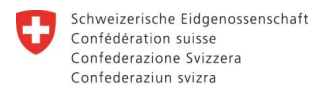




Welcome

SoloGrid - A lighthouse project for the energy future

Berne, Dec. 5th 2017



Bundesamt für Energie BFE



What's smart?



home entertainment



security



sun blind



fire safety



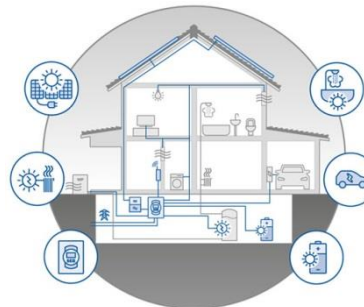
"smart"?



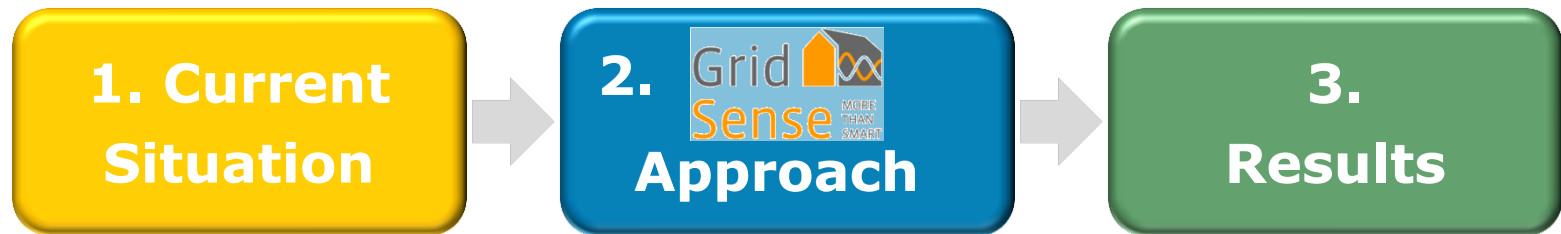
comfort (light, heat, noise)



