Study: Potential of natural gas as a CO2 abatement option in the field of heating and domestic water heating

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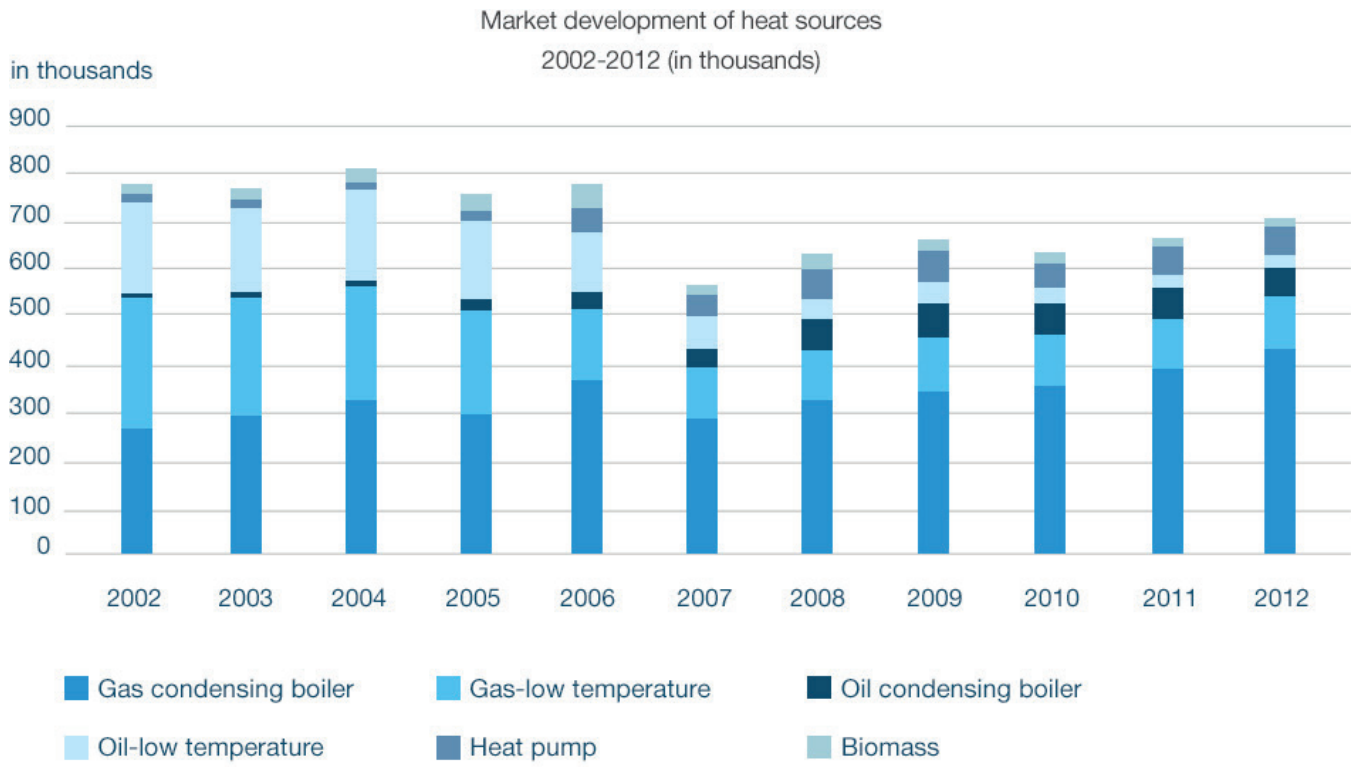
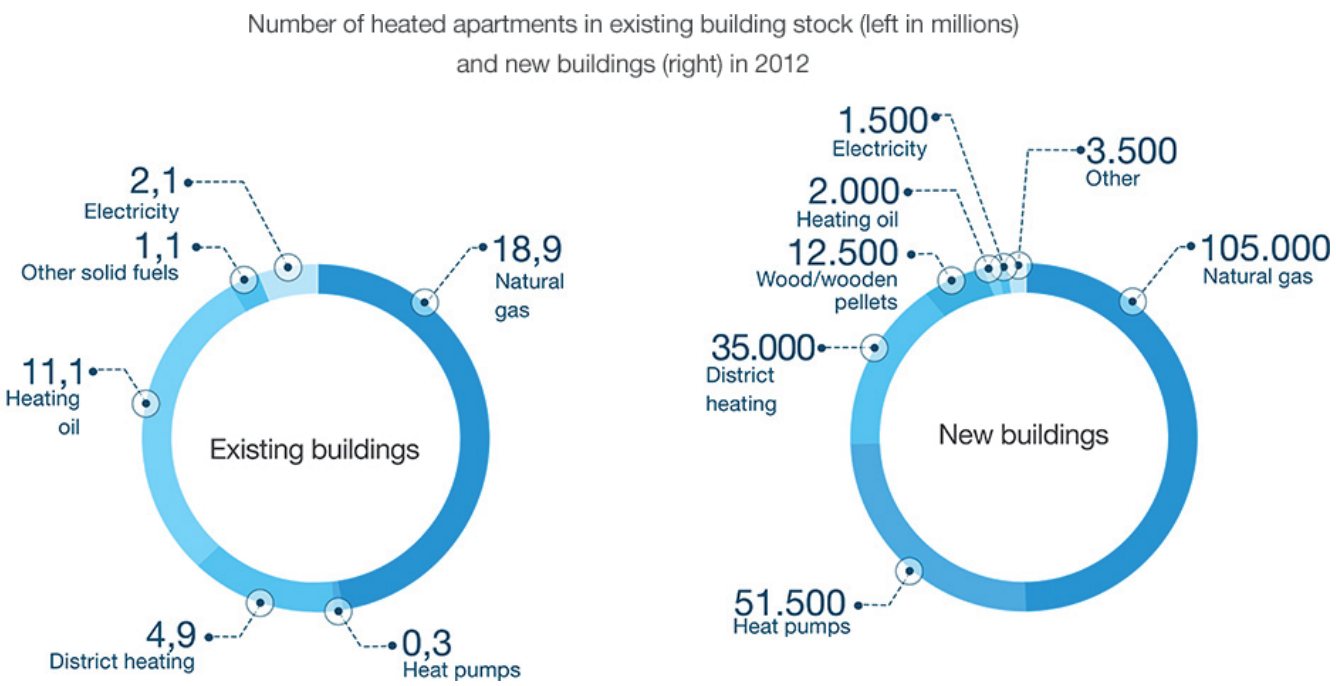
Modern gas efficiency technologies will have to play a key role in the housing sector for heating and domestic water heating if we want to reach the German federal government's climate targets by 2020. The installation of a natural gas condensing boiler, for example, is the most cost-effective way of avoiding CO2 emissions. In other words, natural gas offers ideal conditions for reducing CO2 in the private household heating sector cost-effectively.



