Going beyond technology – drive progress, nurture opportunities
Utilities rely on shareholder expectations and business success.
Prosumers push the existing system to its limits

- Utility
  - Operational Model
  - Business Model
  - Investments

Regulatory framework
Several other factors additionally put pressure on utilities:

- Recomunalization
- Changing generation profile
- Changing market design
- Public opinion

These factors influence the operational model, business model, and investments of utilities.
How to turn challenges into opportunities?
Optimized grid operation and new business models are major levers

- Prosumer
- Recommunalization
- Changing generation profile
- Changing market design
- Public opinion
Optimized grid operation and new business models are major levers

- Prosumer
- Changing generation profile
- Recommunalization
- Public opinion

Optimized grid operation
Stable, cost efficient, sustainable

New business models
Customer attraction and business success
Siemens lives up to future challenges with a comprehensive end-to-end portfolio

Cloud enabled applications
e.g. Data analytics

Enterprise IT

Enterprise service bus

Grid control applications
Spectrum Power platform

Market driven applications
EnergyIP platform

Smart communication

Smart transmission

01100
010110
011010

Smart distribution

01100
010110
011010

Smart consumption

Public cloud
e.g. Home energy management applications

Cyber security

Enterprise IT

Enterprise service bus

Grid control applications
Spectrum Power platform

Grid control applications

Market driven applications
EnergyIP platform

Smart communication

Smart transmission

01100
010110
011010

Smart distribution

01100
010110
011010

Smart consumption
Active Network Management as an enabler for efficient and stable grid operation

Cloud enabled applications
e.g. Data analytics

Enterprise IT
Enterprise service bus

Grid control applications
Spectrum Power platform
advanced distribution management

Market driven applications
EnergyIP platform

Public cloud
e.g. Home energy management applications

Cyber security

Smart transmission

Smart distribution
intelligent substation, battery storage, feeder automation, autom. ring main unit

Smart consumption

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J. Mrosik / CEO Division Energy Management
Active Network Management
Grand Unified Scheme – Northern Power Grid (NPG), United Kingdom

Solution
− Integration of battery storage, enhanced voltage control, demand response, and real-time thermal rating in a closed loop
− Wide area communication

Benefits
− Efficient and stable grid operation
− Prosumers as active participants offering load flexibility
Distributed Energy Systems as an enabler for increased energy efficiency and flexibility

Distributed Energy System

Cloud enabled applications
- e.g. Data analytics
- VPP/DR portal
- 01100
- 011010
- 010110

Enterprise IT

Enterprise service bus

Grid control applications
- Spectrum Power platform

Public cloud
- e.g. Home energy management applications

Market driven applications
- EnergyIP platform
- DR, VPP, MDM

Smart communication

Smart transmission

Smart distribution

Smart consumption
- smart grid unit, smart meter, building management system

Cyber security

- VPP/DR portal
- EnergyIP platform
- DR, VPP, MDM
- Home energy management applications
- Data analytics
- Smart communication
- VPP/DR portal
Solution

- Combination of smart buildings, smart grid and smart markets using data analytics and ICT

Benefits

Integration of shareholders into one electric ecosystem:
- Buildings: Optimized energy costs and consumption
- Distribution grid: Market facilitator and reliable energy supply
- Energy market: Flexibility becomes available
Microgrid as an enabler for ancillary services from the distribution grid

Cloud enabled applications
- e.g. Data analytics
- 01100
- 011010
- 010110

Public cloud
- e.g. Home energy management applications

Enterprise IT

Enterprise service bus

Grid control applications
- Spectrum Power platform

Market driven applications
- EnergyIP platform

Smart communication

Smart distribution
- microgrid controller, battery storage

Smart consumption
- smart grid unit

Cyber security
Microgrid
IREN2 research project in Wildpoldsried, Germany

Solution
Combining micro grid and VPP to form a topological power plant, which can be operated in island mode

Benefits
- Stable and economically optimized grid operation
- Black start capability
- Profitable use of renewable resources
- Ancillary services from the distribution grid
"It is not the strongest of the species that survives, nor the most intelligent that survives. It is the one that is the most adaptable to change."

Charles Darwin
Agility is the key