

CAPACITY REMUNERATION IN GERMANY

STATUS QUO & POTENTIAL OUTLOOK

ENTSO-E WEBINAR ON CRMs

7 DECEMBER 2022

DR. PETER LOPION

PART I – STATUS QUO

STRATEGIC RESERVE IN GERMANY

OVERVIEW

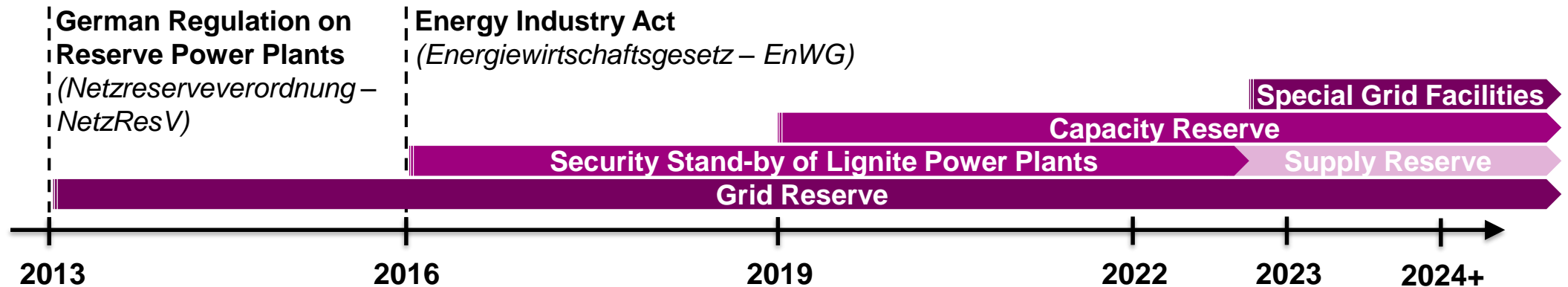
STRATEGIC RESERVE IN GERMANY

Legal basis: Energy Industry Act (*Energiewirtschaftsgesetz – EnWG*)

- §13d: Grid Reserve (*Netzreserve*)
- §13e: Capacity Reserve (*Kapazitätsreserve*) ←
- §13g: Security Stand-by of Lignite Power Plants (*Sicherheitsbereitschaft von Braunkohlekraftwerken*) ←
- §11(3): Special Grid Facilities (*Besondere netztechnische Betriebsmittel – bnBm*)

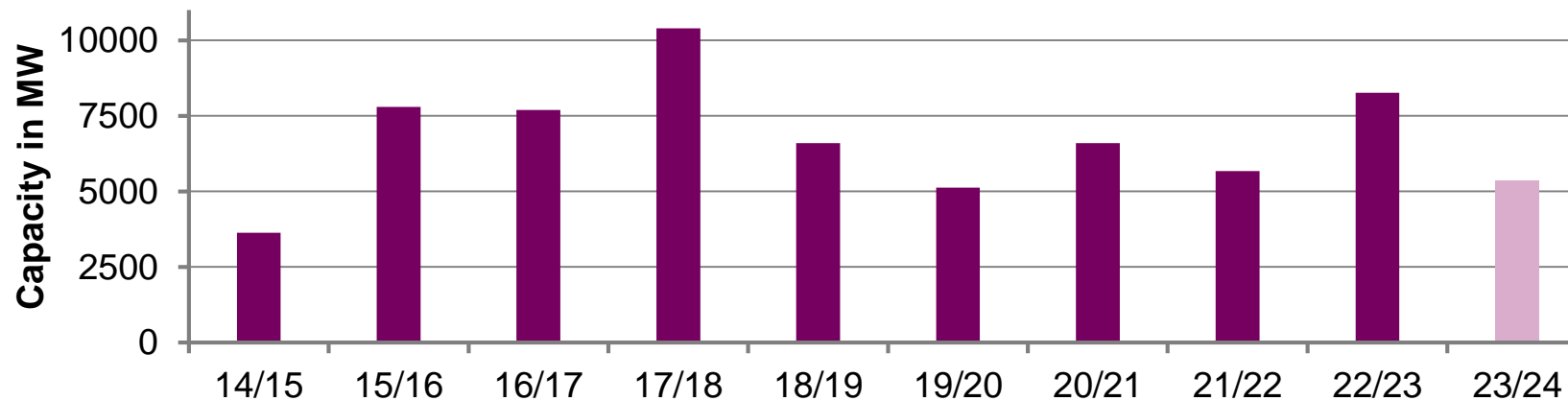
Capacity Mechanisms

Acts on the Further Development of the Electricity Market
(*Strommarktgesetz*)



