

Enabling Smart Energy Communities

LichtBlick's Platform for the Energy Future

H. Dieter Waffel

Member of the Supervisory Board



Germany's
largest green
energy retailer,
1 m customers



18 years
experience in
Energy & IT

Driver of
German
Energiewende



Optimizing a
pool of > 1,000
DER 24/7 since
2010



500 employees
20% software
developers



EUR 700 m
revenues

Global Megatrends Turning the Energy World Upside Down

Decarbonization



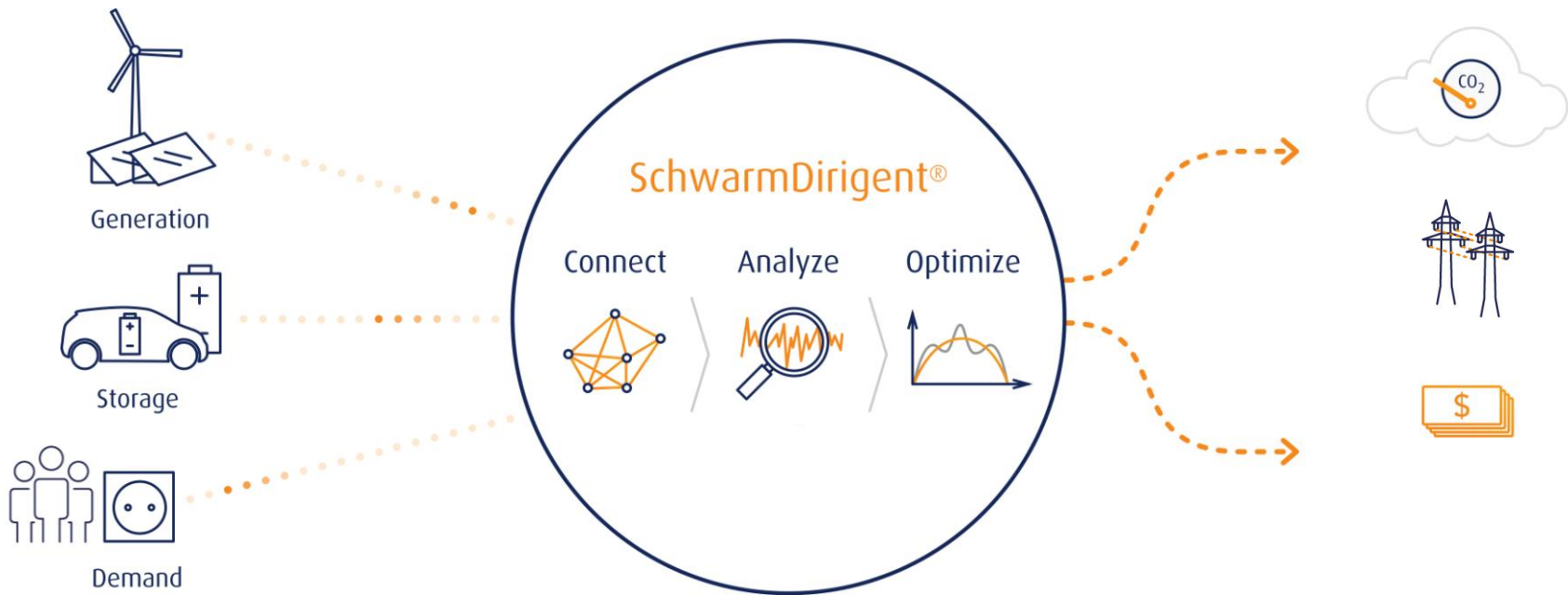
Decentralization



Digitization

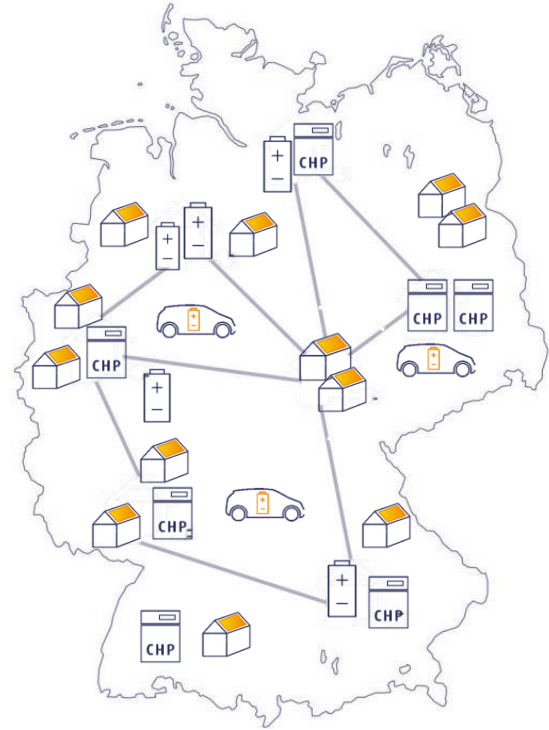


SchwarmDirigent® – Virtual Power Plant



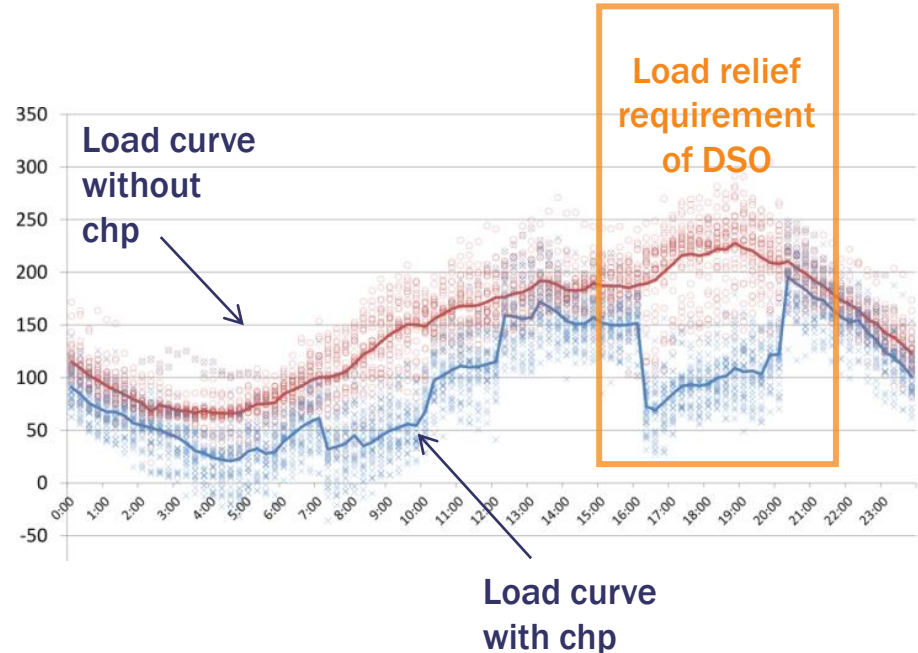
LichtBlick VPP in Action Since 2010

- Virtual power plant of more than 1,000 energy units
- 24/7 commercial operation and optimization
- Full range of optimization applications fulfilled:
 - ✓ Maximized onsite consumption
