

IEA's Sustainable Buildings Workshop Agenda

12/13 November 2014

IEA, 9 Rue de la Fédération, 75015, Paris, France
Métro: Bir-Hakeim (Line 6), RER C: Champ de Mars – Tour Eiffel

IEA Building Data, Metrics, and Modelling Review

Workshop Objective: *To seek advice from key global building stakeholders to raise the importance of building energy efficiency among high level energy policy directors while providing the fundamental analysis to support more investment from both the public and private sectors. To seek input in the development of metrics for tracking aggregate building energy performance to understand progress in building energy efficiency, impacts of policies, and opportunities for improvement. We also seek the establishment of a range of informal and formal partnerships to expand and improve the quality of our large data set that is used in our global model to forecast various scenarios including deep carbon mitigation.*

Audience: *Targeted toward broad range of building policy, industry, research and efficiency advocacy stakeholders. Core researchers should have a strong understanding of the type of data collected and available within their countries/industries for building energy consumption, building stock (existing floor area and annual additions/growth to the stock), core building end-uses, policies, and other key characteristics of the buildings sector.*

Wednesday 12 November 2014

- 12:30 pm Registration and networking
- 1:00 pm Welcome and Vision for IEA Buildings Activities
Didier Houssin, Director, Sustainable Energy Policy & Technology, IEA
- 1:15 pm Building Sector Opportunities – Analysis to Drive Policy and 2015 Plans
Marc LaFrance, IEA
- 1:35 Macro Building Drivers & Metrics – Global Floor Area Forecasts and Energy Performance
John Dulac, IEA
- 1:45 Importance of Investment Projections and Cost Assumptions for the World Energy Outlook
Stephanie Bouckaert, IEA
- 1:55 Questions and Answers
Audience

- 2:10 pm Building Policy and Analysis in China
Chen Peng, Center of Science and Technology of Construction, MOHURD
- 2:20 European Perspectives
Yamina Saheb, EU Joint Research Center
- 2:30 Questions and Answers
Audience
- 2:40 pm Break-out Group Assignments and Overview:
Review of modelling approaches for mature and emerging markets, data and data sources including proprietary considerations, assumptions, program evaluation, and collaborations.
Group A – Room 1
Space and water heating, cooling, building envelope and construction
Marc LaFrance and Brian Dean, IEA
Group B – Room 2
Lighting, appliances, cooking, plug loads and energy management
John Dulac and Vida Rozite, IEA
- 2:50 Questions and Answers
Audience
- 3:00 pm *Coffee Break*
- 3:30 pm Group A - Heating, cooling, building envelope and construction – Room 1
Group B - Lighting, appliance, cooking, plug loads and energy management - Room 2
- 6:00 pm Adjourn for Day 1

Thursday 13 November 2014

- 9:00 am Plenary Discussion – Room 1
Overview and Feedback from Participants – Preliminary Summary and Concerns
- 10:00 am *Coffee Break*
- 10:20 am Group A - Heating, cooling, building envelope and construction – Room 1
Group B - Lighting, appliance, cooking, plug loads and energy management - Room 2
- 12:30 pm *Lunch Break (Participants on their Own)*
- 2:00 pm Plenary Session – Room 1

Group A Report and summary

Group B Report and summary

- 2:45 pm Next steps
- 3:00 pm Transforming Construction Implementation Plan
(possible pilot project to implement advanced building envelope, mechanical equipment and lighting in specific country/regional markets)
Marc LaFrance and Brian Dean, IEA
- 3:30 *Coffee Break*
- 4:00 pm Developing Major Economies Forum Building Metrics in Collaboration with IPEEC
(Building Energy Efficiency Taskgroup (BEET) Project, and draft macro building energy efficiency metrics)
Jonah Steinbuck, US DOE and Marc LaFrance, IEA
- Questions and Answers
Audience
- (Deep energy renovation definitions and near zero energy buildings, etc)
Adam Hinge, Sustainable Energy Partnerships; and Rod Janssen, Consultant ECEEE
- Questions and Answers
Audience
- 5:30 pm Clean Energy Tracking Reports – Building Activities
Emer Dennehy and Marc LaFrance, IEA
- 5:50 pm Closing Remarks
Cecilia Tam, Head, Energy Demand Unit, IEA
- 6:00 pm Adjourn

- All times Paris, CET
- A separate agenda for the Breakout sessions will be issued to registrants along with a data package prior to the workshop.

