

## Building America Research - FY14

Lab or Team	Final Project Title	Measure Research, Whole House Assessment, or Community Scale Verification?	% Savings Goal (if applicable)	New, Retrofit or Both?	Single Family (SF), Multifamily (MF), HUD or All?	Primary Technology Area	Climate (Applies to all states in that climate region unless otherwise noted)				
							Cold	Mixed-Humid	Hot-Dry	Hot-Humid	Marine
ARBI (DEG)	Ducts in Conditioned Space & High R-value Wall	Measure Research		New	All	Thermal Enclosure			All		
ARBI (DEG)	Field Trial of an Aerosol-Based Envelope Sealing Technology on a Production Scale	Measure Research		Both	All	Thermal Enclosure	All	All	All	All	All
ARBI (DEG)	Evaluation of HPWH Ducting Kit Benefits in a Hot-Dry Climate	Measure Research		Both	All	Efficient Water Heating			All		
ARBI (DEG)	Challenge Home Production Builder Implementation	Community Scale Verification	40%	New	All	Integrated Design (& WH packages)			CA		
ARIES (Levy)	Thermostatic Radiator Valve Evaluation and Demonstration	Measure Research		Both	All	Low-Load Efficient HVAC		NY			
ARIES (Levy)	Public Housing: A Tailored Approach to Energy Retrofit	Community Scale Verification	15%	Retrofit	All	Integrated Design (& WH packages)	All	All			
BAPIRC (FSEC)	System Research Management and Technical Support	Other		Both	All	Analysis & Program Support					
BAPIRC (FSEC)	Energy Efficient management of mechanical Ventilation and Relative Humidity with Mini-Splits in Hot and Humid Climates	Measure Research		Both	All	IAQ & Ventilation				FL	
BAPIRC (FSEC)	Evaluation of Closed-Cell Foam Application onto the Exterior Surfaces of Ductwork in Unconditioned Rooms	Measure Research		Both	All	Low-Load Efficient HVAC				FL	
BAPIRC (FSEC)	Relationship Among IAQ, Comfort, and Ventilation in Humid Climates— Gainesville, FL Test Home Study	Measure Research		Both	All	IAQ & Ventilation				FL	
BAPIRC (FSEC)	Hot Water Systems Laboratory: Side-by-side testing of water heating systems under realistic draw profiles	Measure Research		Both	All	Efficient Water Heating				FL	
BAPIRC (FSEC)	Temperature based ventilation control to optimize whole house mechanical ventilation	Measure Research		Both	All	IAQ & Ventilation	All	All	All	All	All
BARA (BMI)	System Research Management and Technical Support	Other		Both	All	Analysis & Program Support					

BARA (BMI)	Effective Links Between Building America Innovation Results and Market Leader/Building Science Experts and Outreach Leaders	Other		Both	All	Analysis & Program Support					
BARA (BMI)	Optimizing the Home Inspection Process to Drive Energy Efficiency and High Performance	Other		Retrofit	All	Analysis & Program Support	MI				
BARA (BMI)	Developing Solution Center Content	Other		Both	All	Analysis & Program Support					
BSC	Systems Research Management and Technical Support	Other		Both	All	Analysis & Program Support					
BSC	Field Testing of Unvented Roofs with Tiles	Measure Research		New	All	Durability				FL	
BSC	Field Testing of Dense Pack Unvented Roofs with Asphalt Shingles in Cold Climates and Hot-Humid Climates	Measure Research		Both	All	Durability	IN			TX	
BSC	Analysis of Joist Masonry Moisture Content Monitoring	Measure Research		Retrofit	All	Durability	MA				
BSC	Double-Stud Wall Monitoring	Measure Research		New	All	Thermal Enclosure	MA				
BSC	Expert Meeting on Guidance on Design Methods for Enclosure: Above-Grade Walls	Other		Both	All	Thermal Enclosure	All	All	All	All	All
BSC	Guidance on Design Methods for Enclosure Design: Above-Grade Walls	Measure Research		Both	All	Thermal Enclosure	All	All	All	All	All
BSC	Guidance on Cladding Attachment Over Thick Insulating Sheathing	Measure Research		Both	All	Thermal Enclosure	All	All	All	All	All
BSC	Mineral Fiber High Performance Enclosure Retrofit Package	Measure Research		Retrofit	All	Thermal Enclosure	All	All			All
BSC	Ventilation Guidance for Residential High Performance New Construction	Other		New	All	IAQ & Ventilation	All	All	All	All	All
BSC	Evaluation and Refinement of Market-Developed DEER Approaches	Measure Research	deep	Retrofit	All	Thermal Enclosure	MA				
CARB (SWA)	Assessing Inverter-Driven ASHPs in Cold Climates	Measure Research		Both	All	Low-Load Efficient HVAC	All				
CARB (SWA)	Bath Exhaust Fan Design Recommendations	Measure Research		Both	All	IAQ & Ventilation	All	All	All	All	All
IBACOS	System Research Management and Technical Support	Other		Both	All	Analysis & Program Support	All	All	All	All	All
IBACOS	Task 2.1 Central Single-Zone Variable-Capacity Small-Diameter Duct System Modeled Performance in Multiple Climates at Various Levels of Enclosure	Measure Research	30%	Both	All	Low-Load Efficient HVAC	All		All	All	All

