

Brief evaluation with data from 2015 to 2023: Half a year without nuclear power plants in Germany

Prof. Dr. Bruno Burger
Freiburg, 16.10.2023
www.ise.fraunhofer.de

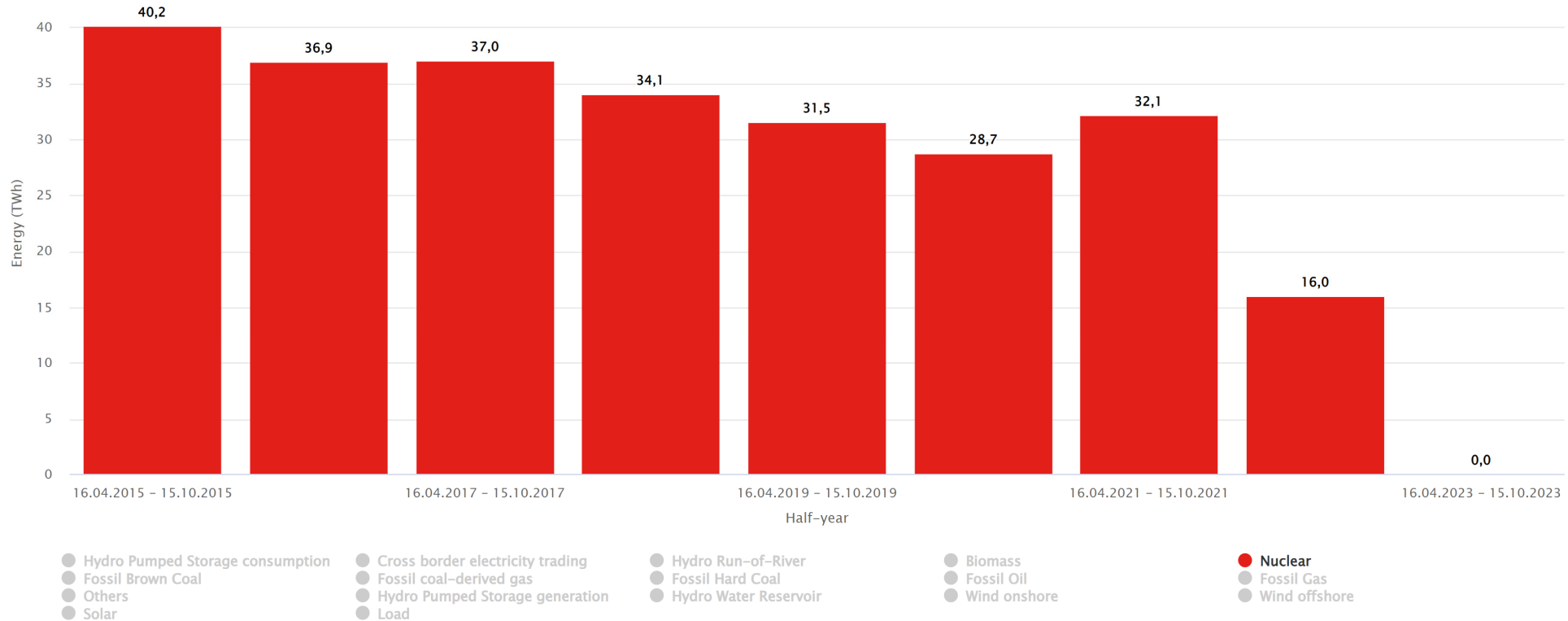
Summary

Comparison of data from 04/16/2015 to 10/15/2015 with data from 04/16/2023 to 10/15/2023.

- Due to the shutdown of nuclear power plants, there is a shortfall of 40.2 TWh of electricity generation in the period under review.
- Solar and wind increased their electricity generation by 37.2 TWh in the period under review.
- Electricity generation from lignite and hard coal decreased by 73.8 TWh during the period under review.
- Electricity generation from natural gas fluctuates strongly during the period under review and depends on gas prices.
- The load (= electricity consumption + network losses) decreased by 23.0 TWh in the period under review.
- The changed market situation with high prices for coal and CO2 certificates and lower electricity prices in neighboring countries led to a switch from exports to imports in the period under review:
 - 2015: 21.6 TWh export surplus; 2023: 22.4 TWh import surplus
- Gas prices were extremely low in the period under consideration in 2020 due to the Corona pandemic and extremely high in 2022 due to the Ukraine war.
 - 2015: 17.31 euros/MWh; 2023: 33.93 euros/MWh
- Prices for CO2 emission certificates rose sharply during the period under review:
 - 2015: 7.68 euros/tCO2; 2023: 84.91 euros/tCO2.
- Electricity prices followed gas prices via the merit order during the period under review and also include an increase due to the rise in CO2 prices.
 - 2015: 31.42 euros/MWh; 2023: 89.46 euros/MWh

