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# Filling the gap: the struggles of gas, the shadow of nuclear and their impact on BESS

Energy Transition Summit 2026, Warsaw

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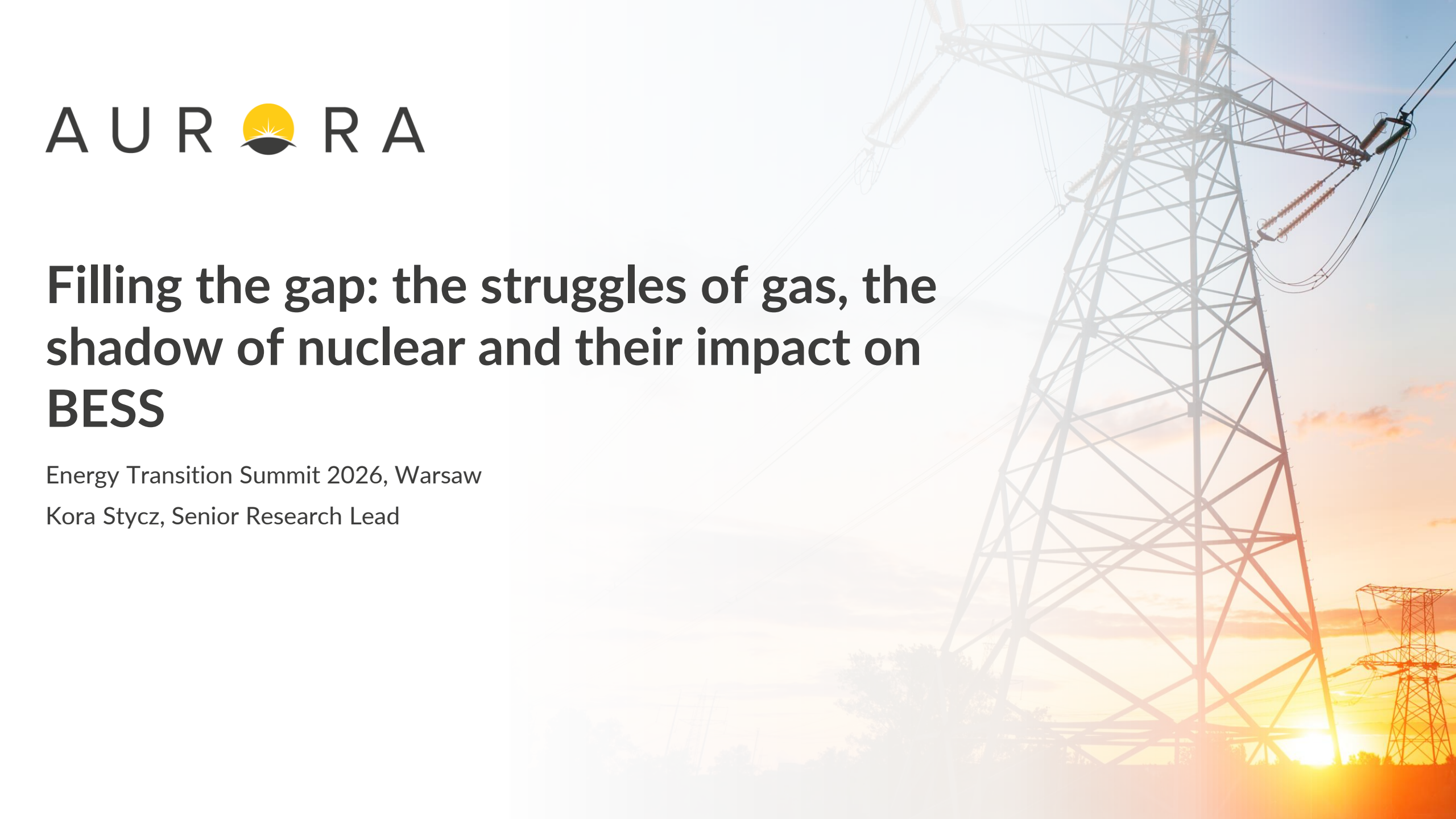

# Exam questions

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What is the investment case for gas, and what are the risks associated?

How will the replacement of coal and lignite by gas impact renewables and battery investments?

What is the impact of nuclear on investments into gas, renewables and batteries?