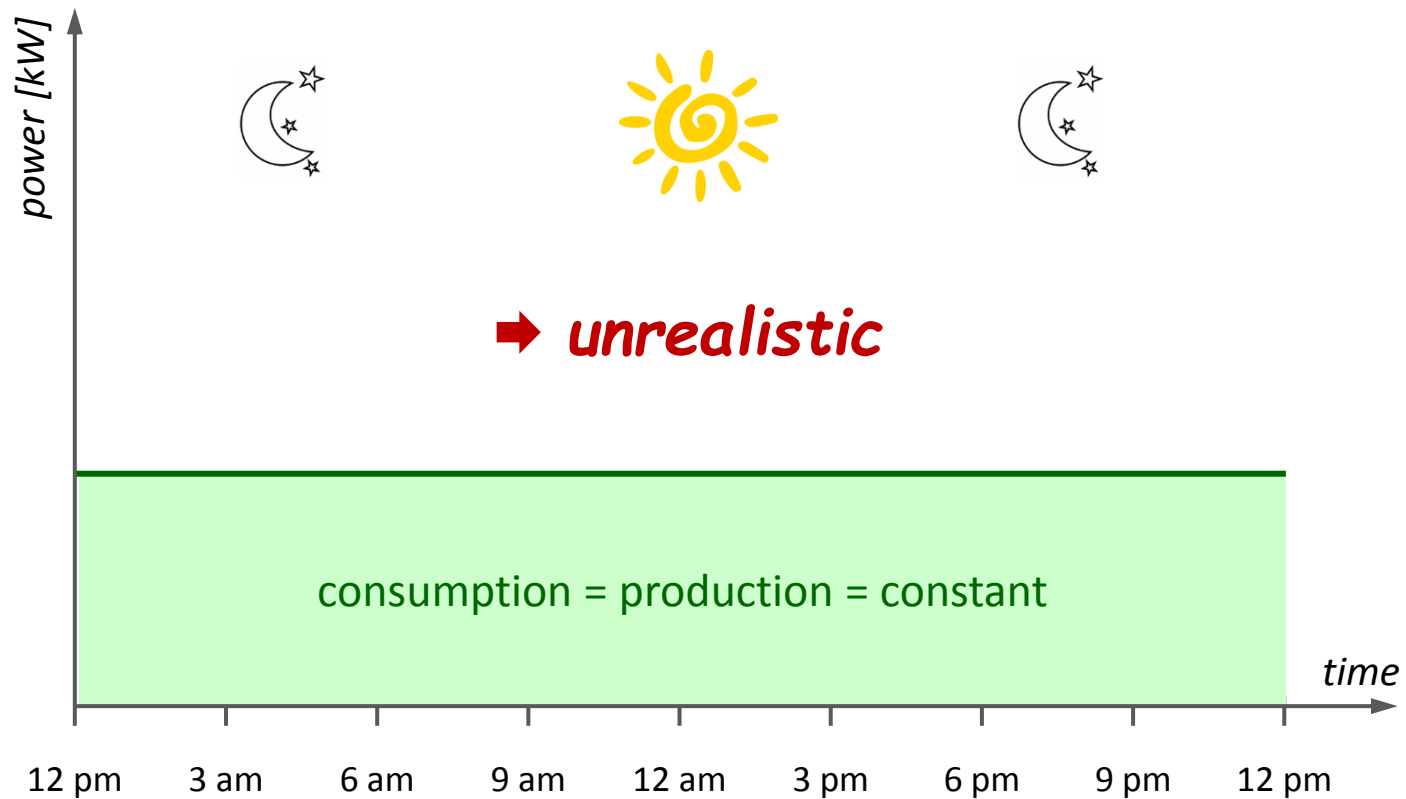
grid



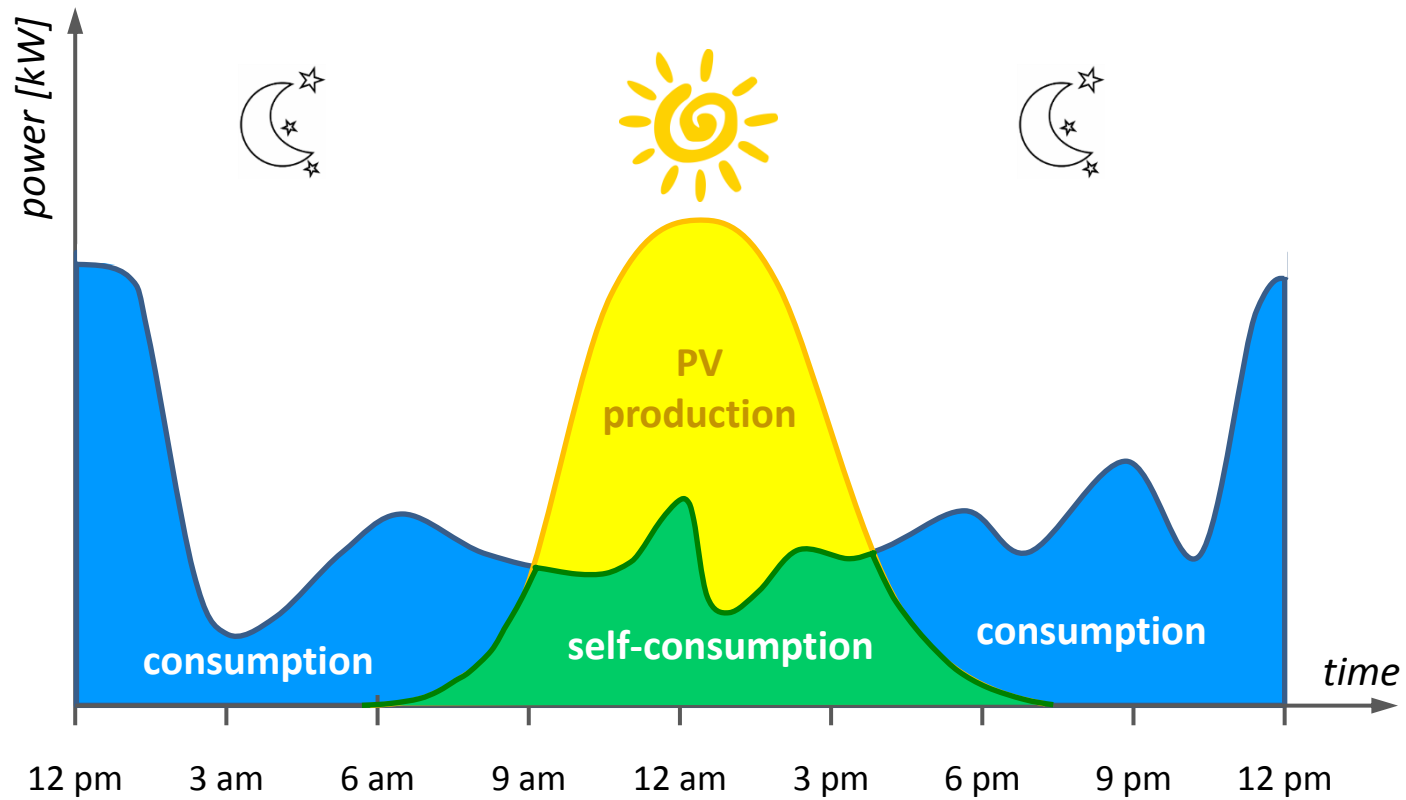
home energy management

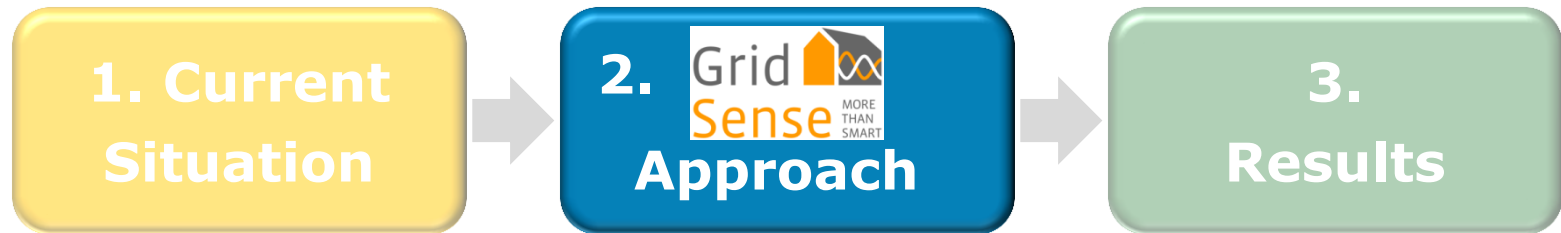


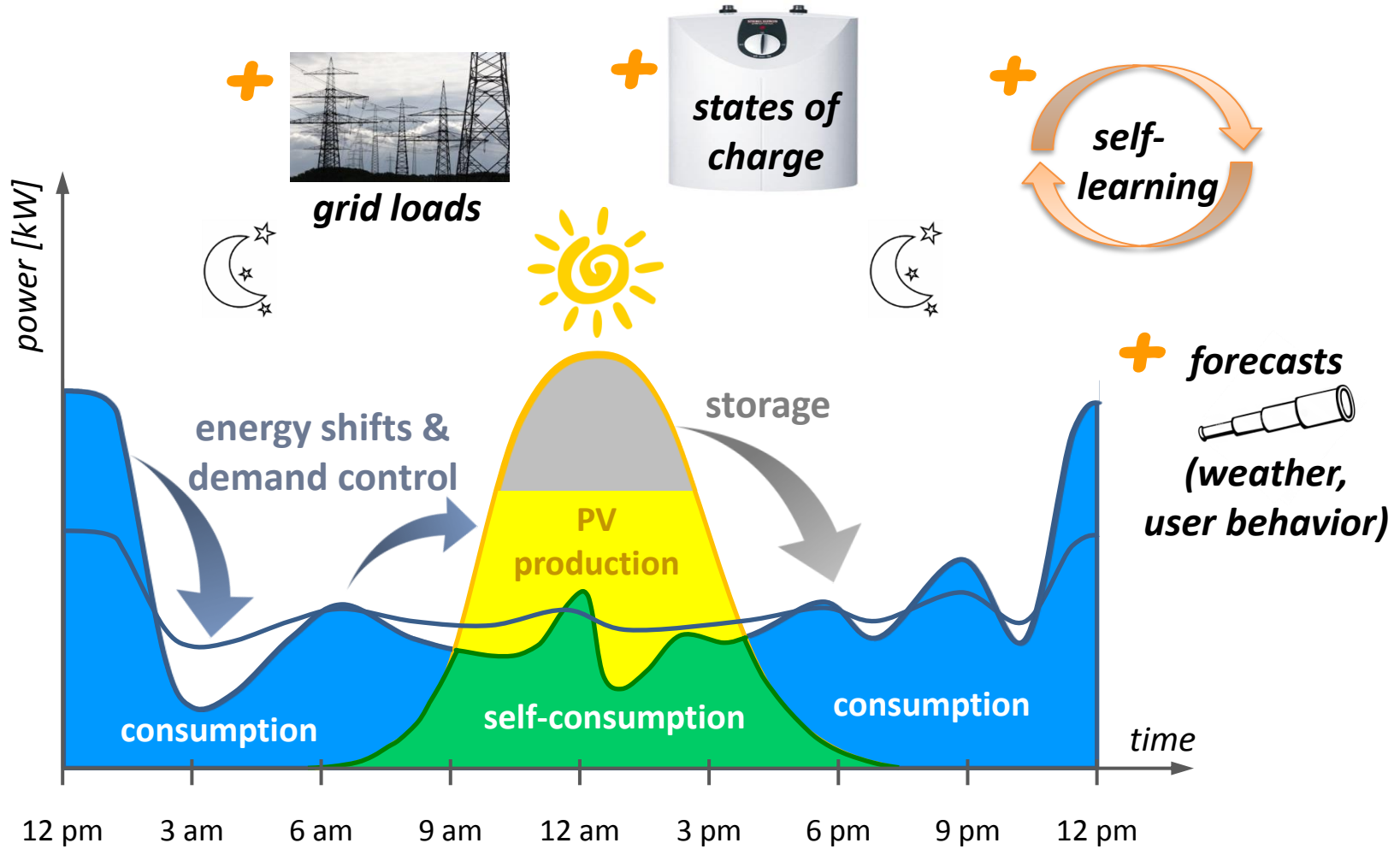
constant and equal consumption and production



Real situation and existing approaches







How does GridSense work?

- weather forecast
- energy need forecast
- states of charge
- user profile
- grid load



