

business solutions for a sustainable world

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Energy Efficiency in Buildings

An insight from companies



wbcd buildings



Dr. Stefan Beretitsch leads ABB's sustainability real estate strategy, Green Corporate Real Estate Management. He is also ABB's real estate manager in Germany.

At ABB, our team of real estate experts has practised successful corporate real estate management for 25 years. Energy management is an integrated part of the ISO 14001 systems at our 550 sites and offices worldwide.

ABB

Strategy at portfolio level

The ABB Green Building Policy was introduced in 2008. It provides guidance in two areas. First, it sets out the criteria for all new buildings: site selection, building design and the choice of materials to optimize the use of resources. Second, it details all policies required for rented space: new developments, refurbishment, and selection and management of the space. Our goal is to cut energy use by 20% between 2014 and 2020. Supporting this goal is a target to reduce building energy consumption annually by 2.5% measured as kWh/m². The signs are good: energy consumption decreased by 3.5% between 2012 and 2013 despite growth in both production and employee numbers in our ongoing operations.

Successful pilot approach in Germany

A highly successful Green Corporate Real Estate Management (Green CREM) strategy was developed and fully implemented in Germany as a pilot project. In 2007 we determined that 53% of overall energy consumption at ABB locations in Germany was attributable to buildings; the

rest was used in production. Our energy consumption throughout Germany amounted to 177,000 MWh or 56,000 tons of CO₂, which accounted for annual operating costs of about € 10 million.

Since we launched Green CREM in Germany in 2007, we have reduced energy consumption by 35,000 MWh and CO₂ emissions by 8,000 tons.

Extending to Europe and then across the world

Green CREM has been so successful in Germany, we are now implementing Stage 1 ("Energy Efficiency") of the CREM system across Europe as a precursor to extending the project across the globe.

Both this far-reaching Green CREM strategy and the use of the in-house ABB Energy Monitoring System are unique. They represent a new approach in the field of commercial-industrial corporate real estate management. They provide valuable references and differ from other current certifications (e.g., LEED, BREEAM) that are limited to determining the status quo of individual premises.

A quick glance at the Green Corporate Real Estate Management (Green CREM) system

Green CREM system targets ABB's entire real estate portfolio. It includes a two-stage concept and the corresponding tools for implementing a sustainability system in the countries where ABB operates.

Stage 1 Energy efficiency analysis of the real estate portfolio buildings

It comprises three levels:

Level I: Energy Monitoring implementation

The ABB real estate business unit developed its own Energy Monitoring System. For the first time, up-to-the-minute energy-related data from the corporate real estate portfolio can be accessed and evaluated at any time, and targeted measures can be derived to reduce consumption.

Level II: Technical assessment

A building's energy consumption is predominantly influenced by the building envelope (facade, windows, roof), building automation (HVAC, lighting), and energy management. The technical assessment of these factors is carried out at the determined sites in each country and analyzed.

Level III: Analyzing, identifying and implementing the most efficient energy efficiency projects

The data analysis provides an insight into the interplay between

energy consumption and the technical condition of the building elements. Respective measures for energy-related optimizations are then derived and evaluated in each country. All the identified measures and projects are evaluated and estimated according to their costs and saving potentials, resulting in each country producing a customized project list upon completion of the analysis.

Stage 2 Analysis and evaluation of the ecological quality of complete portfolio sites – Green CREM Index

Stage 2 involves extensive consideration of sustainability-related issues. In this stage, a "Green CREM Index" is determined for all the relevant criteria of an industrial site – site quality, building quality, indoor quality, area management, water, energy consumption – as a basis for improving the ecological quality and sustainability. The index value serves as an indicator for necessary measures. Regular re-evaluations provide before-and-after comparisons following the implementation of measures and a constant insight into the level of environmental performance achieved.

Profile

- Leader in power and automation technologies that enable utility and industry customers to simultaneously improve their performance and reduce their environmental impact
- Headquartered in Zurich, Switzerland, with operations in around 100 countries
- About 150,000 employees
- Revenues of US\$ 41.8 billion (2013)



Building stock within program

Portfolio of around 8.8 million square metres of building space worldwide



EEB Manifesto Signed in 2009

Open-plan office building at the ABB location in Mannheim (Germany) from the 1970s. The refurbishment of this six-story office complex according to the Green CREM criteria has led to final energy savings of 44%.

