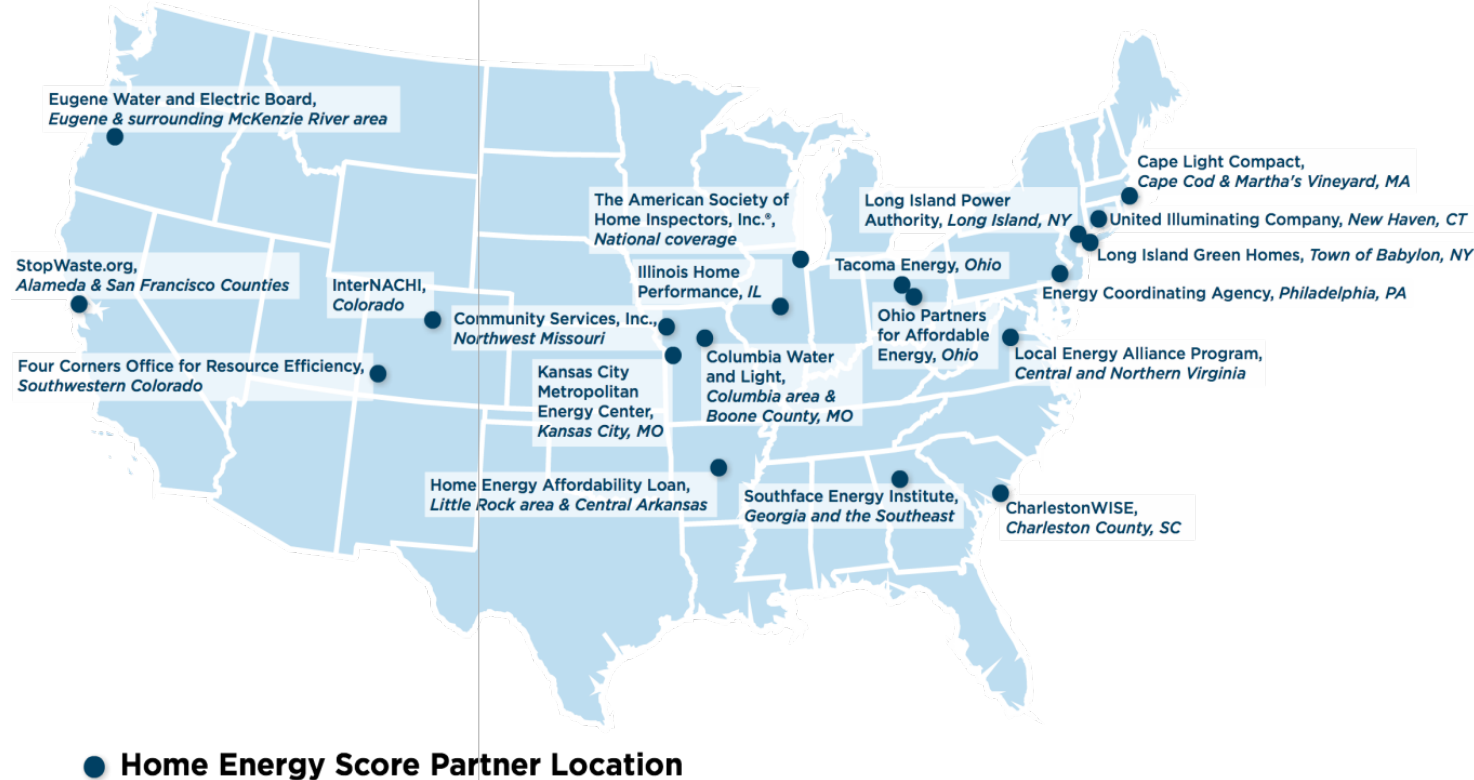


- Voluntary MPG rating for homes / recommendations for improvement
- Low cost service by partners
 - 15 minutes if in concert with other assessment
 - Less than 1 hour if stand-alone
- Improvements from pilot:
 - Simplified homeowner materials
 - Improved scoring tool
 - Revised assessor training and testing

Seed the Market: Home Energy Score Partners & Qualified Assessors Are Offering the Score to Homeowners

- June 2012: Began Phase 1 Implementation with 20 partners
 - Utilities
 - State/local government entities
 - Non-profits
 - Contractors