Agenda for Breakout Group A – HVAC & Envelope

Breakout Group Objective:

Engage stakeholders and partners to allow for greater exchange of information at the meeting, and to establish partnerships for years to come. Expert opinions are requested to guide the IEA buildings sector analysis that will enable the IEA to produce high quality, pertinent analysis. The key role of the resulting analysis is to help guide the implementation of more effective policies that reduce energy consumption and carbon emissions in the buildings sector.

Day 1: November 12th

Group A: Heating, Cooling, Building Envelope and Construction – Room 1

IEA Facilitators: Marc LaFrance and Brian Dean

Group A - Part 1: Modelling Framework (3:30pm)

Discussion Points:

- Detailed building energy simulation: multiple building types, climate zones, energy efficiency measures, performance and costs
- Macro global modelling: covering all regions, climates and building types
- Building stock characterization: building age, construction materials, performance, upgrade status, current installed mechanical equipment, CHP or district heating/cooling services
- Building types: single family, multifamily, multifamily high-rise, commercial/service sector (office, restaurant, hotel, hospital, school, warehouse, etc)
- Modelling partnership approach to utilize detailed country simulations to derive inputs for global impact models
- Assumptions, policy impact assessments, and opportunity analysis

Inspirational Perspectives from Discussion Speakers:

- Aleksandra Arcipowska, BPIE (5 to 10 minutes)
- Jun Guan, Zhejiang University/ Norwegian University of S & T (NTNU) (5 to 10 minutes)
- Adam Hinge, Sustainable Energy Partnerships (5 to 10 minutes)

Key Questions:

- What individual country/region modelling can be used as inputs for the IEA's Global Buildings Model?
- What key findings, outputs and results from detailed modelling can be used to drive global modelling?

Group Discussion: (30 to 45 minutes)

Group A - Part 2: Market, Efficiency Performance, and Cost Data: (4:30pm)

Discussion Points:

- Product market share for high priority materials and products: optimal level of insulation in accordance with life cycle cost analysis, advanced windows¹, air sealing, cool roofs, space and water heating heat pumps (HPs), condensing gas boilers, and instantaneous condensing gas water heaters, solar thermal, district energy systems, fuel cells, etc.
- Product performance cost curves: for energy savings from renovation in a variety of climates, locations (varying usage, energy prices, etc) and building types.
- Definition and cost premiums of near zero energy buildings by region/climate.
- Long term potential of high priority R&D: e.g. cold climate HPs, gas thermal HPs, highly insulating dynamic windows, thin insulation, solar cooling, etc

Inspirational Perspectives from Discussion Speakers:

- Niels Schreuder, AGC Glass Europe (5 to 10 minutes)
- Russ Taylor, UTC (WBCSD and Philadelphia HUB) (5 to 10 minutes)
- Krystyna Dawson, BSRIA (5 to 10 minutes)

Key Questions:

- What sources of country level or multi-national data and analysis exist in the public domain?
- How can the summary of aggregated proprietary data be used by the IEA to drive its global model?

Group Discussion: (1 hour)

Adjourn for Day 1: (6:00pm)

Day 2: November 13th

Group A: Heating, Cooling, Building Envelope and Construction – Room 1

IEA Facilitators: Marc LaFrance and Brian Dean

Group A – Part 3: Collaboration and Partnerships (10:30am)

Discussion Points:

- Informal exchange of information and sharing of public data, in-kind support on collaborative projects
- Formal agreements and treatment of sensitive and proprietary data

¹ Double glaze low-e windows with low conductive frames and climate appropriate solar heat gain for the world, and triple glaze double low-e in cold climates.

- Joint projects and formal publications, integration of models, integrated analytical framework
- Evaluation of project results, policy assessments and how to improve analysis to effectively drive policy (e.g. what new analysis will help move forward energy efficiency as a key policy instrument)

Inspirational Perspectives from Discussion Speakers:

- Agne Toleikyte, Vienna University of Technology (Entranze Project) (5 to 10 minutes)
- Curt Garrigan, UNEP (5 to 10 minutes)
- Meredydd Evans, PNNL (5 to 10 minutes)

Key Questions:

- What are barriers to greater collaboration and partnering with the IEA?
- How can the IEA increase the value proposition to potential partners and sponsors?
- What organisations want to work closely with the IEA on global modeling?

