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

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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 km² 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 (km²): 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)**
   - Vertically integrated undertaking*
   - Transmission Ownership
   - Transmission Operation

2. Article 13: **Independent System Operator (ISO):**
   - Vertically integrated undertaking
   - Transmission Ownership
   - Transmission Operation

3. Chapter V (Articles 17-23): **Independent Transmission Operator (ITO)**
   - Vertically integrated undertaking
   - Transmission Ownership
   - Transmission Operation

**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
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:**
  - RWE = 100% until September 2011
  - RWE = 25,1% since September 2011
  - M31 holding company/investment consortium (mainly institutional German investors) = 74,9%
Status Quo of Unbundling in Europe

Mostly state-owned
Mostly privately-owned
Ownership Unbundling
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:

- System operator will accuse asset owner for not delivering a grid that is fit for purpose
- Asset owner will accuse the System operator for not operating the grid correctly

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

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
Thank you for your attention!