 - ✓ Spot market sales at Energy Exchange
 - ✓ Providing load relief to DSO
 - ✓ Providing secondary frequency control to TSO



Providing Load Relief in Constraint Grid Areas

- Germany's largest smart grid field test with a DSO
- SchwarmDirigent® optimizes performance of CHP plants to facilitate grid requirements
- Effectively providing load relief



Electric Vehicles Providing Secondary Frequency Control

- Field test with 20 electric vehicles in Berlin
- Integration and pooling of mobile batteries
 - Providing secondary balancing power
 - Taking into account unpredictable user behaviour
- Partners
 - Volkswagen AG (VW)
 - SMA
 - Fraunhofer IWES

In Cooperation with



Federal Ministry for the
Environment, Nature Conservation
and Nuclear Safety



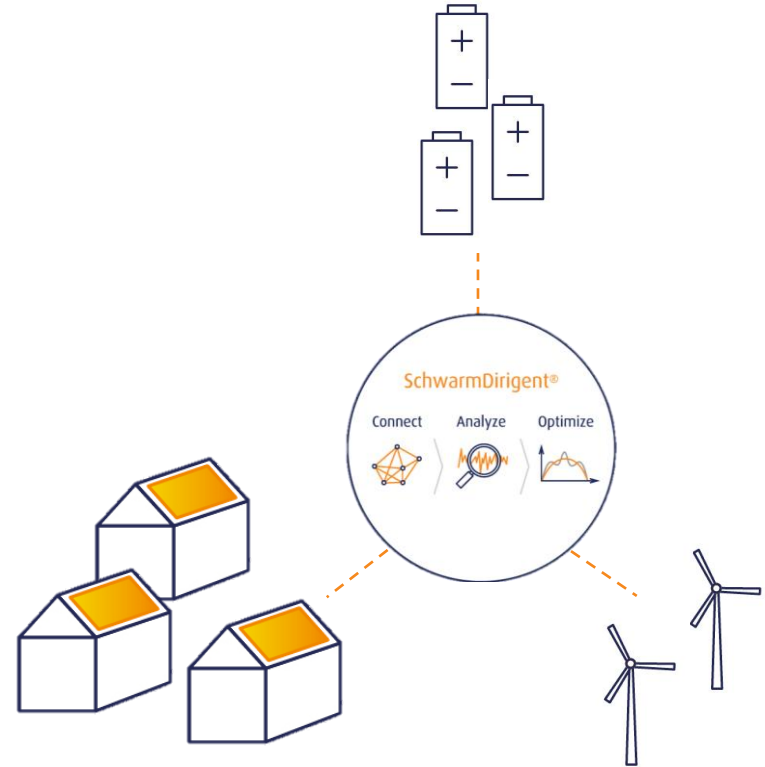
Enabling Tenants to Benefit from Solar Energy

