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Energiewende and urban value benefit:

Testbed pilots for disruptive
IoT energy efficiency solutions
in quarters



Associated



Power energy	Heating energy	Waste	Media	Water
<p>Energy harvesting applications</p> <p>wind to heat warm water storage</p> <p>Safe consumption transparency app</p> <p>Gridlab evaluation</p>	<p>Hvac – upscales single room management</p> <p>Infrared applications</p> <p>Safe consumption transparency app</p> <p>Block heating</p> <p>Solar integration</p>	<p>Residual waste – hand waste sorting</p> <p>Residual waste – rfid-driven sorting</p> <p>Waste removal vans route optimization</p> <p>Waste billing systems</p>	<p>Glas fibre connected smart meter gateways</p> <p>Work @ home</p> <p>Mobile app energy efficiency for - tenants B2C - for building owners B2B</p> <p>Chiptechnology with pre provided energy harvesting management</p>	<p>Safe consumption transparency App</p> <p>Sewage water transparency app</p> <p>Energy harvesting decalcification</p>

Five application partners in the German Capital Region:

Three small/medium housing corporations

One medium municipal housing company

One big municipal property administrator (ppp public-private partnership)

- **330 flats with 330 flats in reference buildings**
- **330 flats representing building standards from 1955-1980**
- **330 flats reflecting building standard forms of about 220.000 flats**
- **tenants receive annual recurrent costs (Abrechnung warmer Betriebskosten)**
- **enquiry heating consumption data by third parties with proprietary protocols**
- **bill of costs heating individual consumption mostly in annual periods**
- **no transparency of heating consumption in the meantime**
- **bill of costs power energy mostly in monthly periods**
- **transparency of power consumption only in case of availability by provider**
- **status of technological facilities: very heterogeneous**

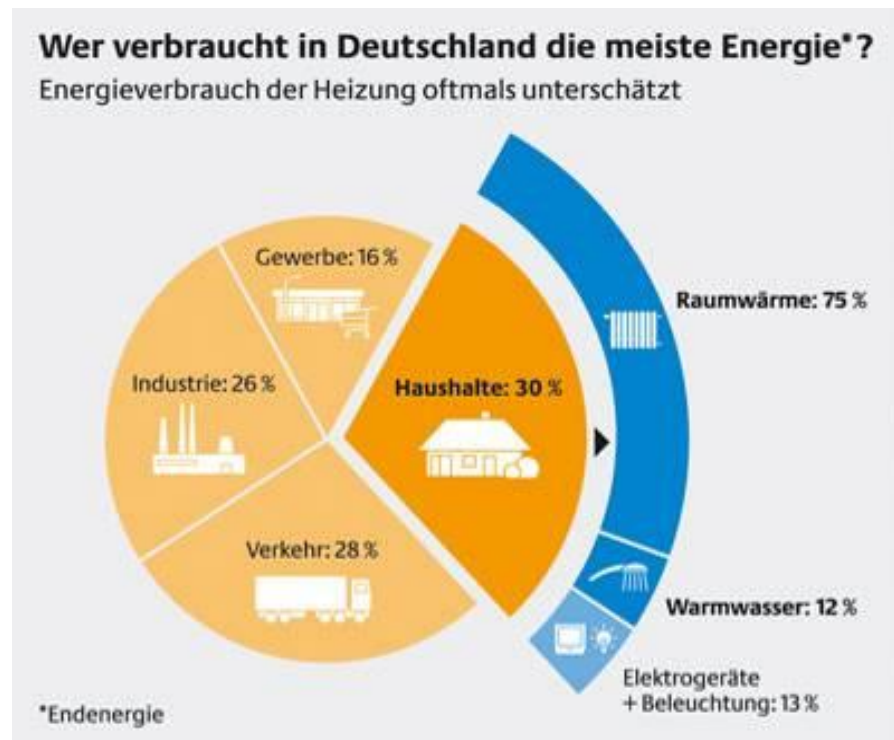
Heating energy with enormous potential savings

30% of the energy the various apartments

75% of the end energy consuming households for heating, they are thus responsible for 15% of CO2 emissions in Germany

