

## U.S. Department of Energy's Building America Program

*Removing Infrastructure Barriers to High Performance Homes through Targeted Task Forces*

### OVERVIEW OF BUILDING AMERICA

The U.S. Department of Energy's (DOE) Building America program has been a world-class research program and a source of innovations in residential building energy performance, durability, quality, affordability, and comfort for more than 15 years. Building America partners with industry to bring cutting-edge innovations and resources to market.

The DOE invests in researching and developing high-performance new and existing home innovations through Building America. The goal of Building America is to research and demonstrate cost-effective strategies to reduce home energy use by up to 50%, for both new and existing homes, in all climate regions by 2017. This performance target allows the program to focus on achieving market transformation to zero net-energy ready homes – homes that are so efficient that a renewable energy system can offset most - or all - annual energy consumption.

### BUILDING AMERICA PROGRAM STRATEGY

To achieve Building America's goal, there is a four-pronged strategy:

1. **Research and develop** advanced technologies and practices to ensure high-performance homes are practical and cost effective;
2. **Prove the technical and business case of high-performance homes** with whole-house packages of advanced technologies and practices to that enable practitioners to easily implement strategies to achieve Building America performance targets;
3. **Provide guidance and tools** to enable practitioners to apply and refine proven innovations at scale;
4. **Remove infrastructure barriers** to market transformation to enable the delivery of high performance homes at scale.

### BUILDING AMERICA KEY INITIATIVES

To support Building America's program strategies, the program has five (5) key research and market transformation initiatives:

- The **Building America Core Research Program** focuses on conducting systems-based, high-impact projects to *research and develop strategies* for new and existing homes that meet Building America performance targets, *providing technical guidance and tools* to the building science community, and *developing proven, whole-house packages of innovations* that can be easily implemented to achieve Building America performance targets.
- The **Building America Solution Center** *provides guidance and tools* to residential building professionals on hundreds of high-performance design and construction topics.
- The **DOE Challenge Home Program** *provides guidance, tools, and recognition* for builders that voluntarily meet extraordinary levels of quality and excellence.
- The **Building America Awards Program** *provides incentive, reward and recognition* for researchers, builders, contractors, and educators to help contribute toward achieving Building America's goals. This program includes the Housing Innovation Awards and the DOE Challenge Home Student Design Competition.

- The **Building America Task Force** initiative works to create collective impact to identify and remove key infrastructure barriers to the adoption of high performance homes by bringing together key stakeholders to collaborate, develop roadmaps, and solve problems through working groups. This program includes the Codes and Standards Innovation Team, the Building Science Education Task Force, and the Transaction Process Task Force.

## **BUILDING AMERICA TASK FORCE INITIATIVE**

The strategies for the Building America Task Force initiative are to:

- Identify key infrastructure barriers to the adoption of Building America research results, and the overall delivery of high performance homes;
- Understand and document – through research and development activities and engagement with key stakeholders – the critical issues associated with these key infrastructure barriers;
- Convene key stakeholders as task forces to develop and refine a roadmap that tracks critical short, medium and long-term goals to remove these key infrastructure barriers;
- Tackle specific barriers through working groups;
- Track progress against roadmaps by ongoing engagement with the task force;
- Identify significant gaps in research and development activity that are critical to removing key infrastructure barriers, but cannot or will not be addressed by a working group or private industry;
- Feed back to the Building America program for research and development planning purposes.

## **BUILDING SCIENCE EDUCATION TASK FORCE**

### **Background**

After tracking Building America accomplishments since the program's inception, one infrastructure need that emerged is a lack of consistent building science education to ensure an adequate supply of skilled professionals who can apply proven innovations and recognize the value of high-performance homes. DOE addressed this issue with a Building America Building Science Education Summit on November 7, 2012 at the National Association of Home Builders Research Center (now the Home Innovation Research Laboratory). The goal of this facilitated meeting was to bring together over 30 leaders in building science training, education, research, program implementation, and leadership from across the country to develop a strategic building science education roadmap. The resultant roadmap can be found on the Building America web site:

[http://apps1.eere.energy.gov/buildings/publications/pdfs/building\\_america/ba\\_bldg\\_science\\_education\\_roadmap.pdf](http://apps1.eere.energy.gov/buildings/publications/pdfs/building_america/ba_bldg_science_education_roadmap.pdf)

Subsequently, Building America convened the Building Science Education (BSE) Task Force, which will work to address key issues in building science education.

## Roles and Responsibilities

The Building America Building Science Education Task Force will be managed by DOE, and all direction, project plans, and tasks will be approved by Sam Rashkin, Chief Architect for DOE/EERE's Building Technologies Office. The BA BSE Task Force will be managed through the support of DOE contractors (Confluence Communications and Energetics) and with industry support from ACI and EEBA.

