FIEE

29ª FEIRA INTERNACIONAL
DA INDÚSTRIA ELÉTRICA, ELETRÔNICA,
ENERGIA E AUTOMAÇÃO.

abineeTEC 2017

Sistemas de armazenamento de energia: microgrids e tendências para o setor elétrico
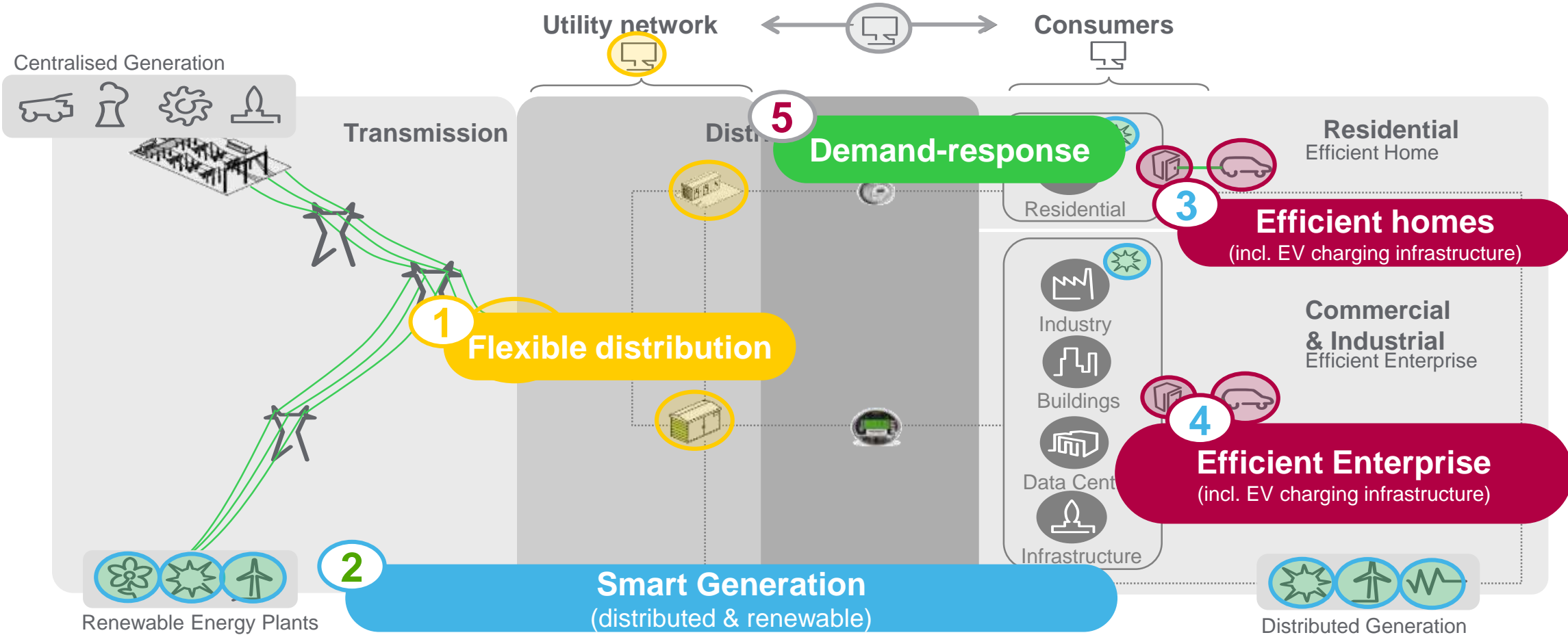
Microgrids

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Our 5 Smart Grid Domains

Optimize Supply and Demand

Centralised Generation

Utility network

Consumers

Transmission

Distribution

5 Demand-response

Residential
Efficient Home

3 **Efficient homes**
(incl. EV charging infrastructure)

1 Flexible distribution

Residential

Industry

Buildings

Data Cent...

