Decarbonisation of power plant portfolio in BW – political framework

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Ministerium für Umwelt, Klima
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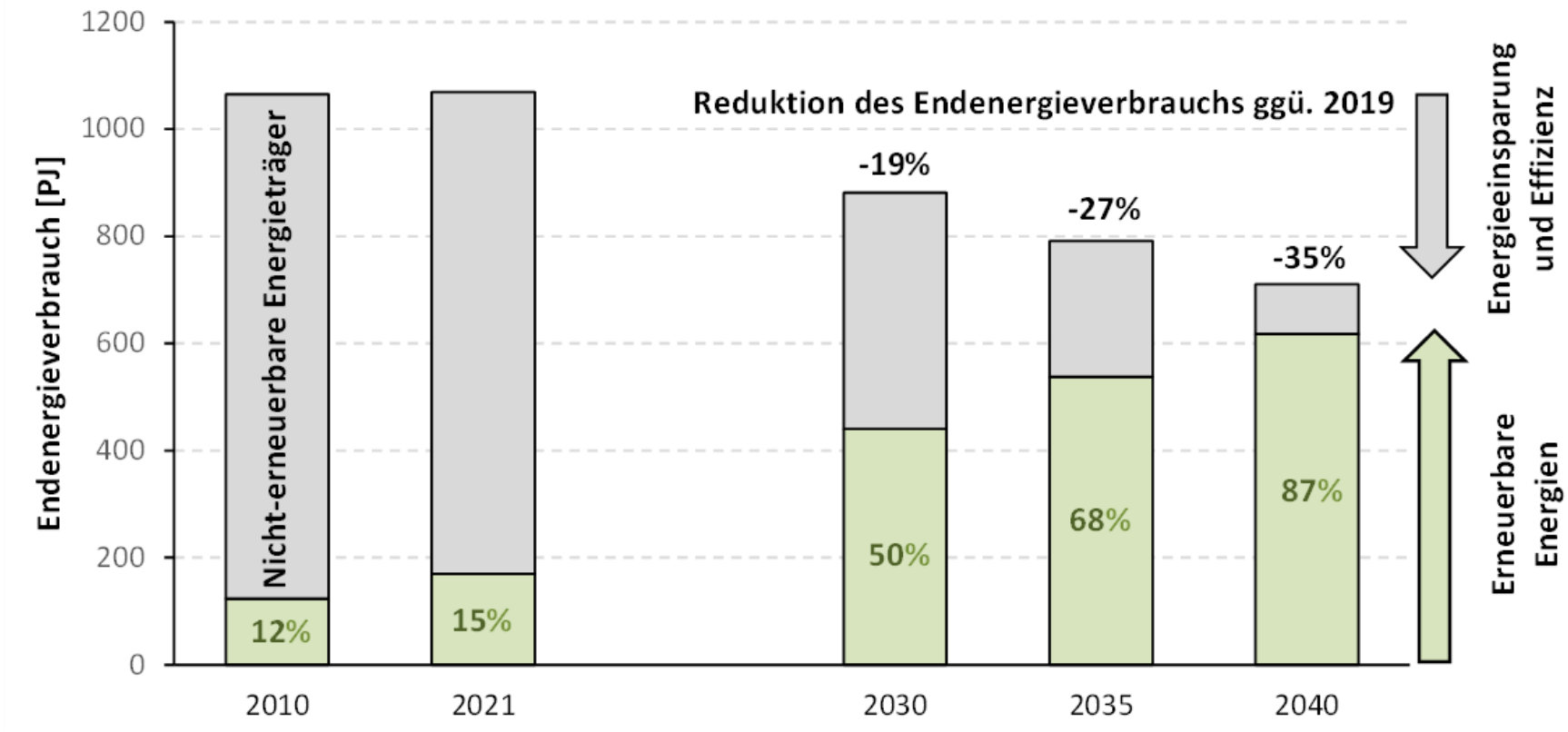
BW energy transition targets: from fossil to renewable



INSTALLIERTE LEISTUNG ERNEUERBARER ENERGIEN ZUR STROMERZEUGUNG [GW]

