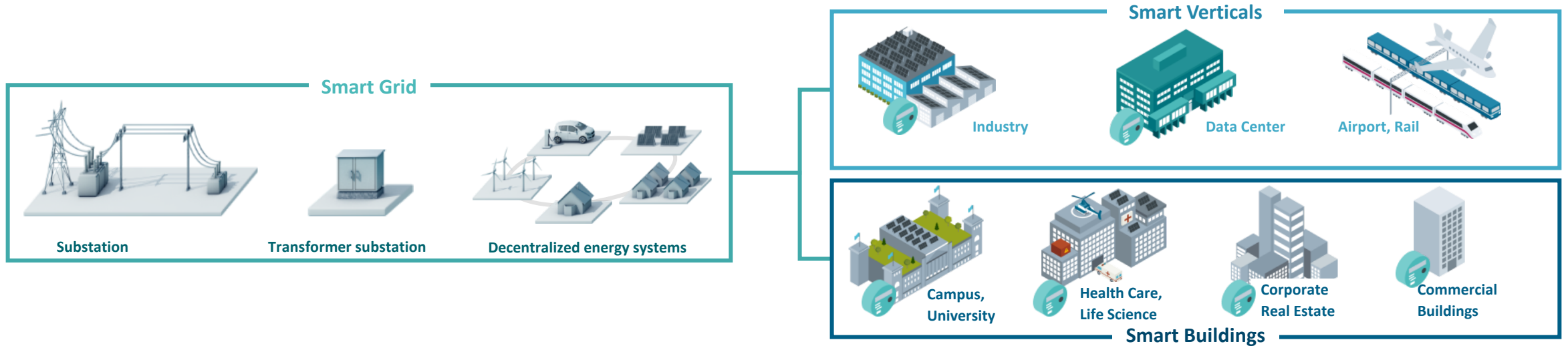


Hammarby Sjöstad supported by Siemens Smart Infrastructure *ElectriCITY*-dagen 16 maj 2019

The Energy market is changing

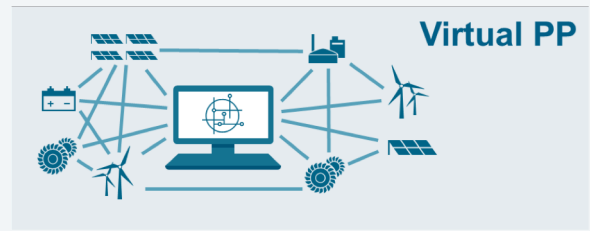
**HAMMARBY
SJÖSTAD 2.0**

SIEMENS
Ingenuity for life



Enablers

- Domain consulting
- OT/IT & IoT integration
- IoT platform
- Digital Twins



Value adds

- Digital Services
- Analytic insights
- Partner programs
- Digital engagement portal

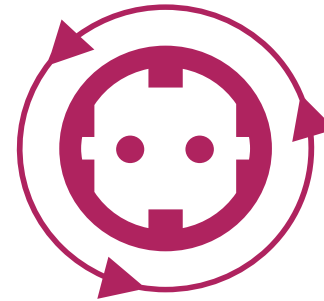
Today's main challenges of the energy system



Economic efficiency

“Over the past century, affordable energy has been a significant component of global economic growth and development.”

World Economic Forum



Reliable power supply

“Inefficient, antiquated energy supply stifles productivity.”

United Nations Foundation, »Achieving Universal Energy Access«



Climate protection

“Europe will cut its greenhouse gas emissions by 40% by 2030 and will produce 27% of its energy from renewable sources.”

