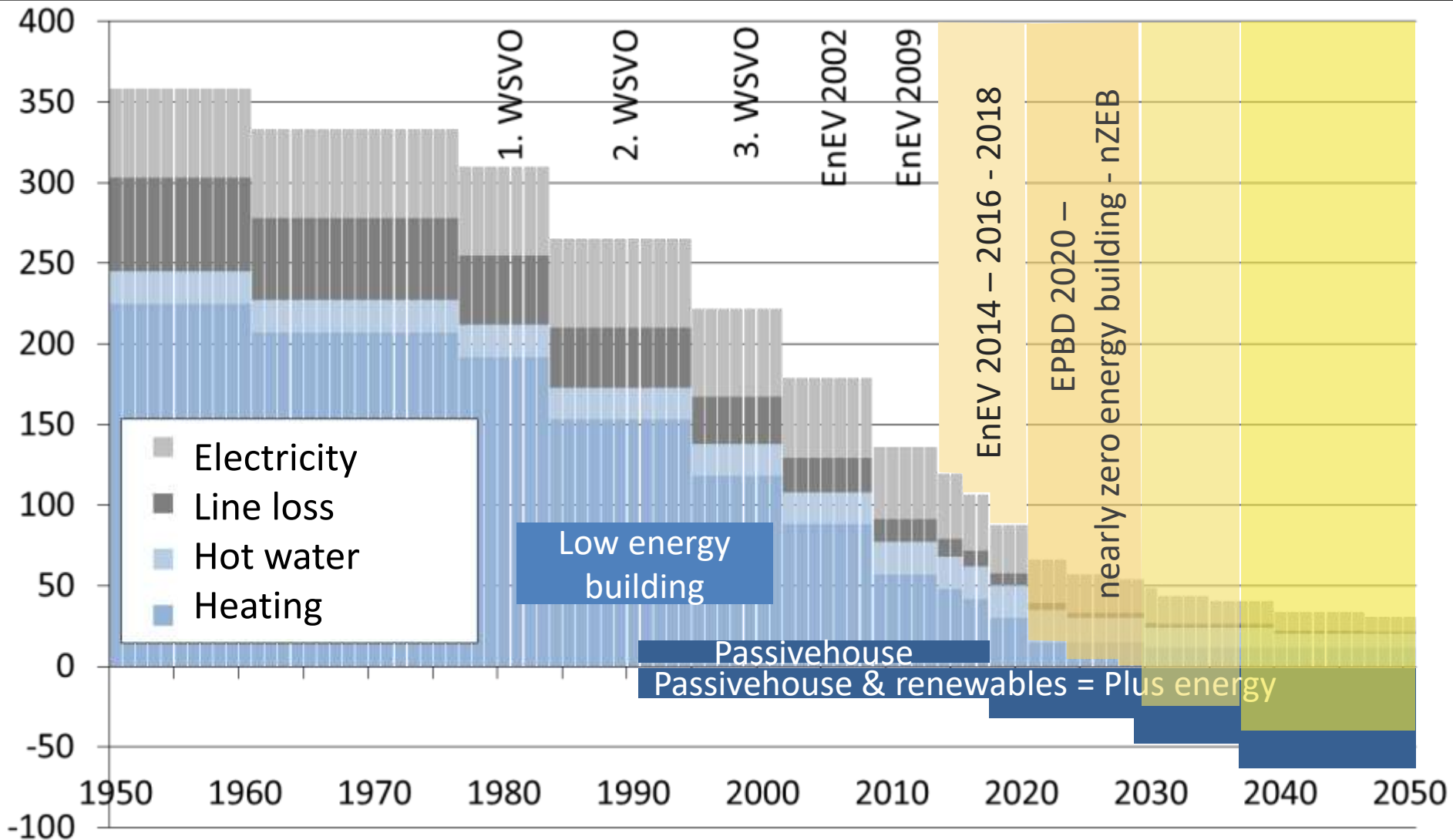


Strategies for Climate Neutrality in the Building Sector up to 2050

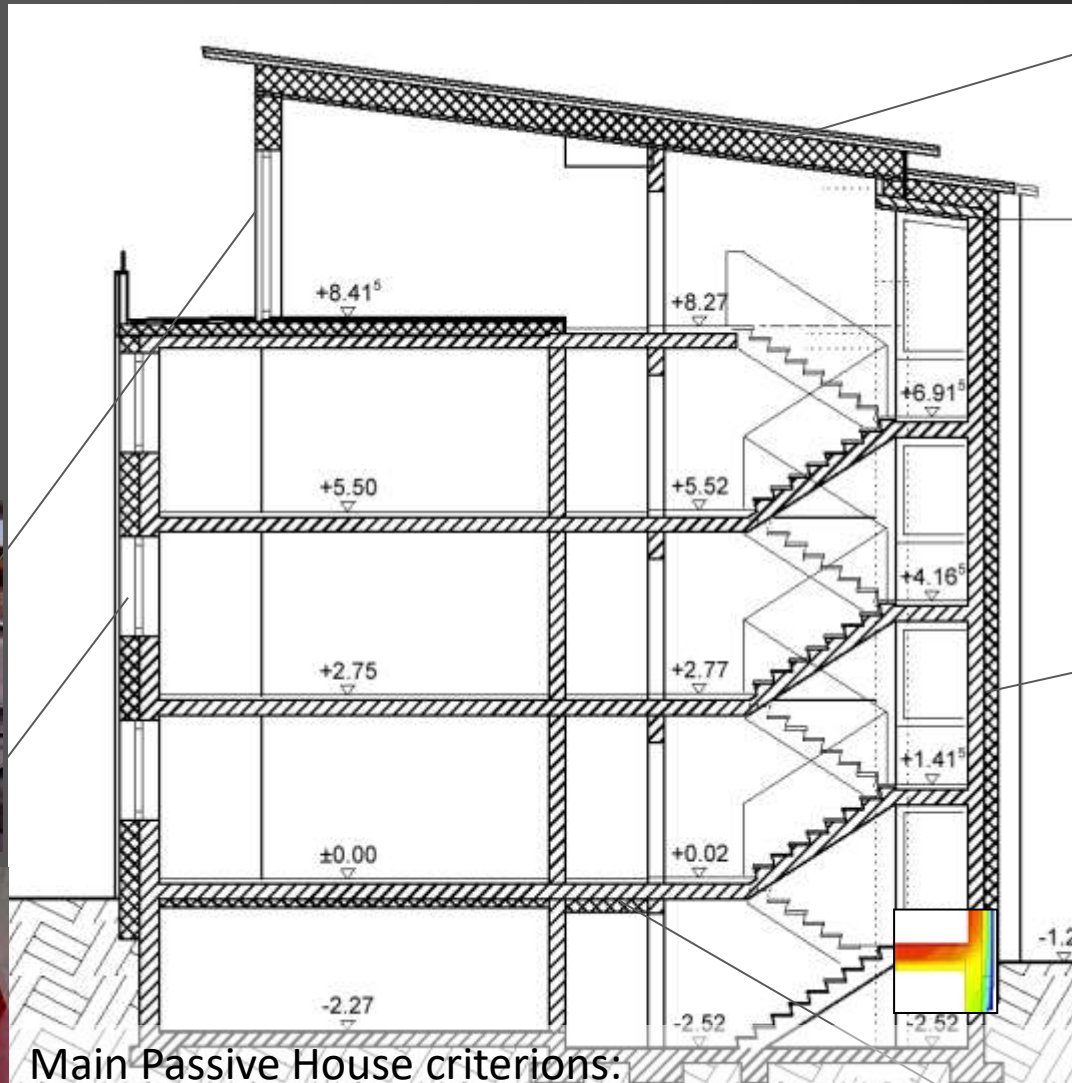
Dr. Burkhard Schulze Darup
