Resilient Communication Services for sustainable Energy Systems

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Agenda

- The role of telecommunication for environmental sustainability
- Current challenges and possible solutions
- Future developments

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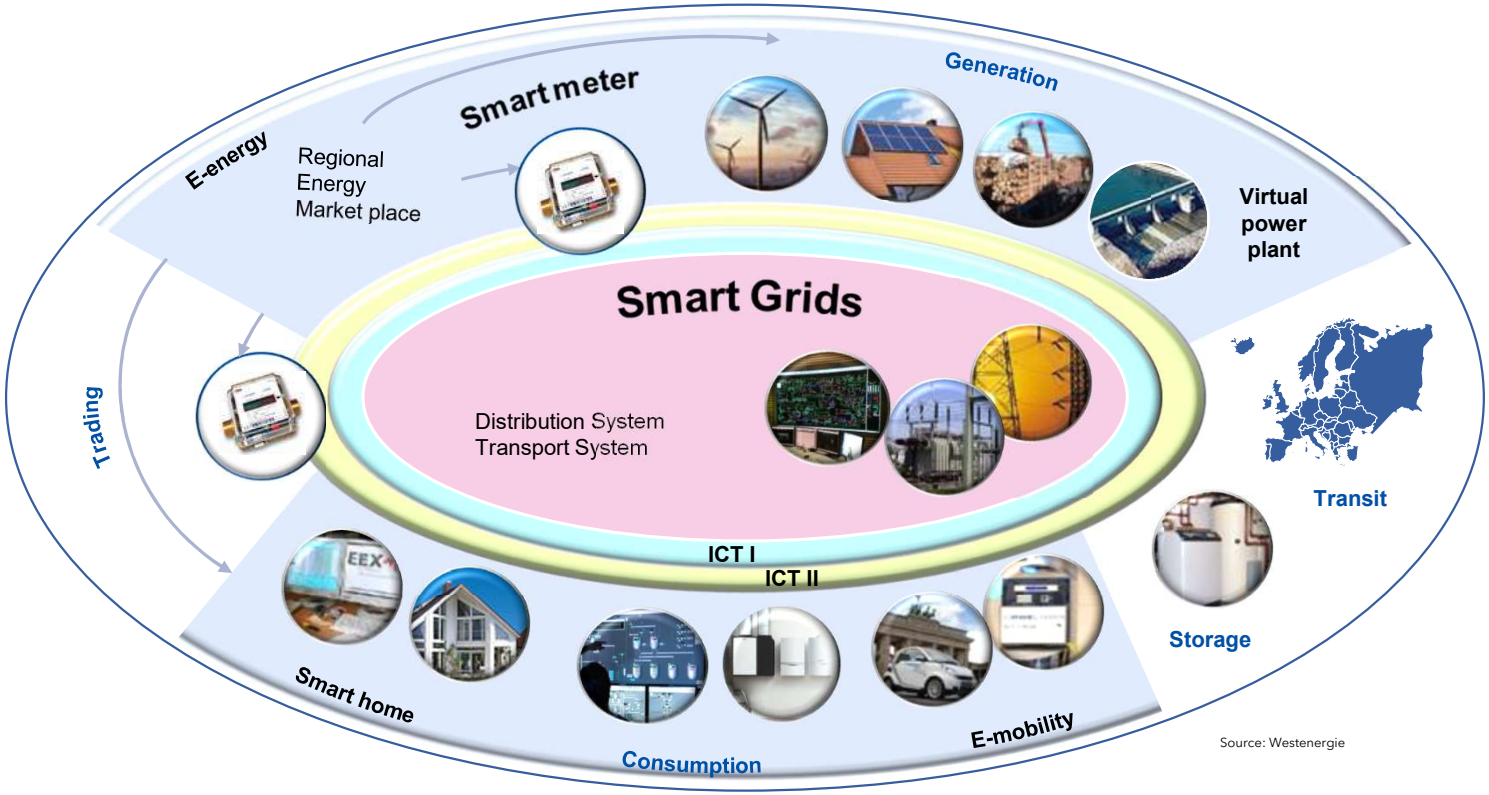
Decarbonisation, decentralisation and digitisation are key elements of the energy system of the future.