IBACOS	Task 2.2 Ducted and Ductless Minisplit Two-Zone Variable-Capacity HVAC System Modeled	Measure Research	30%	Both	All	Low-Load Efficient HVAC	All		All	All	All
IBACOS	Task 2.3 modular Small-Diameter Ducts and Splitter Boxes for Ducted Minisplits - Modeled and Measured Performance	Measure Research	30%	Both	All	Low-Load Efficient HVAC	All		All	All	All
IBACOS	Task 1.1 Industry Engagement for Codes and Standards Related to Ducts, Air Sealing Fire Separation Walls, and Residential Sprinklers	Other	15%	Both	All	Analysis & Program Support	All	All	All	All	All
NorthernSTAR	High Performance Slab-on-Grade Foundation Insulation Retrofits	Measure Research		Retrofit	All	Thermal Enclosure	All	All			
NorthernSTAR	Building Science Education: Support for Curriculum Development	Other		Both	All	Analysis & Program Support	All	All	All	All	All
PARR (GTI)	Delta Q Duct Leakage Testing	Measure Research		Both	All	Low-Load Efficient HVAC	IL				
PHI	System Research Management and Technical Support	Other		Both	All	Analysis & Program Support					
PHI	High Performance Wall Construction Guide	Measure Research		New	All	Thermal Enclosure	All	All	All	All	All
PHI	Expanding the Application of Heat Pump Water Heaters - Ducted HPWH	Measure Research		Both	All	Efficient Water Heating		All	All	All	
PHI	Validation Testing for the Delta Q Duct Tightness Test	Measure Research		Both	All	Low-Load Efficient HVAC					
PHI	Expanding the Market for Wall Upgrades Using Retrofit SIP Panels	Measure Research	30%	Retrofit	All	Thermal Enclosure	All	All			All
LBNL	R&D Support to Building America	Other		Both	All	Low-Load Efficient HVAC	All	All	All	All	All
LBNL	Codes and Standards Integration	Other		Both	All	Low-Load Efficient HVAC	All	All	All	All	All
LBNL	Improved Duct Leakage Testing	Measure Research		Both	All	Low-Load Efficient HVAC	All	All	All	All	All
LBNL	Smart Ventilation	Measure Research		Both	All	IAQ & Ventilation	All	All	All	All	All
LBNL	IEQ Support to Building America	Other	50%	Both	All	IAQ & Ventilation	All	All	All	All	All
LBNL	Tools to value health benefits of IAQ	Other		Both	All	IAQ & Ventilation	All	All	All	All	All
LBNL	High Performance Filtration	Other		Both	All	IAQ & Ventilation	All	All	All	All	All
LBNL	Combustion Safety for Energy Retrofits	Other		Retrofit	All	IAQ & Ventilation	All	All	All	All	All