Net power generation since 2015 from 16.04. to 15.10. respectively

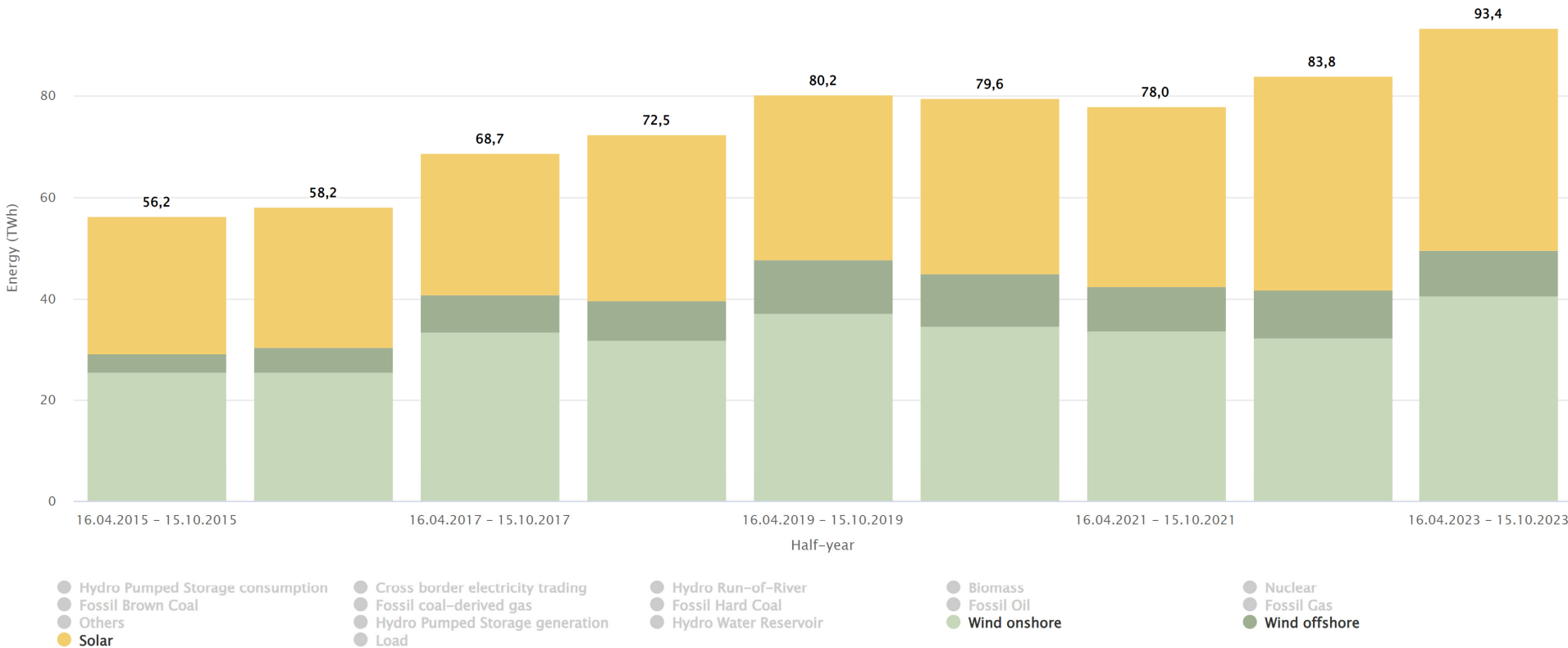
Nuclear



Energy-Charts.info - last update: 16.10.2023, 08:44 MESZ

Net power generation since 2015 from 16.04. to 15.10. respectively