The Guardian

Planning, simulation
and engineering

Automation
and control

Maintenance,
monitoring and service



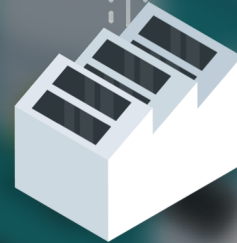
The cloud



connected
grid assets



connected
edge devices



connected
industry

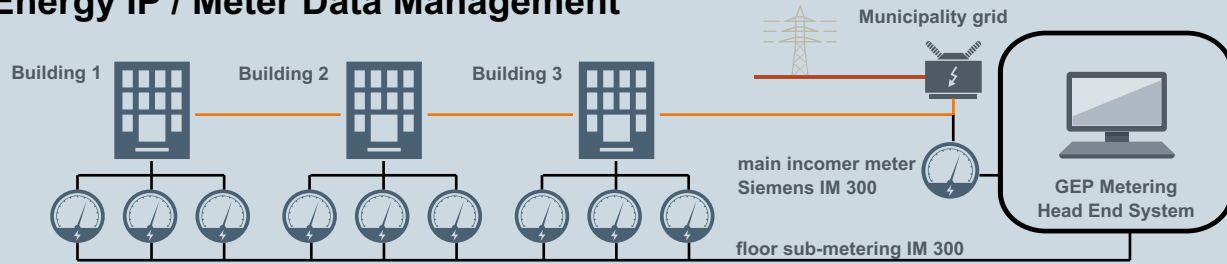


connected
buildings

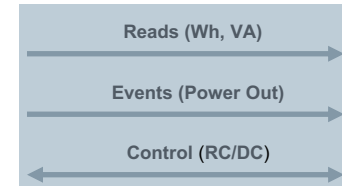
Distributed Energy System @ Siemens Park

3 pillars of the digital ecosystem

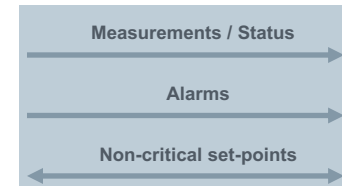
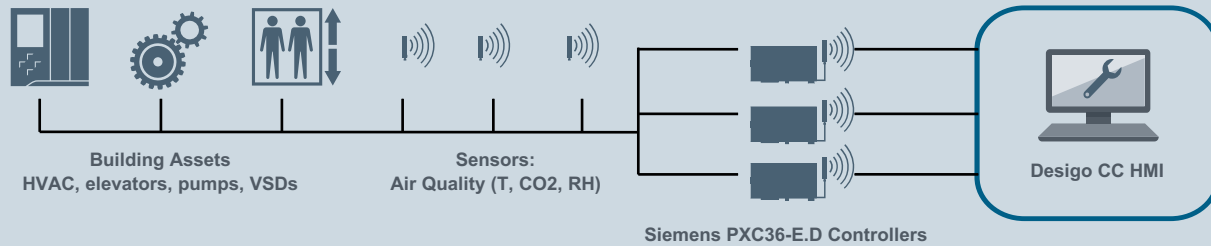
Energy IP / Meter Data Management



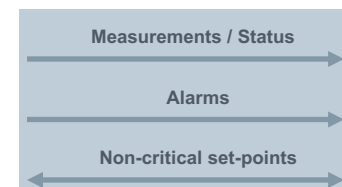
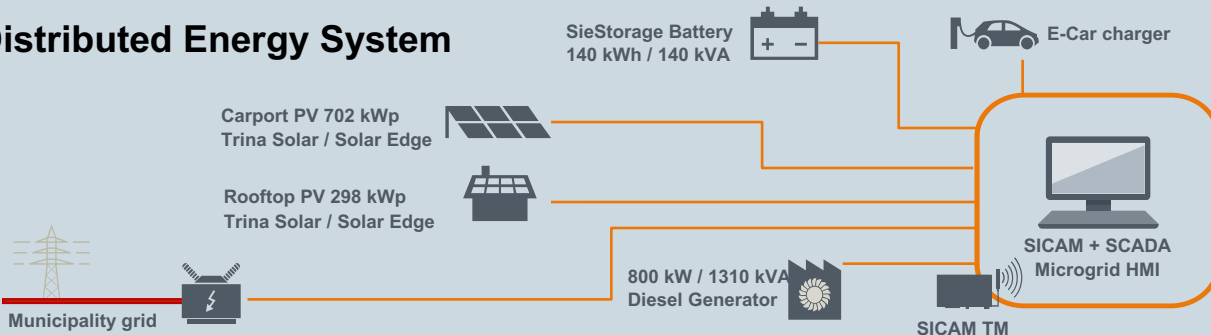
Information flow



Desigo CC Building Management System



Distributed Energy System



Energy IP MindSphere

Energy IP combines technical data with pricing information and weather forecast

- real time monitoring
- increased reaction time
- automated set-point adjustments
- powerful reporting and forecasting

The screenshot shows the Energy IP MindSphere dashboard. It includes a Consumption section with a pie chart showing Subdivided Energy by Usage: 4.5% (HVAC), 60.8% (Refrigerators), and 34.8% (Restaurant/Bar). Below this is a Trend energy chart showing energy usage over time for different categories: home devices, HVAC, Refrigerators, and Restaurant/Bar.

