



# ENERGY MANAGEMENT AND ENERGY PLANNING IN URBAN DISTRICTS – CHALLENGES, SUCCESS FACTORS AND SERVICES

Growing Smart Energy Cities

Berlin, 01 June 2017 | Frank Elstermann – Managing Director of GASAG Solution Plus GmbH

**GASAG**  
SOLUTION +

# Facts & figures GASAG AG



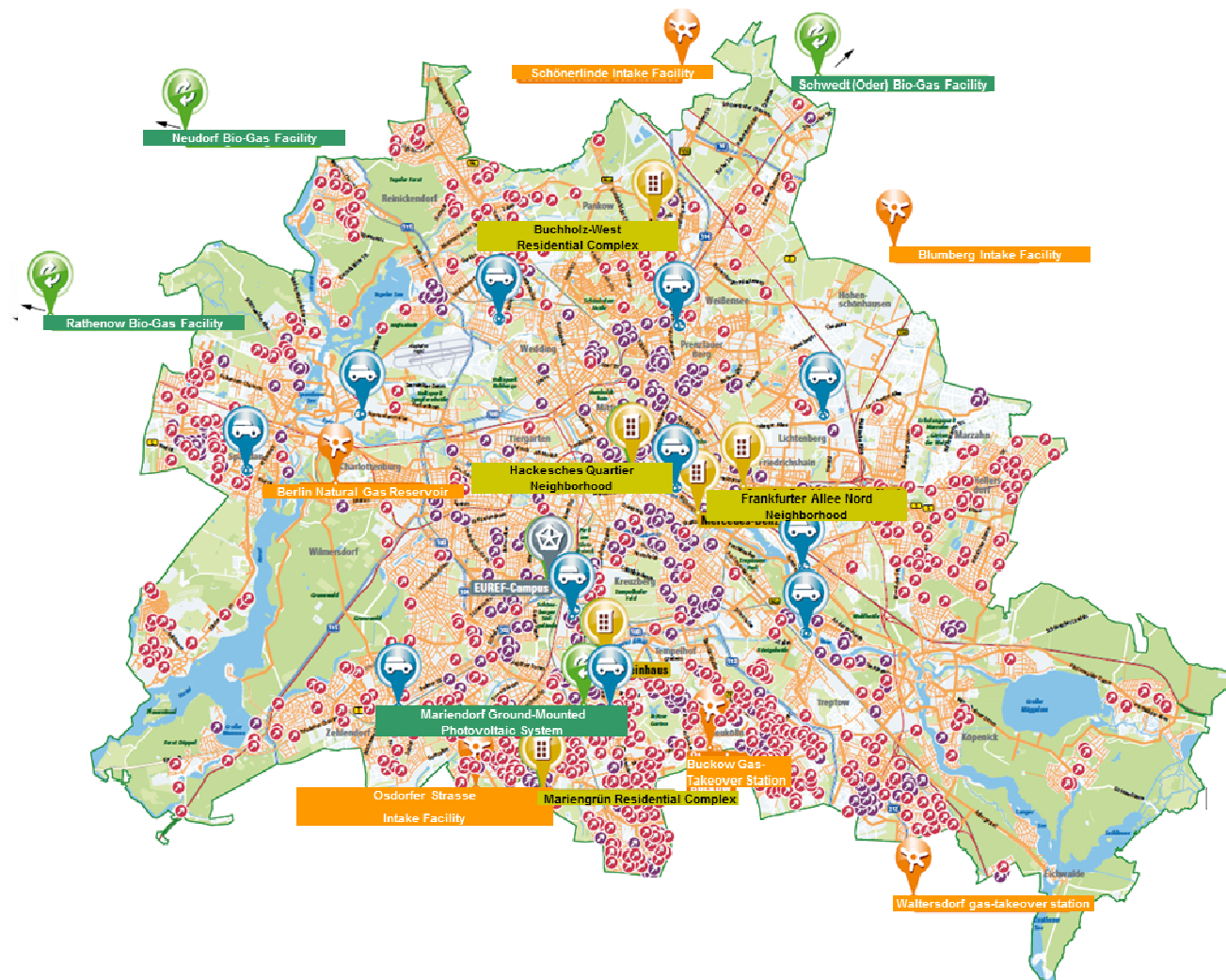
- The GASAG Group is one of the **largest regional energy suppliers** in Germany.
- The companies of the GASAG Group offer attractive rates and a growing portfolio of energy-related products and services to over **700,000 customers** (private households, commercial/industrial enterprises, and public institutions) in Berlin-Brandenburg.
- **Gas sales** amount to roughly 18,686 GWh.
- **Electric power sales** grew by 23% to 333 GWh in 2015,
- The Group's **energy contracting business** continues to expand, growing by over 10% in 2015.
- The GASAG Group's workforce comprises **1,533 employees**.



