

# Challenges for an Independent Transmission Operator in terms of ownership and system operation

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# Amprion

## Transmission System

- Largest transmission system in Germany reaching from **Lower Saxony to the Alps**, with a total network length of **11,000 km** (380 and 220-kV lines) and 160 sub-stations

## Interconnected network

- Responsibility for **one of the largest control areas in Europe** involving important tasks related to the operation and management of the European interconnected network

## Customers

- 73,100 km<sup>2</sup> of served territory equivalent to a fifth of the Federal Republic of Germany with a population of **about 27 million**

## Market Platform

- Approx. 260 step-down transformation points to distribution system operators and industrial customers
- More than 2.200 Balancing groups with 350 traders

# Amprion

## Investments

- More than **€5 billion** of investments in grid expansion until 2024

## Security of supply

- 1000 employees **ensuring a reliable and safe operation of the system and the transmission of electricity** to industrial customers, grid partners and the 27 million people within the grid area

## Cooperation

- **Cooperation with grid operators in Europe and** supporting Germany as the major electricity transit country

## Committees

- Active representation of grid operator interests in **national and international committees**

## Environmental Protection

- Taking a **leading position in environmental protection**, e.g. biotope management and bird protection

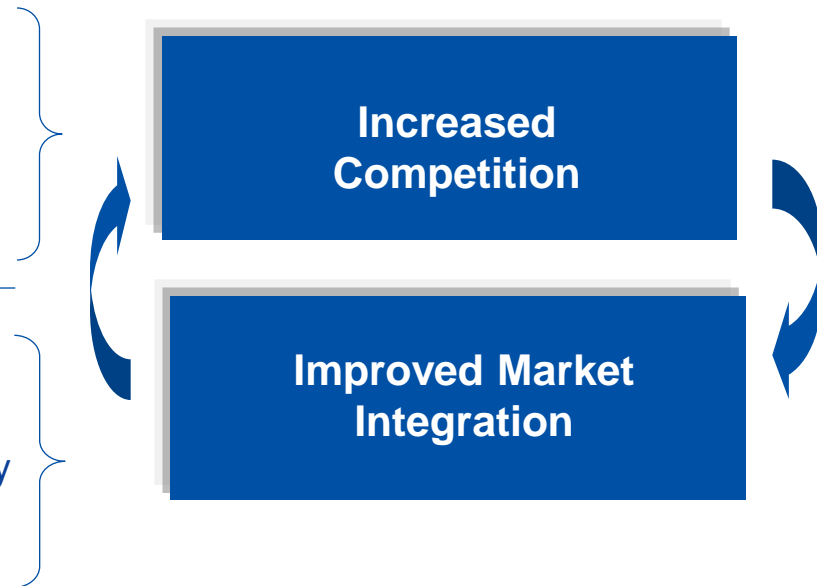
# Our Grid



Installed grid length in km (380 kV)	5.300
Installed grid length in km (220 kV)	5.700
Sub-stations	160
Supplied Area (km <sup>2</sup> )	73.100
Population (million)	approx. 27
Installed generation capacity in the control area (GW)	approx. 45
Annual transmission (TWh)	approx. 194
Biotope management area (ha)	10.500

# Goals of European Liberalization in the Energy Sector

- More effective unbundling of Transmission System Operators (TSOs)
  - Strengthening of consumer interests
  - Increased transparency requirements
- 
- Cooperation between TSOs (ENTSO-E)  
→ *Regulation (EC) No 714/2009*
  - Creation of a coordinating „European Regulatory Agency Authority“ (ACER); → *Regulation (EC) No 713/2009*
  - Strengthening of National Regulatory Authorities



## Goals

- ⇒ EU-Goals: „*Increased competition by improved market integration and vice versa*“
- ⇒ European transmission grid as **key for market integration**
- ⇒ **Reduction of market power by maximizing trade within the internal market**

**ENTSO-E**= European Network of Transmission System Operators for Electricity  
**ACER**= Agency for the Cooperation of Energy Regulators

# History of European Liberalization: Energy Sector

## First legislative Package

*Directive 96/92/EC (implementation in Germany 1998):*

- Free choice of electricity supplier (step-wise)
- Beginning of Unbundling

## Second legislative Package

*Directive 2003/54/EC (Germany 2005):*

- Structural Unbundling
- Establishment of regulatory authorities
- Abolishment of negotiated network access

