

# Metrology meets IT

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[www.energy-from-germany.info](http://www.energy-from-germany.info)

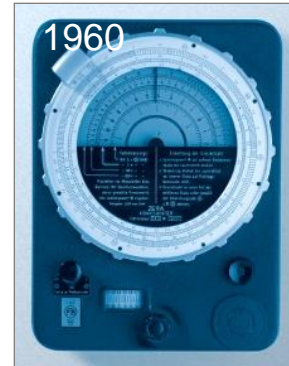
# **Metrology meets IT**



- Company profile
- Global situation in the energy sector
- Current situation in Germany (MS2020)
- A question of verification
- Conclusion

# ZERA GmbH – a Global Company





- Establishment:** 1920 as **Zähler-Eich-und-Reparatur-Anstalt**  
(Meter Calibration and Repair Company)
- Legal form:** GmbH (limited liability company)
- Know-how:** Precision measurement and test engineering,  
customer-specific solutions
- Made in Germany:** Development, production, service and sales
- Independent:** Manufacturer of test systems, not a meter manufacturer



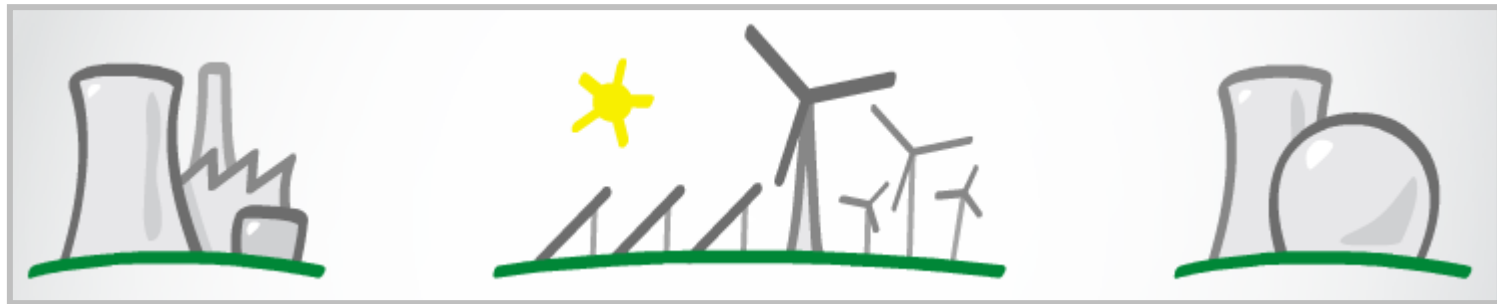


## The ZERA product portfolio:

- Stationary / portable meter test systems
- Stationary / mobile measuring transformer test systems
- Precision laboratory systems
- Calibration services
- Test software
- Training
- Service / support