# GASAG's transition from gas supplier to energy services provider



Click on the symbol in the key and delve into the energy universe of GASAG



## Infrastructure

A reliable supply of natural gas is assured thanks to GASAG's gas-intake stations, the Berlin Natural Gas Reservoir, and the natural gas grid.



## Renewable energy project

These projects obtain a significant reduction of CO<sub>2</sub> emissions through the generation and use of renewable energy.



## Energy solution

Special energy concepts for multiple buildings or neighborhoods save energy and protect the climate.



## Smart grid

Generation and consumption are being coupled with smart grids so as to benefit the environment.



## Natural gas filling station

GASAG is the biggest operator of natural-gas filling stations in Berlin.



## Energy-efficiency project for a private customer

More and more single-family homes are being hooked up to an energy-efficient heat supply.



## Energy-efficiency project for a commercial customer

Stand 1 April 2016

# Facts & figures GASAG Solution Plus

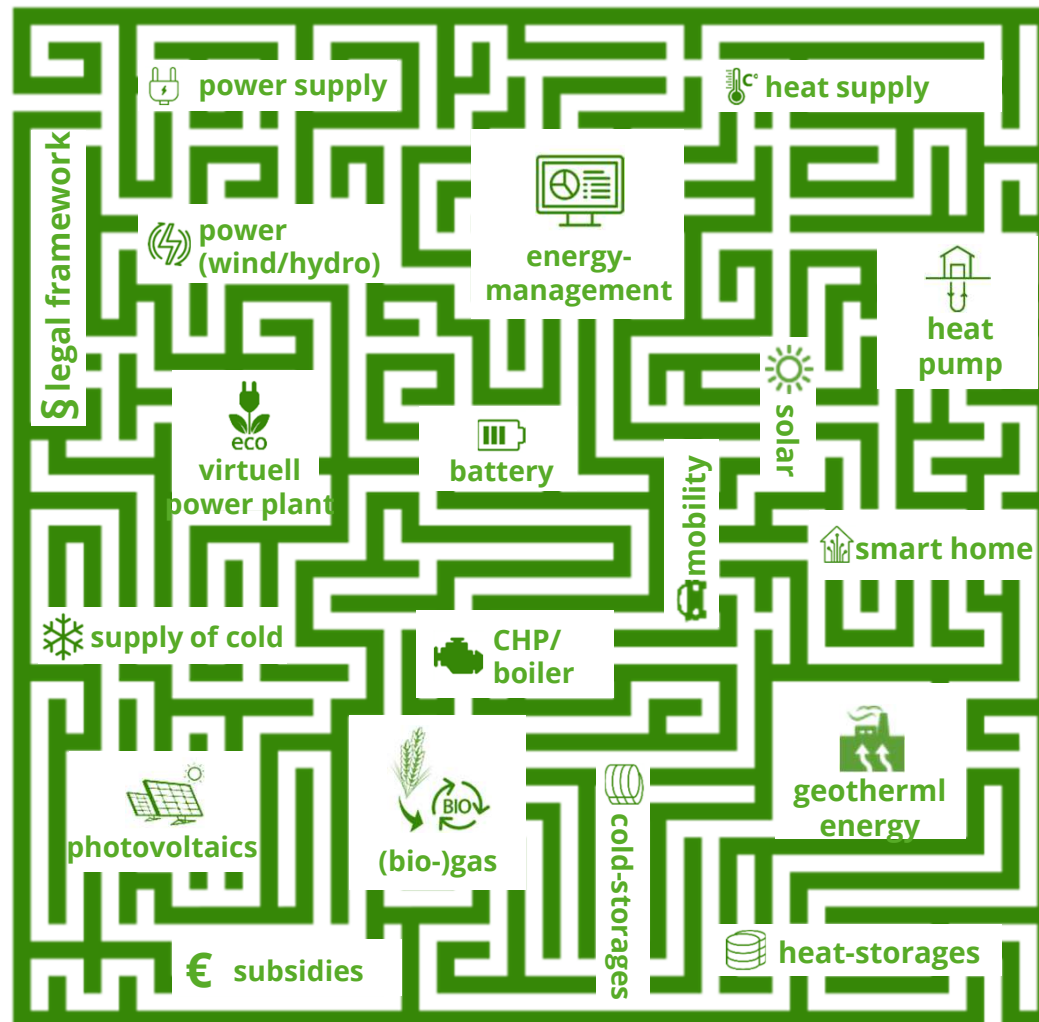


- subsidiary of GASAG AG
- based in Berlin & Essen
- 5 certified energy auditors
- 790 energy systems & 134 CHPs
- revenue 55 million €
- heating sales of 370 GWh
- 100 employees



# Challenges in the urban energy market

# Many influencing factors will change the energy environment in urban areas immensely

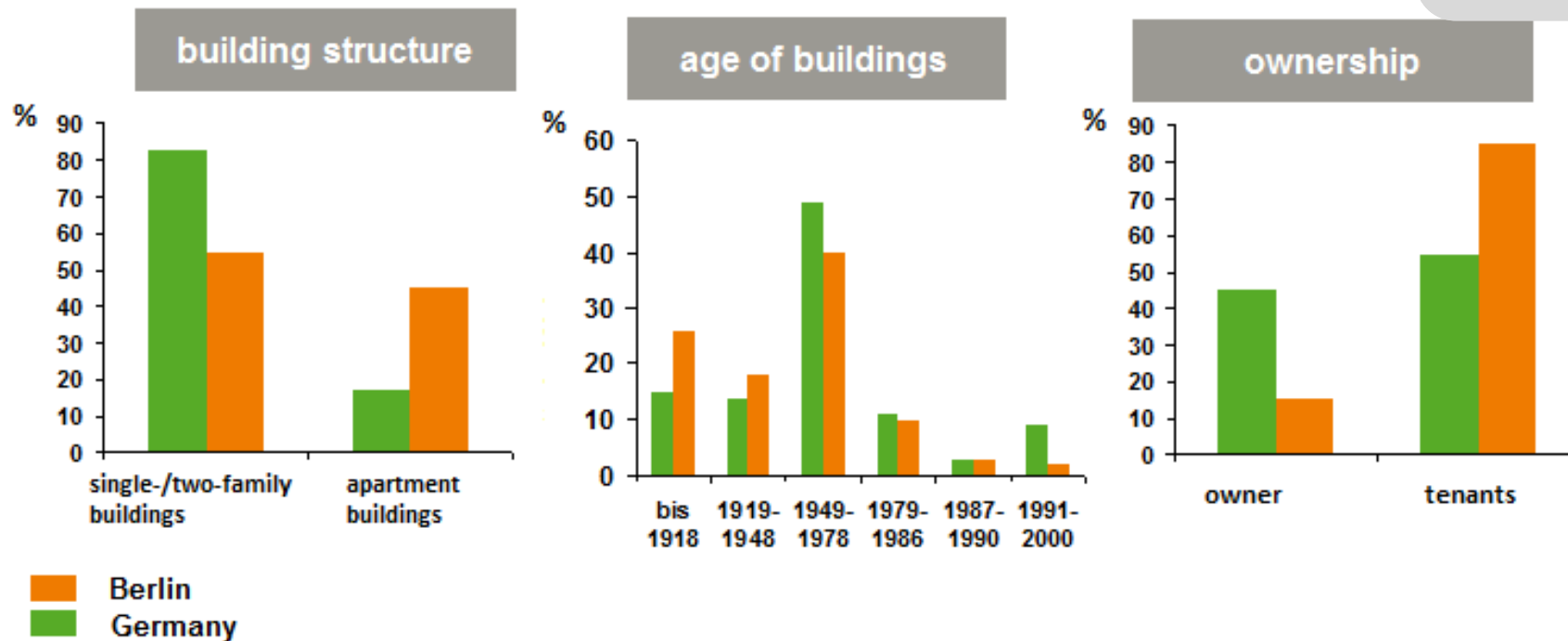


+ new players enter the energy market

# Energy concepts in Berlin require pragmatic and socially acceptable solutions



~ 50% of tenants in Berlin with income < **1.500 €/month**



# Each urban district shows specific features



single-/ two-  
family buildings



historic  
city centre



districts end of  
19th century



districts  
1950 - 1960



districts/ blocks  
1960 - 1980

## Features

- building: type of building, year of construction, status of refurbishment
- heat supply: energy source, central or decentral, oil or gas
- utilization structure: ownership or leasing, industry, trade etc.
- demography: structure of age and income of residents

