

Heidelberg



Heidelberg – City and citizens  
together for climate protection

# Introduction



**Dear guests,**

Welcome to Heidelberg, host of the 2019 International Conference on Climate Action.

As city of knowledge, Heidelberg has made its way early onto the path of sustainability and climate-friendly politics. In 1992, our first climate action plan was introduced, followed by multiple updated action plans in 1996 and 2004. The "Masterplan 100 % climate protection" in 2014 set new and ambitious goals to reduce CO<sub>2</sub>-Emissions by 95 % until 2050. In 2016, the City Council decided to implement the Sustainable Development Goals of the UN.

Sustainability covers many aspects like energy, mobility, waste and environmental protection. In Heidelberg, we try to address all of these issues, with the municipality leading by example. Since 1992, we have achieved energy savings of 50 % in municipal buildings and in 2015, the city received the Global Green City Award of the UN. The municipal fleet is in the process of switching to zero emission vehicles, but many of our staff members can be seen using the most environmentally friendly and popular way of travel in Heidelberg – bikes. In Heidelberg's low carbon district, the Bahnstadt, the goals of our climate action plan have already been achieved by enforcing the passive house standard and using green district heat to supply the district.

We've compiled this brochure to give you some insight into the sustainable aspects of our beautiful city, to point out lighthouse projects you might find exploring Heidelberg and gather the many efforts taken by the municipality to contribute to a bright future for our children and grandchildren.

I hope that you will find your stay in Heidelberg inspiring and enjoy your time in this beautiful city.

Sincerely,

**Prof. Dr. Eckart Würzner**  
Mayor

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# Heidelberg in numbers



**160,000**  
residents

**120,000**  
jobs

**< 4 %**  
unemployment

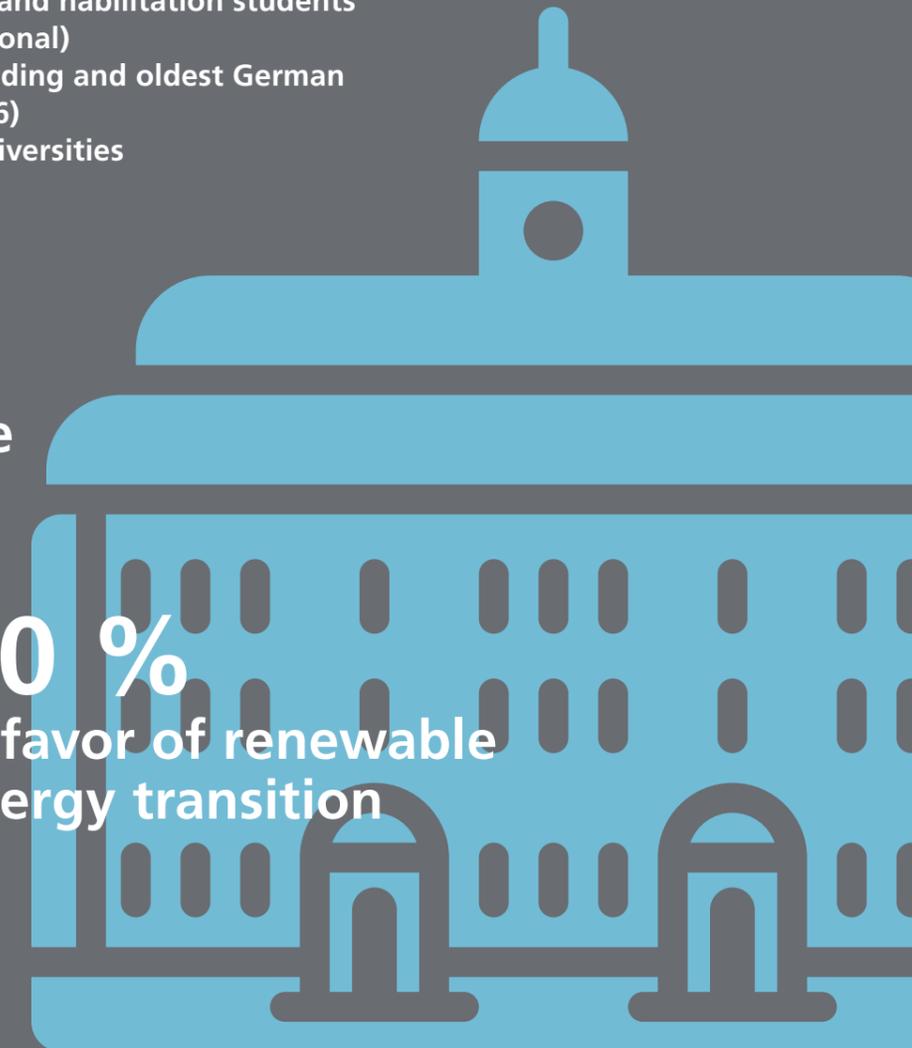
**70 % green space**  
**+ 30 % developed areas**