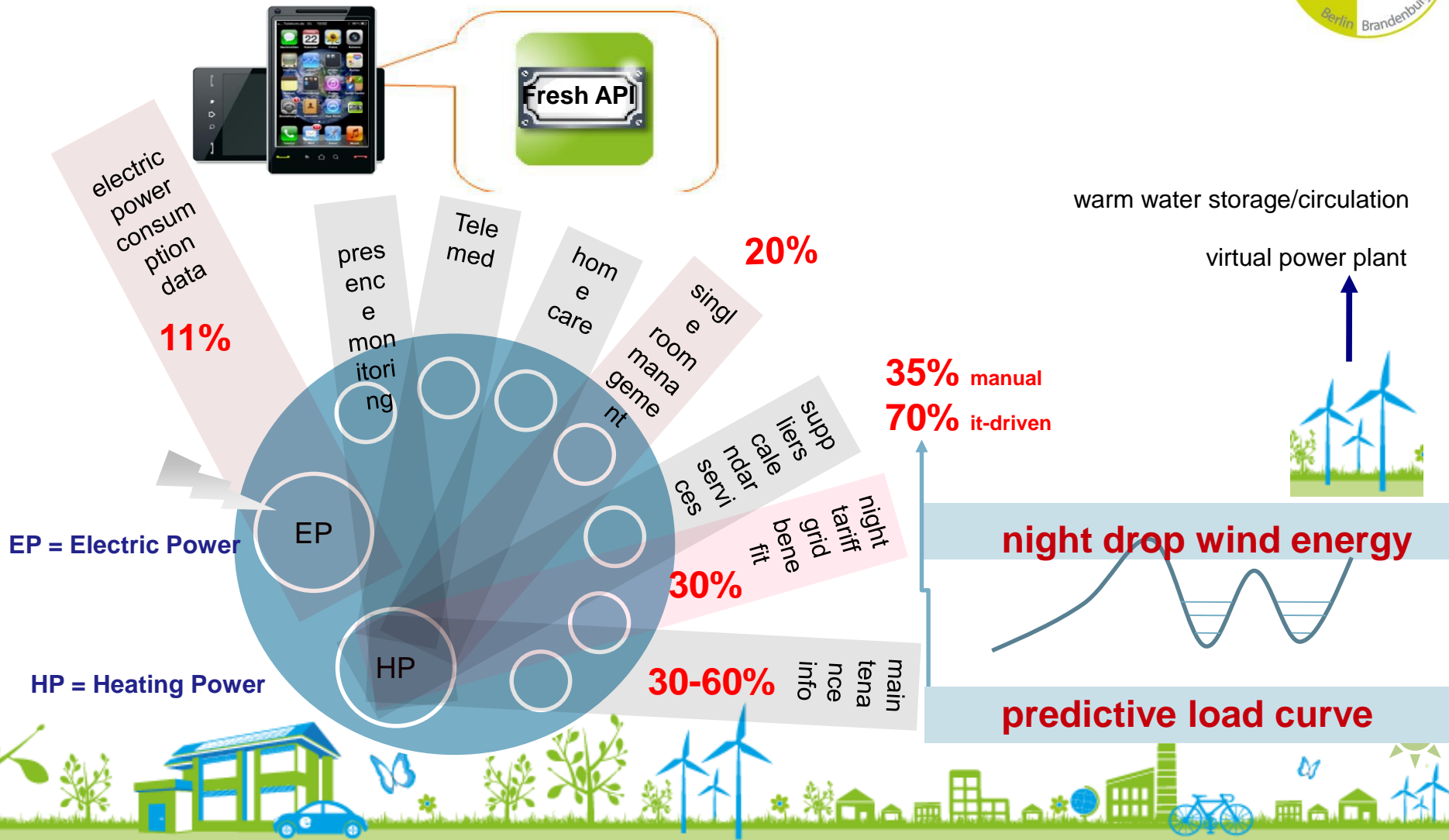
The cost of energy has doubled in the last 10 years and will continue to rise

