

Plus Energy

refurbishment of a office building in Vienna

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worldwide first Plus Energy office building

Basic Data:

Technical University of Vienna

350 work places, up to 1.500 students

Type of the building:	office building
Net floor area:	13,500 m ²
Height:	55 m
Project start:	2011
Construction period:	2012-2014



(Source: Technical University of Vienna,
edited by Schöberl & Pöll GmbH)

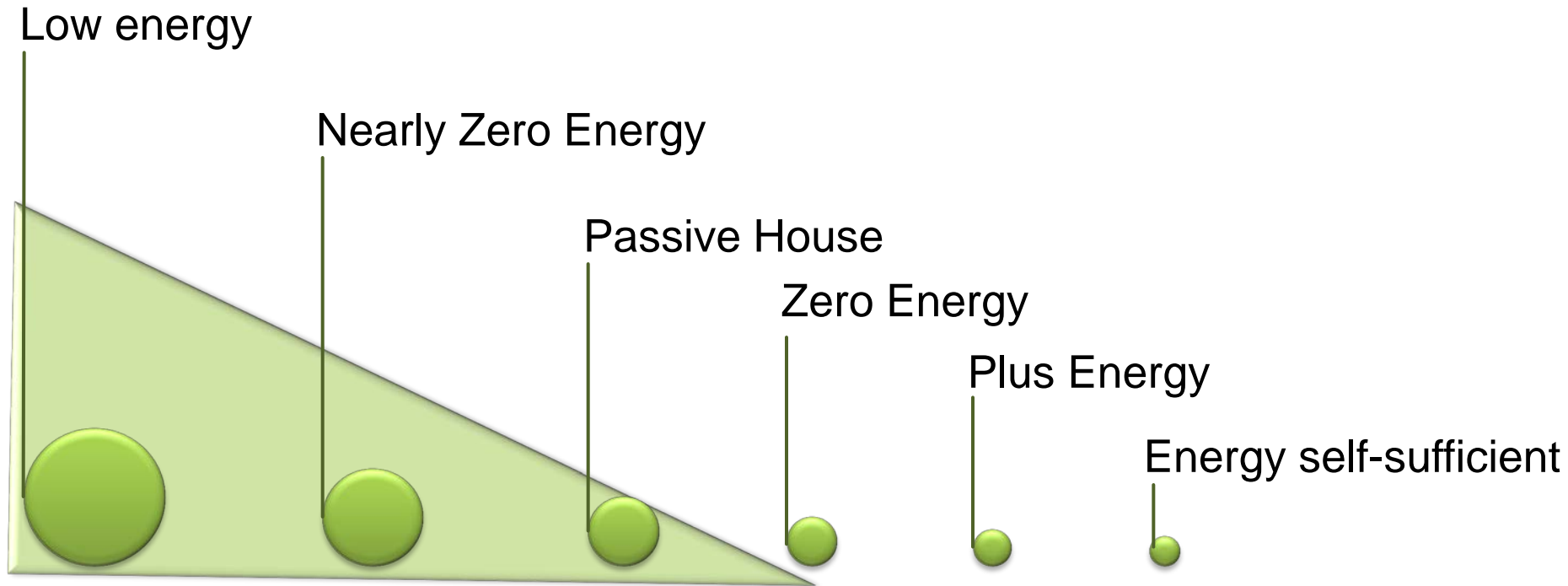
Schöberl & Pöll GmbH

BUILDING PHYSICS and RESEARCH



(Source: Schöberl & Pöll GmbH)

