Flexibility, Generation Adequacy and Markets – Germany's challenges on the way to a renewable electricity system

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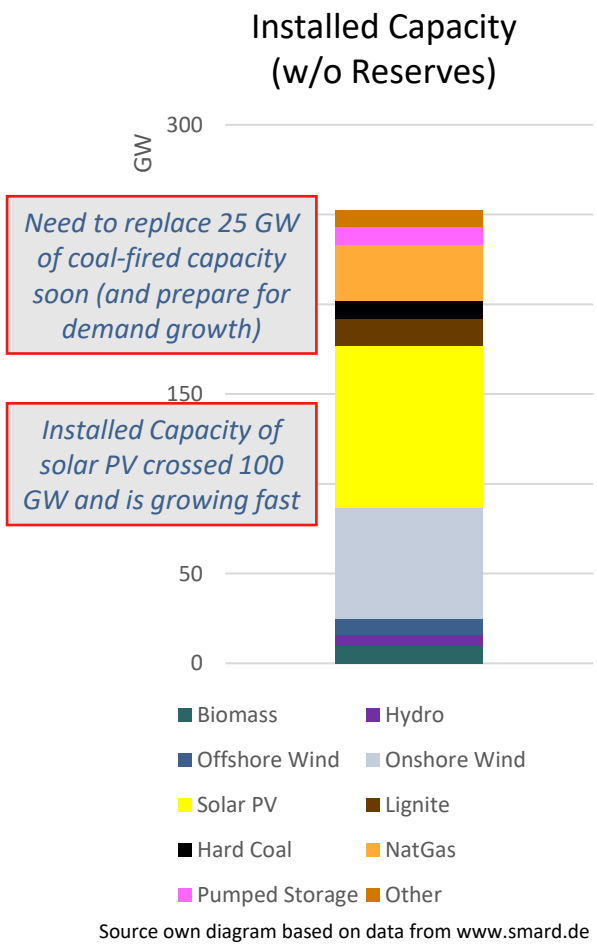
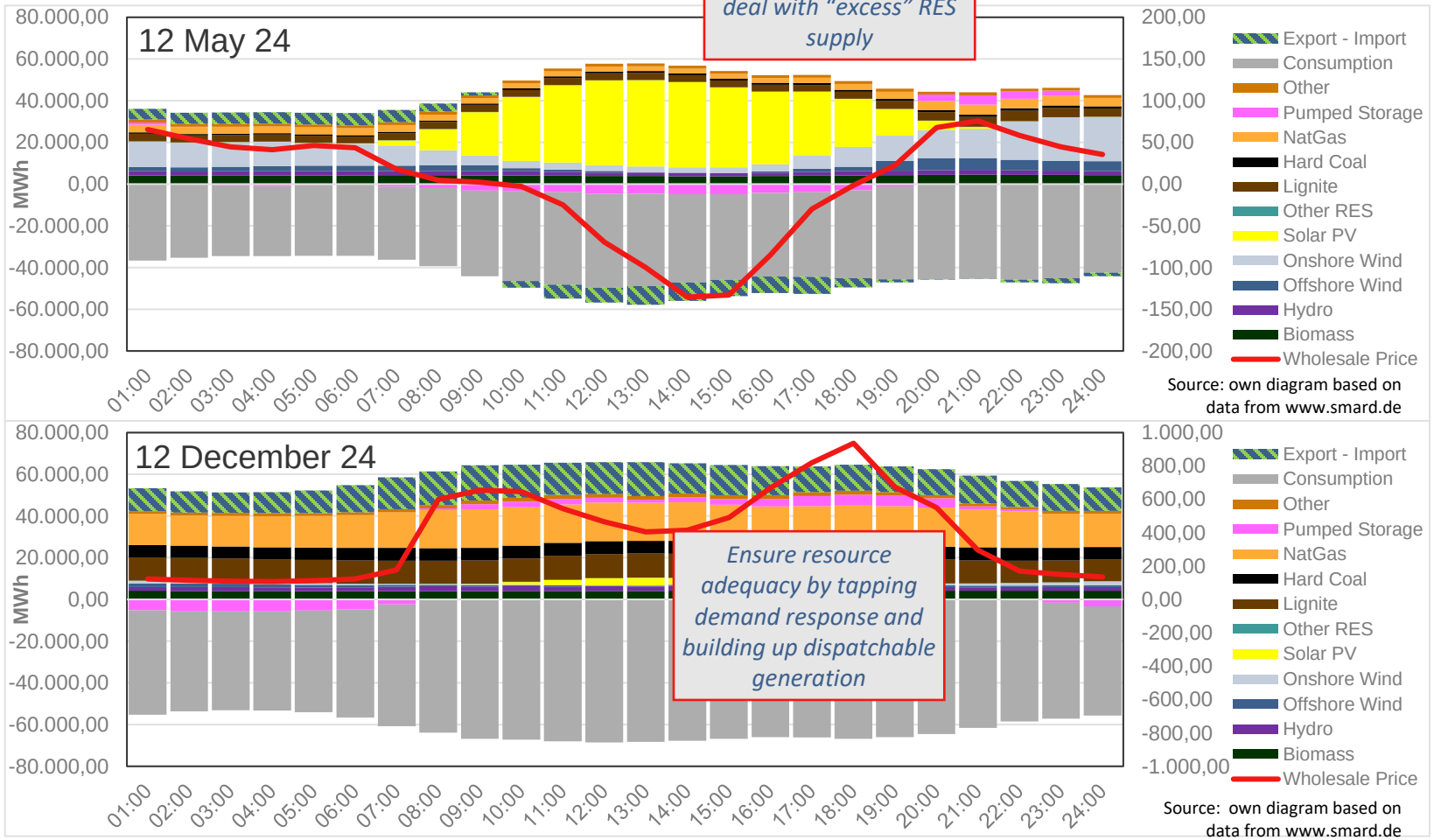
Looking back at 2024 reveals challenges ahead



