HOW CAN YOU GET THE LOADS/CAPACITIES AND WHAT TO DO?

ICT POINT OF VIEW

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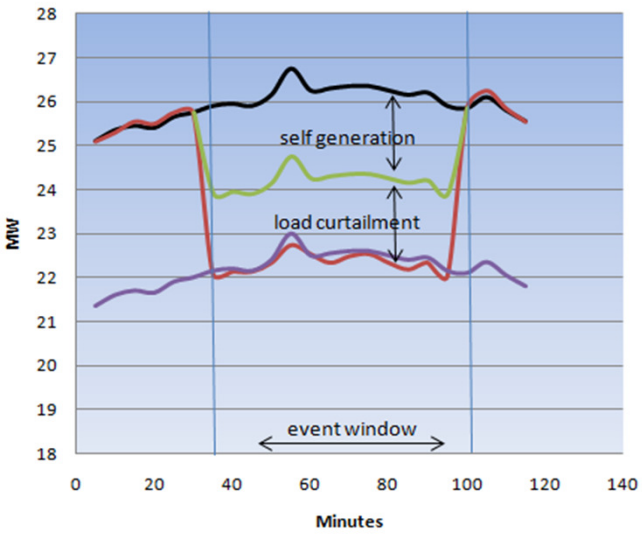
CYBERGRID

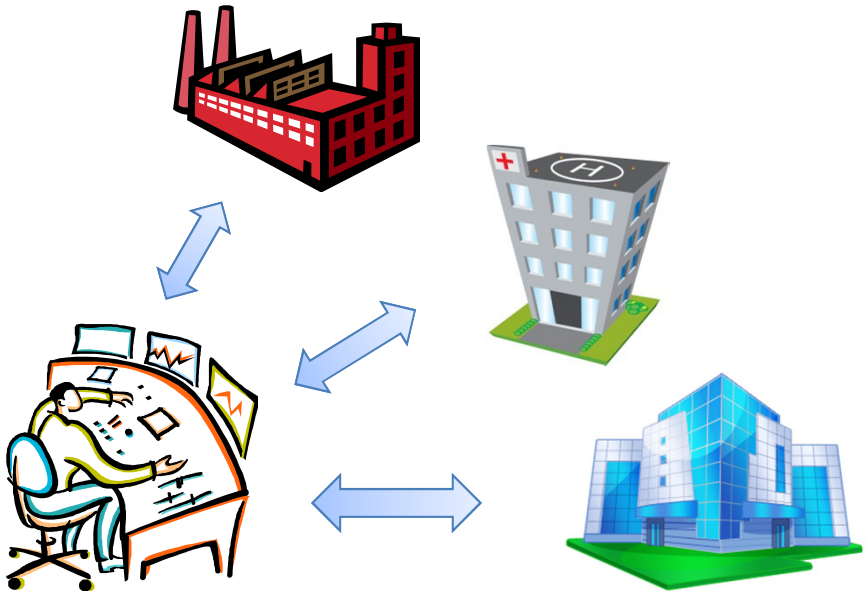
VPP Business Model

- Method of financing (market or incentivized)
- Target market (system services, imbalances, day ahead, intraday, balancing market, etc.)
- Motivation factor (price structure, environmental aspect, system aspect, etc.)
- Customer type (household, commercial, industrial, public)
- Consumption characteristics (responsiveness, capacity, reliability, frequency, duration, etc.)
- Distributed generation characteristics (primary resource, responsiveness, capacity, reliability, frequency, duration, etc.)
- Activation type (response time, duration, changes, capacity, etc.)
- Mode of communication or activation (manual, semi-automatic, automatic).

