

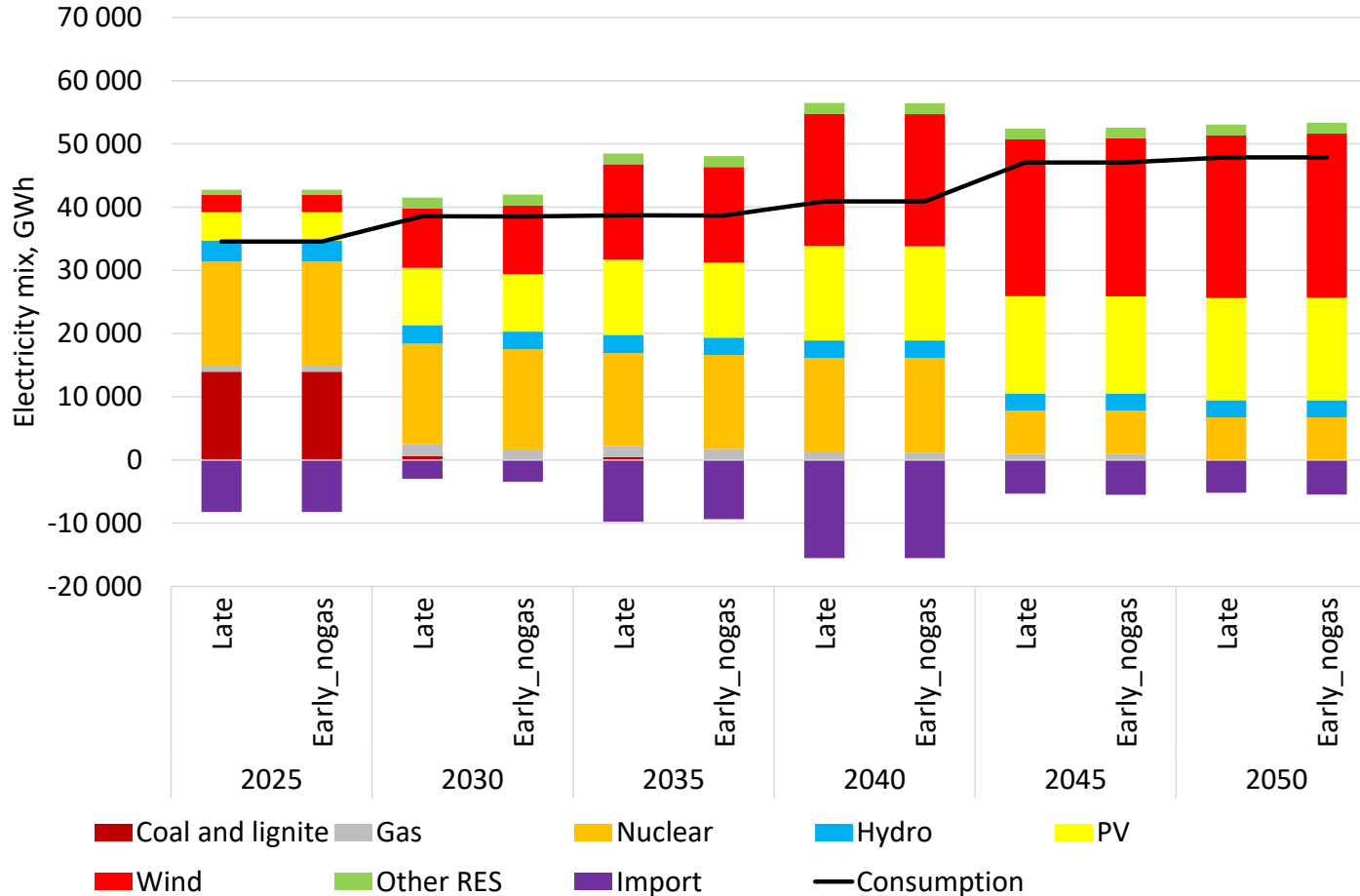


# MODELLING OF THE BULGARIAN ELECTRICITY MARKET

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**REKK**