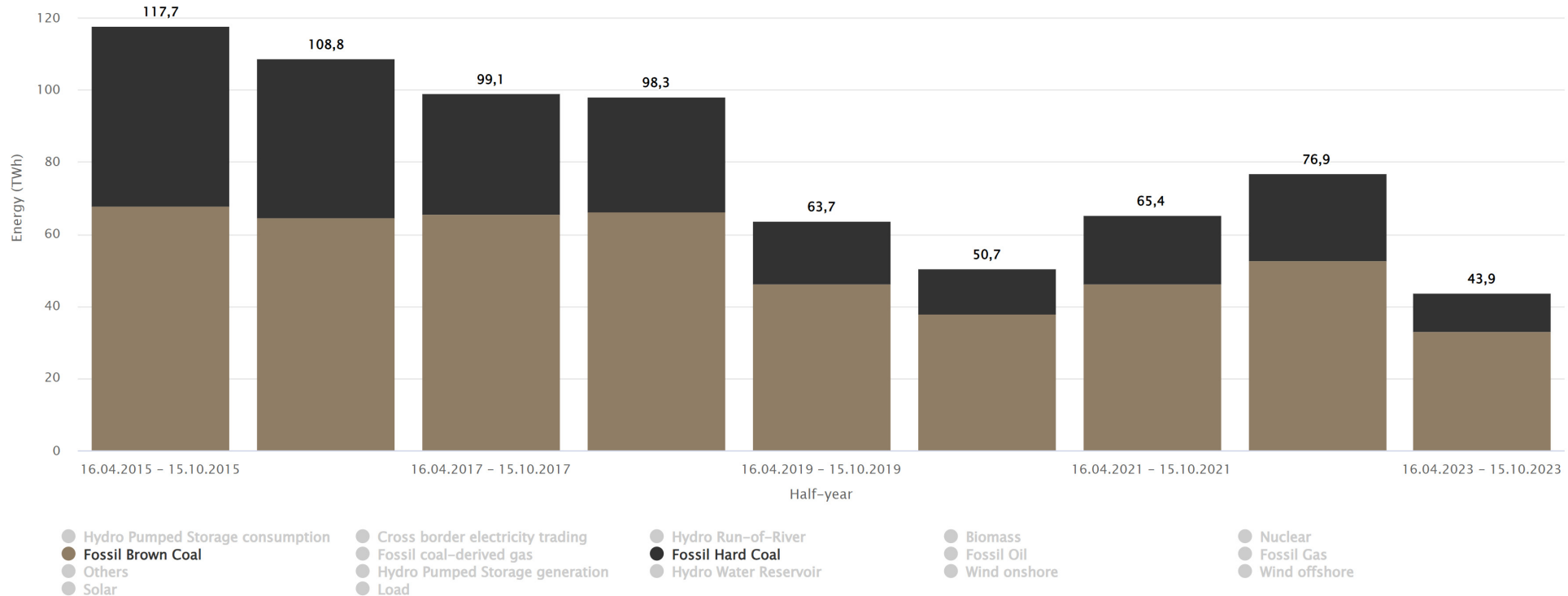
Solar and Wind



Energy-Charts.info - last update: 16.10.2023, 08:44 MESZ

Net power generation since 2015 from 16.04. to 15.10. respectively

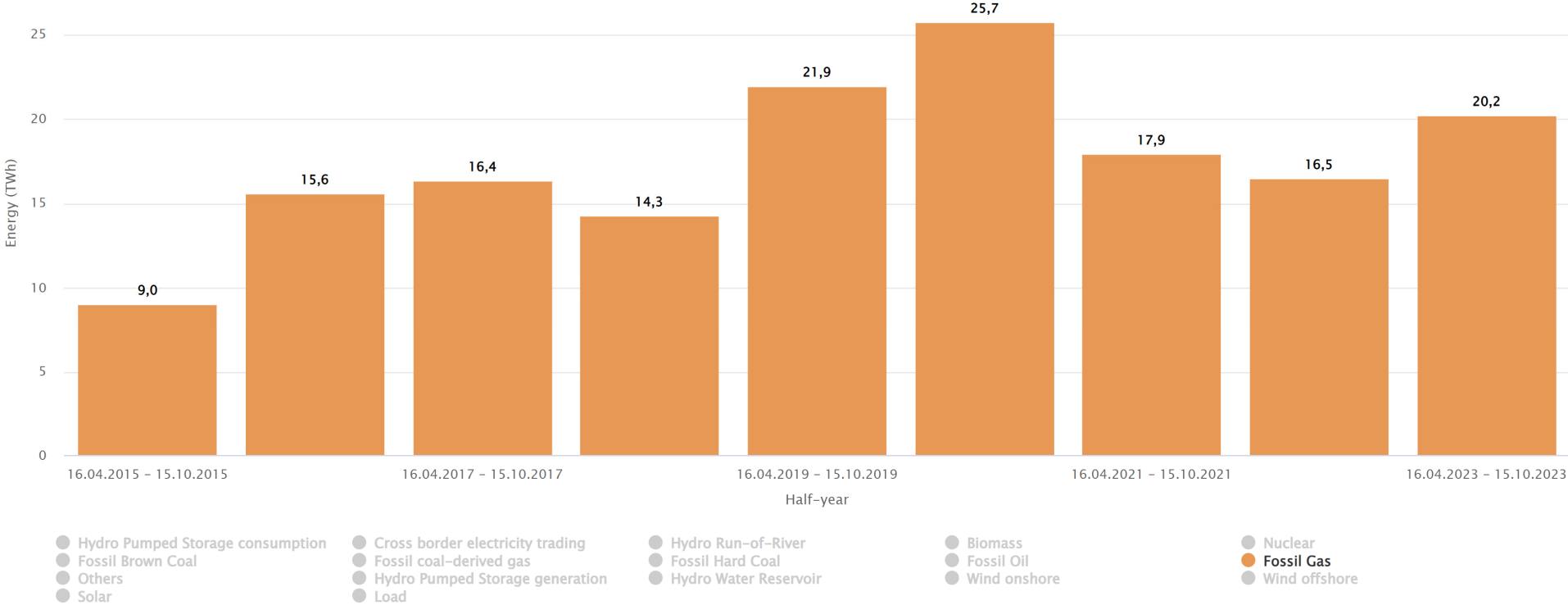