Energy efficient Buildings performance comparison

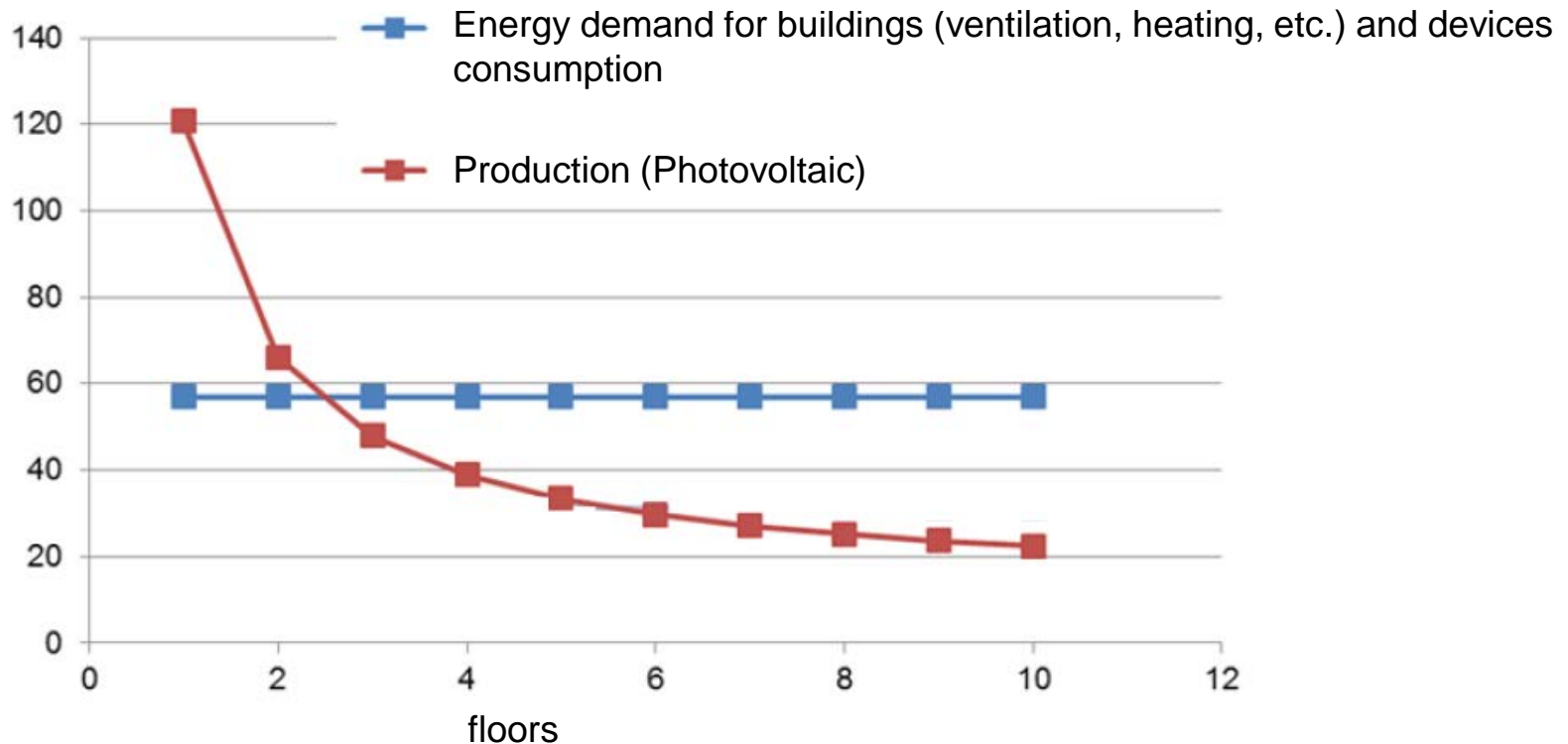


Definition of Plus-Energie-Standard

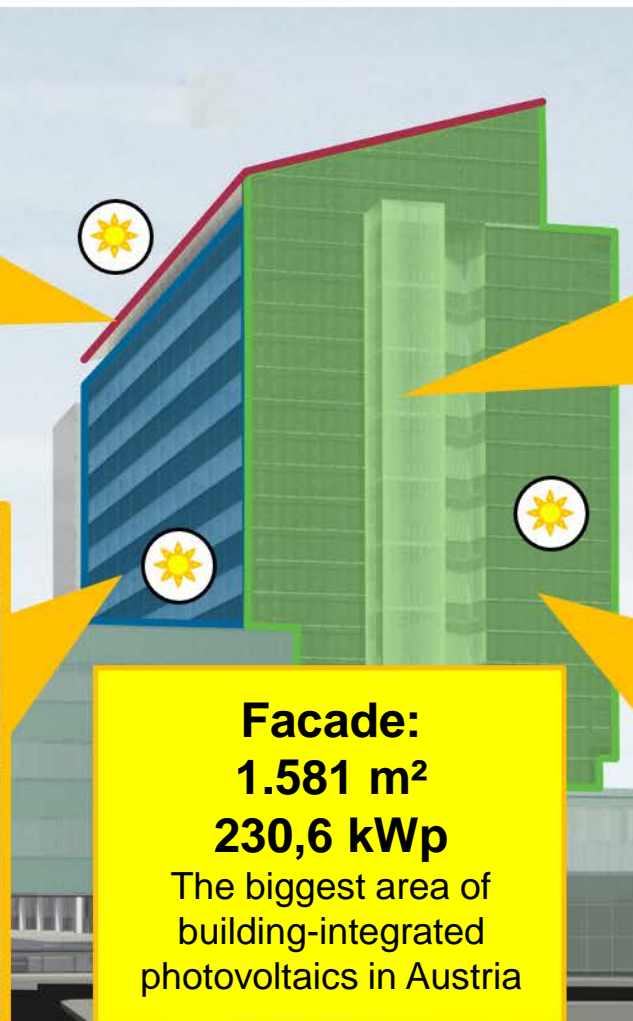
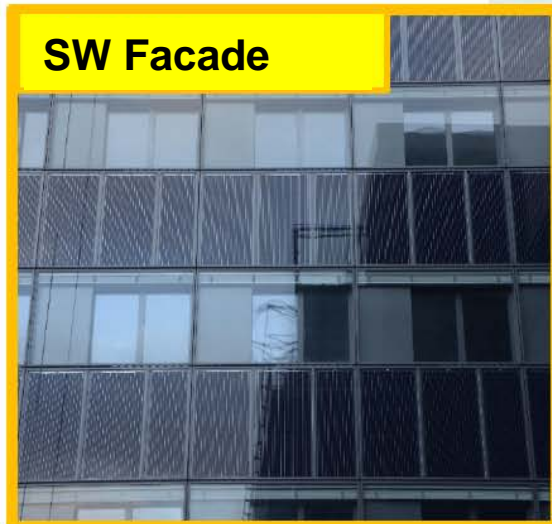
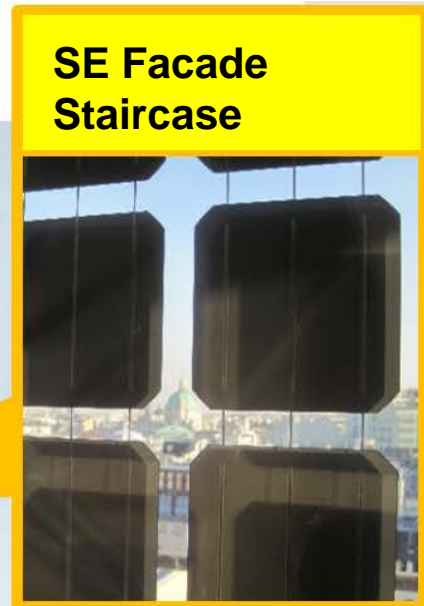
1. The primary energy
2. Annual balance
3. Entire building }
4. Incl. Usage (office equipment, servers, kitchens, telephone systems, standby consumption, etc.)