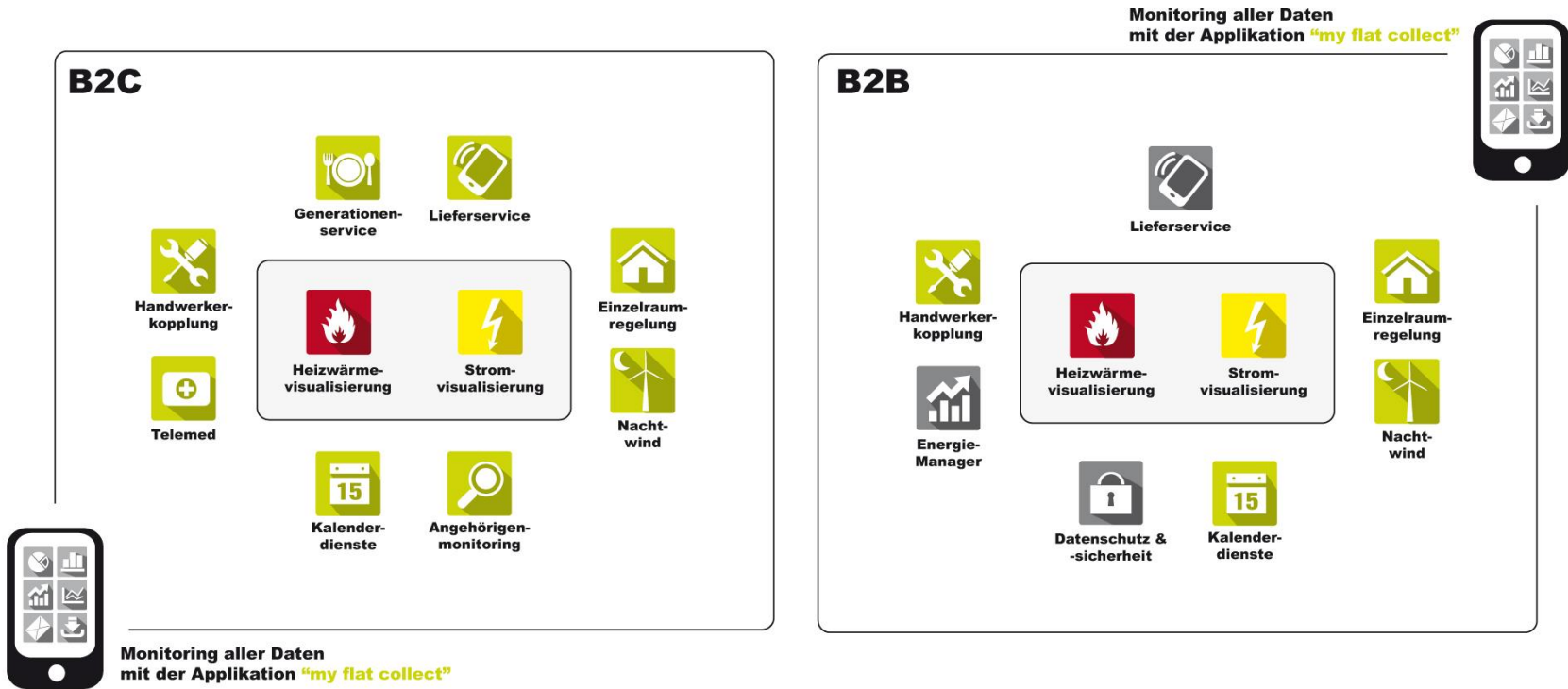
Residential buildings, are due to their high energy efficiency potentials in the focus of the political debate on the energy turnaround



