



Resource Use Footprints of Residential PV Systems

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- Goal and Scope
 - Assess life cycle based resource use impacts of PV electricity
 - 1 kWh PV electricity, produced with residential scale PV system installed on a pitched roof in Europe
 - Panel technologies: crystalline Silicon (mono, multi), CdTe
 - Cradle to grave (resource extraction, panel manufacture, operation, end of life)
- Resource Use Indicators:
 - *Abiotic Resource Depletion Potential, ultimate reserves* (recommended): relative contribution to the depletion of resources (ADP Utl Res).
 - *Abiotic Resource Depletion Potential, economic reserves* (suggested): potential resource availability issues related to resource scarcity (ADP Econ Res).
 - *Surplus Ore Potential* (interim recommended): relative consequences of the contribution to changing resource quality (SOP).
 - *ESSENZ* (integrated method to assess resource efficiency; interim recommended): potential resource accessibility issues related to short-term geopolitical and socio-economic aspects (ESSENZ).

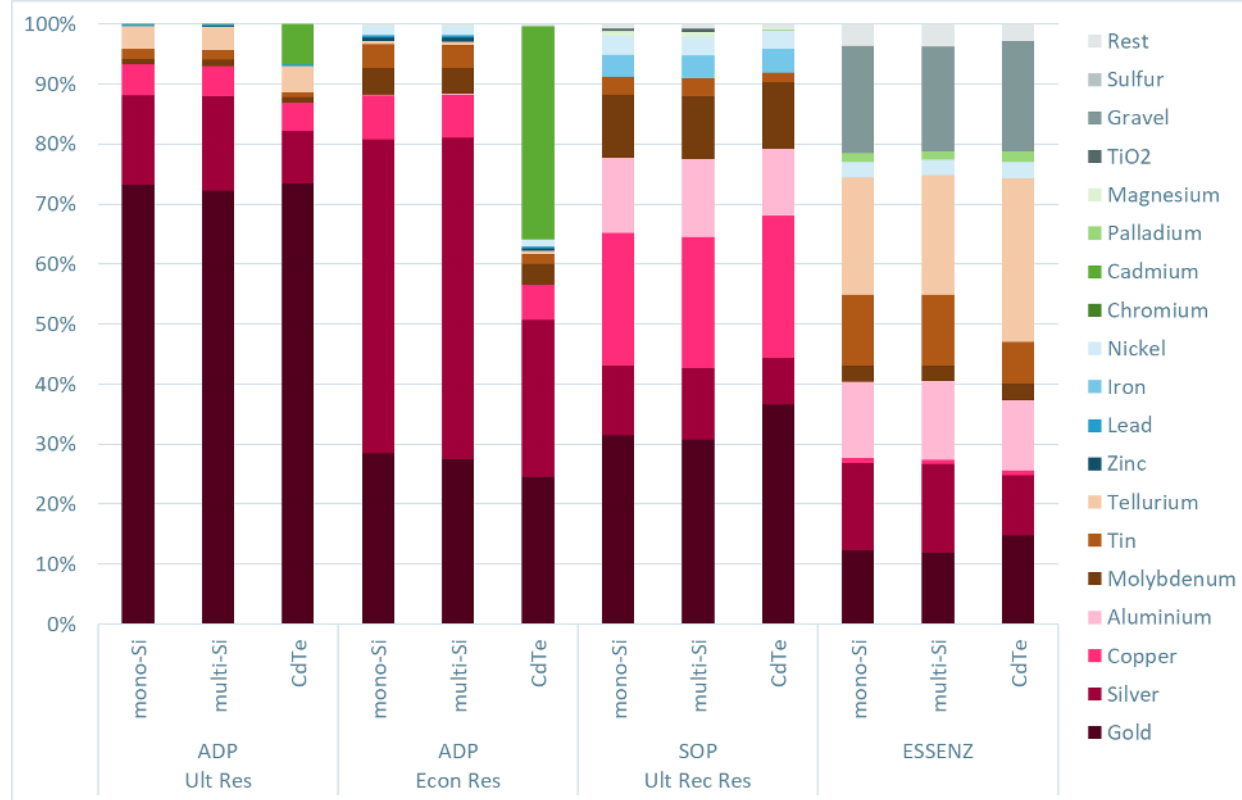
Resource use of PV electricity: main contributing metals and minerals



Relative contribution of different metals and minerals to the resource use impacts of 1kWh PV electricity, quantified with the Abiotic Depletion Potential ultimate reserves (ADP Ult Res), the Abiotic Depletion Potential economic reserves (ADP Econ Res), the Surplus Ore Potential (SOP), and the resource criticality indicator ESSENZ, per kWh AC electricity produced with residential scale PV systems operated in central Europe.

Characteristics of the PV system:

- Residential scale, pitched roof.
- Average annual yield over lifetime: 975 kWh/kWp (incl. degradation).
- Panel lifetime: 30 years.
- Inverter lifetime: 15 years.



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