LBNL	High Performance Range Hoods	Measure Research		Both	All	IAQ & Ventilation	All	All	All	All	All
NREL	HVAC Performance Maps	Measure Research	ZNE	Both	All	Low-Load Efficient HVAC	All	All	All	All	All
NREL	Gateway for Smart Home Systems Interoperation	Measure Research	ZNE	Both	All	Efficient Components/ MELs/Controls	All	All	All	All	All
NREL	Best Practices for Whole-Home Integration of HPWHs	Measure Research	ZNE	Both	All	Efficient Water Heating	All	All	All	All	All
NREL	High-Performance HVAC System Deployment	Measure Research	30%	Both	All	Low-Load Efficient HVAC	All	All	All	All	All
NREL	Building America Teams Task Ordering Agreements (TO5)	Other		Both	All	Analysis & Program Support	All	All	All	All	All
NREL	Building America Teams Technical Quality Management	Other		Both	All	Analysis & Program Support	All	All	All	All	All
NREL	Project Impact Assessments - Building America FY14 Field Test Technical Support	Other		Both	All	Analysis & Program Support	All	All	All	All	All
NREL	Project Impact Assessments - Database Support	Other		Both	All	Analysis & Program Support	All	All	All	All	All
NREL	Analysis - Technologies Targeting ZNE	Measure Research	ZNE	Both	All	Analysis & Program Support	All	All	All	All	All
NREL	Analysis - Impact Assessment	Other	ZNE	Both	All	Analysis & Program Support	All	All	All	All	All
ORNL	System Level Optimization of Heat Pump Water Heater Operation	Measure Research		Both	All	Efficient Water Heating		TN			
ORNL	Utilization of the Prioritization Tool to quantify the impact of integration activities	Other		Retrofit	All	Analysis & Program Support	All	All	All	All	All
PNNL	Building America Solution Center	Other		Both	All	Analysis & Program Support	All	All	All	All	All
PNNL	Building America and Challenge Home Initiative Support	Other		Both	All	Thermal Enclosure	All	All	All	All	All
PNNL	Resolving Code and Standard Barriers to Building America Innovations	Other		Both	All	Analysis & Program Support					
PNNL	Low-E Storm Window Adoption Program	Measure Research		Retrofit	All	Thermal Enclosure					
PNNL	Low-Load HVAC Guidance and Market Development	Measure Research		Both	All	Low-Load Efficient HVAC	All	All	All	All	All

PNNL	Field Evaluation of Non-Intrusive Load Monitoring	Measure Research		Both	All	Efficient Components/ MELs/Controls	All					All
ARIES (Levy)	DOE Challenge Home Design for New Factory Built Homes	Whole House Package	40%	New	HUD	Integrated Design (& WH packages)	All	All				All
BAPIRC (ESEC)	NEEM High Performance Manufactured Home Prototyping	Whole House Package	30%	New	HUD	Integrated Design (& WH packages)	All					All
BARA (BMI)	Reducing AC Loads in Public Housing	Measure Research		Retrofit	HUD	Low-Load Efficient HVAC		NJ				
BARA (BMI)	Support for Public Housing Authority (PHA) Energy Efficient (EE) Unit Turnover Package, Cold Climate Reduced Recirculation Losses in Multi-Family Solar Water Heating Applications	Other		Retrofit	HUD	Analysis & Program Support	All					
ARBI (DEG)	Reduced Recirculation Losses in Multi-Family Solar Water Heating Applications	Measure Research		Both	MF	Efficient Water Heating			All			
ARIES (Levy)	Expert Meeting - Multifamily Central Hydronic/Steam Systems Retrofits	Other		Retrofit	MF	Low-Load Efficient HVAC	All	All				
ARIES (Levy)	DOE Challenge Home Multifamily Development	Community Scale Verification	30%	New	MF	Integrated Design (& WH packages)		NJ				
ARIES (Levy)	Control Strategies to Reduce Energy Consumption of Central Domestic Hot Water Systems	Measure Research		Both	MF	Efficient Water Heating		NY				
CARB (SWA)	Best Practice Ventilation in New Construction Multifamily	Measure Research		New	MF	IAQ & Ventilation	All	All				
CARB (SWA)	Apartment Compartmentalization with an Aerosol-Based Sealing Process	Measure Research		New	MF	Thermal Enclosure		NY				
CARB (SWA)	Solar Water Heating in Multifamily and ZNERHs	Measure Research		New	MF	Efficient Water Heating	MA					
CARB (SWA)	Multifamily Low Load HVAC Needs Assessment	Other		New	MF	Low-Load Efficient HVAC	All	All				
IBACOS	Task 8.1 Deep Retrofit of Urban Townhouse	Whole House Package	30%	Retrofit	MF	Integrated Design (& WH packages)						
PARR (GTI)	Quantifying the Financial Benefits of Multifamily Building Energy Upgrades beyond Utility Cost Savings (CNT Energy)	Other		Retrofit	MF	Integrated Design (& WH packages)	IL					
PHI	Existing Home WH Retrofit Technologies and Packages - Retrofit Template	Whole House Package	30%	Retrofit	MF	Integrated Design (& WH packages)	NY					
PHI	Establishing an Optimized Energy Retrofit Package for USDA Multifamily Development Properties	Whole House Package	30%	Retrofit	MF	Integrated Design (& WH packages)		TN				
ARBI (DEG)	Retrofit on Purchase & Data Mining	Community Scale Verification		Retrofit	SF	Integrated Design (& WH packages)	All	All	All	All	All	All
ARIES (Levy)	Habitat for Humanity DOE Challenge Townhomes	Whole House Package	deep	New	SF	Integrated Design (& WH packages)	NY					
ARIES (Levy)	RE: BUILD   BACK   BETTER: Injecting Efficiency into Sandy Rebuilds	Community Scale Verification	15%	Retrofit	SF	Integrated Design (& WH packages)		NY				

