

# POWER PRICES TO 2050 RETAINING GERMANY'S INDUSTRIAL BASE AMID AMBITIOUS DECARBONISATION TARGETS

Or: What we learned from the past for the future



Tobias Federico  
Montel German Energy Day

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Düsseldorf

# GERMANY'S ECONOMIC GROWTH WAS BASED ON CHEAP ENERGY

## Power Source

### **Pre Industrial** until 1800

- water, wood, charcoal

### **Industry 1.0** 1800 to 1870

- Hard Coal domestic

### **Industry 2.0** 1870 to 1970

- Electricity based on domestic hard coal and lignite

### **Industry 3.0** 1970 to 2020

- Electricity based on nuclear, natural gas from Russia and renewables

## Effect

- Iron ore development in Sauerland region and Harz Region

- Ruhr Region, close location to rivers

- Distributes industrial areas close to main rivers (Ruhr area, Berlin, Mannheim)

- diversified electricity generation all over Germany

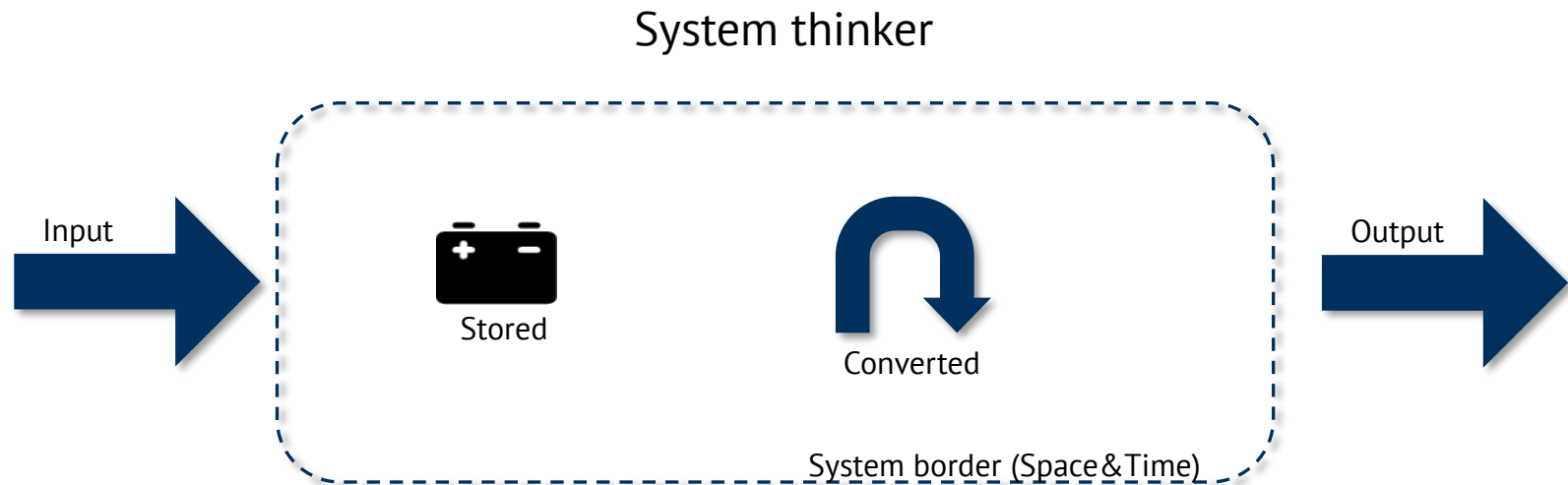
# AND FOR THE INDUSTRY 4.0 FROM 2020 ON?



Habeck: Ersteller: IMAGO ;Credit: IMAGO/Political-Moments; Urheberrecht: IMAGO/Political-Moments  
Scholz: Michael Kappeler/dpa  
Merkel: DPA