- DOE is recruiting additional partners to
 - Score at least 200 homes per year
 - Fulfill DOE's QA requirements



- 106 Qualified Assessor candidates are in the process of training and/or taking test
- 34 candidates have passed both parts of test and can now score homes

Seed the Market: Guidelines for Home Energy Professionals Will Lead to Quality Work, Effective Training, and Professional Certifications

Standard Work Specifications

- Define the minimum requirements for high quality work
- Reference technical codes and standards

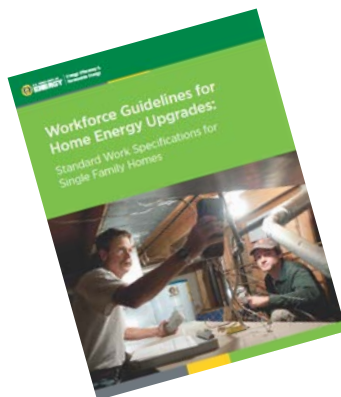
Effective Training

- Job Task Analysis (core competencies)
- Voluntary training program accreditation

4 New Home Energy Professional Certifications

- Accredited to ANSI/ISO 17024 Standard
- Supported by DOE and NREL, developed by industry, administered by BPI

**Better Workforce
Industry and
Opportunity**

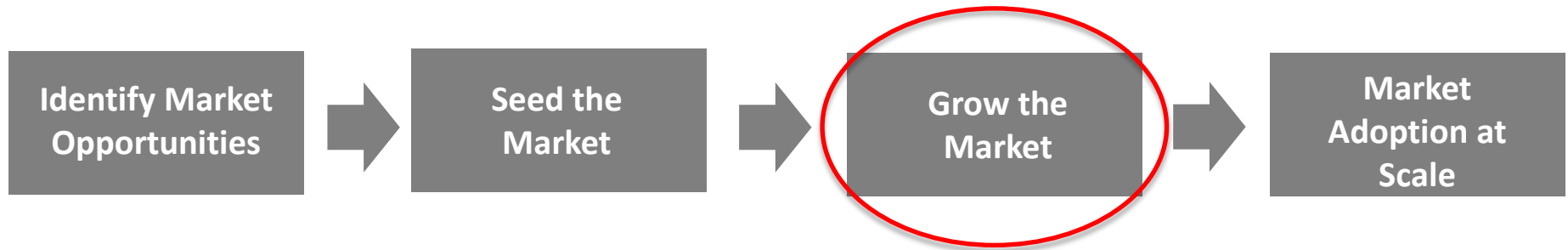


Guidelines were written in collaboration with 2,000 home performance industry members and with 30+ years of DOE weatherization experience.

Seed the Market: Guidelines for Professional Certifications and Training Accreditation Available Now

Project Component	Current Status
Guidelines for Quality Work: Standard Work Specifications	
Single-Family Energy Upgrades	Undergoing updates after Spring 2012 review period.
Multifamily Energy Upgrades	Undergoing updates after Spring 2012 review period. Next review to open in Fall 2012.
Manufactured Housing Energy Upgrades	Undergoing updates after Spring 2012 review period.
Guidelines for Effective Training	
Publish Job Task Analyses	Completed and available for use by training programs and other interested parties.
Accreditation of training providers	IREC voluntary accreditation now available.
Guidelines for Professional Certifications	
Pilot Testing and Certification	Registration for pilot certification exam now open.