Fossil brown coal and fossil hard coal



Energy-Charts.info - last update: 16.10.2023, 08:44 MESZ

Net power generation since 2015 from 16.04. to 15.10. respectively

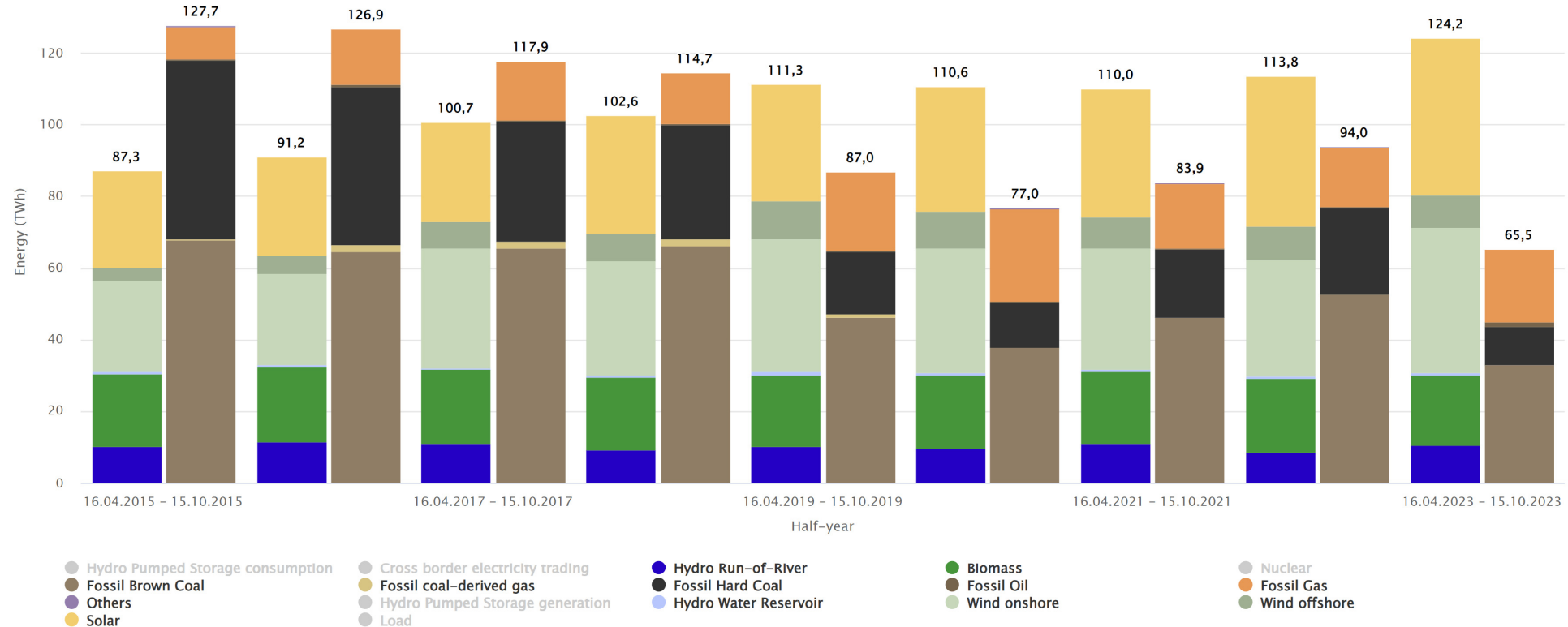
Fossil gas



