German Nuclear Phase-Out

Fig.: Phase out party at nuclear power plant Emsland

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German Nuclear Phase-Out

1961 First nuclear power plant connected to grid

60th-80th Nuclear expansion plans of the respective government

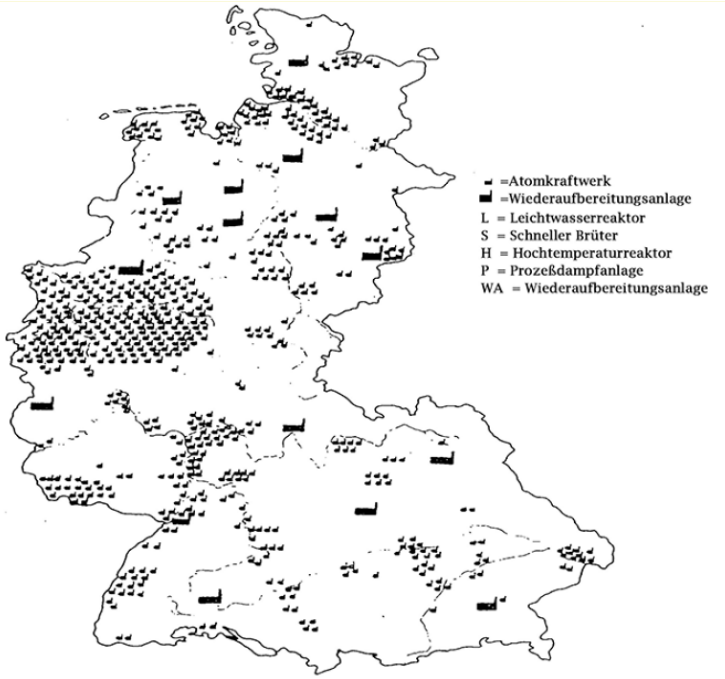

Fig.: 1975 potential study for nuclear power and reprocessing plants in former FRG

German Nuclear Phase-Out

1961 First nuclear power plant connected to grid

60th-80th Nuclear expansion plans of the respective government

….. but also massive resistenance

1986 Reactor accident in Chernobyl

1989 Last nuclear power plant connected to grid

2002 First nuclear phase-out decission

2010 Roll Back

2011 Reactor accident in Fukushima

2011 Second nuclear phase-out decission

15.04.2023 Last nuclear power plant disconnected from grid

Fig.: Demonstration against nuclear power plant Wyhl in the mid-1970s
Source: BUND (Axel Mayer)

Fig.: Demonstration in Berlin summer 2011
Source: BUND (Jörg Farys)