Rotterdam, 8. März 2017



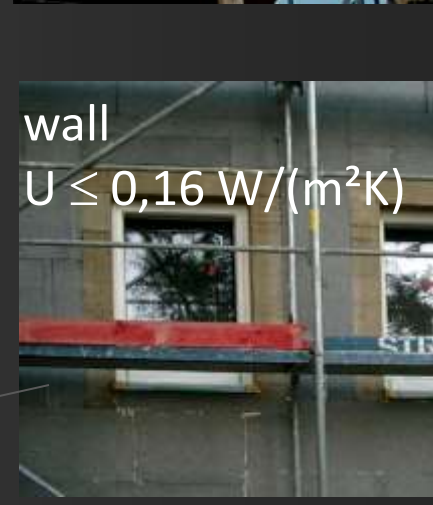
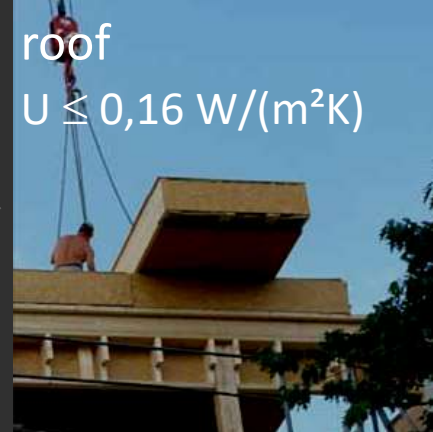
Development of energy efficiency in Europe