Grow the Market



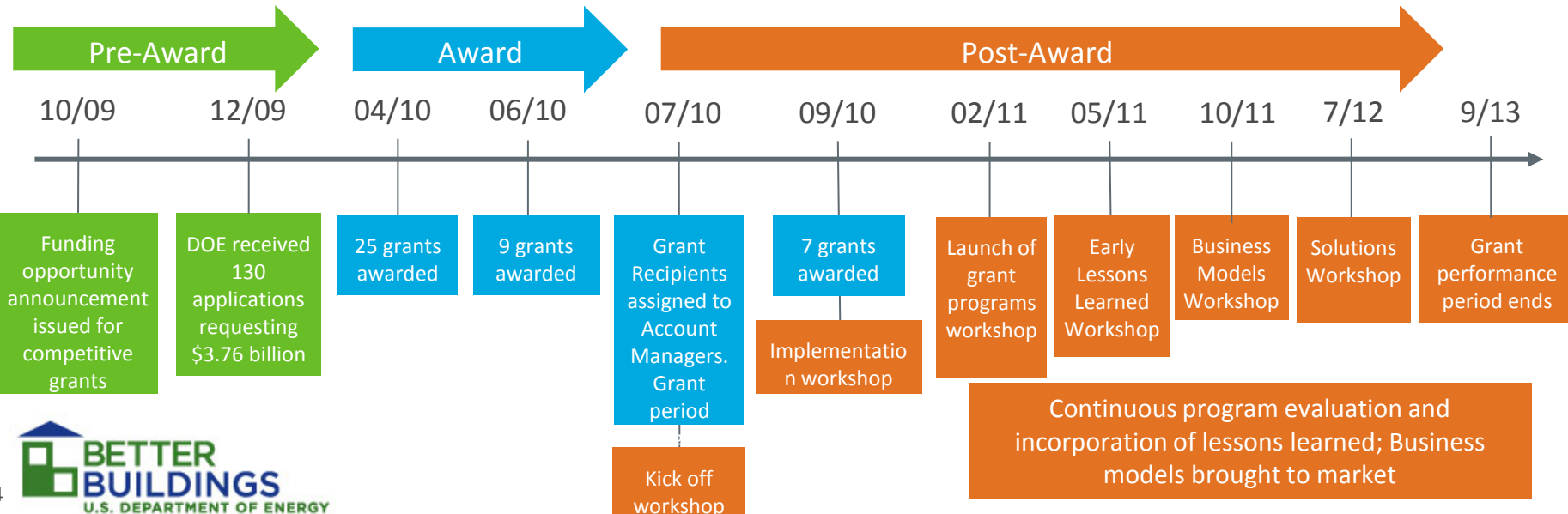
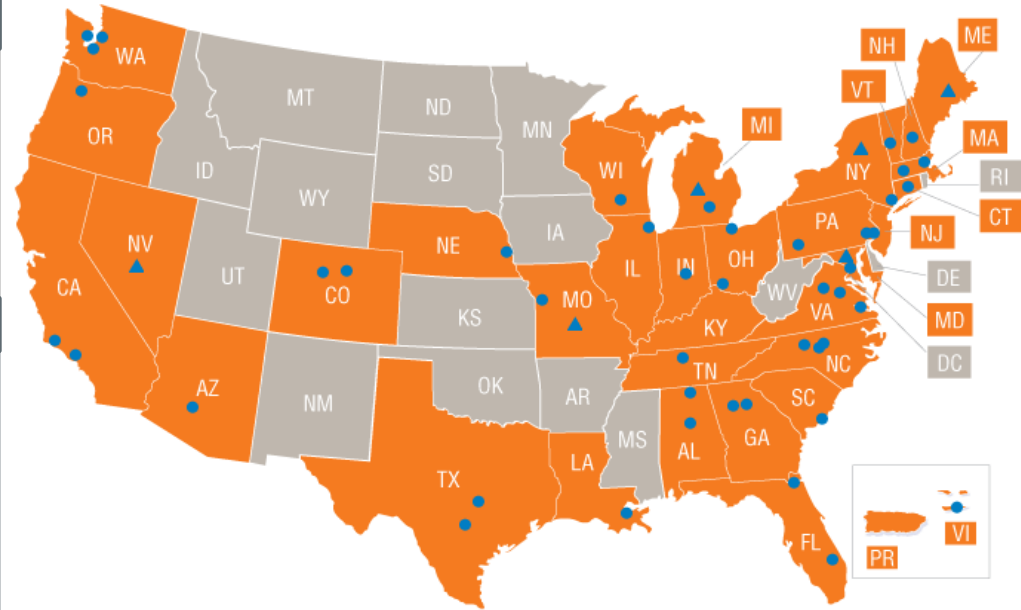
Grow the Market: Better Buildings Neighborhood Program Grant Recipients were Selected for Maximum Impact and Diversity of Project

Overview & Selection Criteria

- 3-Year Grants of \$1.5 to \$40 Million Each
- 41 Grant Recipients
- Financial Leverage and Program Sustainability
- Project Impact
- Program Approach
- Partnership Structure and Capabilities

Geographic, Demographic, Philosophical Diversity

- 32 states; 7 state-wide programs
- Rural and urban mix
- Socioeconomic mix
- All climate zones covered
- Dozens of different approaches to driving demand, financing, working with contractors, data collection, etc.



