

A photograph of a modern, multi-story building interior with a large red circle overlay. The building features glass railings, concrete pillars, and a bright, open space. The red circle is semi-transparent and contains white text.

Air quality and Smart Cities

Projects of RheinEnergie AG

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EU-Project GrowSmarter

GrowSmarter Call – Smart Cities and Communities



- Holistic integration of
 - Energy,
 - Mobility and
 - ICT

in huge lighthouse projects (Barcelona, Cologne and Stockholm), being the first of it's kind (first mover risk)

- It is an implementation project
- The „Follower Cities“ will replicate different measures and profit from the experience of the lighthouse cities

EU project GrowSmarter

Project area – WP 2 - Energy- Stegerwaldsiedlung



EU project GrowSmarter

WP 2 - Energy- What are our goals



- An attractive, clean and CO₂ reduced area
- Energetic refurbishment (heat and electricity) of inhabited buildings
- Creating a „nearly zero Emission“ traffic zone with several charging station for electrical cars
- Produce energy where it is used – introduce an intelligent energy management system „Siedlungsmanagement“ to maximize the usage of the electricity produced by the solar panels on the roof – also connected to the VPP of RheinEnergie

EU project GrowSmarter

WP 2 - Energy - Energetic refurbishment



- Increasing the energy efficiency by 60% (and more) in the buildings (Years of construction 1960 – 1962 and 33.529 m² of living space) by:
 - Insulation (facade, roof and basement)
 - Installation of 36 air-water-heatpumps (576 kW)
 - Installation of district heating system for peak load (1743 kW)
- Reduction of the specific energy demand from 130 – 180 to 30 – 40 kWh/m²/y
- Heat contracting (operation by RheinEnergie)
- Planned CO₂ reduction 60-70 %

EU project GrowSmarter

WP 2 - Energy



- Solar panels on all roofs (ca. 5.600 m², 875 kWp)
- Installation of 16 battery storages (approximate capacity 655 kWh, power 210 kW)
- Developing and implementation of the Siedlungsmanagement, a smart holistic energy management system for urban districts
- Common interface with the VPP of RheinEnergie (e.g.to offer balance power)
- Involvement of tenants by offering local solar power within a new tariff and providing Smart Home Systems to reduce the energy consumption by 5-8%
- Installation of charging infrastructure for electrical cars

