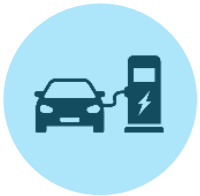
«Why should I share my precious energy? Is thermal energy for the grid or for the building?»



9th Swiss Symposium Thermal Energy Storage | 28. January 2022

Keynote: Gino Agbomemewa | clemap.ch | gino@clemap.ch

About

Gino Agbomemewa

MSc electrical engineering @ ETH Zürich

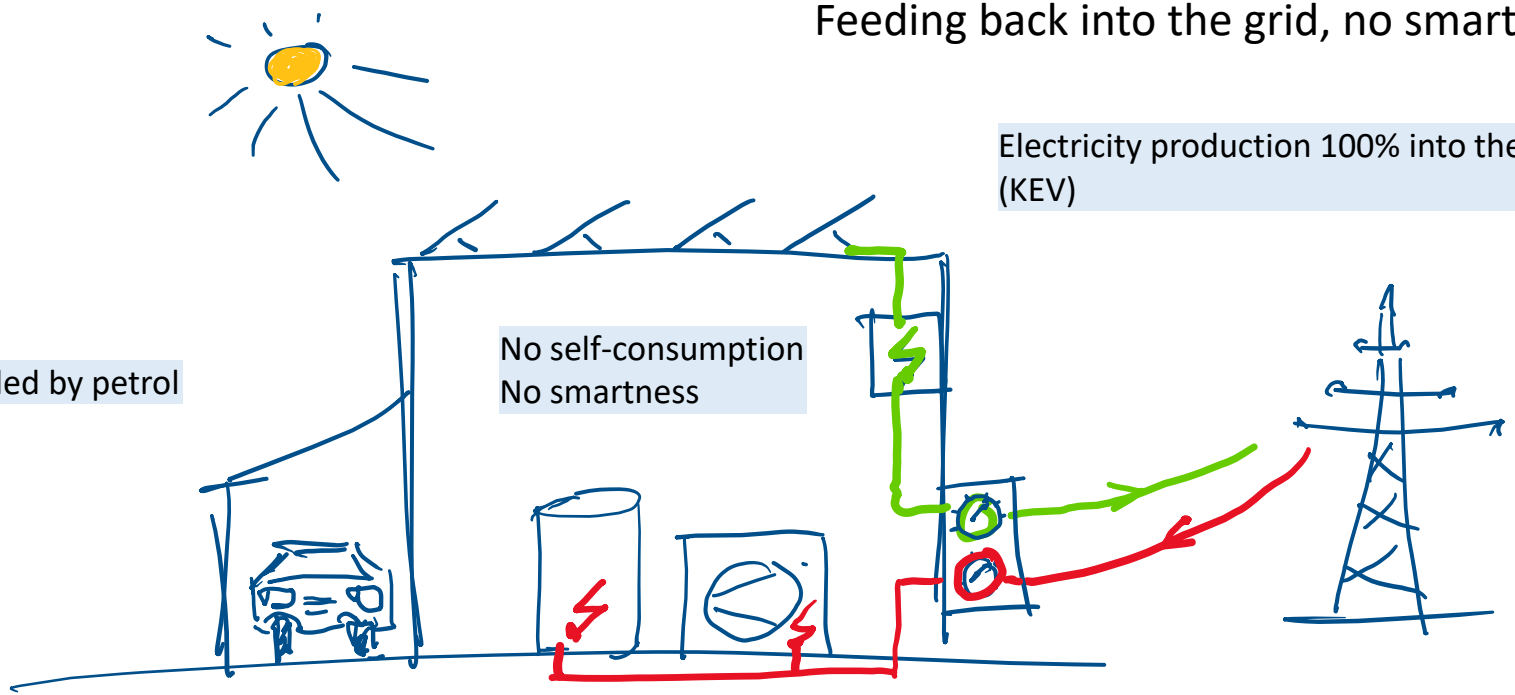
Worked in the industrial sector for almost 10 years
as system engineer, project manager & team leader