## Third legislative Package

*Directive 2009/72/EC (Germany 2011):*

- Fully effective Unbundling (three options): OU, ISO, ITO
- Increased rights for Customers (switch of supplier within 3 weeks)
- Stronger independence of regulatory authorities

# Third package: Three Unbundling Options

## 1. Article 9 (1): **Ownership Unbundling (OU)**



## 2. Article 13: **Independent System Operator (ISO):**



## 3. Chapter V (Articles 17-23): **Independent Transmission Operator (ITO)**



Control empowers

→ **Third Option (ITO)** was proposed by 8 member states (amongst others **Germany and France**) and implemented

\* In case of Amprion the vertically integrated undertaking is **RWE** as it also performs the functions generation and supply of electricity

# ITO Model: Requirements

## ■ Requirements ITO-Model according to Directive 2009/72/EC

- ✓ **Complete human, technical, physical and financial resources** to operate and develop the transmission grid
- ✓ ITO has to be organised as legal entity referred to in Directive 68/151/EEC (Germany: **AG, KGaA or GmbH**)
- ✓ **Independent Corporate Identity**, neutral name, separate premises
- ✓ **Prohibition of the using the vertically integrated company's internal services**
- ✓ ITO may offer services without discrimination
- ✓ **Guaranteeing independent investment decisions**
- ✓ Strengthening of **the Compliance program and the compliance officer**
- ✓ **Independence of management**
- ✓ **Supervision by a neutral Supervisory body**
- ✓ Increased **control and monitoring competences of regulatory authorities**