**35 % academics**  
(national average: 17 %)

- 40,000 students (20% international)
- 5,000 doctoral and habilitation students (20 % international)
- The world's leading and oldest German university (1386)
- 10 different universities

**97 %**  
support climate  
protection

**90 %**  
in favor of renewable  
energy transition



# Natural(ly) Heidelberg

**40 %**  
of the city's area  
is forest area

- 75 % of this is municipal forest (total area 3,329 ha)
- Municipal forest is FSC (and PEFC) certified

**7 nature reserves**  
(total area 107.15 ha)

## Natural monuments

- 28 trees, remarkable by old age or growth
- 9 areal natural monuments
- 3 protected green areas

## Landscape protection areas

- Almost the entire municipal forest
- 533 legally protected biotopes (175 ha)

**Protection program**  
mapping and protection measures  
in particular for bats, amphibians  
and reptiles

**Extensive  
roof greening**  
on 66 % of the roof areas  
in the district Bahnstadt



## Climate action plan Masterplan 100 % climate protection

Heidelberg has been playing a pioneering role in local climate protection politics for two decades. To ensure that Heidelberg's climate protection policy remains viable in the future, Heidelberg participated in the "Masterplan 100 % climate protection" programme by the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety since 2012.

The target goal is to reduce carbon emissions by 95% and final energy consumption by 50 % by 2050. With the "Masterplan 100 % climate protection", the City of Heidelberg

is meeting the challenge of doing its part to achieve climate neutrality by 2050 together with citizens and key players in the city.

- 8,5 tons CO<sub>2</sub> emission per person/year of Heidelberg by energy consumption and travel.
- The CO<sub>2</sub> emission of Heidelberg's residents has been reduced by 8 percent since 1987 despite increasing population and growing average living space per person.



## Municipal energy management

The energy concept of the City of Heidelberg defines a self-commitment to ambitious targets and energy standards for the actions of the city and the municipal companies with regard to their own properties, the energy supply of the urban area, urban land-use planning, real estate management and municipal services for citizens. Because of energetic retrofitting and an energy controlling system introduced in 1992, the energy consumption of municipal properties has been reduced by more than 50 percent in recent years.

One of the main aspects of the energy concept is that all new municipal buildings are built in passive house standard, while all retrofits are seeking to bring buildings up to the standard of new buildings in Germany.

## Education for sustainable development (ESD)

The City of Heidelberg encourages partner institutions to implement ESD, thus equipping children and adults with knowledge, values and skills that contribute to a sustainable future. For example, it mainstreams ESD into early childhood education by incorporating it into curricula and offering training programs for educators; it awards schools for their commitment to ESD and organizes networking events for dedicated teachers; it establishes ESD within sports clubs by advising coaches on ESD and providing them with fair-trade equipment. Moreover, the city of Heidelberg actively promotes ESD through a nationwide network.



## Sustainable consumption

To empower its citizens to consume sustainably, the City of Heidelberg carries out information campaigns, publishes shopping guides, encourages farmers to sell their produce locally and cafés to offer reusable coffee cups. It tries to lead by example and implements sustainable procurement whenever possible.

## Municipal corporations working for climate protection

The strong public service and supply sector in Heidelberg and most other German Cities is a central success factor for municipal climate protection – and could be a model for other regions.

