



# Environmental Life Cycle Assessment of Residential PV and Battery Storage Systems

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# Residential system analysed



PV battery system (Europe/Switzerland):

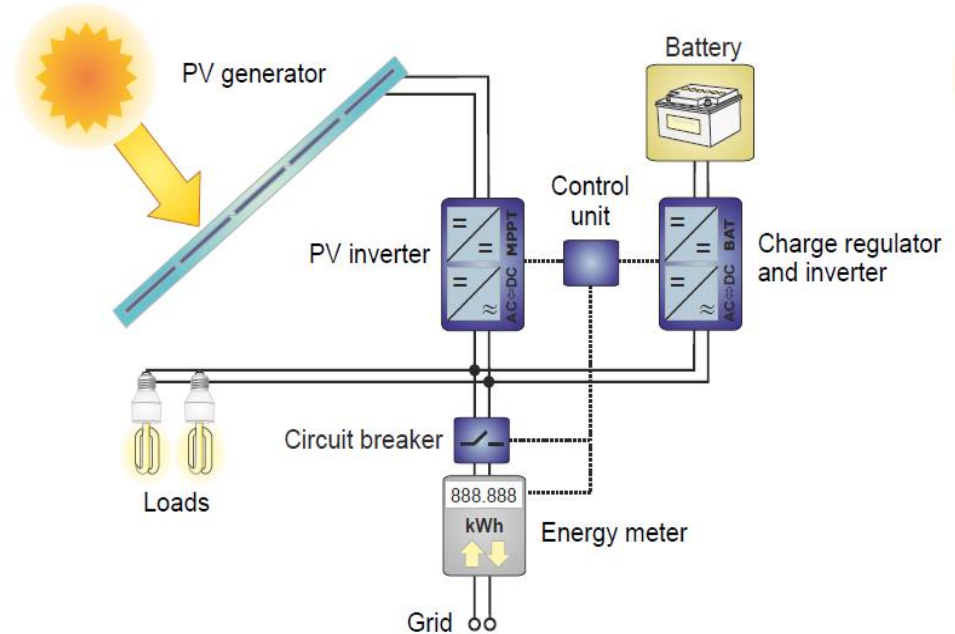
- 10 kWp multi-Si panels
- 10000 kWh annual production
- 5, 10 and 20 kWh Li-ion battery storage

Residential building:

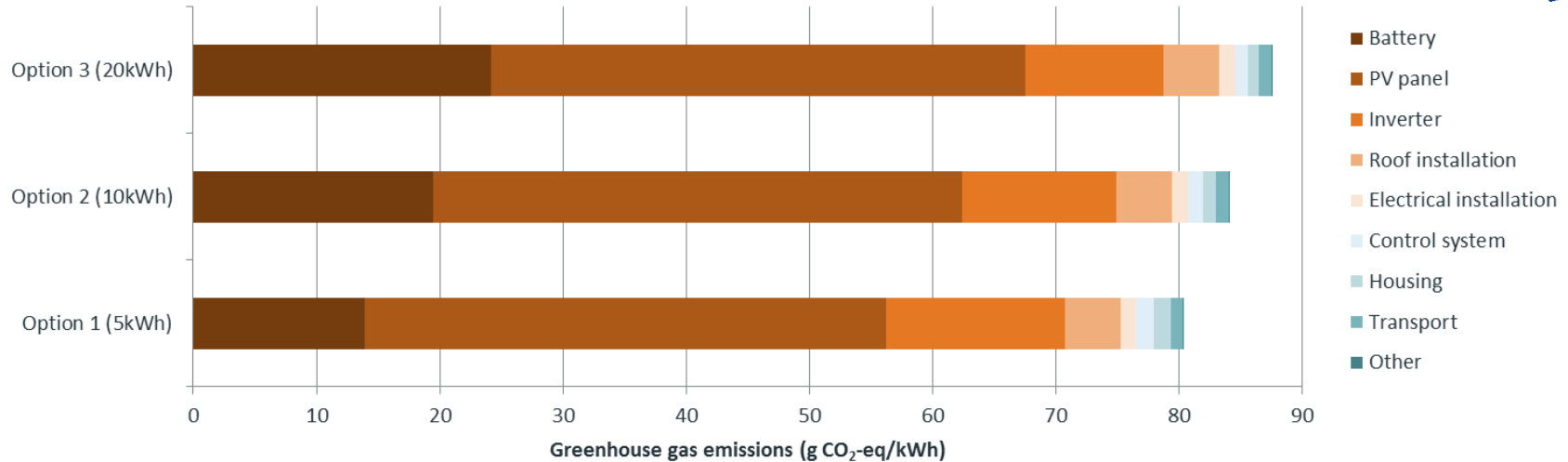
- Total annual consumption 10000 kWh
- Annual self-consumption
  - direct: 3000 kWh
  - via battery: 1500, 2700, 3900 kWh

Functional unit:

- 1 kWh AC electricity self-consumed



# LCA results & conclusions



- Greenhouse gas emissions of self-consumed PV electricity are between 80 and 90 g CO<sub>2</sub>-eq/kWh (multi-Si panel, 1000 kWh/kWp)
- Greenhouse gas emissions of battery contributes between 15 and 25% to self-consumed PV electricity
- Greenhouse gas emissions tend to increase with increasing storage capacity

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