Technical challenges of the first Plus Energy office building worldwide

Amount of energy in kWh/m²a

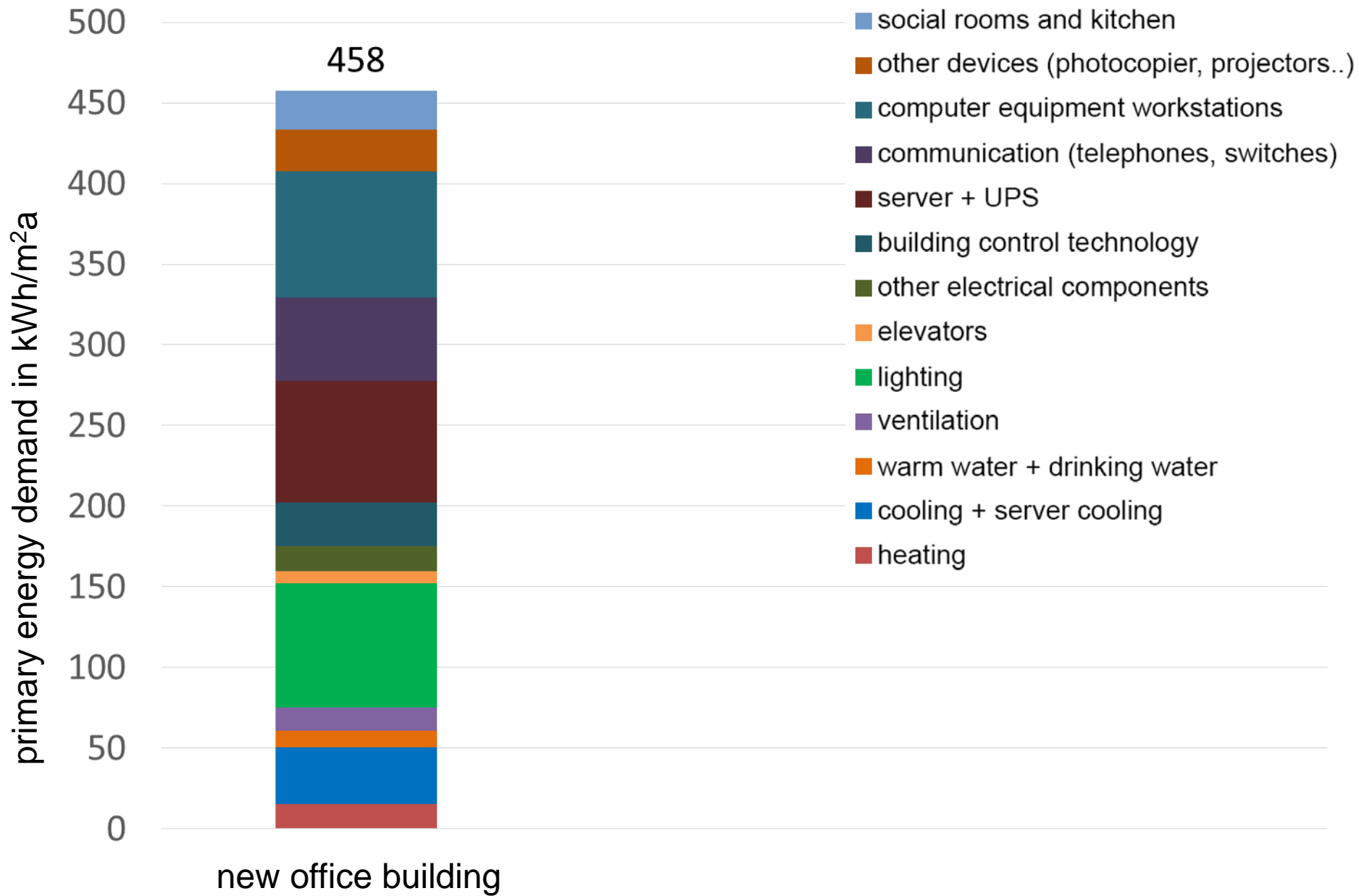


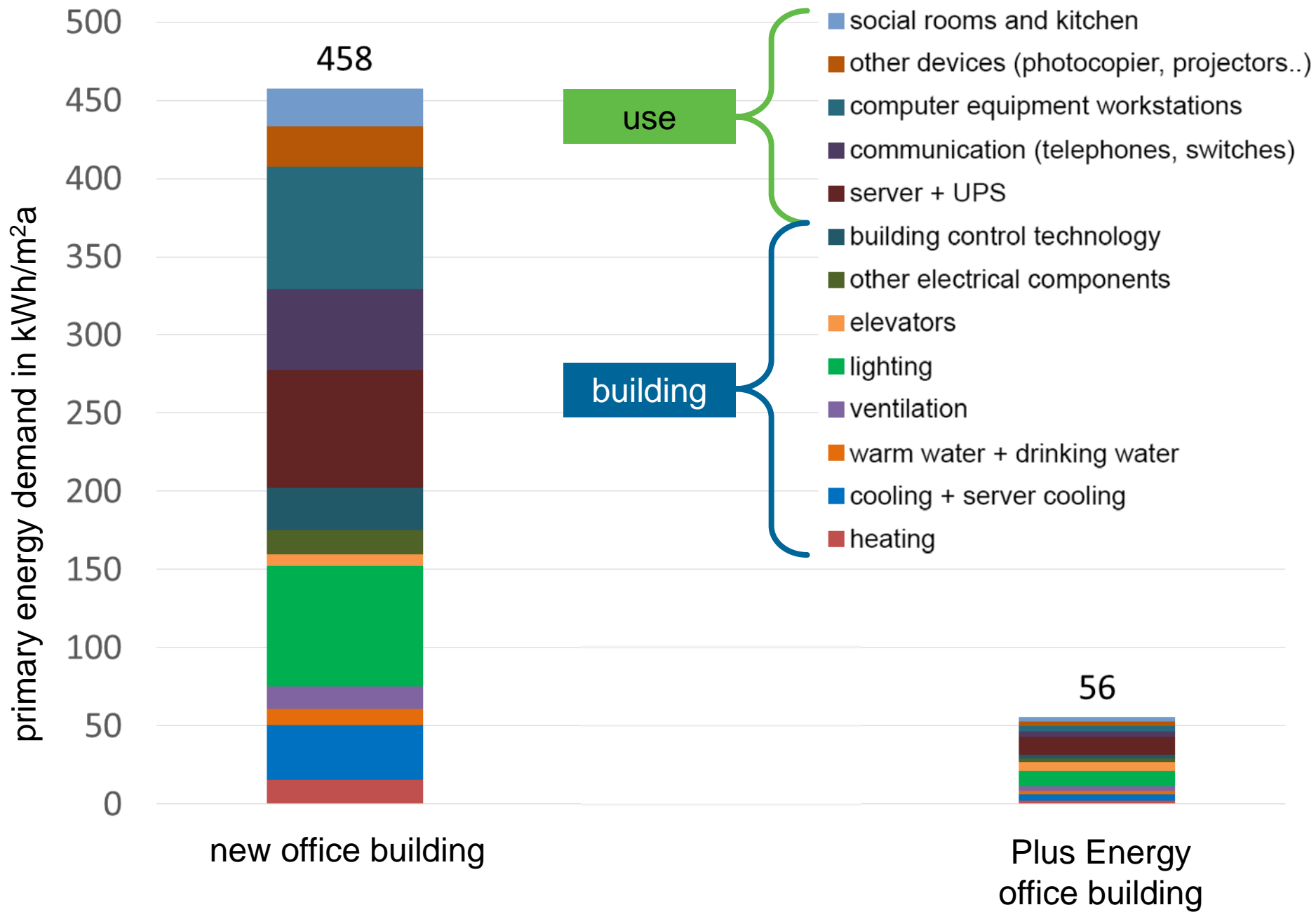
(Source: DI Markus Leeb)