# CEE relies on lignite and coal for baseload power, which will be gradually phased out and replaced by gas, nuclear and batteries

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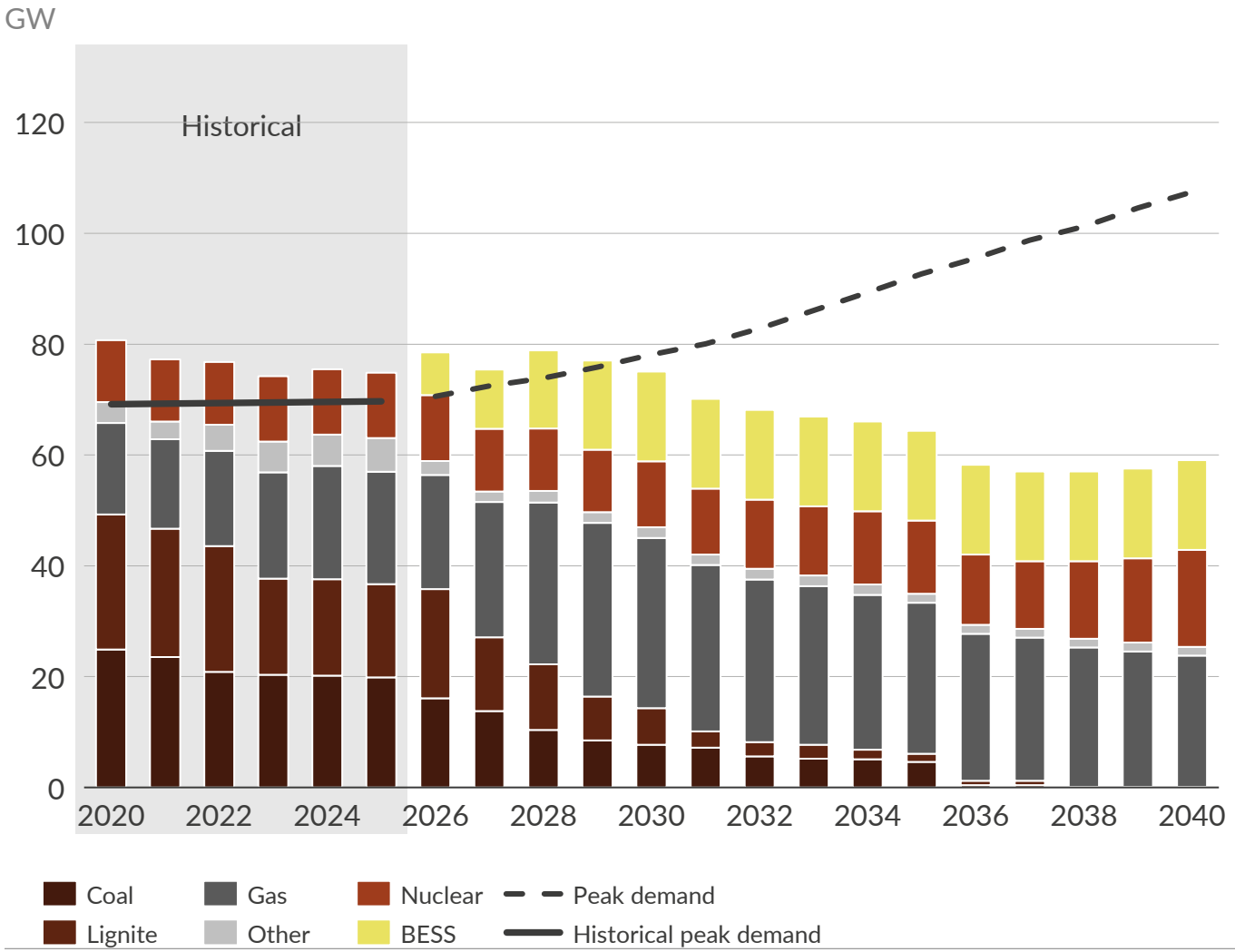
**Historical and committed firm capacities across CEE[1,2]**




| | Batteries (+ RES) | Gas | Nuclear |
|---|---|---|---|
| Financing[1] | Private | Private | State |
| Security of supply | ◔ | ◕ | ◕ |
| Short-run marginal cost | ◔ | ◕ | ◑ |
| Construction time | ◔ | ◑ | ● |
| Emissions | ◔ | ◕ | ◔ |

1) CEE countries included: Estonia, Latvia, Lithuania, Poland, Czechia, Slovakia, Hungary, Romania, Bulgaria.. 2) Committed capacities account for those with: FiD or a capacity mechanism. 3) All technologies currently require subsidies in CEE.

