

# Cost-Effective

This European project, running from October 2008 to September 2012, aims at developing and implementing new technologies and concepts to increase the use of renewable energy in existing high-rise buildings.





# Cost-E

## Converting façades of into multifunctional, energy

### Increase drastically the use of renewable energy

The use of renewable energy in the building sector is today dominated by the application of solar domestic hot water and PV systems in single-family houses. In order to significantly increase the use of renewable energy in the building sector, concepts have to be developed for large buildings. In these

buildings, high fractions of the energy demand can only be met with renewable energy sources, when the façade is used for energy conversion in addition to the roof. This is especially true for buildings with a small roof area compared to the floor area ("high-rise buildings") and for existing buildings which generally have a higher energy demand than new buildings.

### Existing façades converted into energy gaining components

Converting facades of existing "high-rise buildings" into multifunctional, energy gaining components. This is the main goal of the **Cost-Effective European** project, partly funded by the European Commission under the Seven Framework Programme.

This goal will be achieved through :

- the development of integrated building concepts, suitable for a major share of the **high-rise building stock**, which can be characterised as the most **Cost-Effective** combinations of existing and/or newly developed components,
- the development of **new multi-functional façade components** which combine standard features and the use of renewable energy resources,
- the development of **new business and cost models** which consider the whole life cycle of a building and which incorporate the benefits from reduced running costs and greenhouse-gas emissions.

# Effective

## existing high-rise buildings energy gaining components

### What kind of new components?

Several new components based on newly patented ideas will be developed. For instance, a **transparent solar thermal façade collectors** will simultaneously provide solar heat, protection against overheating and glare protection (see picture). This component will enable architects to create buildings with large areas where an outdoor view is possible, but with reduced cooling loads and with an energy-generating façade that can be used as a heat source for solar heating, cooling and hot water.

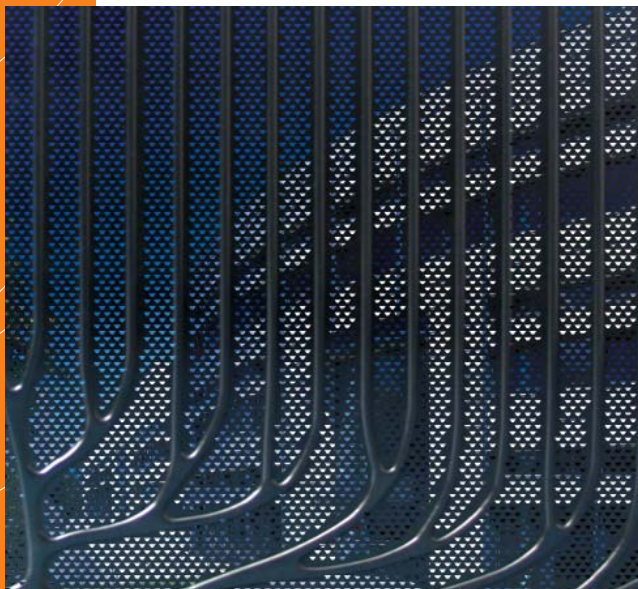
The new components will in particular profit from the application of **nano-structured coatings and films** which will enhance their performance and durability due to antireflective, anti-soiling and seasonal shading functionality.

In order to achieve a successful development and implementation of these new technologies and concepts, European key actors from construction industry and energy research have agreed to collaborate within this project which started in October 2008.

The project results will be an important support for the European technology platforms ECTP, ESTTP and PV-platform in which the project partners have a leading role.

*Virtual image  
of a transparent,  
glazing-integrated  
solar thermal collector*

(Patent filed 2006),  
© Fraunhofer ISE.



## **European Partner Consortium** **Cost-Effective is being implemented Europe-wide** **by the following co-operation:**

ACCIONA ENERGIA SOLAR, S.L. - Spain

Acciona Infraestructuras - Spain

Alusta natuurlijke ventilatietechniek BV - The Netherlands

ASM - Poland

Centre Scientifique et Technique du Bâtiment - France

D'Appolonia S.p.A. - Italy

Electricité de France . SA - France

Emmer Pfenninger Partner AG - Switzerland

Energy research Centre of the Netherlands - The Netherlands

Fraunhofer ISE (project coordination) - Germany

German Solar Industry Association - Germany

Hidria IMP Klima d.o.o. - Slovenia

Interpane - Germany

IPB GmbH Ingenieurgesellschaft für Energie- & Gebäudetechnik - Switzerland

KOW Architectuur B.V. - The Netherlands

Kurt Schüle & Thorsten Siems GbR Kollektorfabrik - Germany

Labein Tecnalia - Spain

National and Kapodistrian University of Athens - Greece

NIBE AB - Sweden

Permasteelisa S.p.a. - Italy

PSE AG - Germany

Slovenian National Building and Civil Engineering Institute - Slovenia

Sto AG - Germany

TNO Netherlands Organisation for Applied Scientific Research - The Netherlands

Universität Stuttgart - Germany

### **Information**

All information and project results will be published on the website:  
[www.cost-effective-renewables.eu](http://www.cost-effective-renewables.eu)



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