

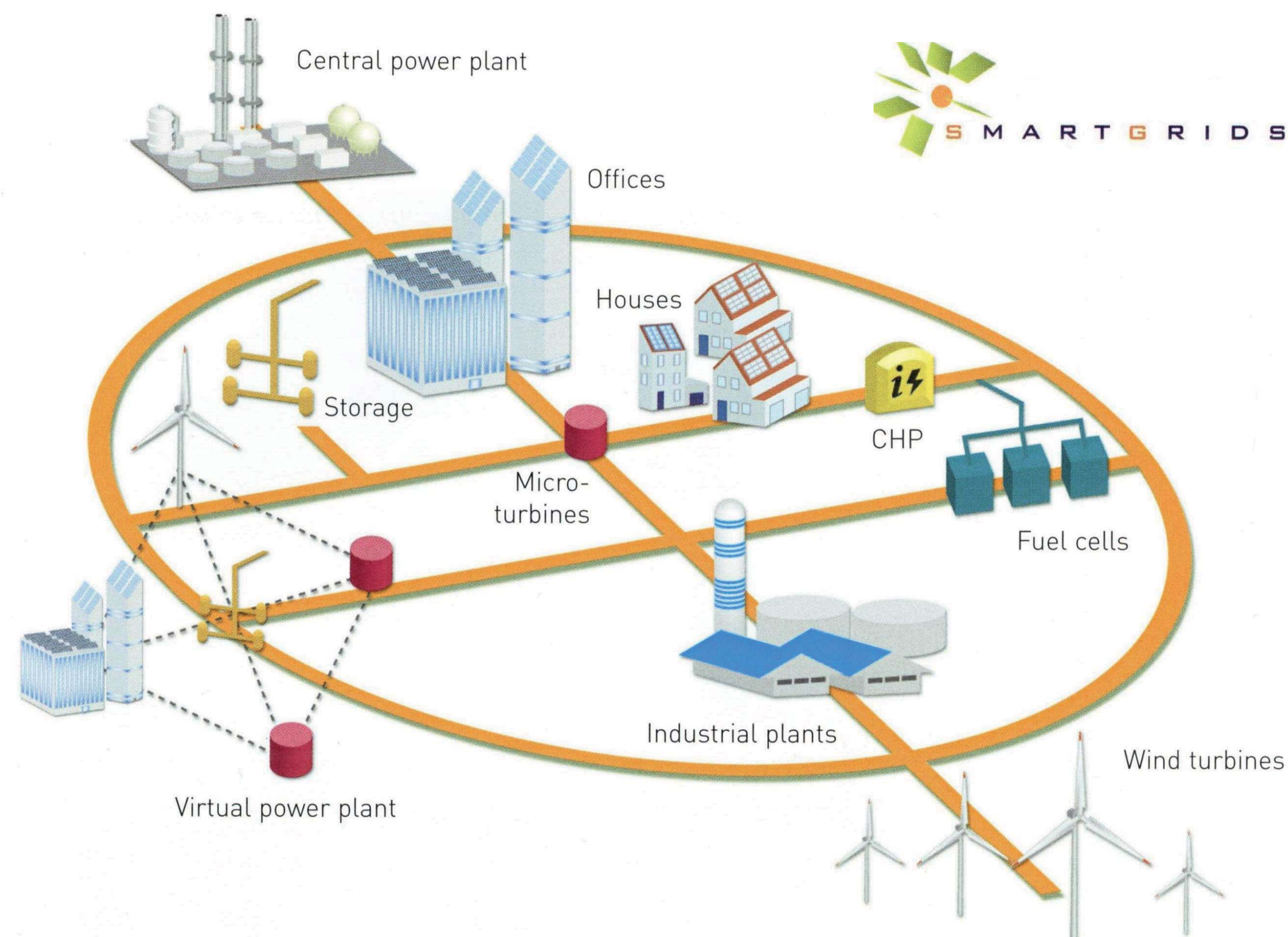
# Smart Substation

## Improving Power Quality, Reliability and Load Profile

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### Change in electricity demand and supply

- Higher simultaneous peak demand
- More power electronics equipment
- More renewable energy and distributed generators



