



The German energy transition & integration of renewable energy

Flashlight

Skype Session / January 23th 2017

Dr. Niels Ehlers, Head of Concepts and System Strategy, 50Hertz





36%

RES share of electricity demand in Germany in 2017
within 50Hertz control area: 54%

Elements of a successful energy transition

(or how to avoid mistakes we made)



1. Efficient RES support

- Volume control / Transparency
- Synchronization with grid infrastructure



2. Rights and responsibilities for RES

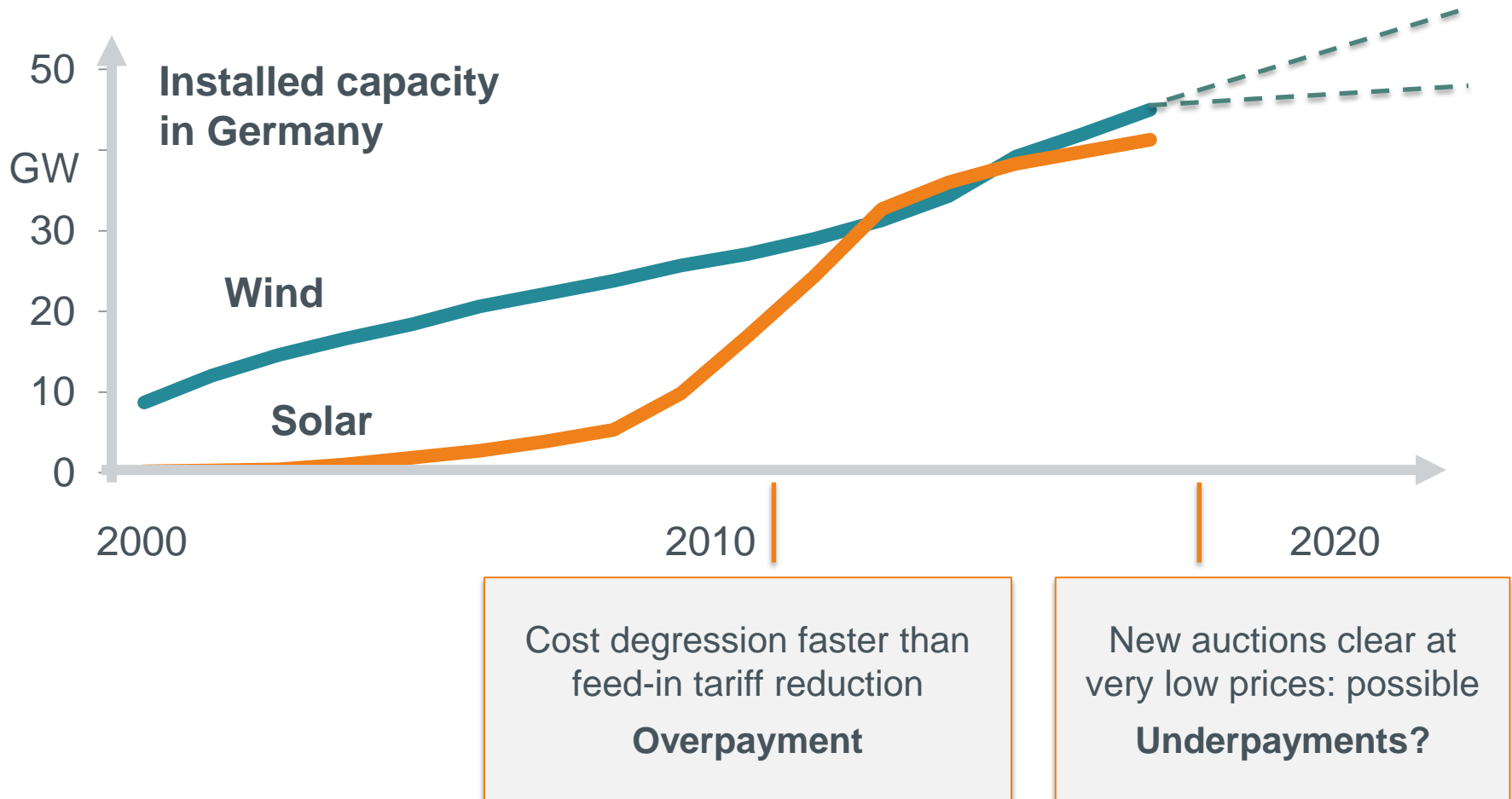
- Grid connection codes
- Active market participation