Natural gas-based heating systems still top the table: they make up for around 75 percent of new heating system installations (renewing existing or new heating systems). Overall, more than 400,000 new gas condensing boiler systems were installed in 2012.



Natural gas-based heating systems account for about 50 percent of heating systems and are the most popular both in existing and new buildings.

Measures for the housing sector which allow the CO2 reduction targets to be realized with the lowest specific CO2 abatement costs

The conclusion: it's all in the mix.

An assumed reduction target of 40 million tons a year, for example, can be achieved in a reference scenario with the lowest CO2 abatement costs by replacing old existing systems such as gas or oil low temperature boilers as well as outdated electricity-heat pumps with around 7.5 million heating systems based on gas condensing boilers and about 1.3 million fuel cells, ideally by 2020. That would be accompanied by building refurbishments on about 3.2 million residential buildings, and, as a secondary measure, the installation of micro CHP systems using spark ignition engine in the heating systems of multi-family buildings. The scenario clearly shows that each individual measure makes a key contribution to achieving the target, but that the use of modern natural gas technologies (especially condensing boiler and fuel cell technologies) are a key driving force in achieving CO2 reduction targets as cost-effectively as possible. Hence, there is no "one single measure that promises success". Instead, it's all about finding the ideal, or balanced, mix.

Summary of the study

1. The sooner the first refurbishment measure is carried out, the more leeway there is for the subsequent refurbishment measures.

2. The majority of cost-effective CO2 savings in the current building stock up to 2020 will be made by exchanging existing boilers.

3. Natural gas systems will prove to be the leading heating technologies in future too.

You can find more information on the study at www.wingas.com

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