BAPIRC (FSEC)	The Wood Ductless Mini-Splits in High Performance all electric homes	Whole House Package		New	SF	Low-Load Efficient HVAC					WA
BAPIRC (FSEC)	Business Development Case Studies of 30% BA homes	Community Scale Verification	30%	New	SF	Integrated Design (& WH packages)				FL	
BAPIRC (FSEC)	Side-by-Side Lab Houses to Evaluate Component Innovations	Measure Research		Both	SF	Thermal Enclosure				FL	
BAPIRC (FSEC)	Phased Deep Retrofits: Shallow "Plus" and Deep "Plus"	Community Scale Verification	deep	Retrofit	SF	Integrated Design (& WH packages)				FL	
BAPIRC (FSEC)	Technical Support for Existing Home Market Transformation Programs - Affordable Housing / Hot	Community Scale Verification	30%	Retrofit	SF	Integrated Design (& WH packages)				All	
BSC	Integration of DOE Challenge Home with BASF BEYOND.High Performance Program	Community Scale Verification	30%	New	SF	Integrated Design (& WH packages)		TX		TX	
BSC	Validation of Climate Specific Passive Building Standards as Basis for Next Generation Challenge Homes	Community Scale Verification	50%	New	SF	Integrated Design (& WH packages)	All	All	All	All	All
CARB (SWA)	Moisture Guidelines for High-R Wall Assemblies without Exterior Insulating Sheathing (i.e., Double Stud Walls)	Measure Research		New	SF	Durability	All	All			
CARB (SWA)	Cold Climate Sealed Crawlspace with Integrated Whole-House Ventilation	Measure Research		Both	SF	IAQ & Ventilation	NY				
CARB (SWA)	Dehumidification Without Added Sensible Heat	Measure Research		New	SF	Low-Load Efficient HVAC				FL	
CARB (SWA)	Challenge Home Hot Water Distribution Evaluation	Measure Research		New	SF	Efficient Water Heating	CT				
CARB (SWA)	Validating DOE Challenge Home Energy Savings Claims	Whole House Package	50%	New	SF	Integrated Design (& WH packages)	All	All			
CARB (SWA)	Zero Net Energy Ready Modular Homes - Bright Built Home	Whole House Package	40%	New	SF	Integrated Design (& WH packages)	ME				
CARB (SWA)	Space Conditioning Impact of HPWHs in Cold Climate Basements	Measure Research		Both	SF	Efficient Water Heating	All				
CARB (SWA)	Unvented Attic Field Monitoring for ORNL Model Validation	Measure Research		Both	SF	Durability	All				
CARB (SWA)	Retrofitting a 1960s Split Level, Cold Climate Home	Whole House Package	30%	Retrofit	SF	Integrated Design (& WH packages)	CT				
IBACOS	Task 2.5 Large-Scale Study of House Temperatures/Operation	Measure Research	30%	Both	SF	Low-Load Efficient HVAC	All	All	All	All	All
IBACOS	Task 3.1 Ductless Homes Passive House Monitoring and Challenge Home Participation	Whole House Package	40%	New	SF	Integrated Design (& WH packages)	CO				
IBACOS	Task 3.2 New Town Homes Cold Climate Heat Pump Evaluation and Challenge Home Participation	Whole House Package	50%	Both	SF	Low-Load Efficient HVAC	CO				
IBACOS	Task 3.3 Imagine Homes Minisplit Evaluation	Whole House Package	30%	Both	SF	Low-Load Efficient HVAC				TX	
IBACOS	Task 4.1 Stapleton Community Challenge Home Standards	Community Scale Verification	30%	New	SF	Integrated Design (& WH packages)	CO				
IBACOS	Task 5.1 Colorado Energy Efficient Builder Business Model Study	Other	30%	New	SF	Integrated Design (& WH packages)	CO				
IBACOS	DOE Challenge Home - Field Performance Monitoring	Community Scale Verification	50%	New	SF	Integrated Design (& WH packages)	All				
IBACOS	Line Item Market Delivery of Performance Upgrades	Other		Retrofit	SF	Integrated Design (& WH packages)	All	All	All	All	All
IBACOS	Simple Retrofit High-Efficiency Natural Gas Water Heater Field Test (1/2" gas line)	Measure Research		Retrofit	SF	Efficient Water Heating	All	All	All	All	All