Sello

The smartest shopping mall in Europe



Increase energy efficiency



Customer satisfaction



Increase building value



26,000,000 visitors



Reduce cost



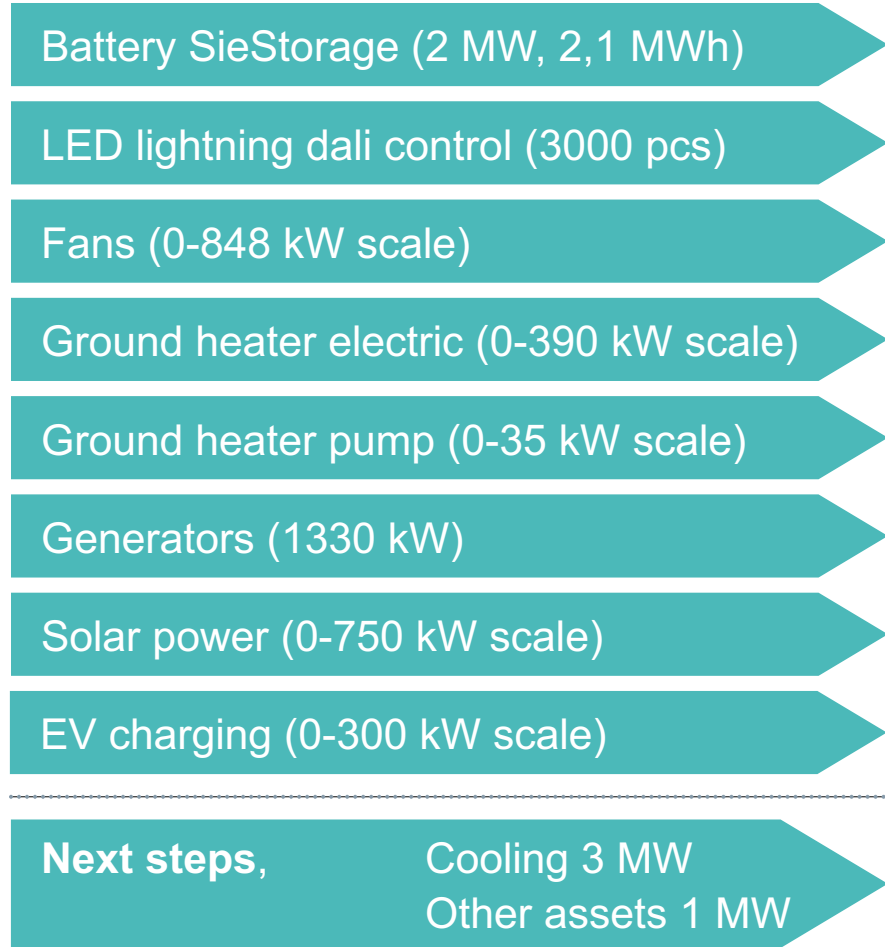
Increase sustainability



Lead EB Platinum certification

Building technology components in the microgrid

Load to be provided from Sello to the reserve market



Benefits

- €480,000 per year gains in energy market
- 470 MWh per year energy production
- 281 tons CO₂ per year emission reduction
- €118,000 per year savings in energy efficiency and maintenance

Connecting multiple prosumers in a smart urban districts

Aspern, Vienna



Connecting buildings, grids and markets using an intelligent grid infrastructure and data analytics in the cloud

Increased flexibility for power grids

Improved transparency through prediction of consumption

Integration of other energy sectors e.g. e-Mobility

Exploration of new digital end-user services

Generation

Transmission

Distribution

Consumption

Smart Street – Electricity North West (ENW), United Kingdom Optimizing control of voltage