positive effects on

- grid load
- cost
- self-consumption

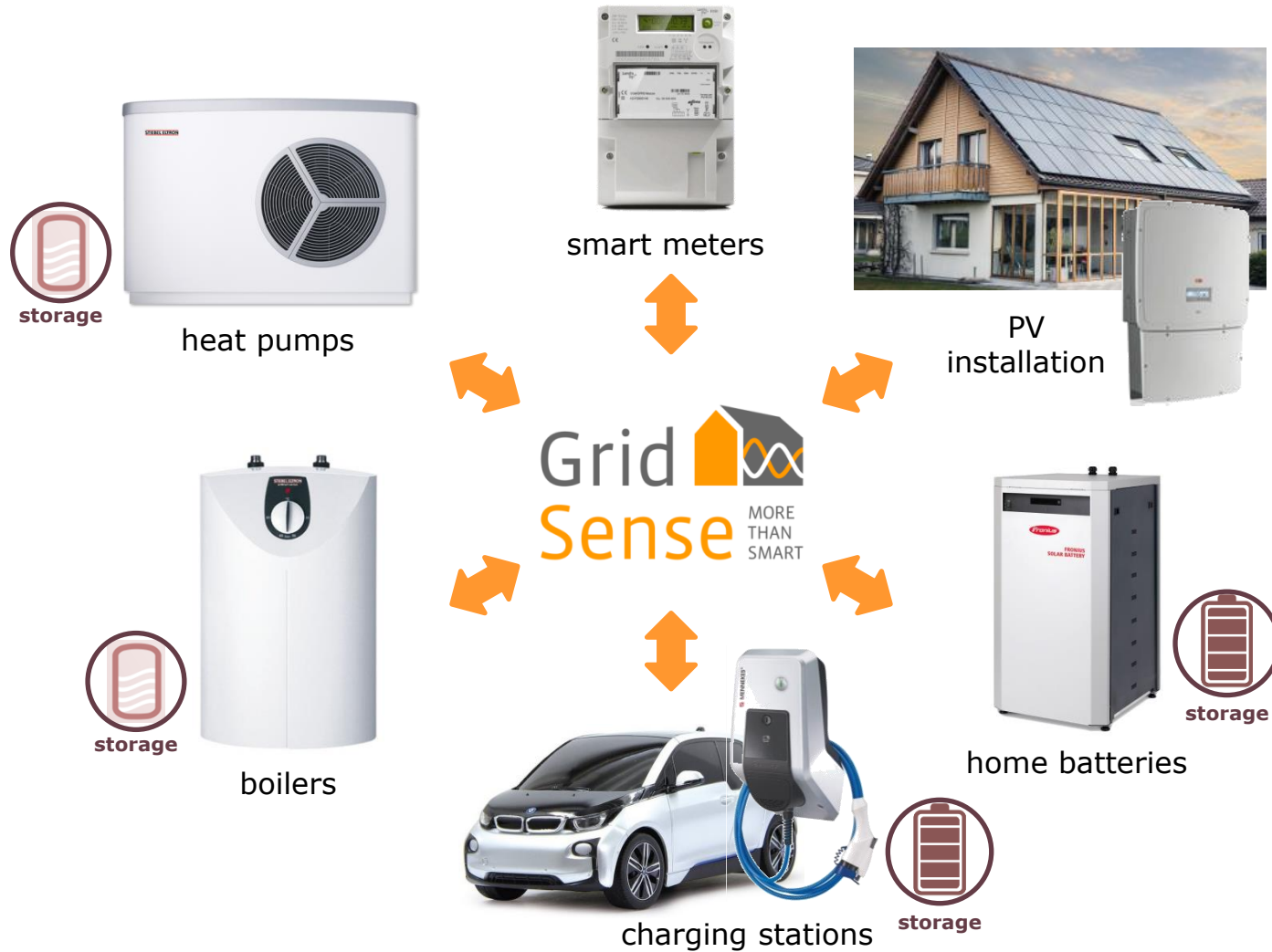


component
**blocked /
released**

with no negative effects on
comfort, incl. availability,
flexibility etc.