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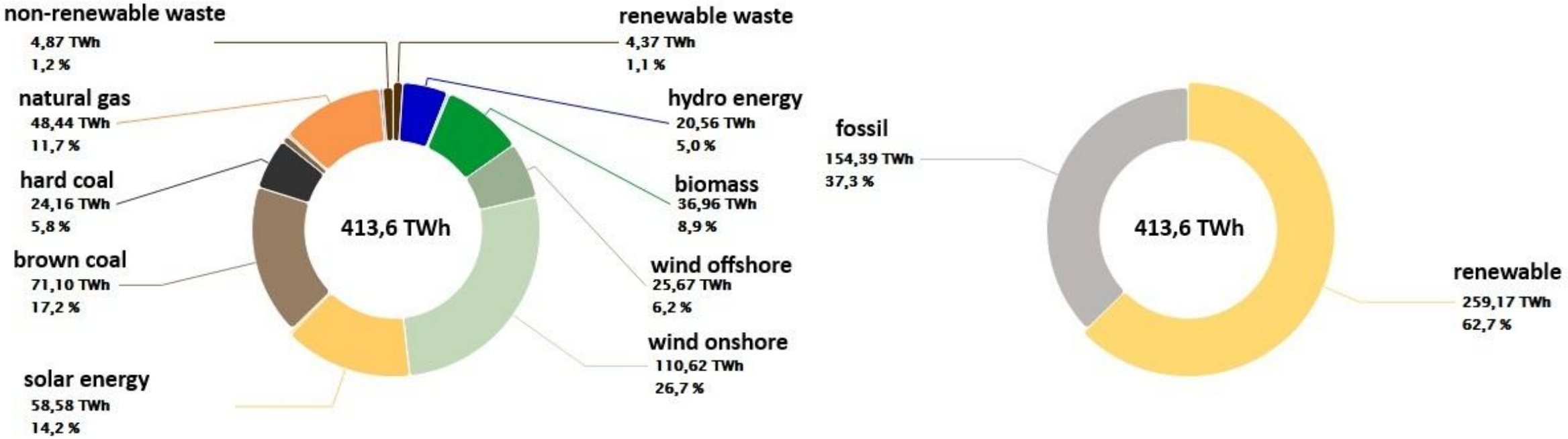
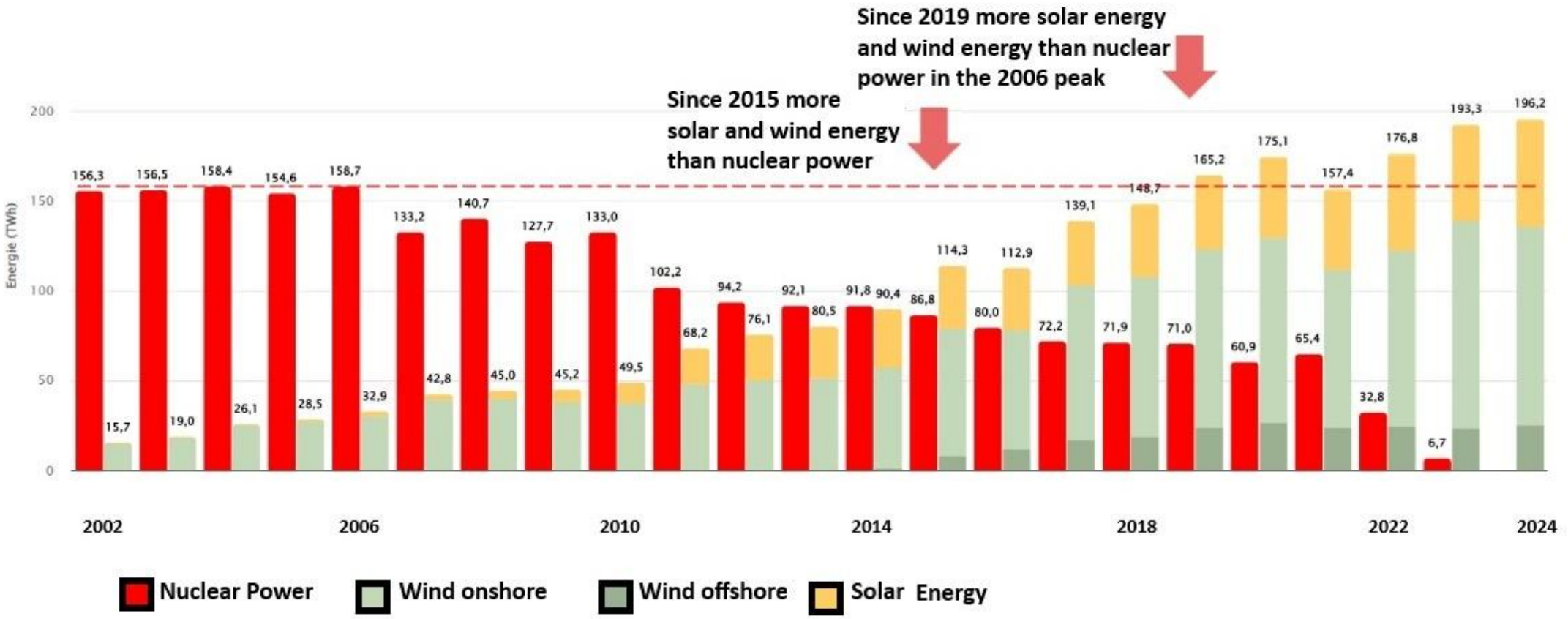
Netto Stromproduktion 2024 - Net electricity generation in 2024



- Additional: 24.9 TWh of electricity imports (more than half of it: renewable electricity)

Source: Frauenhofer Institut ISE(2025): Stromerzeugung in Deutschland 2024

Netto Stromproduktion: Atom-, Wind- und Solarstorm (2002-2024)
Net electricity generation: nuclear, wind and solar energy (2002-2024)