The 100 % municipality-owned energy utility Stadtwerke Heidelberg is responsible for power, gas, district heat and drinking water supply as well as energy services. The activities include grid operation, energy production, sale and trade. Due to the public mandate the Stadtwerke Heidelberg has elaborated ambitious concepts and offers innovative products delivering high efficiency and growing shares of renewables.

The municipal waste management is operating separate collection, recycling and environmental friendly residual waste disposal. The municipal sewage treatment delivers efficient cleaning and high ecologic quality of the Neckar river.

The municipal housing association of Heidelberg (Gesellschaft für Grund- und Hausbesitz GGH) is energetically improving the large building stock according to climate goals and realizing

new apartments and public building in passive house standards. The regional public savings bank (Sparkasse Heidelberg) delivers private banking for citizens and delivers financing for local investment in the building sector and for small and medium sized enterprises.

The City of Heidelberg and the Rhine-Neckar Region are shareholders of the regional climate protection and energy agency KliBA, one of the first regional energy agencies in Germany. It offers initial energy consulting services to all citizens and companies. For regional cities and towns KliBA delivers a broad range of project management and services in the energy sector.

Last but not least, Heidelberg and its neighbor cities are shareholders of the regional public transport companies VRN and RNV that operate the transport services, steadily improving interconnections and emission standards.

## Zero-emission district Heidelberg-Bahnstadt

In 2008, the City of Heidelberg issued a development statute that led to the largest passive house district in the world: The Bahnstadt. Currently still in development until 2022, the district will house an estimated 6,500 people and offer an additional 6,000 jobs.

It is the city's most ambitious urban development project with a size of over 100 hectares and a capital investment of 2 Billion Euros, 300 Million of which are investments into infrastructure. Due to its energy concept, CO<sub>2</sub> emissions in the Bahnstadt are significantly lower than in the greater Heidelberg area, reaching the goal of emission reductions – reduction by 95 % until 2050 – today.

Learn more about the Bahnstadt at [www.heidelberg-bahnstadt.de](http://www.heidelberg-bahnstadt.de)

The Heidelberg Development Agency (Entwicklungsgesellschaft Heidelberg EGH) is operating the urban development of Bahnstadt city district in cooperation with the city administration. Shareholders of EGH are the municipal housing association of Heidelberg (Gesellschaft für Grund- und Hausbesitz GGH), the regional public savings bank (Sparkasse Heidelberg) and the state bank of the federal state of Baden-Württemberg (L-Bank).

Founded in 1921 with the City of Heidelberg as its sole shareholder, the municipal housing association GGH is the biggest provider owning roughly 15 % of Heidelberg's rental apartments. In the Bahnstadt district, the GGH has developed several buildings, both residential and public. Their biggest project is yet to come: The Heidelberg Convention Center HDCC that will be finished by 2022 close to the central railway station.



## Conversion areas

180 hectares of land for new developments – Heidelberg received this chance of the century after the withdrawal of the US Army. The areas will provide a variety of mixed, vital quarters – with affordable living space, high-quality open spaces and recreational areas, attractive cultural and leisure facilities and space for innovative companies as well as research and scientific institutions.

The energy concept for the conversion areas envisages constructing buildings entirely according to the passive house standard, providing the energy supply through district heating and installing solar energy on available roof surfaces.

The development in the former Mark Twain Village is already well-advanced with around 1,400 apartments – 70 % of which are in the low-cost segment.

The US Hospital area with around 600 residential units is being developed as a zero emission district by the municipal housing association GGH.

The Heidelberg Innovation Park (hip) – a hot spot for companies from the IT, digital media, bioinformatics and design sector – is being developed on the Patton Barracks area in the Kirchheim district. All commercial units in this area will be built according to passive house standard.

The largest conversion area, the almost 100-hectare large Patrick Henry Village (PHV) is designated to become a lighthouse project of the Heidelberg International Building Exhibition (IBA). A spectacular vision for the "knowledge city of the future" has been available since March 2017. The PHV will be a working and living space for 10,000 to 15,000 people and a model location for the use of digital technologies, innovative mobility concepts and climate-neutral energy supply.