Grow the Market: Better Buildings Neighborhood Program Tests New Approaches to Identify What Works & Under What Conditions

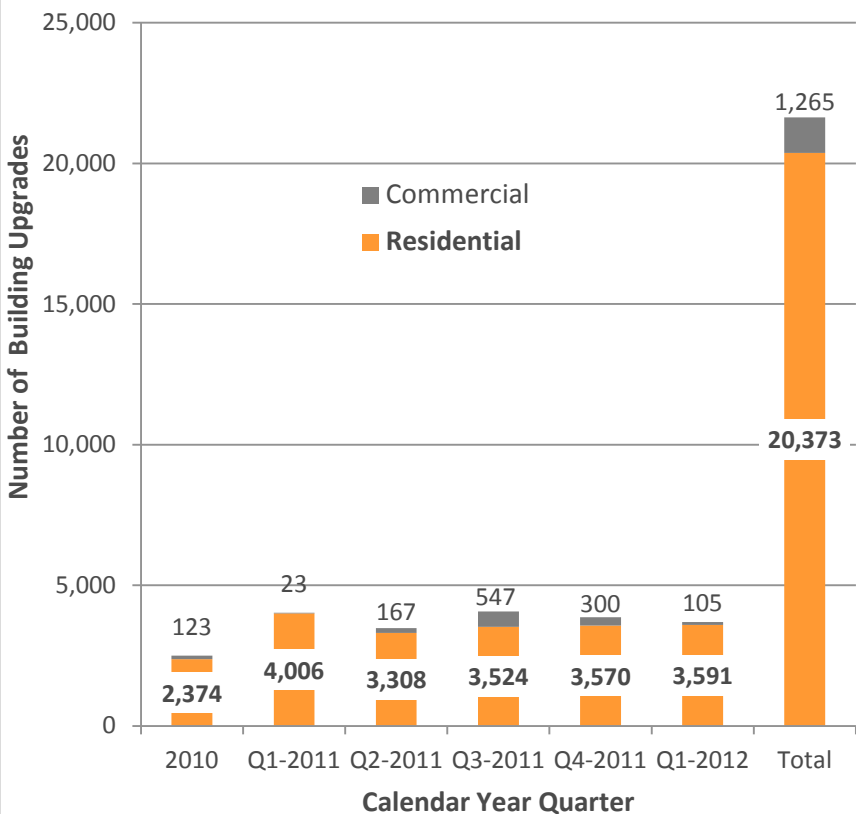


Driving Demand	Financing	Data and Evaluation	Workforce Development
22 Different Approaches	21 Combinations	12 Evaluations Being Performed	9 Models Being Tested

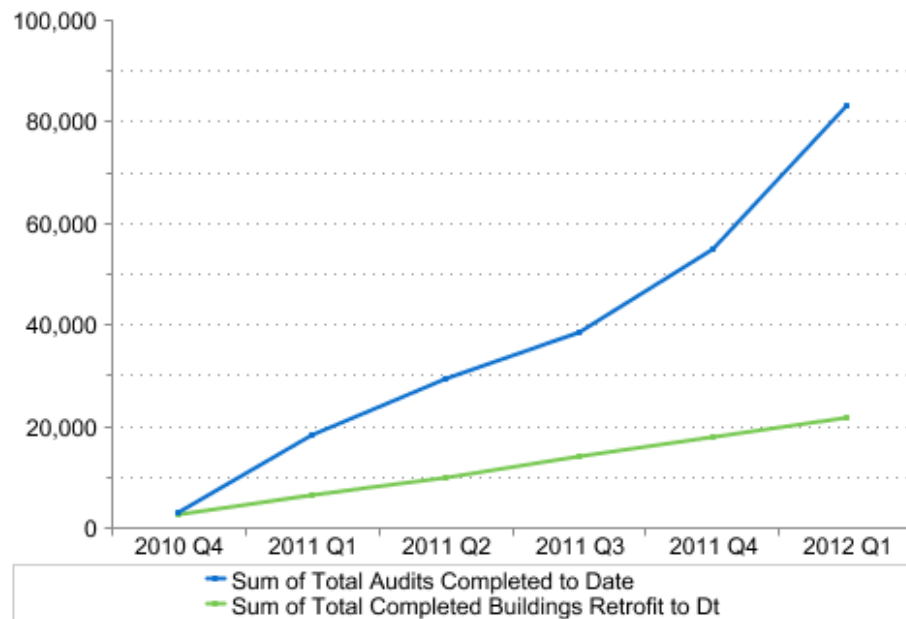
Grow the Market: Steady Level of Upgrades & Recent Increase in Audits Implies that Infrastructure is in Place and Market is Poised for Growth