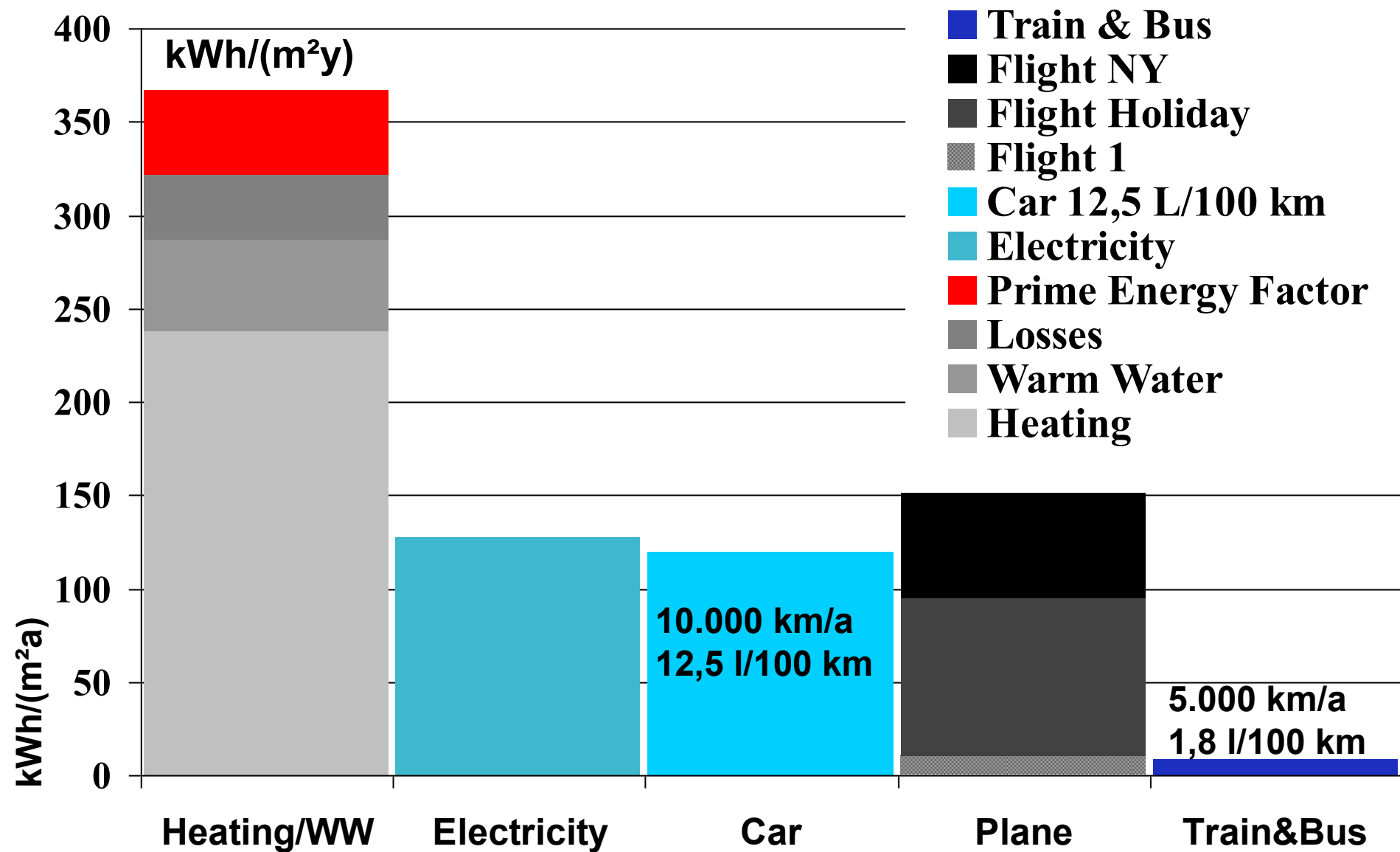
Efficiency Components



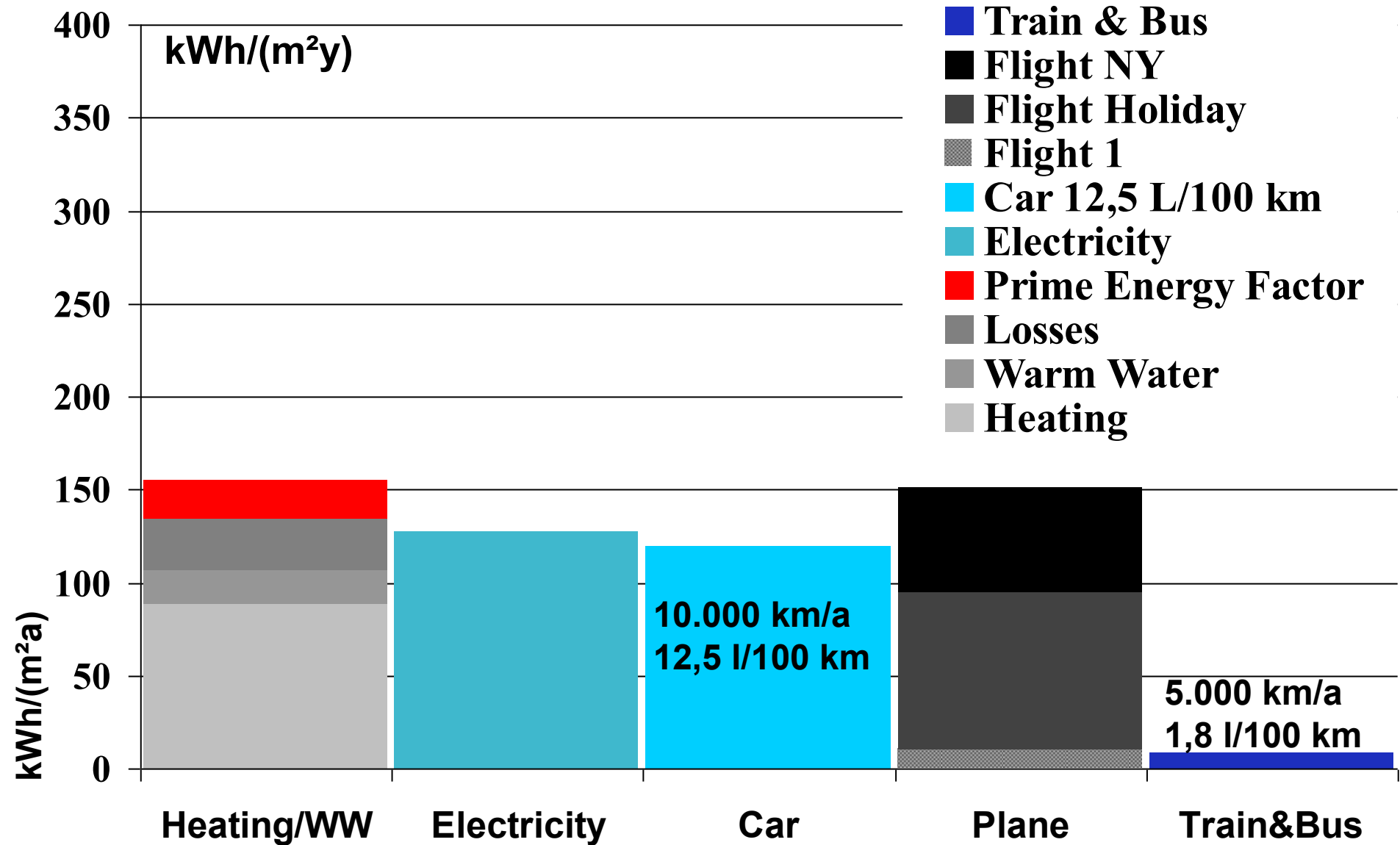
Main Passive House criterions:
energy requirement for heating $\leq 15 \text{ kWh}/(\text{m}^2\text{y})$
combined primary energy consumption
heating, warm water, electricity $\leq 120 \text{ kWh}/(\text{m}^2\text{y})$



