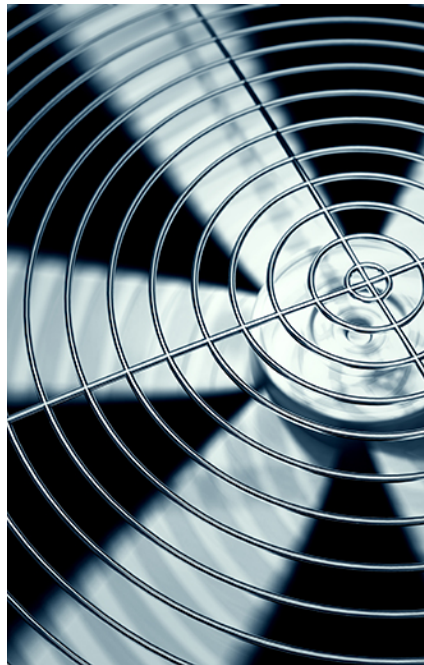


Building Science Technical Quality



National Renewable Energy Laboratory

Stacey Rothgeb, PE CEM

stacey.rothgeb@nrel.gov

Project Summary



Timeline

Start date: October 1, 2014

Planned end date: September 30, 2018

Key Milestones

1. FY16 Annual Report: Building America is Driving Real Solutions in the Race to Zero Energy Homes (Publication), 12/31/2016
2. 2018 Building America Program Successes (Journal Article), 9/30/2018

Budget

Total Project \$ to Date:

- DOE in FY18: \$1,269,000
- DOE from FY15-FY17: \$4,565,000

Total FOA \$ FY15-FY18:

(size of supported portfolio)

- DOE: \$21,137,000
- Cost Share: \$5,409,000

Key Partners

Building America FOA Performers (15 awards)
Lawrence Berkeley National Laboratory
Pacific Northwest National Laboratory
Oak Ridge National Laboratory

Project Outcome

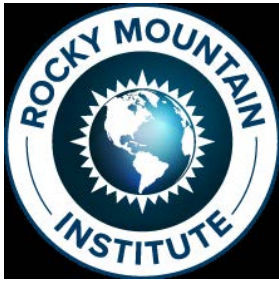
Provide scientific leadership to ensure high-quality, impactful results from Building America (BA) building science research program.

Validate technology innovations and inform further fundamental research to achieve 60% EUI savings in new homes and 40% EUI savings in existing homes by 2020.