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Fossil



Renewable

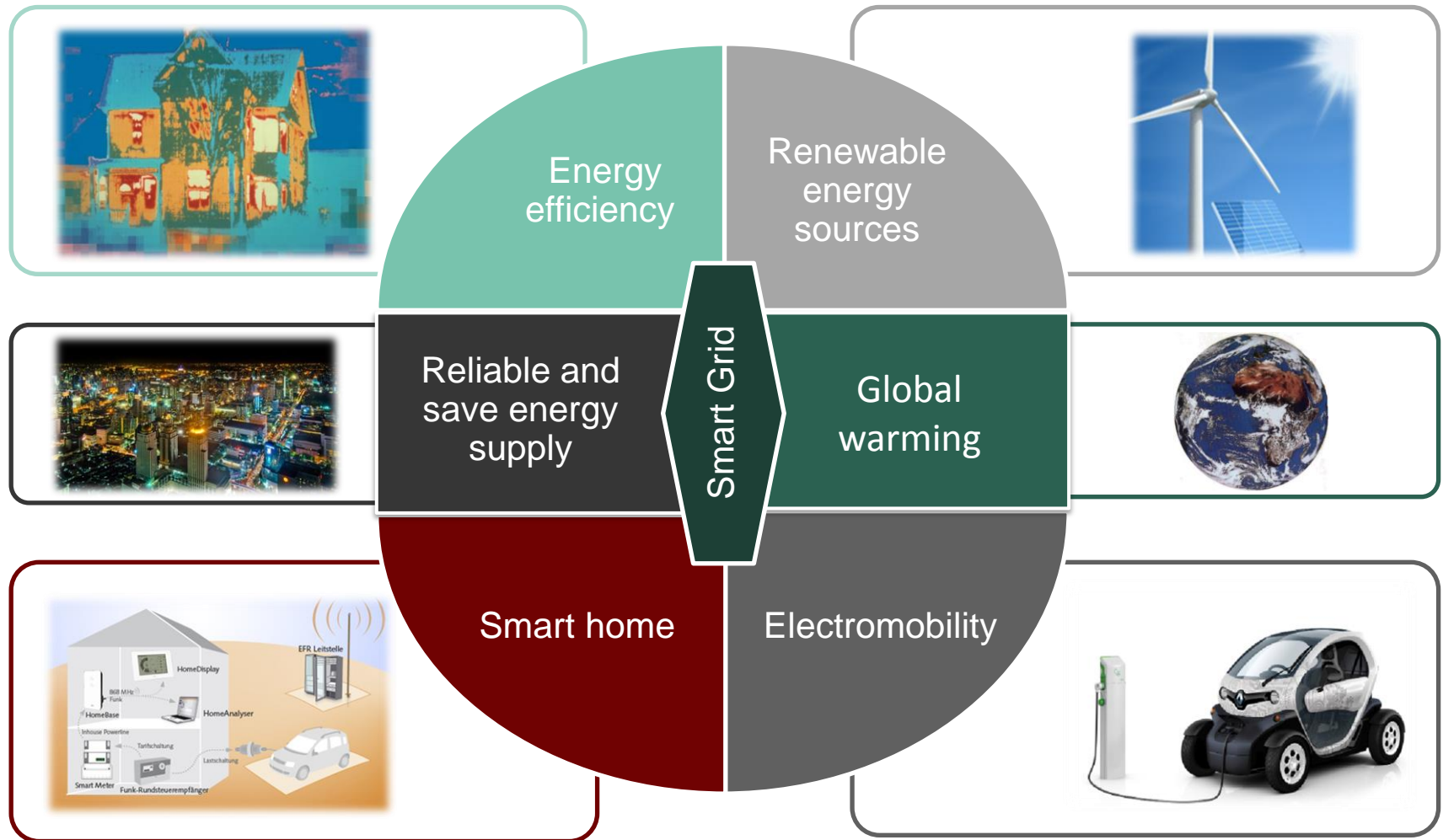


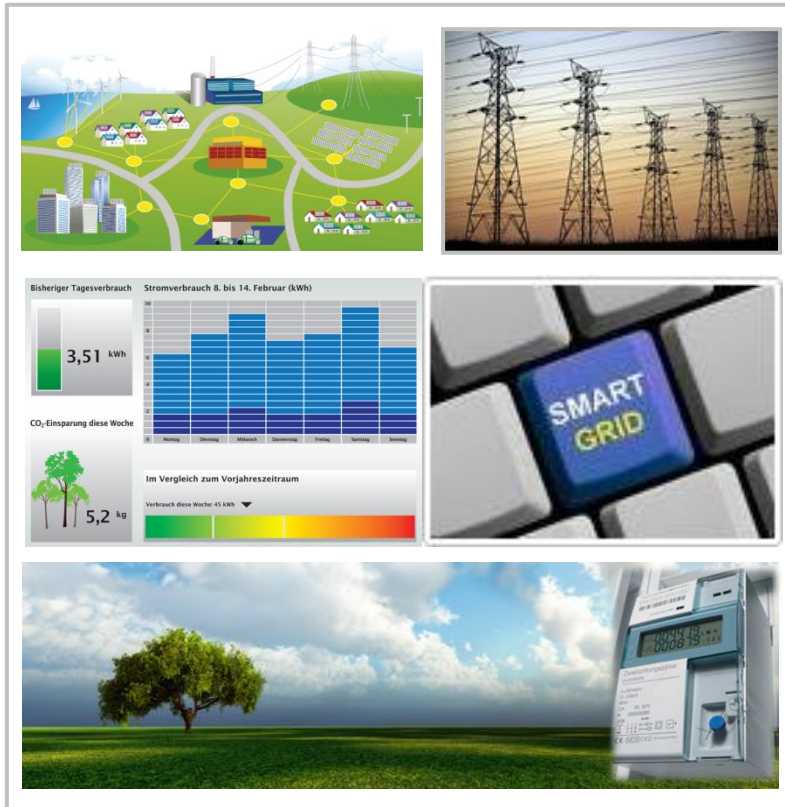
Nuclear



**"More independent of energy imports, creates jobs and contributes to environmental protection"**





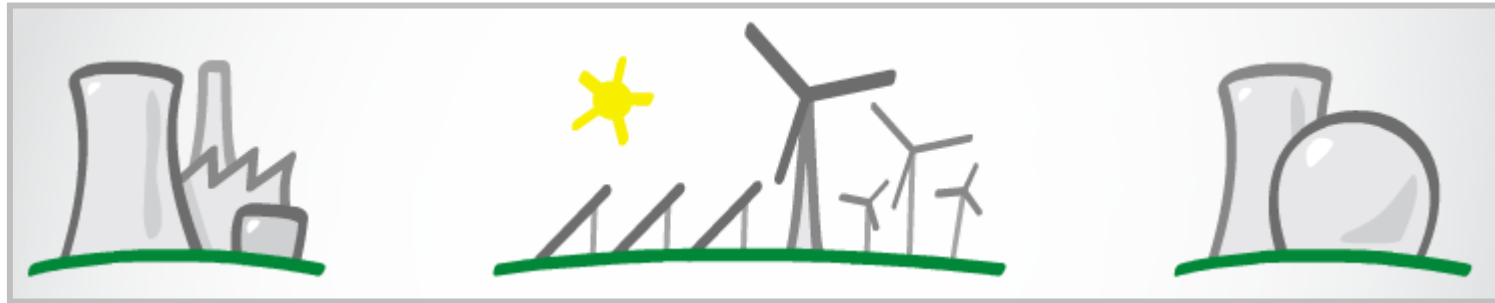


## Smart Grid (as a basic requirement)

- 1 From a centralized to a decentralized energy supply
- 2 Current flow in both directions
- 3 Energy management  
- coordination of the whole process of generation, transformation, circulation and consumption -
- 4 Smart-Metering Systems
- 5 The first brick: Smart Meter and Smart Meter Components

Smart Grid (to realize the business and goals of the energy sector)

