

# Cost-Effective

Resource- and Cost-effective integration of  
renewables in existing high-rise buildings

Theme 4 – NMP

NMP2-LA-2008-212206

Coordinator: Fraunhofer ISE, Germany

Start date:

01/10/2008

End date:

30/09/2012

Duration:

4 years

Budget:

10'726'412 Euro

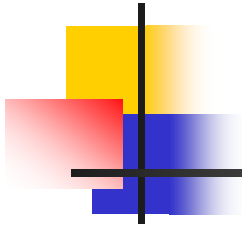
EC contribution:

7'492'344 Euro

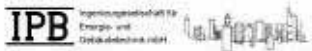
Project URL:

<http://www.cost-effective-renewables.eu>

# Cost-Effective Partners

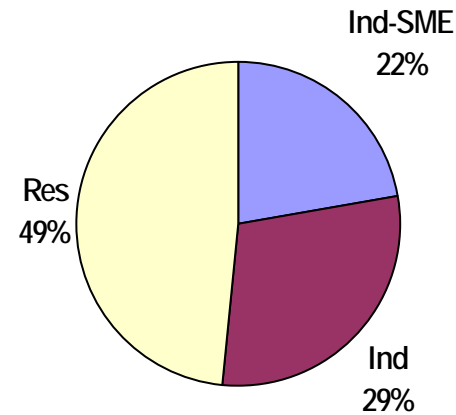
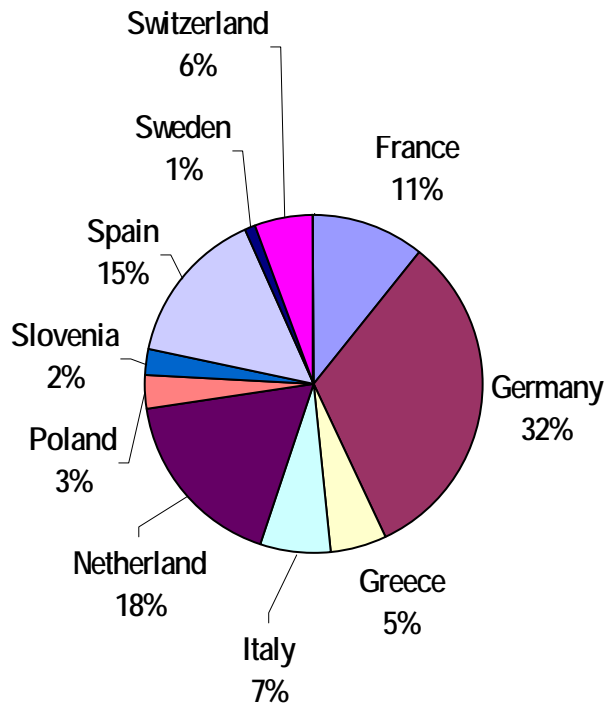


11 large industrial partners  
7 SME partners  
9 R&D partners



# Cost-Effective Budget

## Total budget distribution by status / country



# Cost-Effective Objectives



World Trade Center - Amsterdam (WTC):  
Renovation + extension of an office building  
Source: Permasteelisa Group

- High solar fraction also for high-rise buildings through façade integration
- Reduce CO<sub>2</sub>-Emissions of existing high-rise buildings
- Concepts for cost-effective integration of renewables in existing non-residential buildings

Cost-Effective

# Technical objective

To convert facades into multifunctional,  
energy gaining components



New transparent solar collector  
Virtual image: © Fraunhofer ISE

- Development of new multi-functional façade components

Cost-Effective

# Technical objective

To convert facades into multifunctional, energy gaining components



Torre de Cristal Madrid  
Source: Emmer Pfenninger Partner

- Development of new multi-functional façade components
- Development of new business and cost models

Cost-Effective

# Technical objective

To convert facades into multifunctional, energy gaining components



Fraunhofer Headquarter München  
Picture: © Fraunhofer ISE

- Development of new multi-functional façade components
- Development of new business and cost models
- Development of integrated building concepts

# Cost-Effective Method

Activities are planned under the following titles:



- Cross-sectional state of the art analysis
- New technical concepts
- New economical concepts
- New integrated techno-economical concepts
- New multifunctional components
- Pilot buildings: Demo and Evaluation of integrated concepts

Refurbishment projekt Deutsche Bank,  
Frankfurt am Main, Germany (2008-2010)  
Source: ING.BÜRO P.BERCHTOLD

# Cost-Effective Main Results



Winston Churchill Tower - Rijswijk: Renovation with a double skin facade (internally ventilated)  
Source: Permasteelisa Group

- New solar thermal façade collectors
- New BIPV façade elements
- New natural ventilation components
- New business models
- New concepts for cost-effective renovation of existing high-rise buildings