

## Title

**Energetisch Sanieren - Bauen (Energy-efficient renovating - building renovations)**

## Short description

The practice was initiated by the German government in 2006 as a contribution to reducing energy consumption in German households. The state-owned bank for reconstruction (Kreditinstitut für Wiederaufbau, KfW) gives loans and grants to people who wish to either build an energy-efficient house, purchase a house or an apartment that has been renovated or enhance their house's performance in terms of efficiency through renovation measures (e.g. new heating systems, windows, doors, insulation). For each program, there are specific conditions that can be viewed on the web page. A couple of studies have been conducted on the programs' environmental impact, which contributes quite significantly to reaching Germany's climate goals, as well as its positive impact on the economy. No studies were conducted on health impacts, leaving room for assumptions.

## Topic

Living – Energy efficient housing

## Characteristics (type, level)

Intervention, national & public

## Country/Countries of implementation

Germany

## Aims and Objectives

With 40% of Germany's energy consumption happening in buildings, of which two thirds are consumed in private households, there is great potential for savings in that sector. By enabling more people to renovate their homes in an energy-efficient way or buy a house that has recently been renovated, the program will help reduce emissions and reach the climate goals – Germany has committed to save 80% of energy in German households by 2050.

## Target Group

House owners or tenants planning to renovate their houses in order to save heating costs; people planning on purchasing or building a house or apartment that is equipped with energy efficiency measures.

## Status

Ongoing

## Start and Completion dates

2006 – today

## Lifestyle and Behavior Change

The aim is to provide more people with the financial means to make their home more energyefficient, especially with regard to the upcoming energy revolution. In the long run, people will save money by renovating their house, which is surely a great incentive for transforming their house into an energy-efficient building. The initiative targets the decision to implement technical energy efficiency measures in the house, it does however not target any daily behavior change on the household level.

**Effects on:**

<p><b>Health and Wellbeing</b></p>	<p>The practice contributes to great savings with regard to CO<sub>2</sub> emissions which, in the long run, will immensely benefit people’s health. What needs to be considered is the indoor air quality that has been reported to get worse after new insulations were applied. New airing system must necessarily be installed as well in order to ensure a sufficient air quality.</p>
<p><b>Vulnerable populations</b></p>	<p>The practice has created or secured a lot of jobs – 340,000 alone in 2010. Especially medium-sized, local companies profited from the rising number of people deciding to renovate their houses. However, it needs to be considered that not all groups benefit from the intervention. Loans and grants might be a help when it comes to high renovation expenses but a certain amount of financial means must already be available. Therefore, the program seems to mostly benefit economically strong groups of people.</p>
<p><b>Environment</b></p>	<p>With more houses being transformed into energy-efficient buildings, fewer amounts of energy will be needed to heat them, e.g. due to a better isolation in the walls and windows. At the same time, this energy can be produced in a more efficient way that saves the environment – in the best case, through solar panels on the roof or geothermal facilities. By that, less energy is needed from questionable sources such as atomic or coal-fired power plants. .</p>

**Initiated and/or implemented by**

The practice was initiated by the German government, seeking to develop solutions for the high levels of energy consumption in German households. Having recognized the potential of energetic renovations, it gave 1,8 billion euros alone in 2013 to support people planning to carry out those necessary renovations, through the state-owned bank KfW.

## Stakeholders and sectors involved

The German government initiated the measure and provides the financial means. The KfW (Kreditanstalt für Wiederaufbau) checks the applicants and gives/loans them the granted amount of money at the bank's conditions. Other supporting programs that are partly combinable, e.g. from BAFA (Bundesamt für Wirtschaft und Ausfuhrkontrolle) also play a role.

## Financial support

The German government provided financial support through the state-owned bank for reconstruction (Kreditinstitut für Wiederaufbau KfW).

## Evidence-base

(1) A study from 2013 is available, commissioned by the KfW, conducted by Prognos AG. The aim of this study was to assess the (potential) impacts of the KfW's energetic housing programs on the climate and emission reductions.

(2) Another study from 2016 (Fraunhofer Institute and Institut Wohnen und Umwelt) examined the savings in terms of emissions and energy consumption due to the KfW programs.

(3) The KfW also publishes a report on an annual basis, showing how many financial means were used for which sectors.