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Fossil



Renewable

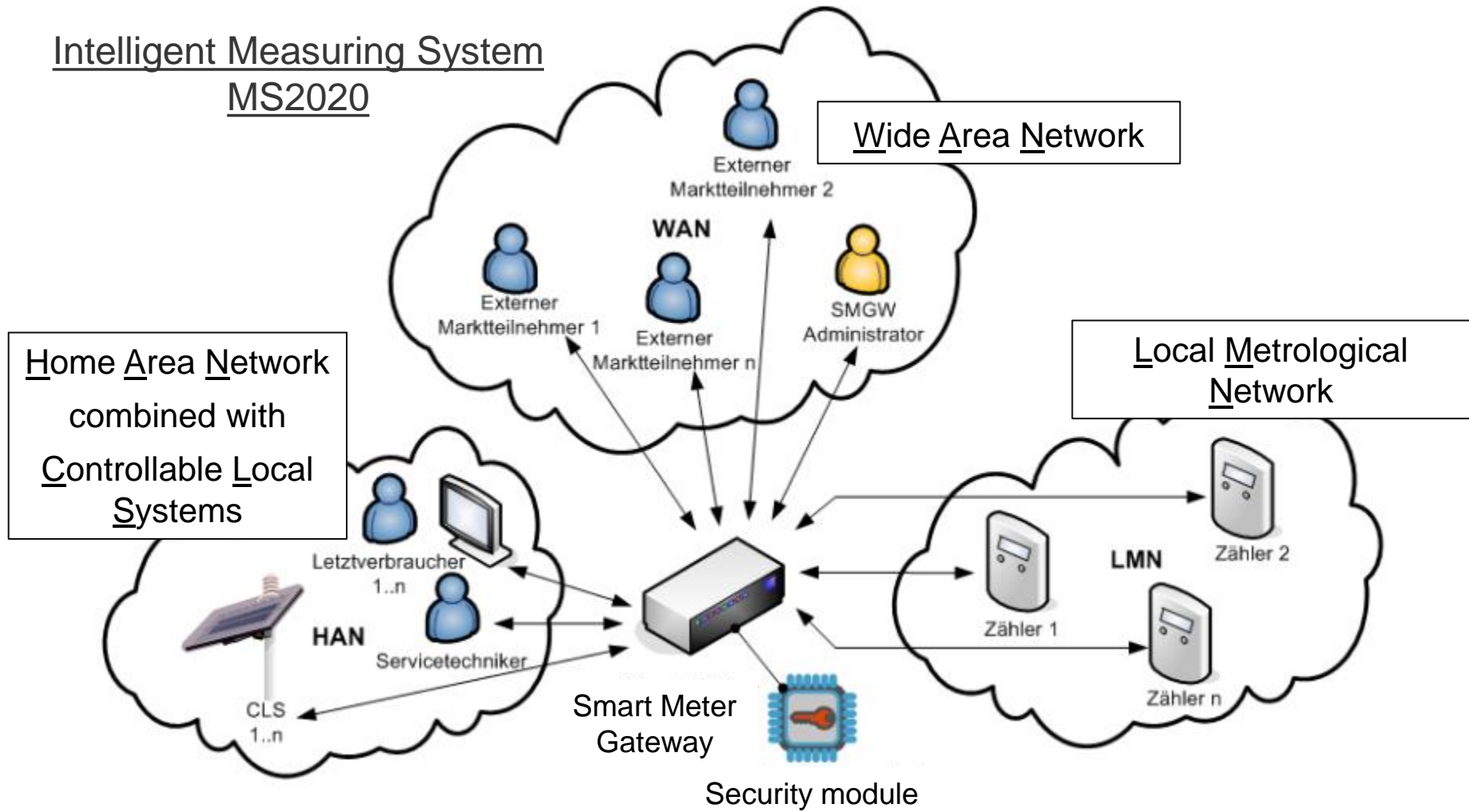


Nuclear



Year	Increase in electricity generation from renewable energies
2020	30 – 35 %
2025	40 – 45 %
2035	55 – 60 %
2050	80 %