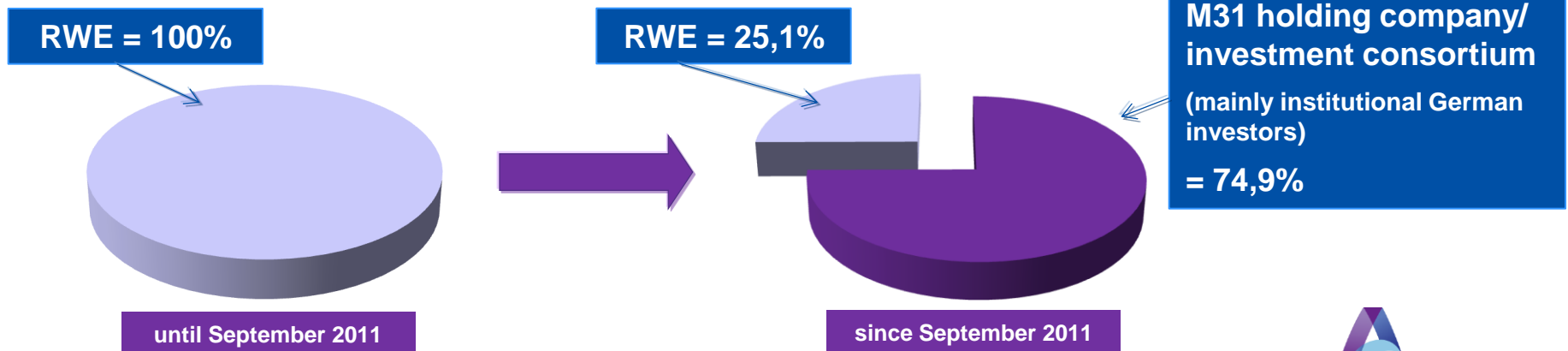
# ITO Certification of Amprion

## Implementation of the ITO-Model:

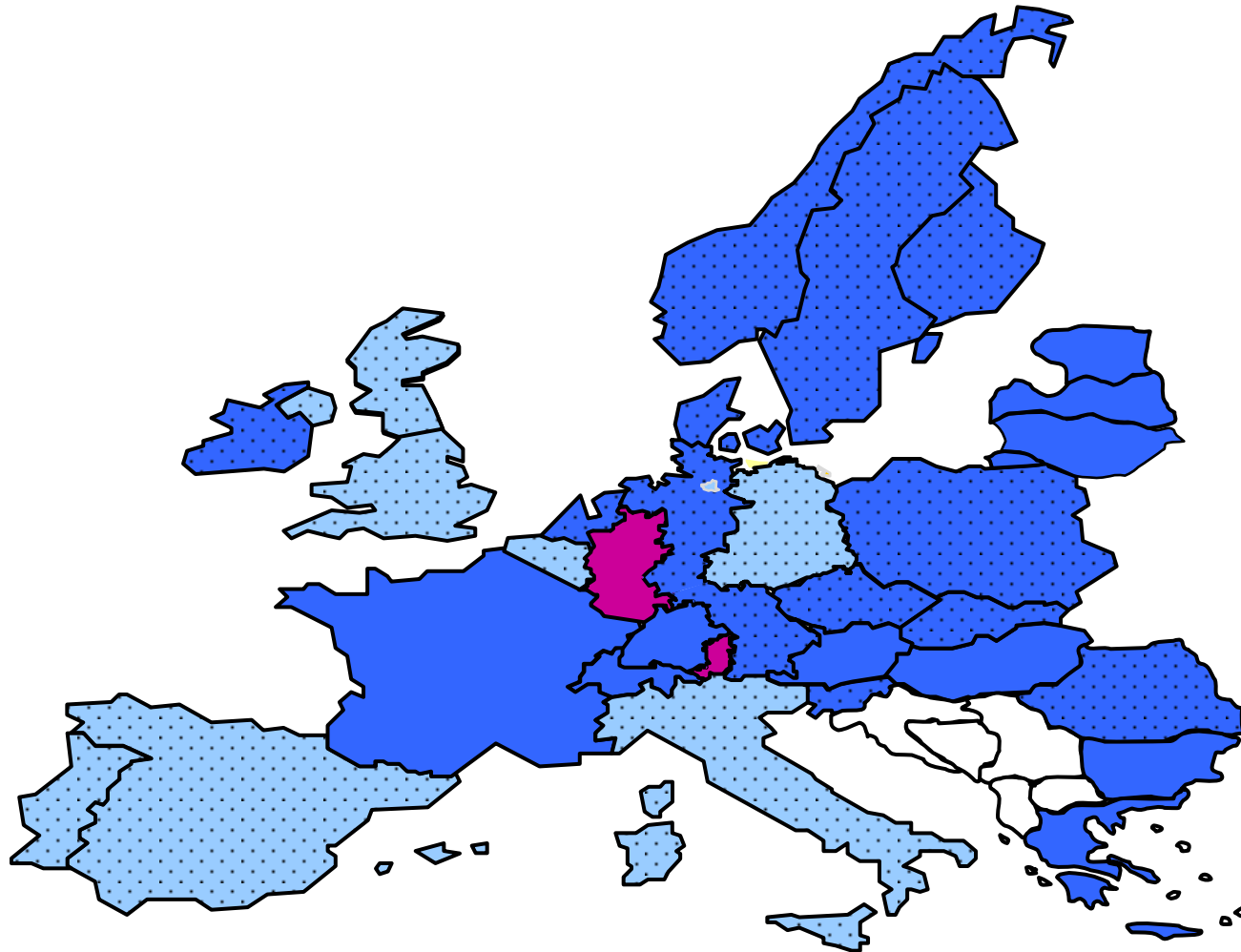
- ✓ **Transposition of unbundling rules** ahead of time on 01.07.2009
- ✓ **Independent decision rights of the ITO**
- ✓ **Strong commitment from** investors to invest more than 5 billion € in order to develop the grid
- ✓ Establishment of a **fully functional transmission company** (e.g. transfer of essential personnel from service companies increasing Amprion's staff from approx. 300 fte`s to approx. 1000 fte`s)
- ✓ ITO legal form: **GmbH (Ltd.)**
- ✓ **Independent Corporate Identity**
  - ✓ Separated from other RWE-companies
  - ✓ neutral name: **Amprion**