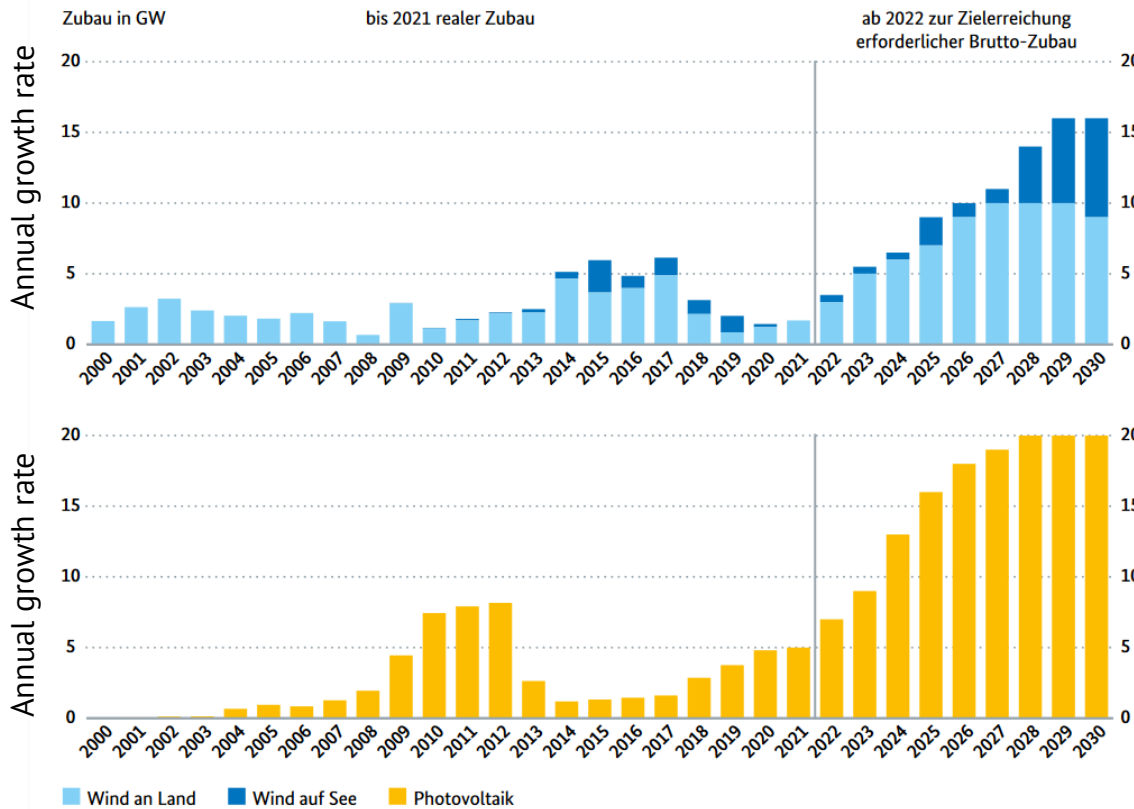
# THE GOALS FOR THE FUTURE

1. Build a climate neutral energy system
2. Have reliable electricity supply
3. Build up a payable power system



# 2021 THERE WAS A VERY AMBITIONS GROWTH PLAN OF PV AND WIND

## Ausbau Wind und Photovoltaik



Quelle: Arbeitsgruppe Erneuerbare Energien-Statistik (AGEE-Stat)