Energy-Charts.info - last update: 16.10.2023, 08:44 MESZ

Net power generation since 2015 from 16.04. to 15.10. respectively

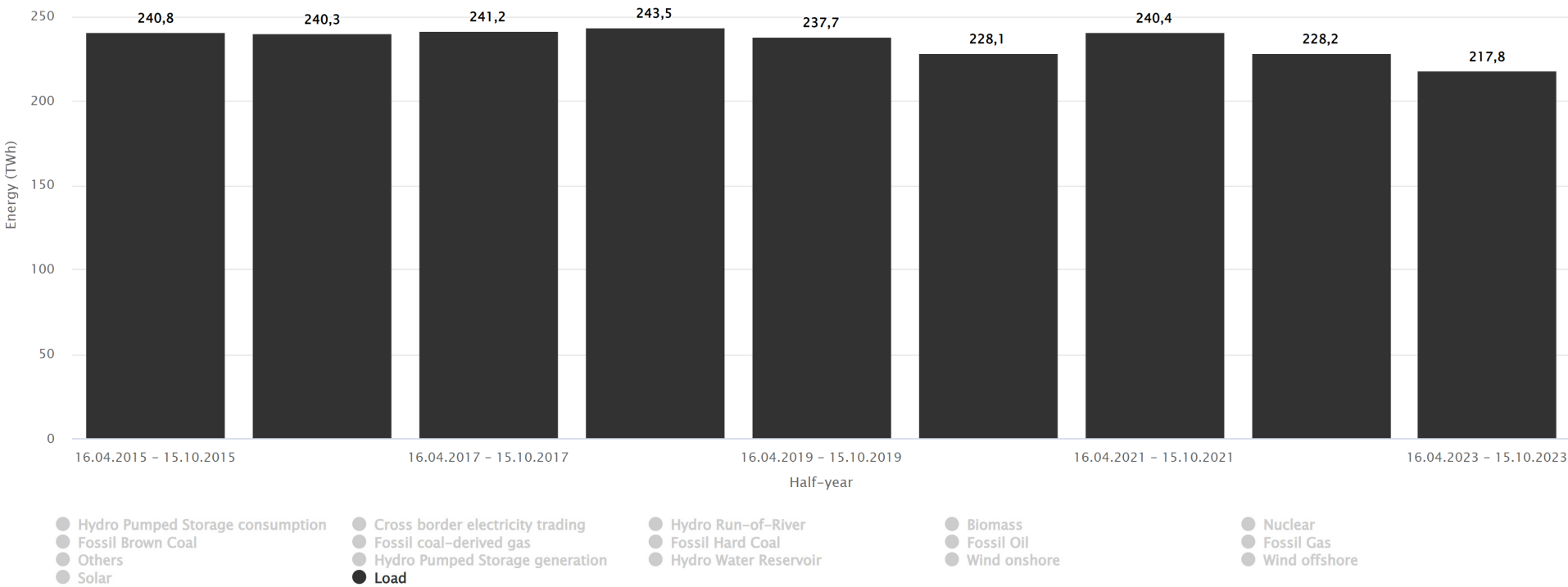
Comparison of renewable generation (left) and fossil generation (right)