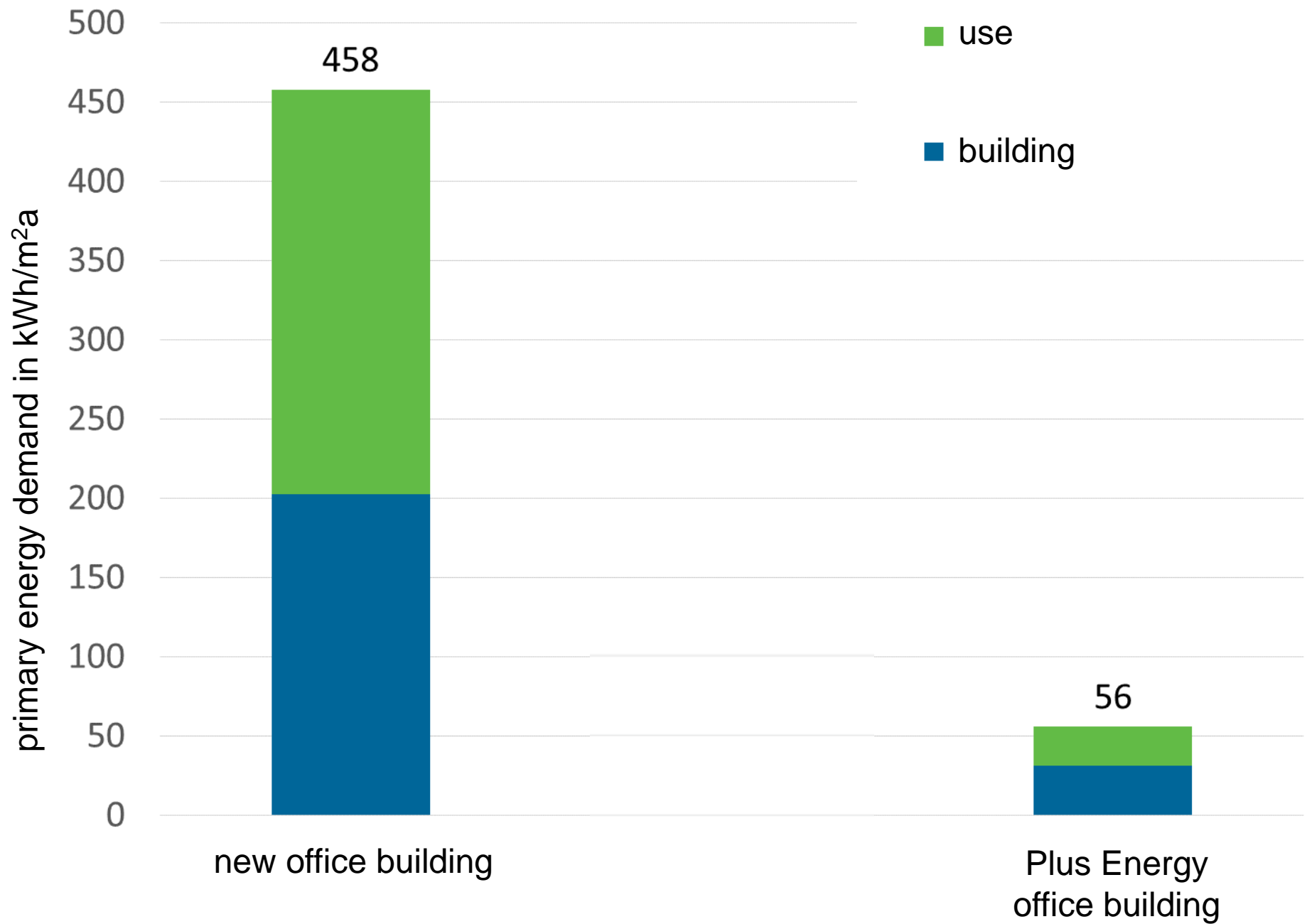


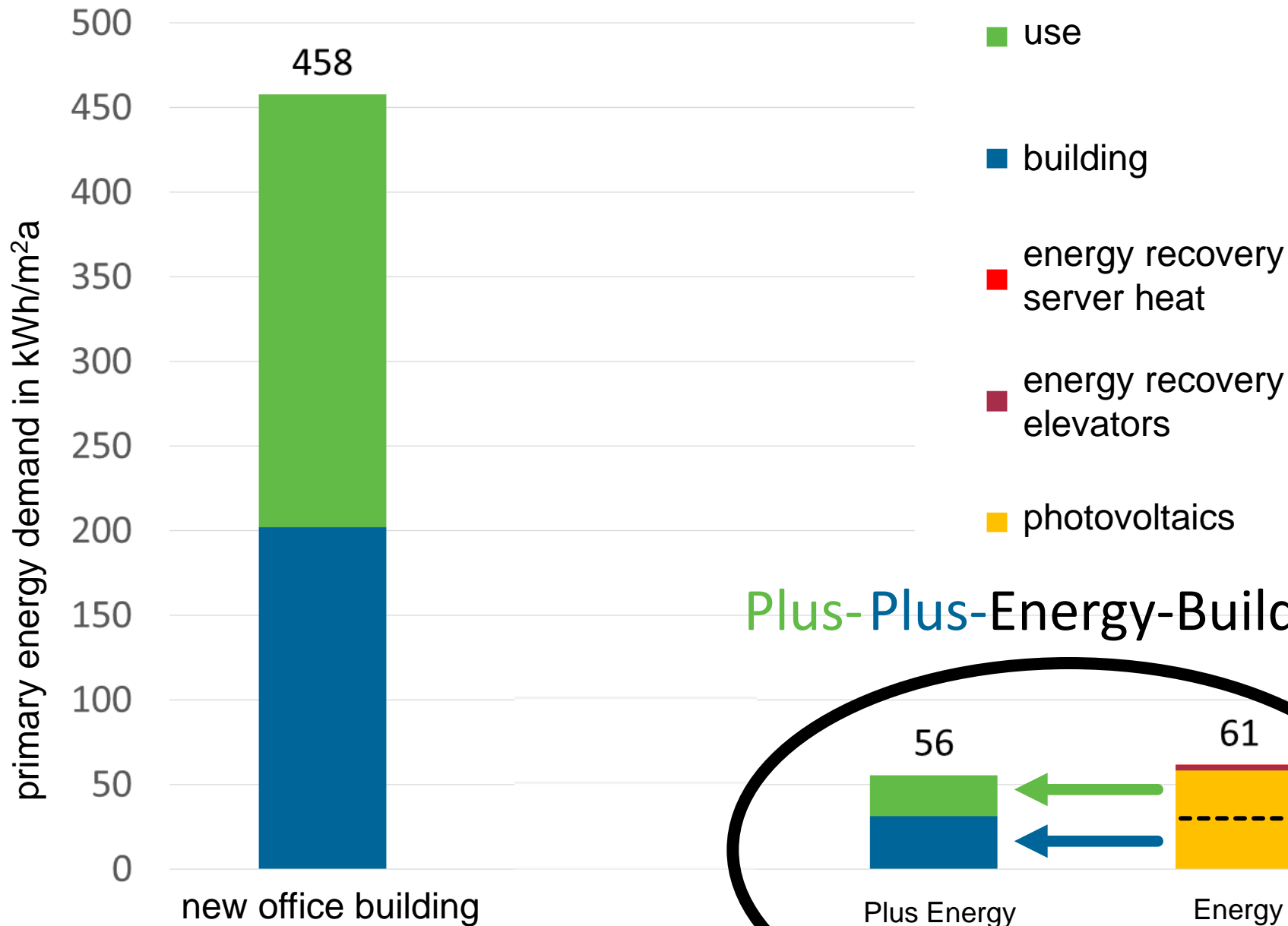
From Passive House to Plus-energy Building

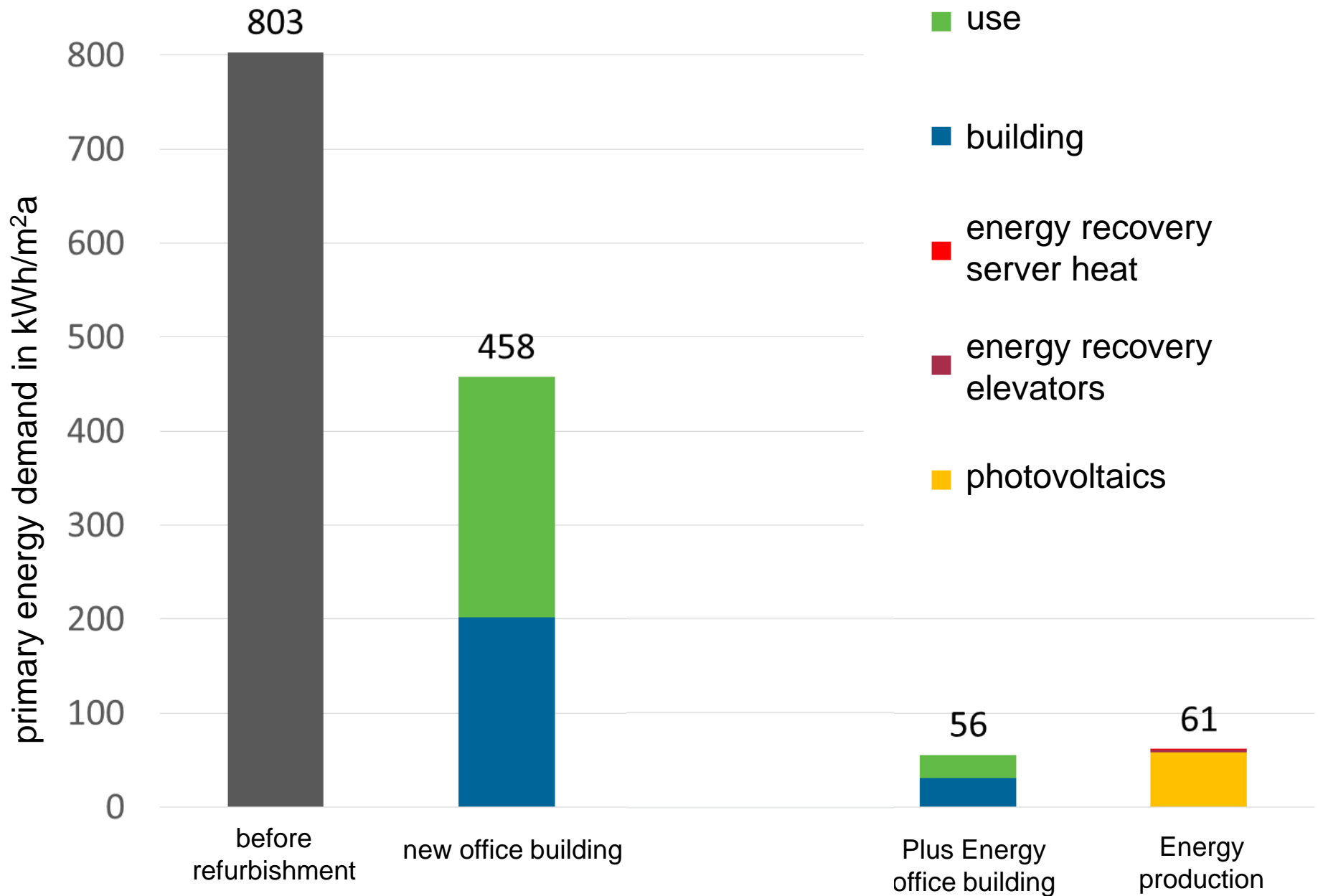
- **Passive House components** (highly insulated and airtight building envelope, ventilation system with heat and moisture recovery ...)
- **Plus energy technology** (photovoltaics, utilization of server and elevator heat), Austria's largest building integrated photovoltaic system
- **Extreme optimization** of energy consumption (energy-saving equipment, lighting optimization ...) more than 9,300 components



