FUTURE INTERNET SMART UTILITY SERVICES

FINESCE

Virtual Utility from Northsea to the river Rhine

WP 3

QSC AG

fir an der RWTH AACHEN

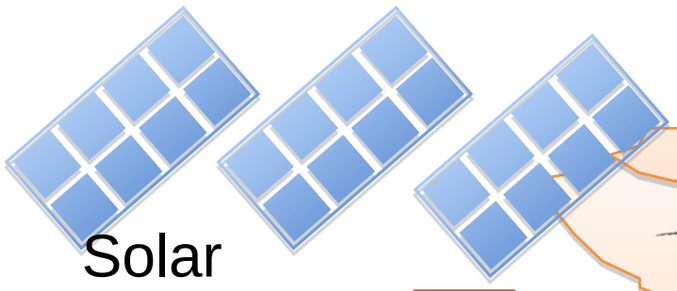
Honeywell

WZL RWTH AACHEN

E.ON Energy Research Center RWTH AACHEN UNIVERSITY

WP3 - FI Developing B2B electricity eco-system - Building a cross-boarder Virtual Utility

Wind



Solar

Bio Mass

GW

GW

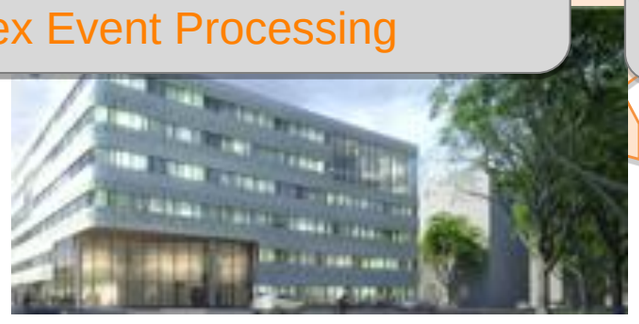
GW

Connectivity Management
GE
Connectivity Manager

Virtual Power Plant
Control

TSO

Smart Energy Solution
GE:
Complex Event Processing



Motivations

- Combine renewable Energy production with Demand Site Management to a Virtual Utility
- Combine different volatile energy production to guarantied CO2 free certified energy

Objective

- Increase the part of renewable Energy of the consumption of electrical Energy

Scope

- Trial installation in Belgium and Germany
- ~10 Renewable energy sources
- ~1 Demand Site

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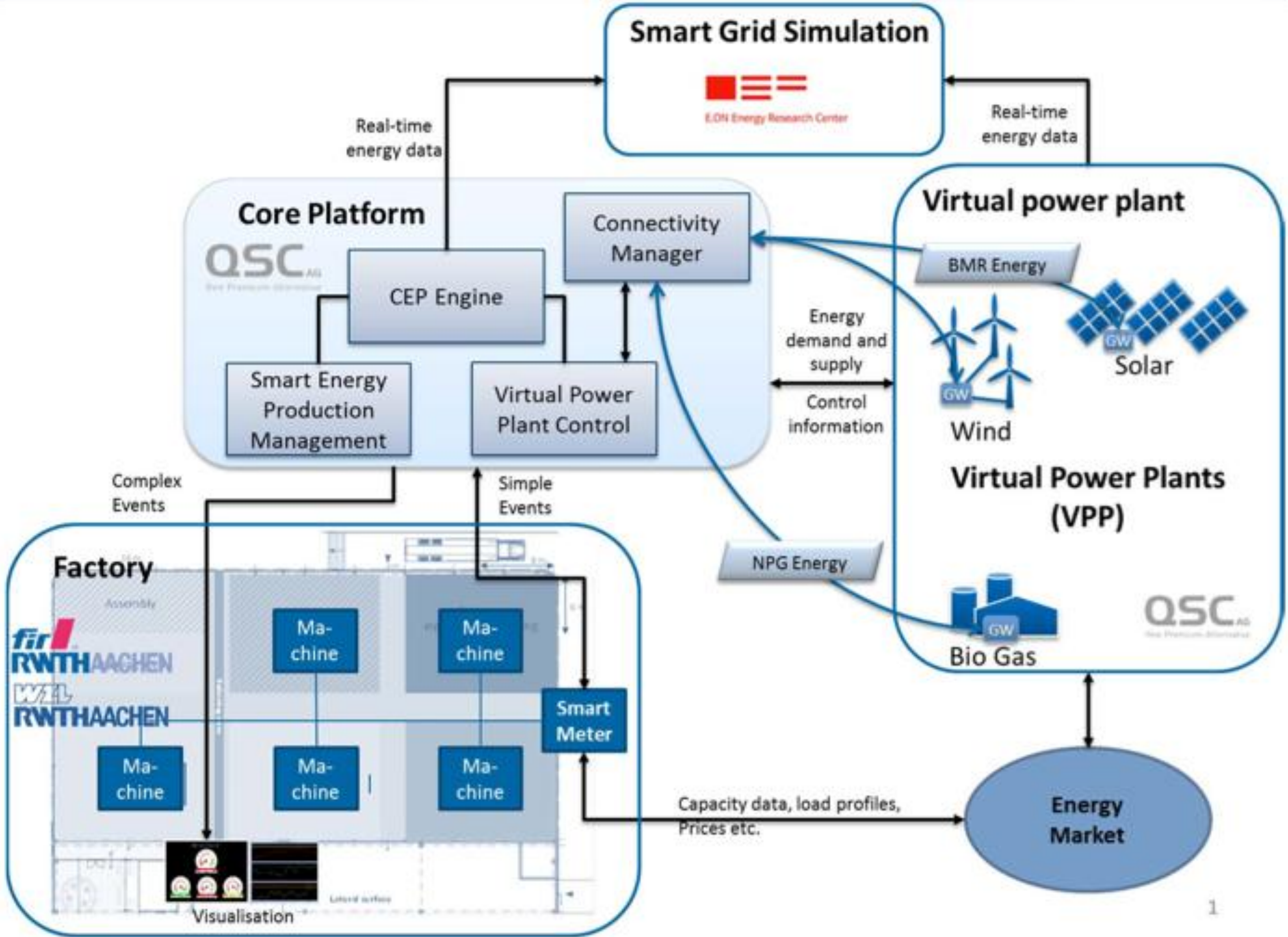
Smart Grid Simulation
E.ON Energy Research Center
Real-time energy data
Real-time energy data
Core Platform
QSC
CEP Engine
Connectivity Manager
Smart Energy Production Management
Virtual Power Plant Control
Virtual power plant
BMR Energy
Energy demand and supply
Control information
GW
Solar
GW
Wind
Virtual Power Plants (VPP)
NPG Energy
GW
Bio Gas
QSC
Complex Events
Simple Events
Factory
fir
RWTHAACHEN
WIL
RWTHAACHEN
Ma-chine
Ma-chine
Ma-chine
Ma-chine
Ma-chine
Smart Meter
Visualisation
Capacity data, load profiles, Prices etc.
Energy Market