Energy-Charts.info - last update: 16.10.2023, 08:44 MESZ

Load since 2015 from 16.04. to 15.10. respectively

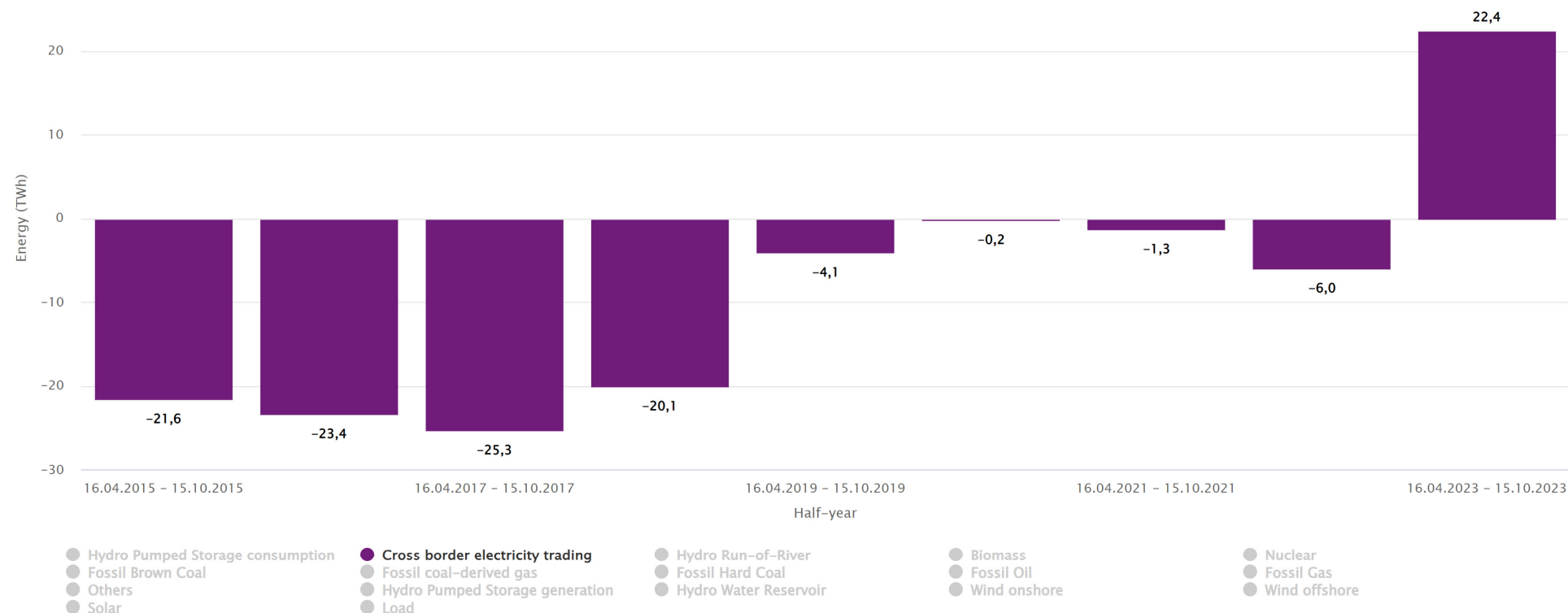
Electricity consumption + network losses



Energy-Charts.info - last update: 16.10.2023, 08:44 MESZ

Cross border electricity trading since 2015 from 16.04. to 15.10. respectively

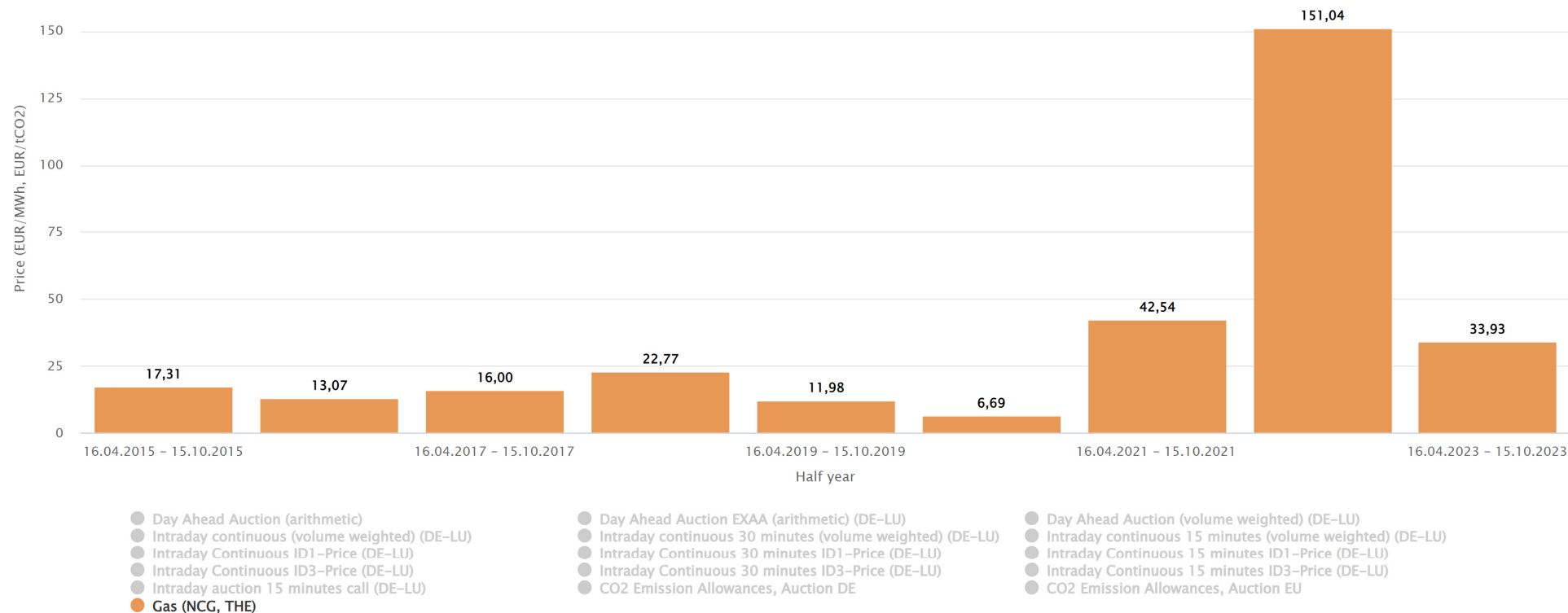
Imports (positive) and exports (negative)



