

Low Exergy Systems for High Performance Buildings and Communities

ANNEX 49

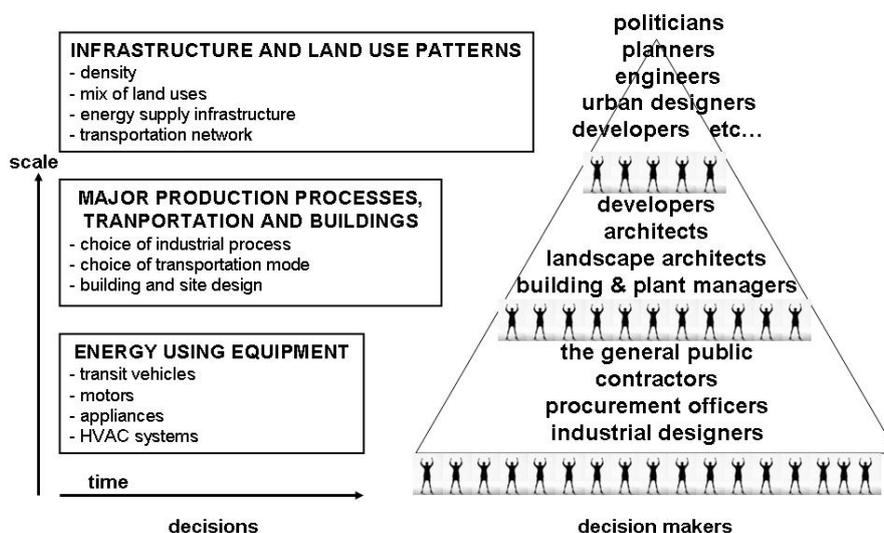
Exergy allows us to quantify the potential of a given energy source for providing a certain end use, by evaluating both the quantity and quality of an energy flow. Exergy demand for space heating and cooling of buildings is very low, since a room temperature level of about 20°C is very close to the ambient conditions. Thus, appropriate systems making use of equally low exergy sources (i.e. low temperature environmental heat such as ground heat, solar or waste heat) are advisable. However, high quality energy sources like fossil fuels are commonly used to satisfy these small exergy demands.

From an economic and environmental point of view, exergy should mainly be used in industry to allow for the production of high quality products. The Low Exergy (LowEx) approach entails matching the quality levels of

exergy supply and demand, in order to streamline the utilisation of high-value energy resources and make best use of low-value energy before it reaches the ambient environment.

PRODUCTS

- Guidebook on LowEx technologies in the built environment for communities and buildings
- Design guidelines
- Best practice examples for new and retrofit buildings
- Demonstration projects
- Pre-normative proposals



The hierarchy of energy-related decision makers.

INTERNATIONAL ENERGY AGENCY

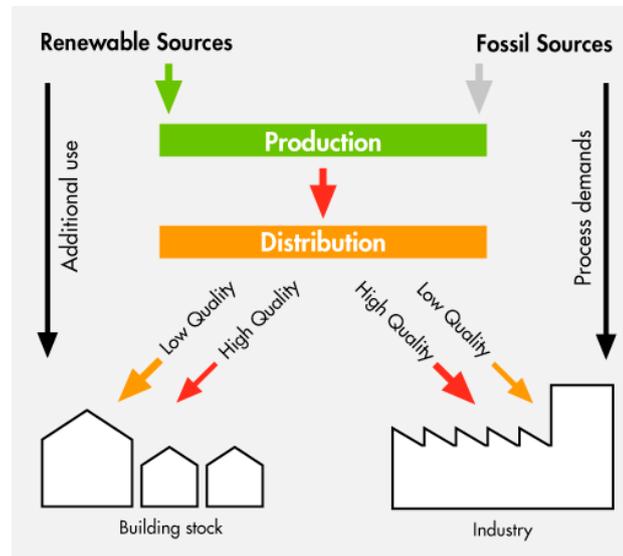
The International Energy Agency (IEA) was established as an autonomous body within the Organisation for Economic Co-operation and Development (OECD) in 1974, with the purpose of strengthening co-operation in the vital area of energy policy. As one element of this programme, member countries take part in various energy research, development and demonstration activities. The Energy in Buildings and Communities Programme has co-ordinated various research projects associated with energy prediction, monitoring and energy efficiency measures in both new and existing buildings. The results have provided much valuable information about the state of the art of building analysis and have led to further IEA co-ordinated research.

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.

EBC 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.



Desirable energy and exergy flows to the building stock and industry.

Project duration

Completed (2005 - 2010)

Operating Agent

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Participating countries

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Poland, Sweden, Switzerland, the Netherlands, USA

Further information

www.iea-ebc.org