

ENGINE

Energy Efficiency in SME

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Evaluation of Energy Efficiency Checks in
German Businesses

Intelligent Energy  Europe

target GmbH

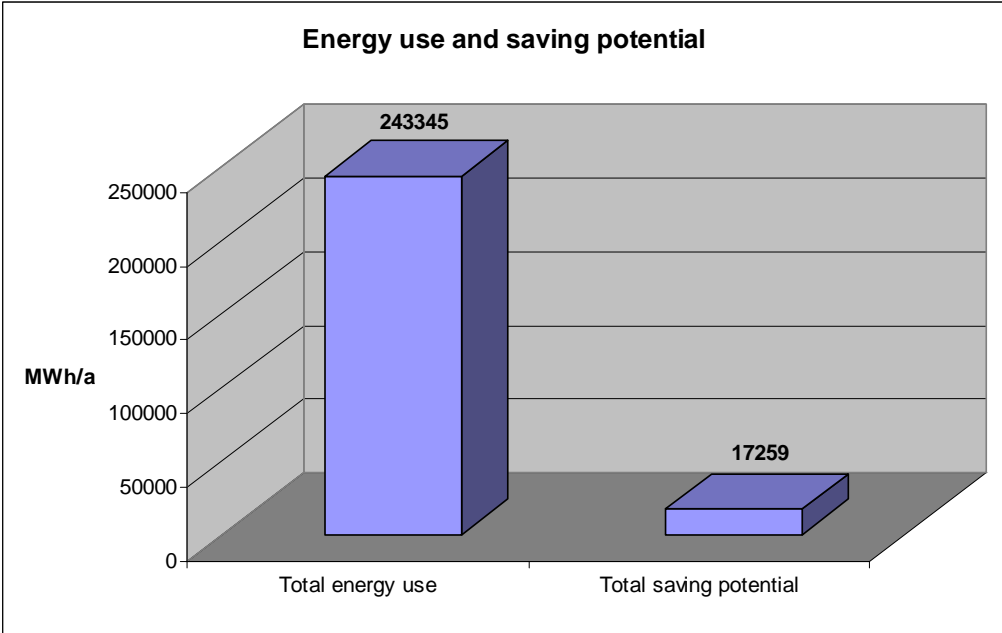
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Within Germany fourteen companies were provided with onsite energy audits to analyse the energy consumption and to identify saving potentials. The focus branches within the ENGINE project were the metal fabrication and the automotive industries. Through the audit process a range of energy saving measures were identified for each company, including no, low, and capital cost recommendations. As seen in the first chart below the overall saving potential was in total approximately 7% of the energy consumption. In other words 17259 MWh/a could be saved that equals a reduction in carbon dioxide emissions of estimated 7200 tonnes per annum.

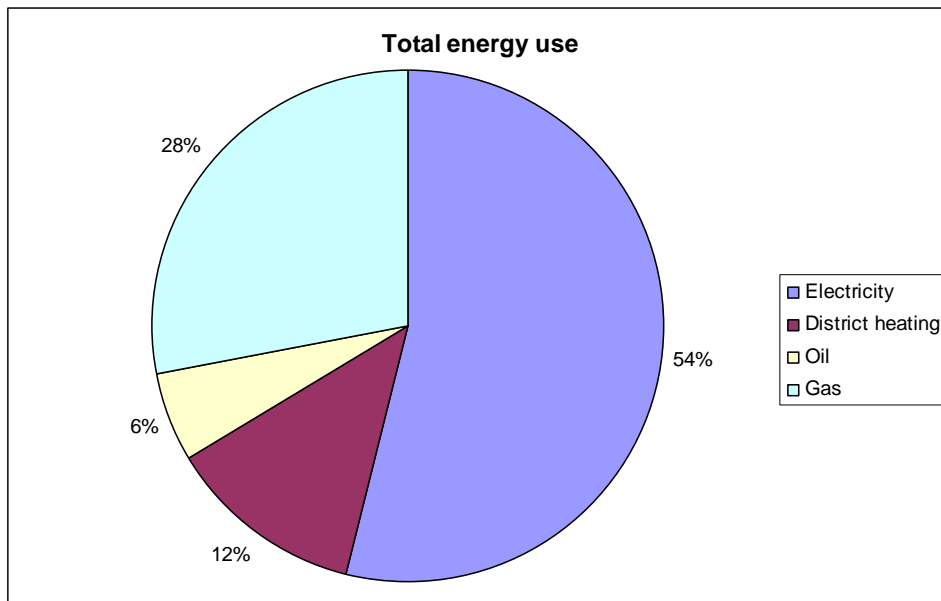


To have a look on the input side it became clear that electricity is the most important area for the companies and their production processes. On the other site the usage of gas, oil and district heating together are as high as the electricity consumption.