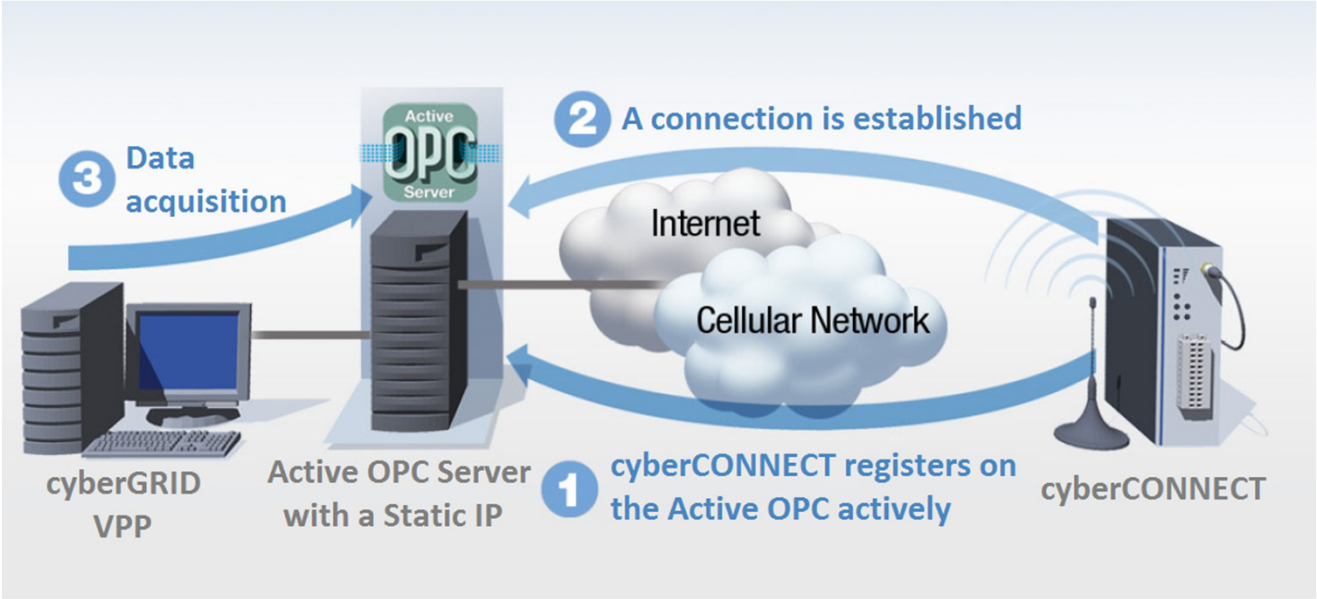
VPP Technology

An advanced ICT solution, called cyberGRID, matches up a variety of distributed generation resources with demand response capabilities (industrial and commercial) and aggregates those resources into a clean energy asset that acts like a conventional peaking power plant. Virtual Power Plants can be deployed on a GW-scale at utility level.

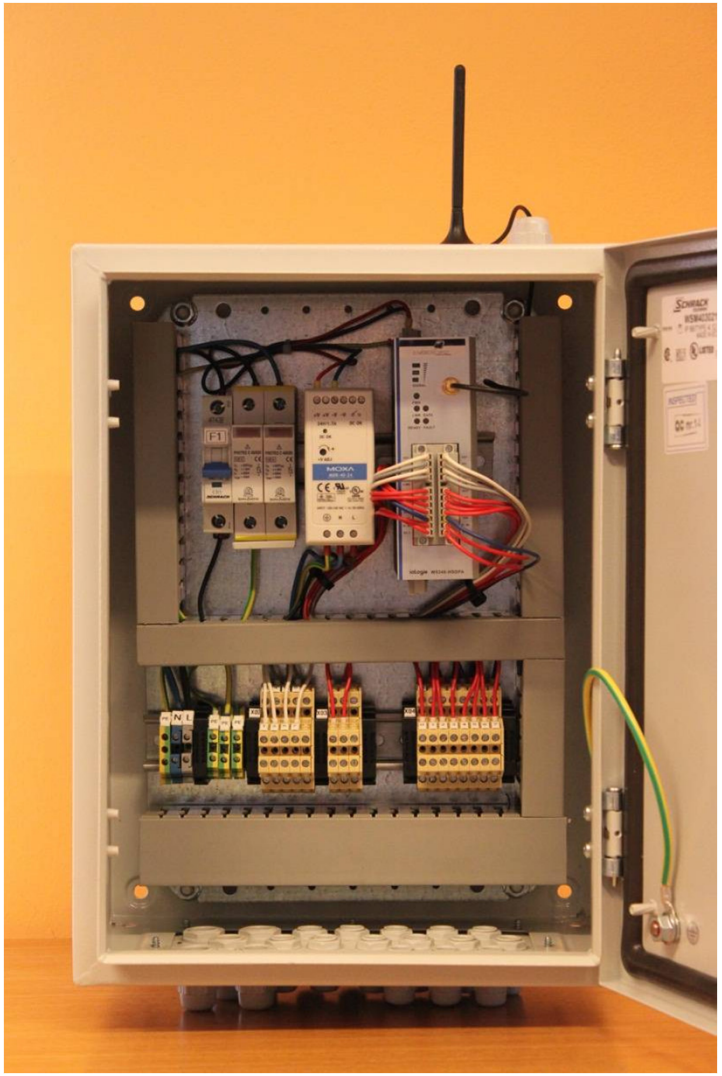




- Direct and automatic activation of different loads or gen-sets
- Real time measurements (pulse counter or RS485)
- Secure and reliable communication:
    - Redundant (Internet, Cellular as backup or primary)
    - Security (IPSec/VPN support)