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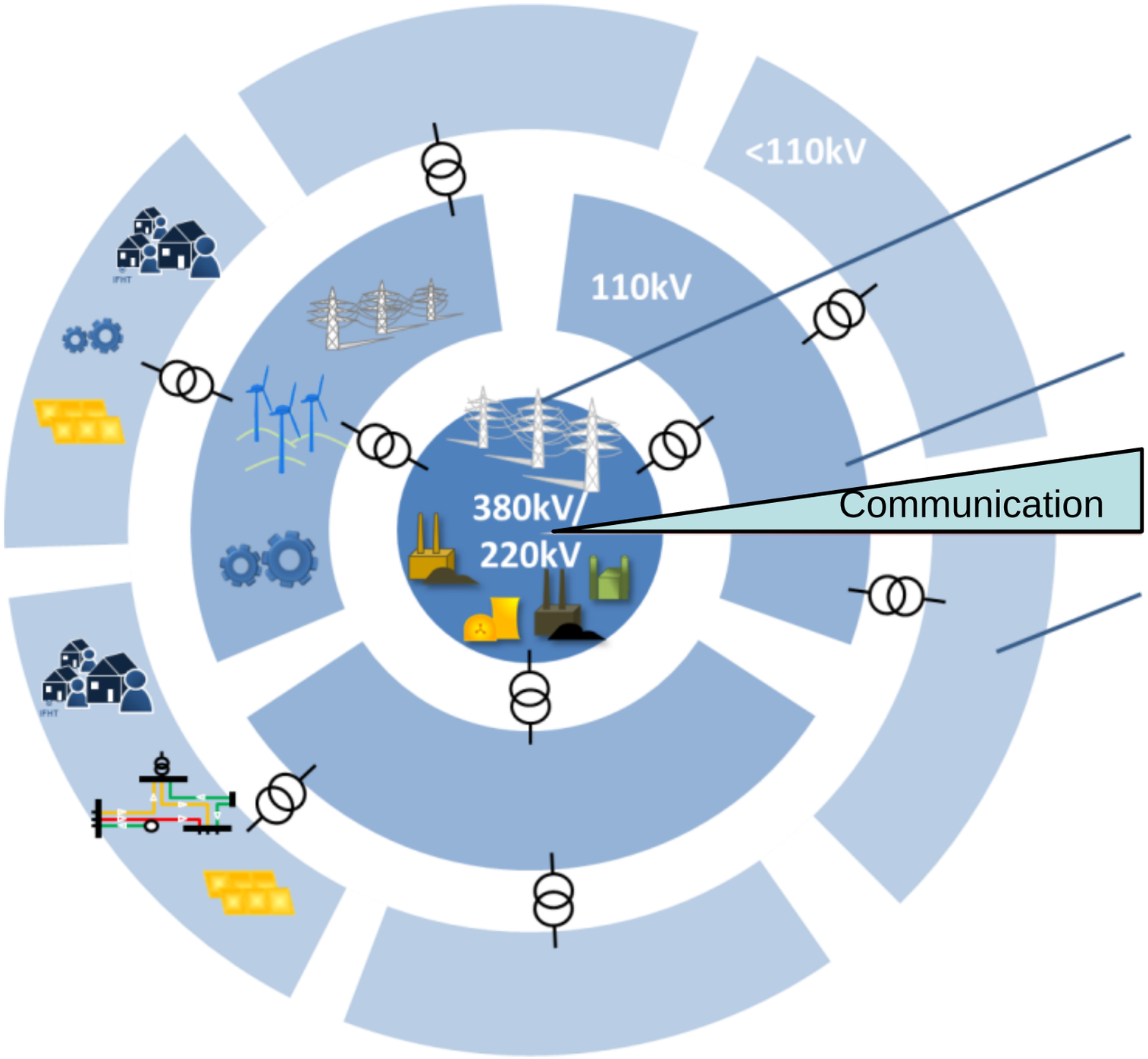
Smart Grid Interaction



