

Agenda Heat transition 2021

Executive Summary

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The building sector is currently the source of around 16% of Germany's greenhouse gas emissions. In recent years, emissions from the sector have declined only slightly. According to the Federal Climate Protection Act, sector emissions must fall from around 120 million tons today to 70 million tons of CO₂ equivalents by 2030. The EU's more stringent climate target and the decision of the Federal Constitutional Court on the Climate Protection Act of March 24, 2021 will in all likelihood lead to an even more ambitious reduction target.

The study "Climate-neutral Germany 2045" shows how the various sectors can contribute to achieving the reduction target by 2030 required for climate neutrality and how Germany as a whole can become climate-neutral by 2045. Decarbonising building heat requires activities in two core areas. On the one hand, the heat demand of buildings needs to be reduced and decentralised heat supply decarbonised, and, on the other hand, district heating must be expanded and decarbonised. New policy instruments are needed for both core areas, and existing instruments must be further developed with regard to their target compatibility. Moreover, the coordinating role of municipalities must be strengthened.

At the core of this report a bundle of policy instruments aimed at achieving climate protection targets of the building sector is elaborated. The inertia characterising this sector requires that the necessary activities, such as more ambitious thermal insulation measures on the building envelope, a rapid switch to renewable heating systems, and a substantial expansion of grid-supported heat supply, be initiated very quickly. With a view to the target year 2030, the next legislative period is therefore a key period.

The specific conditions of the building sector, including long investment cycles, low price elasticities and the distribution of incentives between landlords and tenants, mean that effective climate protection in the building sector can only be achieved with a broad mix of instruments. CO₂ pricing of fossil fuels is a central instrument in this mix.

Strategic Heat Planning and Municipal Scope for Action – Heat transition as a planning task

The heat transition requires coordinated strategic planning, which is primarily to be located in municipalities. The growing importance of grid-based heat supply requires that the existing district heating infrastructure be expanded and upgraded. Decarbonising district heating also involves changes to the type and topology of heat generation and requires respective land areas. The heat transition changes municipal infrastructure needs (especially related to gas distribution and heat networks) and requires that the subsurface is increasingly used for heat storage or as a heat reservoir.

All of this requires coordinated and forward-looking planning. Municipalities must begin to see the heat transition as a strategic planning process. To this end, the proposed mix of instruments foresees the introduction of strategic municipal heat planning. At the same time, the toolbox of municipal policy instruments must be expanded to enable municipalities to implement activities decided upon in the context of heat planning. Heat planning also includes coordinated planning for thermal management of the subsurface. Since hydrogen plays no or only a very minor role in decentralised heat supply, even in the long term, gas distribution networks will lose their importance in the medium term and will no longer be needed in the long term. The phase-out of gas supply in building heat must therefore also be accompanied by regulatory measures.

Heat demand of buildings and decentralised heat supply

In view of the large number of non-financial obstacles to building renovation and the large number and heterogeneity of building owners, it seems unlikely that the renovation activities required to achieve climate action targets can be triggered by public funding and information programmes alone. The proposed mix of instruments therefore assigns a more active role to regulatory legislation. Developing building energy legislation further and introducing minimum efficiency standards aim at creating additional incentives for renovation. At the same time, it is suggested to redesign the funding framework in such a way that building owners are enabled, or can be expected at reasonable expense, to meet their renovation requirements and at the same time have high incentives to renovate in line with targets. In order to ensure that stricter rules on the energy efficiency of buildings are accepted and that the required transformation is socially acceptable, it is further proposed that measures required by regulatory approaches are also supported financially in the future.

When it comes to heating buildings, heating oil and natural gas will be replaced in particular by heat pumps and renewable district heating. Stricter retrofitting obligations for old boilers, bringing forward and tightening the installation ban for heating oil boilers and, above all, extending this ban to gas boilers, will lead to a rapid phase-out of heat supply based on fossil fuels. The rapid and massive market ramp-up of heat pumps is being driven by a reform of levies, taxes and surcharges on energy prices. If CO₂ prices rise steadily and significantly and electricity prices are decreased gradually by reducing or eliminating surcharges and taxes, the operation of heat pumps becomes an attractive alternative heat supply even if they are used in only partially renovated buildings.

Instruments such as strengthening building-specific renovation roadmaps and establishing a federal institution coordinating the heat transition are intended to provide homeowners with better support in the energy-related renovation of their buildings. By aggregating similar renovation projects, cost advantages are to be achieved for both heat insulation measures and climate-neutral heating technologies.

Regulations limiting landowners' possibilities to transfer the CO₂ price to their tenants and reforming their rights to charge parts of modernisation costs to tenants will cushion the social impact of the heat transition and target refurbishment incentives to building owners who are the ones to decide on refurbishment activities.

Expanding and decarbonising district heating

The heat transition requires both that the heat network infrastructure be expanded and decarbonised. In cities in particular, heat grids open up new opportunities for a socially responsible heat transition that is implemented within a few years, supplying entire neighbourhoods or communities with renewable heat from low-cost, large-scale heat sources. Without heat grids, neither waste heat from industry and waste incineration nor deep geothermal energy can be harnessed. Even environmental heat from surface waters, which is raised to heating temperature with large heat pumps, can only be used by a large number of customers through heat networks.

It is suggested to provide substantial financial support to the expansion of heat networks and their decarbonisation. Legal hurdles such as the Heat Supply Ordinance (WärmeLV), which prevent a significant expansion of heat network supply to existing buildings, are to be removed. Introducing regulations for district heating prices ensures a high level of consumer protection. The support of combined heat and power (CHP) will be adapted to the requirements of an increasingly flexible and integrated power/heat system. Minimum shares for renewable energies and waste heat in heating

networks secure the transformation by regulatory means. Creating product-specific primary energy factors is made possible; at the same time, the electricity credit method is replaced immediately. Specific regulations (including risk hedging) support an increased use of waste heat, deep geothermal energy and heat storage systems.

