



# CITY OF HEIDELBERG

**INHABITANTS:** 160,000

**2050 GHG TARGET:** - 95% COMPARED TO 1987

**SCOPE:** ONLY EMISSIONS FROM BUILDINGS ARE AVAILABLE

## Sustainable housing for all

### Climate policy governance and integration

After a first climate plan in 1992, the city of Heidelberg adopted in 2014 its "Masterplan 100% Klimaschutz", funded by a programme of the German Federal Ministry for the Environment (BMUB). This programme binds the city to formulate and implement a climate plan to achieve 95% reduction of GHG emissions and 50% reduction of energy consumption by 2050.

For its implementation, Heidelberg has expanded and given a central place to the Heidelberg Climate and Energy Protection Group ("[Heidelberg-Kreis Klimaschutz & Energie](#)"), formed in 2002 and composed of representatives of companies, associations, craftsmen, architects, the university, the hospital, the city, the army etc. Citizen participation was made possible by holding conferences on climate action, and a Youth and Climate Summit every two years, bringing together some 80 participants in total. In 2017, the Masterplan's assessment considered that the control on the city's energy choices (made possible by previous political choices) has been decisive in adopting high-impact solutions and facilitating the support of all stakeholders ([Ifeu 2017](#)).

### Climate policy tracking

The 2017 assessment report shows a reduction in stationary CO<sub>2</sub> emissions (corresponding to buildings emissions) of 7% between 1987 and 2015 (fig.), while total final energy consumption increased by 6%, and the population by 12% over the entire period. The per capita intensity has therefore fallen sharply by 18%, from 7.1 to 5.8 tCO<sub>2</sub>/hab. Still, these efforts did not allow a total decrease of 20% of GHG emissions in 2015 (compared to 1987) as initially targeted by the city. Transport fuel consumption and emissions data and their evolution are not provided, but were estimated at 350 tCO<sub>2</sub> in 2010 ([Masterplan100%](#), 2014), roughly representing 26% of the emissions that year.

Regarding the implementation process, in 2017 25 measures had already been completed in all the working groups, 50 measures were in progress, and 39 remained to be started.

### Housing - 18 measures combining performance and lifestyle

To reduce the demand of electricity, Heidelberg has adopted its own electricity consumption standards for new buildings as of 2010 (66 kWh/m<sup>2</sup> per year) and established "[conversion areas](#)" in 2016. These 180 hectares require new buildings to be passive in energy, to use rooftops for solar energy production, and to provide schedules the renovation of existing buildings.

A large share of these areas will be low-cost segment flats. Various renovation projects are carried out with the municipal housing association representing 15% of Heidelberg's rental apartments, mostly built during the 1950-1970 period: renovation, reinforced standards, renewable energies, etc. Heidelberg has also voted 400 grants for the insulation of exterior walls and roofs in these cooperative, representing a saving of 27 ktCO<sub>2</sub> in four years and is addressing energy daily use by supporting 400 low-income households to save energy. Eventually the Council offers up to 12,500€ in subsidies for the conversion of a house to passive energy ([Graczyk, 2015](#)).

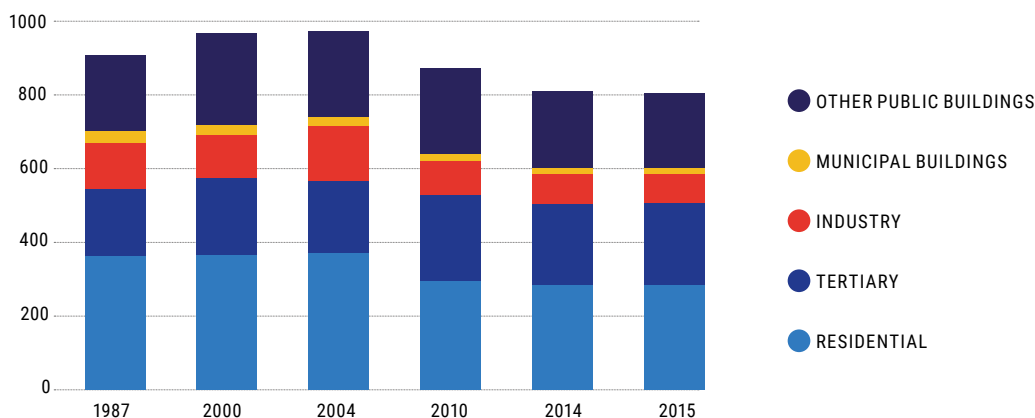
The flagship project of Heidelberg is the Bahnstadt district with 6,500 homes: once completed in 2022, it will be the largest complex of passive housing in the world, with a size of over 100 hectares and a capital investment of €2 billion, 300 millions of which are investments into infrastructure. Various techniques are used to make the best use of natural ventilation, solar energy, rainwater, etc. ([C40, 2017](#)).