Source: Frauenhofer Institut ISE(2025): Stromerzeugung in Deutschland 2024

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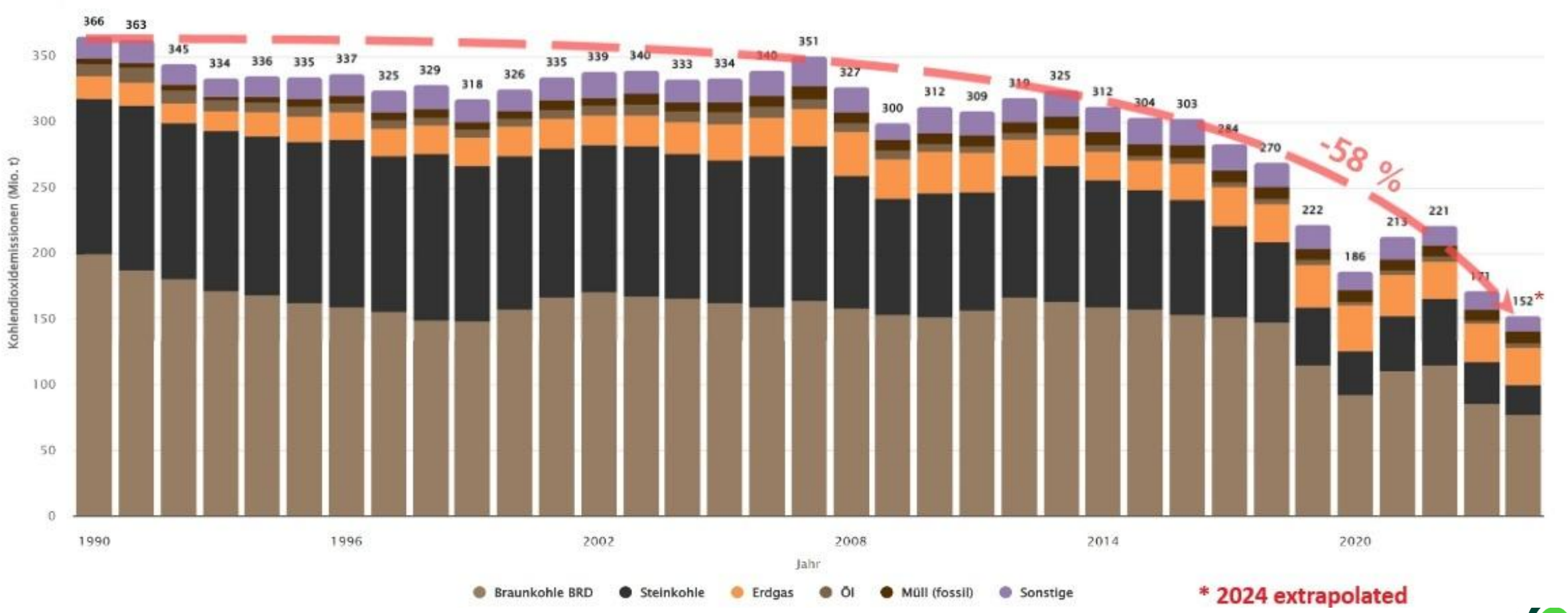
Kohlendioxid Emission der Stromproduktion (1990-2024)
Carbon dioxide emissions from electricity generation (1990-2024)



