

Buildings Technology Research and Development Working Group Meeting

March 12, 2009

Location: 950 L'Enfant Plaza DOE
Time: 1:30-3:30 p.m.

Attendees¹

Shyam Sunder

Jerry Dion

Kevin Hurst

Paul Domich

Dru Crawley

Alan Schroeder

Mike Ritter

Mark Halverson

Patrick Hughes

Paul Torcellini

David Campbell

Bobbie Lippiatt

Andy Persily

Steve Bushby

William Brodt

Angela Page

Dale Manty

Diana Bauer

Gail Bentkover

Hany Zaghoul

Chris Smith

Larry Bank

Ewa Lewandowska

Agency/Office

DOC/NIST

DOE/EE-Buildings

EOP/OSTP

DOC/NIST

DOE/EE-Buildings

DOE/EE-Buildings

DOI/USFS

PNL

ORNL

NREL

USPS

DOC/NIST

DOC/NIST

DOC/NIST

NASA

EPA

EPA

EPA

EPA

USACE

Architect of the Capitol

NSF

Smithsonian Institution

BTRD Co-chair

BTRD Co-chair

BTRD Ex-Sec

Next Meeting: April 16, 2009, 1:30 - 3:30 PM, 950 L'Enfant Plaza DOE

April 16, 2009

May 21, 2009

July 16, 2009

June 18, 2009

August 20, 2009

September 17, 2009

October 15, 2009

November 19, 2009

December 17, 2009

¹ Active Members not attending identified in light gray

Introductions: Subcommittee Co-chair Jerry Dion opened the meeting of the Subcommittee for Buildings Technology Research and Development (BTRD) welcoming the agency representatives and thanking them for their participation. Participants provided self-introductions.

Review of Minutes: Informal review of Minutes for February 19, 2009 was performed prior to the start of the meeting.

Presentation on the Sustainable Building Alliance: Bobbie Lippiatt (NIST) provided a brief overview of the Sustainable Building Alliance. The SB Alliance is a non-profit international network of government-affiliated research centers and technical assessment organizations (mostly government national standards organizations) that is intended to accelerate the international adoption of Sustainable Building (SB) practices through the promotion of shared methods of building performance assessment and rating. Initially a primarily European Union centric organization, the alliance recently added the US to the membership. The U.S. is represented on the Alliance Board by Shyam Sunder (NIST) with technical support provided by Bobbie Lippiatt.

The primary goal of the Alliance is to cross correlate and rationalize the differing assessment methods used by the member countries in measuring environmental performance of buildings and of setting “green” standards. The objectives of the Alliance include establishment of a common set of core issues and metrics, and rules for their use. International coordination efforts are aimed at developing and promoting environmental assessment, sharing of R&D outcomes, and furthering collaborative research efforts.

The Alliance has surveyed a range of assessment systems and identified twelve common threads of which a core of six represent the primary focus for establishing a common set of metrics. Included in their foci are methods to develop a common measure for carbon; the primary and first focus of their efforts. Other metrics of interest are water usage, Indoor Air Quality (IAQ), and sustainable materials. The Subcommittee’s cross representation in the Alliance will ensure that the activities of the U.S. representatives remain consistent with U.S. policy. The group meets on a regular monthly basis. There will be a conference in Paris in November 2009.

Dr. Sunder enquired about ASHRAE’s efforts to in the area of “green” certification of commercial buildings. Dru Crawley responded that this is basically an extension of EPA Energy Star program. The effort suffers from the same problems as Energy Star due to the lack of robust baseline data for a number of commercial building types.

Jerry Dion noted that the DOE Buildings program had provided funds to support some aspects of the Energy Information Administration (EIA) Commercial Building Energy Consumption Survey (CBECS). However, funding for CBECS

has again been cut. Dr. Sunder suggested that perhaps someone from EIA could come and brief BTRD on the needs for robust data collection for CBECS and RECS.