Spirces_ ENTSO-E, Aurora

# We expect a doubling of gas capacities until 2040, however, soaring global turbine demand increases prices and waiting times

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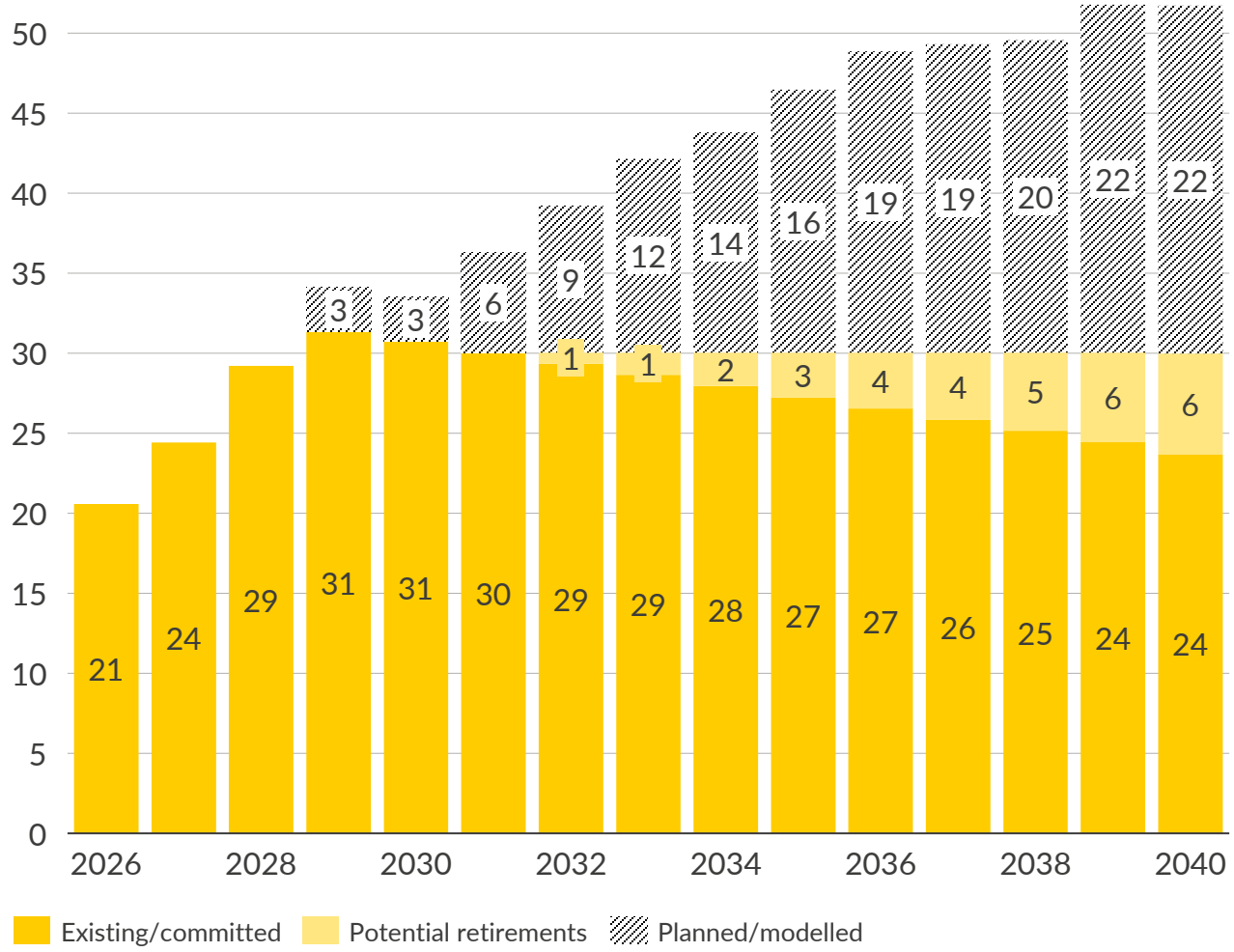
**Existing/committed and planned gas capacities across CEE**

GW




**The following factors contribute to scarcity of gas turbines and cost increases in building gas plants…**

- Lagging merchant investment in Europe in the past years starts being compensated by state support for gas plants for security of supply reasons
- Rapidly growing data centre demand in the US increased gas turbine demand – 4 years of waiting time & ~30% price hike
- Due to the lack of investments in recent years, there are few European EPCs

**… but might be counterbalanced by factors leading to lower costs**

- If the AI bubble bursts, data centre demand will drop, especially in the US
- Chinese EPCs are pushing into the European market, offering their services e.g. in Greece already
- OEMs might ramp up their production capacities (so far, only GE Vernova)