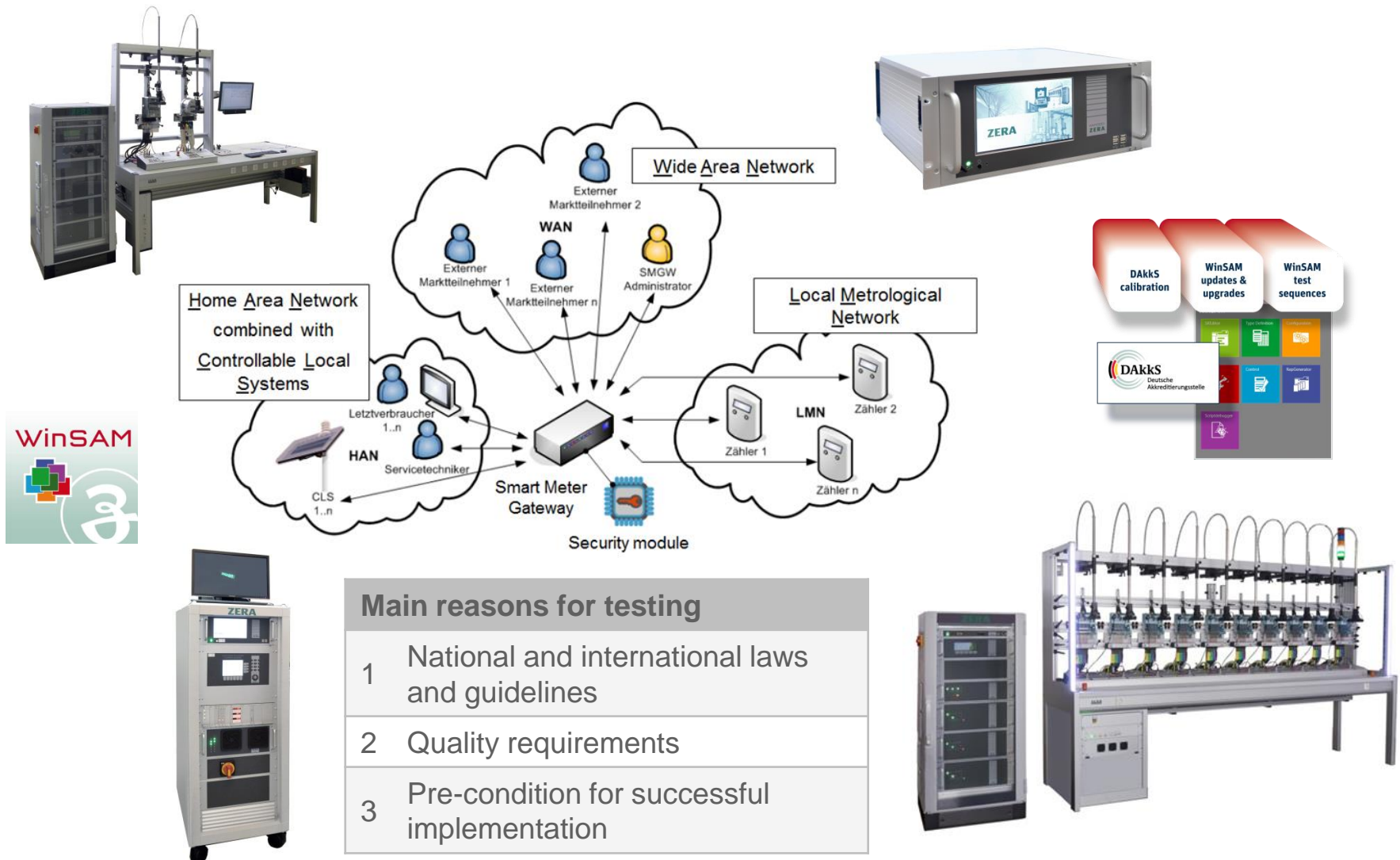
## Intelligent Measuring System MS2020



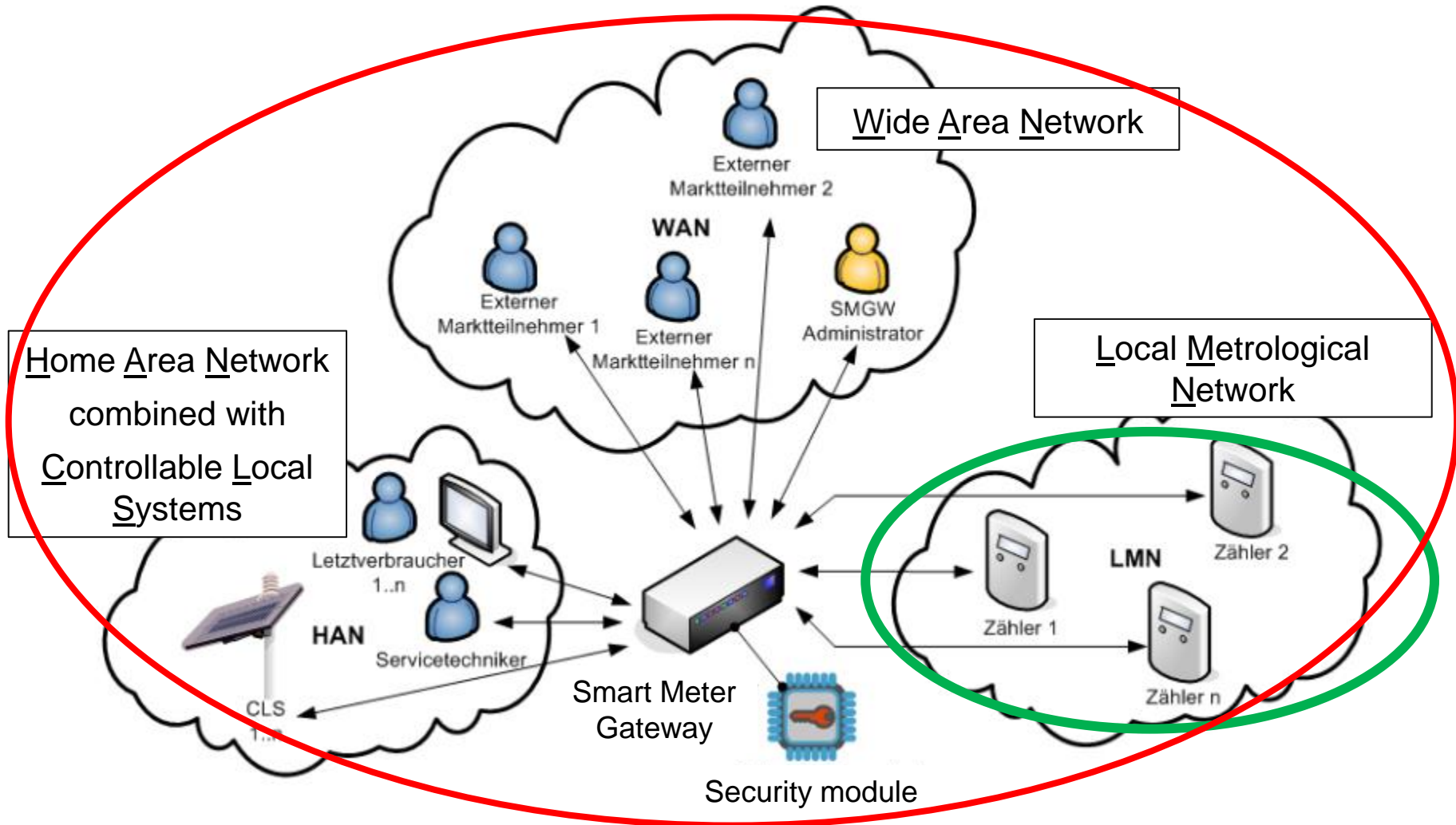
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# A question of verification

