



ECBCS

The IEA ECBCS Programme

Andreas Eckmanns,
ECBCS Executive Committee Chair, Switzerland

ECBCS Technical Day,
Bern 14 November 2012



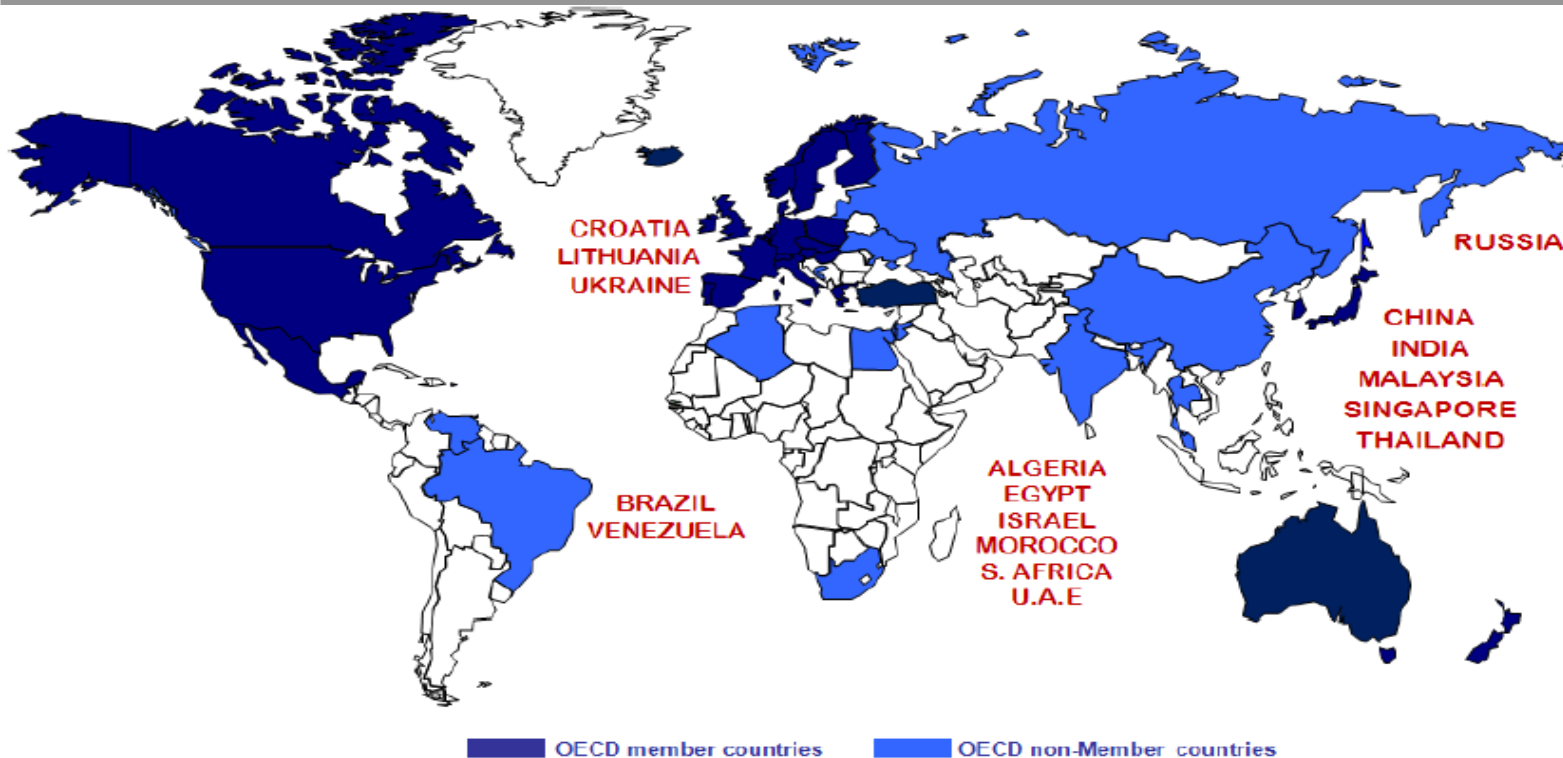
ECBCS

The International Energy Agency (IEA)

- Today the IEA works to ensure reliable, affordable and clean energy for its 28 member countries and beyond.
- Main areas of focus: energy security, economic development, environmental awareness, and engagement worldwide.
- Founded in response to the 1973/74 oil crisis: initial role was to secure oil supply through the release of emergency oil stocks.