*The task force is intended to be an open, industry-driven initiative that is coordinated by DOE. Participants will include other federal agencies, Building America teams, industry associations, educational institutions and private companies with a key interest in advancing building science education. Members of the BSE Task Force will be admitted to participate at any time.*

The following outlines basic roles and responsibilities for managing and implementing the task force:

Role	Organization/Contact
Strategic direction and program planning	DOE/Sam Rashkin
Project planning and project management	Confluence Communications/Stacy Hunt, and Energetics/Sarah Mabbitt
Task force communications	DOE/Sam Rashkin (direct communications) EEBA/Karen Thull (promotion), ACI/Carla Maxwell (online forum)
Reporting and road-mapping	Energetics/Sarah Mabbitt, and Confluence Communications/Stacy Hunt
Working group management	DOE/Sam Rashkin, Energetics/Sarah Mabbitt, Confluence Communications/Stacy Hunt, NorthernSTAR/Pat Huelman

## Project Plan

In 2013 and 2014 the task force will:

1. Inventory existing building science education initiatives by soliciting feedback from task force members via an online forum and in person meetings, and cross walk these initiatives to the key actions outlined in the roadmap;
2. Create a map of building science education to use as a structure to evaluate need, focused around:
  - a. Worker training and certification (job training, i.e. weatherization worker, home performance worker, mechanical contractor, insulation contractor)
  - b. Two-year degree programs
  - c. Four-year degree programs (i.e. architecture, engineering, construction management)
  - d. Masters-level programs (both practitioners and those who will train the next generation of four year degree students)
3. Revise the BSE roadmap as a feedback mechanism to industry and DOE;

4. Create and implement a “Terminology, Competencies, and Curricula” working group to address the following key actions identified in the roadmap, specifically for *four-year-programs*:
  - a. Develop a definition for building science
  - b. Identify and set proficiency levels (practitioner, supervisor, policy-maker)
  - c. Map proficiency levels to existing certifications
  - d. Establish building science Knowledge, Skills, Abilities (KSAs) for each proficiency level
  - e. Identify critical curriculum needs to serve KSA development
5. Develop a plan to address additional key actions in future years.

## Tasks and Timeline

Task	Description	Deadline	Responsible Parties	Contributors
Re-launch BSE Task Force	Re-launch BSE Task Force as a DOE/Building America initiative (collaborative with ACI and EEBA) to create a clear understanding of management, direction, structure, goals, objectives, tasks, and desired participant engagement with:	7/30/13	DOE	ACI, Confluence, EEBA, Energetics
	<ul style="list-style-type: none"> <li>A mass email to invited participants</li> </ul>	7/26/13	Energetics	ACI, Confluence, EEBA
	<ul style="list-style-type: none"> <li>Targeted stakeholder phone calls</li> </ul>	7/26/13	Confluence	DOE
	<ul style="list-style-type: none"> <li>A task force kick-off webinar</li> </ul>	8/30/13	EEBA	DOE, Confluence
Host Online COI	Host online COI to provide a forum for ongoing discussion	Ongoing	ACI	DOE, Confluence, EEBA
	<ul style="list-style-type: none"> <li>Update COI content to reflect current project plans and to provide a request for information to support inventory tasks (see next)</li> </ul>	7/25/13	ACI	DOE, Confluence, EEBA, Energetics
	<ul style="list-style-type: none"> <li>Encourage participation in inventory task (see next) through forum participation</li> </ul>	Ongoing	ACI	Confluence, EEBA
Inventory Existing Initiatives and Projects	With Task Force participants, conduct an inventory of existing projects in each key action area and document in roadmap format	9/1/13	Energetics/Confluence	ACI, DOE, EEBA
Develop Terminology, Competencies, and Curricula Working Group	Develop a working group model and project plan	7/30/13	NorthernSTAR	Confluence, DOE, Energetics
	Identify key participants and invite their participation in the working group (targeted emails/phone calls)	8/15/13	Confluence/Energetics	ACI, DOE, EEBA
	Conduct in-person Terminology, Competencies, and Curricula working group meeting in conjunction with EEBA annual conference	9/24/13 at 1:00pm	DOE/Confluence/EEBA	ACI, Energetics
	Conduct in-person Terminology, Competencies, and Curricula working group meeting in conjunction with the Associated Schools of Construction annual meeting	3/26/2014	NorthernSTAR	DOE, Energetics, Confluence
Update BSE Roadmap	Update BSE Roadmap to; include current inventory of existing initiatives; provide an update for the Terminology and Standards Working Group; and to identify critical actions and next steps.	12/1/13	Energetics	ACI, Confluence, DOE, EEBA
Deliver Findings to Industry	Provide findings in the form of conference presentations/facilitated discussion at ACI annual conference	5/2/13	DOE	ACI, Confluence, EEBA, Energetics