Building Upgrades Reported Fall 2010 – March 2012

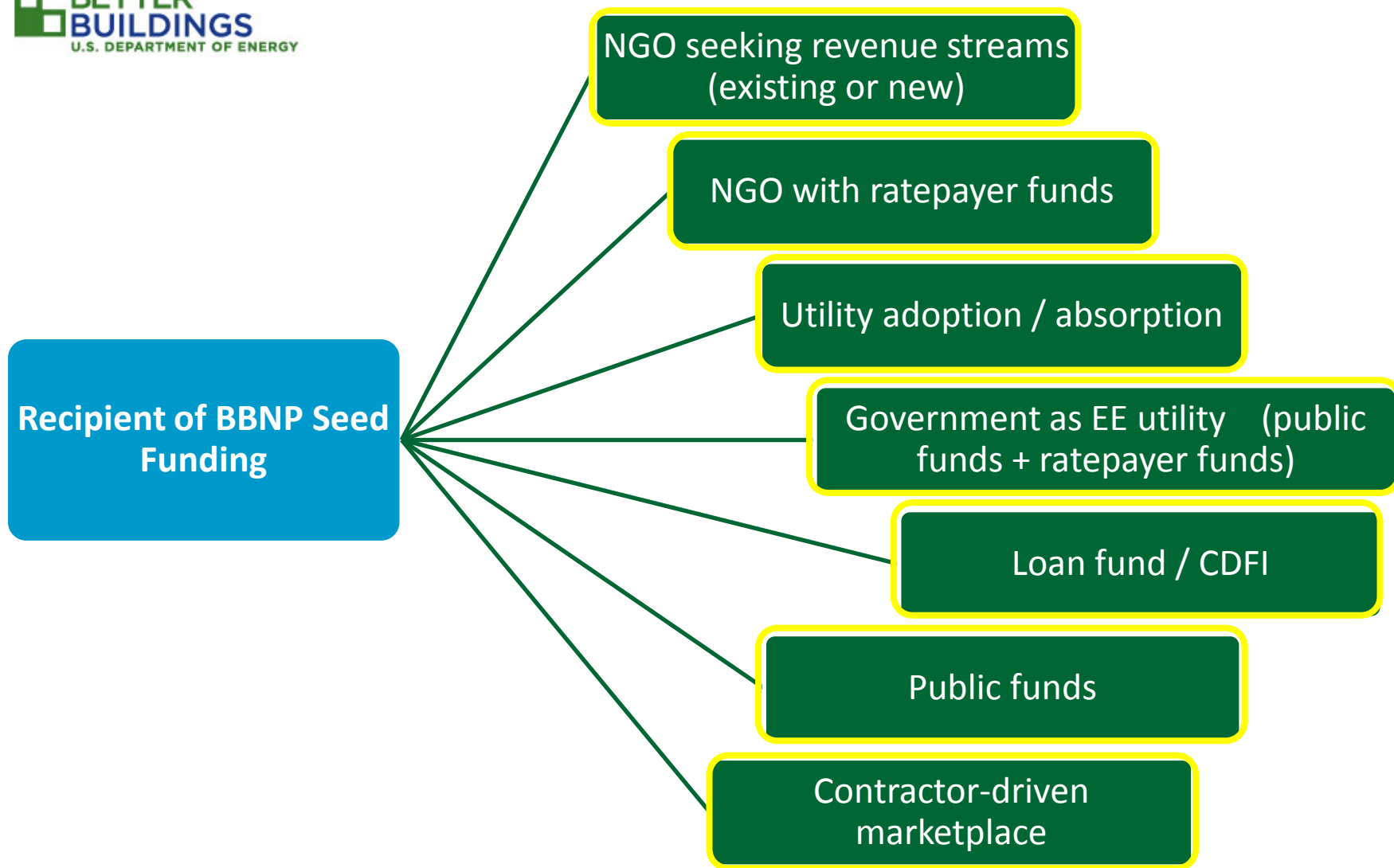


Program Cumulative Audits and Retrofits



>20,000 residential upgrades
 >80,000 residential audits
 >1,200 commercial upgrades
 >2,500 commercial audits

