

Heidelberg



# Urban planning as a way to reducing energy use

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[www.heidelberg.de](http://www.heidelberg.de)

# The General Conditions

United Nations Framework Convention on Climate Change, UNFCCC

- 194 member states
- EU as a regional economic organization
- Intergovernmental Panel on Climate Change, IPCC



# The European city

## A starting point for sustainable urban development?

Short distances, historical core area, pedestrian zones, multifunctional

High planning expertise with a strong planning and building legislation

Mayors and committees do have a high and wide-ranging responsibility within the services for the public (>700 municipal energy and water utilities, associations for sewage treatment, local waste management, local saving banks (Sparkassen))



# Global City Alliances for Climate

Compact world's global city networks:

- C40 Cities Climate Leadership Group (C40)
- ICLEI – Local Governments for Sustainability (ICLEI) und United Cities and Local Governments (UCLG) – supported by UN-Habitat and the U.N Secretary-General's Special Envoy for Cities and Climate Change.
- Covenant of Mayors: organized by ENERGIE CITIES and CLIMATE ALLIANCE with more than 7800 signees already.
- Global Covenant of Mayors for Climate & Energy



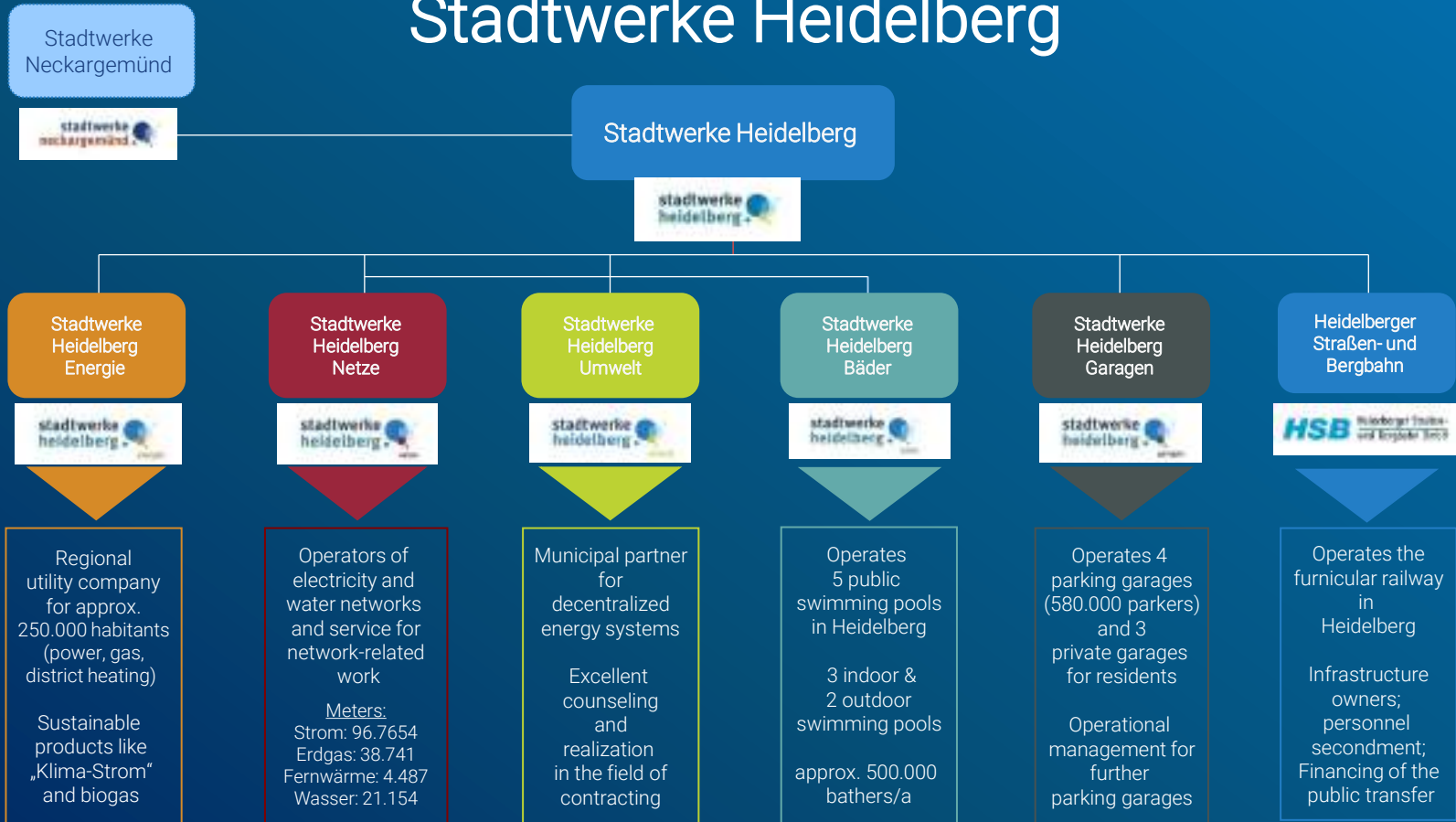
# Municipal utilities and service companies in Germany