Cofounded in 2017 CLEMAP AG, today managing director

Expert at the Swiss Academy of Engineering Sciences SATW & member of the technical commission of the SmartGridready association

Yesterday situation

Feeding back into the grid, no smartness



Electricity production 100% into the grid (KEV)

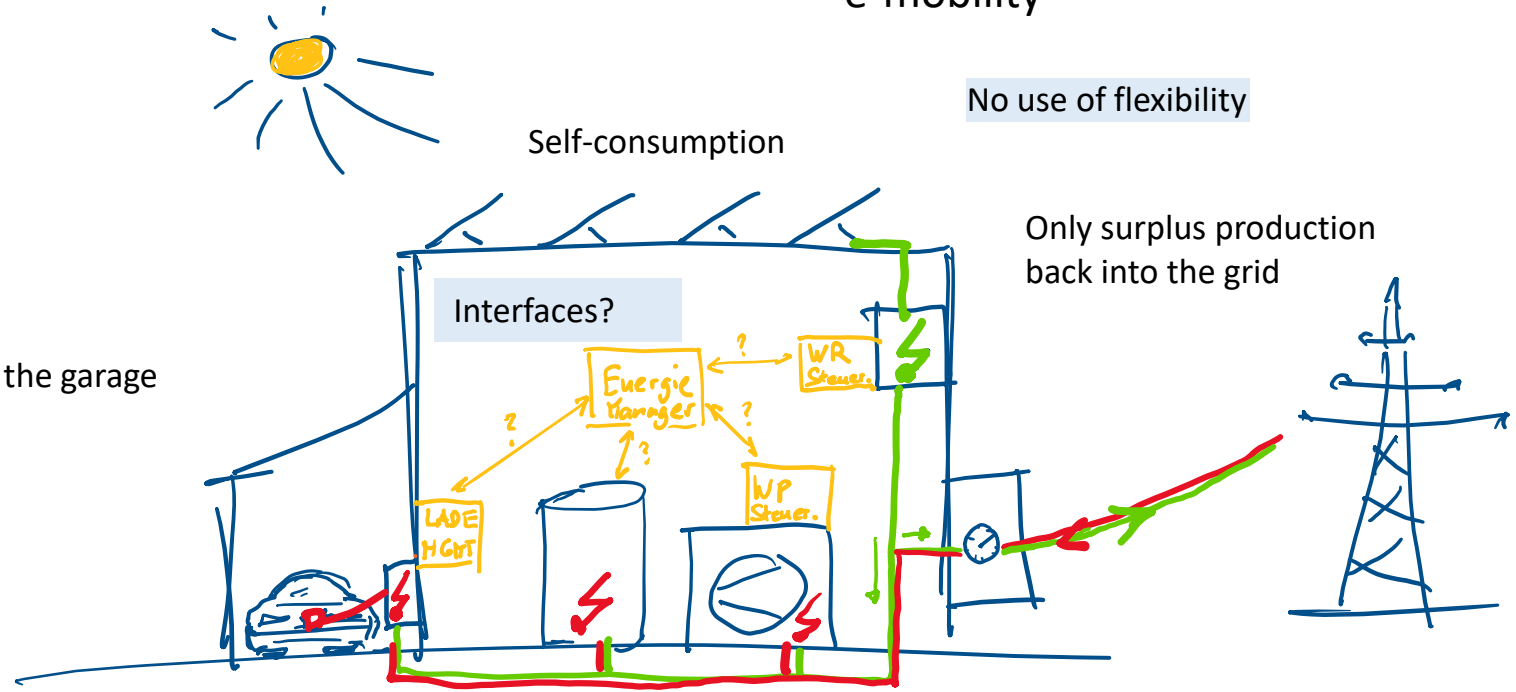
Car fuelled by petrol

No self-consumption
No smartness

Only power measurement, no flexibility

Today's situation

Intelligent self-consumption optimisation, e-mobility



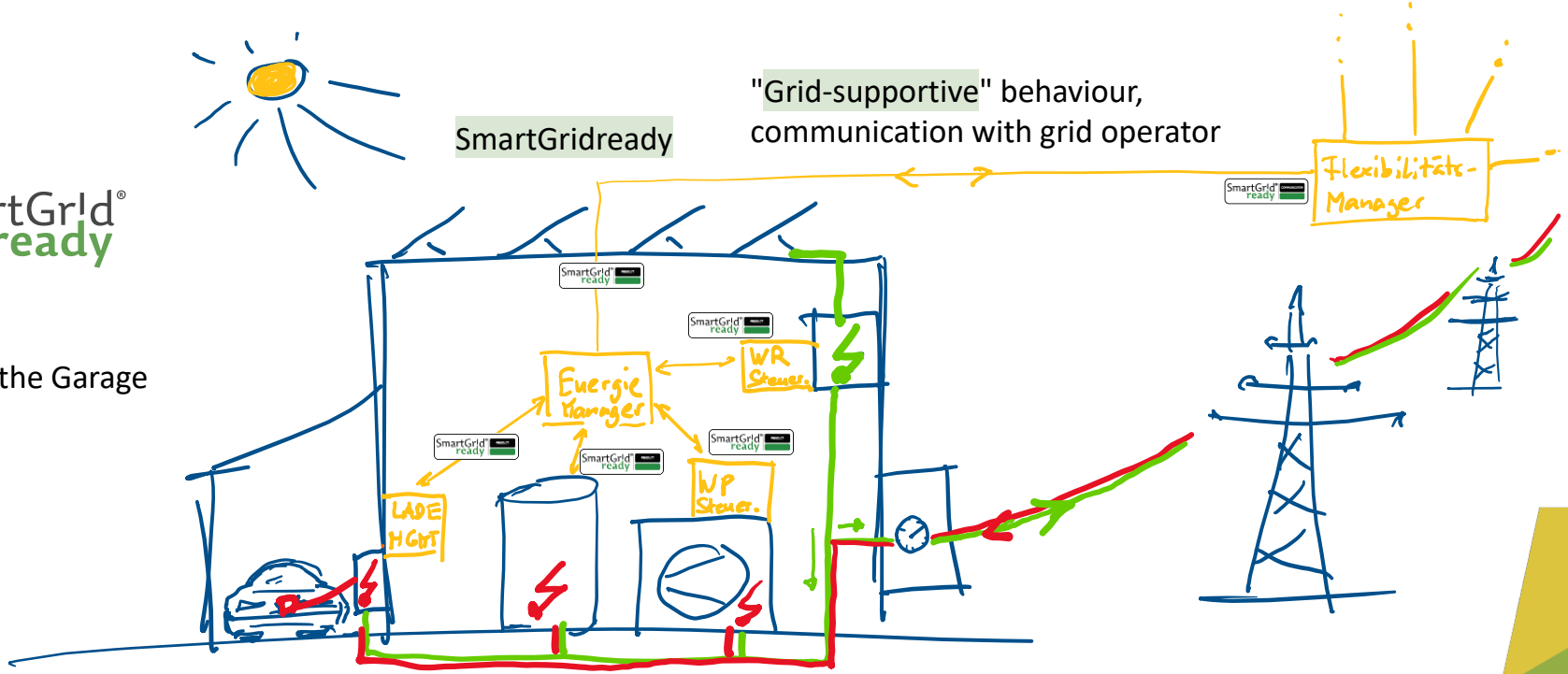
Tomorrow situation

Simple interconnection,
Network serviceability

SmartGridready

"Grid-supportive" behaviour,
communication with grid operator

E-car in the Garage
V2X

