



Impact on Pandemics on the European Power Grid

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Some words about me

- Originally from Spain, living in Berlin for 10 years
- Graduated in Electrical Engineering from Comillas University-ICAI (Madrid) in 2010
- Senior Policy Advisor at the System Management Section of the TSO 50Hertz:
 - Deep knowledge on existing & upcoming European electricity regulations
 - Active contribution to the design of the operational framework necessary for a safe operation of the energy system in Europe: participation in ENTSO-E with special focus on the Network Codes development process and the design of regional processes.
- Senior Member of IEEE with lots of volunteering experience including leadership positions in IEEE Committees.



Today's Agenda

- The Transmission System Operator (TSO) 50Hertz
- The European Network of Transmission System Operators (ENTSO-E)
- How ENTSO-E TSOs have been dealing with the Covid-Crisis
- How 50Hertz has been dealing with the Covid-Crisis
- Q&A

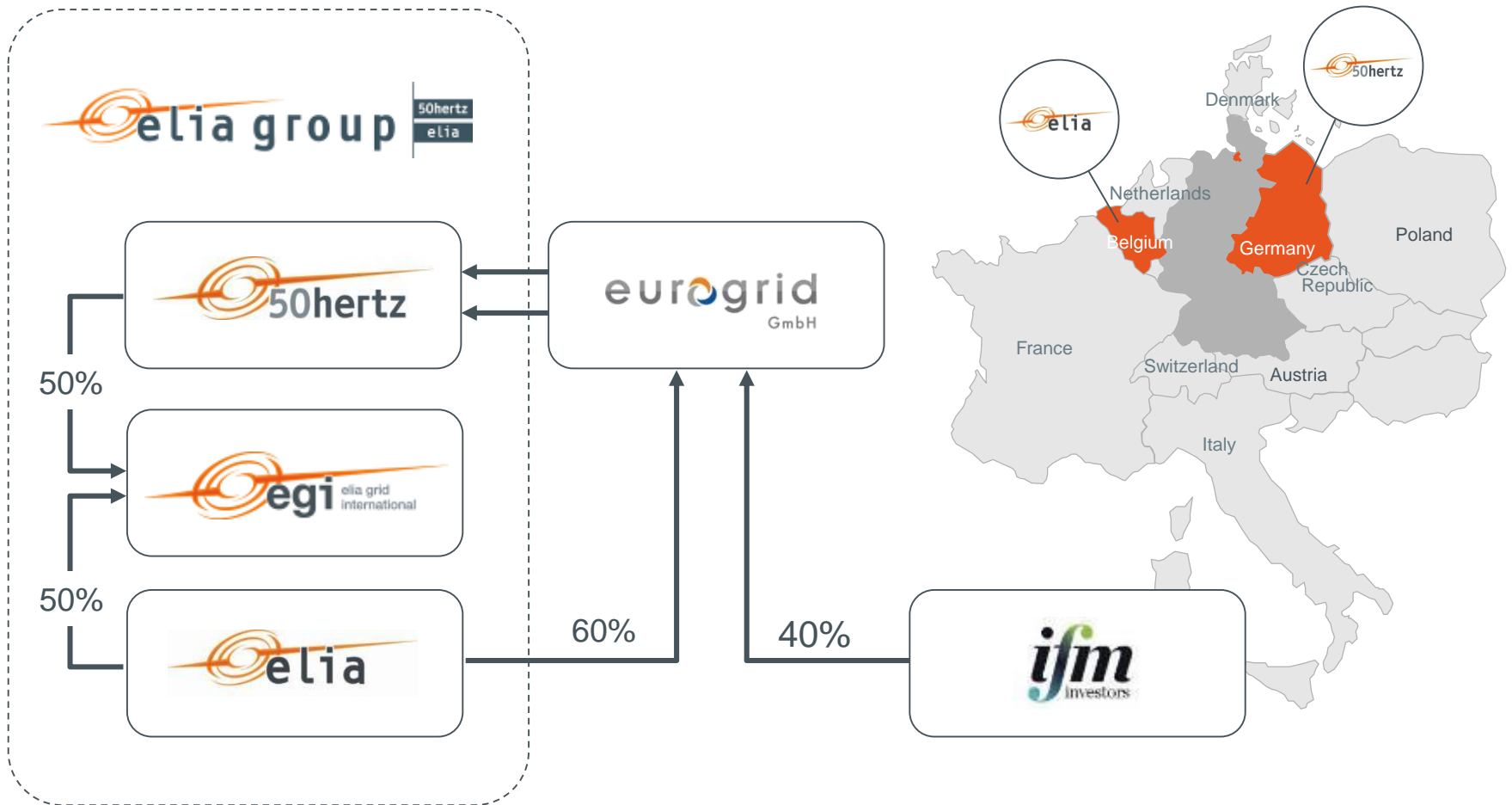
The TSO context

The Transmission System Operator 50Hertz

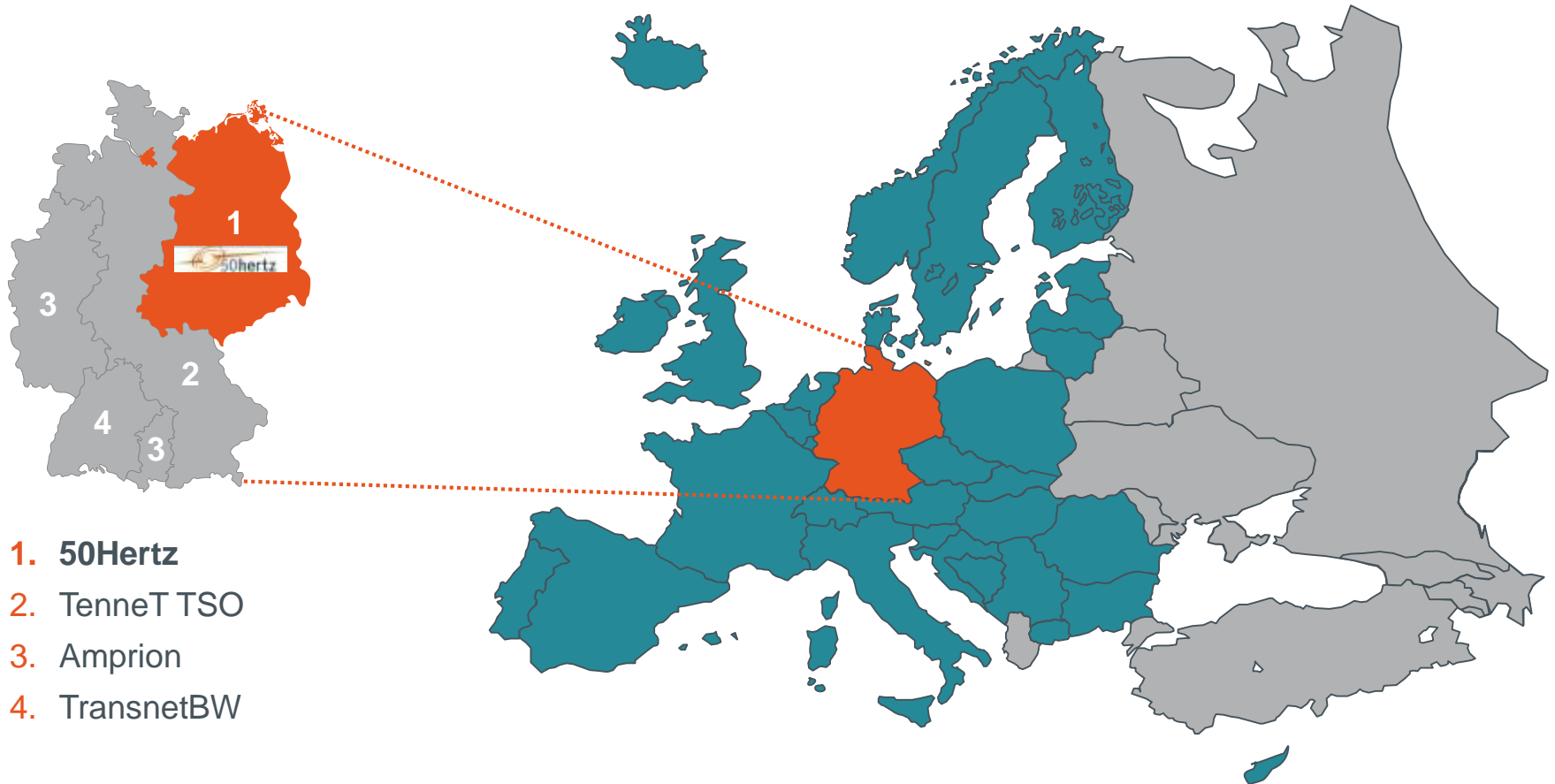
- Ensures the electricity supply to about **18 million** people in Germany
- Transmission System Operator for Berlin, Brandenburg, Hamburg, Mecklenburg-Western Pomerania, Saxony, Saxony-Anhalt and Thuringia
- Responsible for the operation, maintenance and construction of „electricity highways“ (220 kV and 380 kV)