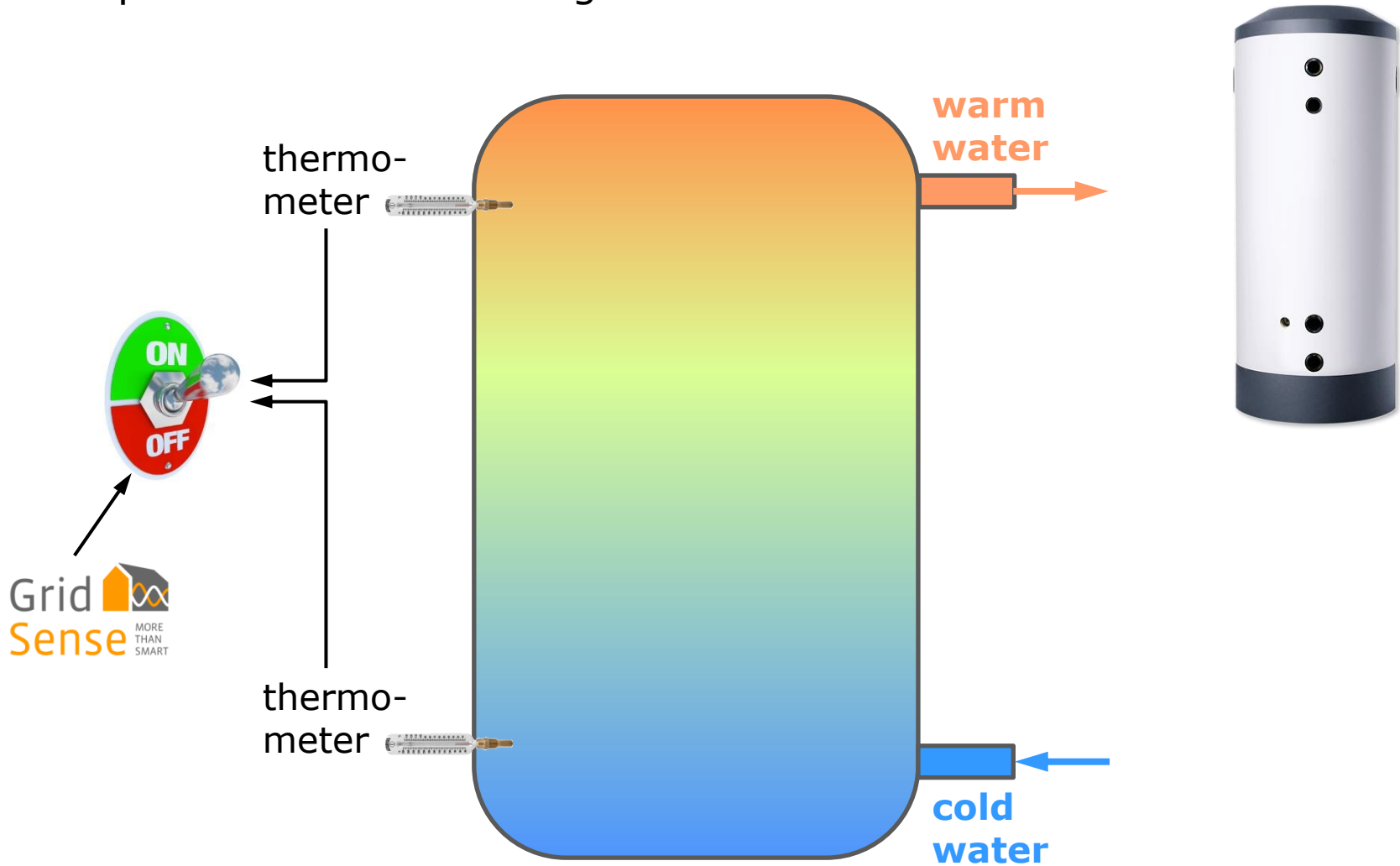


GridSense interactions



GridSense interactions

Example: Warm water storage



Setup



Targets:

- **Product:** Effectiveness & field experience
- **System:** Behavior & scenarios
- Open **communication**

Bundesamt für Energie BFE



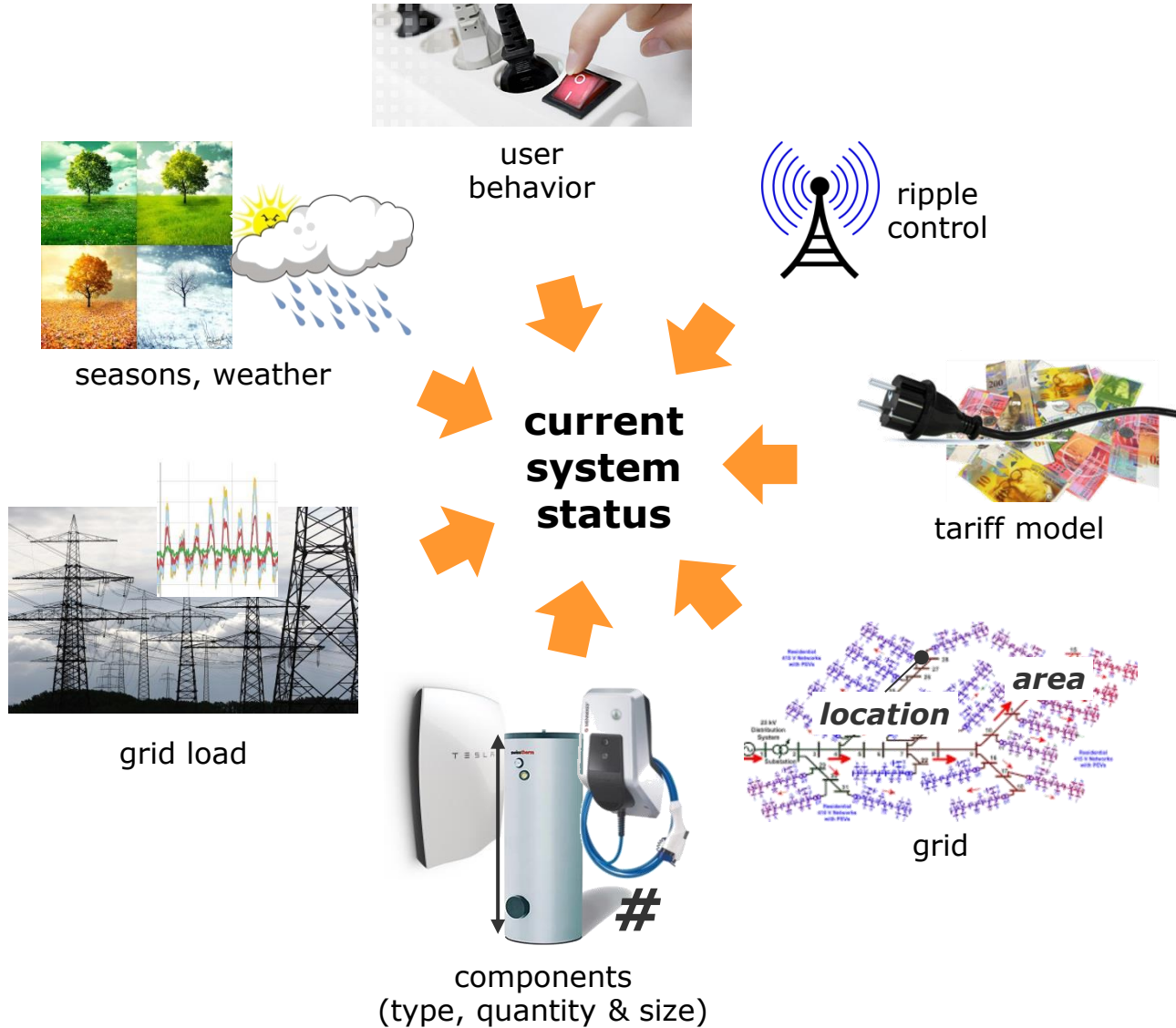
comparability

product effectiveness
→ clear results?
→ right conclusions?