Group Discussion: (45 to 60 minutes)

Group A – Part 4: Peer Review of IEA Model (11:45am)

Discussion Points:

- Floor area projections
- Fuel shares, efficiency and saturation
- General approaches, etc

IEA Model and Data Review:

- Marc LaFrance, IEA (15 minutes)

Group Discussion: (30 minutes)

Lunch Break for Day 2: (12:30pm)

Agenda for Breakout Group B – Appliances & Plug Loads

Breakout Group Objective:

Engage stakeholders and partners to allow for greater exchange of information at the meeting, and to establish partnerships for years to come. Expert opinions are requested to guide the IEA buildings sector analysis that will enable the IEA to produce high quality, pertinent analysis. The key role of the resulting analysis is to help guide the implementation of more effective policies that reduce energy consumption and carbon emissions in the buildings sector.

Day 1: November 12th

Group B: Lighting, Appliances, Cooking, Plug Loads, and Energy Management – Room 2

IEA Facilitators: John Dulac and Vida Rozite

Group B – Part 1: Modelling Framework (3:30pm)

Discussion Points:

- Ownership/penetration rates and energy intensity modelling (relative to data or lack of data)
- Biomass use for cooking and water heating in developing economies
- Detailed assessment vs. aggregated modeling (scaling to country/regional level)
- Policy impact assessments and opportunity analysis (e.g. mandatory standard effective dates)

Inspirational Perspectives from Discussion Speakers:

- Michael McNeil, LBNL (5 to 10 minutes)
- Didier Bosseboeuf, ADEME (5 to 10 minutes)
- Gauthier Belhomme, OGER International (5 to 10 minutes)

Key Questions:

- What is the most appropriate approach to end-use modelling at an aggregated scale (developed vs. developing economy difference)?
- Are there detailed models (or regional assessments) that can be used to inform IEA modelling?
- How can plug-loads/electronic equipment growth be modelled more accurately?

Group Discussion: (30 to 45 minutes)

Group B – Part 2: Market, Efficiency Performance, and Cost Data: (4:30pm)

Discussion Points:

- Market shares (including technology splits) and intensities (energy and usage)
- Product lifetimes and stock flow accounting

- Miscellaneous equipment and electronics (accounting and performance, including network/standby losses)
- Cost curves and technical potentials

Inspirational Perspectives from Discussion Speakers:

- Hans-Paul Siderius, Netherlands Enterprise Agency (IEA 4E IA Rep) (5 to 10 minutes)
- Ari Reeves, CLASP (5 to 10 minutes)
- Gianluca Tonolo, IEA Stats (5 to 10 minutes)

Key Questions:

- What sources of country level or multi-national data and analysis exist in the public domain?
- How can the summary of aggregated proprietary data be used by the IEA to drive its global model?

Group Discussion: (1 hour)

Adjourn for Day 1: (6:00pm)

Day 2: November 13th

Group B: Lighting, Appliances, Cooking, Plug Loads, and Energy Management – Room 2

IEA Facilitators: John Dulac and Vida Rozite

Group B – Part 3: Collaboration and Partnerships (10:30am)

Discussion Points:

- Exchange of information and data sharing (including project/policy evaluation)
- Agreements and treatment of sensitive and proprietary data
- Joint projects and integrated modelling/analytical frameworks

Inspirational Perspectives from Discussion Speakers:

- Rudiger Lohse, KEA (5 to 10 minutes)
- Kathryn Conway, UNEP (5 to 10 minutes)

Key Questions:

- What are barriers to greater collaboration and partnering with the IEA?
- How can the IEA increase the value proposition to potential partners and sponsors?
- What organisations want to work closely with the IEA on global modeling?

Group Discussion: (45 to 60 minutes)

Group B – Part 4: Peer Review of IEA Model (11:45am)

Discussion Points:

- Saturation, efficiency and intensities (current and forecasts)
- Water heating, cooking, lighting, appliances, and other end electrical end uses/plug loads

IEA Model and Data Review:

- John Dulac, IEA, (15 minutes)

Group Discussion: (30 minutes)

Lunch Break for Day 2: (12:30pm)