

ENVIRONMENTAL IMPACTS OF CONNECTED OBJECTS AND SERVICES BASED ON THEIR USE

Testimonial from ENGIE

Camille Jeandaux



Why was ENGIE interested ? - Food for thoughts for ENGIE applications

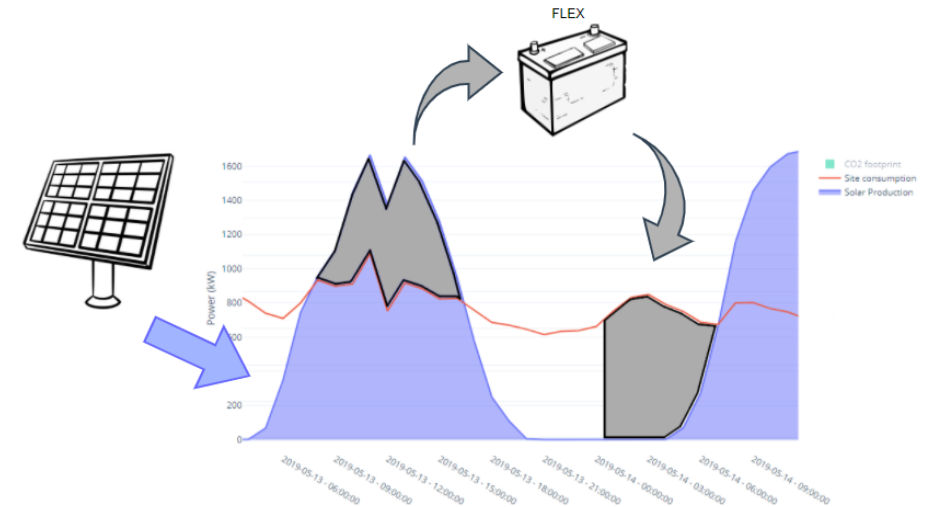
- Energy Management Systems environmental impacts and burdens

Systems optimizing the use of energy for a specific installation

The local demand-flex (and supply-flex) assets are linked to an intelligent system that can optimize local energy use (and supply) based on specific objectives. For example, the EMS takes the decision to use flexible energy (stored) when it considers this helps it meet its objectives (cost, environmental footprint etc.)

- Communicating meter

Automatic reading of electricity and gas domestic consumptions allows to have a better daily control and regulation of one's consumption. Compare with traditional metering system, a smart system increases the use of electronic devices – a radio module is needed for each meter - but also induces more data transmission, storage and computing.



How is it/will it be used? - Importance of the goal and Scope – illustration with the EMS case study

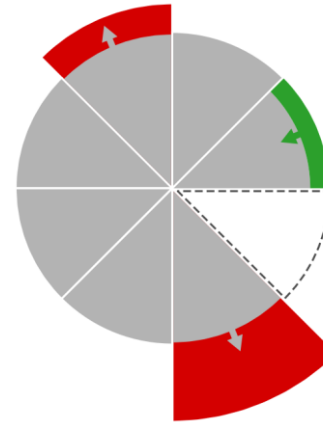
FU : Assess the environmental burdens and benefits linked to the production and use of an EMS-based energy solution during one year to dispatch the electricity consumption and/or the electricity production of an existing system.

Direct effects quantifications



- Production, use and end-of-life of the electronics infrastructure: technical sheet and ecoinvent database
- Use of cloud resources for computing and storage: based on publications, with adaptations to the case studies and sensitivity analysis
- Transmissions

Environmental Consequences



- Grid consumption → Added electricity production / avoided electricity production
- Injection to the grid → Added electricity injection / avoided electricity injection
- Rebound effects – direct and indirect ?
- Other changes?

Thank you !