## District heat – a perfect infrastructure for transition to renewables

District heating is a central component of climate protection in Heidelberg. Almost 50 % of the heat demand of households and companies in Heidelberg are supplied by the district heating grid. District heating is particularly climate-friendly because it has been produced in efficient combined heat and power (CHP) plants for the last 30 years.

In 2013 the transition to renewable energies started with the wood-chip fired cogeneration plant in Heidelberg-Pfaffengrund and 4 biogas-powered cogeneration plants feeding heat into the grid. The share of renewable energy within the district heat

grid has been increased to 20 %. Feeding heat from the regional waste incineration plant will be the next step to further reducing CO<sub>2</sub> emissions of district heat.

The municipal utility, Stadtwerke Heidelberg, as operator of the district heating system is currently building a large heat storage facility in order to operate the biomass cogeneration plants more flexibly and efficiently. An electrode boiler, a so-called power-to-heat system, will allow for using solar and wind power for district heating in times of high renewable electricity production.



## Photovoltaic on municipal buildings

In order to achieve the climate protection goals of the City of Heidelberg, the further expansion of solar energy use is the greatest potential for the generation of renewable energies in the urban area of Heidelberg. If all roof areas suitable for the use of solar energy were occupied with solar power systems, 350 GWh – half the total electricity consumption of the city area of 700 GWh – could theoretically be covered.

There are currently 738 photovoltaic systems with a total power of 19.5 megawatts in the city area. Of these, 67 solar power systems with a total power of 4 MW are located on roofs and open spaces of municipal properties or properties used by the City

of Heidelberg. Most of them were installed by the municipal energy utility, Stadtwerke Heidelberg.

Recently, the City of Heidelberg has intensified its cooperation with the energy cooperative HEG (Heidelberger Energiegenossenschaft) in the field of photovoltaic use. The HEG organizes and finances the energy system transformation by citizens in the Rhine-Neckar region and Heidelberg. The approximately 800 energy cooperatives in Germany are all pursuing a common goal: The implementation of a decentralised energy system with the participation of local people – with positive effects on the regional economy.

# Mobility in numbers

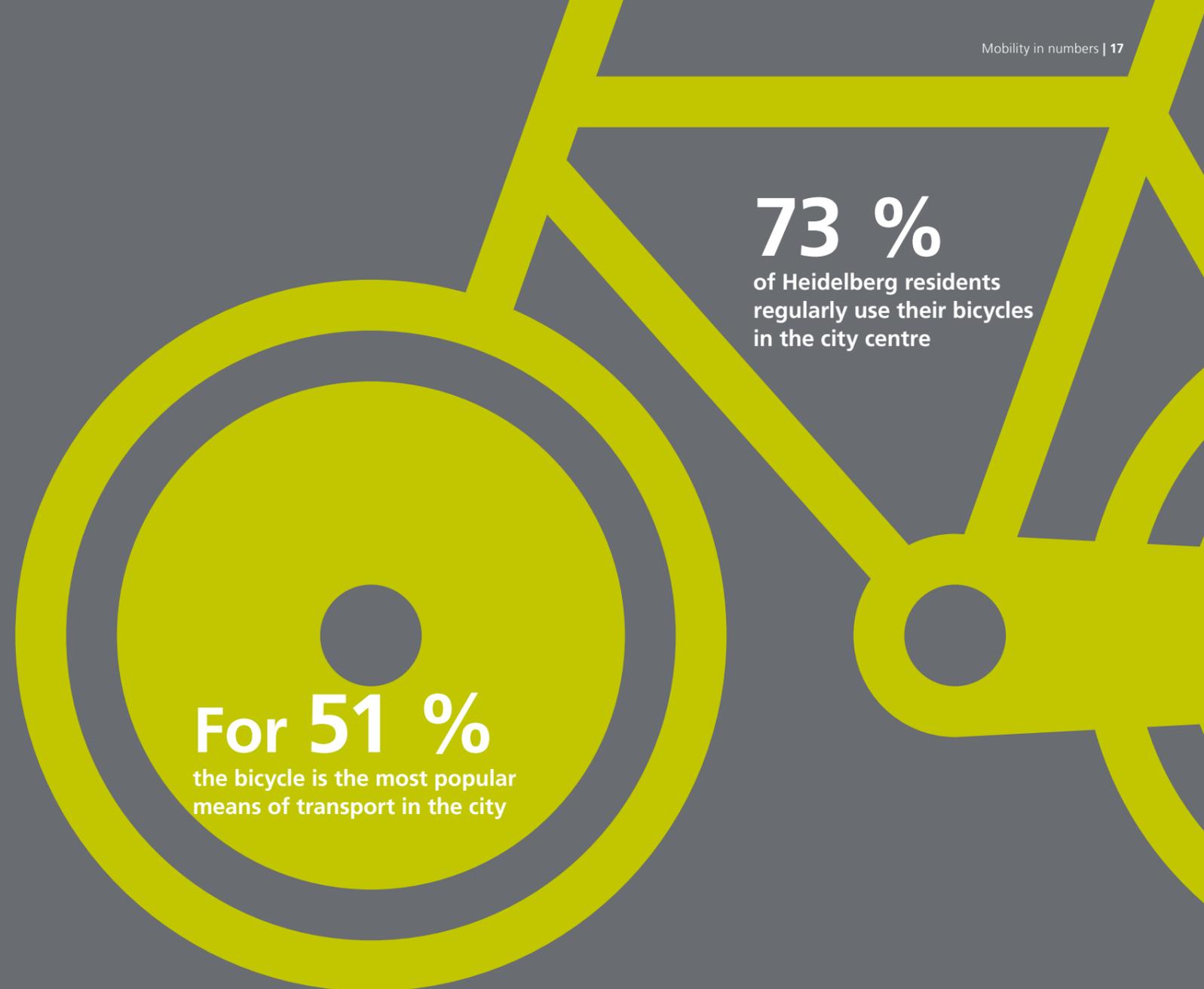
By 2020 the city of Heidelberg will have around 30 electric vehicles in use