Number of municipal companies, that are organized in the German Association of Local Public Utilities (VKU): **1.428**

Employees: **245.765**

Sector	Total	Electric energy	Natural Gas	Heat supply	Water supply	Sewage	Waste	Internet
Number of municipal utilities / companies	1.428	727	646	578	734	289	427	82

# Municipal Energy Utility Stadtwerke Heidelberg



# Municipal Savings Bank - Sparkasse Heidelberg

## as an important financial institution

Germany

- 416 Sparkassen – savings banks
- Associated business, restricted to the district of local authority.
- Based on the principle of common public interest.
- Dating back from the 18th century.
- Their original objective was to provide easily accessible savings products to all social levels of the population.

# Climate protection process in Heidelberg

## Cooperation with partners in the city and the region

**Master plan 100 % climate protection of the City of Heidelberg**

**Goal 2050: Reduction of CO<sub>2</sub>-emissions by 95 % (Basis 1990)**

**Energy savings at least 50%**

**Switch to renewable energy**



Photos: Stadt Heidelberg



# Renewable Energy in Heidelberg

- Solar thermal:  
6,400 m<sup>2</sup>

- 700  
t/a CO<sub>2</sub>

- Photovoltaic:  
18,000 kW

- 10,650  
t/a CO<sub>2</sub>

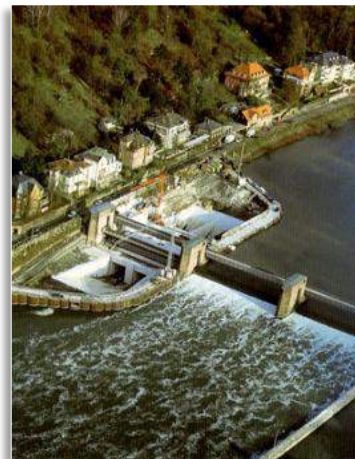
- Hydropower:  
3,700 kW

- 17,200  
t/a CO<sub>2</sub>

- Biomass:  
5,101 kW<sub>el</sub>  
10,500 kW<sub>th</sub>

- 34,000  
t/a CO<sub>2</sub>

*Status: 01/2018*



Photos: Stadtwerke Heidelberg  
Stadt Heidelberg  
Neckar AG

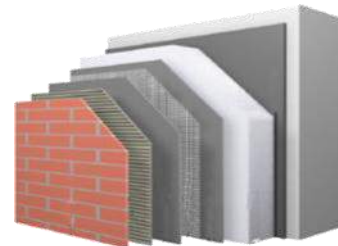
# Promotional Programme of the City of Heidelberg – subsidies for investment in Efficient Energy Use

- Thermal insulation ...
- Triple glazing insulating glass units ...
- Ventilation with heat recovery ...
- Blower-Door-Test ...
- Passive houses

**1.3 million € subsidy funds per year**



Triple  
glazing



Thermal insulation

Logo: **klima** wacht **schutz**  
in heidelberg ... mach bei dir!

