

The world needs a new approach

Siemens TEM-Ministry energy spearhead project

12.9.2019, Veikka Pirhonen, Head of VPP Solutions,
Siemens Osakeyhtiö

Climate change is the biggest challenge of our time
The most emissions are created in cities

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Carbon free cities

Helsinki by 2035

Espoo by 2030

Tampere by 2030

Vantaa by 2030

Oulu by 2040

Turku by 2029

Cities have major opportunities to solve climate challenges: Buildings consume 40 % of energy globally

Green and connected buildings are a core for sustainable cities.

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Renewables



eCars



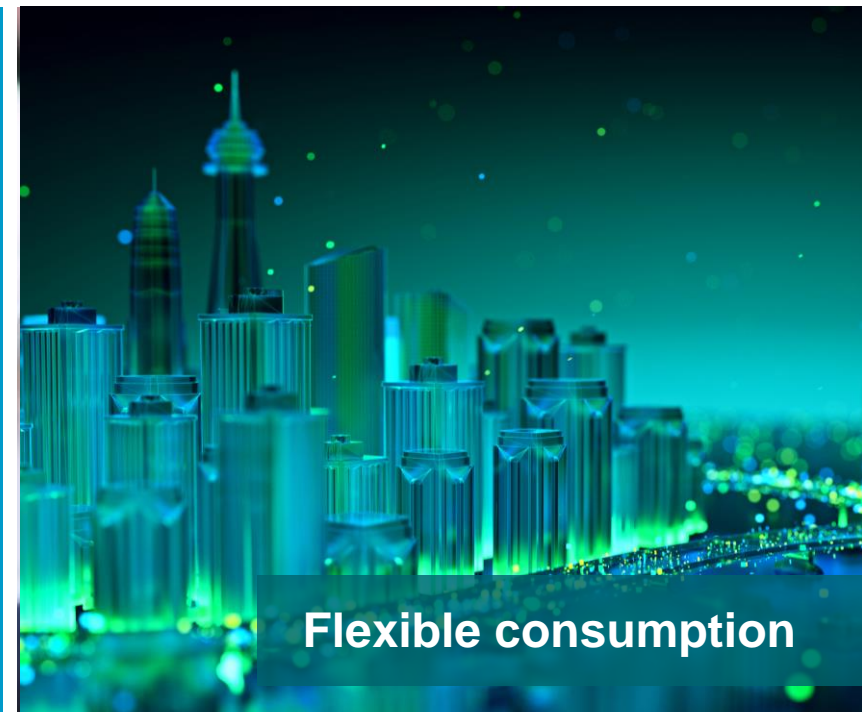
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Decentralization