**Almost 33 %**  
of all Heidelberg residents use public transport

**3 electric buses**  
run on the first entirely electric bus line

Heidelberg's cycle path network covers 260 km

In addition to its residents, Heidelberg attracts almost 60,000 commuters every day



**73 %**  
of Heidelberg residents regularly use their bicycles in the city centre

**For 51 %**  
the bicycle is the most popular means of transport in the city

In 2017 the "Masterplan sustainable mobility for the city" was introduced together with the cities Mannheim and Ludwigshafen to improve air quality in the region

## Masterplan sustainable mobility for the city

In order to improve air quality in the metropolitan region and to achieve Heidelberg's climate protection targets, which are set out in the "Masterplan 100 % climate protection", the pollution of motorized traffic must be significantly reduced in the future. 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 sustainably and permanently.

**Municipal Fleet** In March 2018, the Heidelberg municipal council unanimously decided to gradually switch to zero emission mobility for the city's own fleet of vehicles. There is already a fleet of municipal battery-powered and hydrogen-powered electric cars. By 2020, the city of Heidelberg will have around 30 electric vehicles in use. In addition, a public hydrogen filling station will open in Heidelberg in mid-2019.

**Public Transport** Public transport is an important element of sustainable, environmentally friendly and resource-saving mobility. In May 2011, the municipal council decided to comprehensively and ambitiously expand the tram network with the Heidelberg mobility network. Aside from the tram network, the public transport companies also rely on zero emission vehicles. As part of a pilot project, the first fully electric bus line in the region was introduced in Heidelberg. Within the next years H<sub>2</sub> fuel cell powered busses will replace diesel driven busses.

**Bike** In Heidelberg, the bicycle is one of the most popular means of transport. In 2018, Heidelberg was awarded the title of Bicycle-Friendly Municipality by the Federal State of Baden-Württemberg for the second time. The focus in mobility development is on the further expansion of the infrastructure for bicycle traffic and the offer of high quality rental bicycles via nextbike. Projects of interregional importance include a foot and cycle path bridge across the Neckar River with a bicycle parking garage at the main railway station, as well as the expansion and networking of rapid cycle connections.