The International Energy Agency (IEA)



More than 1,300 research projects to date
Linking public and private – IEA Members and non-Members
6,000 scientists and experts

Nearly 500 government agencies, research organisations, universities, energy companies, consultants



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ECBCS - the Implementing Agreement on “Energy Conservation in Buildings and Community Systems”

- International Collaborative Agreement
- Energy Research, Development, Demonstration and Dissemination
- 26 Member Countries
- Open Innovation approach



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The ECBCS Programme

R&D Projects

Knowledge Deployment
and Demonstration

R&D Strategies

Buildings

Communities





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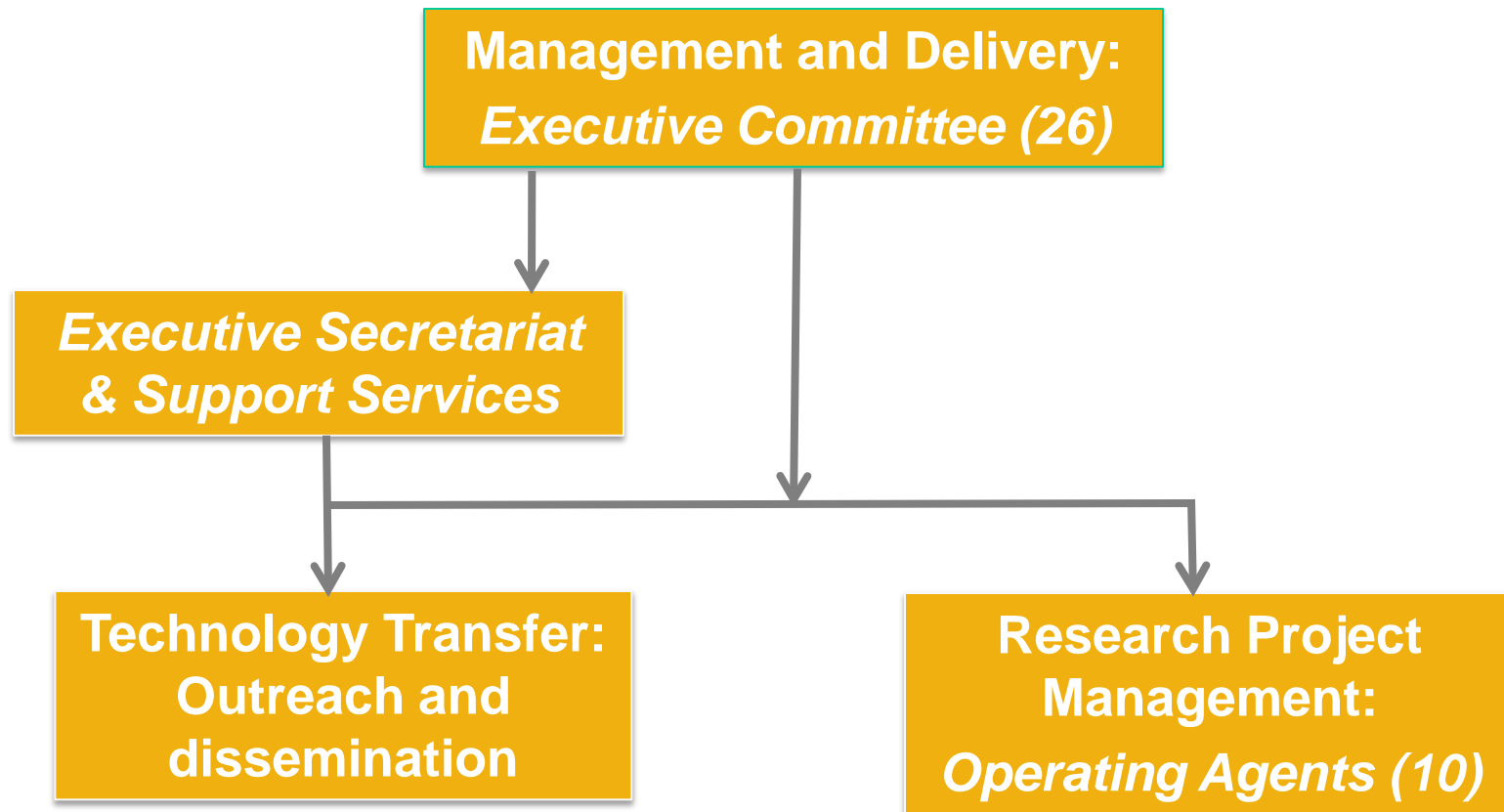
26 Participating Countries