Grow the Market: Partners Have Identified Various Post-Grant Business Model Types for the Future



Grow the Market: Home Performance with ENERGY STAR Brings Quality Upgrades to Homeowners Across the Country



Home Energy Assessment

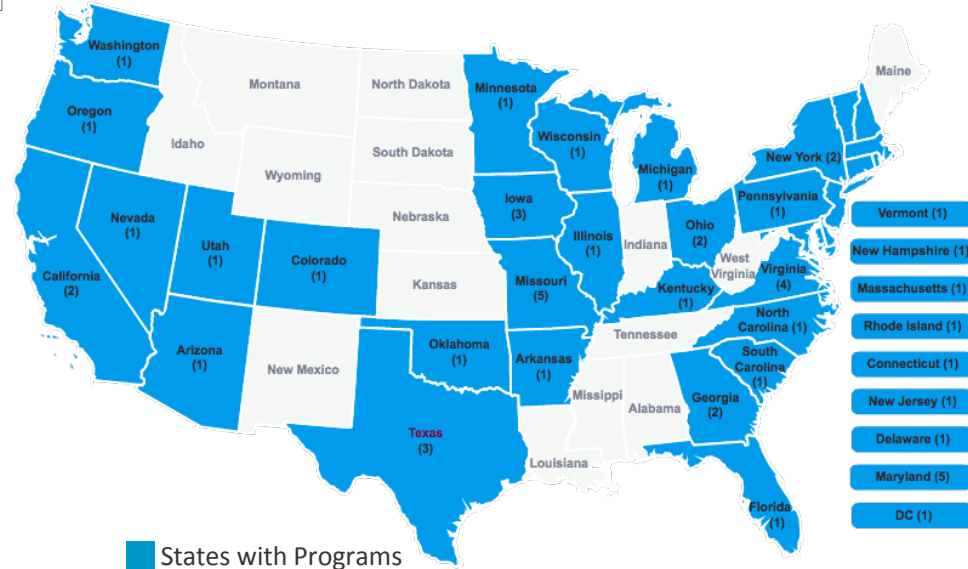
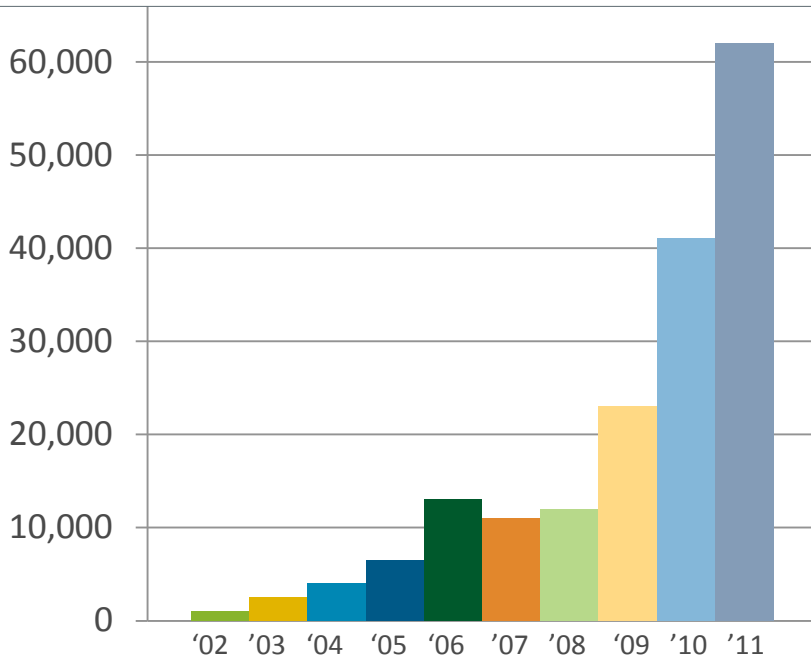