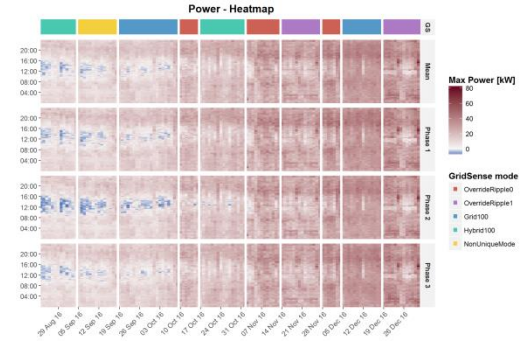
- influencing factors
- evaluation, interpretation
- reasonable scenarios

Influencing factors





measurements



simulations

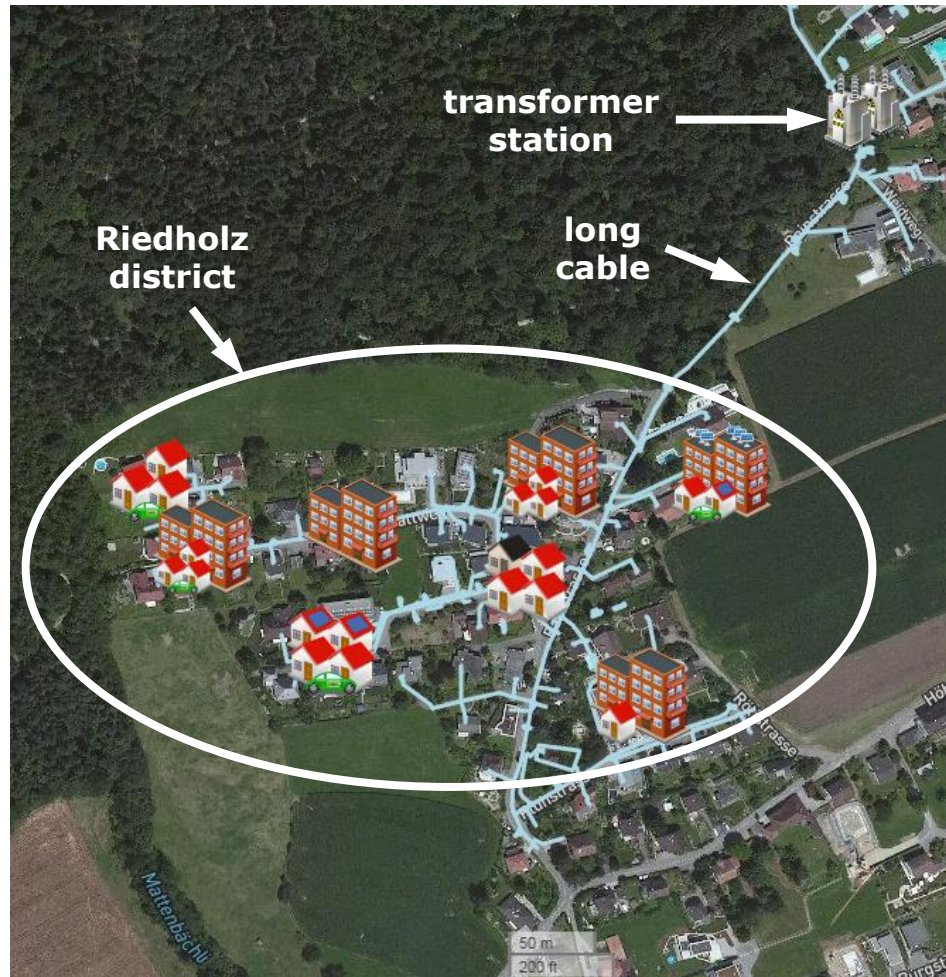


conclusions



component & system know-how

Situation overview Riedholz



Main installations



- 35 boilers
- 19 heat pumps
- 4 PV install.

more than 100
GridSense Units (GSU)



about a dozen
smart meters

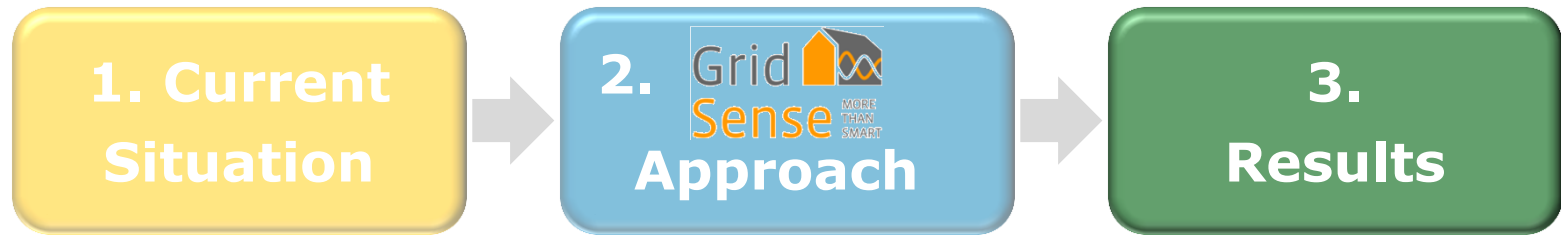


5 charging stations
with electric vehicles (EV)



