50Hertz Transmission – a fully unbundled transmission system operator (TSO)

50Hertz with two shareholders and as integral part of Elia Group.
### 50Hertz at a glance – Situation at the end of 2012

#### Geographic area
- **Value (share of GER)**: 109,360 km² (31%)

#### Total circuit length
- **Value**: 9,980 km (28%)

#### Maximum load
- **Value**: ~15 GW (18%)

#### Electricity consumption**
- **Value**: ~98 TWh (20%)

#### Installed capacity:
- **Value**:
  - thereof RES: ~43 GW (25%)
  - thereof wind: 21.4 GW (31%)
  - thereof grid: 12.4 GW (41%)

#### Employees
- **Value**: ~760

#### Turnover**
- **Value**:
  - thereof grid: € 6.9 bn
  - thereof grid: € 0.6 bn

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*) Preliminary figures; **) 2011
Dynamic RE development – main driver for the TSO-business

Installed RE capacities in the 50Hertz-control area

The current RE capacity of ~21 GW is expected to more than double within 10 years.
The German situation demonstrates the urgency of grid development

- Particularly the existing north-south routes are already today at full capacity during strong winds.
- Approx. 50-60 GW new production (until 2020) vs. 12 GW new transport capacity!

Increase of congestions cannot be avoided with the currently implemented projects.

Source: 50Hertz Transmission & TenneT GmbH forecasts for 2020; capacities of the lines see document of the German Bundestag 16/10491, statement of reasons for EnLAG.
The European transmission landscape in a process of change

Key EU policy themes:

- Unbundling and liberalisation
- Greening
- Smartening

Major change drivers:

- Further unbundling (Third EU Energy Package)
- RES development and integration (EU 20/20/20-targets and national RE targets)
- Creation of a pan-European integrated electricity market
- Ageing networks
- New technologies and need for smarter networks
- (Re)focus on security of supply

The past decade has seen an overhaul of the power (transmission) sector in Europe.
Main implications for TSOs

- TSOs as *neutral and independent key players* in the electricity value chain offer advise to politicians and society
- From a ‘support activity’ towards a *stand-alone business*
- *New fields of operation* and expertise (e.g. offshore connections, HV underground cables, RE forecasting and selling etc.)
- From supporting local generation and demand towards networks implementing EU energy and climate policies and maximizing welfare
- From delivering electricity to conceiving, shaping and building the power system of the future with high transmission investments ahead
- From safeguarding supply in individual control areas to *transnational and European coordination and collaboration* between TSOs

**TSOs are at the heart of the power system and must therefore act as facilitators of the transnational power system of the future.**
Our understanding of 100% RES integration

- Stable and secure grid connection and operation (SoS)
- Growing transport capacities (Grid extension/ enforcement)
- Public acceptance/ awareness of RES and grid enforcement
- Short-term enhancement of storage capacities
- R&D efforts for transmission technologies and long term energy transformation
- Well-trained personnel
- Stable legal and regulatory framework

50Hertz is fully committed to realizing the ‘energy transformation’. 
Thank you.

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