Electricity	131096 MWh/a
Gas	68380 MWh/a
District heating	30180 MWh/a
Oil	13689 MWh/a

Total energy use in figures

District heating is responsible for 12% of the total energy use in German companies what's twice that much than oil!



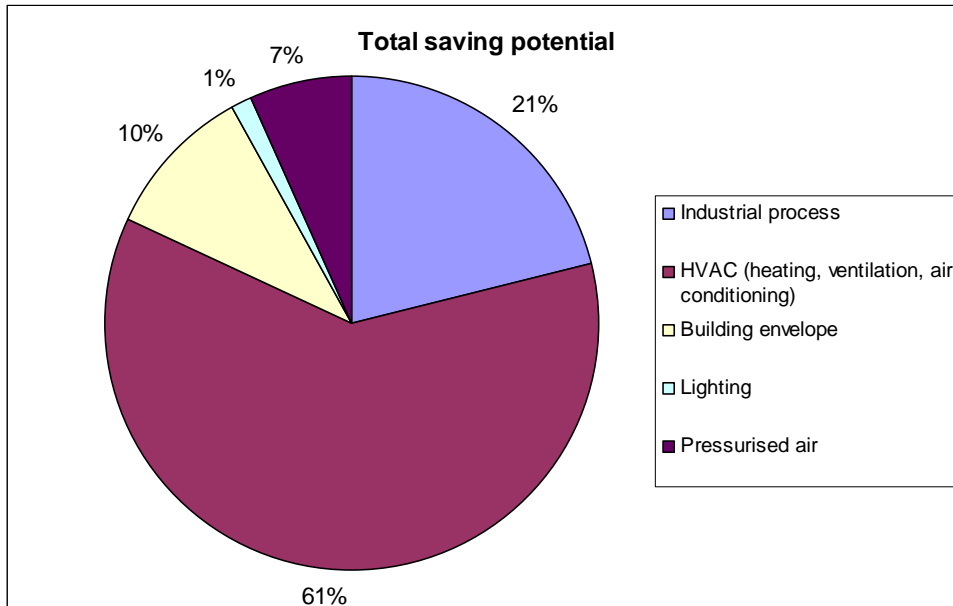
Total energy use in percentage

The area with the biggest potential for energy reductions are HVAC (heating, ventilation, air conditioning) with nearly 10500 MWh/a what means that 61% of Measures to realise the potential could be the exchange of old and inefficient boilers or the totally shutdown of not really needed ones. In addition the old circulation pumps should be replaced by high efficient pumps and the whole system should get an hydraulic trimming. Insulation is a further area to work on. A last thing is heat recovery: a lot of the wastage exist because mostly the process heat or others just disappear via the roof or ventilation system.

HVAC (heating, ventilation, air conditioning)	10498 MWh/a
Industrial process	3641 MWh/a
Building envelope	1738 MWh/a
Pressurised air	1137 MWh/a
Lighting	236 MWh/a

Total saving potential in figures

The second biggest area are the industrial processes but its potential is only one third compared to HVAC. Building envelope and pressurised air have only little potential and lighting seems not worth to look closer at.



Total saving potential in percentage

There are several obstacles and barriers to implement energy efficiency measures to improve the situation

- Overall there is the financial crises and the uncertainty for the companies
- There are not enough resources (neither money nor time)
- Most of the companies haven't got an energy manager or someone like that, so there is a lack of knowledge how to handle these kinds of problems
- Sometimes the suggested measures are simply too expensive to implement
- New machines, boilers, pumps or just lighting tubes will be replaced earliest when the old ones totally break down
- Sometimes the buildings are just rented and the company is not allowed to change things at the heating system or the building envelope or somewhere else.

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