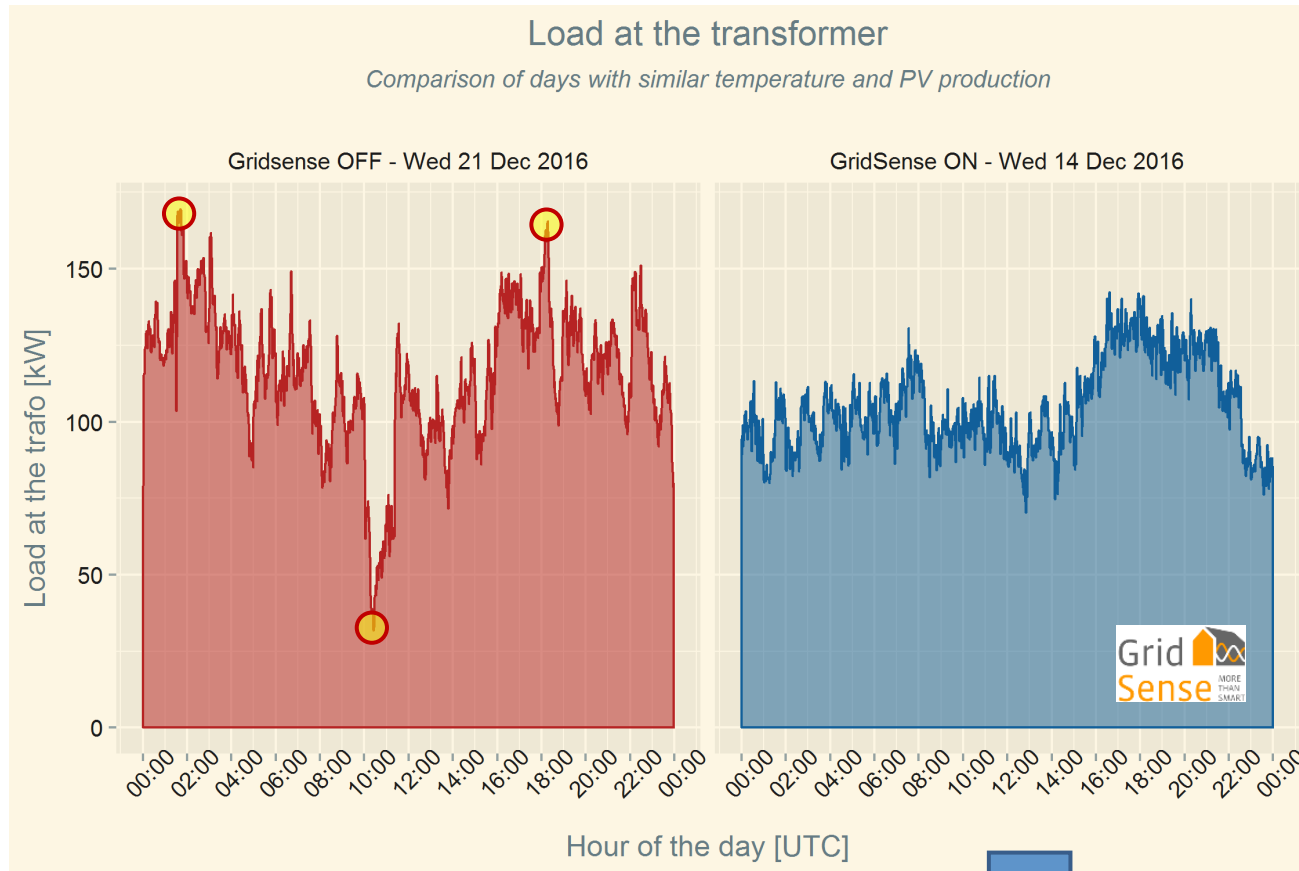
3 home battery systems
(incl. cable routing modifications)