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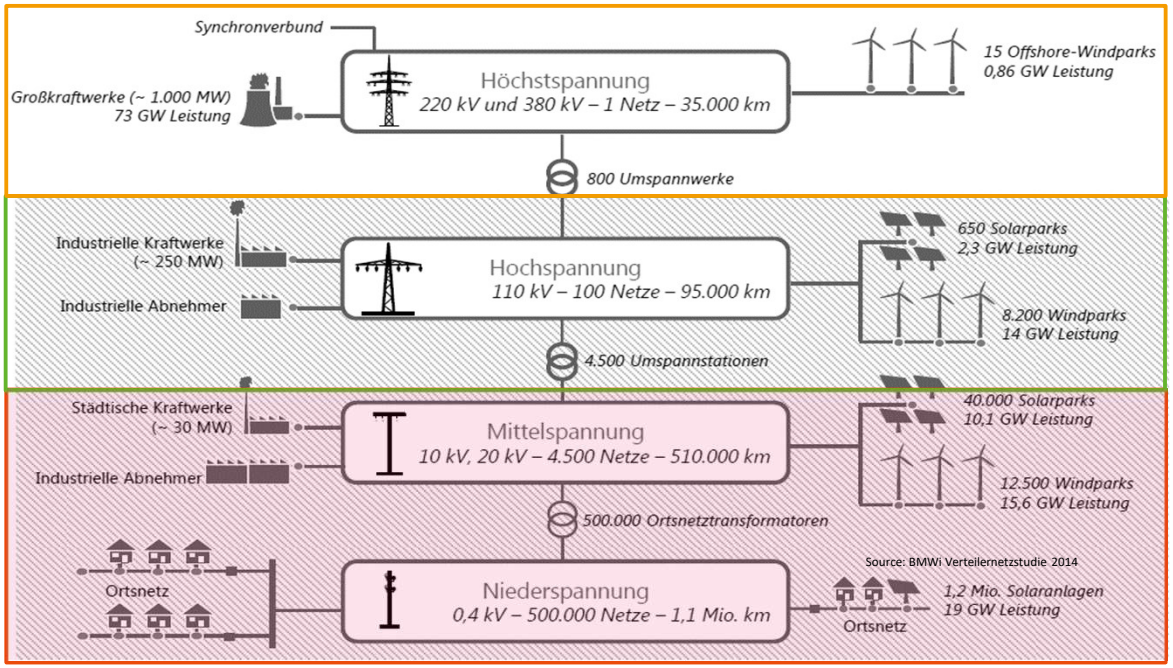
Energy transition requires additional telecommunications services. Black-out resiliency is required for a system restart.

Telecommunications

Available
Services via
Utility networks

Currently not available
Additional Services



Source: BMWi Verteilernetzstudie 2014

Renewable generation power in Germany

2014	2023
~1 GW	~8 GW[1]
~61 GW	~ 137 GW[1]

[1] Source: Bundesnetzagentur Germany

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An important solution approach: The LTE 450 MHz PMR network for critical infrastructure in the energy sector.

VDE FNN
Forum Netztechnik/Netzbetrieb im VDE

The purpose of the resilient 450 MHz LTE mobile network is …

- ... to maintain the supervision and control of energy grids in the event of a crisis or even a blackout
- ... to ensure mobile voice communication in the event of disruptions and crisis situations
- ... to allow the reliable connection and network integration of decentralized energy generation, storage facilities and loads
- ... to improve the availability of network-related telecommunications services in rural areas and in buildings
- ... to offer synergies and economies of scale for the optimal use of the frequency range for smart meter and EV charging