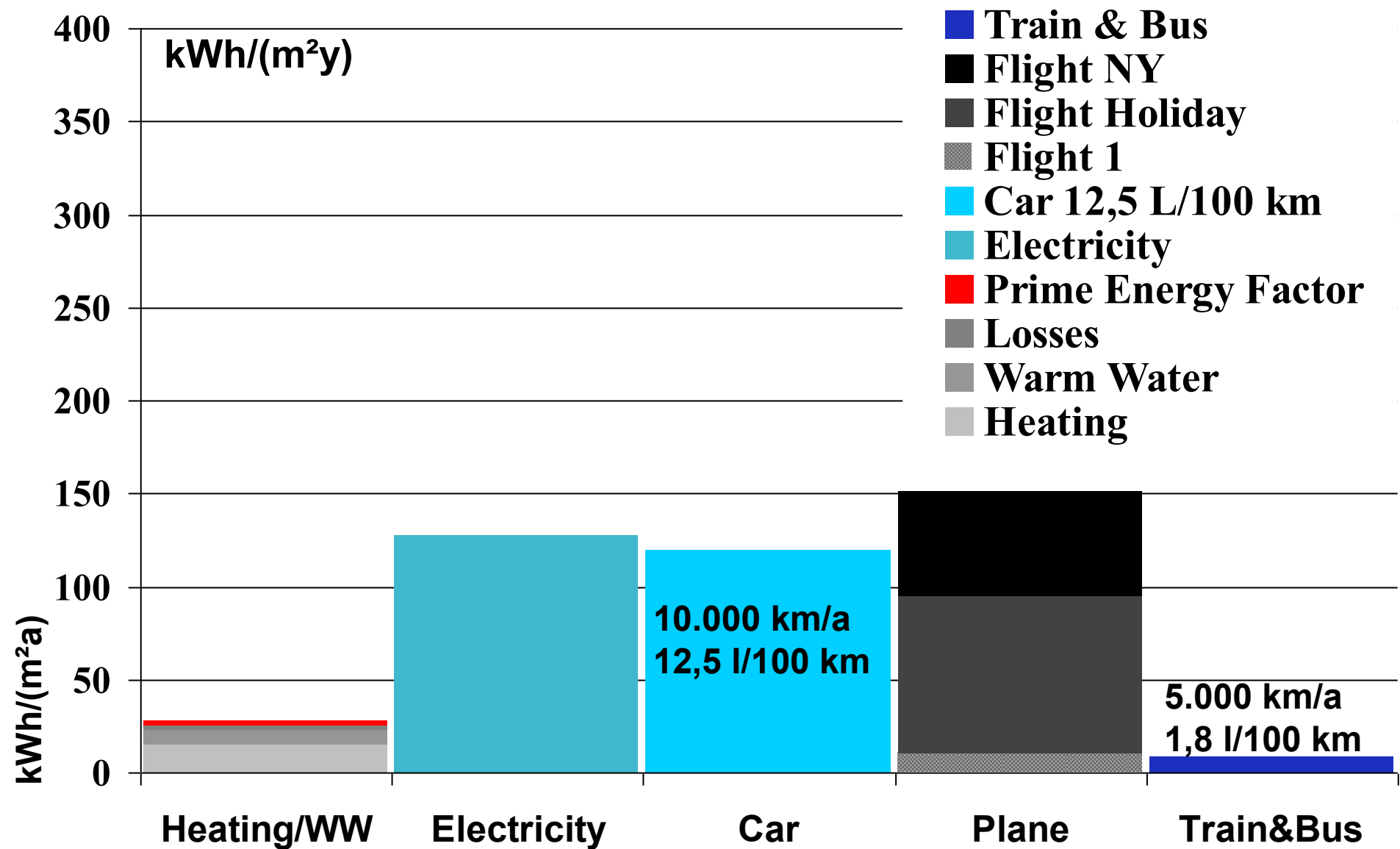
Prime energy use 4-Pers. - 120 m²: old building – normal energy using



