

Building Energy Epidemiology: Analysis of Real Building Energy Use at Scale

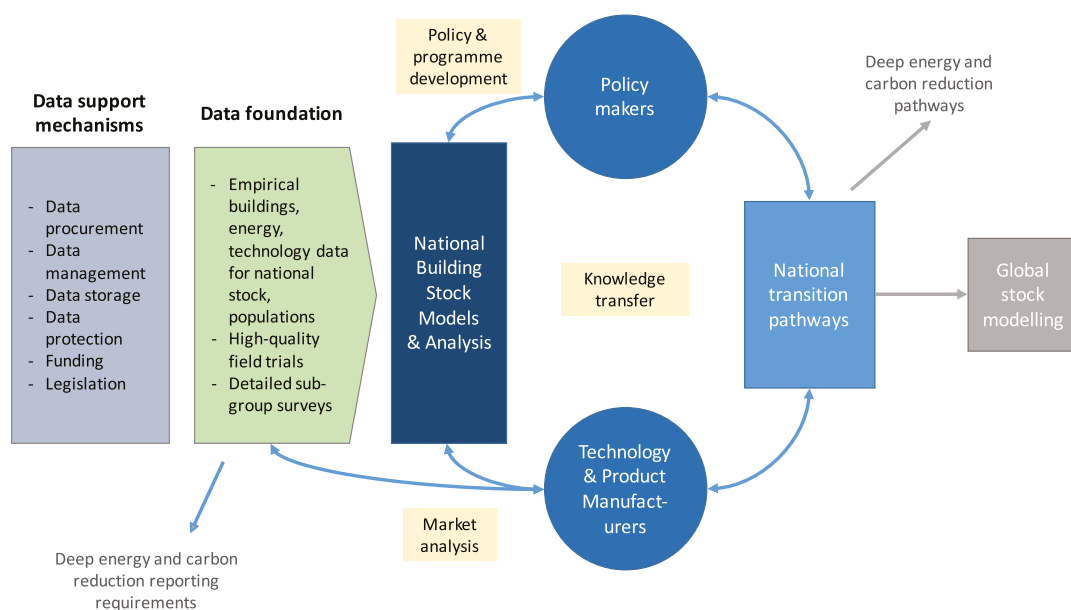
ANNEX 70

In response to concerns about climate change, energy security and social equity, governments around the world are developing plans to dramatically reduce energy demand and carbon dioxide emissions, or in the case of emerging economies to develop in less energy intensive ways. This transformation will require a raft of technology and policy interventions that, to be truly effective, will require comprehensive empirical evaluation.

This project will specifically seek to support decision-makers and investors in their efforts to transform to a low carbon and energy efficient building stock by focusing on developing best practice methods for collecting, accessing, analyzing and developing models with empirical data of energy demand in buildings and communities.

PROJECT OBJECTIVES

- 1 evaluating the scope for using real building energy use data at scale to inform policy making and to support industry in the development of low energy and low carbon solutions,
- 2 establishing best practice in the methods used to collect and analyze data related to real building energy use, including building and occupant data, and
- 3 comparing across the national approaches to developing building stock data sets, building stock models, and to addressing the energy performance gap in order to identify lessons that can be learned and shared.



*Idealised operation of a national building data and stock model.
Source: EBC Annex 70*

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.

Building energy epidemiology is the study of energy demand to improve the understanding of variations and causes of differences within an energy-consuming population. It considers the complex interactions between the physical and engineered systems, socio-economic conditions, and individual interactions and practices of occupants.

The results will facilitate the use of empirical data in undertaking international energy performance comparisons, policy review exercises, national stock modelling and technology and product market assessments and impact analyses. The deliverables will promote the importance and best practices for collecting and reporting energy and building stock data

The planned deliverables from this project are:

- a registry on national building stock surveys and models (with actual data if available), and
- a series of best practice and information reports on international data, models and methods.

The project beneficiaries will be:

- the building research community and associated specialists,
- policy and decision makers involved in developing standards and building performance evaluation,
- building owners, operators and constructors and particularly energy service companies (ESCOs), and
- educational and research institutions.

Project duration

Ongoing (2016 - 2023)

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Further information

www.iea-ebc.org