Infrastructure

Commercial & Industrial
Efficient Enterprise

4 **Efficient Enterprise**
(incl. EV charging infrastructure)

2 **Smart Generation**
(distributed & renewable)

Renewable Energy Plants

Distributed Generation

Storage Applications

PV generation shifting & firming

e.g. PPA with differential rates vs. time of energy injection

Ancillary services

e.g. frequency regulation

Grid-connected MicroGrids

e.g. net zero emissions university campus

PV/wind generation smoothing

e.g. weak island grids with Electric ramping requirements

Electricity rate optimization

e.g. demand-charge reduction or energy arbritage

Diesel abatement

e.g. hybrid PV/Diesel grids in islanded mining sites

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Small/Medium Microgrid

Prosumer Buidling

Improvements

Utility
- Automatic Demand Response
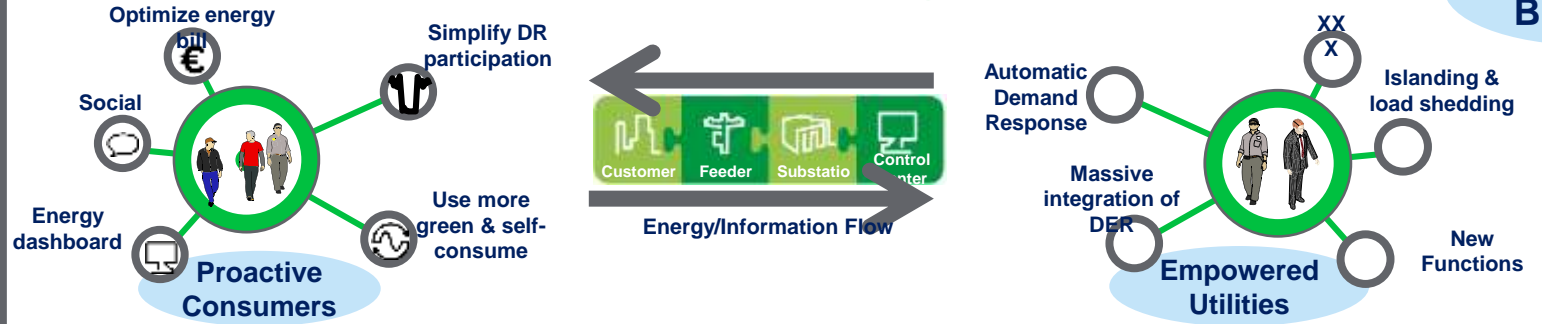- Islanding & load shedding
- Massive integration of DER