Team



Partners



UNIVERSITY OF MINNESOTA



Pacific Northwest NATIONAL LABORATORY

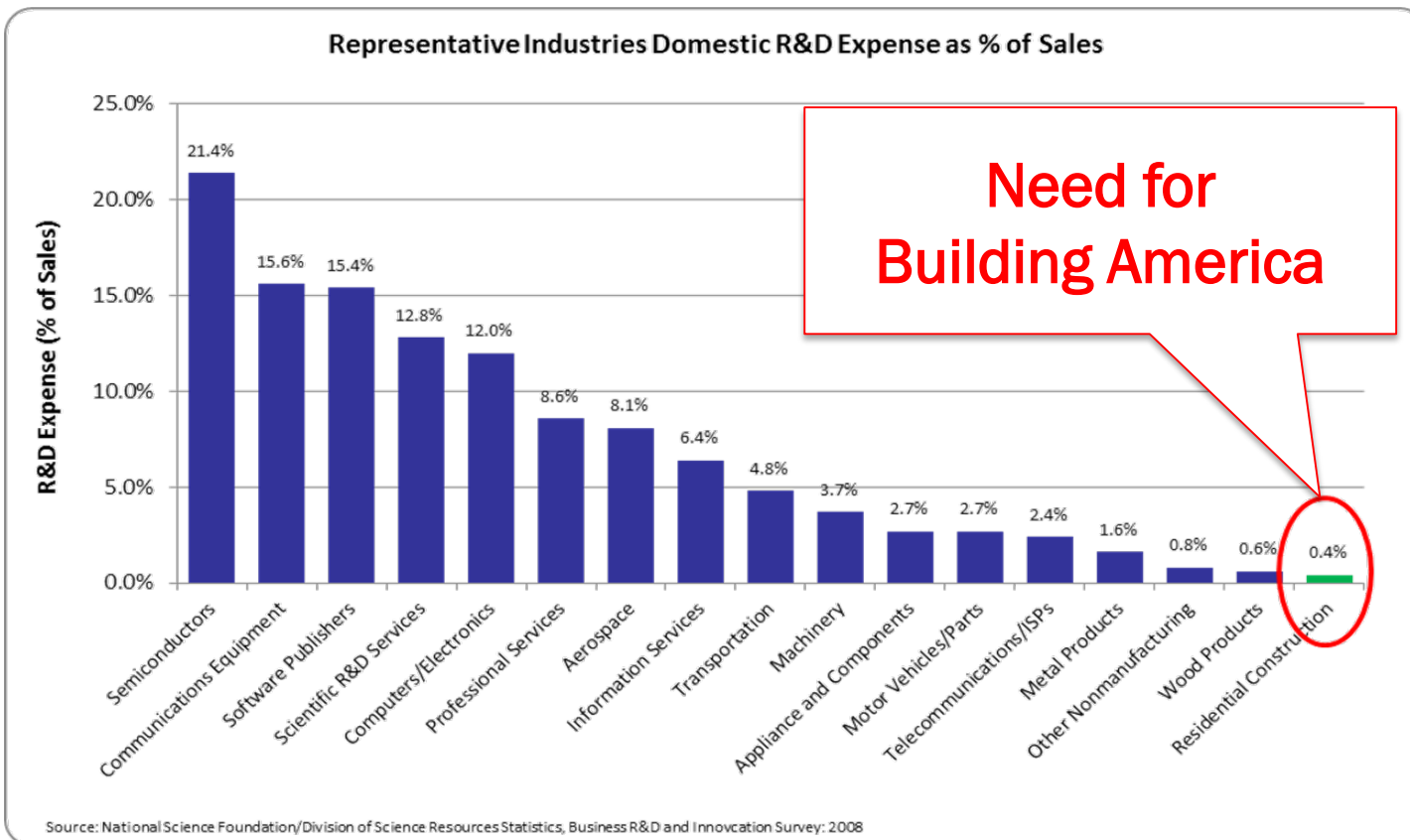


The Levy Partnership



Challenge

The lack of private-sector R&D investment in residential innovations is resulting in a negative productivity growth in the housing construction market.



“Comprehensive Evaluation Finds Building America Research Has Saved Millions for American Homeowners”