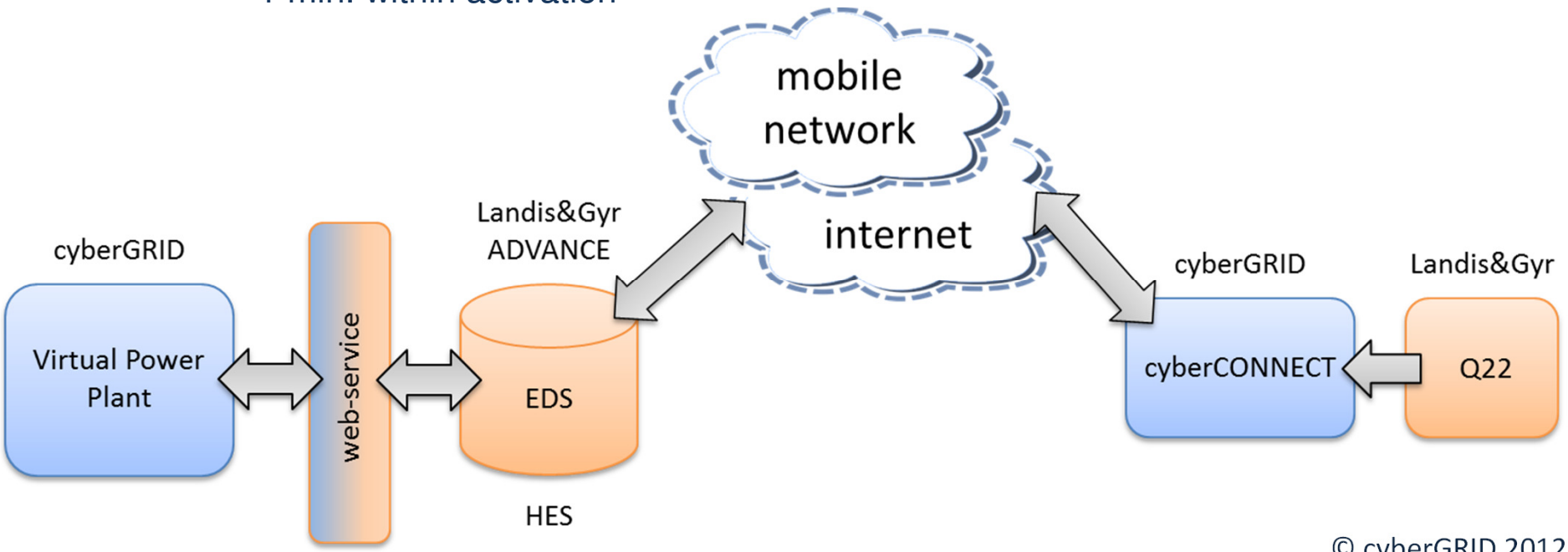


cyberCONNECT cabinet

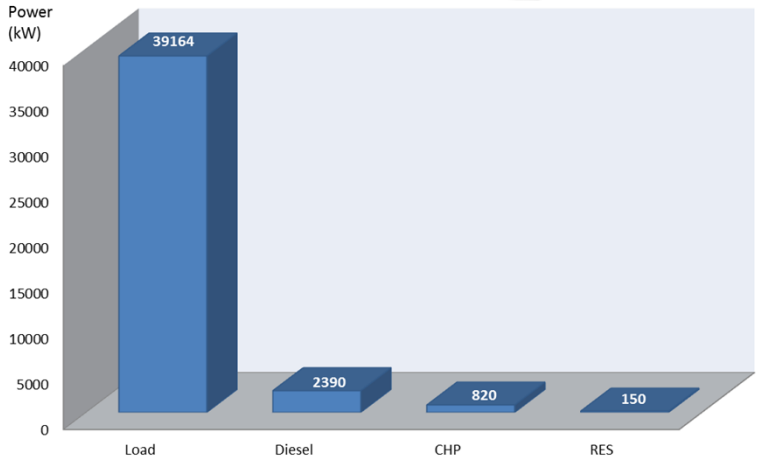


DLMS for conneting VPP & Smart Meters

- Communication based on DLMS standard
- Two independent metering data channels (Q22) for VPP and Utility
- Redundant communication link (primary internet, back-up mobile)
- VPP power and/or energy reading frequency:
    - 15 min. outside activation
    - 1 min. within activation



Case study: capacity collection for EL VPP



- Visited approx. 30 C&I customers
- Signed 18 C&I customers (2011)
- Collected 42.5 MW of capacity

- System help as the most appeciated
- Second is financial impact (private sector)
- Always wanted to have technical explanation of the service
- Availability 1x month
- „Capacity fee“ understandable and generally accepted
- „Energy fee“ more complex, necesary at distributed generation
- Many different time constraints (intraday, weekly, sesonal)
- Most of them want manual activation

Thank you
for the attention!

CYBERGRID

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