

# Climate neutrality: Energy efficiency of buildings remains crucial!

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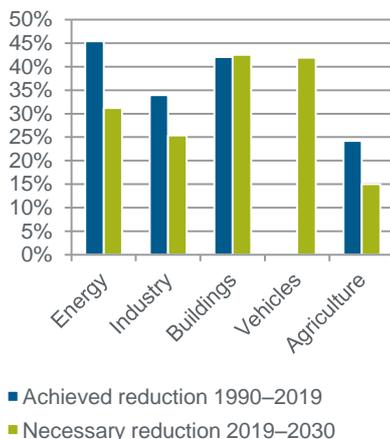
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## Ambitious targets for energy-efficient buildings

The only way for Germany's economy to become climate-neutral is for the building sector to contribute more than before. Since 1990, the energy and building sectors have each reduced their greenhouse gas (GHG) emissions by more than 40% (see figure below). From 2019 to 2030, buildings are to reduce their GHG emissions again by around 43% to achieve the targets of the Climate Action Plan 2050.

Figure: Relative GHG savings of sectors



Sources: Climate Action Plan 2050, German Federal Environment Agency (2020), own calculations.

The ambition behind the targets for the building sector is also apparent from the timeline. While the GHG savings of the first pillar were reached in a comfortable 29 years, only eleven years remain to meet the target of the second one, which has a similar volume. This means that the annual reduction rate for buildings has to nearly double due to the urgency of mitigating climate change. The difference between the sectors highlights their different contributions to climate change. Relative to their emissions, buildings achieved the highest GHG reductions up to 2019. From today until 2030 they are even

expected to achieve the largest relative reduction.

## More renovations and efficient new buildings needed

We begin by recalling some basic facts. Germany has some 21 million buildings, 18 million of which are residential, composed of 99.4% existing buildings and around 0.6% new buildings. Therefore, most buildings required for a greenhouse gas-neutral building stock in 2050 already exist today. But what is also interesting is the distinction between residential and non-residential buildings (NRBs): Although NRBs make up only one seventh of all buildings, they use around 35% of building energy consumption and – not least because of their technical installations – account for around 50% of all building-relevant GHG emissions. That makes doubling the rate of modernisation of currently 1% a central task. What is also important is to prepare today's new buildings for the energy-efficiency requirements of 2050 as well as possible. And finally, it is crucial to reduce NRBs' GHG emissions even more effectively. Against this backdrop it is sometimes astonishing to see what is being debated.

## Additional costs are often overestimated

Higher energy-efficiency requirements have significantly contributed to making construction more expensive, at least in the public perception. The Federal Construction Cost Reduction Commission has established that although the costs of construction increased by 36% between 2000 and 2014, more stringent energy-efficiency requirements are responsible for only one sixth of this increase. According to the commission, the often criticised tightening of the requirements of the amended Energy Saving Ordinance (EnEv) that came into effect in early 2016 will increase construction costs by 6 to 7%. But the

additional costs also lead to a significant reduction in energy needs. Investment cost is therefore only part of the story. Rather, what matters economically is to minimise the sum of construction costs and of energy costs discounted to today. Introducing a nationwide carbon emissions trading system will make using fossil fuels in the heating sector more expensive and saving energy more attractive in the future. Besides, many analysts point out that the way energy efficiency measures are executed has a strong impact on cost-effectiveness. Each case therefore needs to be assessed on its own merits. Depending on the building, thicker insulation, a replacement of the heating system or improved system technology may be the optimal path to the necessary GHG reduction.

## Conclusion

Given the ambitious targets in the building sector, especially with a view to the next ten years, it is important not to get sidetracked by discussions of lesser importance. In particular, the target conflict between energy efficiency and low-cost construction is often blown out of proportion. Instead, three approaches are crucial:

First, the impressive reductions must be continued in new buildings and transferred to the existing building stock. The latter requires a swift and clear increase in the modernisation rate. Second, greenhouse gas reductions in non-residential buildings must be realised even more systematically. This can build on the experience gained in residential buildings. Third, greenhouse gas reductions (and, hence, modernisation) must make more economic sense for building owners. In addition to targeted promotion, a rising CO<sub>2</sub> price can be helpful here.