NorthernSTAR	Combined Space and Water Heating – Measure Guideline: Installation and Optimization	Measure Research		Retrofit	SF	Efficient Water Heating	All					
NorthernSTAR	Best of NorthernSTAR Demonstration House: Roof Overcoat, Exhaustless, & Cambi System	Whole House Package	50%	Retrofit	SF	Thermal Enclosure	MN					
NorthernSTAR	Combustion Safety - Field Evaluation	Other		Retrofit	SF	IAQ & Ventilation	All					
NorthernSTAR (GTI)	Improved Duct Leakage Testing – Minnesota Field Test (Delta Q)	Other			SF	Low-Load Efficient HVAC	MN					
PARR (GTI)	Low Cost Radon Reduction (ISTC)	Other		Retrofit	SF	IAQ & Ventilation	IL					
PARR (GTI)	Combustion Safety Field Data Collection and Code Barriers (GTI)	Other		Retrofit	SF	IAQ & Ventilation	All					
PARR (GTI)	Outdoor Temperature Controlled Ventilation (ISTC)	Measure Research		Both	SF	IAQ & Ventilation	IL					
PHI	Cost-effective Alternative to Ducts in Conditioned Space (Buried Ducts)	Measure Research		New	SF	Low-Load Efficient HVAC	All	All	All	All	All	
PHI	A Wall Innovation: Extended Plate and Beam Design	Measure Research		New	SF	Thermal Enclosure	All	All				
PHI	Standardizing EE Feature Sets to Achieve New Home 40%+ WH Packages - Nexus Energy Homes	Whole House Package	40%	New	SF	Integrated Design (& WH packages)		MD				
PHI	Standardizing EE Feature Sets to Achieve New Home 40%+ WH Packages - LGTC	Whole House Package	40%	New	SF	Integrated Design (& WH packages)	PA					
PHI	New Home Whole House and Builder Challenge Existing Home WH Retrofit Technologies and Packages - CHL Pilot Project	Whole House Package	30%	New	SF	Integrated Design (& WH packages)				All		
PHI	Existing Home WH Retrofit Technologies and Packages - CHL Pilot Project	Whole House Package	30%	Retrofit	SF	Integrated Design (& WH packages)		MD				
PHI	DOE Challenge Home Student Design Competition	Other	40%	New	SF	Integrated Design (& WH packages)	All	All	All	All	All	
LBNL	Deep Retrofits Guidance	Whole House Package	deep	Retrofit	SF	Integrated Design (& WH packages)	All	All	All	All	All	
LBNL	Evaluation of Source Control for VOCs (LBNL/PNNL study)	Other		New	SF	IAQ & Ventilation	All	All	All	All	All	
ORNL	Risk Assessment of Energy Efficient Wall Assemblies	Measure Research		Both	SF	Durability	All	All		All		
ORNL	Hygrothermal investigation of durability risks of unvented attics	Measure Research		Retrofit	SF	Durability	All	All	All	All	All	
ORNL	Integration of ORNL Residential Research in the Building America Solution Center (BASC) &	Other		Both	SF	Thermal Enclosure	All	All	All	All	All	
PNNL	Cost of Ownership	Other		Retrofit	SF	Analysis & Program Support						
PNNL	Relationship among IAQ, Comfort, Moisture, and Ventilation in Humid Climates	Other		Both	SF	IAQ & Ventilation				FL		
PNNL	Impact of Source Control Measures on Indoor Air Quality in High Performance Homes	Measure Research		New	SF	IAQ & Ventilation	WA					
ARBI (DEG)	System Research Management & Technical Support	Other				Analysis & Program Support						
ARIES (Levy)	System Research Management and Technical Support	Other		Both		Analysis & Program Support						
CARB (SWA)	System Research Management and Technical Support	Other				Analysis & Program Support						

NorthernS TAR	System Research Management and Technical Support	Other				Analysis & Program Support					
FANN (CTI)	System Research Management and Technical Support	Other				Analysis & Program Support					