- Australia
- Austria
- Belgium
- Canada
- P.R. China
- Czech Republic
- Denmark
- Finland
- France
- Germany
- Greece
- Ireland
- Italy
- Japan
- Republic of Korea
- Netherlands
- New Zealand
- Norway
- Poland
- Portugal
- Spain
- Sweden
- Switzerland
- Turkey
- UK
- USA



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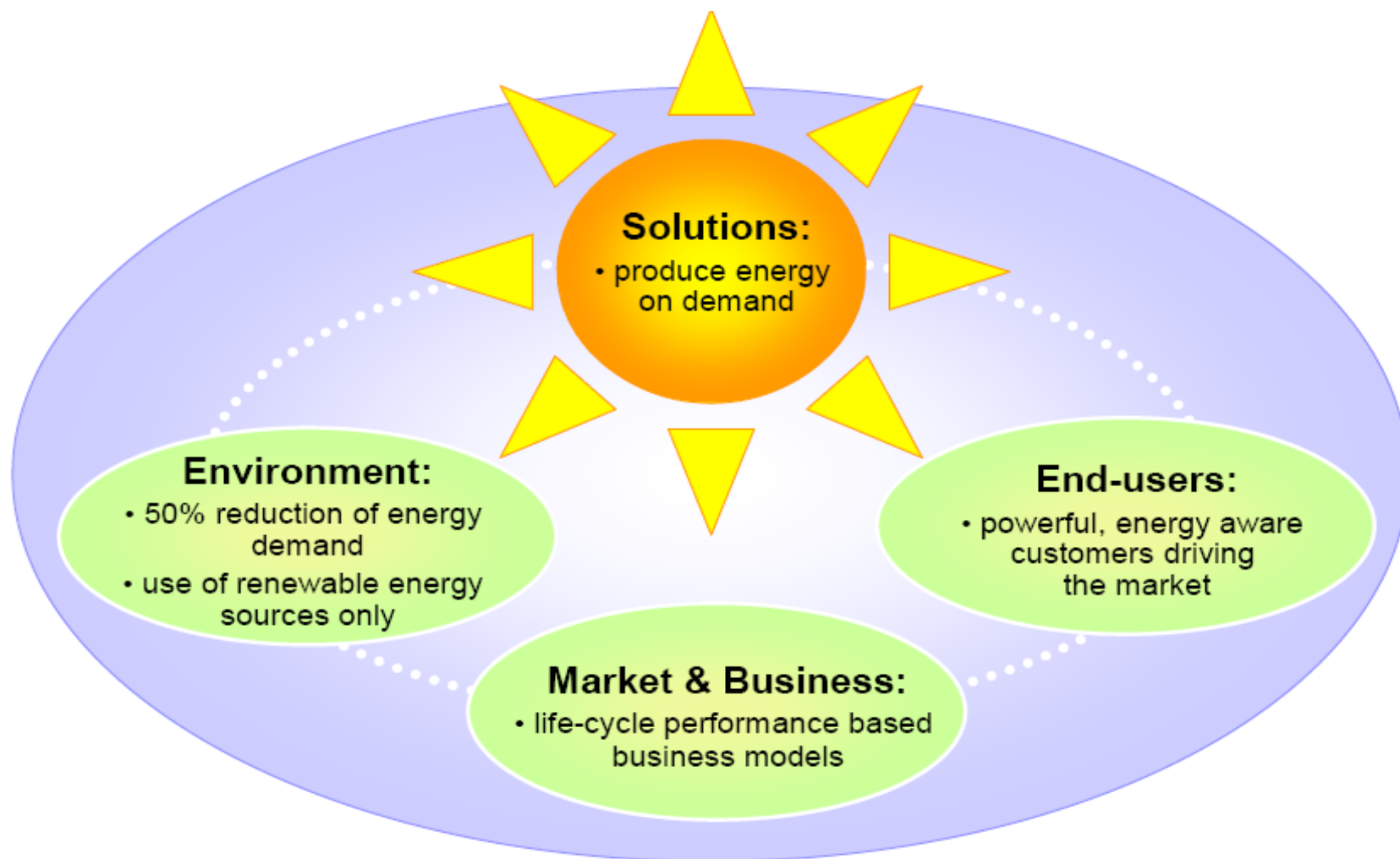
Programme Governance





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Vision for the Built Environment: Adoption of nearly-zero primary energy use and CO2 emissions solutions





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ECBCS Mission



IEA Energy Conservation in Buildings
& Community Systems Programme
(ECBCS)

Strategic Plan
2007-2012

Towards Near-Zero Primary Energy Use &
Carbon Emissions in Buildings & Communities



... to facilitate and accelerate
the introduction of **energy
conservation** and **environmentally
sustainable technologies** into
healthy buildings and community
systems...