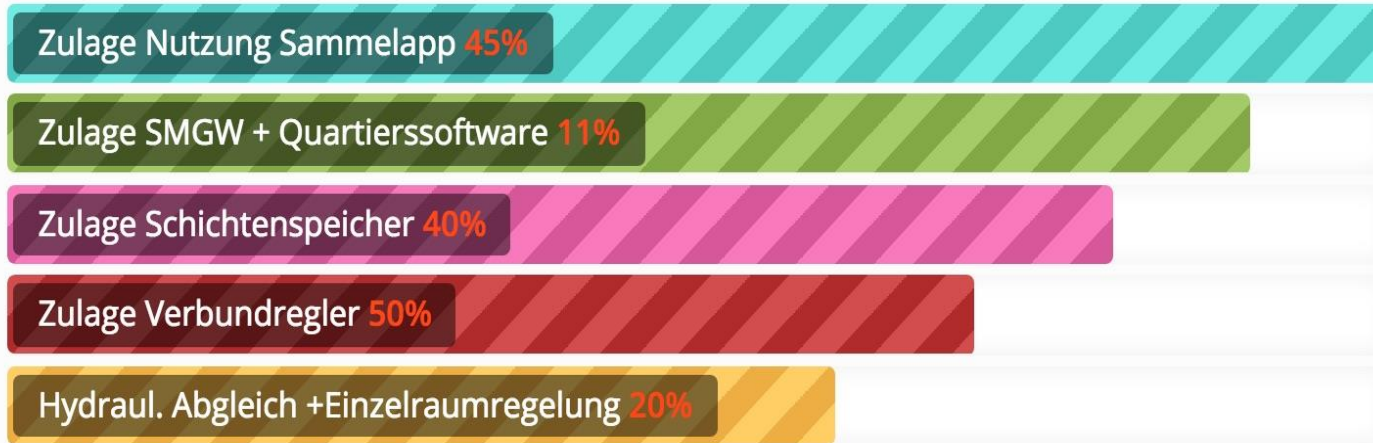
Source: German Energy Agency (dena) / energy data BMWi, 2011