Prediction

Residual Load

Communication

Spatiotemporal Correlation Model

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Belgium

Germany

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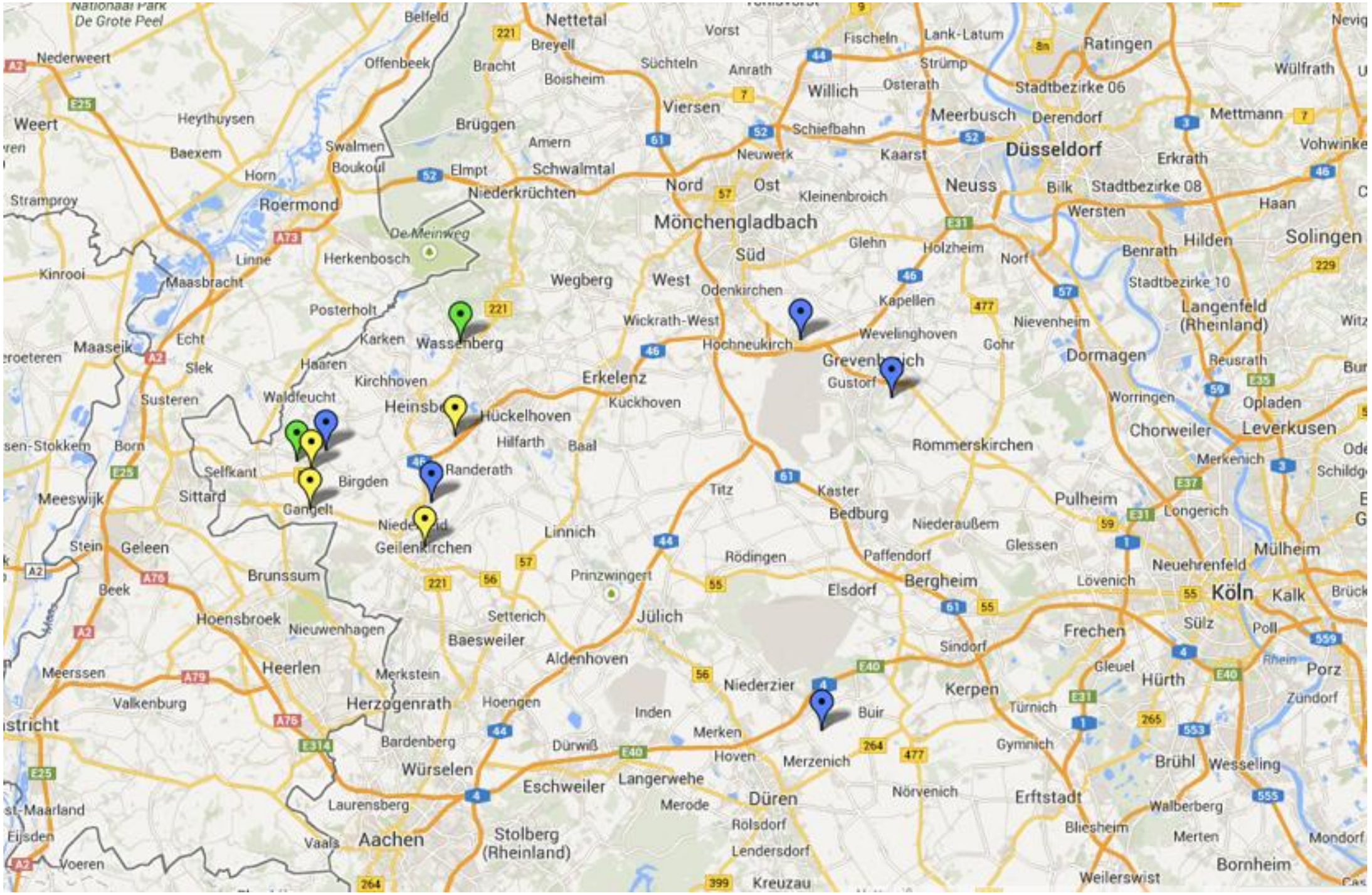

