EBC

Energy in Buildings and Communities Programme

Factsheet

Positive Energy Districts

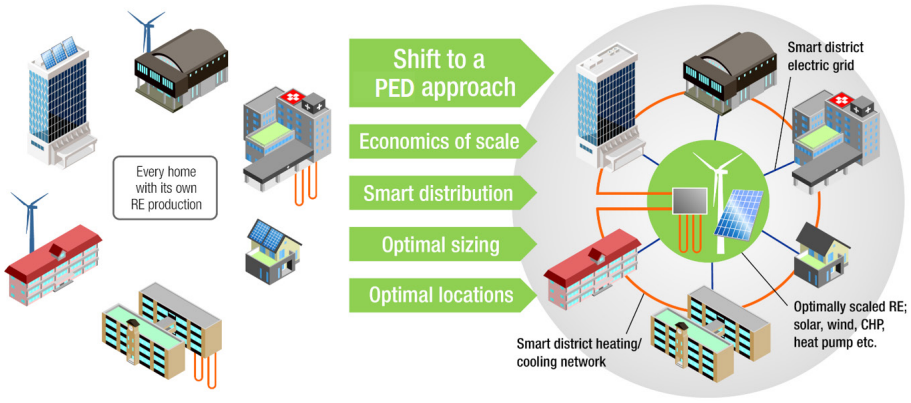
EBC ANNEX 83

This project is enhancing international co-operation on a positive energy district (PED) development. The basic principle of a PED is to create an area within the city boundaries, capable of generating more energy than is used, and agile / flexible enough to respond to energy market variations. Rather than simply achieving an annual net energy surplus, it should also support minimizing impacts on the connected centralized energy networks by offering options for increasing onsite load-matching and self-use of energy, technologies for short- and long-term energy storage, and providing energy flexibility with smart control.

PEDs can include all types of buildings present in the urban environment and they are not isolated from the energy grid. Within the research community, the PED is an emerging concept intended to shape cities into carbon neutral communities in the near future. Reaching the goal of a PED requires firstly improving energy efficiency, secondly cascading local energy flows by making use of any surpluses, and thirdly using low-carbon energy

PROJECT OBJECTIVES

1. create a shared in-depth definition of a positive energy district by means of a multi-stakeholder governance model
2. develop the required information and guidance for implementing the necessary technical solutions that can be replicated and ultimately scaled up to the city level
3. explore novel technical and service opportunities related to monitoring solutions, big data, data management, smart control and digitalisation technologies as enablers of PEDs
4. develop the required information and guidance for the planning and implementation of PEDs



Positive energy districts offer opportunities for improved optimization and higher cost-efficiency in providing urban energy solutions.
Source: VTT Technical Research Centre of Finland

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production to cover the remaining energy use. Smart control and energy flexibility are needed to match demand with production locally as far as practical, and also to minimize the burdens and maximize the usefulness of PEDs on the grid at large.

The planned deliverables from this project are:

- definitions and key concepts for positive energy districts,
- methods, tools and technologies for realizing positive energy districts,
- governance principles and impact assessment for positive energy districts, and
- case studies on positive energy districts and related technologies.

Project duration

Ongoing (2019 - 2025)

Operating Agents

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Participating countries

Australia, Austria, Belgium, Canada, P.R. China, Czech Republic, Denmark, Finland, France, Germany, Ireland, Italy, Japan, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom

Further information

www.iea-ebc.org

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.

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