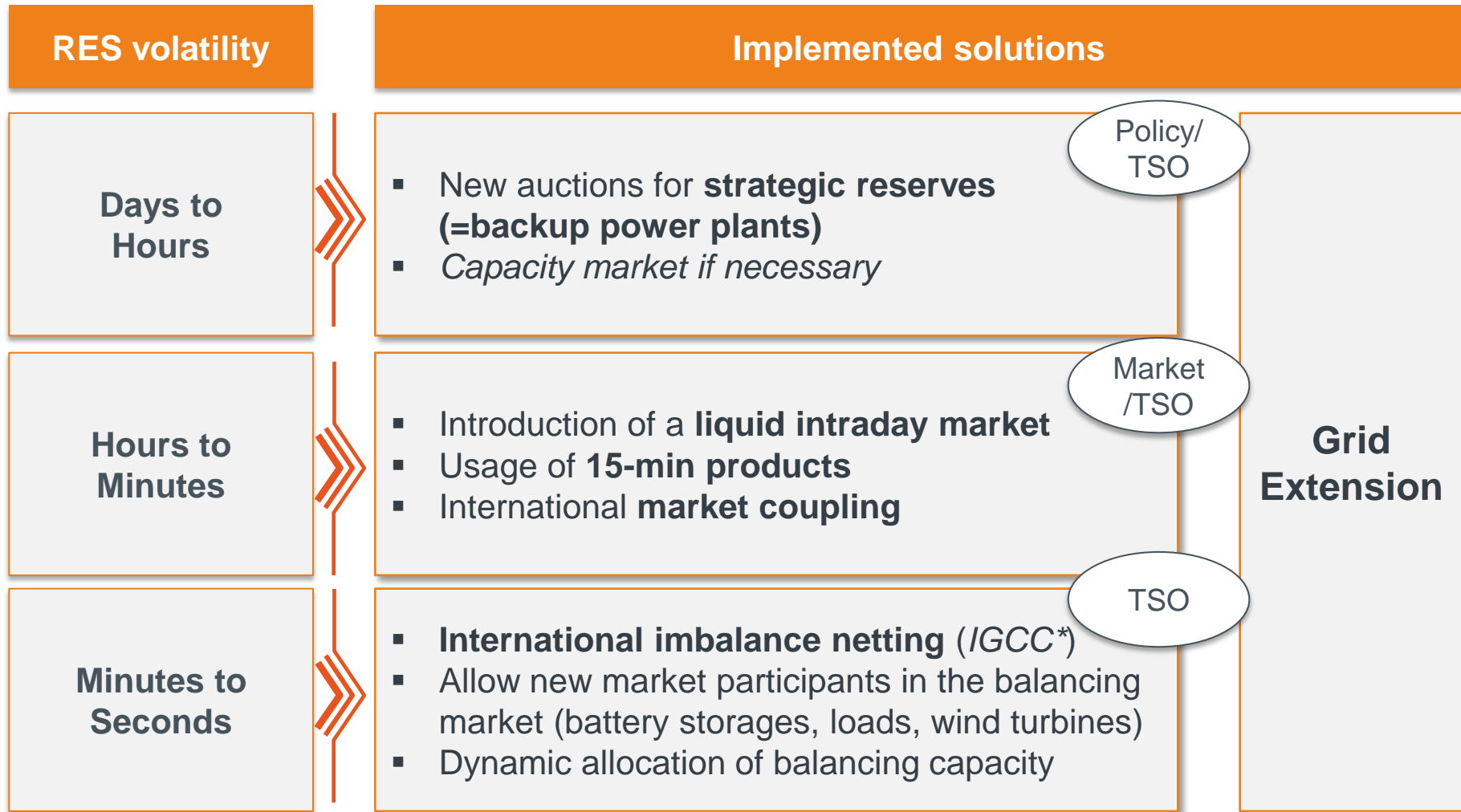
3. Market design to accommodate for RES

- Generation adequacy
Balancing (in different timeframes)
- Transmission Adequacy
Congestion management
- Ancillary services from RES

