

LEMENE 12 MW Renewable Energy Hybrid Solution

Energy Week 19.03.2019

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VAASA WIND &
RENEWABLE
ENERGY

EnergyWeek
2019
MARCH 18 - 21
WEEK FINLAND

EXPO
POHJANMAAN ÖSTERBOTTEN



LEMPÄÄLÄN LÄMPÖ



LEMPÄÄLÄN ENERGIA



LEMPÄÄLÄN
ENERGIAYHTIÖ



GOALS OF ENERGY COMMUNITY of 300 firm

To build a self-contained , autonomous island energy ecosystem for a business park

To build an important demonstration project for decentralized energy system in the area

To base energy production on renewable energy sources

To guarantee participation in the electricity market for independent companies

To exploit intelligence in control of energy networks

Best available technology

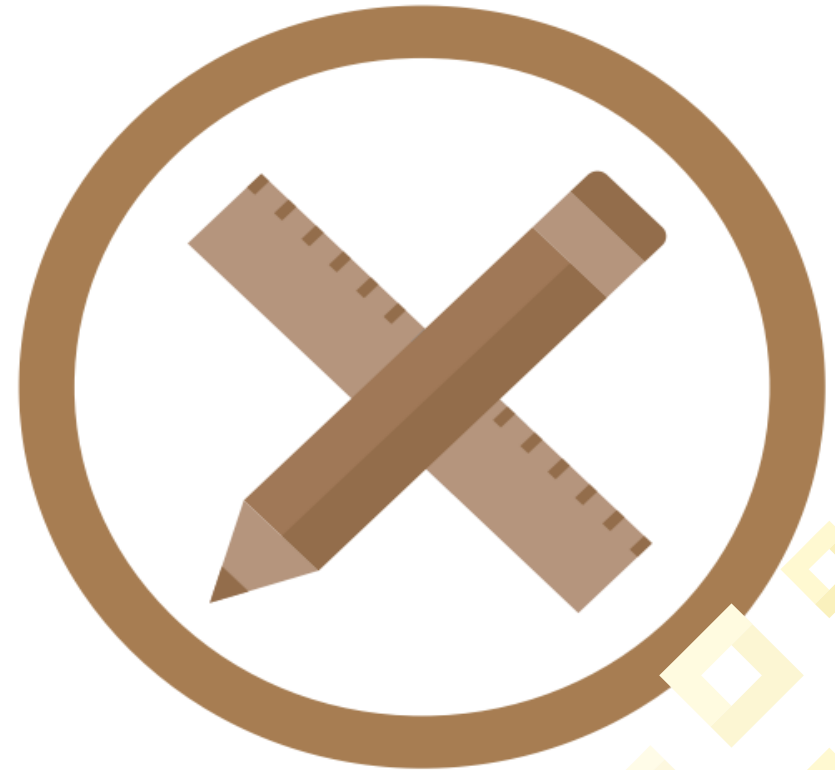
To provide an experimental platform for new technologies application

PROCEN (Tampere University of Technology)