Förderprogramm „Rationelle Energieverwendung“

Heidelberger Förderprogramm für  
energiesparendes Bauen und Sanieren

- Außenwanddämmung
- Dachdämmung
- Kellerdeckendämmung
- Boden gegen Außenluft
- Fenster
- Lüftungsanlage mit Wärmerückgewinnung
- Luftdichtheitstest
- Passivhaus

Logo: **Stad**  
Heidelberg

**From freight and switch yard ...  
... to new Passive House and Zero-Emission  
city district Heidelberg-Bahnstadt**



# Heidelberg – Bahnstadt Energy concept

- Reduction of heat demand:  
Passivhaus standard for all buildings
- Optimizing energy supply:  
District heating
- Renewable energy
- Minimizing des electricity demand
- Communication strategy
- Quality management system



Photos: Stadt Heidelberg



# Developing Heidelberg district heating system

## Green district heat



- One of the biggest district heating grids in Germany - 100 % from CHP
- Wood chip fired CHP plant
  - regional harvested wood chips
- 4 biomethane CHP plants
- All feed renewable heat into district heat and electricity into power grid
- Actually 20 % of the district heat is based on renewable sources
- Large heat storage under construction
- Solar thermal system in planning

CHP = combined heat and power



# Conclusions Bahnstadt City Development

- Largest Passivhaus area worldwide
- Zero-emission city district
- Detailed energy concept, energy advice and quality assurance
- Strong interest of buyers and tenants in Passivhaus standard
- High level of confidence of inhabitants
- Costs comparable to other projects in German legal energy standard
- Heat demand of evaluated projects meets Passivhaus requirements
- Sustainability, energy efficiency and renewable energies are integral aspects of planning and marketing – and success factors

# Heidelberg Innovation Park

## Heidelberg Konversion Areas

- Special development area designated to research intensive business in the fields of bio-sciences and IT
- Reduced energy demand due to Passive House standard
- Integrated energy supply with highest performance standards
  - District heating
  - District cooling
  - Solar electricity
  - E-mobility
  - Demand side management
- High speed data infrastructure developed by municipality
- Attractive for investors



# The new Smart City Vision an IBA Heidelberg project

**Former US-Army housing district  
Show-case district for urban-living  
in a sustainable society in the future**

- On-site solar-energy production (thermal and electrical)
- District heating system
- Demand side management, heat and power storage
- E-mobility, shared mobility, public transportation, car-free zone in the future
- “Solar-wall” for energy production and protection against high-way noise