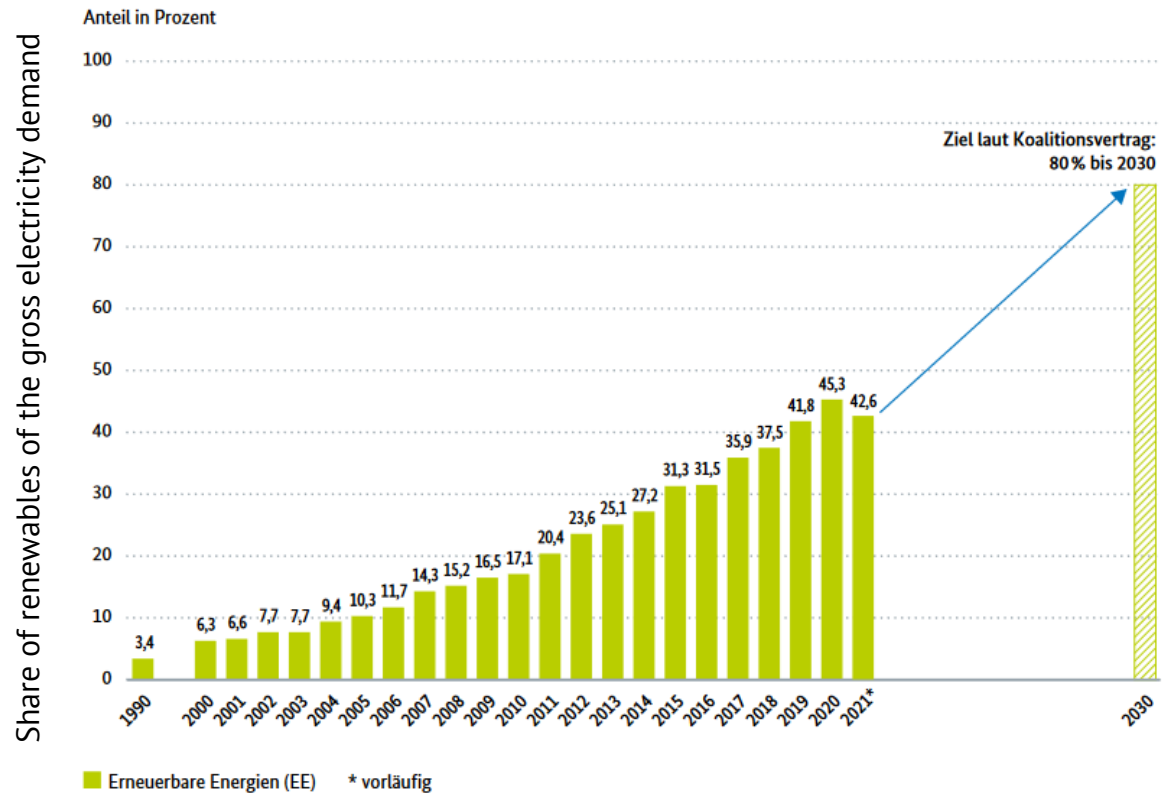


Source: bmwk.de/Twitter

# SHARE OF RENEWABLES IN GERMANY OF THE ELECTRICITY DEMAND



Anteil Erneuerbarer Energien am Bruttostromverbrauch



Quelle: Arbeitsgruppe Erneuerbare Energien-Statistik (AGEE-Stat)