**ZERA**







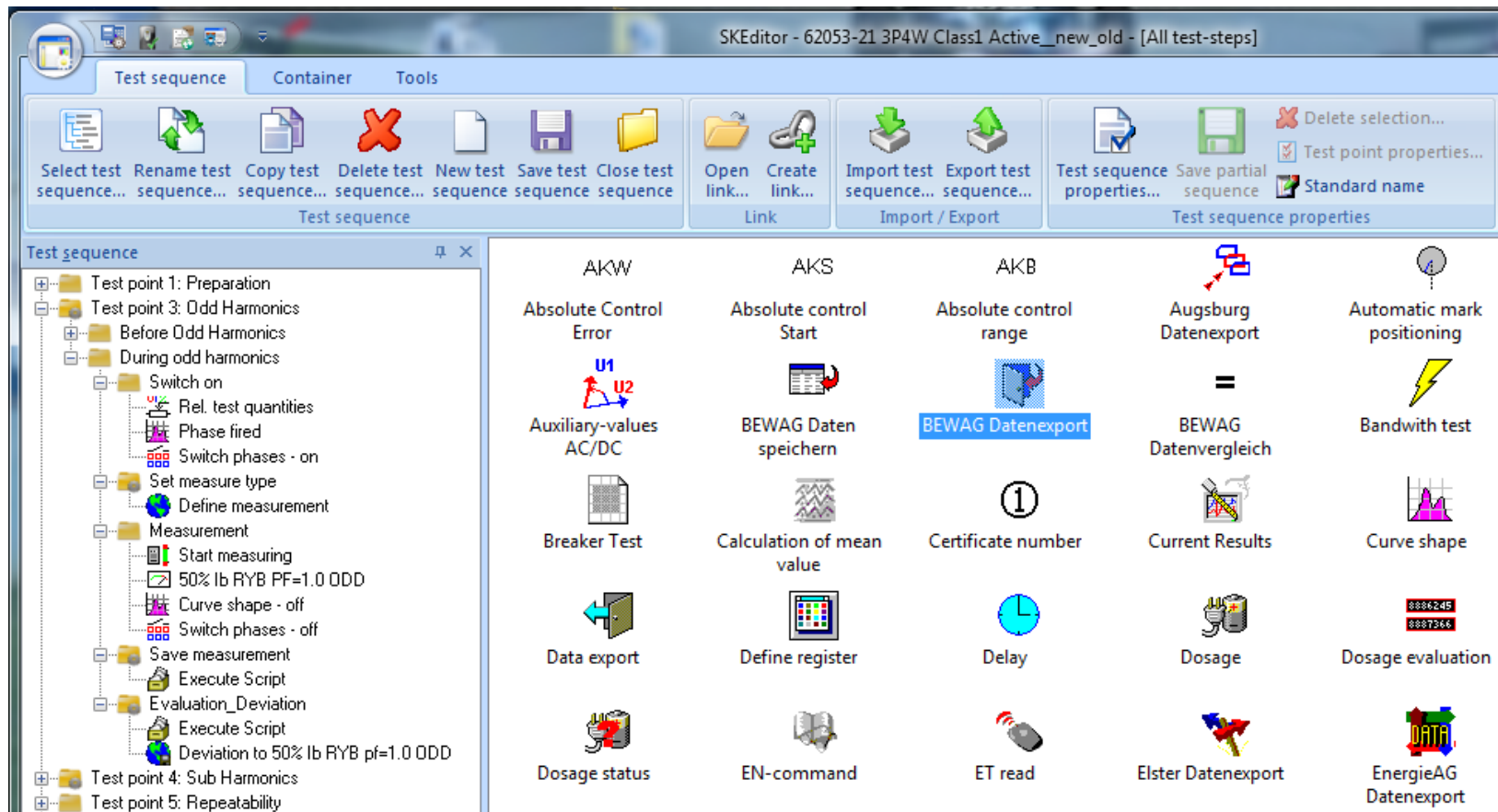




## Performance MS2020 test system

- |   |  |
|---|--|
| 1 | Verification of functional operability   |
| 2 | Test cases for all protocol layers including Physical layer                              |
| 3 | Approx. 800 test cases for basic meter and more than 1000 for Smart Meter Gateway (SMGw) |
| 4 | Ethernet, 1MB RS485, Optical Interface   |
| 5 | Specific measurements of the timing with a resolution of 1 $\mu$ s                       |
| 6 | TLS based communication (identification and authentication of the communication partner) |

## Controller and user Software **WinSAM** for automatic and efficient test runs



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## Successful implementation

- 1 World-wide endeavour to increase energy efficiency
- 2 Increasing demand for electricity (estimated 1.5 % per year)
- 3 Moving away from a petrol economy to an electricity economy
- 4 The concrete and intelligent use of renewable energy sources
- 5 Smart Grid - using and implementation of Smart Metering Systems
- 6 The realization of Smart Grid depends on the quality of the systems
- 7 The quality depends on continuous and complete inspection and testing
- 8 ZERA - the right and competent partner for appropriate test systems

# Thank you for your attention!

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