# Urban district management is subject to different interests



## *Political objectives*

**energetic  
refurbishment**

**improvement of  
energy efficiency**

**expansion of  
renewable energies**



## *Stakeholder interests*

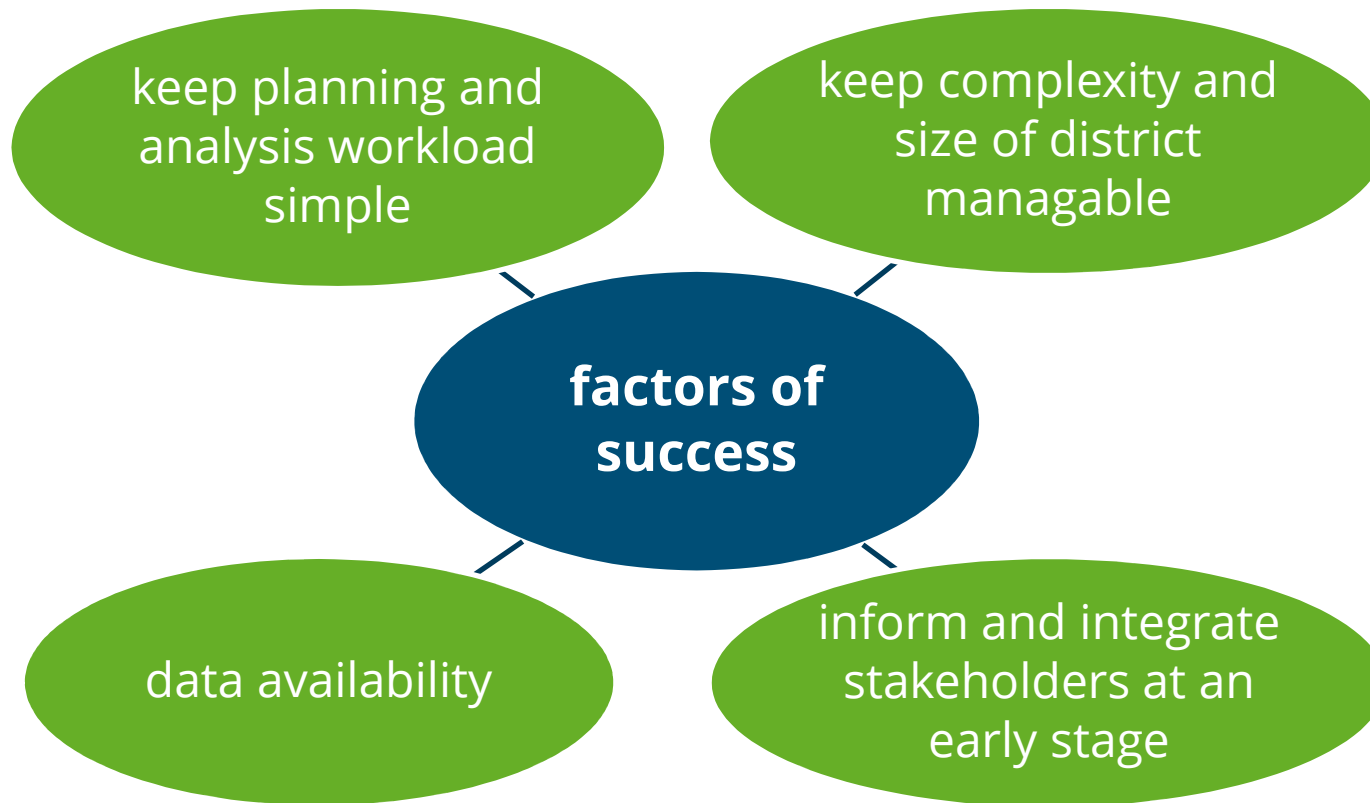
**urban development**

**real estate  
management**

**demographic  
development**

## Factors of success & services

# Key success factors for urban district concepts



# Services of GASAG Solution Plus



A photograph of a bright sunset over a field of tall grass.	<b>solutions for energy supply</b>	Two circular icons: a green one with a plug and an orange one with a thermometer.
A photograph of puzzle pieces with German words related to energy: "Gas", "Effizienz", "Energie", "Kosten", "Audit", "ök", "salar", "Wit", "Preise".	<b>energy consulting, energy management &amp; smart metering</b>	An icon showing a factory and a bar chart, representing industrial energy management.
A photograph of a modern building with the GASAG logo on its facade.	<b>holistic &amp; innovative solutions</b>	An icon of a green car with a charging cable plugged into it.