## Development of Amprion's Ownership structure:



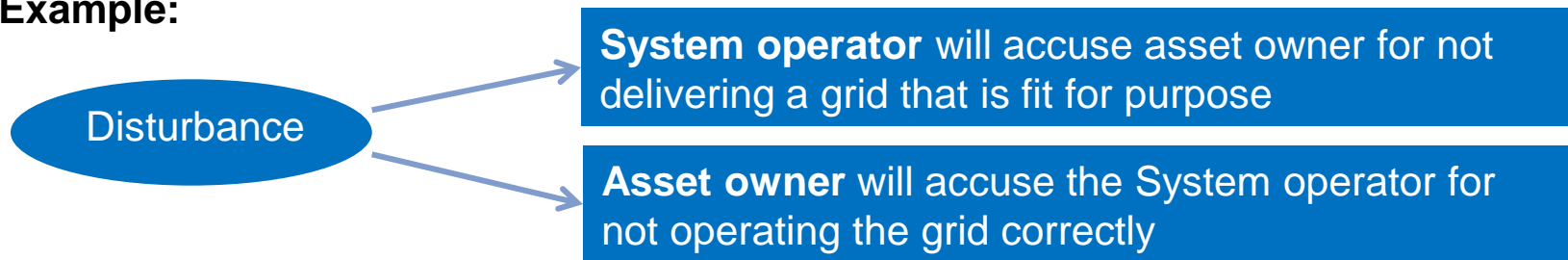
# Status Quo of Unbundling in Europe



# Investment Management: TSO/ITO vs. ISO

- A fully functional TSO/ITO incorporates and integrates system operation and asset management
- An separation of system operation and asset management
  - bears the risk that **the consistent and unique responsibility for the grid is disrupted**
  - But: **Responsibility for the grid is indivisible!**

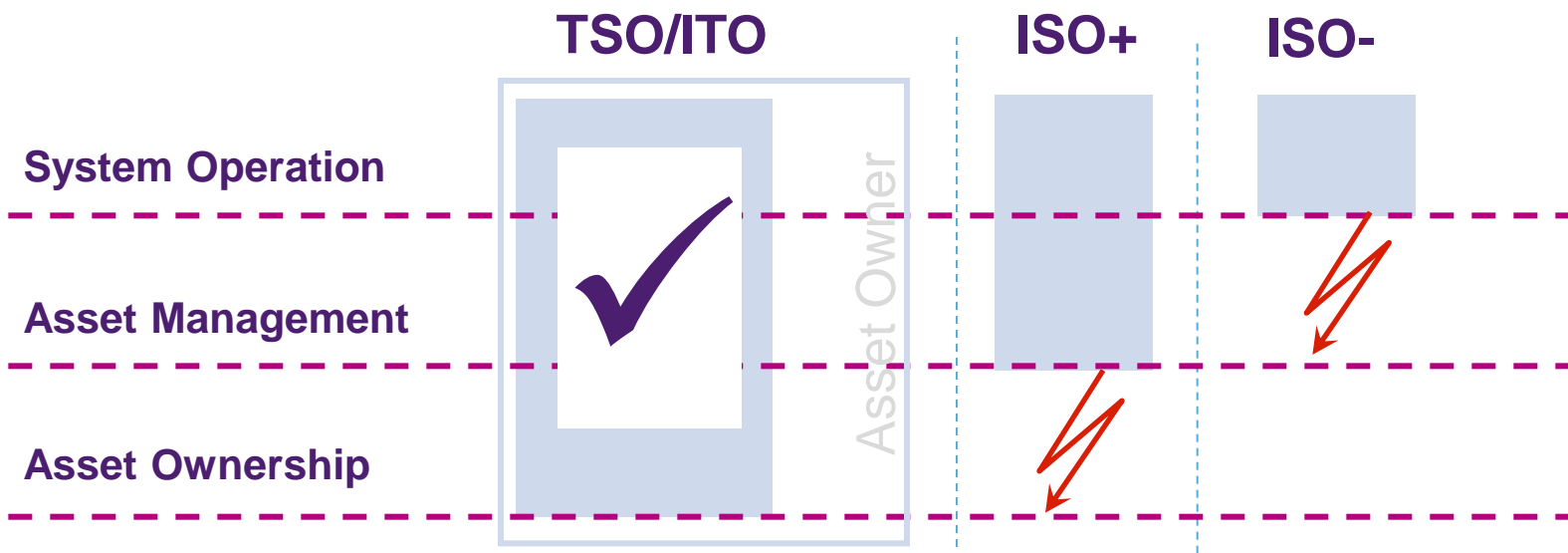
## Example:



## Conclusions:

- *No security of supply without security of investments*
- *Investment planning/decision is a genuine task of the asset owner*