Distribution Status for the Implementation Plan for Net-Zero Energy, High-Performance Green Buildings Domich provided an overview of the plans to distribute the Implementation Plan for Net-Zero Energy, High-Performance Green Buildings. As of March 1, 2009, the Implementation Plan and the Executive Summary were finalized. These documents along with the Federal R&D Agenda report provide the necessary materials for the Subcommittee members to use in socializing the Plan within their agencies.

At this time, the Implementation Plan and the Executive Summary are FOUO and distribution is restricted to the Federal Executive Branch. Please contact Paul Domich if you questions or require additional materials.

Stimulus Plan and FY2010 Impacts on the Implementation Plan: Due to uncertainty in both the final budgets for the ARRA stimulus package and the recently signed FY2010 Budget, discussion of their impact on the Implementation Plan budgets and timelines was delayed.

Discussion of Buildings Research and Development in a Carbon Cap and Trade Program: NB: Recent interest in a national carbon cap and trade program led to this agenda item. Some revenues from the auctioning of “allowances” (pollution rights) may be used to fund additional energy efficiency research, particularly in buildings. Barbara (Bobbie) Lippiatt (NIST) provided a brief overview of a carbon cap and trade program. (Additional information may be found online, e.g., at the USCAP website <http://www.us-cap.org/>).

Lippiatt noted that the basics of a carbon cap and trade program begin with the federal government establishing a nationwide “cap” on the allowable carbon emissions from a specified set of sources and industry sectors; primarily coal-fired power plants owned by utilities or industry. Allowances may be provided free of charge to specific sectors which require significant time or money to limit or reduce their carbon emissions. Those entities affected must remain under their established carbon limit either by reducing their carbon emissions or by buying carbon credits from other entities which have excess carbon credits. The buying and selling of carbon credits in a carbon market (such as the Chicago Climate Exchange) creates tax revenue for the federal government that can be used to subsidize individuals or companies adversely affected by the “carbon tax”, fund carbon reduction programs, and perform federal research and development in support of carbon reduction innovations. Over time, the cap on emission is lowered according to an established schedule and the market-based price of carbon will provide the financial incentive for carbon emitters to introduce new technologies and practices which will lower carbon emissions.

Important considerations in implementing a cap and trade program include the metrics and measurements needed for assessments of carbon emissions, and carbon policies that may include credits, taxes, and incentives. International agreements also must establish an infrastructure for the “fair” assessment of carbon emissions. Consideration must be given to regional issues based on current carbon sources and the impacts of a carbon tax on their regional and national economies. Specific sectors such as the electricity and transportation sectors have additional responsibilities to manage their carbon emission since their end users are primarily individuals and companies. For these situations, the cost of the carbon program is managed by the sector and the costs passed onto the consumers of their product. However, businesses and consumers may also be able to create carbon credits through validated efficiency measures, particularly in buildings, which can be aggregated and sold in the carbon market.

The Subcommittee discussion focused on the specific R&D programs for building technologies which may be a component to a research plan in support of a carbon cap and trade program. Using the *Implementation Plan for Net-Zero Energy, High-Performance Green Buildings* as basis for such a plan, the Subcommittee discussed creating a whitepaper that describes 1) the range of programs not currently contained in the Plan that should be included in a carbon-focused effort, 2) programs in the current plan which should have its R&D timeline accelerated, and 3) programs in the current plan that will need to be investigated in greater depth or breadth.

The Subcommittee agreed to develop a supplemental whitepaper that outlines the new and existing R&D programs for carbon mitigation using the Implementation Plan as the basis for the future R&D programs and budgets. As was to be expected, much of the current Implementation Plan applies directly to carbon mitigation and the whitepaper will focus on those areas not covered in the current plan.

Action Item: Lead writer for each of the goal areas will be asked to develop a one-page description of the R&D programs focused on a carbon emission reduction program such as Cap and Trade. The first draft will be due on March 27, 2009. Paul Domich will provide an introduction section and compile the lead writer’s contributions.

Closure: Sunder closed the meeting at 3:30 p.m. and thanked the agency representatives for their participation.