- “Gelbes Viertel”, Berlin – Largest solar roof system in Germany supplies “ZuhauseStrom”
- 3.000 apartments, 50 buildings
- 1,9 MW solar system
- LichtBlick markets green electricity “ZuhauseStrom” directly to tenants
- About 500 customers benefit from the green product



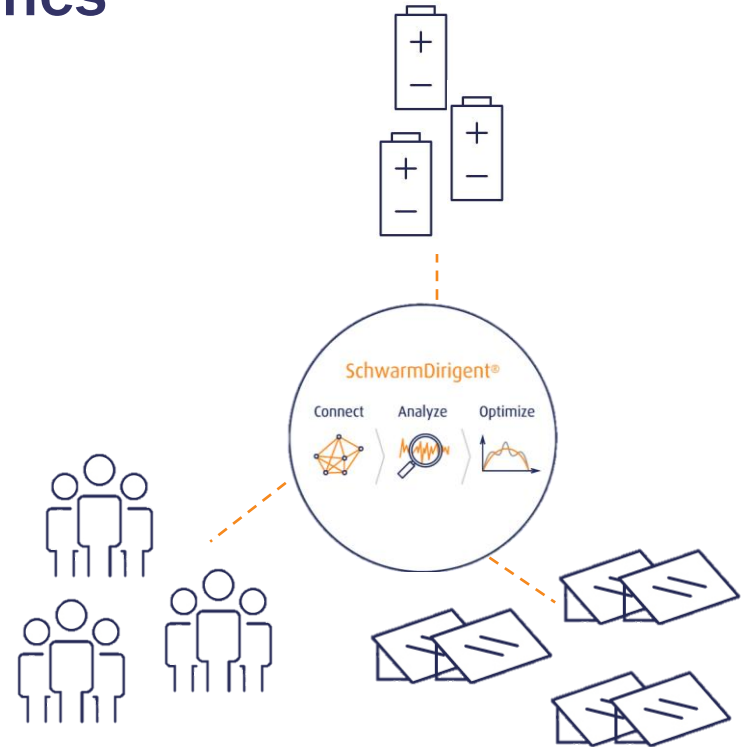
Microgrid Solution in Vietnam

- **SchwarmDirigent®** optimizes the energy supply from DERs within an off-grid eco-lodge hotel
 - ✓ Fossil generation (diesel) is replaced with clean energy from wind and solar
 - ✓ Cost-reduction in energy supply
 - ✓ Reliabel energy supply
- Prospect: holistic energy solution for the entire island (island microgrid)

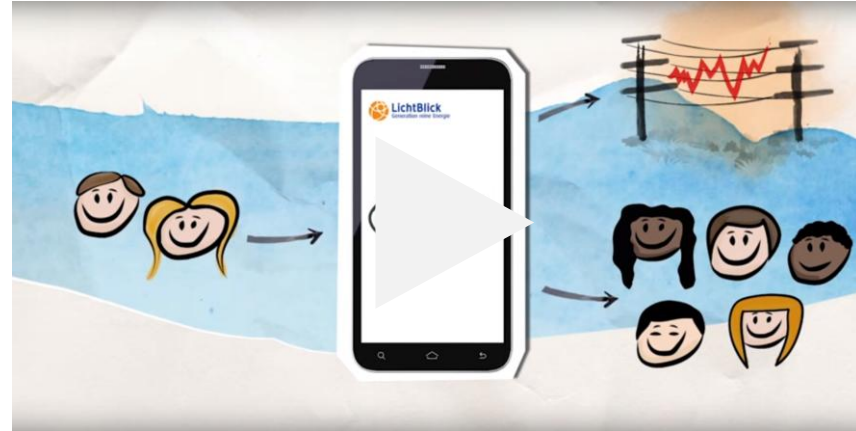


Community Energy in the Philippines

- **SchwarmDirigent®** manages batteries to optimize local consumption in a housing community
- **Affordable and reliable energy is provided to the community members**
- **Prospect: Surplus energy will also be sold on the Philippine spot market**



LichtBlick is Developing an Energy Sharing Platform for the Future



Energy Sharing in Communities and Smart Cities



- ✓ Clean energy cities
- ✓ Efficient use of clean technologies
- ✓ Reliable energy
- ✓ Participation in the energy world
- ✓ Energy trading between people



LichtBlick

Generation reine Energie

Let's get in touch!

contact@lichtblick.com

www.lichtblick.com