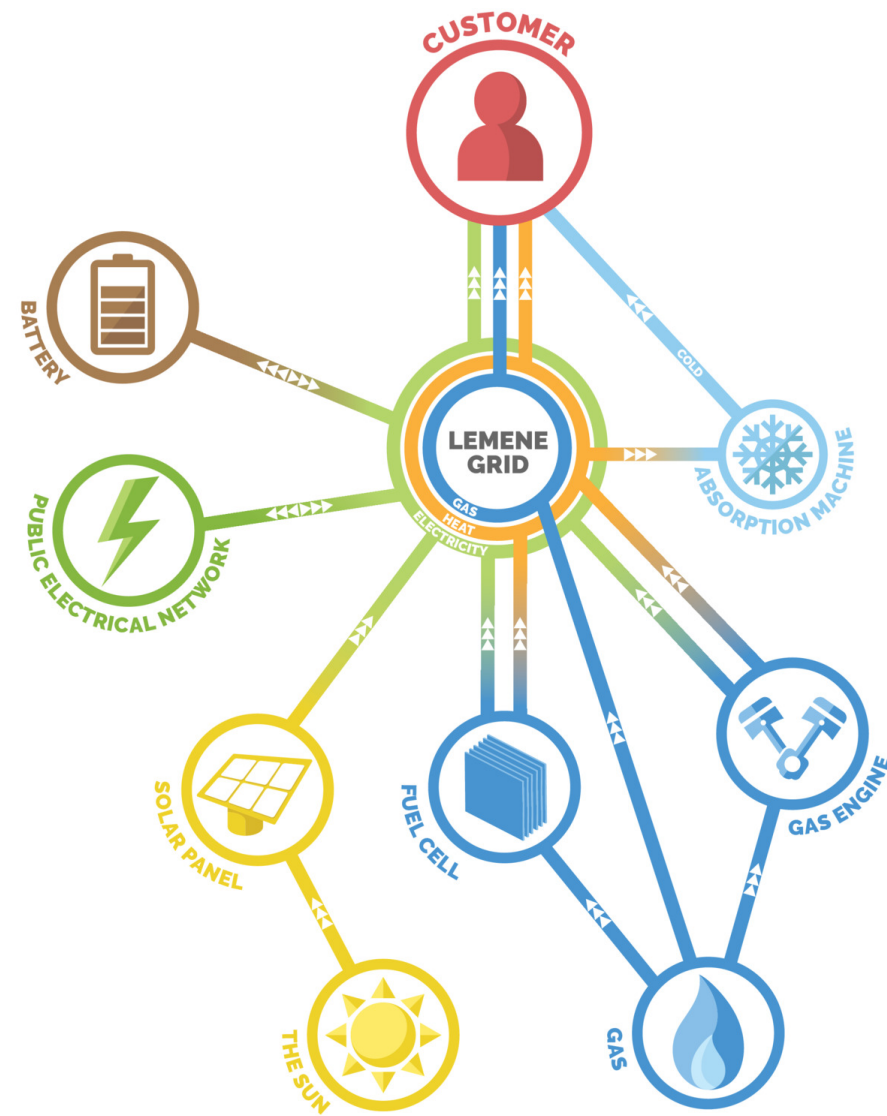
Finnish Solar Revolution

Heila (Lappeenranta University of Technology)

