Bundesnetzagentur

Electricity Market Design

The Regulatory Framework

Florian König

IX Electricity Security Advisory Panel

Paris, June 17, 2019

Agenda

(1) About the Bundesnetzagentur

(2) The German Electricity Market – a short Overview

(3) Energy Transition – Grid Development: BNetzA Responsibilities

(4) Security of Supply: Current tasks of NRAs

(5) EU Clean Energy Package (CEP) – Future regulatory tasks

(1) About the Bundesnetzagentur

NRA Bundesnetzagentur

- Independent higher federal authority in the scope of business of the Federal Ministry for Economic Affairs and Energy

- **Sector-specific authority** tasked with **ensuring effective competition** in the net-bound sectors
  - **Telecommunications and Posts** (since 1998)
  - **Electricity and Gas** (since 2005)
  - **Railways** (since 2006)
- Electricity and Gas **network planning** (since 2011)

- BNetzA employs over 200 people in energy regulation,
- 240 for network planning & expansion
- Overall headcount for all sectors: ca. 2900 staff

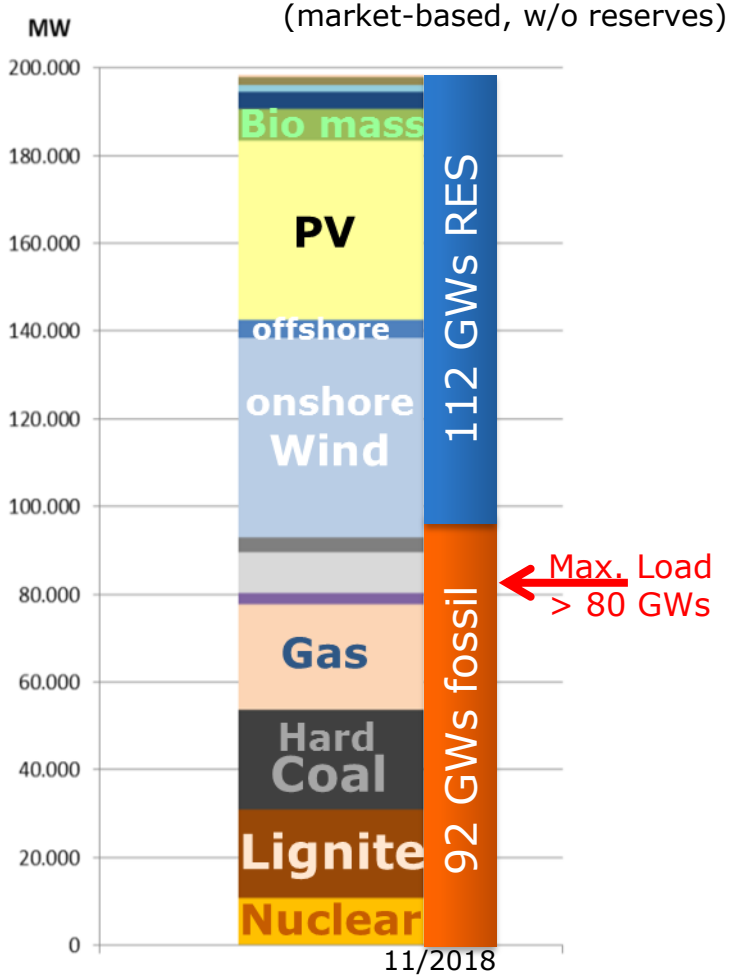
(2) The German Electricity Market

Short Overview

Demand & Supply in the EOM

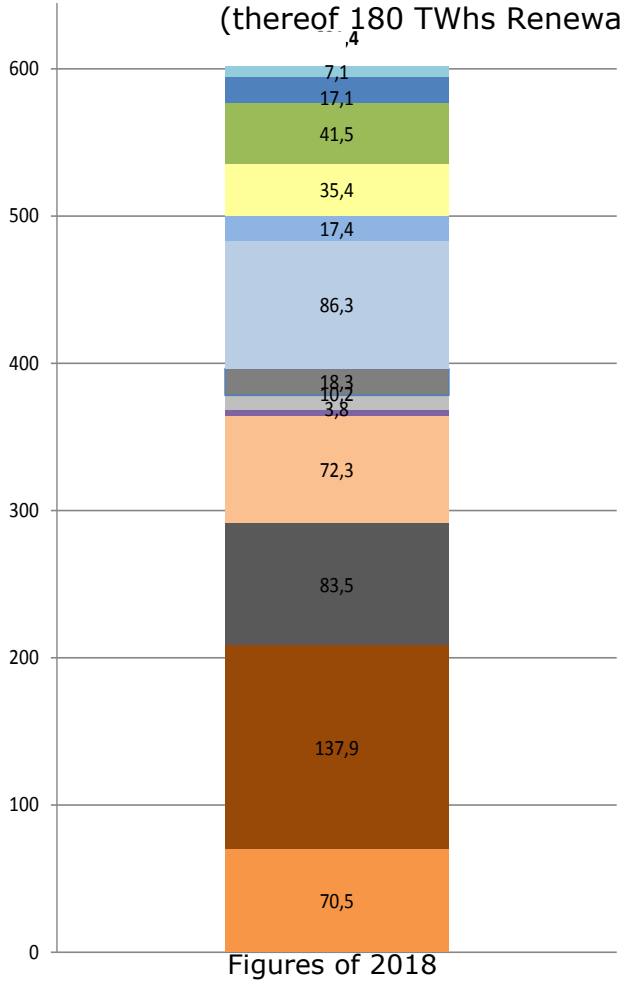
Installed power capacities: ~204 GWs

(market-based, w/o reserves)



Annual Production: ~600 Terawatthours

(thereof 180 TWhs Renewables)



Supply vs. demand: impact of renewables

Easter Monday

April 22nd, 2019, 12-1 p.m.