Soucre Picture: picture alliance/Geisler-Fotopress/Frederic Kern

# AND THEN THERE WAS THE YEAR 2022 AND 2023!



Source: Bildrechte: picture alliance/dpa/Carsten Koall

# REMINDS ME OF AKIRA KUROSAWA MOVIE “RASHOMON”



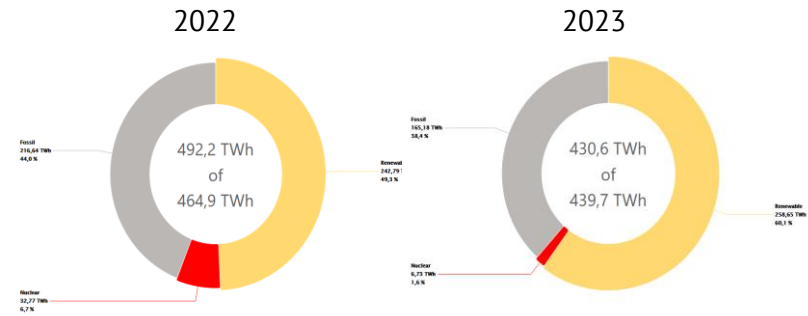
Source: Wikipedia Rashomon



# FOUR DIFFERENT STORIES



Applause !!  
This is my good politics

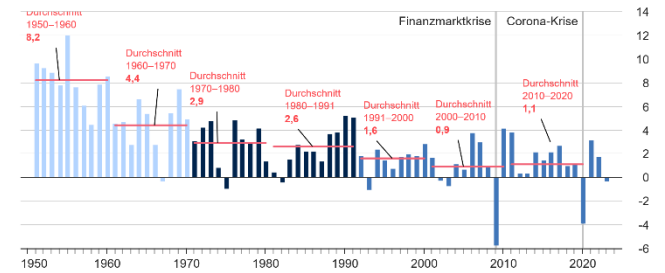


Weather effects

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**Wirtschaftswachstum**

Bruttoinlandsprodukt preisbereinigt, Veränderung gegenüber dem Vorjahr in %

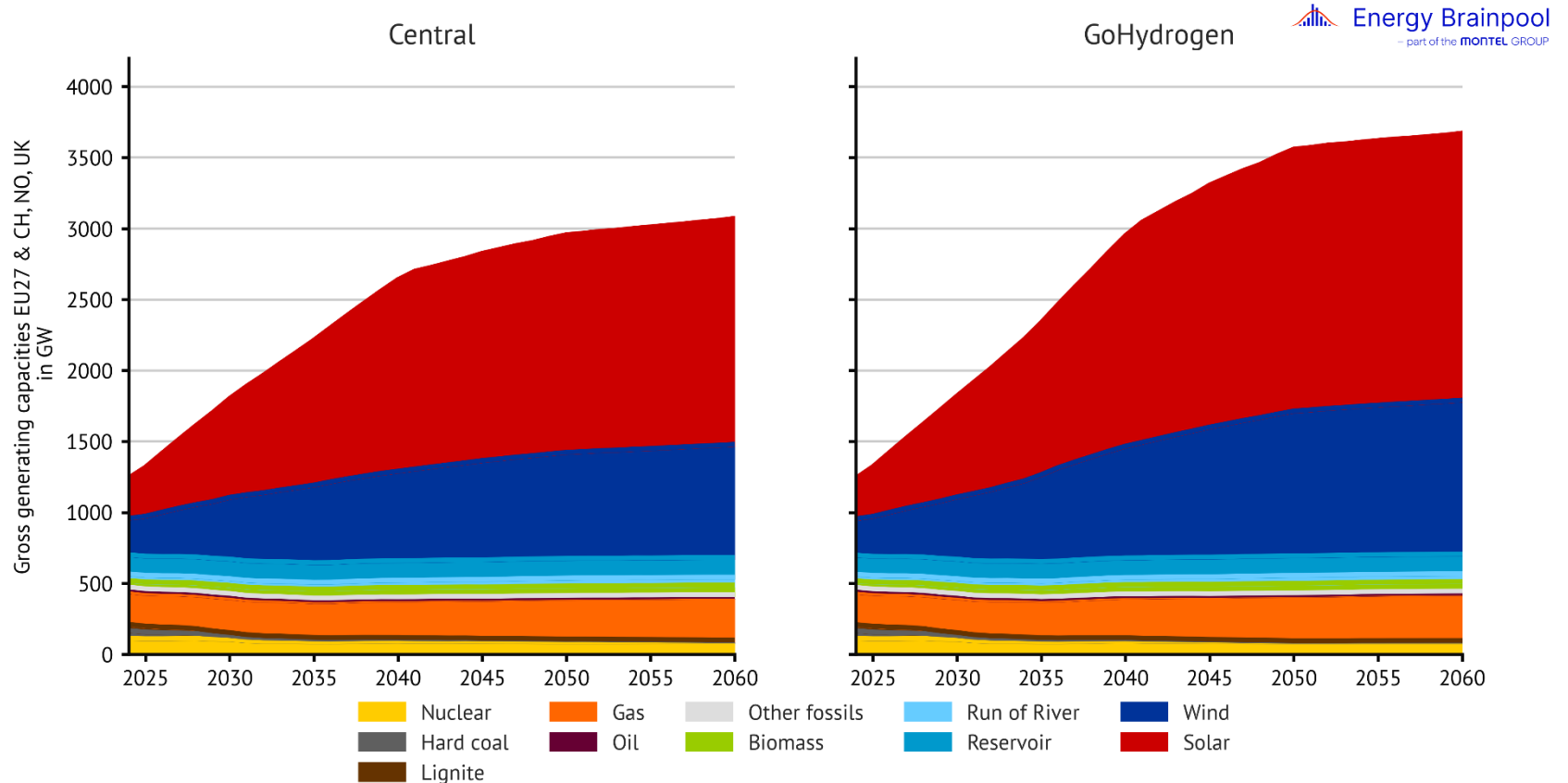


Sources: BMWK; Destatis; Energy Charts  
Habeck: Ersteller: 59073.de / Dirk Vorderstrasse Urheberrecht: Dirk Vorderstrasse