# Energy services tailored for different business requirements and customer driven



## Examples

### Residential areas



- Multiple energy supply concepts (PV, CHP, Cooling)
- Smart building infrastructure
- Residential Services
- Integrated Metering
- eMobility

### Offices & hotels



- Energy supply concepts
- Energy efficiency solutions (Energy controlling, Energy management)

### Hospitals & clinics

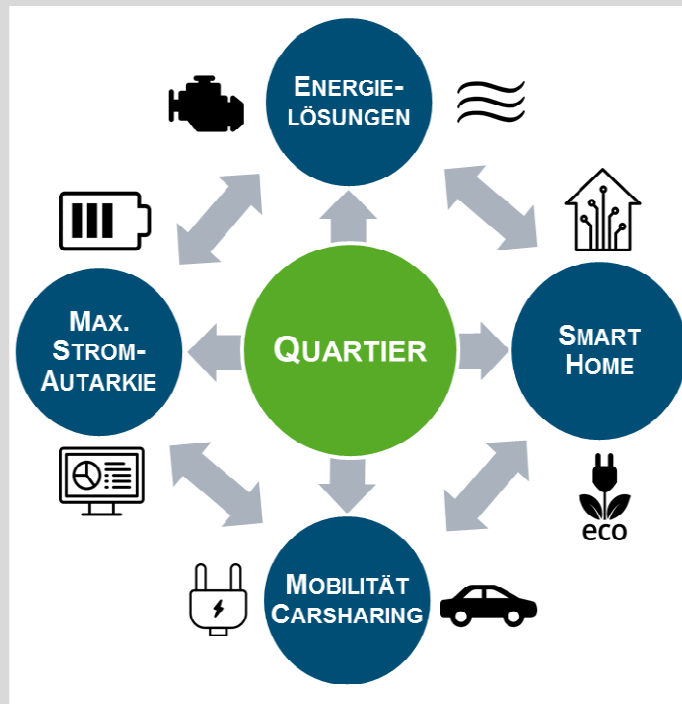


- Facility contracting
- Decentral energy solutions
- Energy efficiency solutions (Energy controlling, Energy management)
- Virtual power plants

# Smart concepts for urban districts – best practice @ EUREF



## Integrated energy solutions



## EUREF-Campus Berlin



### Energy supply

- supply of heat, cold and renewable CHP power
- biomethan CHP (450 kWel)
- target: sustainable energy supply for 25 buildings (165.000 s.q.)



### Micro smart grid

- combining & controlling of the gas-, heat- and power-sectors
- interconnecting gas and district heating grid via power-to-heat, CHP & power-to-gas