Installation



Verification

Nearly 200,000 Projects Reported since 2002



Grow the Market: Home Performance with ENERGY STAR Program Evolution

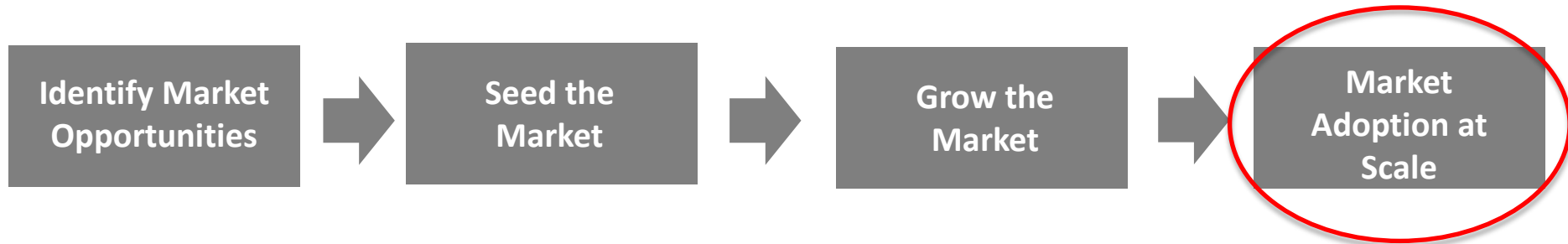


DOE began administering in October 2011

- Established Account Managers
 - ✓ Supporting access to the national Program
 - ✓ Fostering regional coordination among Sponsors
- Initiated greater coordination with DOE resources including:
 - ✓ Building America
 - ✓ Home Energy Score
 - ✓ Workforce Guidelines
 - ✓ Better Buildings Neighborhood Program
- Evaluating opportunities to evolve HPwES
 - ✓ Issued proposed HPwES V2 in March 2012
 - ✓ Gathering/reviewing stakeholder comments
- Next Steps
 - Finalize Summary Document on Stakeholder Comments Received – Fall 2012
 - Engage Stakeholders in process to research & refine the potential HPwES v2 elements DOE plans to pursue - Winter/Spring 2012/2013