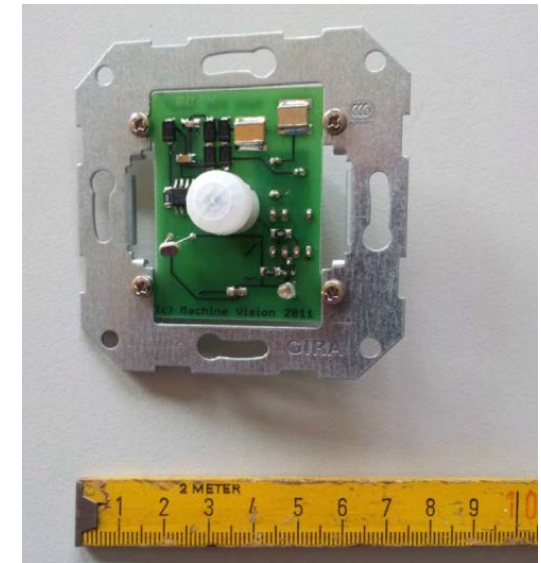
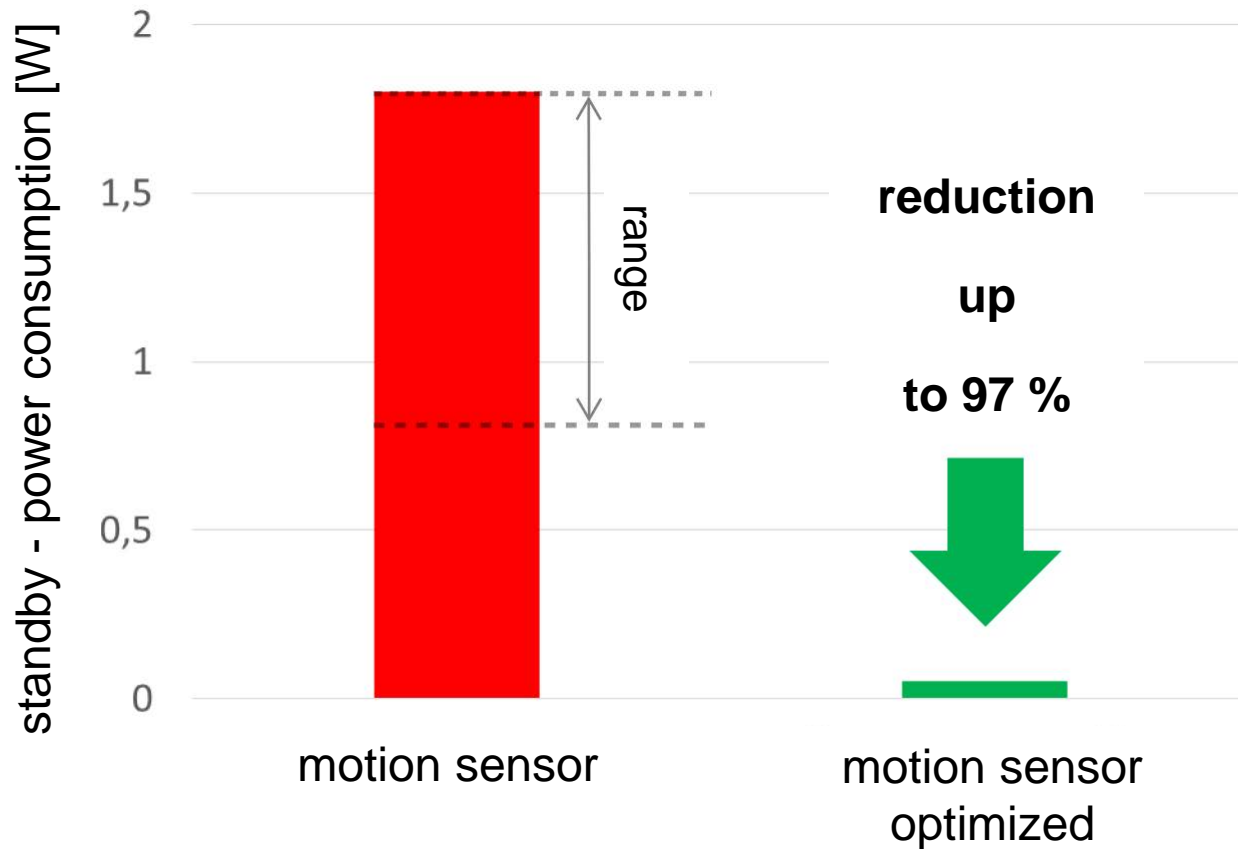