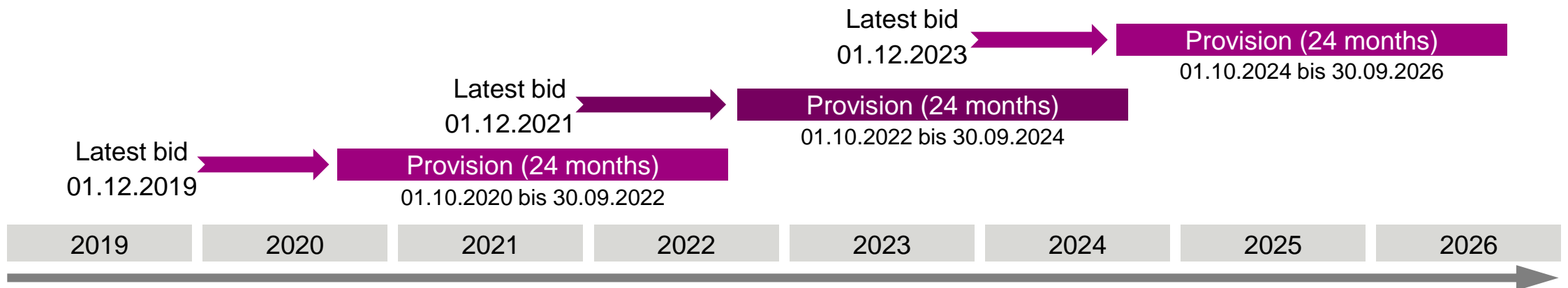
GRID RESERVE CHARACTERISTICS

- **Purpose:** additional redispatch (potential) especially during winter to ensure transmission adequacy
- **Reasoning:** determination of grid reserve needs by German NRA based on system analysis of German TSOs on annual basis
- **Participation:** power plants which are currently not ready for operation, but considered as system-relevant by TSOs; system-relevant power plants which should be decommissioned (temporarily or permanently); cross-border participation possible
- **Volume:** 8264 MW (2022/2023)
- **Remuneration:** cost-based; contracted for 2 years (extension possible); no further participation in the electricity market
- **Additional remarks:** European Commission has approved the grid reserve in principle, but envisages that its scope will be gradually reduced



CAPACITY RESERVE CHARACTERISTICS

- **Purpose:** compensation of potential deficits due to an incomplete balancing of supply and demand on the electricity markets (resource adequacy)
- **Reasoning:** the German Federal Ministry for Economic Affairs and Energy (BMWi) evaluates the scope of the capacity reserve every two years on the basis of the German NRAs monitoring report
- **Participation:** power plants and flexible loads (no cross-border participation possible)
- **Volume:** 2000 MW (auction volume), 1086 MW (contracted for period 2022-2024)
- **Remuneration:** based on auction result (max. 100 k€/MW p.a.; pay-as-cleared; 63 k€/MW p.a. for period 2022-2024); contracted for 2 years (extension possible); no further participation in the electricity market; power plants must be decommissioned afterwards (prohibition of return to the market)
- **Additional remarks:** can be used for grid reserve concerns