HAMMARBY **SIEMENS**
SJÖSTAD 2.0 *Ingenuity for life*

Challenges

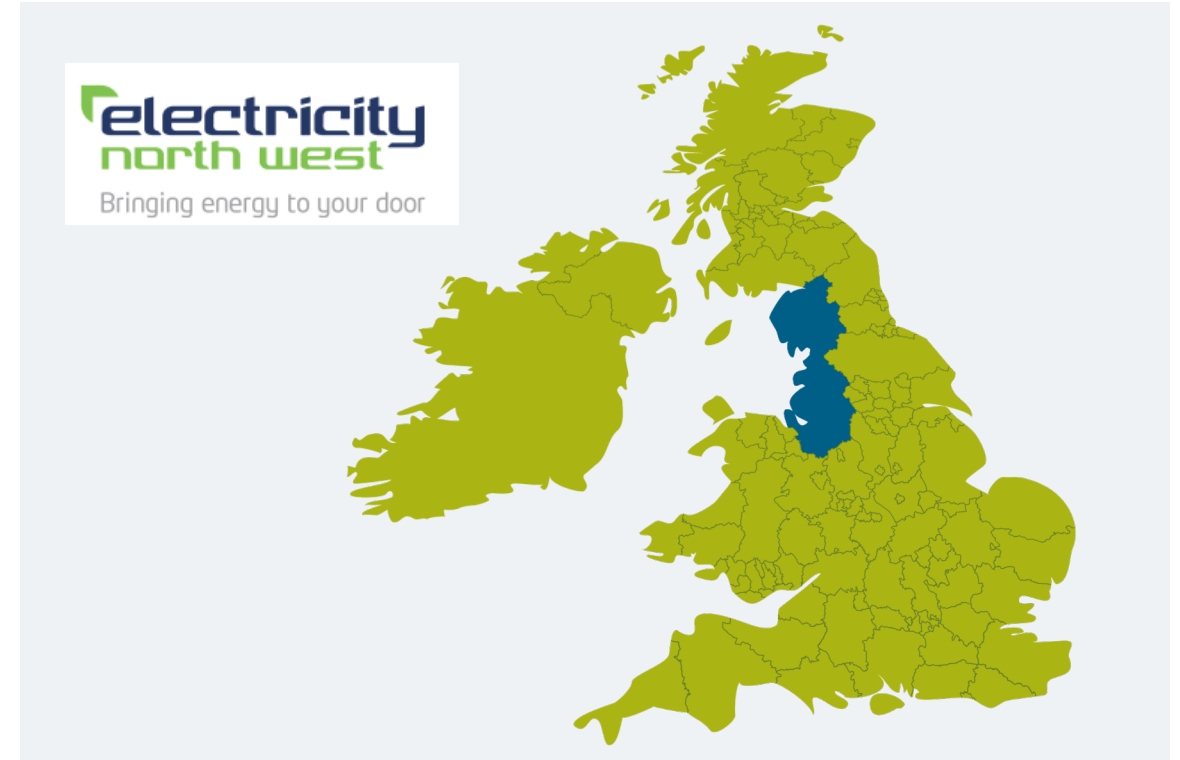
- As the demand for electricity is set to double by 2050, the Smart Street trial aims to test innovative technologies to ensure the network is fully prepared for the increase in solar panels, electric vehicles and heat pumps by using technology to regulate voltage, regardless of where power is being added or taken from the network.
- Minimise the impact of low carbon technologies, while maintaining voltage within statutory limits
- Increase customer retention

Solutions

- Smart Street is the first demonstration in UK of a fully centralised low voltage network management and automation system. Its new voltage control techniques configure and optimise voltage on high voltage (HV) and low voltage (LV) networks in real time using the Spectrum Power ANM software developed by Siemens.

Benefits

- Secure integration of distributed energy
- Recurring financial savings for ENW and their consumers, without degradation to the quality of customers' supplies
- Increase customer satisfaction and retention



Project partner: Electricity North West
Country: United Kingdom

Distribution Network Operator located in North West England

VPP Project

Enables us to Jointly Foster an Ecosystem and Create New Value and Growth

**HAMMARBY
SJÖSTAD 2.0**

SIEMENS
Ingenuity for life

Co-creation with many stakeholders

- Government – supports on CO2 targets
- TSO / DSO – in line with strategy
- Customers value real test bed

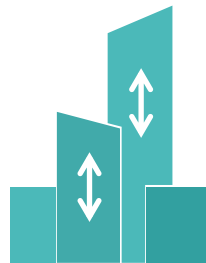


Buildings and industry secondary processes have huge flexibility potential

- Microgrid capability
- Back-up power generators
- Cooling / Heating

Integration of people flow

- Including loads from elevators and escalators (People Flow integration)



Digital extensions

- eCar smartcharging
- Open IoT platform for next generation digital services

Real estates benefits

- New earning potential from energy markets
- Efficiency and savings

Siemens provides the future leading design for digital platform and data driven services for buildings and industry facilities.

