Enabling resilient smart grids
The European perspective

Global Platform of Leading Electricity Distribution Operators

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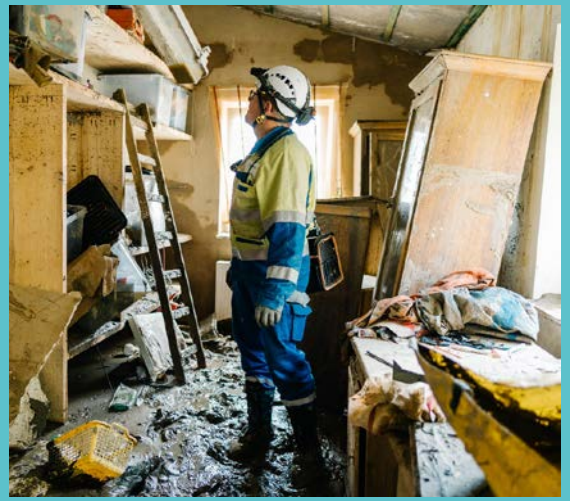
Floods 2021 in western Germany



Implementation of lessons learned

1

Resupply ✓

- Quick provisional measures
- Necessary repairs

2

Stabilization ✓

- Ensure winter supply
- Systematic analysis

3

Reconstruction

- Crisis-proof
- Smart grids

200.000 inhabitants unsupplied

1.000 substations destroyed
1.500 km flooded cables

800 employees in emergency task forces

Crisis-proof grids are part of smart grids enabling the decarbonization

The reconstructions establishes model regions for all **DSO of E.ON group**

Our new energy infrastructure will be **a standard for crisis-proof grids**

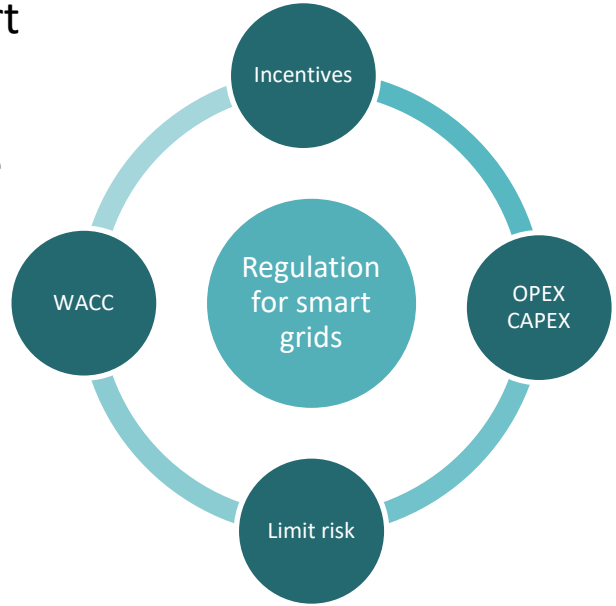
The infrastructure can proactively **integrate** RES, EV, advanced heating and storage

The new infrastructure is **completely digitalized** and enables digital operation

- **Resilient grids:**
  - Infrastructure will not be destroyed
  - Supply can be reestablished after disaster with emergency measures
- **Hardened grids**
  - Supply is automatically reestablished
- **Secure grids**
  - Supply is maintained during disaster

Rethinking regulation for resilient smart grids: Providing incentives for investment and efficiency

- **Resilience** needs smart grids
- **Observability** must be improved
- **Controllability** of generation and load
- **Digitalization** enables system management



- Guarantee **recovery of costs**
- Address **OPEX/CAPEX**
- Enable responsible **investment**
- Limit technical and regulatory **risk of innovations**