51 GWs Renewables

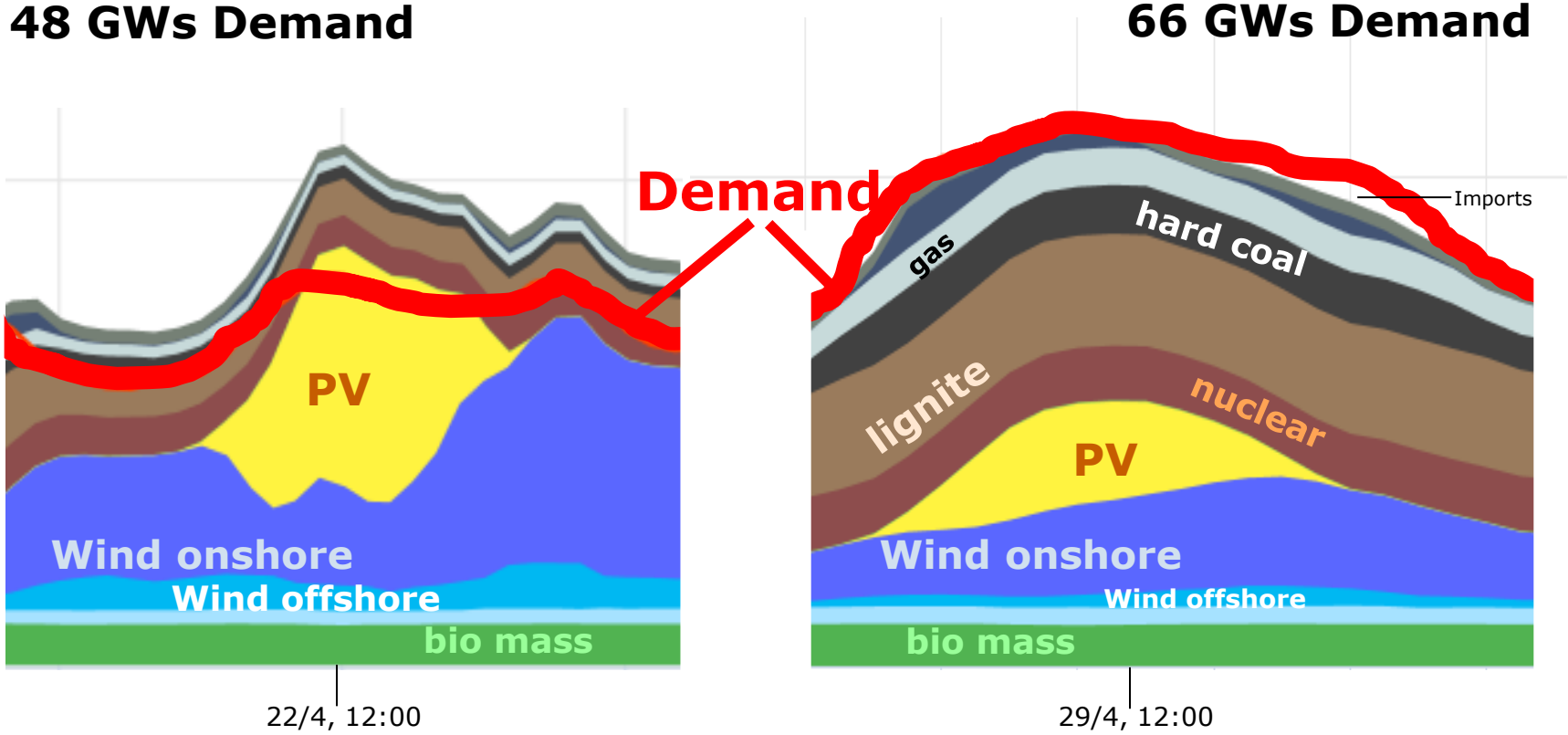
48 GWs Demand

A week after

April 29nd, 2019, 12-1 p.m.