Energy.gov, March 1, 2018

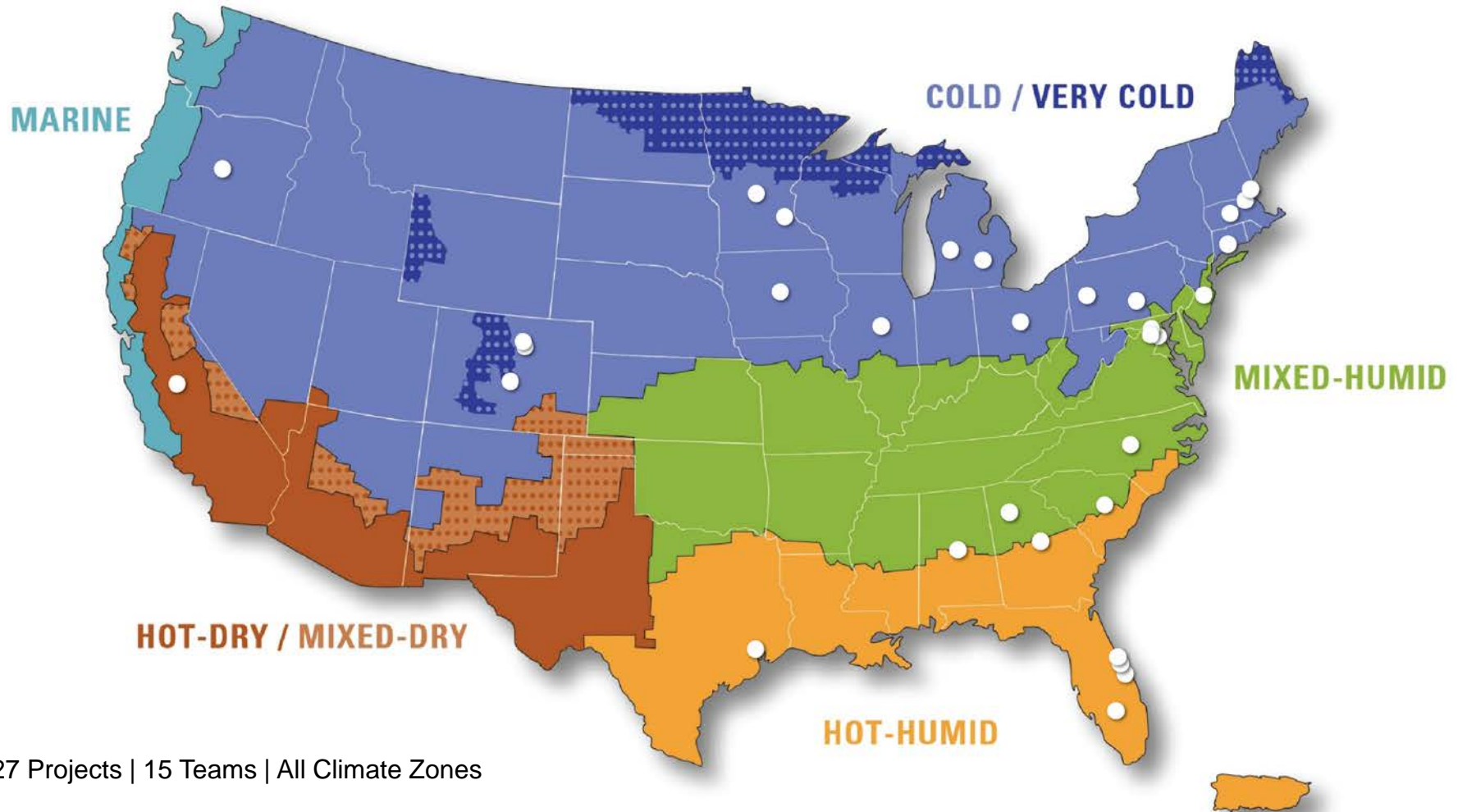
- 140 trillion BTUs of energy from 4 studied innovations
- \$689 million in energy cost savings from 4 studied innovations
- Entire program benefits estimated at \$2.3 billion
- Up to \$30 in energy savings for every \$1 spend by BA Program



<https://www.energy.gov/eere/buildings/downloads/evaluation-building-america-and-selected-building-energy-codes-program>

Approach

The DOE Building America Program conducts system integration R&D to achieve 50% energy savings in homes.



27 Projects | 15 Teams | All Climate Zones



Provide scientific leadership to ensure high-quality, impactful results from Building America (BA) research.

- Integrated program strategy
 - Active project management
 - Stakeholders Engagement

BA Project Technical Quality

- Active project management principles
- Review and track research progress
- Facilitate cross coordination



Experimental Design Support

- Early-stage project development, scoping, and planning
- Technical review of research plans
- Enhanced field validation execution, analysis, and data acquisition support.



Approach: Program Support

Building America Strategy

- Contribute to strategic direction
- Identify research needs

Industry Technical Support

- Engage subject matter experts
- Address near-term technical barrier
- BTO buildings science initiatives.

FOA Support

- Technical merit review of proposals
- SOPO development.



Peer Review & Publication

- Ensure defensible research results
- Blind technical peer review process
- High quality publications

Communications

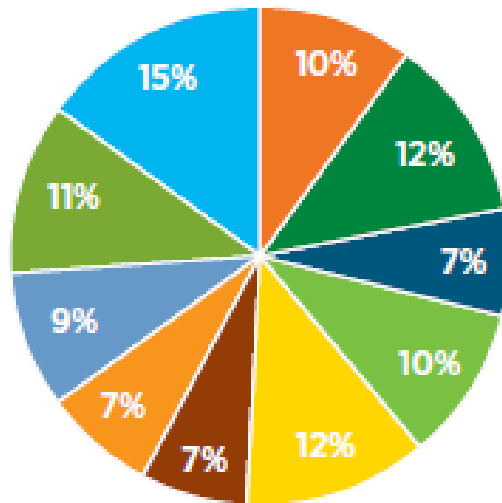
- Coordinate technical communications
- Maximize exposure and market engagement.
- Brand recognition



Stakeholder Engagement

Broad stakeholder engagement is critical to success in the fragmented residential buildings market.