Source: Frauenhofer Institut ISE(2025): Stromerzeugung in Deutschland 2024

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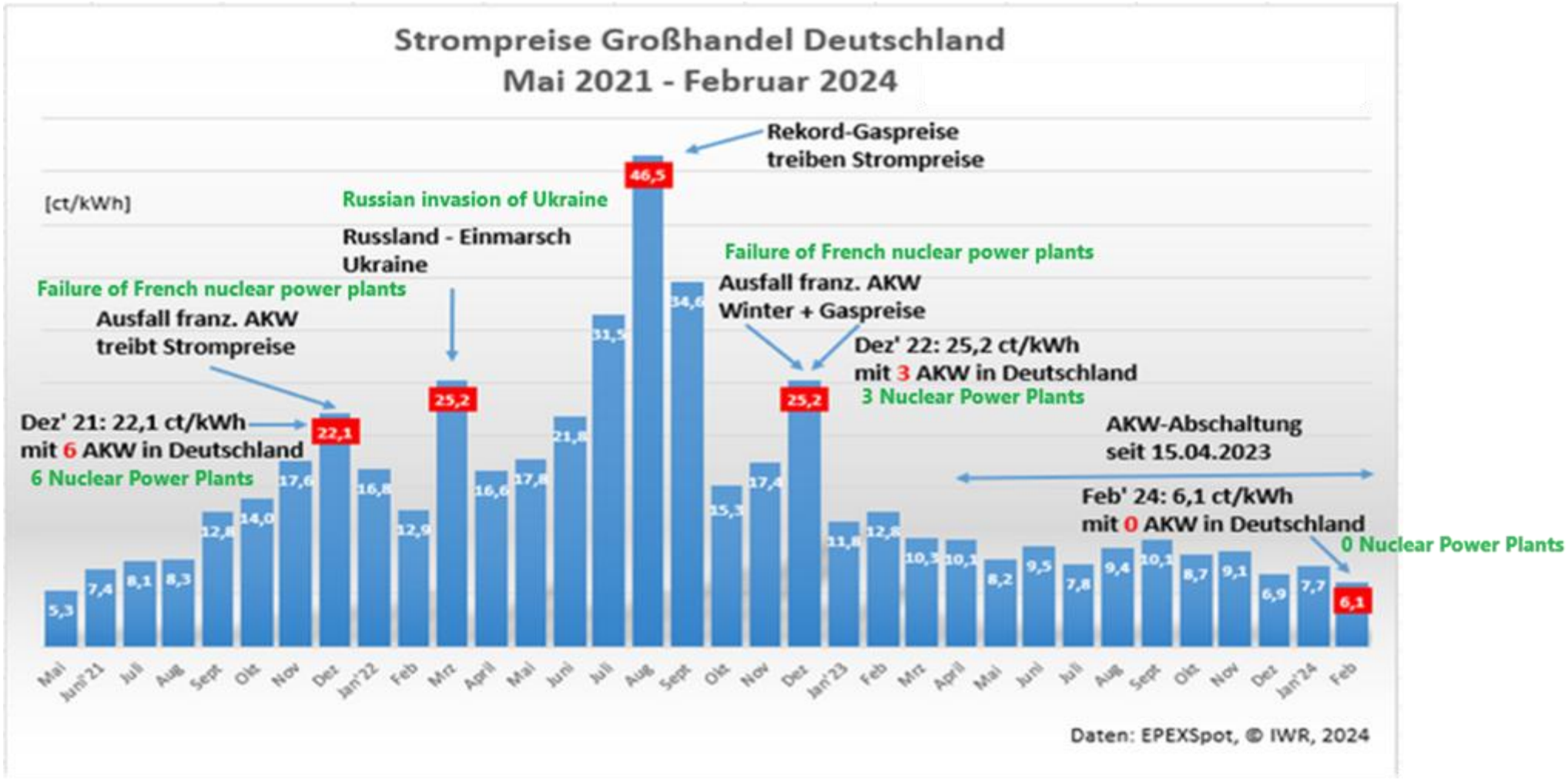
Wholesale Electricity Prices (May 2002 to February 2024)



Source: Internationale Wirtschaftsforum Regenerative Energien (IWR)

Renaissance of nuclear power

- Restarting the shut down nuclear power plants is unrealitis
  - Decommissioning is already well advanced
  - Energy supply companies are opposed
  - High costs and long duration
  - None of the shut down nuclear power plants meet the safety requirements for new nuclear plants
  - No more staff available
- Building new nuclear power plants is significantly more expensive than renewables.
- Average construction time for nuclear power plants: 10 years
- Nuclear power cannot be regulated

