

Technical Day
IEA Energy in Buildings and Communities EBC
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IEA EBC Strategy

Takao Sawachi, Dr. Eng.
Vice chair, EBC
NILIM-MLIT, JAPAN



National Institute for Land and Infrastructure Management
Ministry of Land, Infrastructure, Transport and Tourism, Japan

Contents

1. Purpose of EBC's strategic plan
2. EBC's current environment
3. Vision and Mission of EBC
4. High-priority themes during 2014-2017

1. Purpose of EBC's strategic plan

“The Strategic Plan of EBC ... ***clarifies selected research and innovation themes with high priority*** to support its mission and vision.” (P.12)

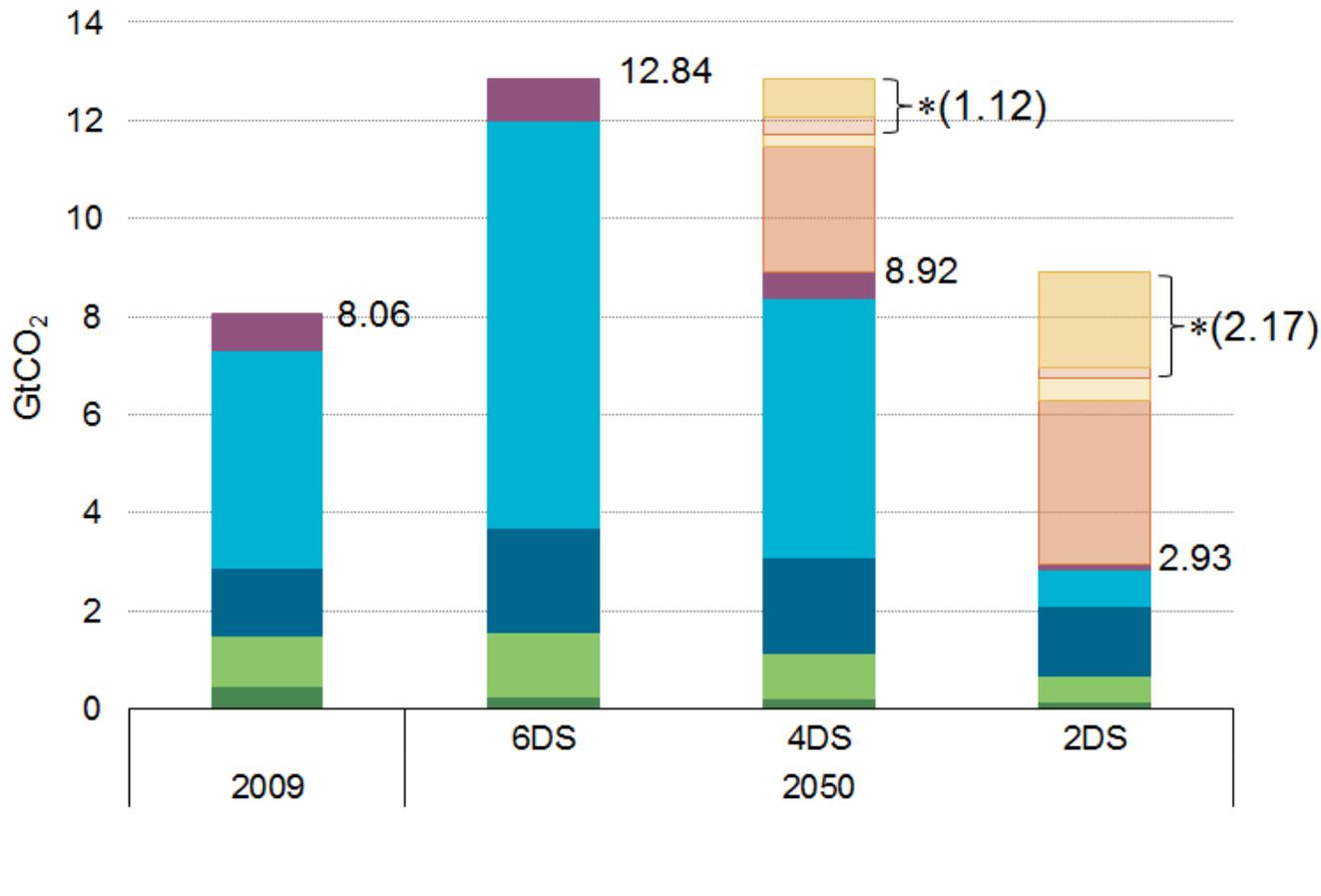
“These R&D items are based on ***national priorities of the EBC member countries*** and on outcomes of the Future Buildings Forum Think Thank 2013.” (P.12)