# FOUR WAYS TO THE FUTURE TO A CLIMATE NEUTRAL SYSTEM

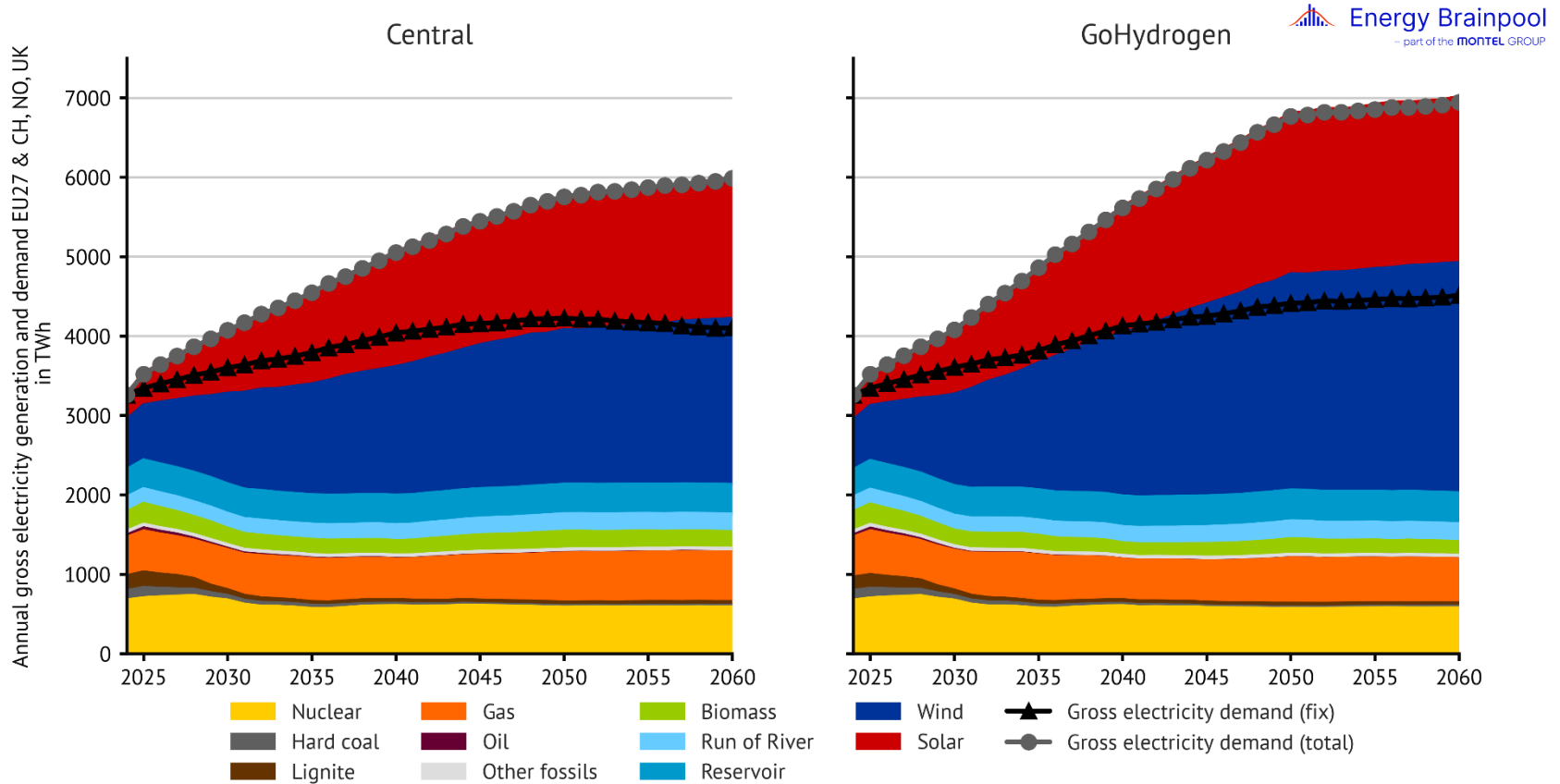
Go Nuclear	Go Fossil	Go Electric	Go Hydrogen
<ul style="list-style-type: none"> <li>▪ Majority nuclear energy</li> <li>▪ In combination with RES and</li> <li>▪ some peakers (nat. gas and H2)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Majority Hard Coal and Lignite</li> <li>▪ Works only with CCS (Final storage question)</li> <li>▪ Some RES</li> <li>▪ Significant investment into CCS</li> </ul>	<ul style="list-style-type: none"> <li>▪ Majority RES</li> <li>▪ Works only with storage systems and overcapacities</li> <li>▪ Significant investment into the grid</li> <li>▪ Security of supply with H2 CCGT plants</li> </ul>	<ul style="list-style-type: none"> <li>▪ Majority RES</li> <li>▪ Significant investment into the H2 grid and electrolysers</li> <li>▪ Security of supply with H2 CCGT plants</li> </ul>
<ul style="list-style-type: none"> <li>▪ That is more the French way</li> <li>▪ Industry friendly</li> <li>▪ Not an option for Germany</li> </ul>	<ul style="list-style-type: none"> <li>▪ That is more the Polish way</li> <li>▪ Industry friendly</li> <li>▪ Not an option for Germany</li> </ul>	<ul style="list-style-type: none"> <li>▪ Not industry friendly</li> <li>▪ That might be an option for Germany</li> </ul>	<ul style="list-style-type: none"> <li>▪ A bit industry friendly</li> <li>▪ That might be an option for Germany</li> </ul>

