

# Climate protection with rapid payback

Energy and CO<sub>2</sub> savings  
potential of industrial  
insulation in EU27

Ecofys study identifies a large energy efficiency  
potential of industrial insulation



# Climate protection

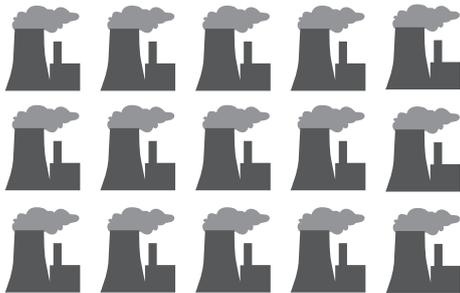
The savings potential of industrial insulation is large  
Energy: 620 PJ / CO<sub>2</sub>: 49 Mt

- ▶ The total cost-effective savings potential amounts to about 480 PJ and 37 Mt CO<sub>2</sub> per year for industry or more than **4% of total industry fuel consumption and emissions**.
- ▶ In fossil fuel-fired power generation the cost-effective potential was found to amount to 140 PJ and 12 Mt per year.

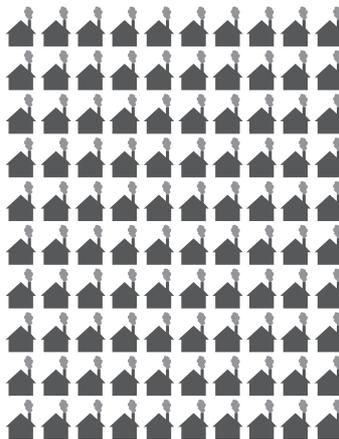
The savings potential exists across all regions, sectors, equipment and operating temperatures.



## The annual savings potential is equivalent to:



15 coal-fired power plants of 500MW



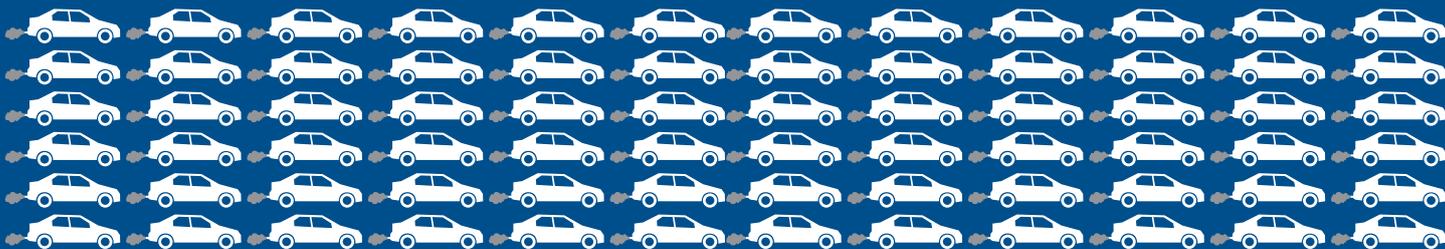
**x 100 000**

The energy consumption of  
10 million households



The energy consumption of the Dutch  
industry (The Netherlands)

## The annual CO<sub>2</sub> reductions potential is equivalent to:



**x 250 000**

The CO<sub>2</sub> emissions of 18 million middle class cars each running 12 500 kilometres per year.

# Rapid payback

## The potential can be tapped cost-effectively

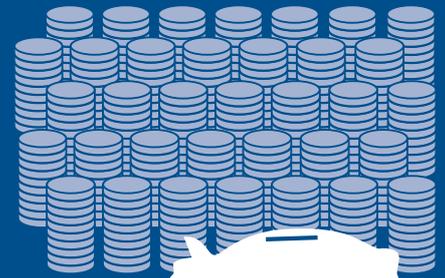
- ▶ Insulating bare surfaces to cost-effective levels and repairing damaged insulation in industry EU-wide requires initial investments of about 900 million euro.
- ▶ This one time investment would represent an energy savings potential of about 460 PJ, which at current prices would save industry 3.5 billion Euros every year.

Payback times for these investments are usually less than one year.



900 million

▶ Invest once – save every year



3.5 billion

## Why is the potential in industry so large?

Expert experiences show that in industrial plants about 10% or more of the equipment is uninsulated or covered with damaged insulation. Furthermore the level of insulation applied is typically based on a minimum investment decision following requirements regarding the maximum surface temperature to avoid personal injuries, minimum process needs or based on generic maximum heat loss rates only.

Requirements like cost-effectiveness or maximum energy efficiency of the insulation system are therefore often not considered.

In the past, when fuel prices were lower energy efficient insulation would not have led to a large difference. Nowadays, the price of energy is higher and is expected to grow even further. As a result there is an increasing gap between current and cost-effective insulation levels. Additional costs for CO<sub>2</sub> emission allowances will accelerate this trend and further increase the savings potential.

## How to tap the potential?

### Step 1 Insulate uninsulated parts and replace damaged insulation

- ▶ If all uninsulated parts would be insulated, and damaged insulation would be repaired, this would reduce industrial energy consumption by 3%.

### Step 2 Evaluate the cost-effectiveness of insulation and consider upgrading

- ▶ Insulating all surfaces to cost-effective levels would avoid about 66% of current heat loss.

### Step 3 Involve insulation experts\* early in the planning process of a new build, overhaul or retrofit to realise cost-effective and energy saving levels

- ▶ Not enough space available is most often the reason why cost-effective and energy-efficient insulation levels can't be realized.

*\*Eiif certified TIPCHECK engineers (Technical Insulation Performance Check) carry out independent energy appraisals and evaluate the money and energy savings potential. More information on [www.eiif.org](http://www.eiif.org)*

## Best practice in industry

### Chemical Plant (France)

Payback: 2–4 months

Energy savings: 12 600 000 kWh/a

Money savings: 505 000 EUR/a

### Refinery (Italy)

Payback: 1–3 years

Energy savings: 1 021 958 kWh/a

Money savings: 75 000 EUR/a

### Processing plant (Germany)

Payback: 3 months

Energy savings: 1 448 500 kWh/a

Money savings: 47 800 EUR/a

In 2007, EU leaders endorsed a set of ambitious climate and energy targets to be met by the year 2020. These EU ambitions are known as the 20-20-20 targets.

In this policy context, there is significant attention on measures that reduce energy demand and mitigate CO<sub>2</sub> emissions in all sectors of the economy such as the built environment, transport and industry.

From their experience, the European industrial insulation Foundation (EiiF) is convinced that there is a significant energy saving and CO<sub>2</sub> mitigation potential related to improved thermal insulation in industry and that this potential is currently untapped despite being cost-effective to implement. With energy and CO<sub>2</sub> prices likely to rise, this potential is probably growing. Against this background, EiiF commissioned Ecofys to identify the Energy and CO<sub>2</sub> savings potential of industrial insulation in EU27.

Find the complete study on [www.eiif.org](http://www.eiif.org)

**Ecofys** is a leading consultancy agency in renewable energy, energy & carbon efficiency, energy systems & markets and energy & climate policy. They support public and corporate organisations alike to adapt to changes and identify new opportunities quickly.

The **European Industrial Insulation Foundation** (EiiF) is a European non-profit foundation registered in Switzerland. It has been set up to promote and establish the use of industrial insulation as a widely understood and accepted means of achieving sustainability.

Since its foundation EiiF has established itself as a resource for industries that need to reduce CO<sub>2</sub> emissions and save energy.



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