CROWD CLIMATE TOOL: Collection app financed by benefits from energy efficiency

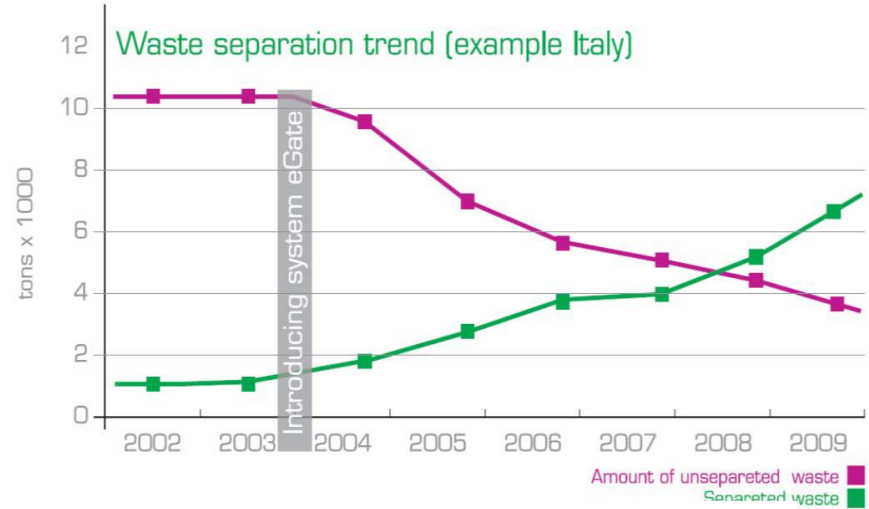




Experienced drop rates



METROPOLITAN SOLUTIONS: up to 70% less rest waste in densed areas

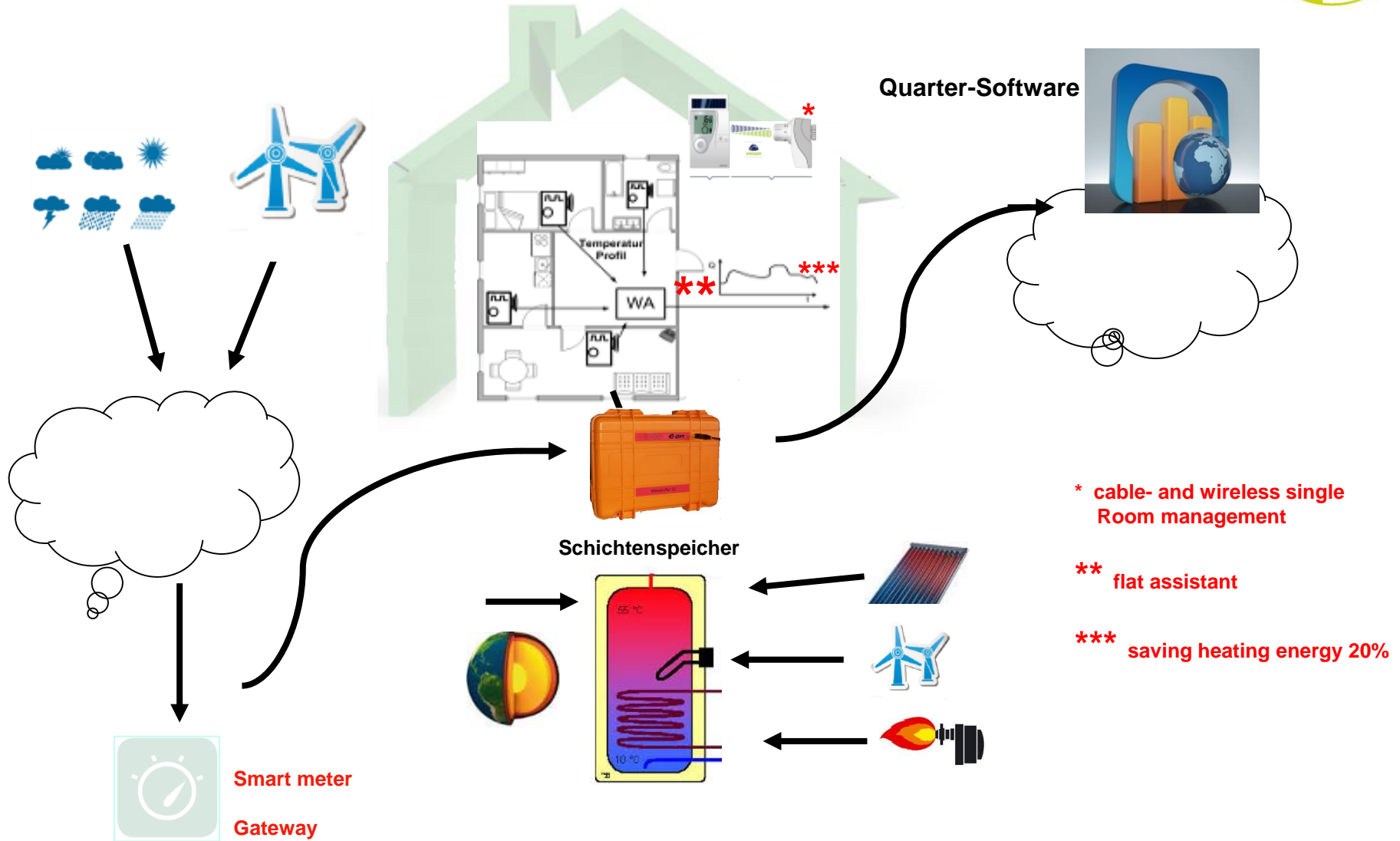


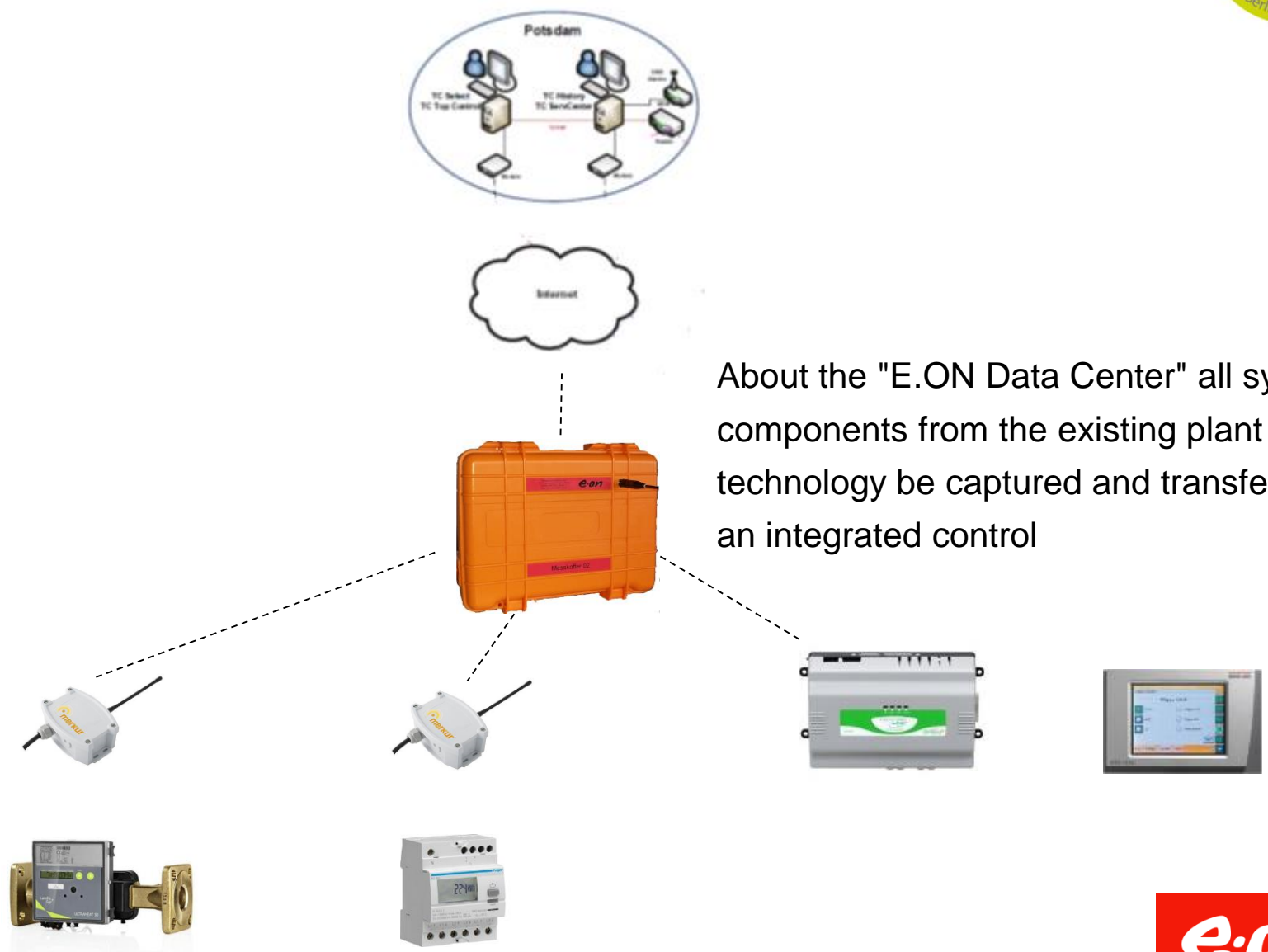
Person
Time
Quantity
Waste Flux
Position
Emptying

- OPTIMIZED Container Positions
- OPTIMIZED Container Volumes
- OPTIMIZED Waste Truck Routes
- OPTIMIZED Recycling Quantities
- OPTIMIZED Noise Pollution
- OPTIMIZED Carbon Footprint
- OPTIMIZED Workers Health Rate

SYSTEM FACTSHEET

„Efficiency Box“ (Verbundregler)





About the "E.ON Data Center" all system components from the existing plant technology be captured and transferred to an integrated control





Energy Efficiency

We guarantee the energy and CO₂ savings for the customer sites – from the concept to daily Operation & Maintenance



Flexibility & VPP

Aggregate capacities of distributed energy and assets and bring them to the markets