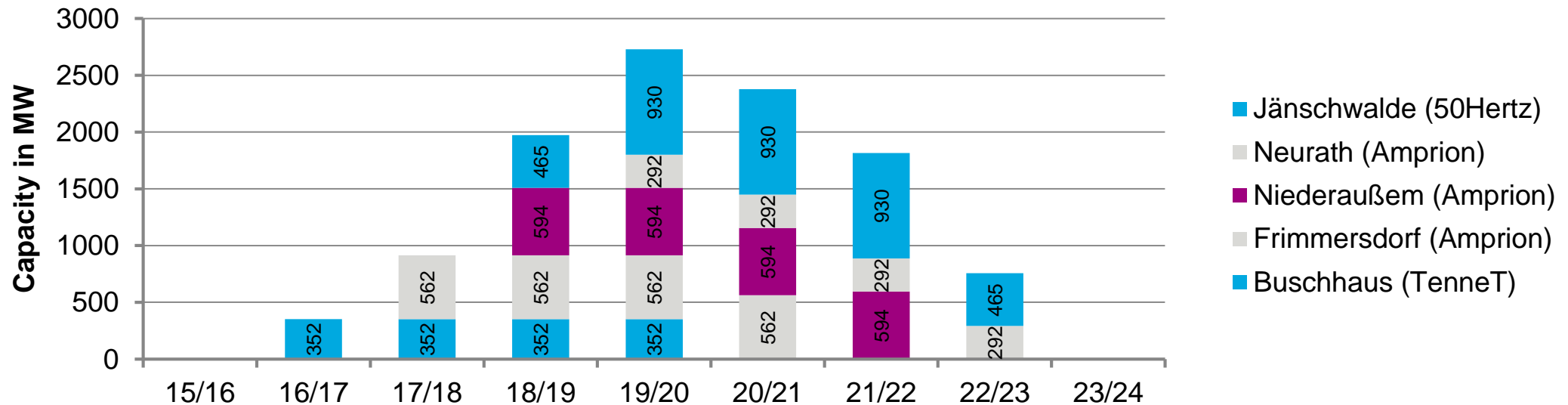


SECURITY STAND-BY OF LIGNITE POWER PLANTS

CHARACTERISTICS

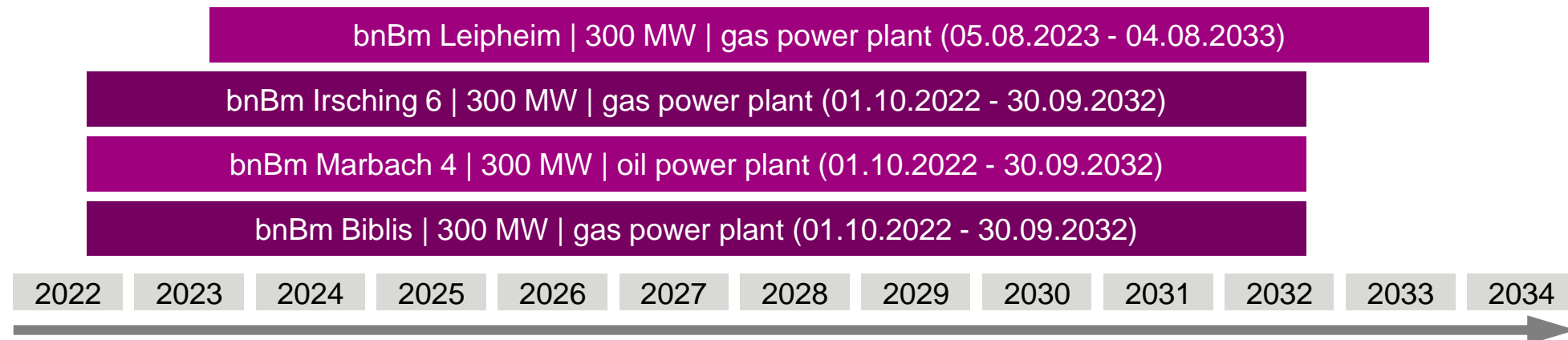


- **Purpose:** earlier (preliminary) decommissioning of lignite power plants for climate protection reasons
- **Participation:** German lignite power plants only; permanent decommissioning after participation (4 years)
- **Volume:** max. 2730 MW (2019/2020), 757 MW (2022/2023)
- **Remuneration:** compensation for lost revenues; contracted for 4 years; no further participation in the electricity market
- **Additional remarks:** power plants must be ready for operation within 240 h; no activation of stand-by power plants so far; European Commission approved the state aid for the decommissioning of lignite-fired power plants on stand-by on in 2016



SPECIAL GRID FACILITIES CHARACTERISTICS

- **Purpose:** TSOs are authorized to maintain "special grid facilities" to restore the security of the power system in the event of outages
- **Reasoning:** German TSOs identified additional need for grid stability capacity which was confirmed by the German NRA
- **Participation:** suitable (new) power plants which are able to reach full load within 30 min (lasting for 38 h)
- **Volume:** 1200 MW (auction of 12 x 100 MW)
- **Remuneration:** based on auction results (pay-as-bid); contracted for 10 years; no participation in the electricity market
- **Additional remarks:** power plant operation by third parties (unbundling); total operating time is at least 500 h p.a.