Source: HOSOYA SCHAEFER architects

Foto: Diemer



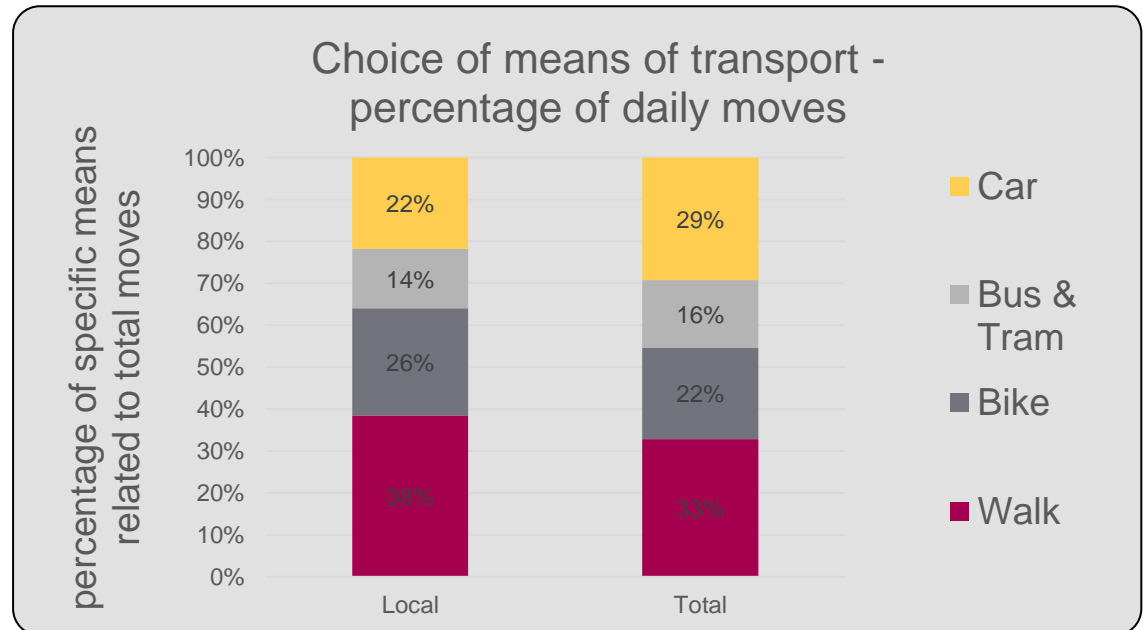
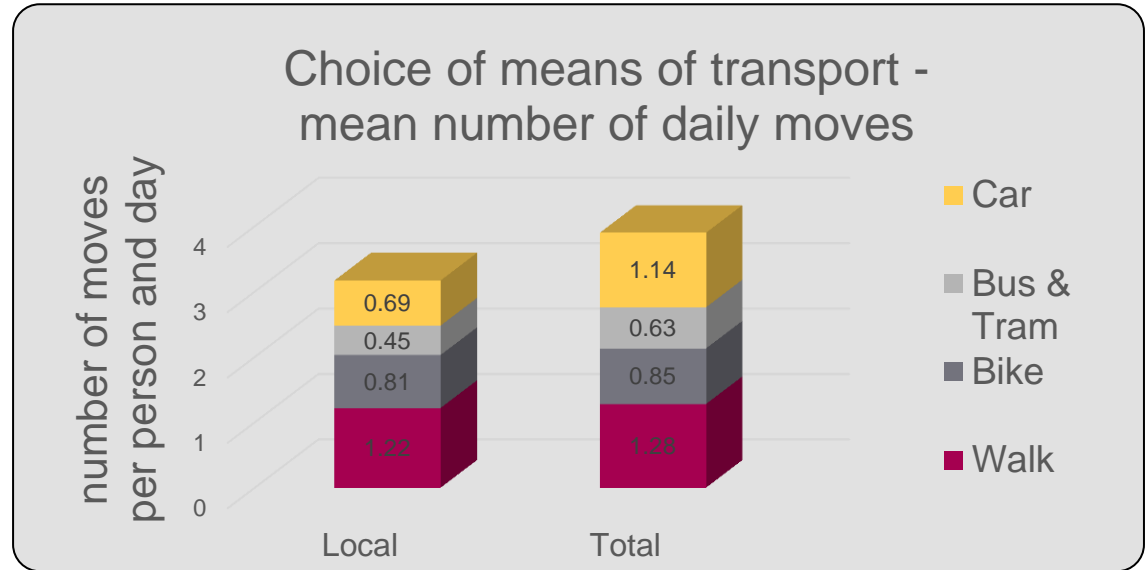
# Sustainable Mobility: Walk, Bike, Bus & Tram versus Car

## Modal Split 2013

= Choice of means of transport of Heidelberg Residents (without commuters)

Local = local traffic of residents inside city boundaries

Total = total traffic of residents inside and outside city boundaries



**Sustainable energy and climate protection  
need to be central criteria of urban development!**

**This needs political leadership and participation of  
stakeholders!**

**Thanks!**

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