STAKEHOLDER GROUPS



Outreach Efforts

- Coordinated editorial calendar
- Peer reviewed technical publications
- Building America website
- Building America newsletter
- Building America webinar series
- Dedicated Building America conference tracks
- Social media presence

501,198

website pageviews

1,028

webinar attendants

54,926

file download

12,812

newsletter subscribers

2,823

mobile app subscribers

BTO Multi-Year Program Plan, Fiscal Years 2016 - 2020

Strategy 1: Demonstrate and integrate cost-effective, energy-efficient technologies and practices in representative homes, which significantly reduce EUI and optimize home performance.

Table 11. Technology demonstration & integration, metrics, statuses and 2020 target

Metrics and Targets: RBI Technology Demonstration & Integration			
Activities contributing to the goal	Metric	Status Relative to 2010*	2020
Building America	New single-family homes relative EUI reduction	Based on preliminary analysis, 5 demonstration homes across a variety of climate zones meet a 20-70% reduction relative to 2010. †	5 homes per climate zone (7) that meet a 60% reduction relative to climate specific 2010 baselines
	Existing single-family homes relative EUI reduction		5 homes per climate zone (7) that meet a 40% reduction relative to climate specific 2010 baselines
	Individual technologies and solutions for existing homes that provide 10% heating and cooling energy savings relative to a 2010 baseline	Analysis underway to determine the status and target	

<https://www.energy.gov/sites/prod/files/2016/02/f29/BTO%20Multi-Year%20Program%20Plan%20-%20Final.pdf> (pages 125-128)

FOA Projects

\$26,546,000

15 Teams

23 Projects

6 completed | 17 active

RBI Support

MYPP Goals Data

Offsite Market
Study

3 Expert Meetings

Knowledge

150+ peer
reviews

6 publications

62 BASC content

Experimental

25+ test plans

5 E+ models

2 site support

Industry

Passive Haus

EPA Water Sense

DOE Health and
Homes

UL Multifamily

Outreach

40+ webinars

44 newsletters

100+ e-blasts

10 conf. tracks

Remaining Project Work

FY18 Building America FOA
Increased Market Engagement
MYPP 2020 Goal Achievement

National Renewable Energy Laboratory
Stacey Rothgeb, PE CEM
stacey.rothgeb@nrel.gov

REFERENCE SLIDES

Project Budget



Project Budget: TQM budget is proportional to BA FOA funding amount.

Variations: Activities are scaled to available budget.

Cost to Date: FY18 spending to date is \$641,000.

Additional Funding: none

Budget History

FY 2015 – FY 2017 (past)		FY 2018 (current)		FY 2019 – TBD (planned)	
DOE	Cost-share	DOE	Cost-share	DOE	Cost-share
\$4,565,000	-	\$1,269,000	-	-	-

Project Plan and Schedule



The TQM project is an annual reoccurring activity to support the Building America Program. Milestones include monthly progress reporting and annual reporting of key outcomes for each major task. Annual go/no-go decision points are dependent on continued program funding.

Project Schedule												
Project Start: 10/1/2017	Completed Work											
Projected End: 9/30/2018	Active Task (in progress work)											
	◆ Milestone/Deliverable (Originally Planned)											
	◆ Milestone/Deliverable (Actual)											
	FY2018 Q1			FY2018 Q2			FY2018 Q3			FY2018 Q3		
Task	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Past Work												
Monthly Progress Report	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
3.1: 2018 Building America Editorial Calendar			◆									
4.1: 2017 BA Technical Support Accomplishments				◆								
5.1 FOA Support						◆						
Current/Future Work												
2.1: Review process for FY18 FOA awards									◆			
1.1: 2018 BA Successes (draft journal article)												◆