IEA Buildings Webinar Series – May/June 2014

IEA Building Activities

Marc LaFrance
International Energy Agency
21/22 May 2014
Paris

Dec 2013
Aug 2013
Jun 2013
Overview

- Buildings background - IEA Buildings Publications
- Key policy and technology recommendations
- Building partnership framework - core work plan, possible areas for new activities
- Energy Technology Perspectives (ETP) 2014 and Clean Energy Ministerial (CEM) tracking report, published 12 May 2014
- Next steps
- Stakeholder feedback
Importance of Buildings Sector

- Largest end-use sector
- 1/3 carbon emissions
- 50% of electricity
- Major portion of GDP
- Stock opportunities:
  - 75% - 90% of OECD building stock still in service by 2050
  - Large population growth in developing world will drive new floor area that needs to be efficient (2.5 billion more by 2050)
Transition to Sustainable Buildings: Strategies and Opportunities to 2050

- The overall ETP strategy for buildings
- Global and regional analysis, energy savings and emissions reduction forecasts
- Technical opportunities and recommendations: envelope; heating and cooling; appliances, lighting and cooking
- Policies to transform buildings
Regional Analysis

Includes:

- Recent trends, end-use consumption, energy intensities, fuel shares and forecasts
- Energy saving and emissions reduction potential with detailed recommendations

Regions: ASEAN (Association of Southeast Asian Nations), Brazil, China, European Union (EU-27), India, Mexico, Russia, South Africa and United States
## Priority Recommendations

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<tr>
<th>Technology</th>
<th>ASEAN</th>
<th>Brazil</th>
<th>China</th>
<th>European Union</th>
<th>India</th>
<th>Mexico</th>
<th>Russia</th>
<th>South Africa</th>
<th>United States</th>
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<td>Advanced envelope – cold climate</td>
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Note: Recommendations limited to top two for technology and policy, all items could be relevant for most countries. Red indicates immediate priority, while gold indicates medium-term priority.
Integrated Policies – Systems and Components

- Promote integrated policy packages
- Deep renovation critical in mature markets
- Building codes critical in emerging markets
- Systems level performance supported by advanced components
Transformation to Low-Energy Buildings

First Step – reduce the need for heating and cooling, passive strategies when possible!!!
Technology Roadmap
Energy Efficient Building Envelopes

- Construction transformation strategy
- Provides technical, economic and strategic framework
- Assessment of high priority areas for 12 regions of the world
- Policy criteria and evaluation
Building Codes are Most Effective Policy to Impact Construction

- Vision for very low energy building through building codes
- Self sufficiency (how cool do buildings need to be if we use passive strategies and dress appropriately)
- Utilize renewable energy as much as possible
Framework for Partnership – IEA
Working to Improve Collaboration
Data and Analysis – Core Function

- IEA Building’s model has 31 country and regions to cover the entire world
- Hybrid econometric model with stock and flow elements for building stock and equipment
- IEA extensive energy balances database and recent energy efficiency indicators data from most developed IEA member countries
- IEA working with multiple organisations on data collaboration but would like to expand this activity
- Modelling results for variety of projects
- This area to be explored in detail in Webinar 4
Current IEA Building’s Activity

- Building modelling enhancements
  - More robust driver development/sensitivity
  - Review and updating of inputs and assumptions
  - Enhanced thermal model for more detailed deep renovation scenarios and integration with other sectors

- Joint research paper with Tsinghua University on building demand and solutions for China

- Expanding collaboration and interface with major buildings programs globally
Possible Building Related New Projects (Not in Priority Order)

- Development of envelope roadmap Implementation Plans in cooperation with leading organisations for countries or regions, e.g. China, India, etc.
- Facilitation of policy recommendations and analysis basis for EU EPBD update for 2017.
- Development of multiple benefits specific to building sector with job creation as lead metric.
- Beyond conventional modelling results for COP 21 (ETP 2015 Innovation theme – limited time to achieve).
- Emerging markets capacity building – policy, technology, analysis, etc.
- This area to be explored in detail in Webinar 3.
ETP 2014

- ETP 2014 – core buildings related analysis to support 2DS advanced scenario (450 ppm)
- High Electrification – greater heat pumps for EU and China
- Significant gas demand reduction for EU and reduced growth for China beyond 2DS
- For reference, see 11th Heat Pump Conference 2014 presentation, Montreal May 2014
CEM Tracking 2014

- Three sections for progress on technology and policy
- Buildings Energy Efficiency – “Not on Track”
- Building Envelope – “Not on Track”
- Appliance and Equipment – “Improvement Needed”

http://www.iea.org/publications/freepublications/publication/name,51000,en.html
Webinars 3 and 4

Webinar 3 - IEA Building Activities - Proposed Plans and Priorities
June 10th, 1:30pm CET (Paris)

- IEA presentation of project proposals, summary and feedback from webinars 1 and 2
- Response and comments from various organisations such as IPEEC, EUWP, Industry, etc

Webinar 4 – IEA Modelling Peer Review
Expected late June 2014

- IEA modelling details including review of inputs and assumptions
- Presentations from a variety of organisations that the IEA works with
Contact Data

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Download Envelope Roadmap - free
http://www.iea.org/publications/freepublications/publication/name,45205,en.html

Download Building Code Policy Pathway – free

IEA Bookstore – Buildings Book – discounts to non-profits, partners, and bulk orders
Additional Resources

- Technology Roadmaps

- Policy Pathways