**Understand
customer needs and
reveal opportunities**

Distributed Energies

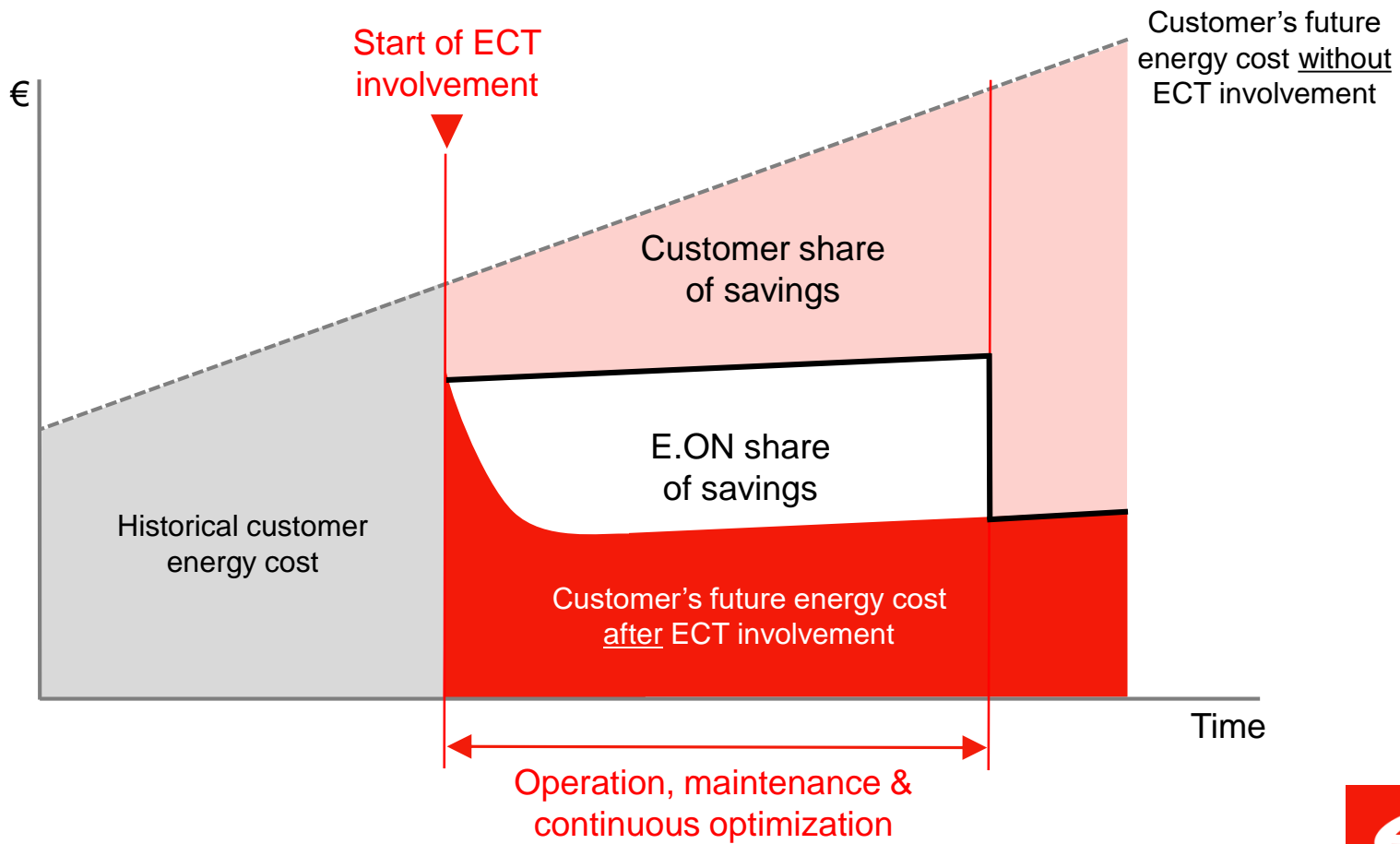


Electricity, heat, steam, cooling and compressed-air for customer sites – also in island mode, without grid







Supporting Process-IT

Design, implementation and day-2-day management of an agile platform to provide services – including data analytics