Source own diagram based on data from www.smard.de



→ **Fostering flexibility and safeguarding resource adequacy have to be key priorities for the near future**

Fostering flexibility: Planned flexibility roadmap needs to deal with many challenges

Supply side

- Small-scale RES (in particular solar PV) still gets feed-in tariffs and has no incentive to react to price signals
- Support systems often dampen price signals

Storage

- Small-scale storage installed together with solar PV in residential buildings does not deliver significant benefits from system perspective
- Huge connection pipeline for large-scale storage → very welcome, but lack of incentives for system-friendly location and dispatch

Demand Side

- From 2025 on, consumers are entitled to flexible tariffs with dynamic pricing
- But lack of available smart meter infrastructure drastically limits potential for tapping flexibility
- In addition, locational signals needed to reflect grid situation

Market Design

- Grid tariffication needs an overhaul
  - Current system offering (significant) discounts to energy-intensive industries incentivizes inflexibility
  - High capacity charges are a disincentive to flexibility as well
  - No fair contribution to grid costs of consumers with large shares of self-supply

Future capacity market design: safeguarding resource adequacy without hampering flexibility

Provide security for investments in necessary new dispatchable capacity

- Create **investment security** for dispatchable capacity with high investment requirements (new construction and possibly extensive retrofits)
- Key building blocks for this: sufficiently long contract terms, sufficient lead time between contract signing and commissioning

Security through tenders with state-backed long-term contracts
→ Centrality required

In interaction

- Optimization of cost efficiency and security of supply
- Manageable implementation effort for all stakeholders

Ensuring compatibility with the energy transition

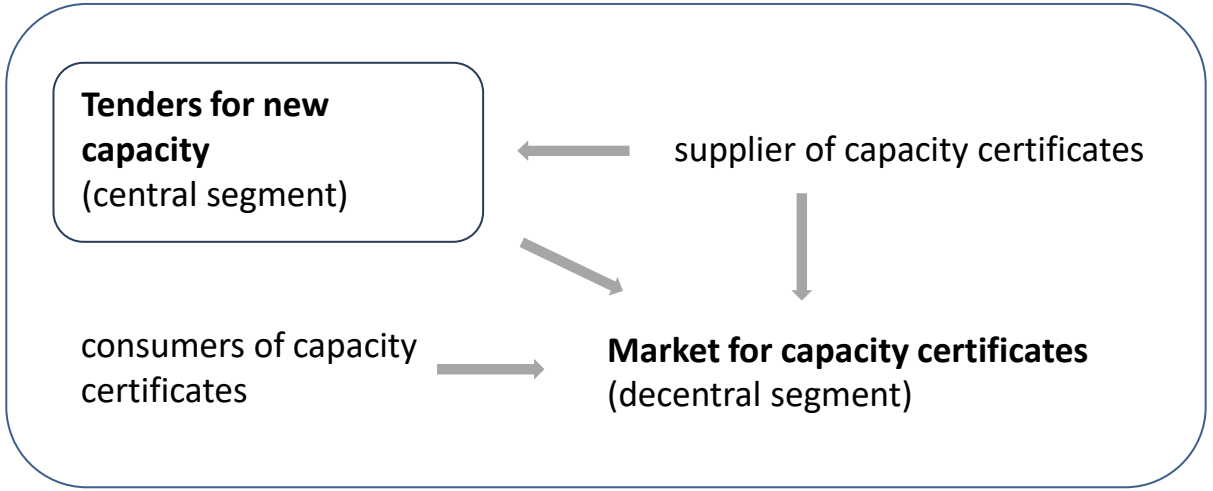
- New challenges: changing generation and consumption patterns, uncertainty regarding technological developments, etc.
- Efficiently and effectively ensure security of supply even in the face of uncertain developments
- **Activate flexibility and enable innovation** → Maintain the responsibility of decentralized players and use their knowledge to this tend

Utilizing the knowledge and customer proximity of the industry

Easy exploitation of the value of flexibility

→ Decentralization desired

The concept for a combined capacity market



- **CoCM =** central segment (**CoCM-C**) **+** decentral segment (**CoCM-D**)
  - **CoCM-C =** Auctions for **new capacity:** Long-term contracts should offer investment security for the addition of new capacity (including extensive retrofits if necessary)
  - **CoCM-D =** Optimization of capacity provision: Trading of capacity certificates between capacity providers and capacity consumers (electricity consumers or suppliers in the amount of their contribution to the system peak load), alternatively self-fulfillment through the use of flexibility

CoCM is a decentralized capacity market with embedded central auctions to provide investment security to new capacities and, if necessary, major modernizations

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