Some other references

Surplus Renewable Generation Infeed Wildpoldsried

SIEMENS
Ingenuity for Life

4 x

produced renewable energy compared to own consumption

Islanding

capabilities disconnecting the grid

300 kVA peak

for voltage control and energy shifting utilized



Arizona Public Services Electric Company: Microgrid Controller integrating Low Voltage Distributed Energy System

SIEMENS
Ingenuity for Life

10MW

combined solar power from residential roofs

1500  **s**

integrated into active load management

360\$

reduced from annual energy bill per customer



Isle Italy: SICAM Microgrid Controller/ SIESTORAGE enable stand alone electricity for a renewables integrated micro grid

SIEMENS
Ingenuity for Life

10-15%

Oil / CO2 savings

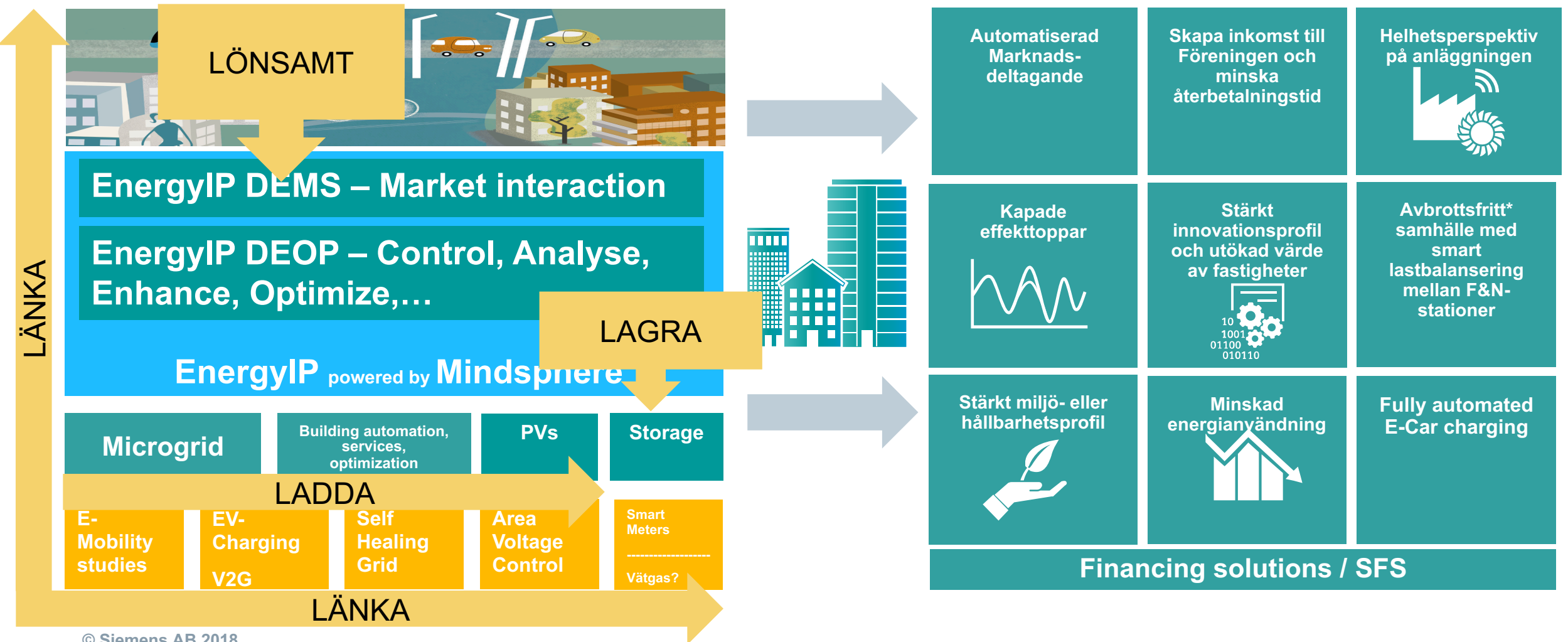
Reliability

...Performance and reliability of control is very high and consists reference for future projects. Can be considered as business excellence...

ENEL, Customer



Framtida möjligheter



Värden vi kan gemensamt skapa till Hammarby Sjästad.....

HAMMARBY
SJÖSTAD 2.0

SIEMENS
Ingenuity for life





**Creating
environments
that care**



Thank you!

HAMMARBY
SJÖSTAD 2.0

SIEMENS
Ingenuity for life



Erik Mårtensson
Siemens Smart Infrastructure

Erik.Maartensson@siemens.com

siemens.com