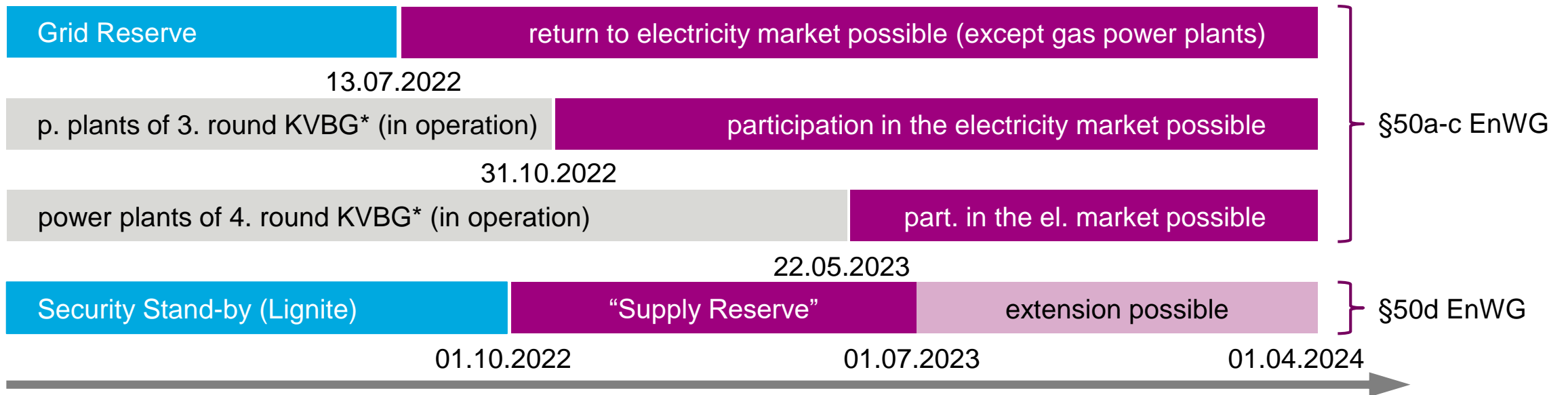
CURRENT DEVELOPMENTS

~ SUBSTITUTE POWER PLANT READINESS ACT

“ERSATZKRAFTWERKEBEREITHALTUNGSGESETZ”



- **Purpose:** return of power plants from the Grid Reserve into the electricity market, extension of operation of coal power plants
- **Participation:** suitable lignite & hard coal power plants which are currently in the Grid Reserve, in Security Stand-by, or have signed an accelerated decommissioning agreement
- **Volume:** depending on (voluntary) participation
- **Remuneration:** market-based or based on contracts of the “Supply Reserve”



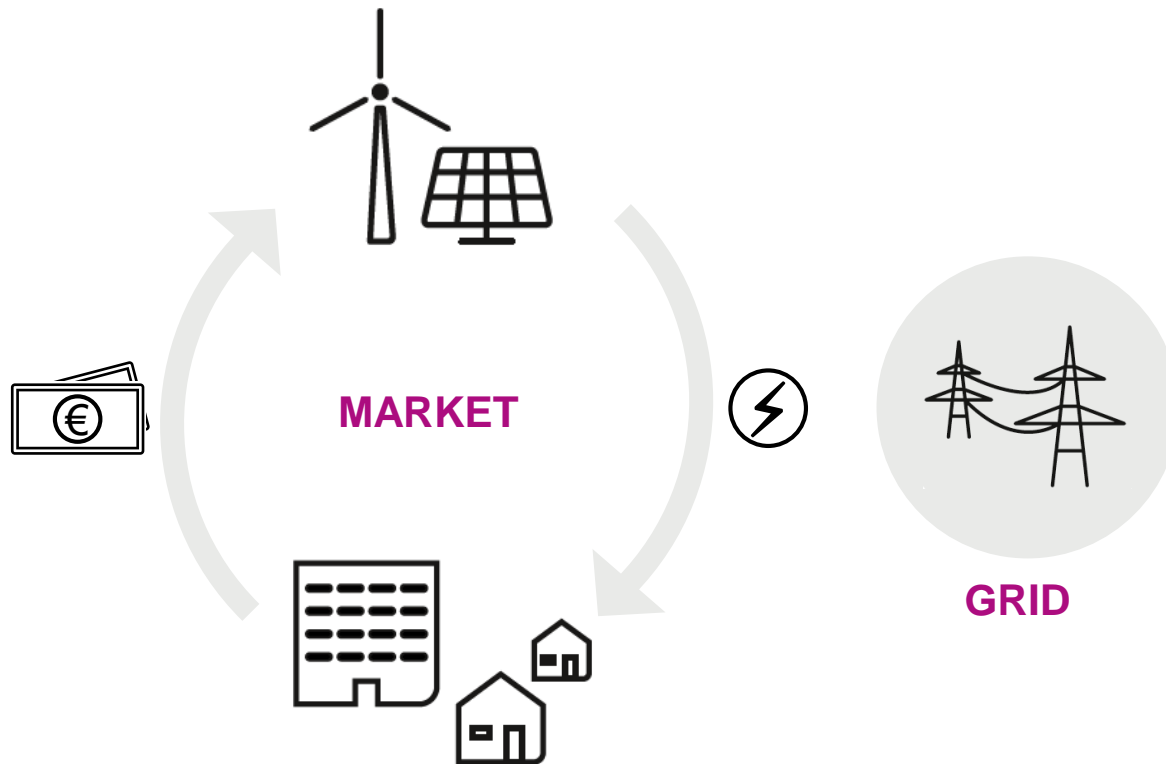
* Kohleverstromungsbeendigungsgesetz (KVBG) ~ Coal-fired Power Generation Termination Act