## Main activities

Financial support can either happen through loans (at low interest) or grants. Both the purchase of an energy-efficient home and energetic renovation measures are supported. The latter sector is divided into several subcategories (programs):

- Energy-efficient renovating: loans and investment grants for packages (heating package & airing package) and individual measures (e.g. new windows/doors/insulation, optimized heating system); complementary loans for individual measures (e.g. solar panels, biomass facility, thermal heat pump); construction-accompanying grants (must be combined with other programs; supports with professional planning and construction support through as well as the issuing of certificates for sustainable construction)
- Construction or purchase: Loans for the construction or purchase of an energy-efficient house; construction-accompanying grants (supports with planning and construction support through an expert); loans for purchase or construction of an owner-occupied building).

## Evaluation

(1) One basic scenario and two target scenarios were identified in order to measure the benefits of financial incentives for private households.

(2) A questionnaire was given to people who had made use of one or more of the programs. Energy consumption was identified before and after the construction measures.

## Main results

(1) The study assumes that funding programs will give further growth impulses to the German economy in the future. Also, the potential savings with regard to CO<sub>2</sub> emissions are said to be very significant (up to 81,4 million tons of CO<sub>2</sub> in the first scenario) – if, that is, the support programs can be kept up and expanded.

(2) With rising subsidy amounts and numbers of energy-efficient renovations being undertaken, CO<sub>2</sub> reductions increased continuously, just like energy savings. For employment effects, there are variations to be found: the highest level of person/years occurred in 2009, after that the level decreased until 2012 and has been slightly increasing since then (probably due to the financial crisis). With regard to ecological construction, CO<sub>2</sub> reductions and energy savings were more fluctuant but nonetheless significant. Overall, through both measures, 7,367,000 tons of CO<sub>2</sub> could be saved according to the study.

## Key success factors and barriers

**Success factors:** First and foremost, financial support must be offered by a governmental or other reliable institution. Secondly, the economic benefits must clearly be demonstrated to the participants. And thirdly, the KfW enjoys a strong credibility and reputation through its communication position. Such a status must also be reached by finance institutions in other areas/countries.

**Barriers:** Even though the practice offers generous financial support and low interest, many house owners shun expensive renovation measures because even with support being provided, and it's not until a couple of years (or even decades) until the savings can compensate the expenses..

## INHERIT Perspective

This project has been chosen for inclusion because it has potential benefits on health & wellbeing as well as health equity, by providing financial support for conducting energy efficient renovation and construction, also for home owners who might otherwise not have the means to afford it. This leads to less energy consumption and the reduction of environmental pressures due to reduced emissions related to heating and energy provision, impacting local air quality and global levels of greenhouse gases. The behaviour change is only once in the focus when it comes to deciding for the renovation or construction, not on a day by day level.

## More information

- **Study 1:**

<https://www.kfw.de/Download-Center/Konzernthemen/Research/PDFDokumente-alle-Evaluationen/Wachstumseffekte-EBS-Endbericht.pdf>

- **Study 2:**

[https://www.kfw.de/PDF/Download-Center/Konzernthemen/Research/PDFDokumente-alle-Evaluationen/Monitoringbericht\\_EBS\\_2015.pdf](https://www.kfw.de/PDF/Download-Center/Konzernthemen/Research/PDFDokumente-alle-Evaluationen/Monitoringbericht_EBS_2015.pdf)

- **Annual report 2016:**

[https://www.kfw.de/PDF/Unternehmen/Zahlen-und-Fakten/KfWauf-einen-Blick/F%C3%B6rderreport/KfW-F%C3%B6rderreport\\_03\\_2016.pdf](https://www.kfw.de/PDF/Unternehmen/Zahlen-und-Fakten/KfWauf-einen-Blick/F%C3%B6rderreport/KfW-F%C3%B6rderreport_03_2016.pdf)

- **Government web page on the programme:**

[https://www.bundesregierung.de/Webs/Breg/DE/Themen/Energiewende/Energiesparen/C02-Gebaeudesanierung/\\_node.html](https://www.bundesregierung.de/Webs/Breg/DE/Themen/Energiewende/Energiesparen/C02-Gebaeudesanierung/_node.html)

- **ZEIT article:**

<http://www.zeit.de/2013/34/kfw-bank-energetischesanierung/Komplettansicht>

## Contact

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