Constrains Challenge

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- Real-time
  - End 2 End Data Management
  - Security in critical Infrastructure
  - Production Schedule Aggregation
  - Demand Site Response

- Demand Site Management
  - Energy Schedule Planing
  - Production Process Steering through Energy Production

The Applications I/F for WP 3

FUTURE INTERNET SMART UTILITY SERVICES

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CONTROL SOFTWARE

HARDWARE

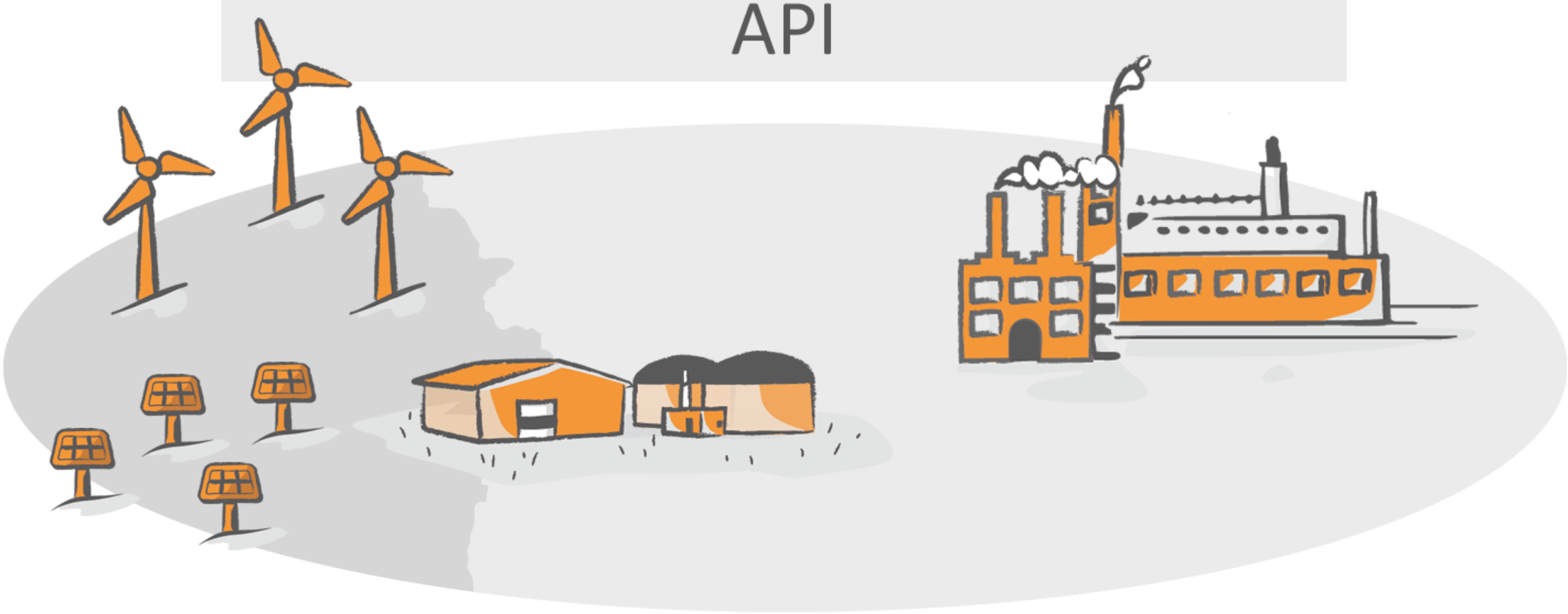
VISUALISATION

BUSINESS IDEA

SENSORIC

APP APP APP APP APP APP

API



Ideas for Innovation & Applications

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- Aggregation of typical Energy Load and Production Profiles
- User-friendly GUI
- Energy efficiency Planner for SME Customer
- Whatever you have in Mind

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Good-Luck!

Ulrich.Hacker@qsc.de