PART 2 – OUTLOOK

INTRODUCTION OF AMPRION'S
SYSTE(M)ARKET CONCEPT

CURRENT CHALLENGES

MARKET AND GRID HAVE TO WORK HAND IN HAND



PHYSICAL REALITY

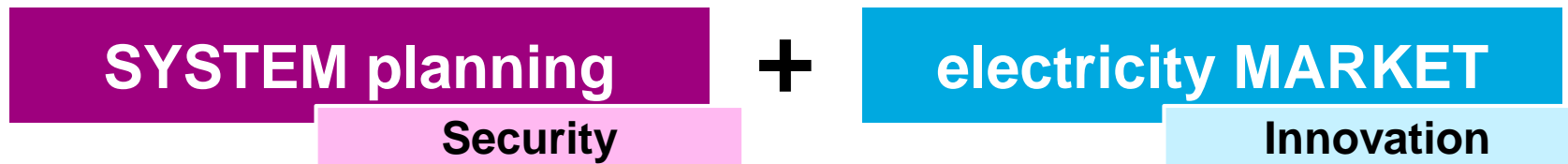
Tasks of the transmission grid

- Transmission of active power
- Securing static voltage stability (reactive power)
- Balancing
- Securing the provision of grid inertia
- Dynamic reactive power control
- Securing the provision of of short-circuit current
- Securing of island operation capability
- Securing of black start capability

