Agenda for

Building America Expert Meeting

Exploring the Disconnect Between Rated and Field Performance

of Water Heating Systems

Date/Time: Friday, September 28, 2012 (8:15 AM to 3 PM, MDT)

Meeting Manager: Marc Hoeschele, ARBI (530-753-1100 x23)

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List of Presenters:

Jim Lutz, Lawrence Berkeley National Laboratory

Topic: Hot Water Usage Patterns & Implications for Water Heater Performance

Jay Burch, NREL

Topic: Using Water Heater Ratings to Estimate Field Performance

Carlos Colon, BA-PIRC

Topic: Lab Testing of Conventional and Advanced Water Heaters

Paul Glanville, PARR

Topic: Lab Testing of Advanced Gas Storage and Tankless Water Heaters

Marc Hoeschele, ARBI

Topic: Field Monitoring of Advanced Gas Water Heaters in 18 CA Homes

Ben Schoenbauer, NorthernStar

Topic: Field Performance of Combined Hydronic Systems and Stand-Alone WH's

Carl Shapiro, CARB

Topic: Impact of Hot Water Usage Patterns on HPWH Performance

Dave Kresta, Northwest Energy Efficiency Alliance & Ben Larson, Ecotope

Topic: HPWH Field Testing and Performance Modeling in the Pacific Northwest

Eric Wilson, National Renewable Energy Laboratory

Topic: Prioritizing Future BEopt Water Heater Model Enhancements

Water heating represents a significant residential end use. Future efforts to reduce water heating energy use will include not only understanding equipment performance, but evaluating full system performance including distribution systems and fixture use characteristics. The primary objective of this session is to better understand the issues related to field performance of residential water heaters and how site characteristics and user patterns and behaviors affect overall system performance. Understanding which types of water heaters experience the greatest performance degradation from lab to field, and what factors contribute to that degradation is essential in defining preferred applications for different water heater types.

Key research questions to be addressed include the following:

What is the expected impact in annual energy savings due to differences in rated and field performance?

What specific information is needed to better understand field performance degradation for different common and emerging residential water heaters?

What are the maintenance needs for different water heaters and the implications for in-situ efficiency over time? What testing should be completed to support this area?

Are there trends in hot water usage and appliances that will contribute to changes in the performance degradation of different water heating technologies?

How capable is BEopt, and other water heating simulation tools, in modeling the factors that contribute to performance variations in the field? What research studies are needed to improve our understanding of this issue and provide the needed data to enhance simulation models?

Expected Results:

We anticipate that at the conclusion of the meeting we will have worked towards a better understanding in the following areas:

What technologies are most sensitive to performance degradation in the field?

What are the key factors affecting performance and what additional research is needed to better quantify the impacts? What funding opportunities outside of Building America are expected to contribute to resolving these identified research gaps?

What are the limitations of current modeling tools and what inputs (or algorithms) need to be better defined to allow modeling tools to more accurately reflect real world performance?

Planned Meeting Agenda

8:15 AM:	Welcome and Introduction
8:30-12:10:	Seven 20 minute presentations with 10 minute Q&A; one 10 minute break
12:10-12:40:	Lunch (provided), open discussion
12:40-1:50:	Two 20 minute presentations with 10 minute Q&A; one 10 minute break
1:50-2:50:	Group discussion to review key questions, resolved/unresolved issues
2:50-3:00:	Wrap up, Next Steps