- From incremental to radical decrease of energy
- “Clean” energy
- “Smart” energy regulations



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The Sector: Buildings & Communities

Energy = 30% – 40%

CO2 emissions = +30%

Solid Waste = 25% – 40%

Primary Resources = +50%

GDP = 10% – 15%

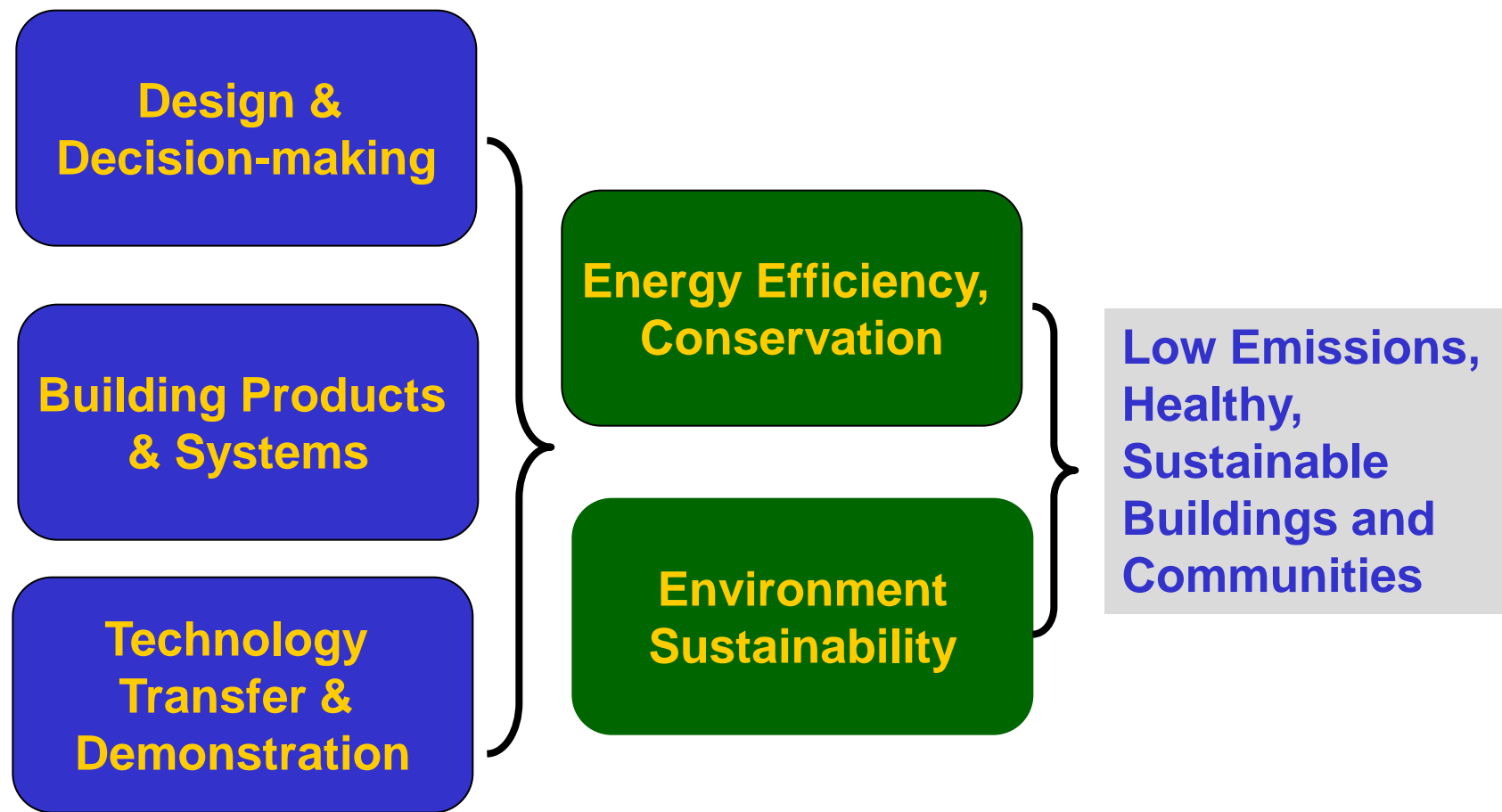
Fragmented sector





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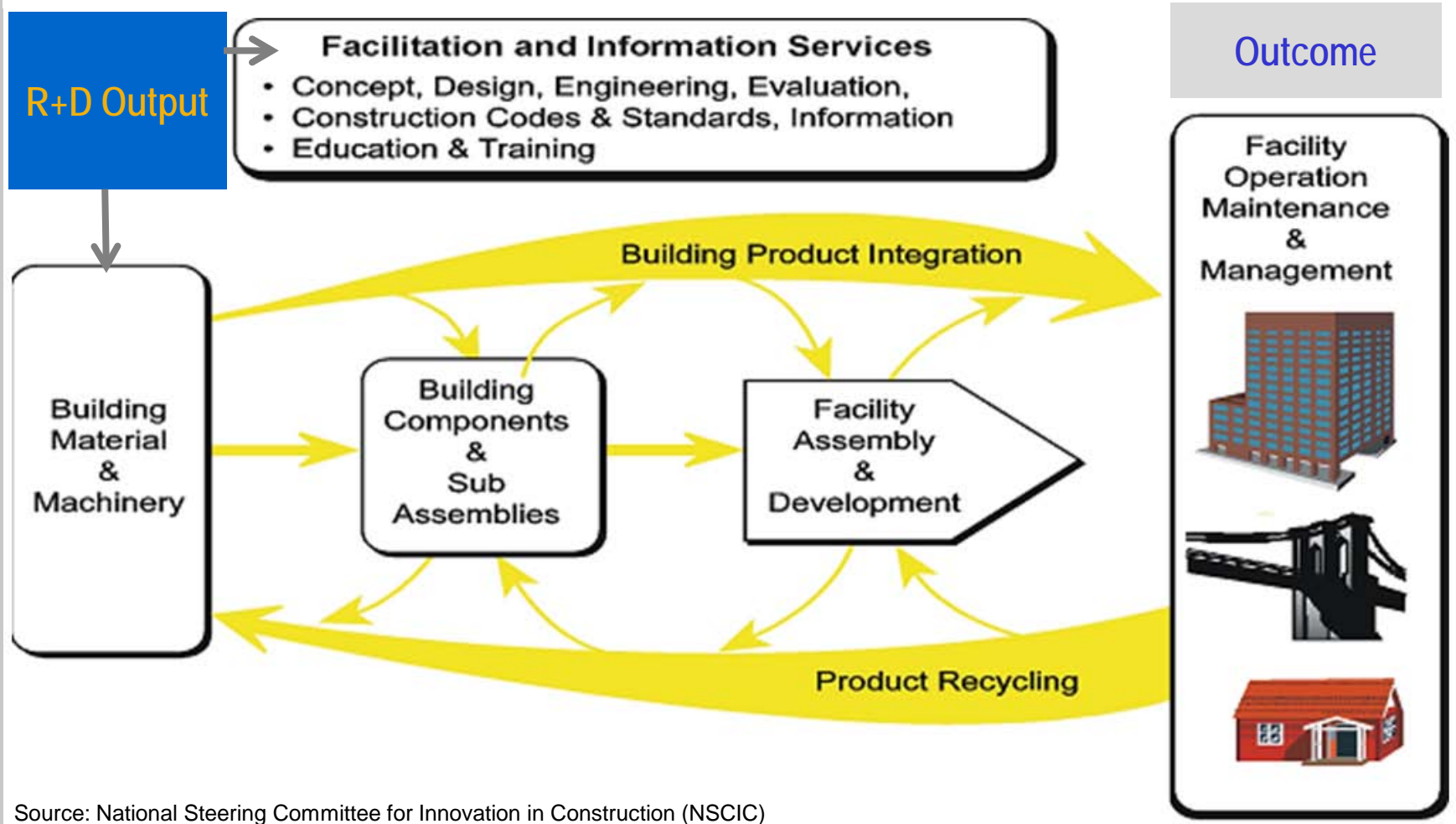
Outputs & Outcomes