### Smart MV/LV-substation features



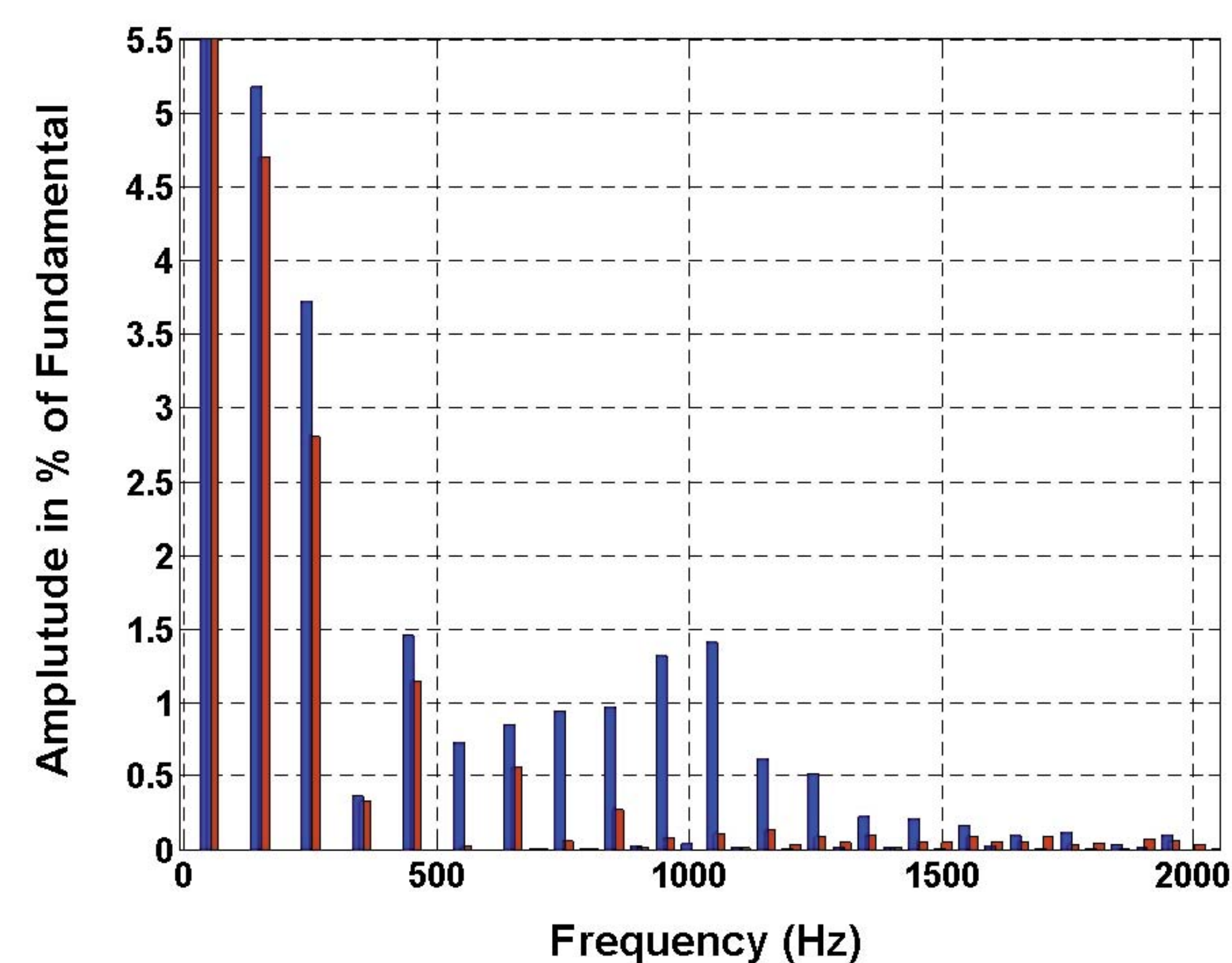
- Communication with homes, generators and utilities
- Electricity storage / UPS
- Monitoring and improvement of Power Quality
- Demand response and peak shaving

### Tests



- Lab test in FPG Lab (May – September 2009)
- Demo in Apeldoorn (from September 2009)

### Simulation results



- Virtual Resistive Harmonic Damping: resonances -70%
- PowerMatcher control: peak load -30%