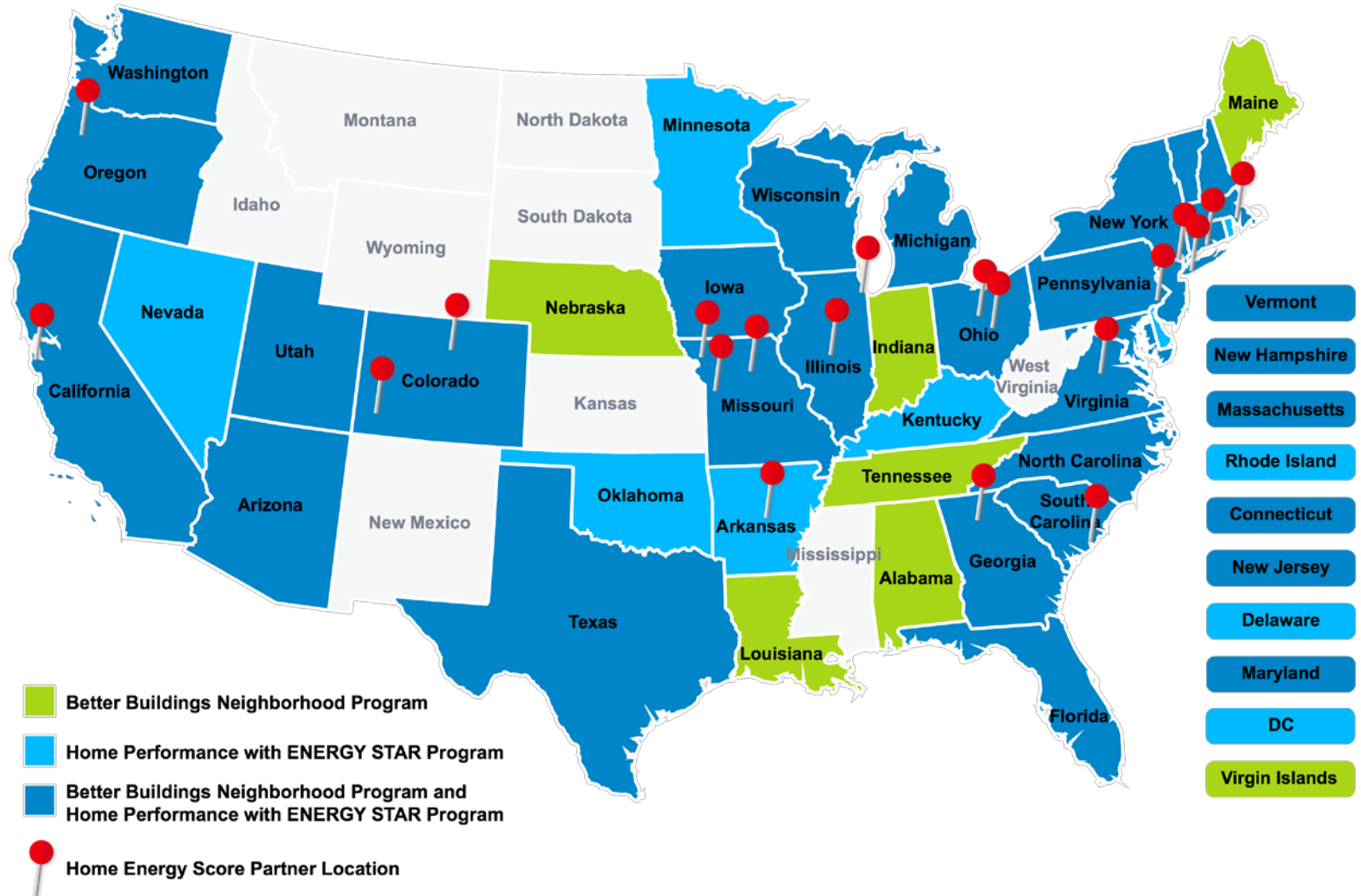


Market Adoption at Scale



Market Adoption at Scale: Progress is Being Made

- DOE will continue to support, promote, and help expand the number and success of home energy upgrade programs

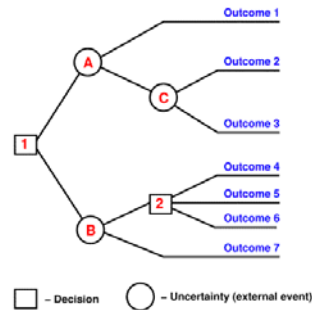


Market Adoption at Scale: DOE Will Share Proven Models from BBNP & HPwES for Sustainable Home Energy Upgrade Programs

Step-by-step Guidance

- Step #1: [Set Goals and Objectives](#)
- Step #2: [Create an Evaluation Plan](#)
- Step #3: [Conduct Audience Research](#)
- Step #4: [Identify Target Audience and Behavior Change](#)
- Step #5: [Create Effective Messages](#)
- Step #6: [Build Partnerships](#)
- Step #7: [Develop a Marketing Plan](#)
- Step #8: [Implement Your Marketing Plan](#)
- Step #9: [Assess Your Progress](#)

Options



Examples

Charlottesville, VA

Boulder County, CO

Promising Approaches, Lessons, and Best Practices

Use professional, compelling messaging

- Using behavioral research
- Avoiding “audit” and “retrofit”
- Tapping into social norms
- Attention-grabbing messages

California - Statewide Campaign



Decision Tool Resources

Tools and Guides

Case Studies

6 new releases today

Templates

- This conference....

Residential Energy Efficiency Solutions: *From Innovation to Market Transformation*

- Showcase innovations, highlight accomplishments, and spark connections across residential energy efficiency programs
- Capture and share diverse program implementation solutions, strategies, and techniques
- Catalyze effective approaches to residential energy efficiency market transformation

THANK YOU
To Learn More About our Programs Visit
Buildings.Energy.Gov

Improving U.S. Residential Buildings – DOE's Approach

Kathleen Hogan

U.S. Department of Energy Building

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