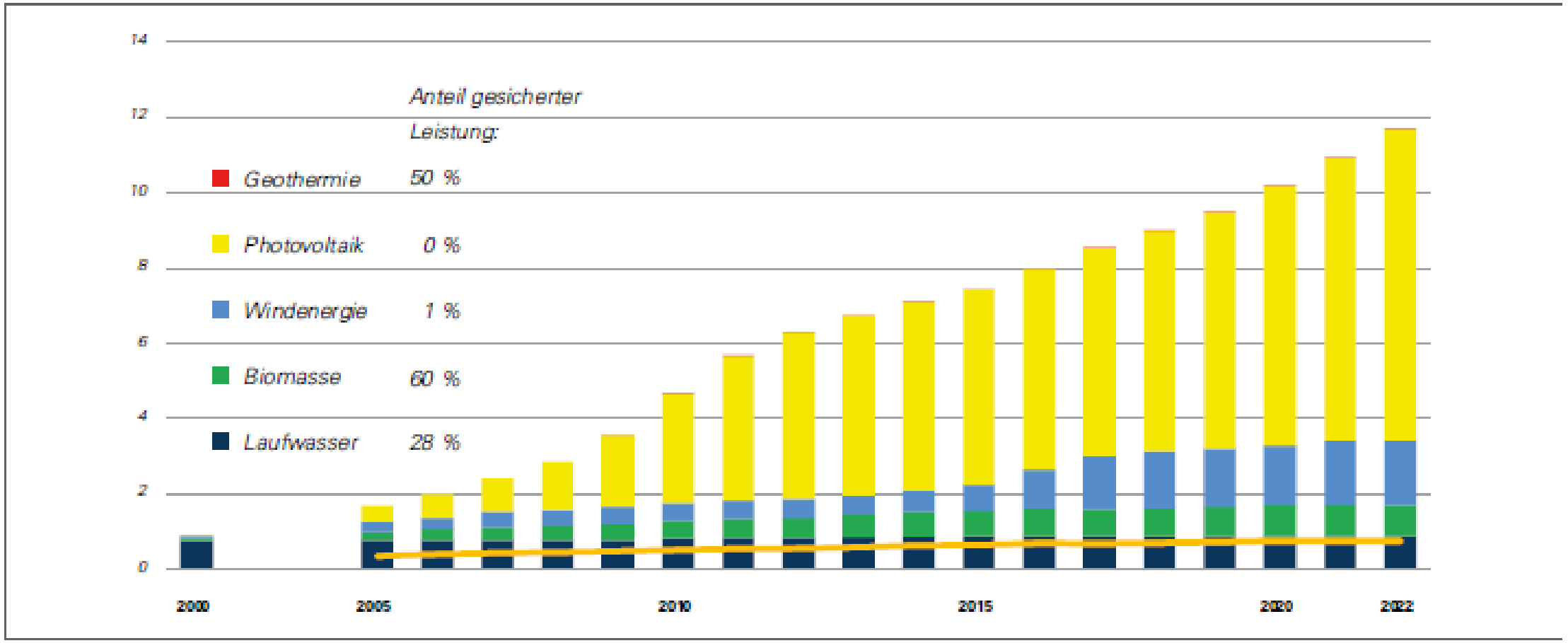
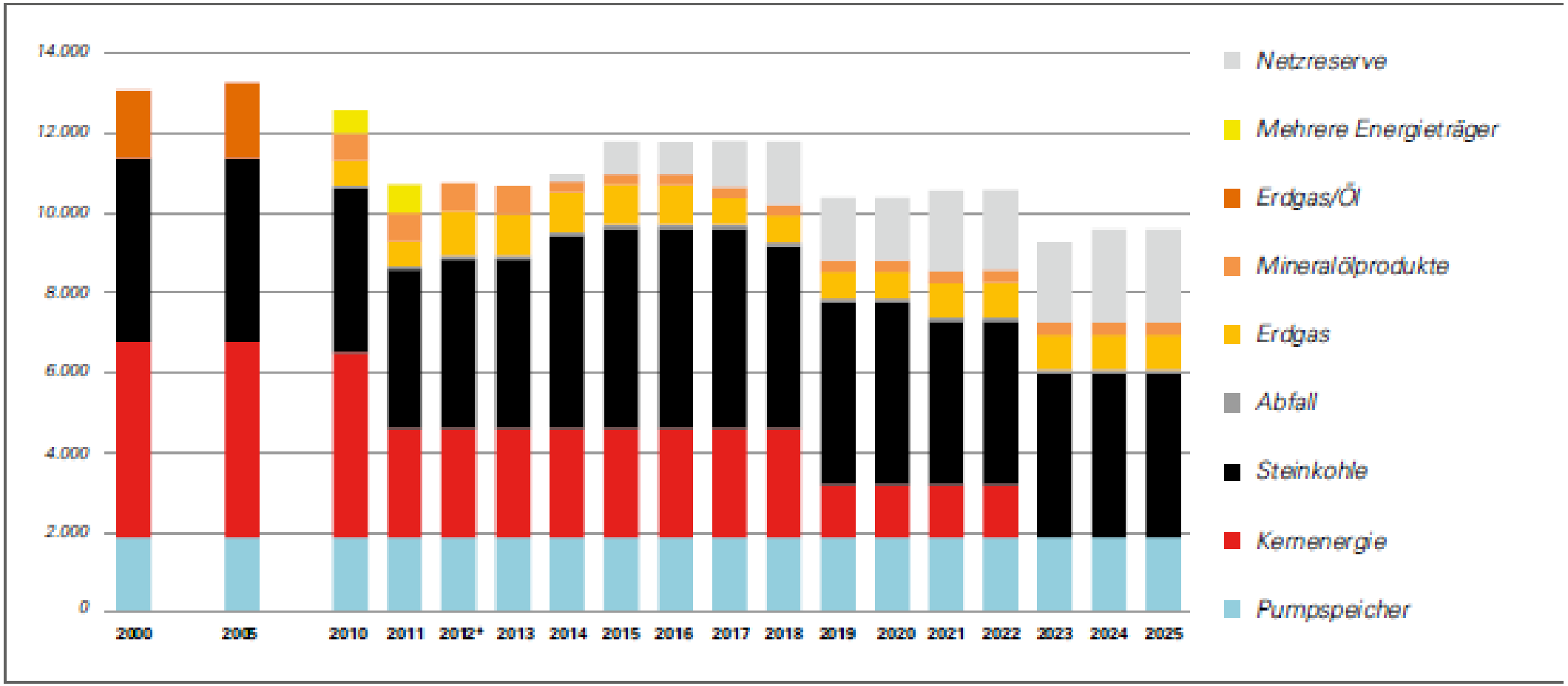