Energy-Charts.info - last update: 16.10.2023, 08:44 MESZ

Price for natural gas since 2015 from 16.04. to 15.10. respectively

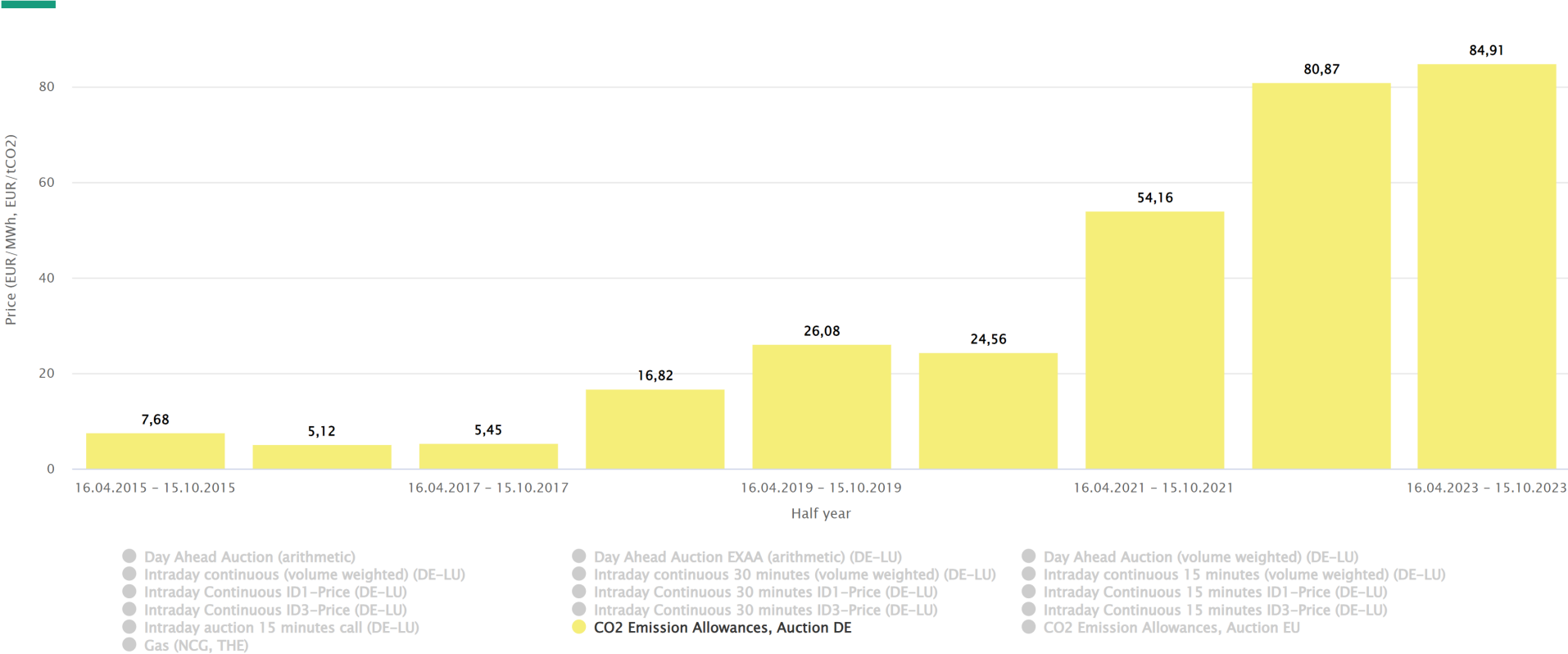
Net Connect Germany (NCG) and Trading Hub Europe (THE)