“Potential proposers and Annex leaders are expected to be stimulated...”(P.12)

2. EBC's current environment

- IEA's perspectives are described in ***ETP2012 and 2 °C Scenario*** by 50% GHG reduction world wide (80% for developed countries) in 2050.
- ***Strong expectations for the buildings sector***, and pressure on R&D society
- ***the usefulness of R&D products to inform policy*** should be clearly recognized. Such R&D products include not only evaluation tools directly applied in regulations, but also guidelines and tools for practitioners. They also include the development, identification or refinement of new and truly promising technologies. (P.17)

2. EBC's current environment



CO₂ emissions saving

-  Energy efficiency
-  Electricity demand reduction
-  Fuel switching

CO₂ emissions

-  Commercial heat
-  Electricity
-  Natural gas
-  Oil
-  Coal

Figure 1. Buildings sector CO₂ emissions and reductions by 'Energy efficiency' and 'Electricity demand reduction' (source: IEA, ETP2012)

3. Vision and Mission of EBC

Vision

By 2030, near-zero primary energy use and carbon dioxide emissions solutions have been adopted in new buildings and communities, and a wide range of reliable technical solutions have been made available for the existing building stock.

Mission

To accelerate the transformation of the built environment towards more energy efficient and sustainable buildings and communities, by ***the development and dissemination of knowledge and technologies through international collaborative research and innovation.***

4. High-priority themes for EBC

Theme #1: Integrated planning and building design

Theme #2: Building energy systems

Theme #3: Building envelope

Theme #4: Community scale methods

Theme #5: Real building energy use

4. High-priority themes for EBC

Integrated planning and building design

“For example, ... the ways in which zero energy or extremely low energy buildings can be realised can be found by searching for ***better combinations of building envelopes and building services***. To do so, practitioners have to be provided with ***transparent and reliable technical information on a wide range of key components*** including building envelopes and building systems.”

“R&D has to be undertaken to address ***new technologies, with practical concepts and design / planning tools*** developed in this field. ***Novel technologies need to be devised, such as high performance insulation materials and multifunctional facades suitable for retrofit.***”

“a scientific basis to estimate ***embodied energy and CO₂ emissions*** becomes more important.”

4. High-priority themes for EBC

Building energy systems

“indicators in the components’ standards need to be improved to better represent their actual energy performance. Standardization itself is outside of the scope of EBC, but the usefulness of EBC outputs in the technical basis for standardization has to be clearly recognized.”

“The improvement of interactions between buildings and regional electricity and heat grids through energy production, storage and control including load management is a key research issue. The interactions should be contribute to enhanced cost effectiveness, comfort and energy supply security.”

4. High-priority themes for EBC

Building envelope

“Technologies for materials and components with higher insulation performance need to be developed by future Annexes.”

“Natural ventilation through the envelope, if it is well designed and fits with climatic conditions, can contribute to reducing the cooling load.”

“Design practices for multifunctional building envelopes (daylight, solar energy, shading, ventilation, cooling, noise protection, and so on) also need to be supported by the outputs from future R+D projects in this field.”

4. High-priority themes for EBC

Community scale methods

“to develop ***methods, tools and databases to evaluate and find ways to use low temperature heat sources and renewable energy sources, to optimize energy exchange between buildings and communities***, to improve information dissemination for municipalities and to ***support decision-making for local energy planning, integrating design and management*** through a holistic approach.”

“Due to the greatly increased system complexity, qualified system operators must be involved, who ***provide fully functioning system solutions***, rather than individual technologies without sufficient proof of performance or economic efficiency. To achieve this, ***suitable business models based on suitable legal frameworks must be developed***.”

4. High-priority themes for EBC

Real building energy use

“there is a fundamental need to develop ***knowledge bases about building use, as well as about real energy consumption in buildings.***”

“Knowledge of user behaviour and real data of energy use in buildings is needed to support technology development and policy recommendations. Therefore, ***the right metrics need to be determined and applied. The real energy use and effectiveness of technologies for energy saving has to be based on more accurate predictions of energy performance of buildings and communities.***”

Thank you for your attention!

For more details, please visit EBC's
website and download:
<http://www.iea-ebc.org/strategy/>
(only 25 page long)



Energy in Buildings and
Communities Programme



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International Energy Agency

Strategic Plan 2014 – 2019

Energy in Buildings and Communities Programme

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EBC is a programme of the International Energy Agency (IEA)