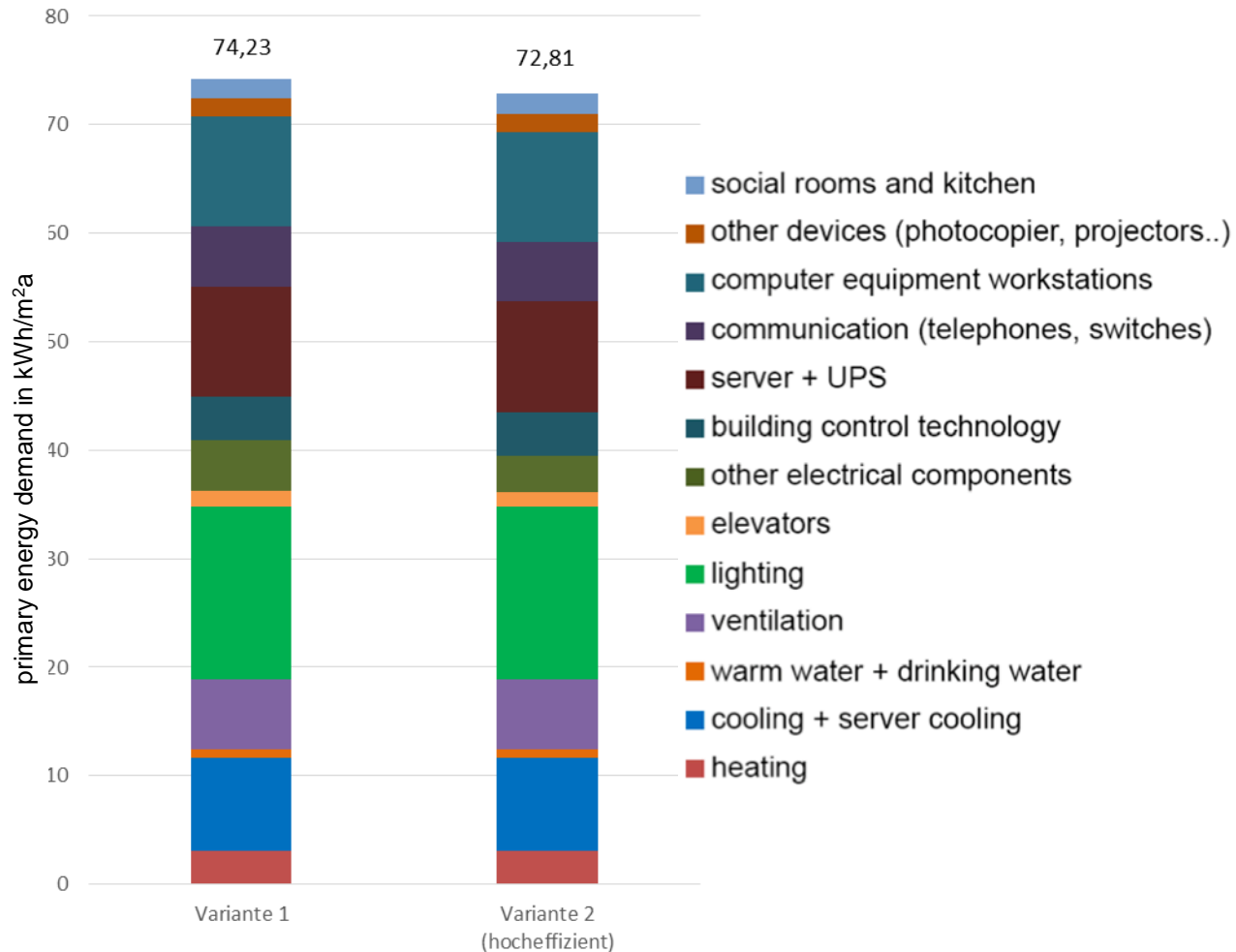


Highly efficient motion sensor



(Source: TU)

Effect of optimized motion sensors:



Plus Energy Buildings

- **Highest indoor comfort** in every climatezone
(cooling, heating, dehumidification)
- Maximum of **energy saving**
- **Plus Energy Extra Costs** amortized in 3 to 7 years