CO² emissions

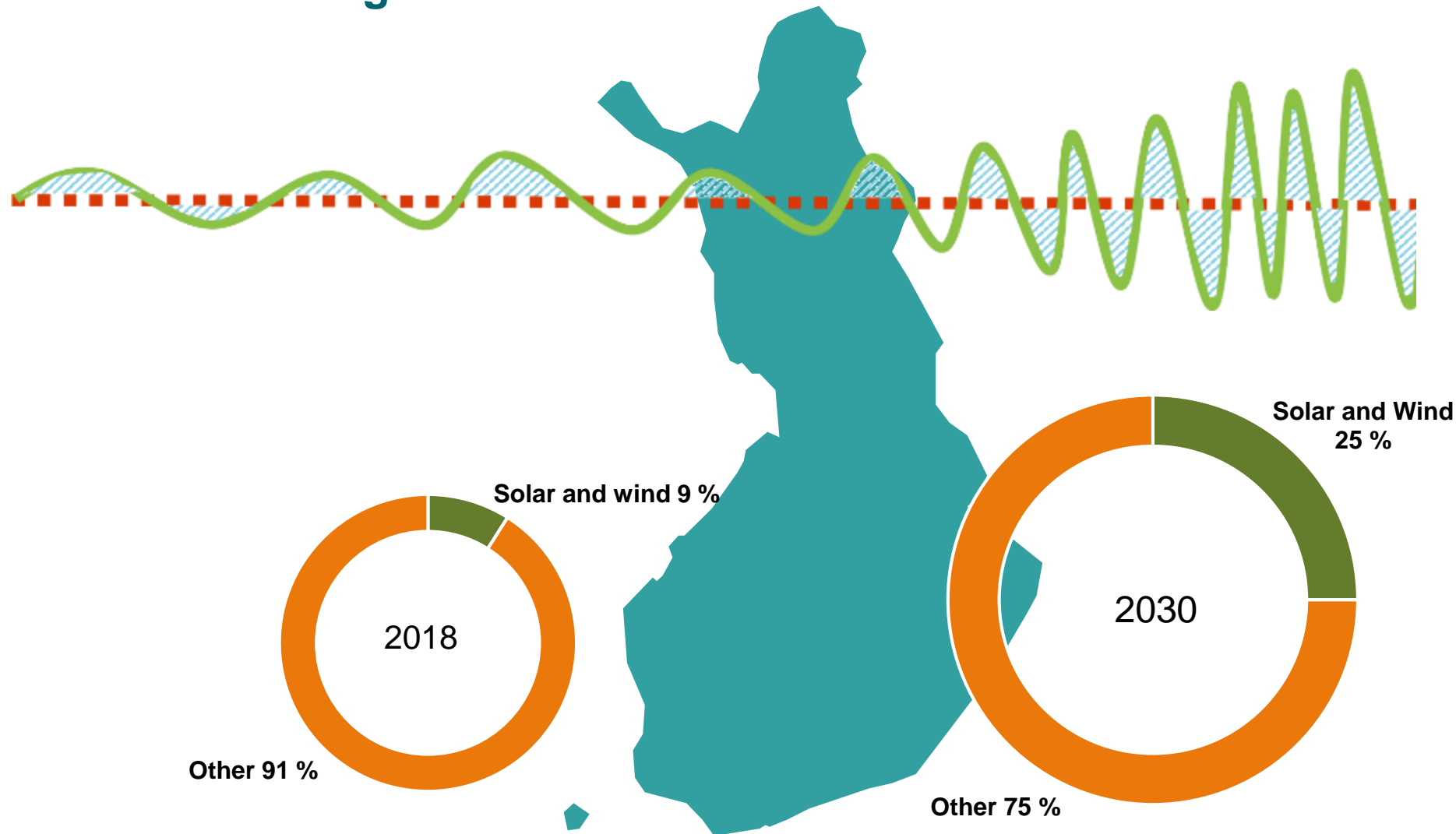
Energy system is changing.



Flexible consumption

Energy system will become more volatile

How to balance the grid?



Two options for balancing power

Through power generation in back-up power plants

**Traditional
way**

- Fossil power not to drive environmental goals
- Expensive for a society to maintain
- Replacements of old power plants unprofitable

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Through flexible consumption

Demand response through virtual power plants

- Development of demand response models
- Digitalization as an enabler
- Disruption of the traditional energy markets

New way

Virtual power plant from Siemens 4win approach to protect climate



Buildings

New earning model
Efficiency increase
Future readiness for smart cities

Society

No need to maintain reserve power plants
Open platform for new service providers
Climate protection as a service

Users

Better conditions in the buildings
#creating perfect places

Environment

Enabler of renewable energy and eTraffic
Less need for fossil based balancing power

**VIBECO provides virtual power plant service
by combining energy system and building know-how**

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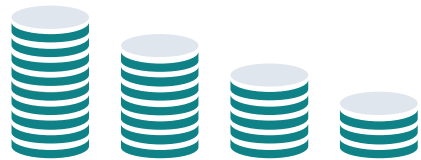


VIBECO is a platform company providing digital services for buildings. Its first virtual power plant service is a totally new approach to create sustainable society and to generate new measurable value to building owners.