Energy-Charts.info - last update: 16.10.2023, 08:44 MESZ

Price for CO2 emission certificates since 2015 from 16.04. to 15.10. respectively

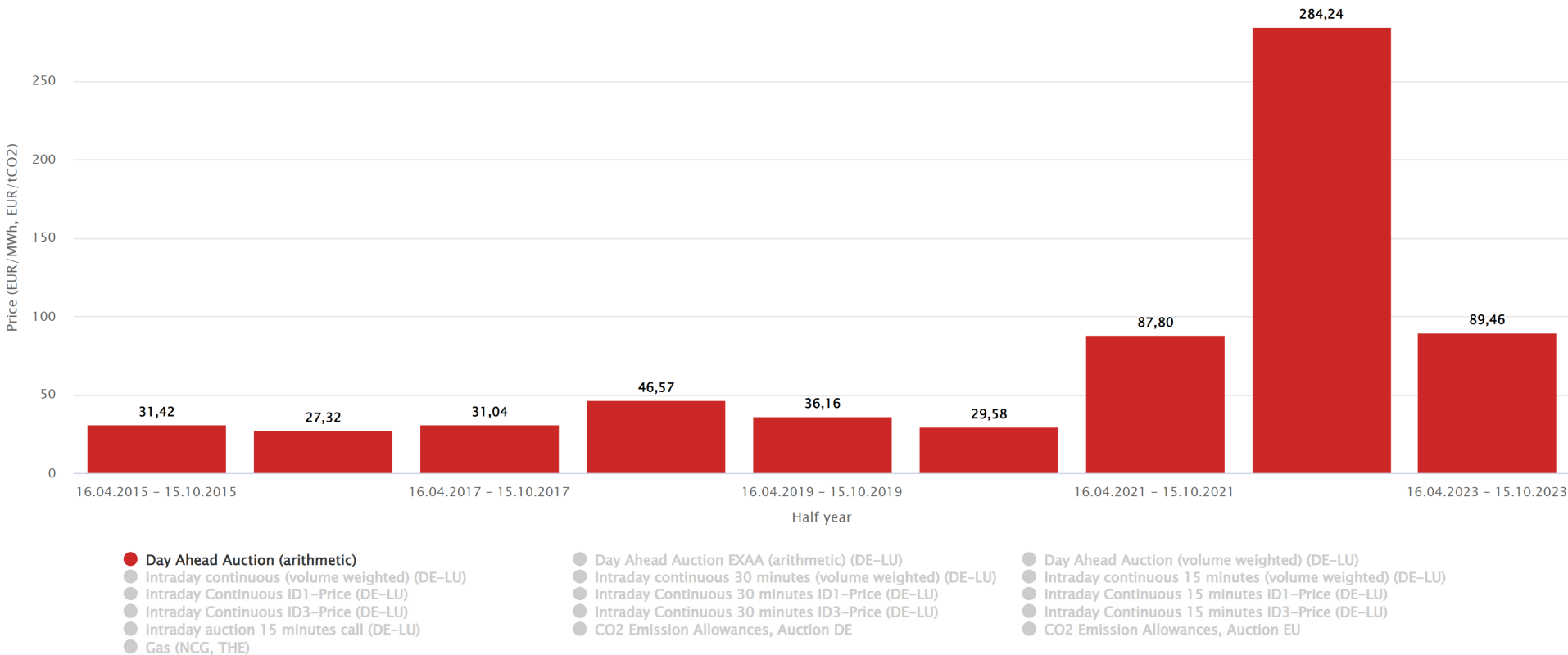
Auction DE



Energy-Charts.info - last update: 16.10.2023, 08:44 MESZ

Electricity exchange price since 2015 from 16.04. to 15.10. respectively

Day-Ahead



Energy-Charts.info - last update: 16.10.2023, 08:44 MESZ

Contact

Prof. Dr. Bruno Burger
Business unit electricity
Tel. +49 761 4588-5237
bruno.burger@ise.fraunhofer.de