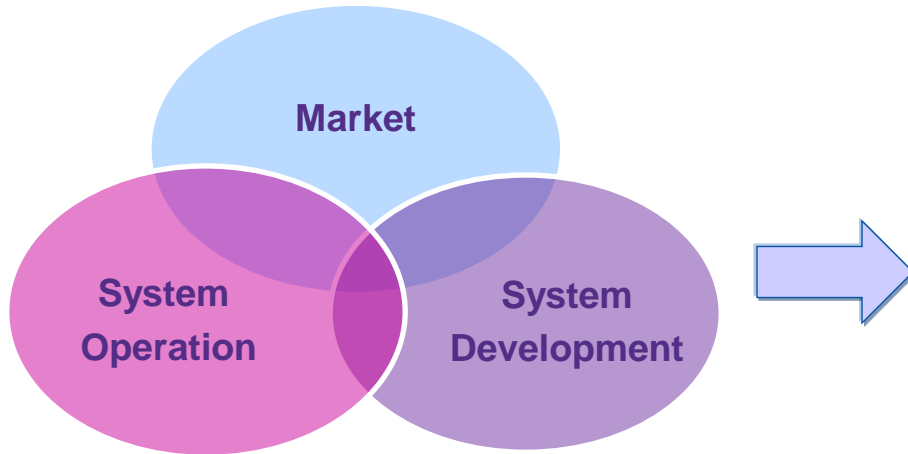
# Investment Management: TSO/ITO vs. ISO



- Conflicting goals of System Operator and Asset Manager/Owner ( ⚡ )
- Increased bureaucratic burden
- Re-Integration from ISO → TSO (Examples: Italy; Hungary; Poland)
- **Fully functional TSO/ITO guarantees:**
  - ✓ Integrated investment circle
  - ✓ Security of Supply

# Future Challenges: Meeting Europe's low carbon target

- **Network Codes will create European- wide harmonised rules for:**



- to complete the Internal European Energy market
- to ensure the highest security of supply standards in Europe

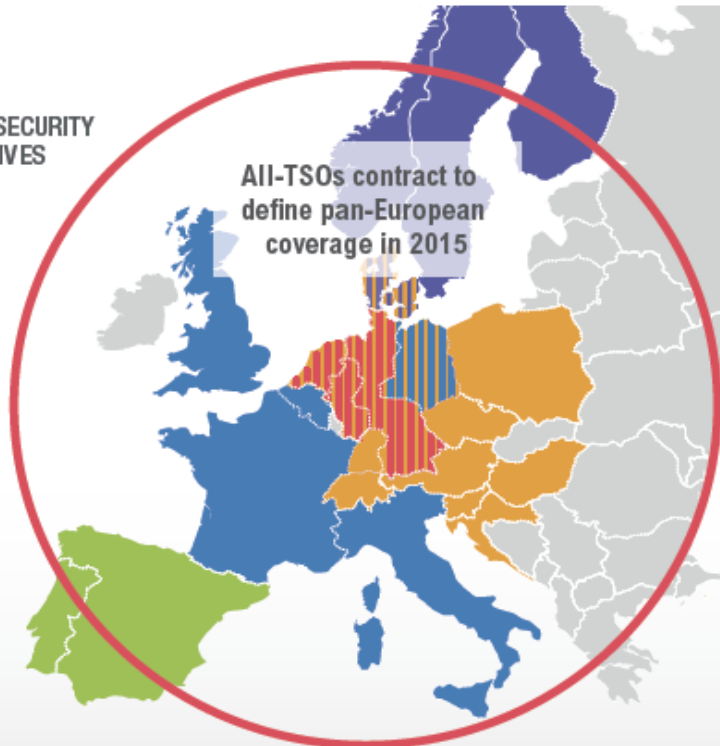
- **Further Strengthening Coordination between regional TSOs in Europe due to:**
  - Increasing shares of RES
  - Decentralized generation
  - Increasing interdependencies between transmission systems
  - Shorter Market time intervals

→ **Solution:**  
an all TSO Multilateral Agreement to be developed in 2015

# Future TSO Coordination for Europe

## REGIONAL NETWORK SECURITY COOPERATION INITIATIVES

- Coreso
- TSC
- TSC + Coreso
- TSC + SSC
- Nordic
- Nordic + TSC
- MIBEL



## Essential Coordination Functions will be organized by RSCIs:

- **Coordinated Security analysis** (including remedial Actions related analysis)
- **Short and medium term Adequacy Forecasts**
- **Coordinated Capacity Calculation**
- **Outage Planning Coordination**
- Improved individual Grid Model / **Common Grid Model Delivery**

→ **Significant benefits from improved security of supply and lower costs**

→ Geographical Size of Coordination: Five RSCIs (existing or new) altogether will **cover well over 500 million people and a peakload of about 530 GW**

Source: ENTSO-E Policy paper: Future TSO Coordination for Europe

<https://www.entsoe.eu/publications/position-papers/position-papers-archive/Pages/Position%20Papers/Future-TSO-coordination-for-Europe-Policy-Paper.aspx>

**Thank you for your attention!**