50Hertz as part of an international group



50Hertz as part of the European Electricity System



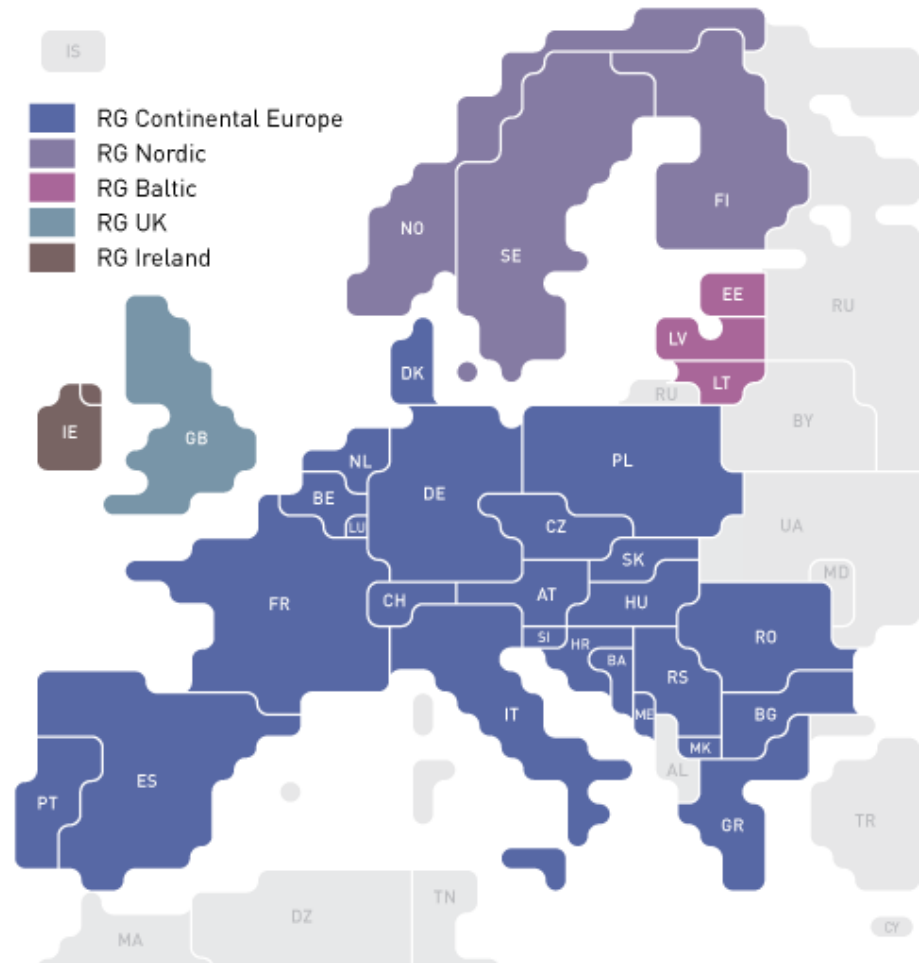
ENTSO-e incorporates 5 different synchronous grid areas

ENTSO-e synchronous grid areas

Continental Europe, Scandinavia, United Kingdom, Ireland and Baltic countries

35 interconnected countries (42 TSOs)*:

- Installed capacity : 1.030 GW
- Consumption : 3,278 TWh/a
- Peak load : 528 GW
- Physical exchanges : 400 TWh/a
- Population : 532 million
- 305,000 km of transmission lines
- 104 B€ in ten years investment plan



Source ENTSO-E

The cooperation with other TSOs is a key prerequisite for the secure operation of the European networks

RSCs in the European electricity grid



corefo

- Founded in 2006 as an independent company subsequent to a European blackout
- Service company consisting of 9 TSOs (50Hertz, EirGrid, Elia, NG, REE, REN, RTE, SONI, Terna)

TSCNET Services

- Founded in December 2008
- In cooperation with 15 TSOs supports 16 TSOs with services in Continental Europe
- Operational planning input for TSOs with clear allocation of responsibilities

As service-providers, the Regional Security Coordinators enable a coordinated and optimised cooperation between the European TSOs.

TSO business during the Covid-Crisis

European TSOs mobilized to maintain grid stability & security of supply

- Electricity security of supply is crucial at all times, but even more in the context of a pandemic.
- Despite unprecedented circumstances, all European power systems are operating currently in a normal mode.
- The decentralized system design with shared responsibilities amongst European TSOs is again proving its efficiency for a reliable and stable electricity system.
- Some TSOs noticed a shut-down of power plants, but with no important consequences on Security of Supply or on System Adequacy

Situation under control and well managed

Measures to mitigate the risk @ 50Hertz

- **Critical risk: too many people in critical positions for continuous operation of the grid get infected.**
- **All office workers who could work from home started immediately doing so when the lockdown was announced by the government.**
- ***Measures to mitigate the risk (already before the lockdown)***, including:
 - Special taskforce available to report and consult 7 days a week on current situation, trends, needs, risks and measures to be taken.
 - Employees were asked early on to avoid public transport
 - Non-operational employees to work from home
 - Emphasizing hygiene standards & introducing additional disinfection facilities
 - Business travel restricted: online tools and telephone to replace travelling
 - All job interviews done online

Specific handling at the Control Center of 50Hertz

- System operation was split into three work zones (green, yellow and red) with special restrictions based on the necessary level of protection
- Temperature monitoring the health of critical staff
- Changes in shift operations to reduce the risk of infection, increase redundancy and prevent complete isolation of operators in the control room building:
 - Reduction from 3 x 8-hour shifts into 2 x 12-hour shifts
 - Building fixed shift teams with no operator exchange

Situation now: Turning back to normality

Any questions?

Thank you!