## Sustainable management in small and medium-sized enterprises in Heidelberg

The aim of the project, which has been coordinated by the Office for Environmental Protection, Trade Supervision and Energy since 2001, is to support small and medium-sized enterprises with 5 to 250 employees in implementing an environmental management system. This includes the investigation of internal processes and optimization potentials, in particular with regard to resource consumption and disposal as well as occupational safety for the protection of employees and the environment. Questions of social sustainability, such as new forms of personnel management or corporate responsibility (e.g. integration of refugees in companies), are also addressed.

To date, fourteen stages with 133 companies and around 9,000 employees have been implemented. The resulting network is one of the largest sustainability networks of companies in Germany. A total reduction of over 2,000 tons of CO<sub>2</sub> per year and cost savings of more than 1.2 million euros per year were achieved.

After successful completion of the project, the companies can be validated according to EMAS or ISO 14001 with little additional effort.

## Sustainable waste management

Like many other German cities, the City of Heidelberg has developed an efficient and customer-oriented waste separation system. It offers property-related bins for the separate collection of residual waste, organic waste, paper and plastics on-site. In addition to this, there are five municipal recycling centers where citizens can drop off recyclable waste, and city-wide disposal containers for glass, clothes, batteries, cork and aluminum.

Until 1990, 2.2. Million cubic meters of waste were buried in the landfill "Feilheck" on an area of 15 hectares. The landfill is treated by being covered to reduce methane production and prevent methane exhaust. The area is used for energy production by a photovoltaic power plant and as a site for biodiversity.

Nowadays, the City of Heidelberg passes on its paper and plastic waste for recycling by an external provider. Kitchen and garden waste has been collected separately in Heidelberg since 1987 and gets processed into valuable compost at the Heidelberg composting plant.

For environmental reasons, the city of Heidelberg attaches great importance to the energy efficiency of its residual waste treatment. The city's residual waste is thermally utilized at the waste incineration plant in Mannheim (MVV) in an energy-efficient, clean combined heat and power plant.



## Climate change adaption

In the course of climate change, the increase of summer heats as well as flooding and heavy rain has been predicted to become a problem in Heidelberg. Due to this, in 2017 the local council decided to commission a climate change adaption concept that offers solutions on how to deal with these risks.

The concept focuses on the three main problem areas of heat stress, heavy rains and flooding. It will identify critical areas and develop preventive and emergency measures.





## Cooperation for climate protection

Cooperation on common strategies and best practice experience for climate protection is essential on all levels of states and municipalities and between public and private sector.

On the regional level Heidelberg and its municipal service companies are in close contact to neighbor cities and regional organizations like the Metropolitan Region Rhine Neckar. There is strong cooperation on public transport, waste management, district heating and energy consulting. At the Heidelberg Round Table for Climate Protection professionals like tradespeople and architects, representatives of housing companies, small and mediums sized enterprises, the University, NGOs and city administration meet to develop common projects.

On the national level there is an intense exchange on climate protection within political and technical committees of the German Association of Cities and Towns and the Association of Cities and Towns of the federal state of Baden-Württemberg.

On the international level Heidelberg is member of the leading cities networks on climate protection: C40, Energy Cities, Climate Alliance, ICLEI, Covenant of Mayors and Global Covenant of Mayors. Mayor Prof. Dr. Eckart Würzner of Heidelberg is President of Energy Cities.

## Key success factors for municipal climate protection

- Ambitious climate protection concept based on CO<sub>2</sub> balance and detailed analysis of local needs and potentials
- Political decision of City Council on climate protection concept
- Courage for new and unknown paths
- Structures, personnel and financial support for a powerful climate protection unit within the administration
- Continuous cooperation with citizens, corporations and NGO on the local level
- Vital municipal service companies for energy and water supply, sewage cleaning, waste management, housing and banking
- Like all sustainable and environmental goals, climate protection must not be limited by economy – but it is worth seeking for win-win solution for climate and economy – there are many!
- Financial framework on international and state level – setting economic motivation for climate protection by efficient emission trading and taxation
- Legal framework on state level – addressing climate protection as an obligatory task to all political levels, corporations and citizens. A climate protection law needs to address all climate relevant fields of action and take into account goal conflicts – there is still a lot to be done!
- Strengthen direct cooperation between all political levels





## Imprint

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Collaboration  
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