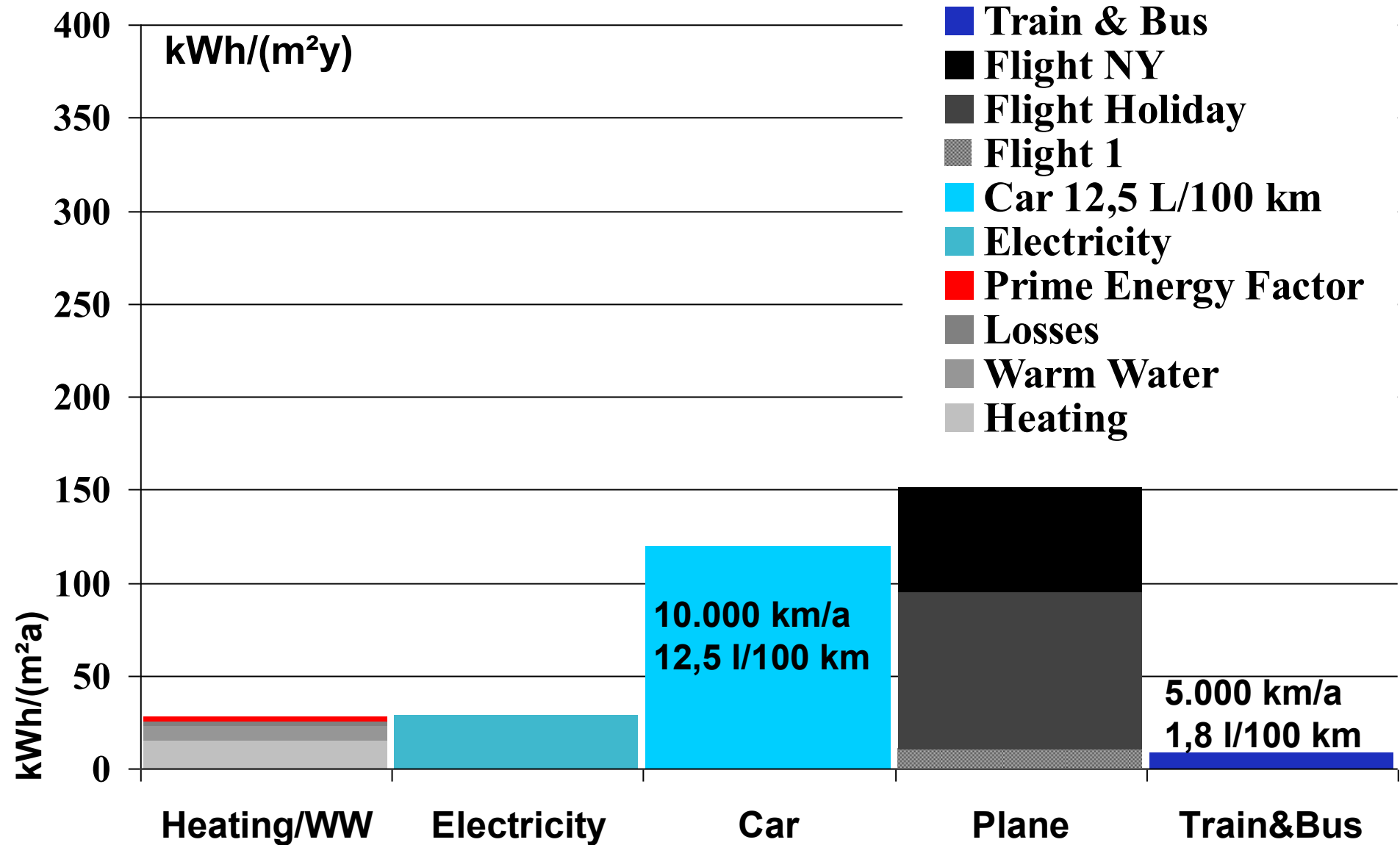
Prime energy use 4-Pers. - 120 m²: new building – normal energy using



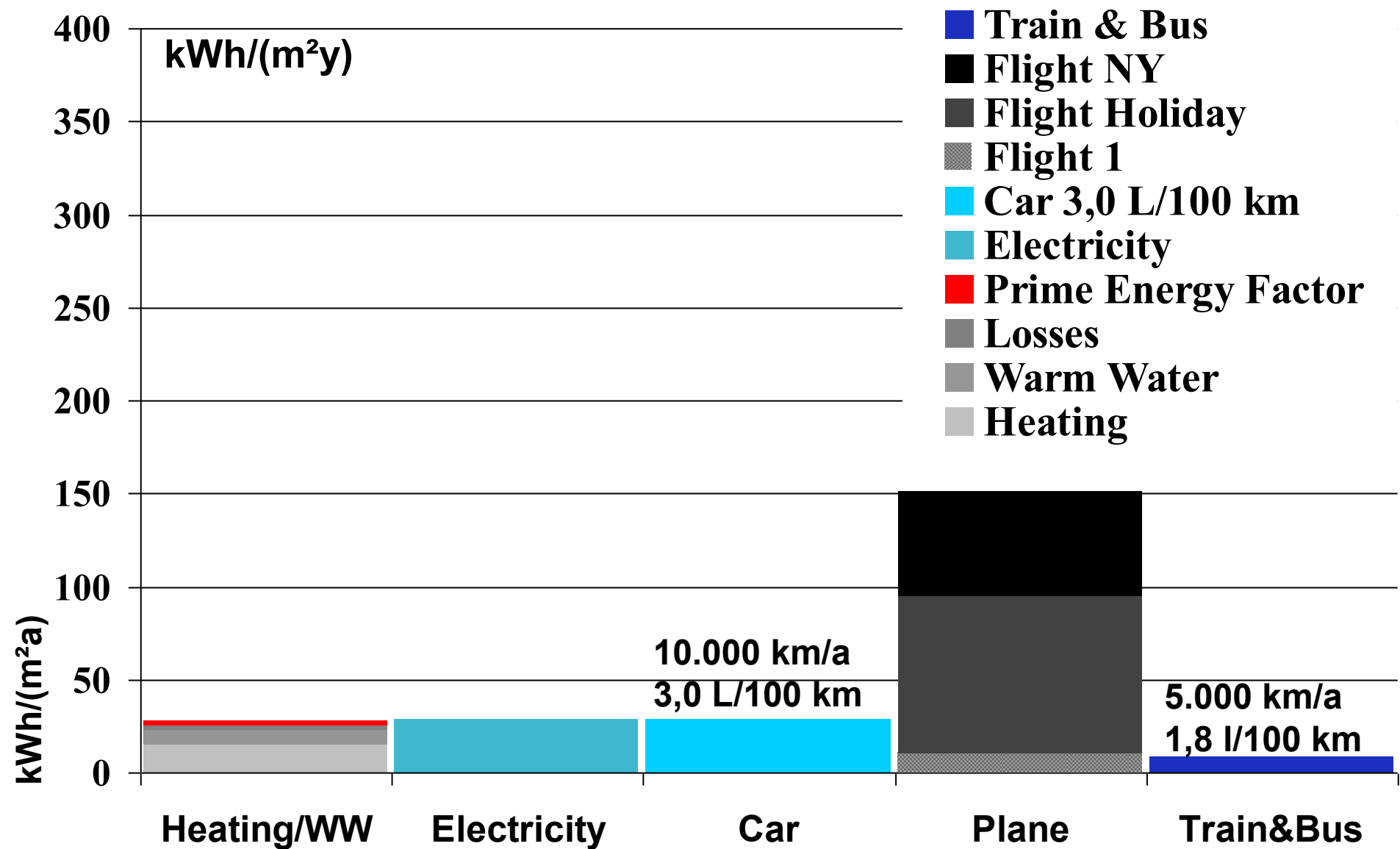
Prime energy use 4-Pers. - 120 m²: passive house – normal energy using