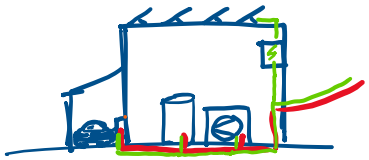


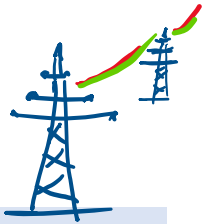
Net current measurement, bidirectional

Self-consumption and grid supportive operation

Two claims

SmartGridready as a bridge and common language





Self-consumption optimisation

- Energy manager can
  - read out the consumers and the PV production
  - take planning, forecasts into account
  - Control consumers intelligently
- Goal: «Peak Shaving» and self-consumption optimisation

Optimization

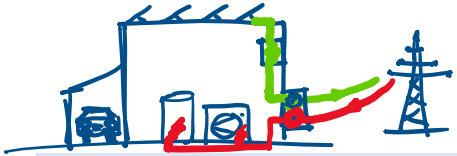
Prioritisation

Grid supportive operation

- The grid operator wants to relieve the grid and avoid network upgrades
  - Increase or decrease load / production
- The grid operator can use the flexibility provided by
  - Building, sites, individual consumers

Regulated and Unregulated Market

Yesterday and tomorrow's incentives

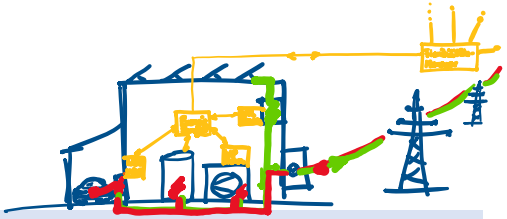


Yesterday

- Grid supportive operation of houses through
  - mandatory ripple control signal for boilers and washing machines
- Relief of the power grid during well-known peak consumption periods

Optimization

Prioritisation

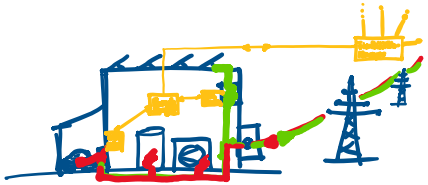


Tomorrow

- Grid efficiency of houses motivated by flexible tariffs (unregulated)
  - Utility offer flexible tariffs (peak or flexibility tariff)
- New tariffs must:
  - be competitive, or
  - have political support (regulation)

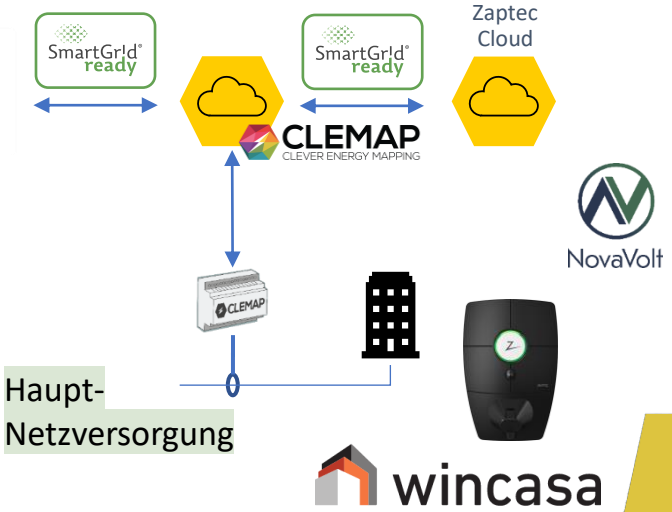
Practical example

Flexibility Management Project «Alle Bolle»