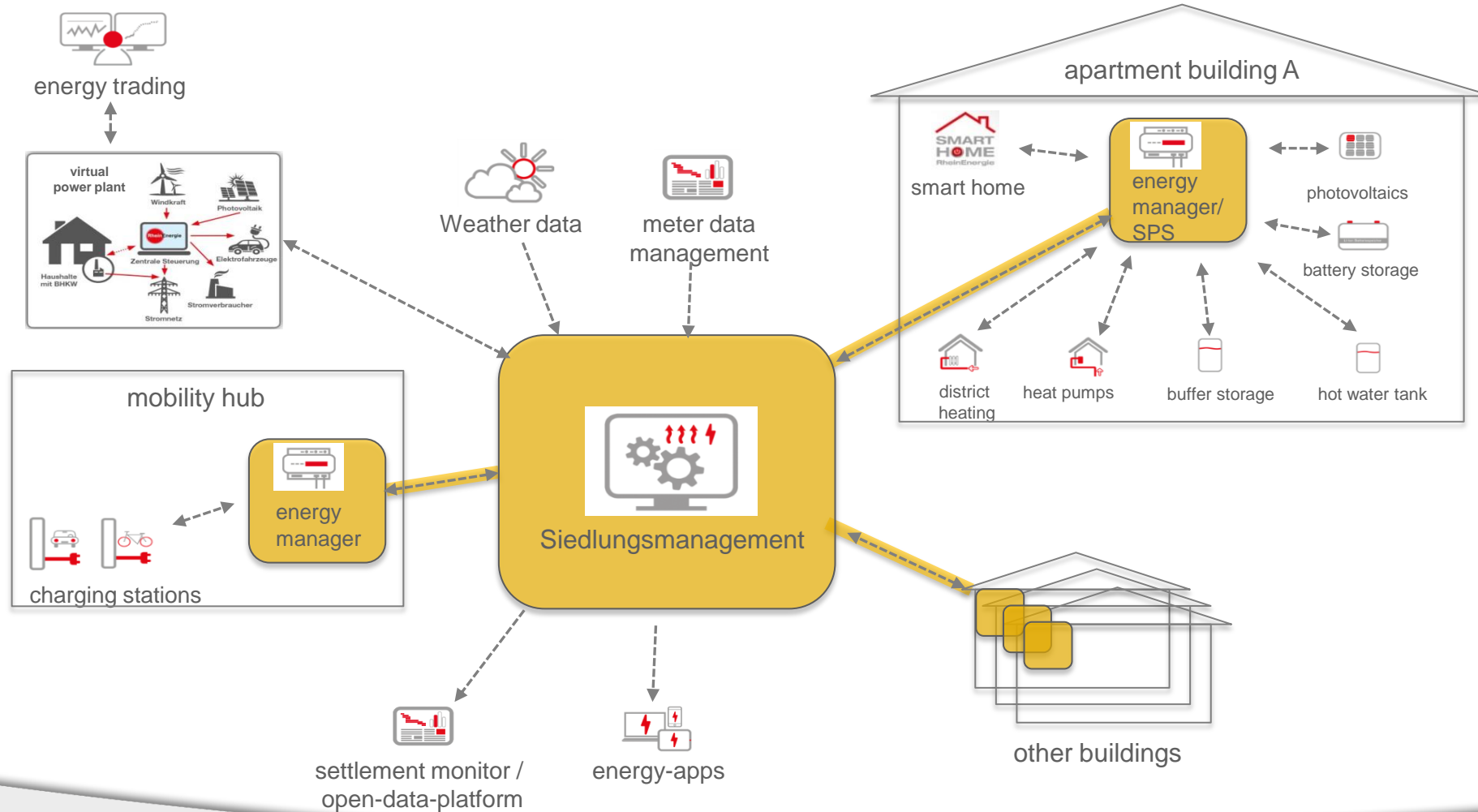
EU project GrowSmarter

WP 2 - Energy



EU project GrowSmarter

WP 2 - Energy - Siedlungsmanagement



SmartCity Cologne

Climate Street

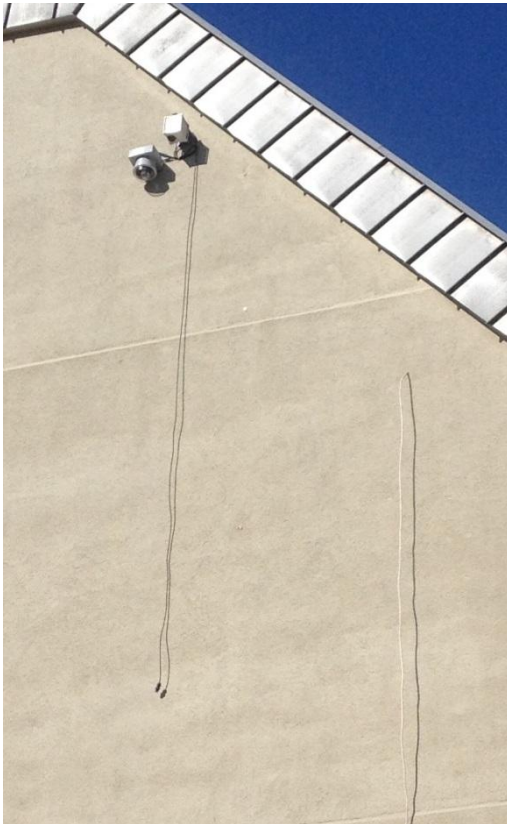


- An exemplary model to show all measures of the project in an effective public way
- Content:
 - LED Street Lighting with up to 70% electricity cost savings
 - Transformer station is refitted with measuring technology
 - Free Wi-Fi hotspot for public use and Data transfer from RheinEnergie projects
 - Environmental sensors (CO₂, Dust, No_x, Noise, ...)
 - Parking Sensors



SmartCity Cologne

Climate Street



- Visualization:
 - red = occupied
 - blue = free
- Overview with all parking spaces
- Application development started

SmartCity Cologne

Ship to Grid



- The tourist-, hotel-, private- and cargo-ships anchored in Cologne now have the chance to change their power and heat supply from diesel to electricity. For this purpose RheinEnergie installed a power supply at the piers of different harbors in Cologne.
- Benefit: Less noise and environmental pollution



Thank you for your attention

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