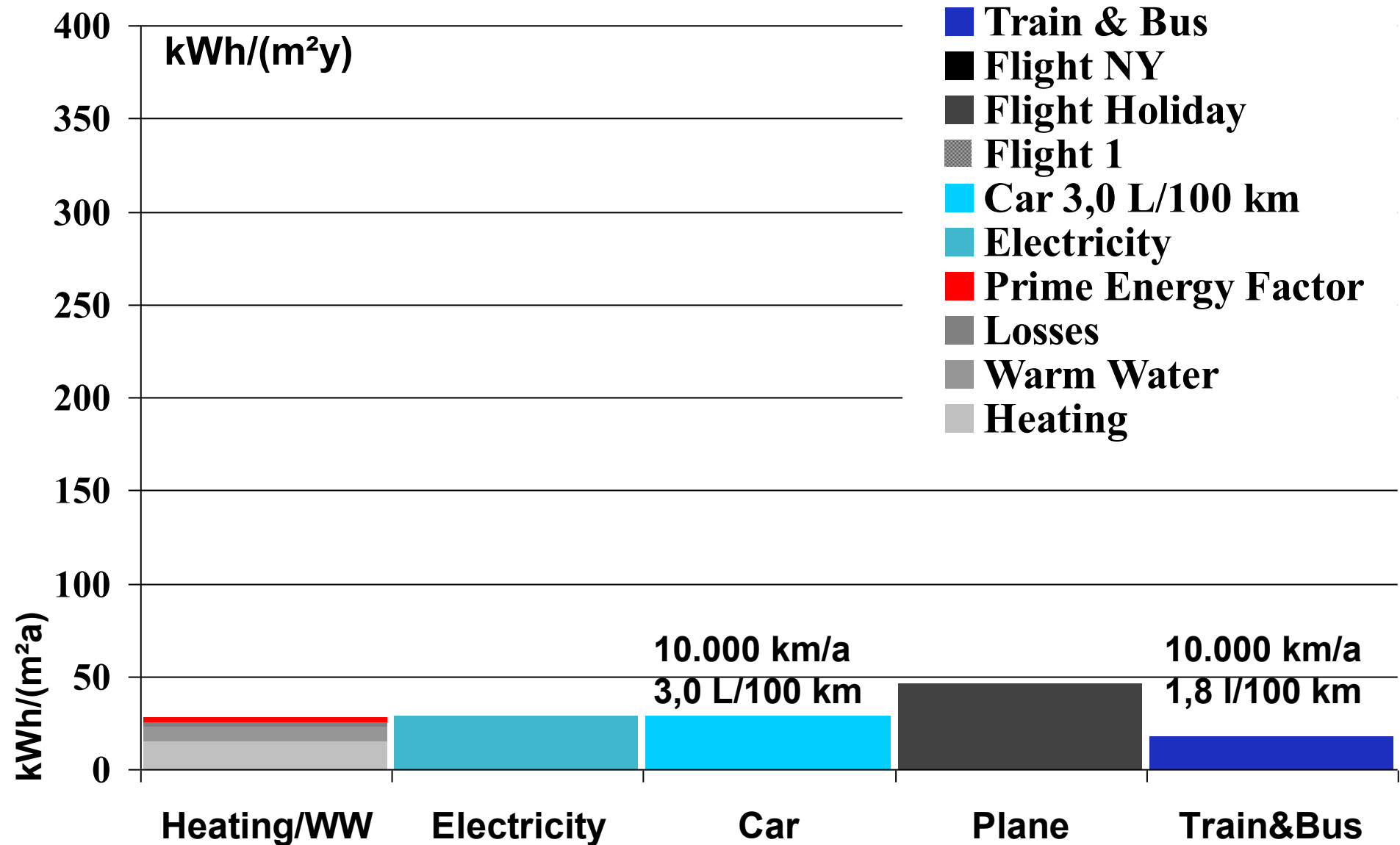
Prime energy use 4-Pers. - 120 m²: passive house – electricity optimised