103 GSU
37 UGSU (mains)



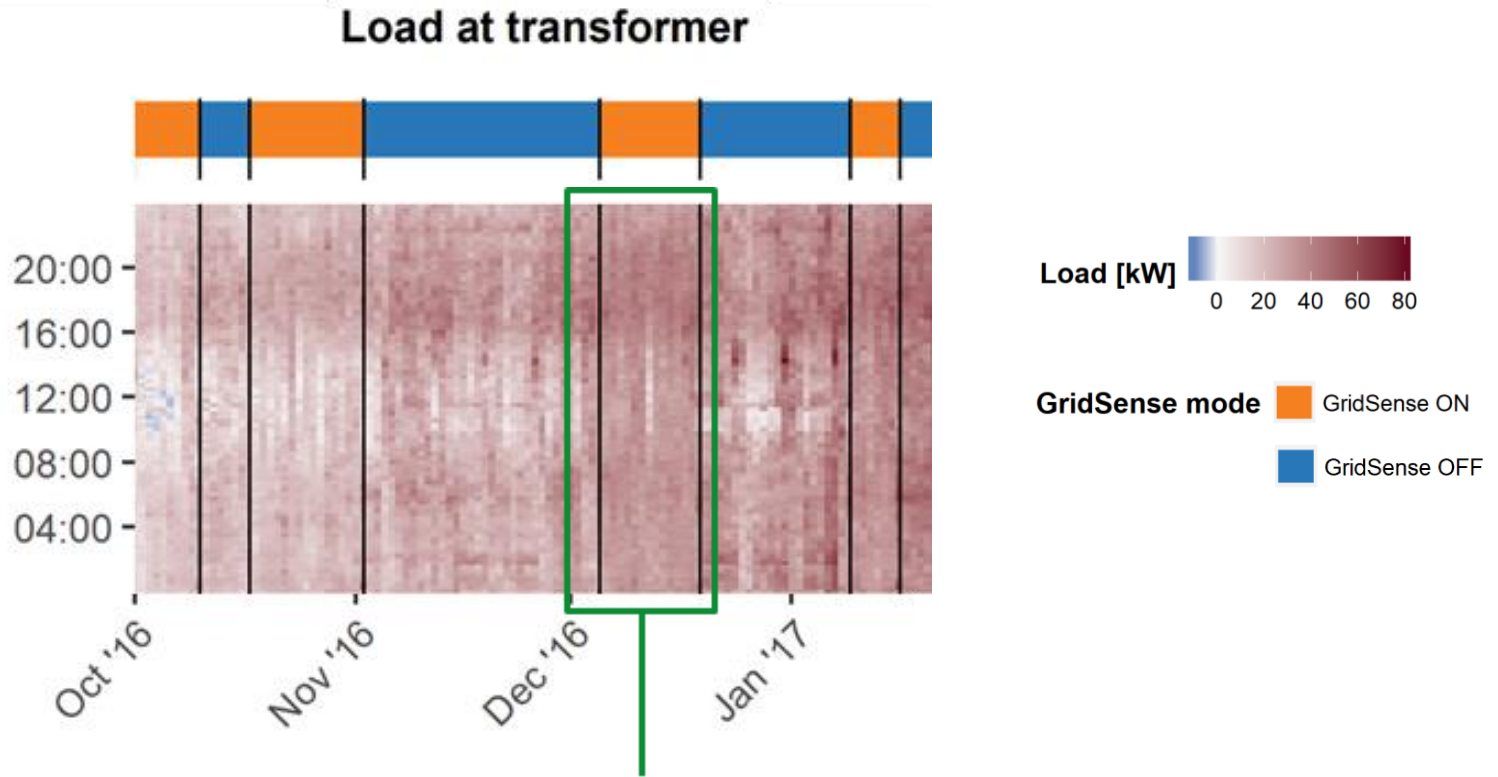
Typical **winter** day

load (power)



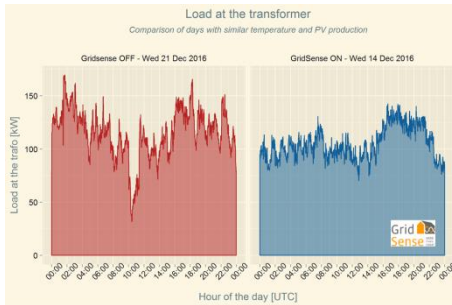
○ peaks caused by ripple control / tariffs

GridSense reduces power deviations



better distributed values

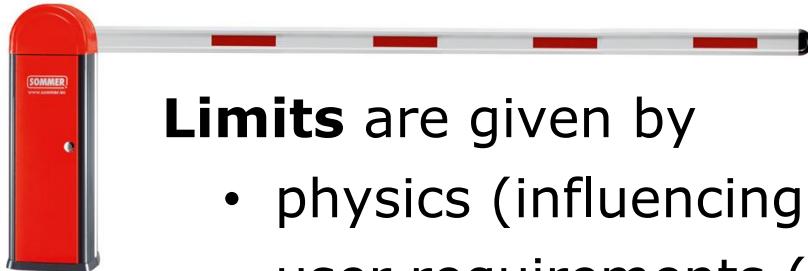




GridSense **reduces power / voltage** fluctuations.



GridSense is **competitive** compared to other solutions, as thicker cables, tap-changing transformers etc.



Limits are given by

- physics (influencing factors, components) and
- user requirements (comfort, availability, flexibility).

ALPIQ

1.



field inventory

2.



technical
communication

3.



data quality

4.

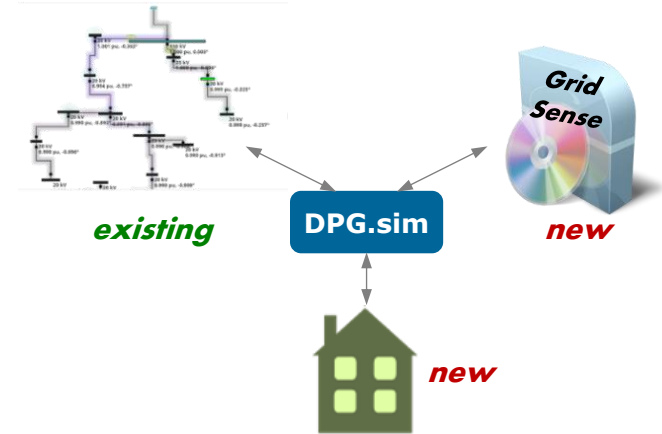


system
know-how

Main learnings



"From the grid into the house":
grid simulation
house components
GridSense software



Know your own grid!

Customer feedback

- Generally very good / positive
- Some questions about electricity bills (compared to former bills)

Installations

- Could not be executed in one step (one visit)
- Mounting was not everywhere easily possible (old buildings)

Product

- Only 2 GSUs had to be replaced due to defects
- Firmware update became necessary after few months

Communication

- Ongoing communication over homepage www.sologrid.ch
- More than 20 events and trade fair participations
- High interest from energy market



Basic but true:

- It gets complicated very fast
- Challenge supposed "facts"
- Take a holistic view

Nevertheless: Get started (not lost)



www.sologrid.ch

Soon: **SoloGrid report** under

- Swiss Federal Office of Energy SFOE
- www.sologrid.ch