# WHAT MIGHT THE POWER MARKET DO IN EUROPE (AVG.)



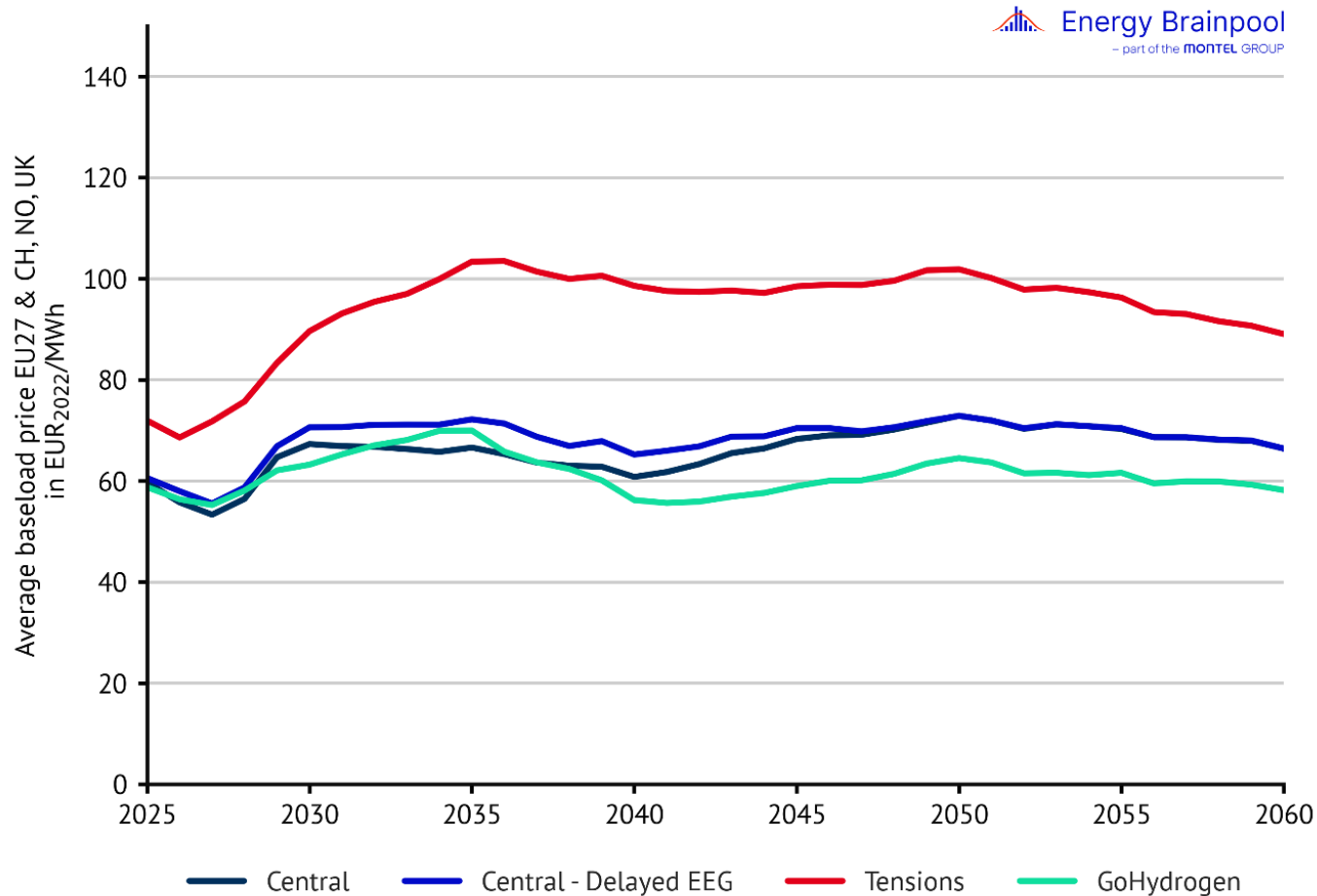
Source: Own calculation

# WHAT MIGHT THE POWER MARKET DO IN EUROPE (AVG.)



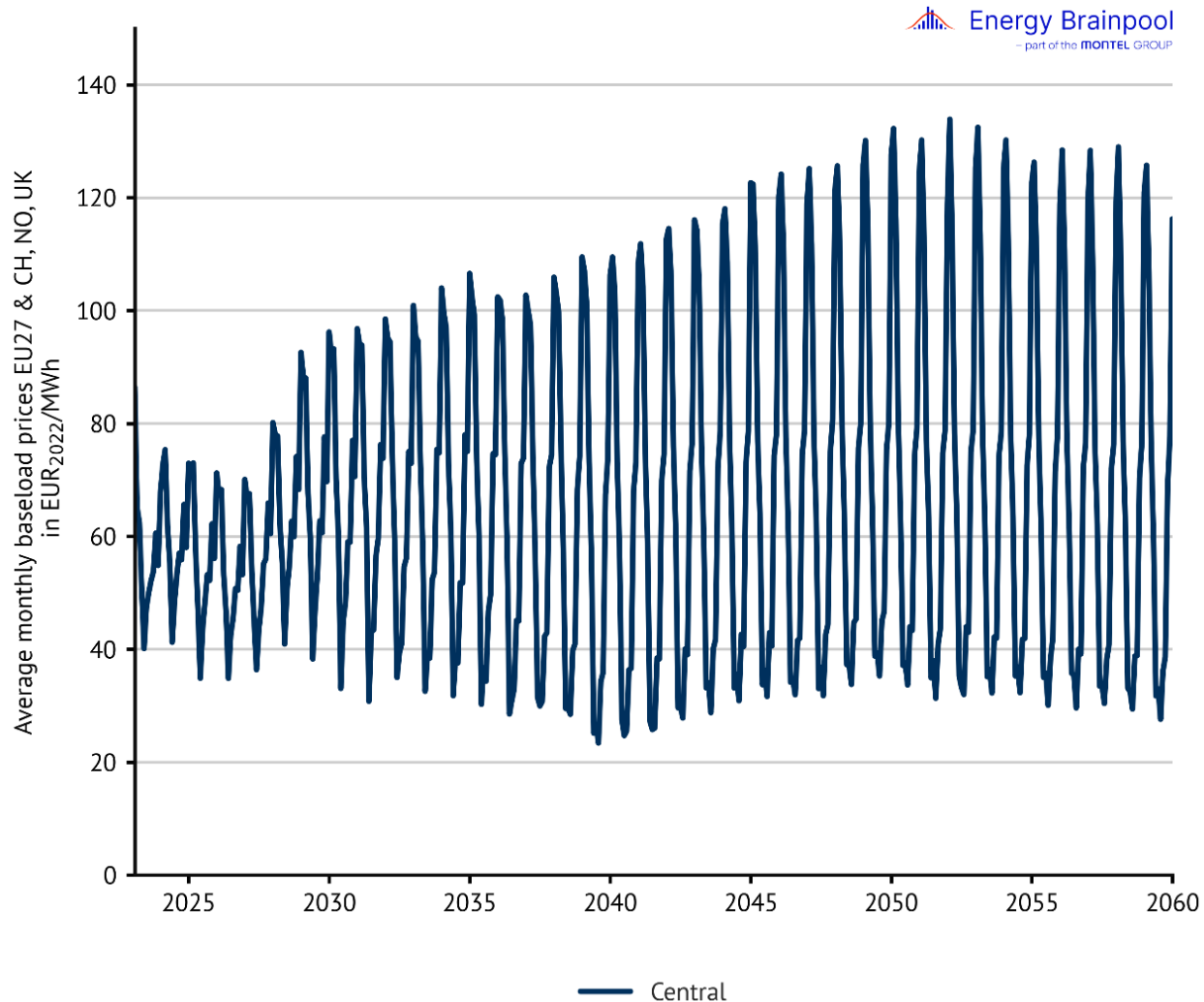
Source: Own calculation

# WHAT MIGHT THE POWER PRICES DO IN EUROPE (AVG. PRICES)



Source: Own calculation

# BUT VOLATILITY WILL INCREASE





**Thank you very much!**

What questions do you have?

Tel.: +49 (0)30 76 76 54-10

Fax: +49 (0)30 76 76 54-20

[www.energybrainpool.com](http://www.energybrainpool.com)

[kontakt@energybrainpool.com](mailto:kontakt@energybrainpool.com)