Abbildung 6: Entwicklung der Erzeugungsleistung erneuerbarer Energien (Säulen) sowie der gesicherten Leistung (Linie) in Baden-Württemberg
Eigene Darstellung auf Basis von Daten aus [76]

KONVENTIONELLE NETTO-KRAFTWERKSLEISTUNG (> 10 MW) [MW], STAND ZUM JAHRESENDE



* Geänderte Zuteilung der Erfassung „mehrere Energieträger" zum jeweiligen Hauptenergieträger

Development of BW power plant park

ramp up

(in GW)	2011	2023	2040
Wind	**0,5**	**1,7**	**12,5**
PV	**3,8**	**10,2**	**47,2**

phase-out
nuclear by 16.4.2023
coal by 2028/30 (EnBW/BW)

Gas(H2-ready) power plants needed – 4-6,5 GW




Flexibility
Storage: Batteries and other

Demand Side Management:
new consumers (HP, EV, Electrolyser ...)

→ smart grid/metering required

Capacity needed for dark doldrums
no investments in new power plants since 2015

less full load hours with increasing RE

→ incentives required

Market framework

Energy only Market

economically most efficient way of power plant dispatch

with increasing renewables:

- increase of hours with power exchange price zero
- how to earn money on the EoM with fuel based power plants?

→ discussion on capacity mechanism

Power Plant Safety Act (KWSG) - key elements

power plant capacity 12.5 GW
and 0.5 MW of long-term electricity storage

Pillar 1 – **Decarbonisation** 5 + 2 + 0,5 + 0,5 GW

Pillar 2 - **Security of supply** 5 GW

Pillar 3 - **Capacity mechanism** – long term

Pillar 1
Decarbonisation

H2-ready gas plants for decarbonisation
5 GW **new** - 2 GW **refurbished**
+ 0,5 GW H2-„**sprinter**“
+ 0,5 GW **long term storage**

subsidy scheme:
- tender on capex +
- opex subsidy – CfD for H2 in ct/kWh
  max. 800 flh p.a. for 4 y. = total max. 3.200 flh

(Cap at 430 €/MWh)
- bonus for localization in the South (2/3)

Pillar 2
Security of supply

security of supply
5 GW gas plants for security of supply
similar requirements, without obligation of H2-conversion

requirements:
- from year 8 must be run on H2 for min. 200 flh
- contribution to system stability

start of commercial operation:
bid award + max. 6 years = 2031/32/33

Pillar 3: 2028+ capacity mechanism

4 Options:

a) hedging obligation for balance responsible

b) centralized capacity mechanism

c) decentralized capacity mechanism

d) combined capacity mechanism

BMWK favors d) - complex, unique

BW (and others) prefer b) EU-aid law-approved




Thank You! Any Questions?

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