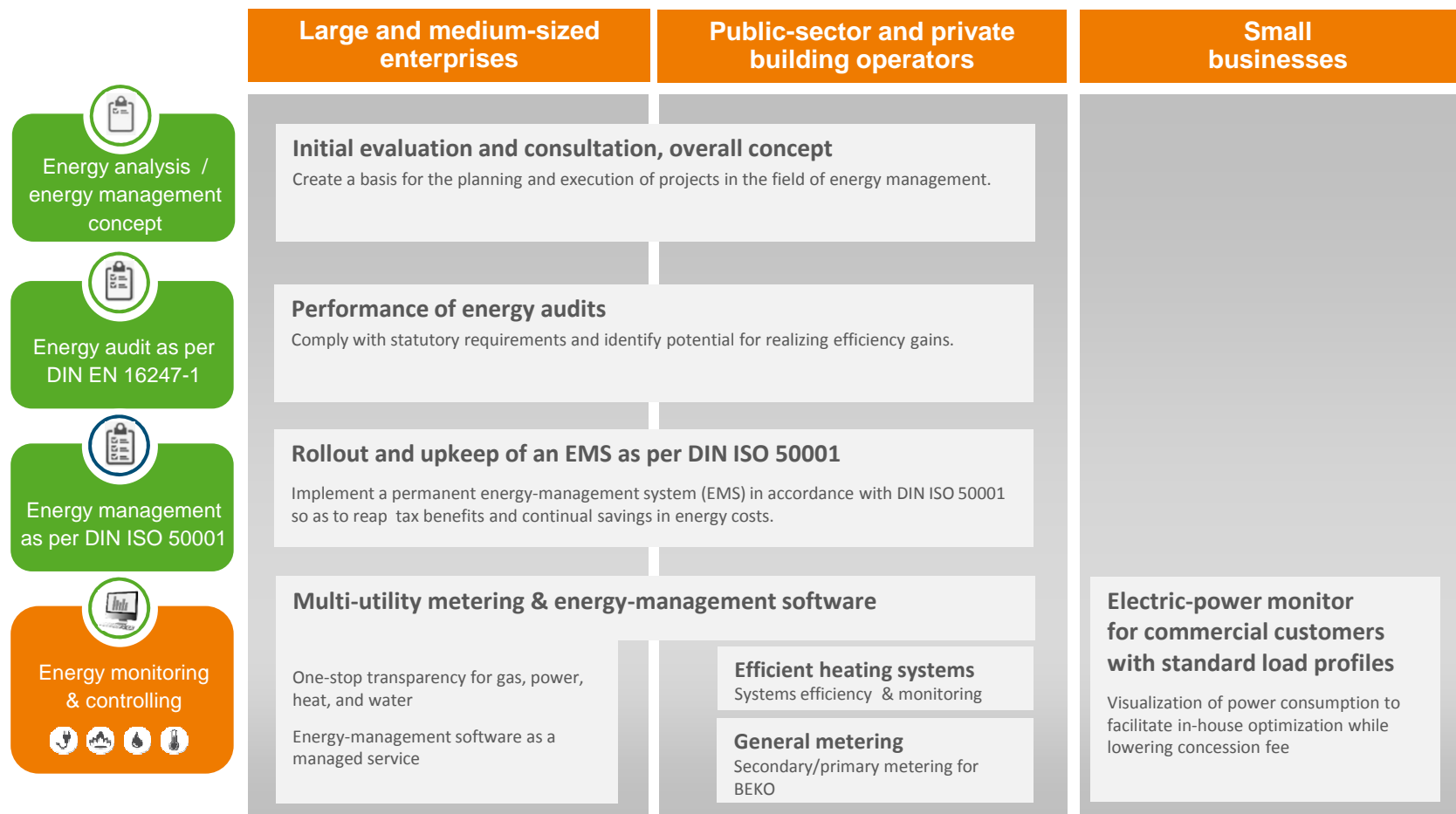


## CO2 neutral energy supply

# GASAG's portfolio of energy-management services



Customer-specific solutions for individually configured projects



# Energy monitoring and controlling



## Metering concept and consulting

- ✓ Identification of customer requirements
- ✓ On-site inspection
- ✓ Development of the metering concept
- ✓ Consulting



## Metering equipment

- ✓ Metering technology for power, gas, water, heat, and heating costs
- ✓ Communication gateways



## Software

- ✓ Data aggregation
- ✓ Data preparation & editing



## Technical integration

- ✓ Installation/upgrade of metering equipment
- ✓ Setup and performance of remote readouts
- ✓ Operation and fault management



## Implementation as part of the EMS

- ✓ Setup and upkeep of the overall system
- ✓ Analyses and energy reports
- ✓ Recommendation of an action plan and support for its implementation

- ✓ All relevant indicators can be read at a glance
- ✓ Allows optimization potentials to be identified
- ✓ Provides a valid basis for investment decisions



**GASAG integrates and operates all the sub-components of a comprehensive, ready-to-use solution for customers.**

# Summary



- No standard solutions – each district is different
- Coordination is important – social, financial and environmental interests may diverge from each other
- Digital solutions will help urban districts to become independent energy supplier
- Learning from each other – globally, there are many urban projects → we should bring together our experiences



# Thank you for your attention!

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