"Power to Gas" –co-operation



Energy system



Solar PV plant 2 x 2 MVA

Gasmotors 4 x 2 MVA

Fuel cell 2 x 65 kW

Energy storage 2 x 2,4 MVA / 1,6 MWh

Public grid 20 kV

District heat for local buildings

Energy Networks

Jakelu/
Kantaverkko liityntä

Marjamäki
Business Park

Aurinkopuisto
Länsi
2 MVA

Aurinkopuisto
Itä
2 MVA

Siemens
Älyverkon
hallintajärjestelmä

CHP
2MVA

CHP
2MVA

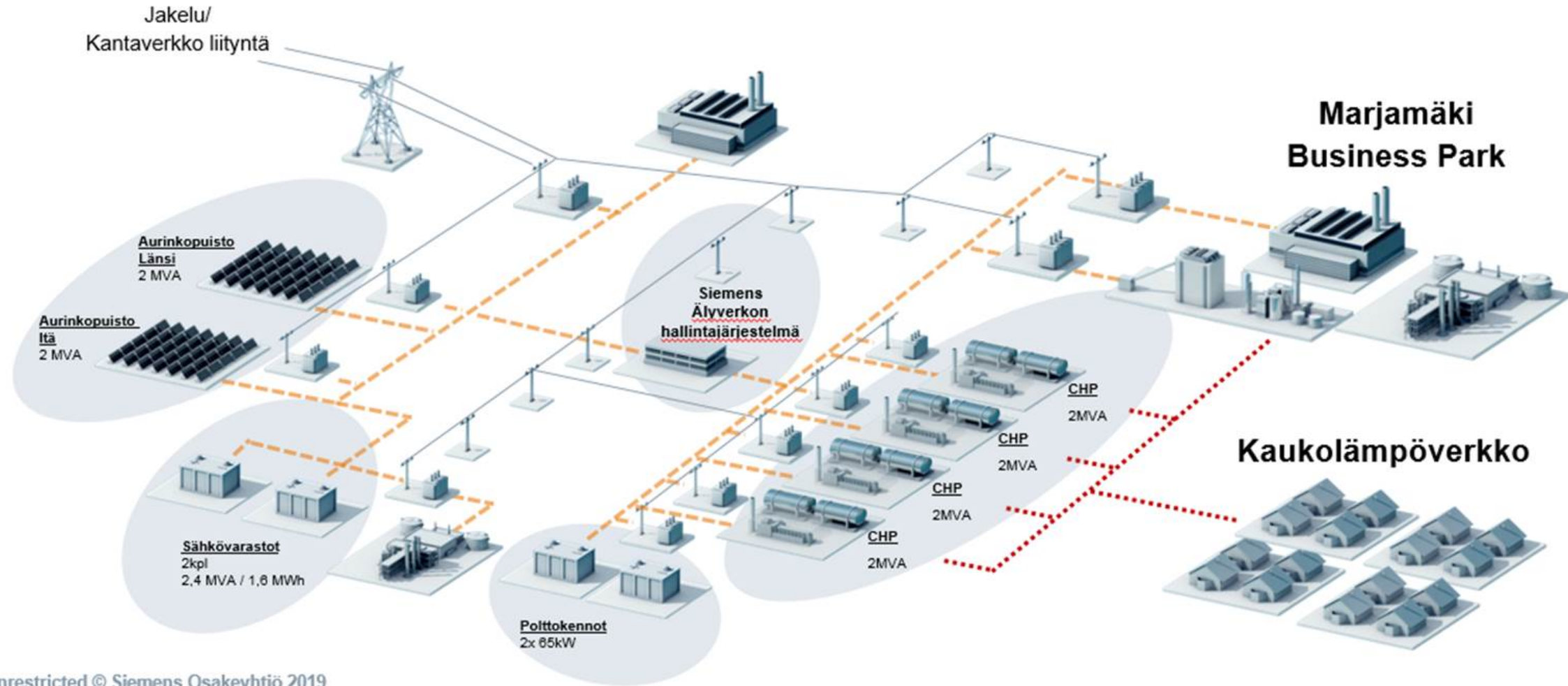
CHP
2MVA

CHP
2MVA

Sähkövarastot
2kpl
2,4 MVA / 1,6 MWh

Polttokennot
2x 65kW

Kaukolämpöverkko



Project time frame



Opportunities & Challenges

Advantages of LEMENE-co-operation:

- Cost savings
- Local energy sources
- Security of supply – island operation
- Sustainable energy solution

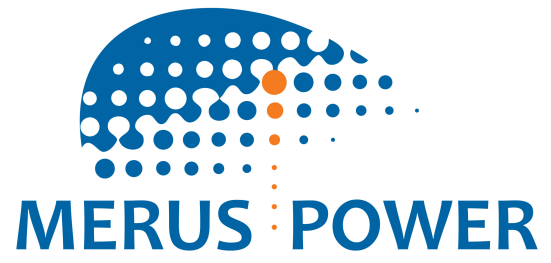
Demand side management:

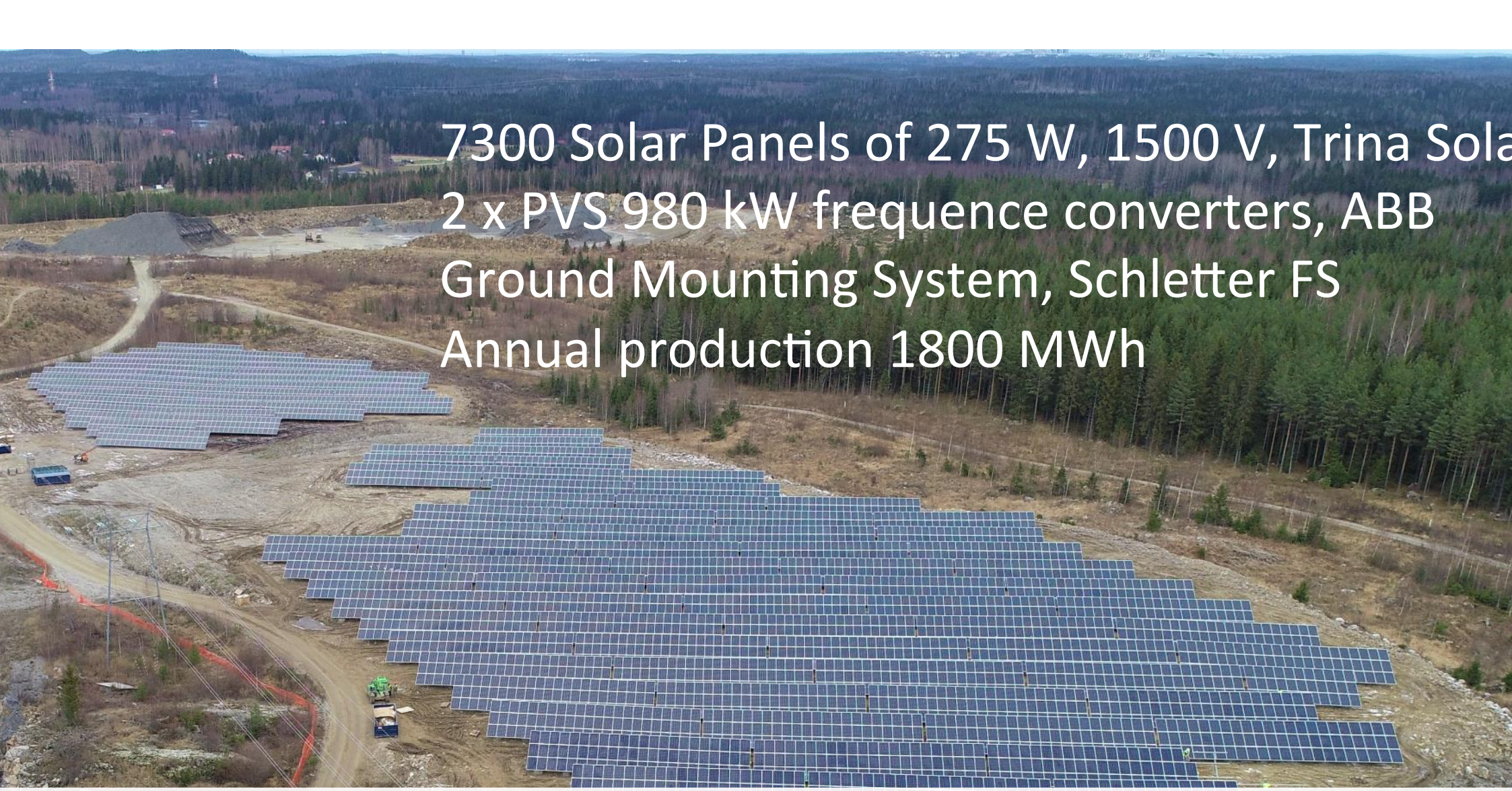
- Micro grid specific tariff structure
- Elasticity of demand
- Valley filling, peak shaving, storage
- Incentives and penalties

Own service and maintenance



PARTNERS
LEMENE-PROJECT





7300 Solar Panels of 275 W, 1500 V, Trina Solar
2 x PVS 980 kW frequency converters, ABB
Ground Mounting System, Schletter FS
Annual production 1800 MWh

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Northern (2 MW) PV system 11/2018



Renewable Energy Solution turn-key supplier

Established in 2009

Started as small wind turbine supplier

Supplied wind power solutions to office buildings,
farms, remote islands, telecompany link towers

Added solar energy solutions to its portfolio in 2014



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