34 GWs Renewables

66 GWs Demand



(3) Energy Transition

Grid Development: BNetzA Responsibilities



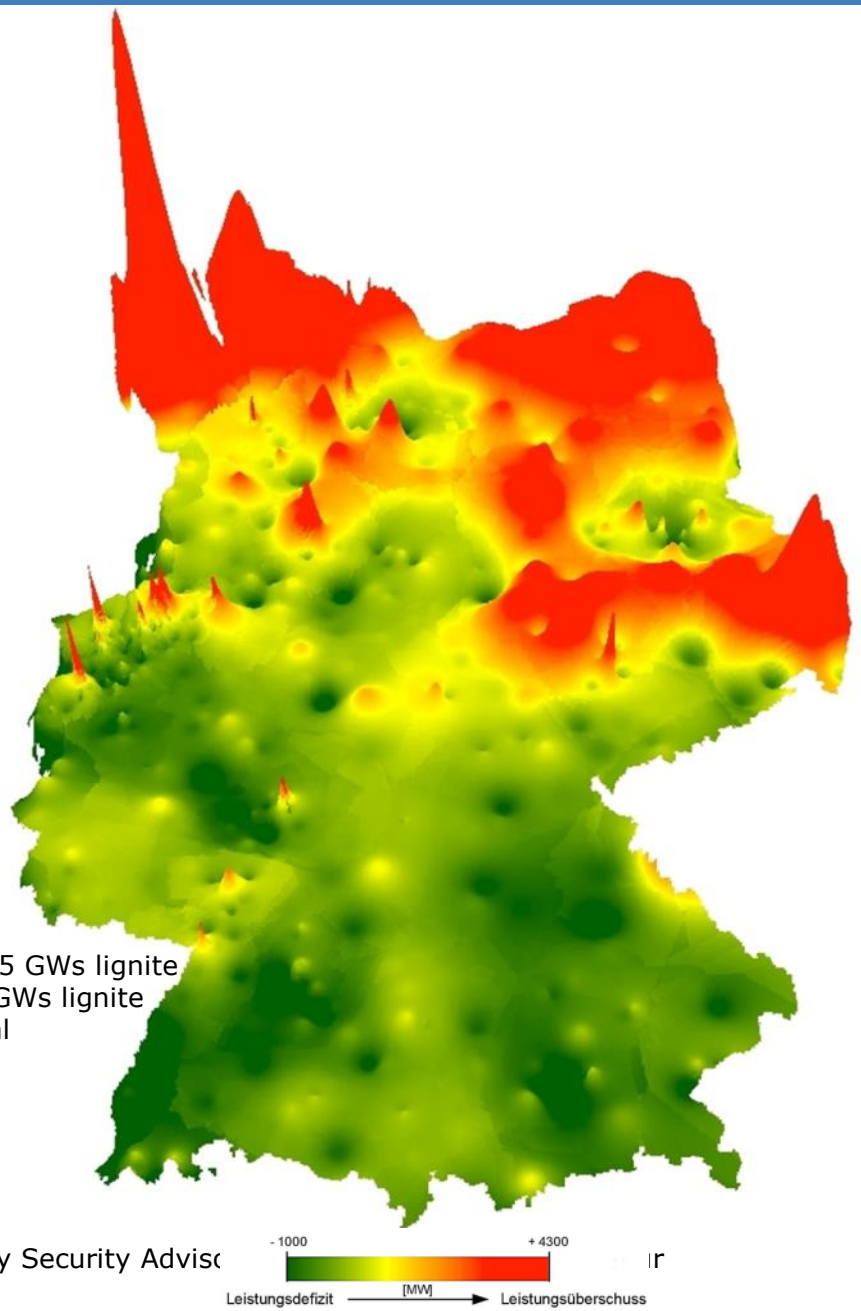
Necessity of Grid Development

Wind offshore

5.4 GWs (2017)
additional 2030:
11.6–14.6 GWs

Wind onshore

50.5 GWs (2017)
additional 2030:
23.8–35.0 GWs



Further Developments

Nuclear Phaseout (2022)

Coal phaseout (Coal Commission):
Capacity 2020: 15 GWs hard coal + 15 GWs lignite
Capacity 2022: 8 GWs hard coal + 9 GWs lignite
Capacity 2038 (or 2035): 0 GWs coal

PV

42.4 GWs (2017)
additional 2030:
30.5–62.1 GWs

Räumliche Darstellung der für den 2. Juni 2030, 17 Uhr, prognostizierten Leistungsbilanzen an den deutschen Höchstspannungsknoten (Szenario B 2030)

(4) Security of Supply

Current tasks for NRAs

Security of Supply & System Reliability

Two aspects of Security of Supply & System reliability

Transports via electricity grids have to be reliable, despite of high supply in the North and high demand in the South

Sufficient **capacity in generation** is necessary to meet the predicted future energy consumption

System Reliability	System Adequacy
Electricity Grid Congestion Mgmt.	Security of Supply

- Redispatch
- RES feed-in Management (soon part of redispatch)
- Grid Reserves
- Adaptation Measures (last resort)
- Demand Side Management
- Energy-only Market & Balancing Energy
- Capacity Reserve
- Back-up lignite power plants

(5) EU Clean Energy Package (CEP)

Future regulatory tasks

CEP: Future Regulatory Framework

Example 1: Security of Supply and Capacity Mechanisms

Electricity Regulation Article 25 – **Reliability Standard**

- A reliability standard shall be set by the Member State, following a **proposal by the NRA**.
- The reliability standard shall be based on a certain methodology, using the **value of lost load** (-> Art. 12) and the **cost of new entry** over a given timeframe and shall be expressed as "**expected energy not served**" and the "**loss of load expectation**".

Example 2: Flexibility

Electricity Directive Article 32 - **Flexibility at DSO level**

- Regulatory framework has to provide incentives to DSOs to procure **flexibility services**, including **congestion management** in their areas, in order to improve efficiencies in the operation and development of the distribution system.

Example 3: Sector Coupling

Electricity Directive Article 33 – **Grid Integration of e-mobility**

- Regulatory framework necessary in order to enable **publicly accessible and private recharging points** at the distribution level.

Bundesnetzagentur

Thank you for your attention

Florian König

Bundesnetzagentur
+49 228 14 5788
florian.koenig@bnetza.de