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Value Chain in Construction Market



Source: National Steering Committee for Innovation in Construction (NSCIC)



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Scope of Innovation in ECBCS: Technology Readiness Levels

Level	Description
1	Transfer of scientific research to applied R&D
2	Identification and/ or evaluation of possible applications of the technology
3	First level of Proof of Concept
4	Bench scale study of the technology as a whole.
5	Bench scale study of integrated system in simulated application.
6	Scale up of technology and testing in simulated application.
7	Demonstration -Full scale demonstration of technology in industry setting.
8	Business- Release for commercial implementation
9	Business- Further improvements implemented



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Focus Areas

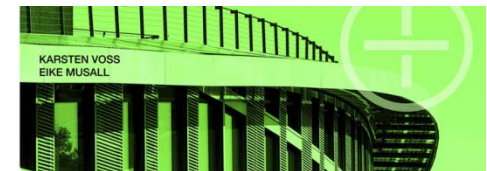
1. Building Concepts and Methodologies
2. Integrated Building Systems
3. Building Services
4. Building Benchmarking & Measurements
5. Integrated Community Systems



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1. Building Concepts and Methodologies

- Development & Demonstration of Financial & Technical Concepts for Deep Energy Retrofits of Public Buildings & Building Clusters (Annex 61)
- Cost effective Energy and CO₂ Optimization in Building Renovation (Annex 56)
- Towards Net Zero Energy Solar Buildings (Annex 52)



NET ZERO ENERGY BUILDINGS

INTERNATIONAL COMPARISON OF CARBON-NEUTRAL LIFESTYLES

En08

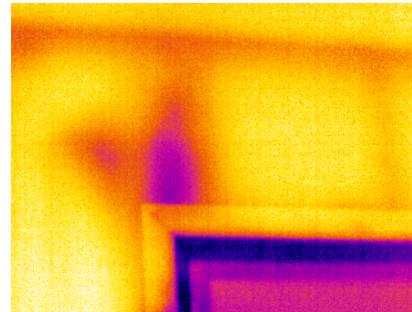
DETAIL Green Books



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2. Integrated Building Systems

- Reliability of Energy Efficient Building Retrofitting - Probability Assessment of Performance & Cost (Annex 55)
- Prefabricated energy retrofit systems for residential buildings (Annex 50)





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3. Building Services

- New Generation Computational Tools for Building & Community Energy Systems Based on Modelica (Annex 60)
- High Temperature Cooling & Low Temperature Heating in Buildings (Annex 59)
- Integration of Microgeneration & Other Energy Technologies in Buildings (Annex 54)





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4. Building Benchmarking & Measurements

- Reliable Building Energy Performance Characterisation Based on Full Scale Dynamic Measurements (Annex 58)
- Evaluation of Embodied Energy & CO₂ Emissions for Building Construction (Annex 57)
- Total Energy Use in Buildings: Analysis & Evaluation Methods (Annex 53)

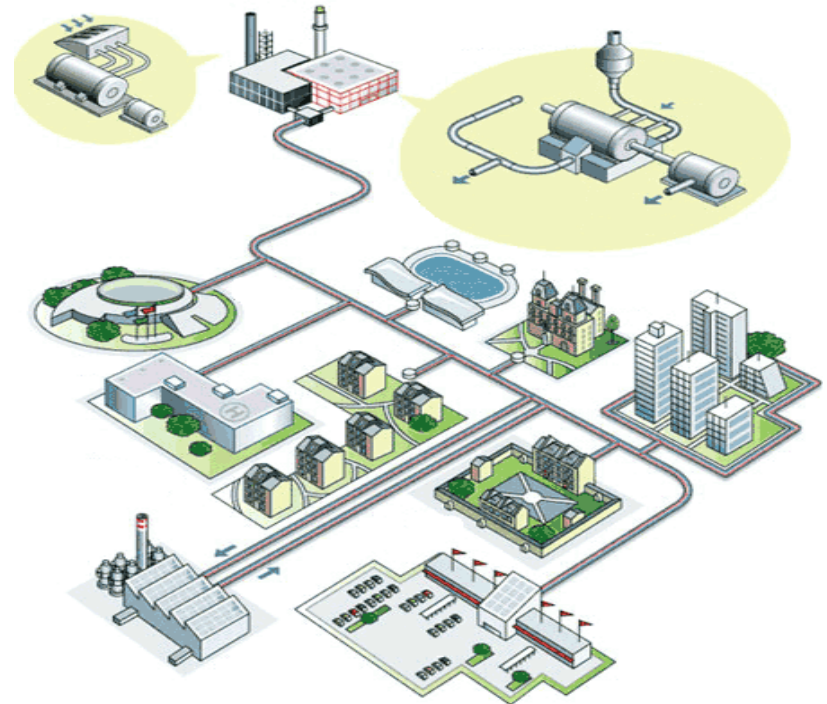




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5. Integrated Community Systems