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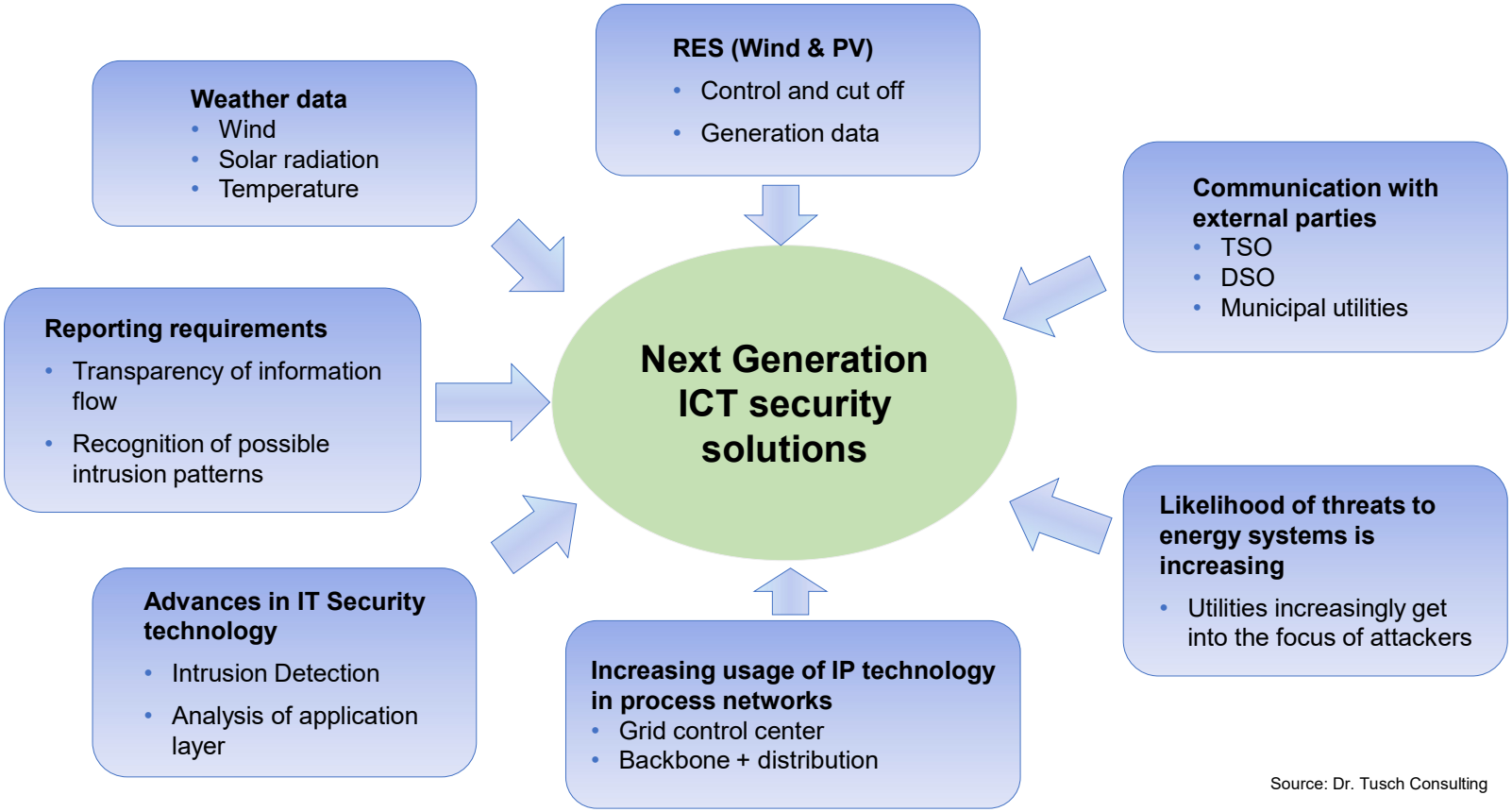
Next generation ICT security solutions are required to securely operate today's interconnected energy systems.



Source: Dr. Tusch Consulting

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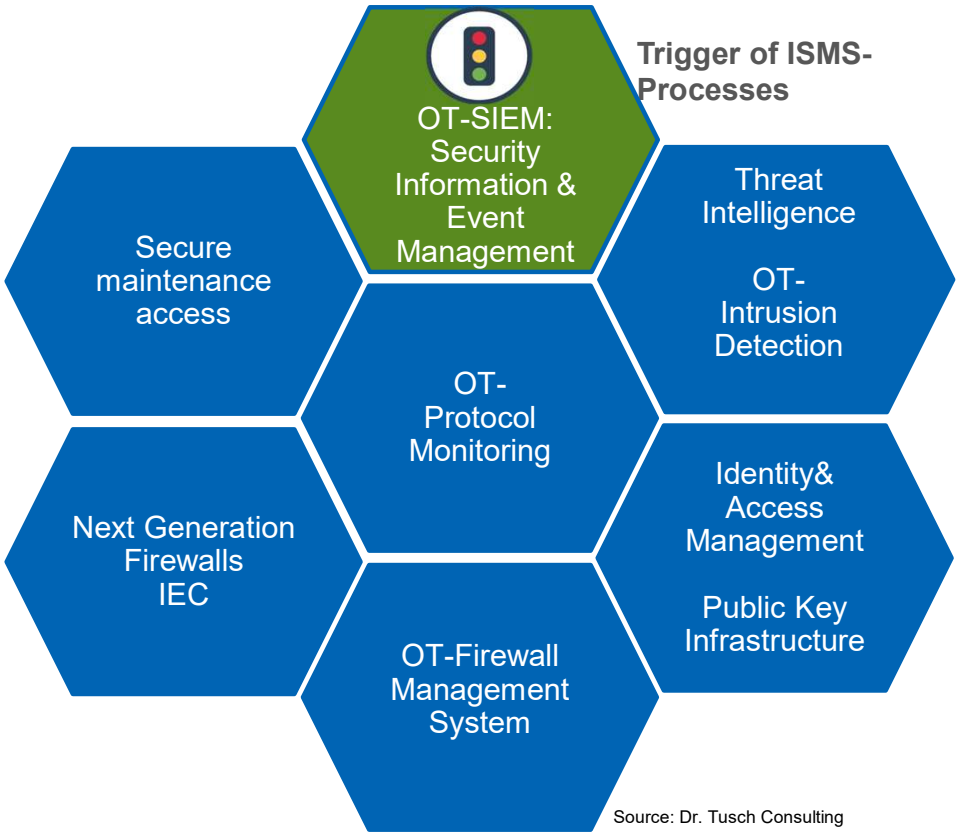
The OT security mosaic: Cyber security elements for a secure utility process network.