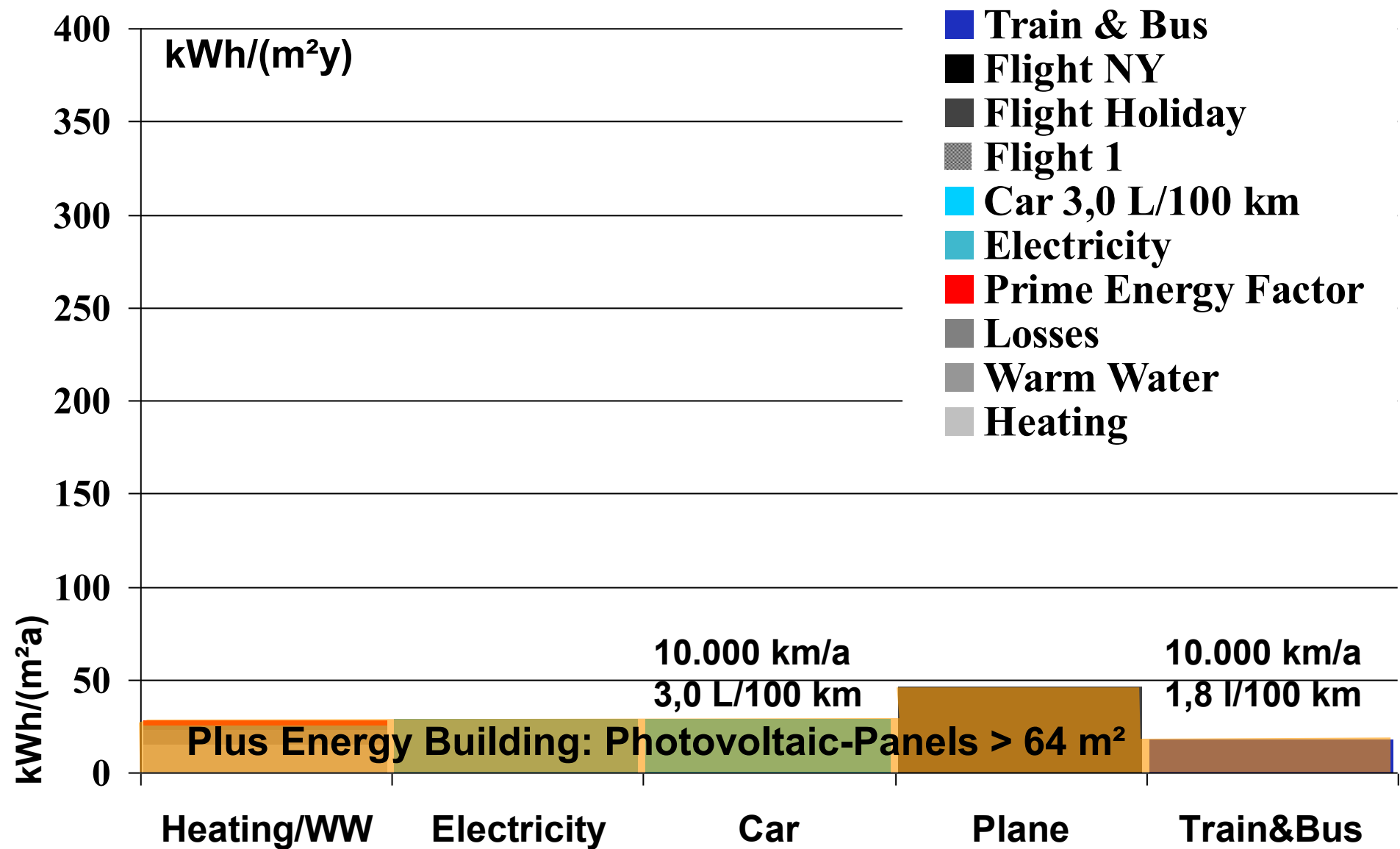
Prime energy use 4-Pers. - 120 m²: passive house – transport optimised



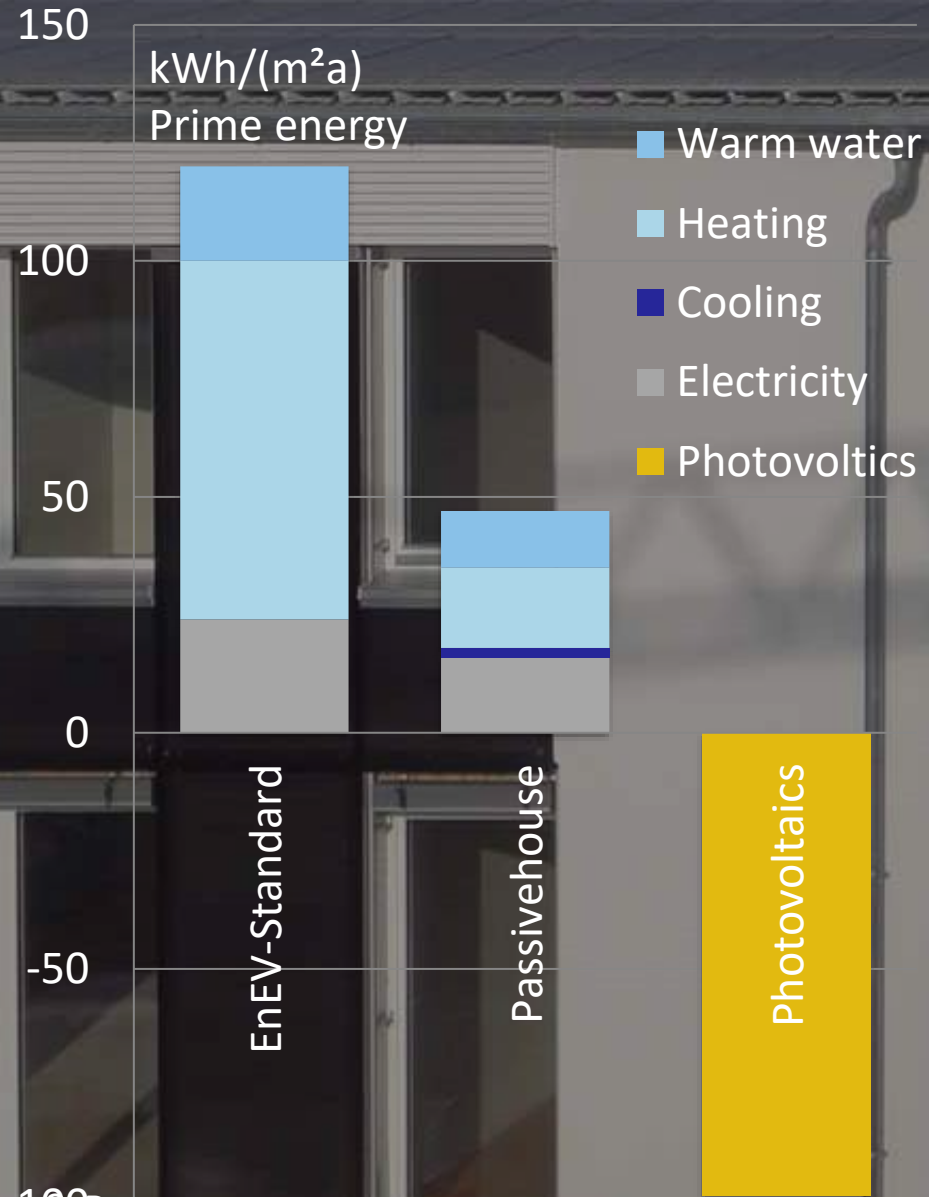
Prime energy use 4-Pers. - 120 m²: passive house – transport optimised