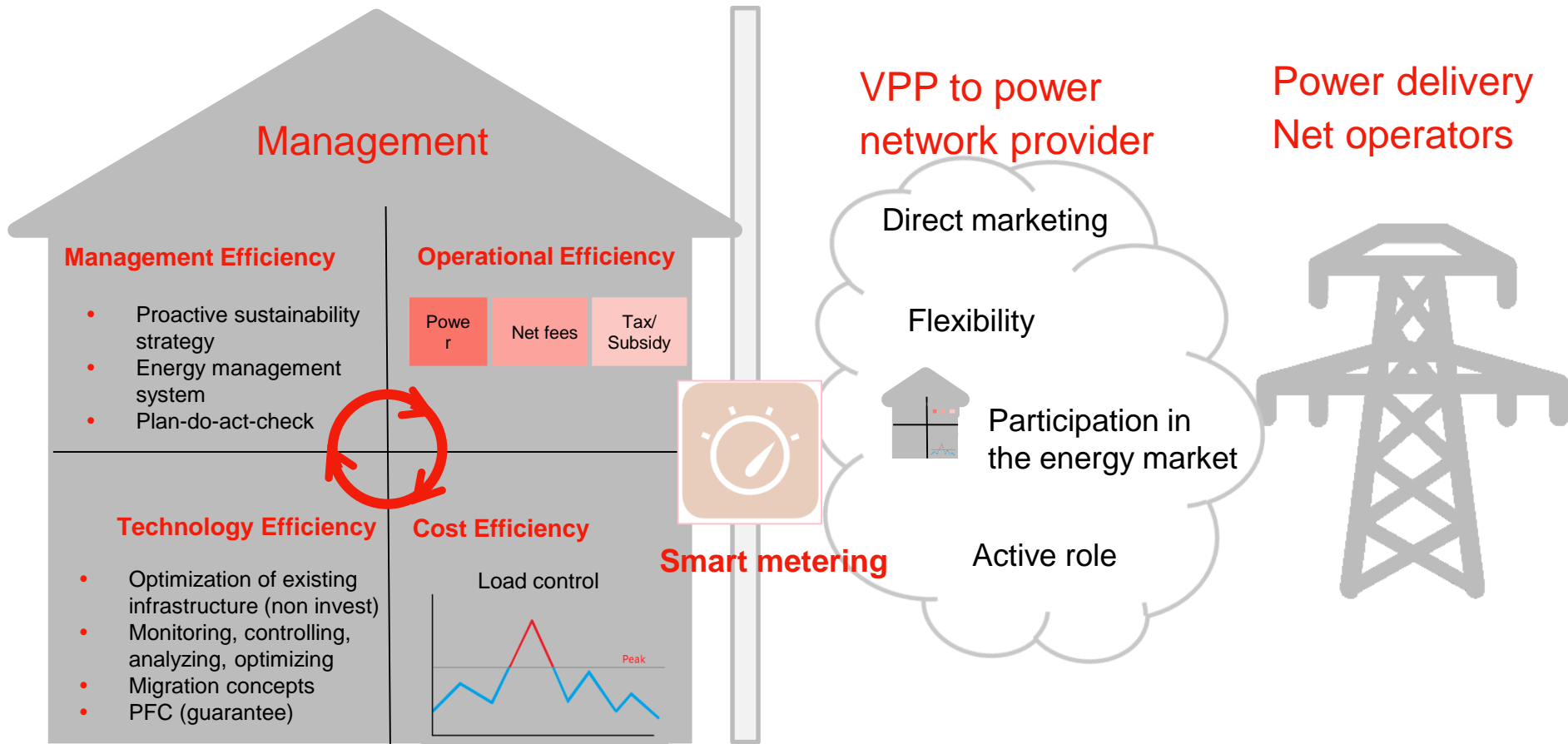
Life-time energy and operating cost savings



Energy consumption transparency (ECT) optimizes energy-consuming and energy-generating assets

Customer facilities (Examples)		Energy assets	ECT levers
Retail stores 	Distribution centers 	<ul style="list-style-type: none"> • BEMS • Lighting systems • HVAC systems • Boilers • Compressors • Electrical motors • Chillers • Air handling units • Diesel generators • CHP plants • Gas / steam turbines • ... 	Operating efficiency
Office buildings 	Production facilities 		Cost efficiency
Hospitals 	Data centers 		Technical efficiency
			Capital efficiency
			Strategic focus

It's about connecting energies



Open for co-operation



We look for partners

**EU-Call "EE-7-2016/2017"- behavioural change
toward energy efficiency through ICT“**

Thank you for your attention

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