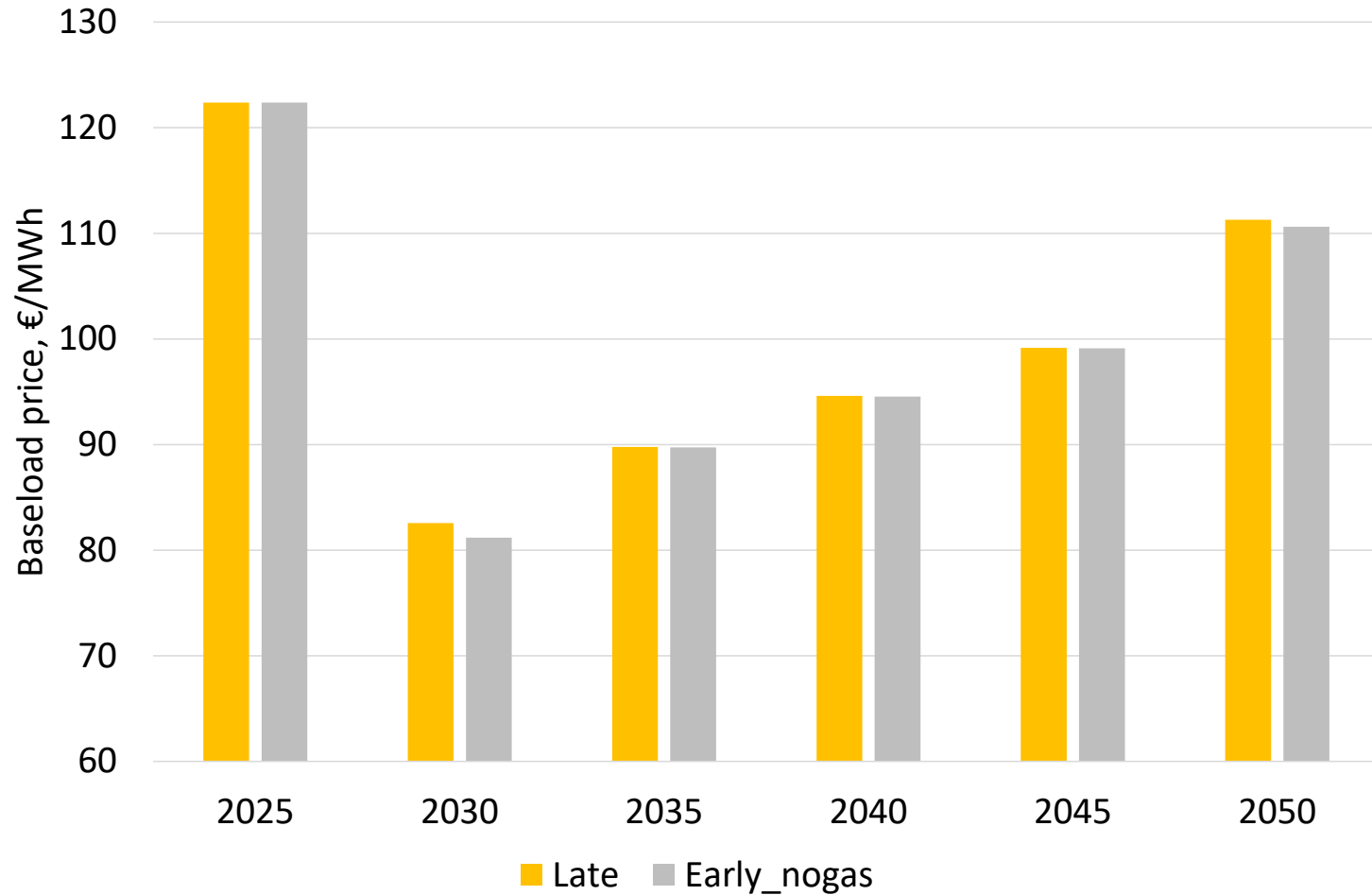
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# Consumption & Electricity mix