Consumer
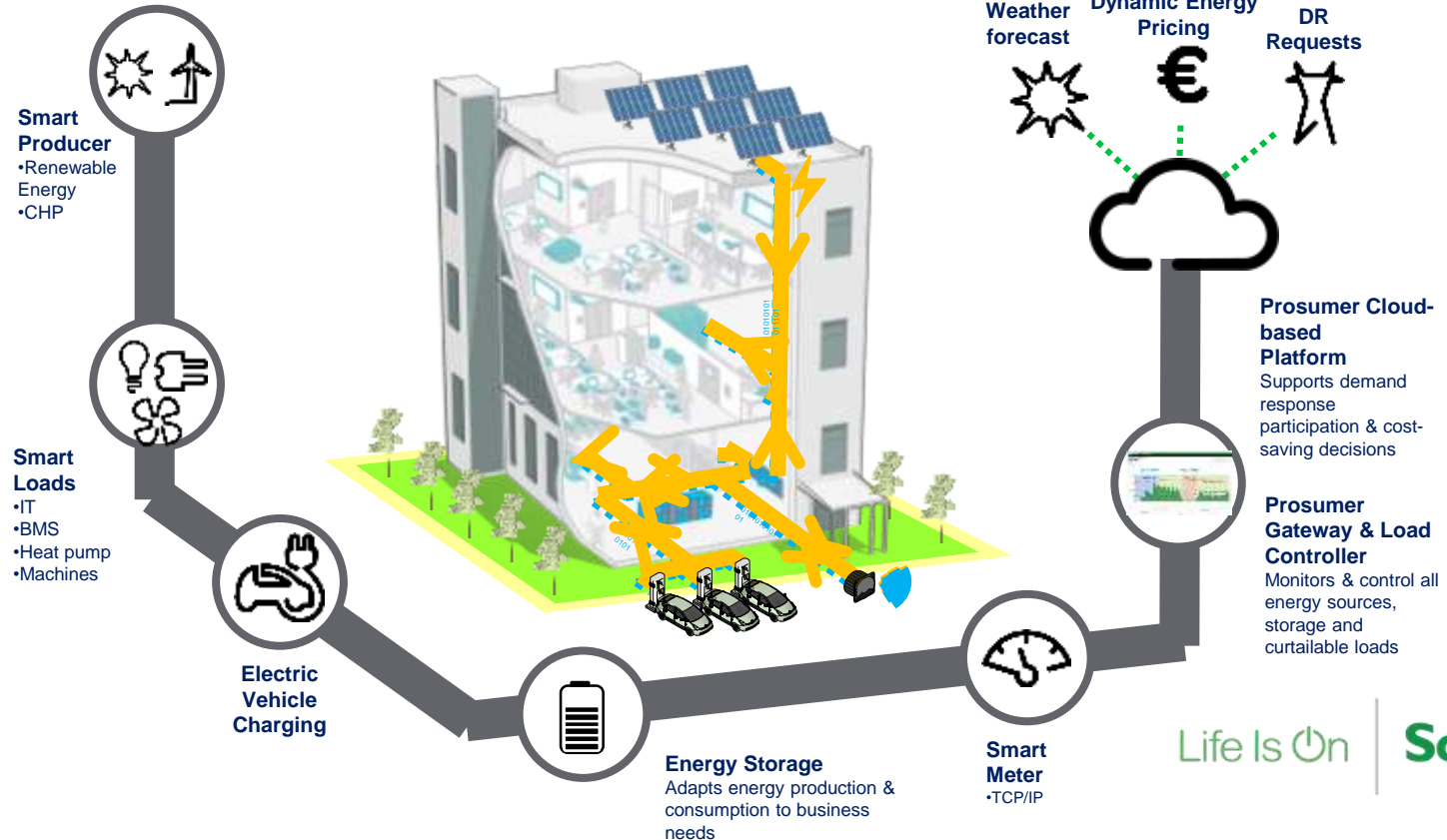- Self-Production
- Backup

Benefits

- Efficient Building
- Flexible Building
- Auto-consumption of green energy
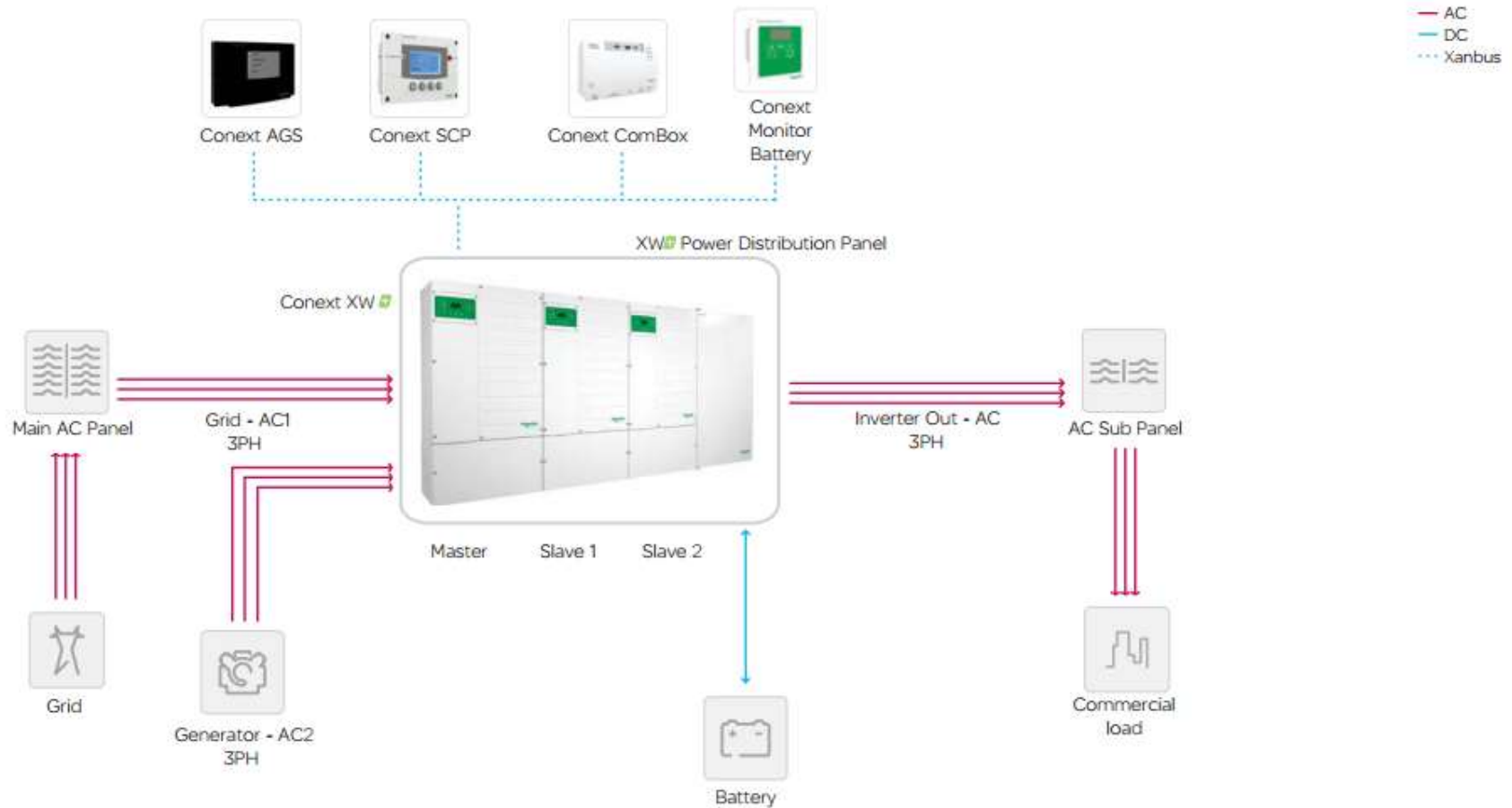- Reliable Power
- Bill optimization

Proactive Consumers

- Optimize energy bill
- Social
- Energy dashboard
- Simplify DR participation
- Use more green & self-consume

Customer — Feeder — Substation — Control Center

Energy/Information Flow

Empowered Utilities

- Automatic Demand Response
- Massive integration of DER
- XXX
- Islanding & load shedding
- New Functions

Smart Producer
- Renewable Energy
- CHP

Smart Loads
- IT
- BMS
- Heat pump
- Machines

Electric Vehicle Charging

Energy Storage
Adapts energy production & consumption to business needs

Smart Meter
- TCP/IP

Weather forecast

Dynamic Energy Pricing

DR Requests

Prosumer Cloud-based Platform
Supports demand response participation & cost-saving decisions