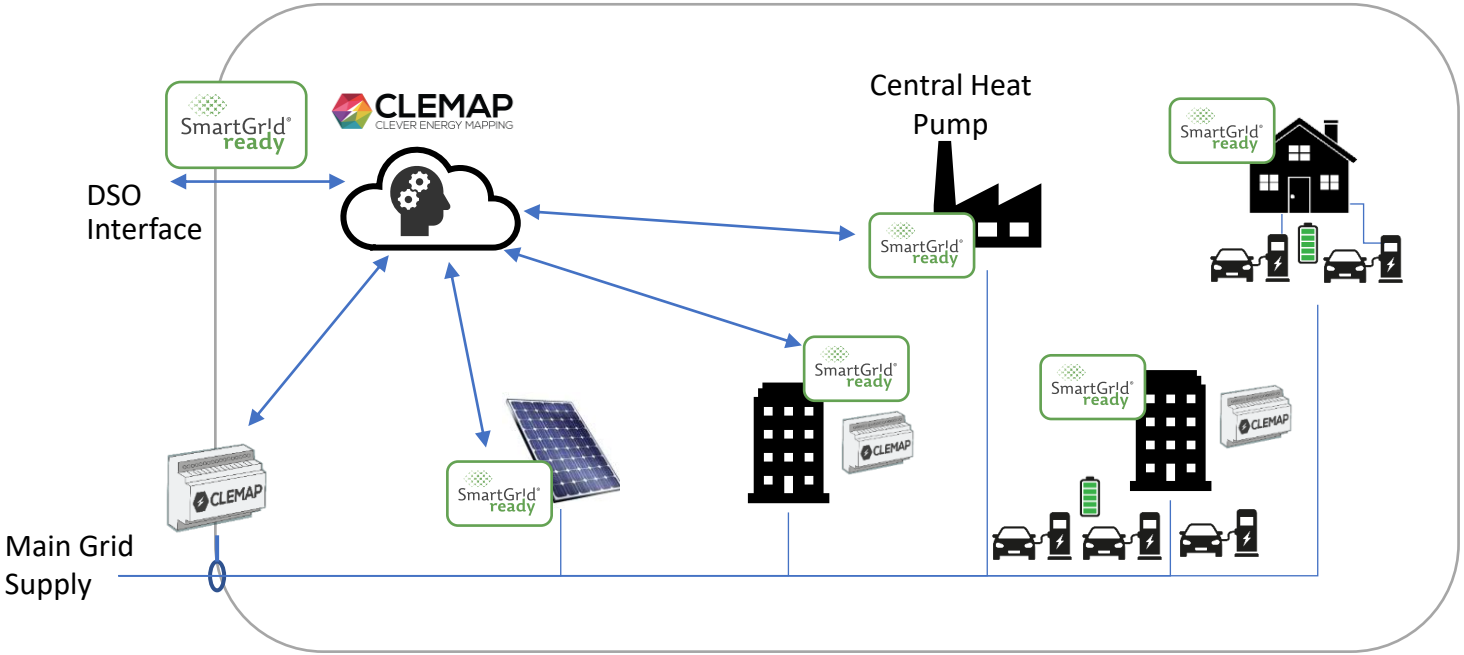


SmartGridready Beta Test, August 2021

- Control of Zaptec EV charging station via CLEMAP Load Management. Flexibility management via AIL Backend.
  - No technical barriers thanks SmartGridready standard
  - For large properties, the owner of the technical installation and the person paying the electricity are not the same person
  - Flexibility tariff discount of 1 Cent/kWh, offers no major incentive



CLEMAP Flexibility Management for Microgrids



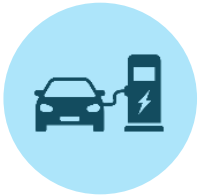
Is thermal energy for the grid or for the building?

- Building flexibility currently used for optimising own consumption
  - in the future it will be worthwhile to employ thermal energy for grid supportive purposes.
- Business models still need to be refined and address the right actors
  - tenants vs. building owners
- The participation of large buildings and properties in a grid-supporting operation will mostly depend on regulation and political decisions.

For all queries about "IoT flexibility Management of Distributed Energy Resources" contact directly CLEMAP

https://en.clemap.ch | clever@clemap.ch

Thank you for your attention



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