Agility in energy – Unleashing the power of the industry

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Three major factors are driving the revolution of energy systems

- Sensors, analytical algorithms
- Small scale power generators
- Energy storage
- e-Mobility, e-Highways
- Electrical heating/cooling, heat pumps
- Power-to-x

Breakthrough technology
Three major factors are driving the revolution of energy systems

- Energy efficiency leads to increasing electrification
- CO₂ reduction targets lead to increasing renewable power generation
Three major factors are driving the revolution of energy systems

- **Breakthrough technology**
  - From passive consumers to active participants
  - Own energy generation systems (e.g. nano-grids)

- **Political targets**

- **Changing customer behavior**
Three major factors are driving the revolution of energy systems:

- Breakthrough technology
- Consumer-centric energy world
- Changing customer behavior
- Political targets
What’s changing?
Past consumers are becoming future prosumers

57% of consumers are considering becoming self-sufficient while they stay connected to the power grid.

Source: Accenture's New Energy Consumer research program
Utilities as distribution platform optimizers and service providers?

... of utility executives expect their role to evolve toward a Distribution Platform Optimizer

Examples:

**Platform provider for grid optimization:**
- Network optimization services to support grid operations in real time
- Performance-based models for distribution

**“Match maker” between local energy prosumers:**
- Organization of local energy markets
- Microgrid engineering
- Energy infrastructure maintenance and financing
- Energy service provider, e.g. for efficiency and demand response programs, distributed generation and co-generation
- Ancillary service provider for transmission (aggregation of loads and distributed generation)

Source: www.accenture.com/utilities
How to prosper in such an environment?
The secret to maintaining values and staying ahead

Environmental sustainability

Agility

Digitalization

Affordability

Distributed energy systems

Security of supply
What does it take to be “agile”?

**Culture**
- Focus on end-customers
- Short decision-making paths
- Employee participation
- Drive for learning and innovation
- Flexibility

**Integration**
- Intelligent devices in the grid directly connected with business and energy management applications
- Cross-sector network operation
- Interaction with consumers and “prosumers” via digital channels

**Technology**
- Easy to manage
- Increased adaptability
- Open for integration
- High degree of safety and standardization
- Data analytics and decision algorithms
Digitalization as a key enabler
Increasingly data-driven grid infrastructure needs to be managed

Integrated intelligence –
From enterprise IT level over control level down to field level

- Open and standardized protocols
- Scalable systems
- Fully or partially autonomously field devices
- IT/OT integration
- Adaptable products
- Advanced analytics
A holistic cyber security approach – More than the sum of its features

- Monitoring of components
- Threat intelligence
- Security patch management
- 3rd party security patch compatibility test
- Security and privacy by design
- Handling of vulnerabilities and Incidents
- End-to-end protection
- Proven protection concepts based on international standards and expertise
- Certified processes (ISO/IEC 27001, IEC 62443-2-4/-3-3)
- Enabling operational security
- Access control for a distributed grid
- Certified remote access
Facilitate an agile, consumer-centric energy world
Examples from host and partner countries EUW

European Utility Week

Spain

Netherlands

Denmark

Italy

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Projects

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Viesgo project, Spain – Retail use of smart meter data for improved customer interaction

- EnergyIP platform to intelligently manage data derived from consumption
- Integration of commercial and industrial consumers
- Scalable for future business applications, such as smart home, energy efficiency

- Analysis of data from 700,000 customers
- New capabilities for customized offers based on consumption patterns
Ventotene, Italy –
Off-grid electrification of an entire island

- 500 kW / 600 kWh SIESTORAGE accompanied by a Microgrid Controller for a stand-alone grid
- Optimized diesel engine operation
- Management of electricity from renewable sources during periods of low load

- Reduced diesel emission for 4 hours / day in winter season
- Network stabilization
EcoGrid EU project, Denmark – Adapting consumption to power availability

- Linking energy management technology with building automation
- Decentralized energy management system
- Highly advanced building automation systems

- Integration and optimum use of renewables-based power
- Smart utilization of electrical energy
Rotterdam harbor district, Netherlands – Ensure security of supply with a self-healing grid

- Development of a self-healing grid to significantly minimize outage times
- Regional controller to automatically handle fault location, isolation, and service restoration
- Automation technology to control intelligent secondary substations

- Reliable power supply
- Resupply of customers in less than a minute
- Significant cost savings
Empowering the utility of the future –
New approach of collaboration between manufacturers and utilities

- Connect competencies to face disruptive opportunities
- Create future-oriented projects through innovation workshops
- Development of new ideas in a creative, but structured approach
- Identification of key drivers and hurdles

Innovation workshop with Italian utility:
- 83 value propositions developed together during a single day
- 4 business ideas enabled by digitalization within the low voltage level
Agility in energy.
Let’s shape the customer-centric utility together.
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