Efficient RES support: volume control and fair remuneration



Generation Adequacy: Balancing the grid in different timeframes

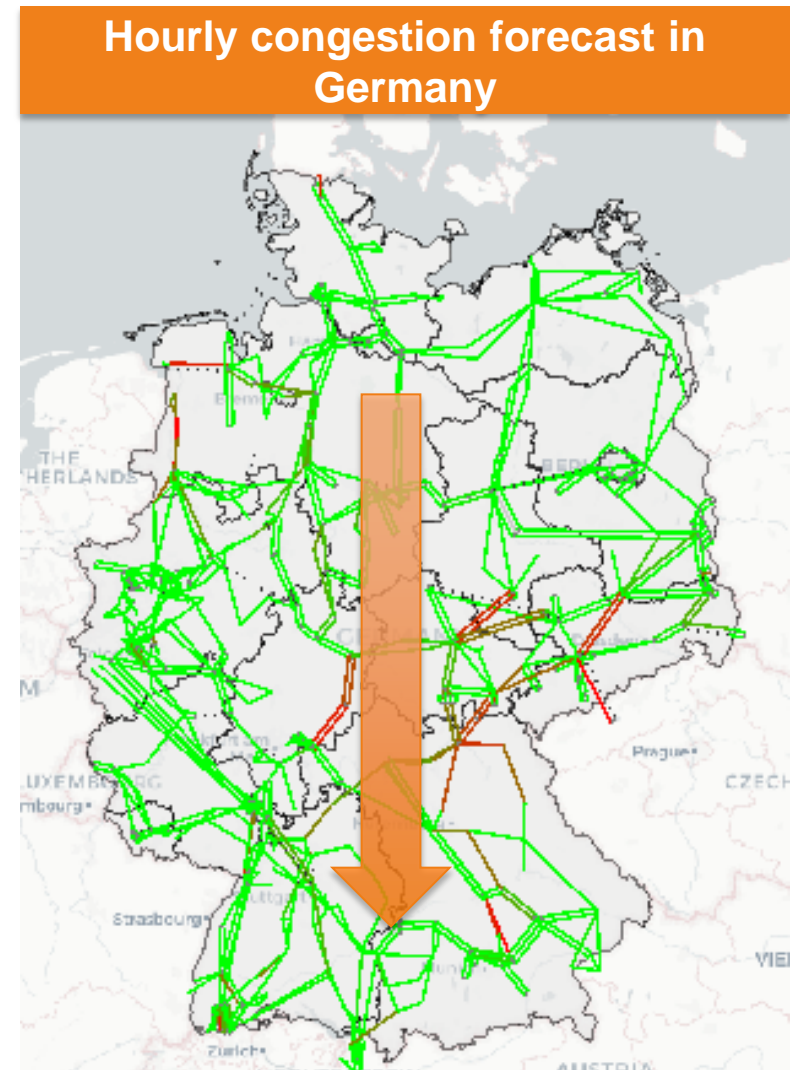


Grid Extension

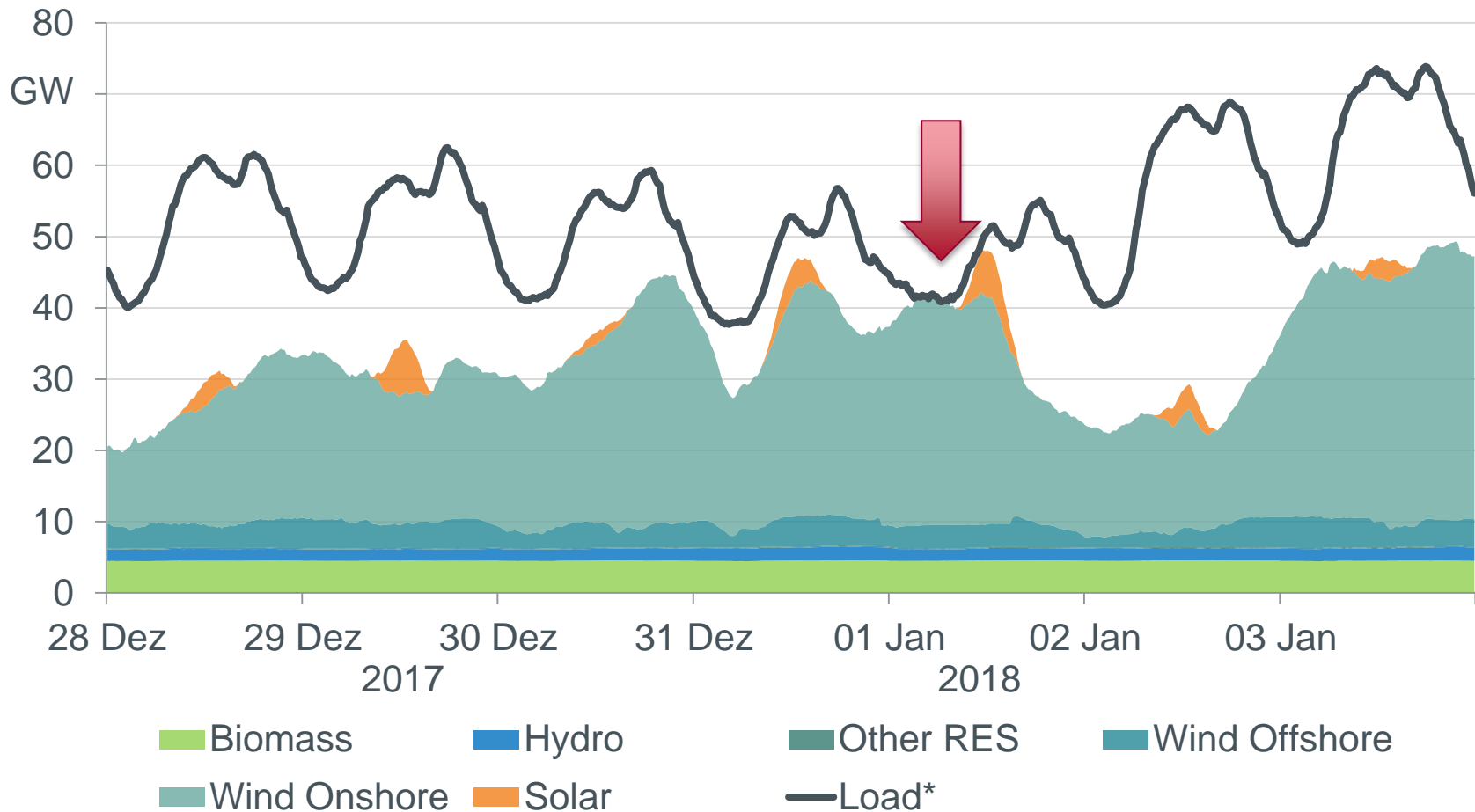
*International Grid Control Cooperation

Transmission adequacy: Congestion management

- Development of grid infrastructure often lags RES deployment
- Therefore good congestion management is essential
- Independent of the market design, system operators needs full transparency:
 - RES and load forecasts
 - Planned schedules of power plants
 - Planned exchanges
- Efficient tools are needed to avoid overcurtailment of RES



A good start in 2018: All electricity provided by RES on January 1st



Thank you for your attention!

Dr. Niels Ehlers

50Hertz Transmission GmbH
Am Umspannwerk 10
15366 Neuenhagen

+4930 5150 4450
niels.ehlers@50hertz.com

www.50hertz.com