POTENTIAL SOLUTION

A SYSTEMIC VIEW ON THE ENERGY SYSTEM

SYSTE(M)ARKET



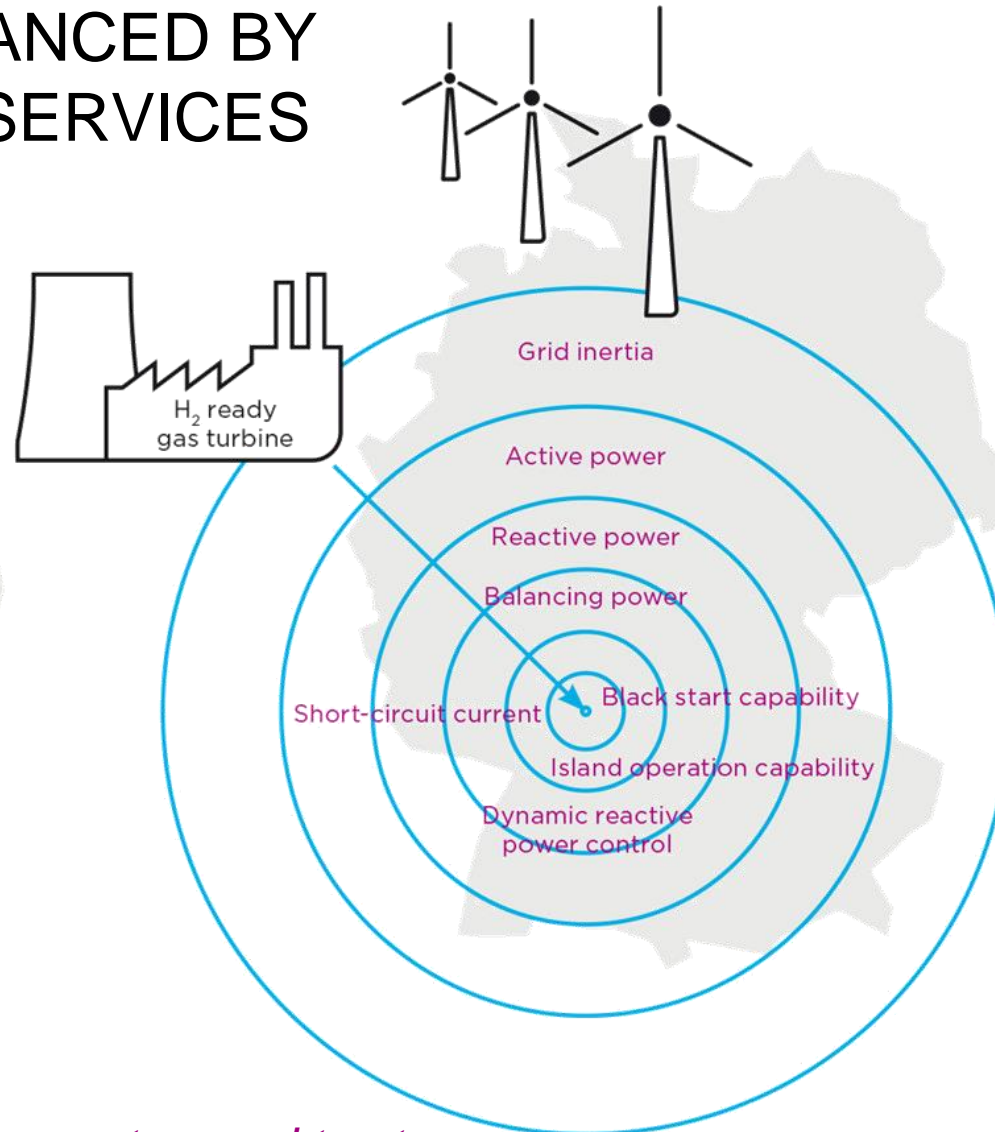
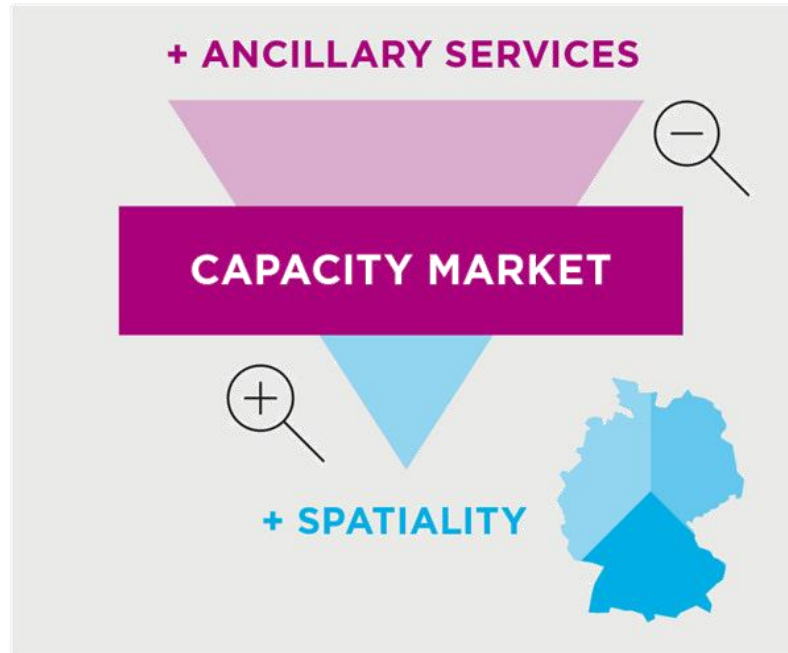
The SYSTE(M)ARKET is designed to ensure resource adequacy and robust system operation in the long term by providing incentives for



This is achieved by the spatially and objectively differentiated long-term remuneration for the provision of the necessary potentials (capacities)

BASIC CONCEPT

A CAPACITY MARKET ENHANCED BY SPATIALITY & ANCILLARY SERVICES



Further information also available at: www.systemmarkt.net

**THANK YOU FOR
YOUR ATTENTION!**