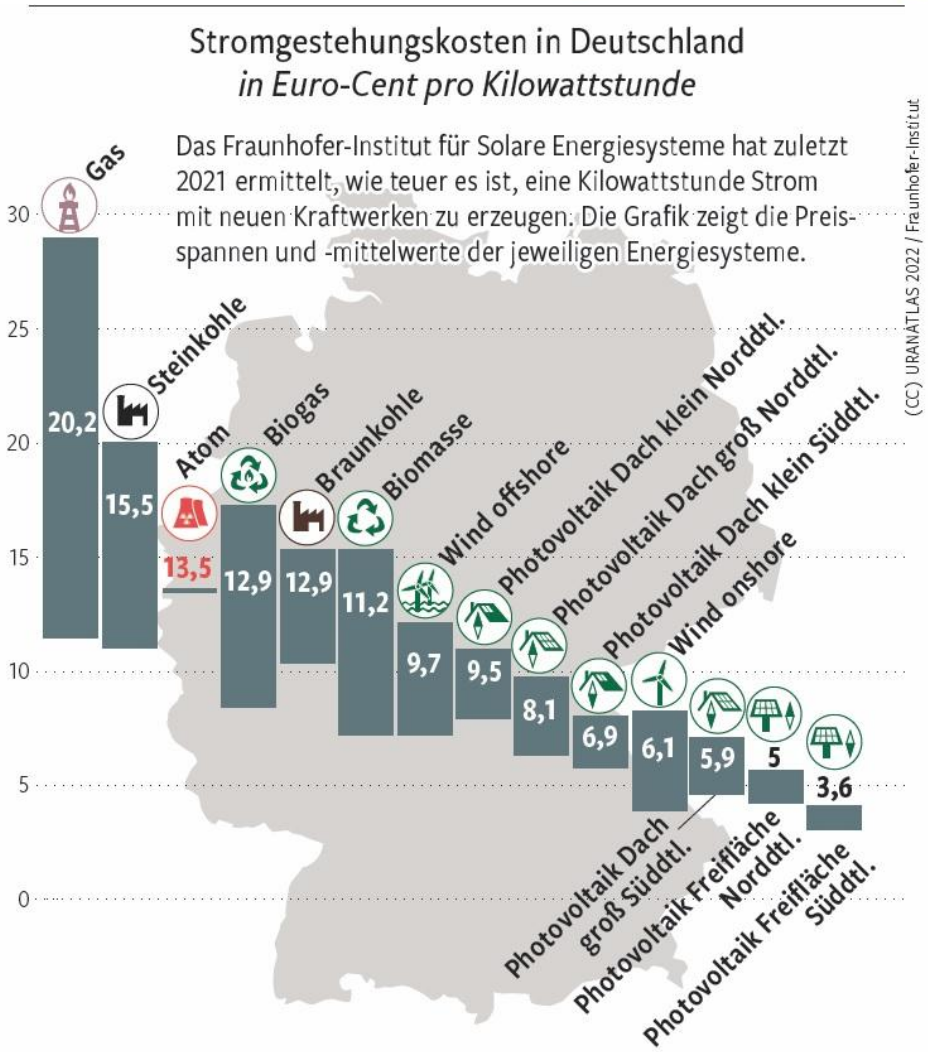


Fig.: Cost per kilowatt hour for new power plants

Source: Uranaltlas 2022 / Frauenhofer Institut

What remains is the nuclear waste …

- Storage facility for low and medium radioactive nuclear waste without a uniform concept
- Two failed final storage projects for low and medium radioactive nuclear waste
- Schacht KONRAD unsuitable as a further storage facility

- 1,900 CASTOR containers with highly radioactive nuclear waste in 16 lightweight halls
- Intermediate storage still necessary until the next century
- Questions about terrorist protection, monitoring of the container inventory and transportability remain open

- Search for a site for a final storage facility:
  - 40 years of wasted time by sticking to Gorleben
  - Search still in its early stages, only 56% of the Federal Republic excluded
  - Next intermediate step: 2027 announcement of the “Standortregionen“
  - Site determination not until 2074
  - FoE demand: no acceleration at the expense of safety, transparency and participation

- Complete the nuclear phase-out: end of the nuclear facilities in Gronau, Lingen and Garching

Fig.: Storage-Location for nuclear waste

Source: Schönberger (2024): Atommüll – Eine Bestands-aufnahme für die Bundesrepublik Deutschland

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Even after the successful phase-out of nuclear energy, FoE Germany commitment to the responsible handling of nuclear waste remains important.

www.bund.net/atomkraft/

Vielen Dank für die Aufmerksamkeit

ご清聴ありがとうございました

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