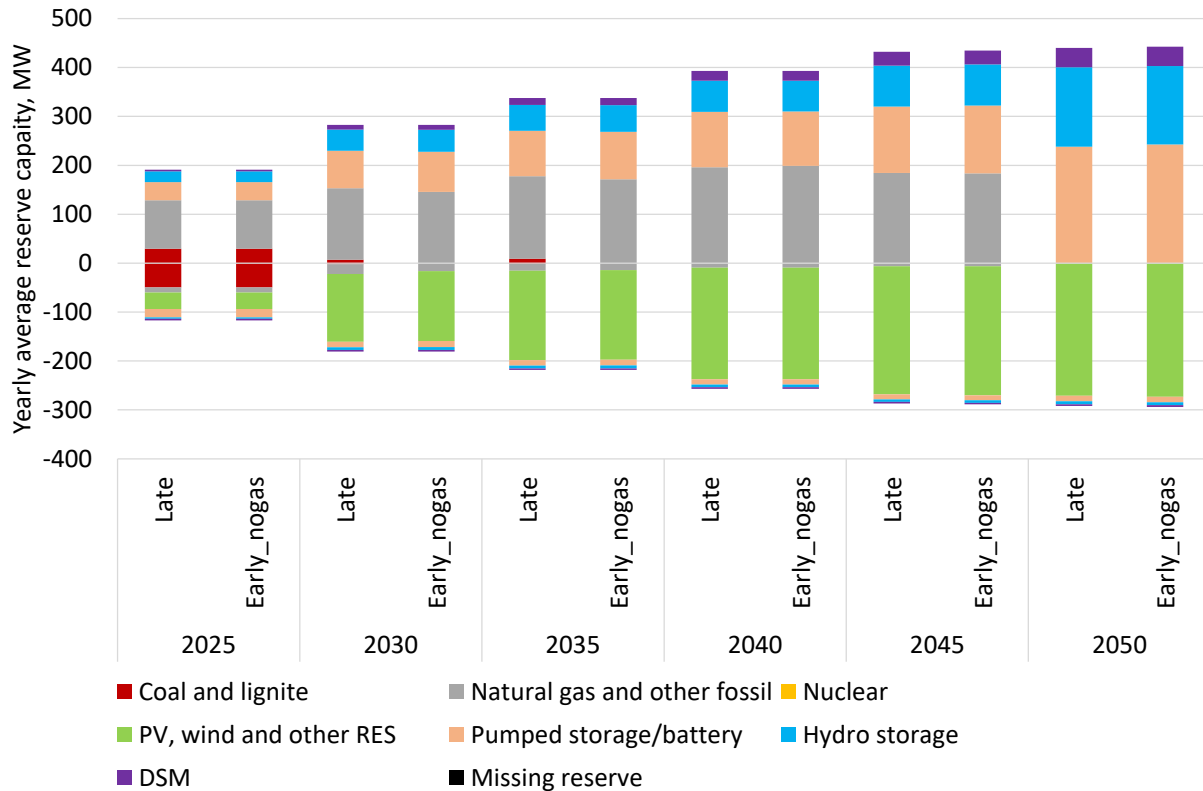
- In both scenarios **coal/lignite** plays an **important role** in the electricity mix in **2025**
- **In 2030 however role of lignite reduces** to marginal in the product market **even if full phase-out only occurs in 2038**
- In some years the wind generation is higher in the Early\_Nogas scenario, due to the higher capacity
- **Gas-based electricity generation has only a minor role in the product market**
- Bulgaria is a net exporter in the whole modelled period

# Baseload prices



- The modelling shows that price reduces from **120 EUR/MWh to 80-82 EUR/MWh between 2025 and 2030**, then increases **to 110 EUR/MWh until 2050** in both scenarios
- **Price differences** across the two scenarios are relatively **low**, largest in **2030, 1.4 EUR/MWh**
- Prices in the **early decarbonisation scenario** tend to be generally **lower** based on two main factors:
  - Because of the **very high coal price** and CO<sub>2</sub> price, coal/lignite-based production is very low even in the Late case, when coal power plants are physically not closed
  - Higher penetration of wind and other RES in the Early\_nogas scenario

# Balancing reserve market



- The estimated reserve need increases from almost 200 MW (upward) and 100 MW (downward) in 2025 to **400 MW (upward) and 300 MW (downward) until 2050**, due to the increasing intermittent generation and growing consumption
- The reserve market constitution is **almost identical in the two scenarios**
- In 2025 the role of **coal/lignite is large** in both directions, **low participation after that**
- The **most important market participant is natural gas in upward direction** and **renewables in the downward direction**
- Despite battery is installed** in large capacities, **gas remains the main upward reserve technology** until its phase out in **2050**
- No missing reserve** is present in any of the years and scenarios

**Thank you for your attention!**

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