

## Energy savings in buildings – contracts based on guaranties and measurement

### The Challenge

Buildings uses about 40% of total energy consumption in Europe, and buildings have the biggest potential for energy savings. The Danish Climate Policy goal is that the Energy and the Transportation sector should be independent of fossil fuels in 2035. The two major tools for this transition is energy efficiency and renewable energy.

The energy consumption should be reduced with 50% in existing buildings. In fact, the major part of the total investment in the Danish ‘exit fuel strategy’ should be spend on upgrading the existing buildings.

### The Problem

A number of refitting projects - as well as new buildings - in Denmark cannot deliver the calculated low energy consumption. Some buildings even got problems with the indoor climate.

The entrepreneur’s typically states that the difference between calculated and actual energy consumption and indoor climate problems, is due to the users (bad) behavior. The owners and the tenants on the other side, claims that the building does not have the qualities described in offers and contracts.

In order to solve this ‘conflict’ it is necessary to quantify the changes in indoor climate and energy consumption *before* and *after* renovation, and to have access to indoor climate data as well as local weather information. Traditionally this has required a team of researchers with expensive equipment, so it has not been a part of refit-contracts.

The lack of satisfied building owners has a clear negative influence of the general willingness to invest in energy savings projects in the building sector. This is a serious problem for the implementation of the climate policy.

### The Solution

The company IC-Meter (Indoor Climate Meter) has delivered a professional Plug ‘n Play concept to measure, analyze and visualize indoor climate (temperature, humidity, CO2 and noise), local weather data and energy consumption before and after an energy renovation.

The ICT-concept uses a Cloud solution with smart mathematics to analyze the buildings indoor climate as a response to user behavior. Information from the buildings smart heating meter is included to analyze energy consumption as a function of differences between indoor and outdoor (local) climate – the buildings technical qualities.

The concept makes it possible to introduce performance contracts for buildings, where the entrepreneur should give guaranties regarding the buildings technical performance, while the users should be responsible for the consequences of bad – or good – user behavior.

A feedback concept on smartphones, Web, spreadsheet and an open API makes it easy for all parts to get online and historical information in order to optimize both technics and user behavior. The aim is to secure that actually delivers a good indoor climate and a low energy consumption.

Read more about the IC-Meter concept on [www.ic-meter.com](http://www.ic-meter.com), where you can view data for a number of buildings around the world.

### Enclosed

./ Folder about the IC-Meter concept

./ Example of an automatic generated report for a building, giving response regarding indoor climate, the actual energy supply and losses, and the calculated energy label.