- Guidelines and Case Studies for Energy-Efficient Communities (Annex 51)
- Low-Exergy Systems for High Performance Buildings / Communities (Annex 49)





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Dissemination & Outreach - Projects

Project Results

- Full Scientific Reports
- Summary Reports
- Factsheets
- Tools



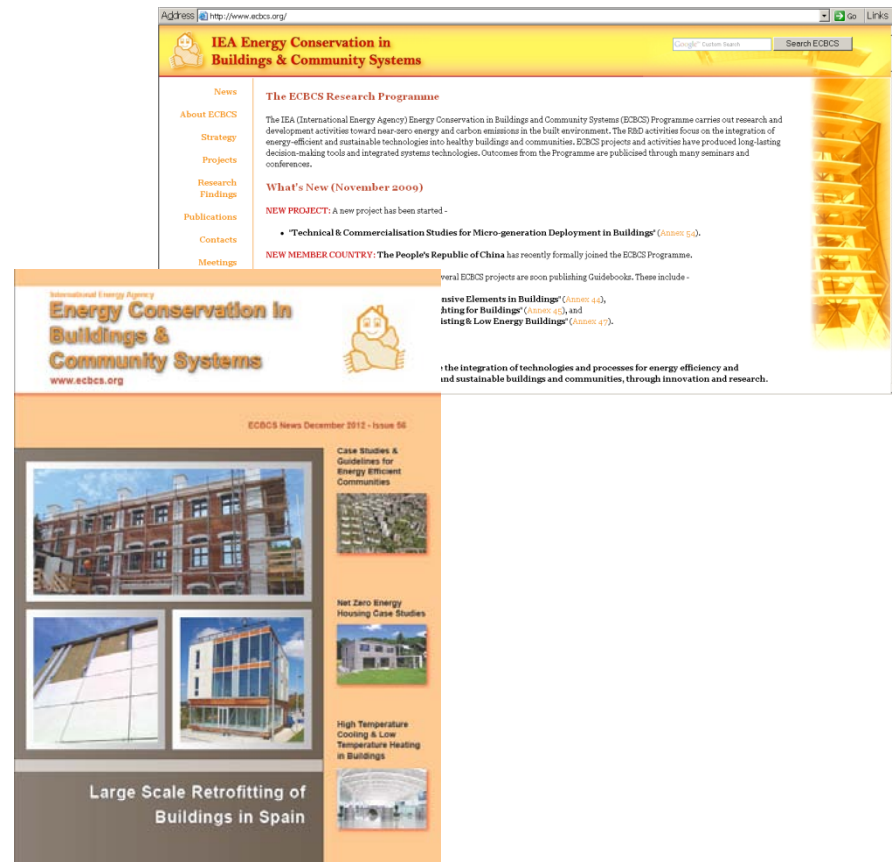


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Dissemination & Outreach

www.ecbcs.org

- ECBCS Bookshop and website
- Conferences / seminars
- Demonstration





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Dissemination & Outreach

- 2 Million downloads per year
- 49 completed projects
- 3 new projects under development
- 12 current projects





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Recently Approved Projects

- Annex 59: Minimizing Temperature Differences in HVAC Systems for High Energy Efficiency in Buildings
- Annex 60: New Generation Computational Tools for Building & Community Energy Systems Based on the Modelica & Functional Mockup Unit Standards
- Annex 61: Development & Demonstration of Financial & Technical Concepts for Deep Energy Retrofits of Government / Public Buildings & Building Clusters



ECBCS

The Role of SFOE

Funder of national R+D along national priorities (see SFOE R+D Concept 2013-2016). SFOE funding is subsidiary.

Co-ordinator for national and international projects including different IEA programmes (ECBCS, SHC, HPP, etc.)

→ Enabler for national R+D and international collaboration

For more details see www.energyresearch.ch



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Further Information

www.ecbcs.org

Thank you