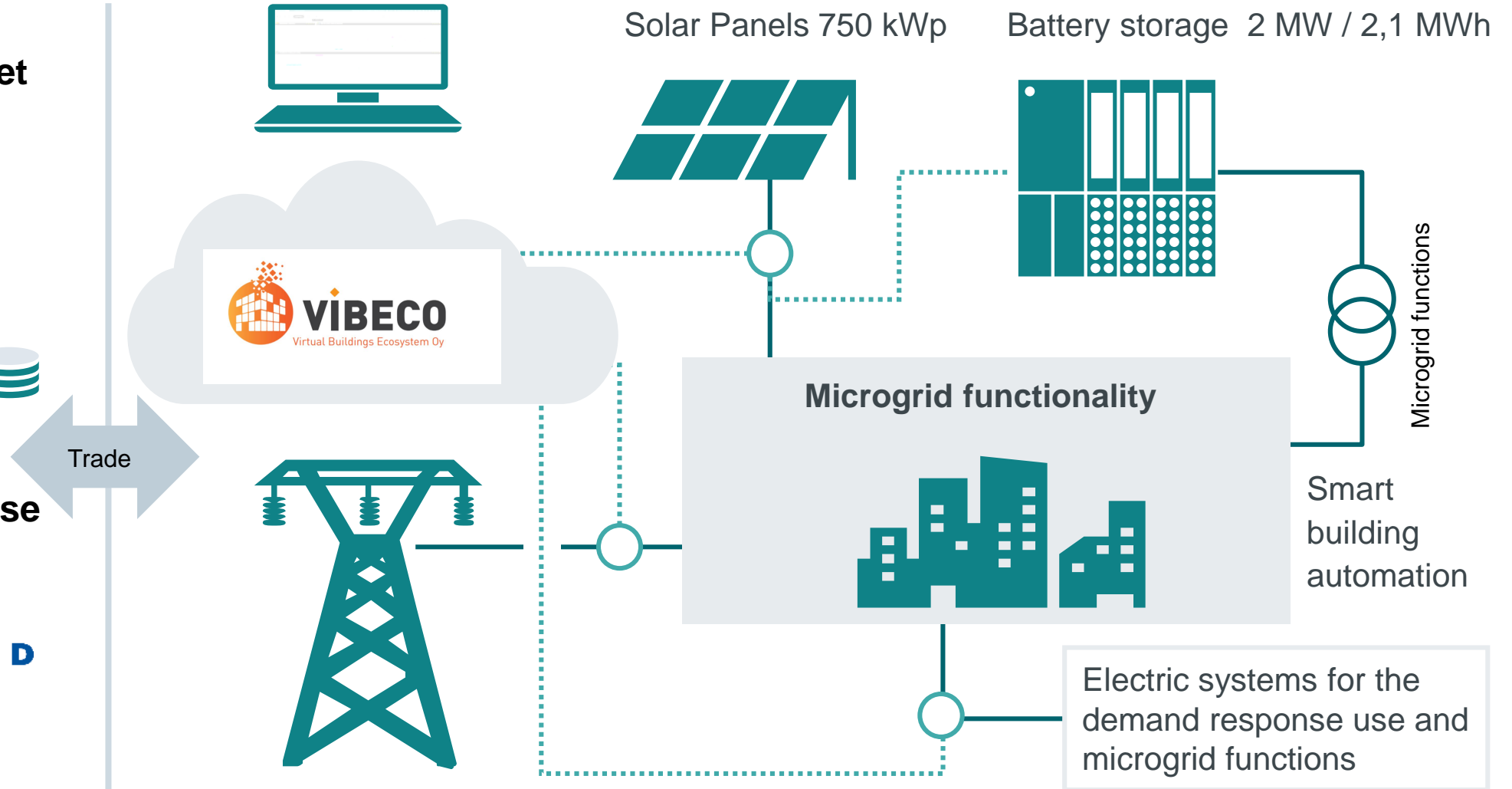
A building as a part of the smart energy system

A new earning model

**El Spot
Electricity market**



**Demand response
market**



Lappeenranta

First city in the world to benefit from the reserve market

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“For the city, it is great development that in addition to renting out facilities, income can also be obtained through offering capacity for flexibility to the electricity market. This enables quite new benefits from investments in energy efficiency.”

Markku Mäki-Hokkonen
Development manager of the City of Lappeenranta.

From Sello to a Virtual Power Plant



Shopping center Sello

Benefits more than €600,000/a
Reduced maintenance back log
investments €650.000 /a
New business
Improved image
Improved ROI



VR Group

Helsinki main railway station,
Pieksämäki depo, Oulu depo

- Responsibility
- Profitability increase
- New efficient technologies
- Energy market participation



Levi, Taivaanvalkeat

A unique accommodation in Lapland
11 smart pyramids in smart grids
Technology & automation as a service
for 10 years
Solar panels, energy storage, microgrid

Smart Cities

Smart energy platform connects buildings and the society as a smart city



Thank you.