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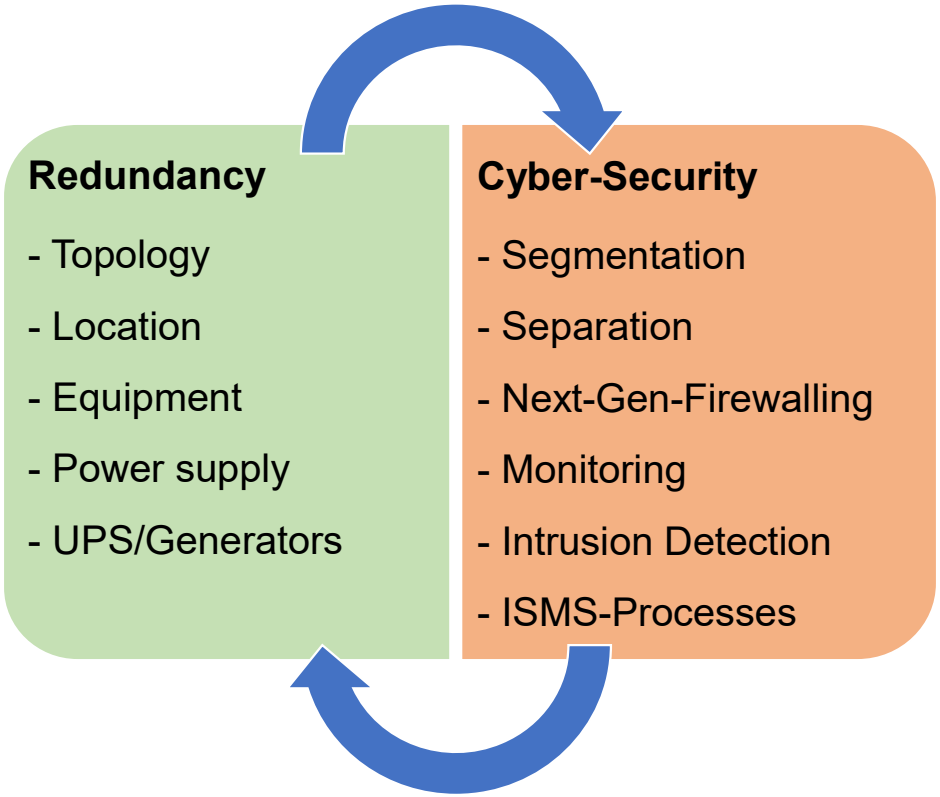
A secure and highly resilient utility process communication network utilizes (n-1) redundancy as well as cyber security.



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The availability of power supply increasingly depends on the availability of telecommunication services used to control the power grid.

A scalable IP platform in EHV and HV

- Basis for all future utility Telecommunication services
- Scalable, Real-time and non-real-time
- Built-in blackout resilience

Telecommunication solutions for MV and LV

- Public cellular radio and fixed line DSL
- Complementary use of power line
- Utility specific PMR solutions

Implement state-of-the-art ICT-Security solutions

- Security certification of DSO's mandatory
- Next Generation Firewalls
- SCADA network monitoring
- Specific SIEM for OT environments

Keep your teams curious and hungry for innovation

- Business integrated project teams
- Show the way – not the solution
- Empowering people
- Learn from IT world

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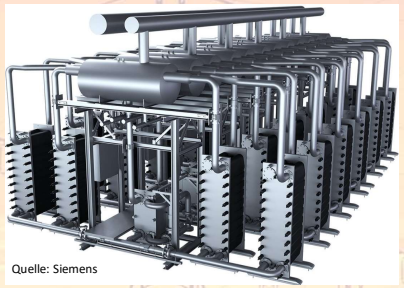
Shaping the sustainable energy system is challenging, exciting and also a lot of fun.

Power Technology



Quelle: Siemens

AI-based Operations

Resilience & Cyber Security

Desire to create

Information & communication (ICT)

Source: Dr. Tusch Consulting

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Thank you

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