Prosumer Gateway & Load Controller
Monitors & control all energy sources, storage and curtailable loads
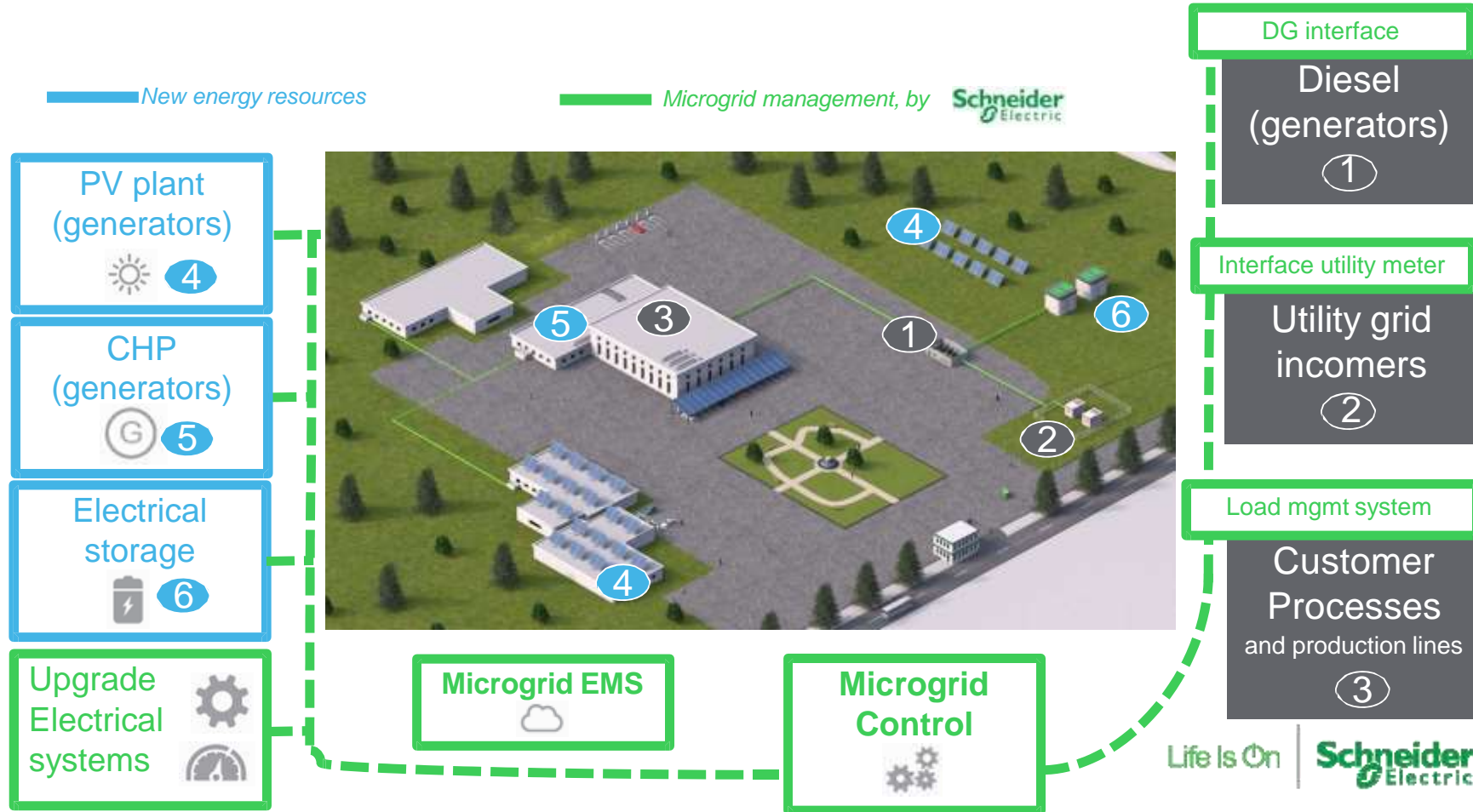
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Conext XW+ Small and Medium Storage Solution

Three-phase (120/208VAC or 230/400VAC) solution with optional AGS/Generator (21.0 or 25.5 kW)
Three XW+units are required for three-phase, one per phase.

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Large Microgrid

New energy resources — *Microgrid management, by* **Schneider Electric**

DG interface

Diesel (generators) ①

Interface utility meter

Utility grid incomers ②

Load mgmt system

Customer Processes and production lines ③

PV plant (generators) ④

CHP (generators) ⑤

Electrical storage ⑥

Upgrade Electrical systems

Microgrid EMS

Microgrid Control

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ES Box Utility Scale Energy Storage Solution

Applications

Renewable Energy Generation

Renewable Energy Shift
Renewable Energy Smoothing

Power Transmission and Distribution

Ancillary Services
Peak Shaving
Investment Deferral

Large Commercial/Industrial

Electricity Rate Optimization
Micro Grids

ES Box

- Peak Power: 1 MW
- Max Energy: ~1 MWh
- Storage up to 10 MW

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Utility side

Remote Conext Control

Advanced Distribution Management System

Weather Intelligence

Geospatial Information System

Asset Performance Management

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Customer side

Prosumer Microgrid   Access to Energy   Demand Response - C&I   Rural Electrification   Energy University

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