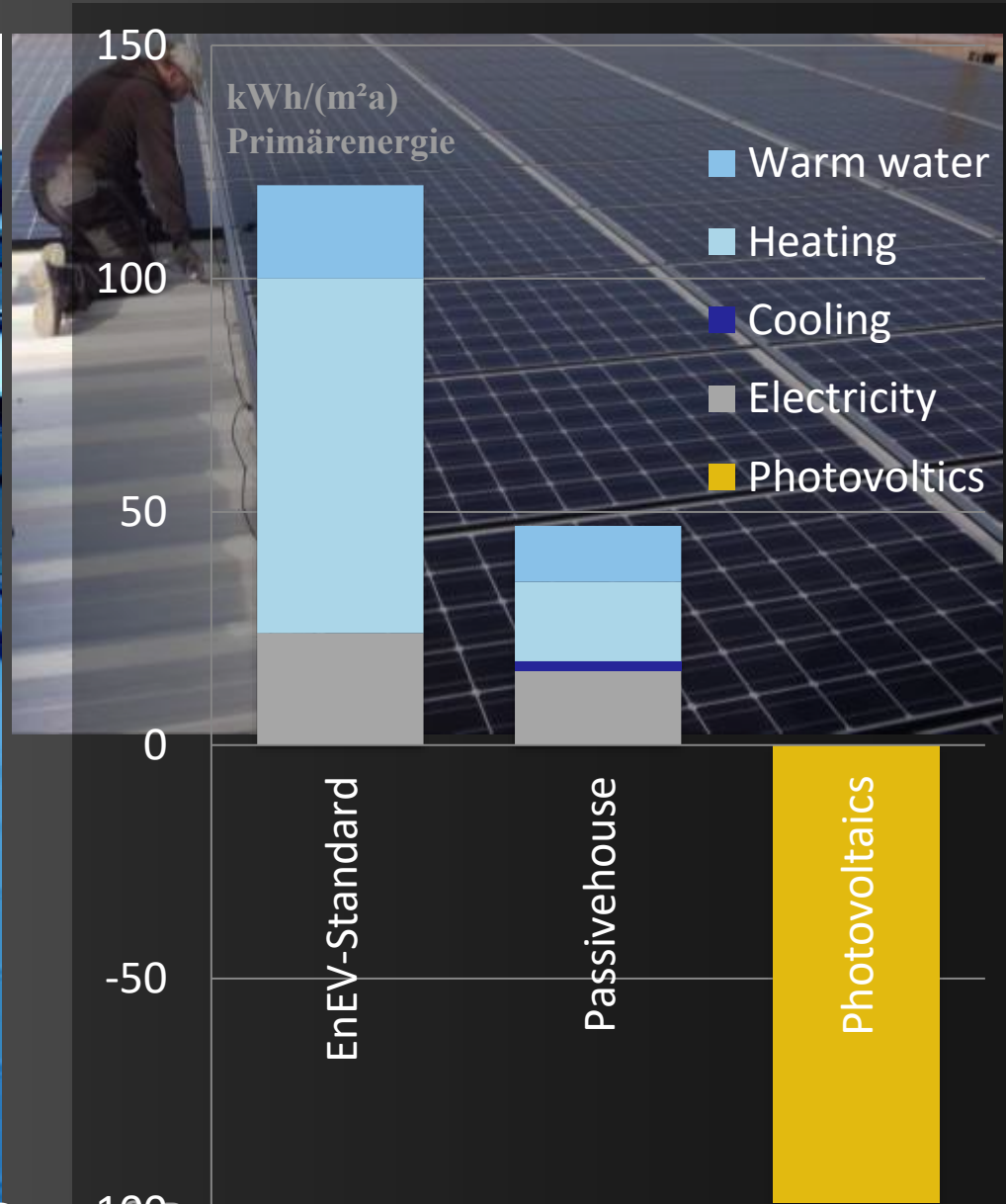
Prime energy use 4-Pers. - 120 m²: passive house – transport optimised



Plus energy standard One family building – Erlangen



Plus energy standard One family building – Erlangen



Master plan – plus energy concept



Source: Schulze Darup: Energy Concept for a Plus energy for a new urban area. – Erlangen 2011-15

Master plan – Energy supply heating



Source: Schulze Darup: Energy Concept for a Plus energy for a new urban area. – Erlangen 2011-15