To achieve municipal goals, IFEU's assessment of the Masterplan recommends stimulating further deep renovation of existing building and reminds that the supply of heat accounts for around 70% of final energy consumption and half of CO<sub>2</sub> emissions.

### Energy – The "Green district heating" concept and the "Solarkampagne"

The residential sector saw a decrease of about 20% in its emissions between 1987 and 2015, as well as a drop in its final energy consumption, while the available per capita surface area increased by 16%. Since electricity-related emissions have increased

GHG EMISSIONS OF HEIDELBERG 1987 - 2015 [EN KtCO<sub>2</sub>] Source: Author's construction based on data provided by the IFEU 2017 report.



(calculated based on the national mix), this decrease is therefore related to both the production and use of district heating.

As 50% of the heat demand of households and companies in Heidelberg are supplied by the district heating grid and operated by the municipal utility Stadwerke Heidelberg, the city can have high impact on energy decisions. The concept of "[Green district heating](#)", developed by the municipality and the Office for the Protection of the Environment, has reached in a short time 20% of renewable energy in the network. The Pfaffengrund wood-fired plant supplies 14% of annual requirements and saves 32 ktCO<sub>2</sub> per year, while 4 biogas plants combining heat and energy, supply another 6%. Natural gas cogeneration provides the remaining 80%.

As for electricity generation, Heidelberg focuses on solar energy, through incentives, information and pilot projects. The "[Solarkampagne](#)" started in the spring of 2018 and targets builders, owners and co-owners.

It offers homeowners and co-tenants extensive information on energy efficiency, solar panels, storage and financing, provided by trained consultants trained on purpose by the Heidelberg's The Climate Protection and Energy Consulting Agency ([Neckar-Kreis "KliBA"](#)), and the Heidelberg Energy Cooperative. The city has thus achieved its goal of equipping 7,000 households with solar panels by 2020.

Finally, Heidelberg has deepened its cooperation with an energy citizen cooperative that is active in a project where it acts as a "mini utility", cooperating with the local distribution system operator to allow the 116 residents of a cooperative housing block equipped with 7 PV systems, to collectively self-consume the onsite-produced energy at a cost-efficient price and buy any residual power from the grid ([Energy Cities, Heidelberg, 2019](#)).

## Mobility – A master Plan in the Metropolitan Area of the Rhine-Neckar

Heidelberg has the largest share of cycling in the country with 26% of trips made by bicycle, according to a [national survey](#) conducted in 2018. A total of 64% of trips are by bike, on foot or by public transport. Several measures have been taken in the framework of the Masterplan and the Metropolitan Plan to accelerate modal shift and the decarbonation of vehicles:

- 1,000 bicycle parkings at the central station and rental or subsidy for the purchase of cargo bikes;
- introduction of the first electric buses in 2019 at the scale of the Rhine-Neckar metropolis;
- grants of € 1,000 for the purchase of a low-carbon motor vehicle (electric, natural gas or hybrid), and up to 10,000 for a hydrogen vehicle ([Rhein Neckar-Zeithung, 2018](#));
- conversion of the municipal fleet to the electric car and hydrogen and equip the city with dedicated charging stations, and 2 electric vehicle charging stations installed.

In 2017, the cities of Heidelberg, Ludwigshafen and Mannheim jointly developed the "Masterplan sustainable mobility for the city" with the support of local transport associations VRN and RNV to minimize traffic emissions in the Rhine-Neckar metropolitan region. In 2018, a 22-kilometer, intersection-free cycle route project between Heidelberg and Mannheim was launched, with the participation of Baden-Wurtemberg, the Rhine-Neckar Metropolis, and several districts ([RNZ, 2018](#)). This flagship project is accompanied by a multitude of ongoing connections in the city and with neighbouring municipalities.

However, Heidelberg's CO<sub>2</sub> balance will have to absorb the additional burden of the federal A5 widening project in the Heidelberg urban area. In addition, just under a third of the traffic in Heidelberg is transit traffic, over which the city has relatively little influence.