# As gas projects rely on state support to a large degree, capacity mechanisms and tenders need to adjust to the price and delay risks

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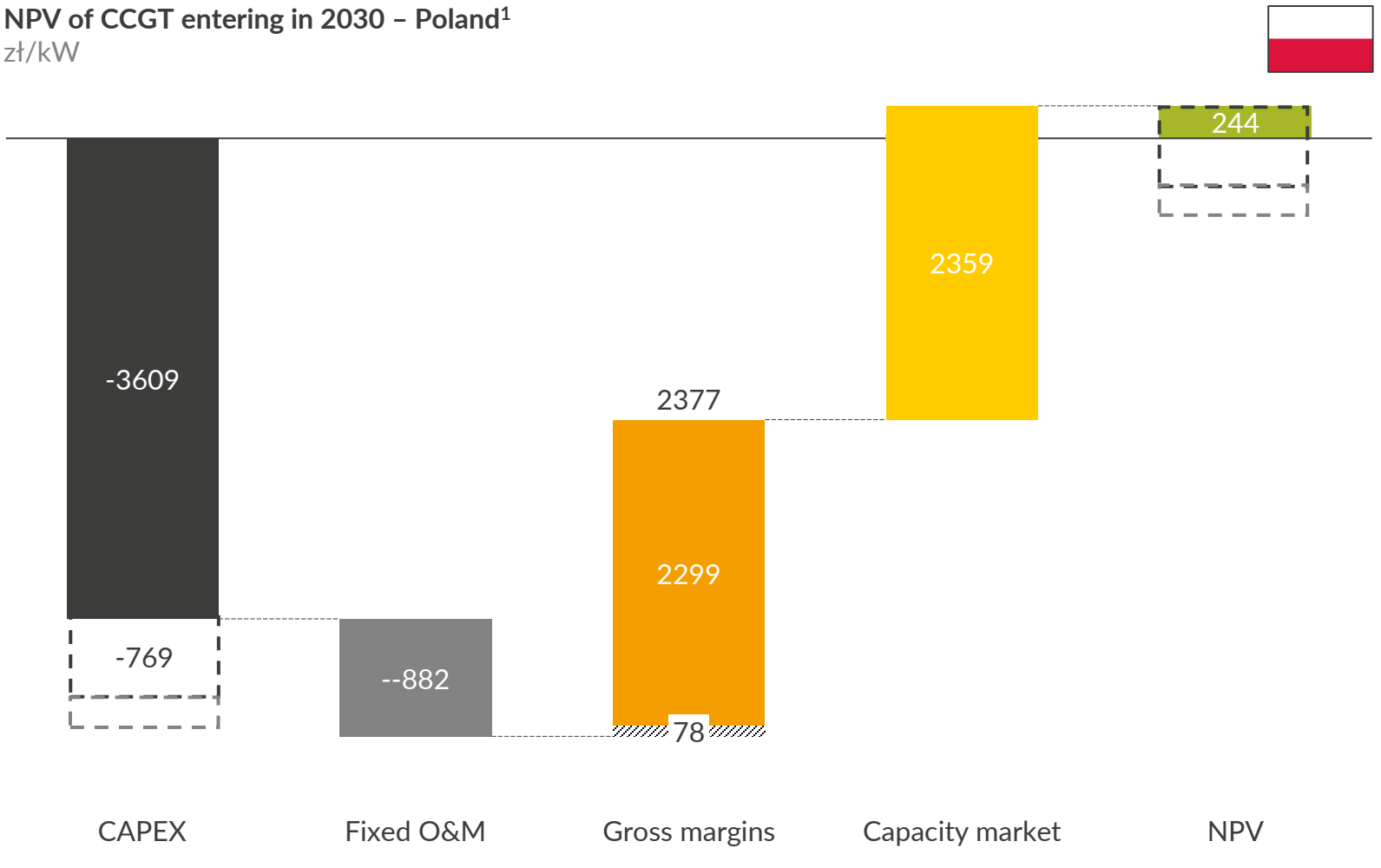
**NPV of CCGT entering in 2030 – Poland[1]**
zł/kW




- In the region, only Poland, Croatia and Greece have capacity markets
- The Polish capacity market required substantial adjustments to facilitate gas projects
- Recent tenders in Romania have failed

» The business case for gas is tight and faces risks regarding costs, timelines and secure revenue streams, raising the risk of less and/or delayed buildout.

1) Assuming 14.5% WACC.

# For the example of Poland, a delay and reduction of gas capacities could lead to coal remaining in the system until nuclear arrives …

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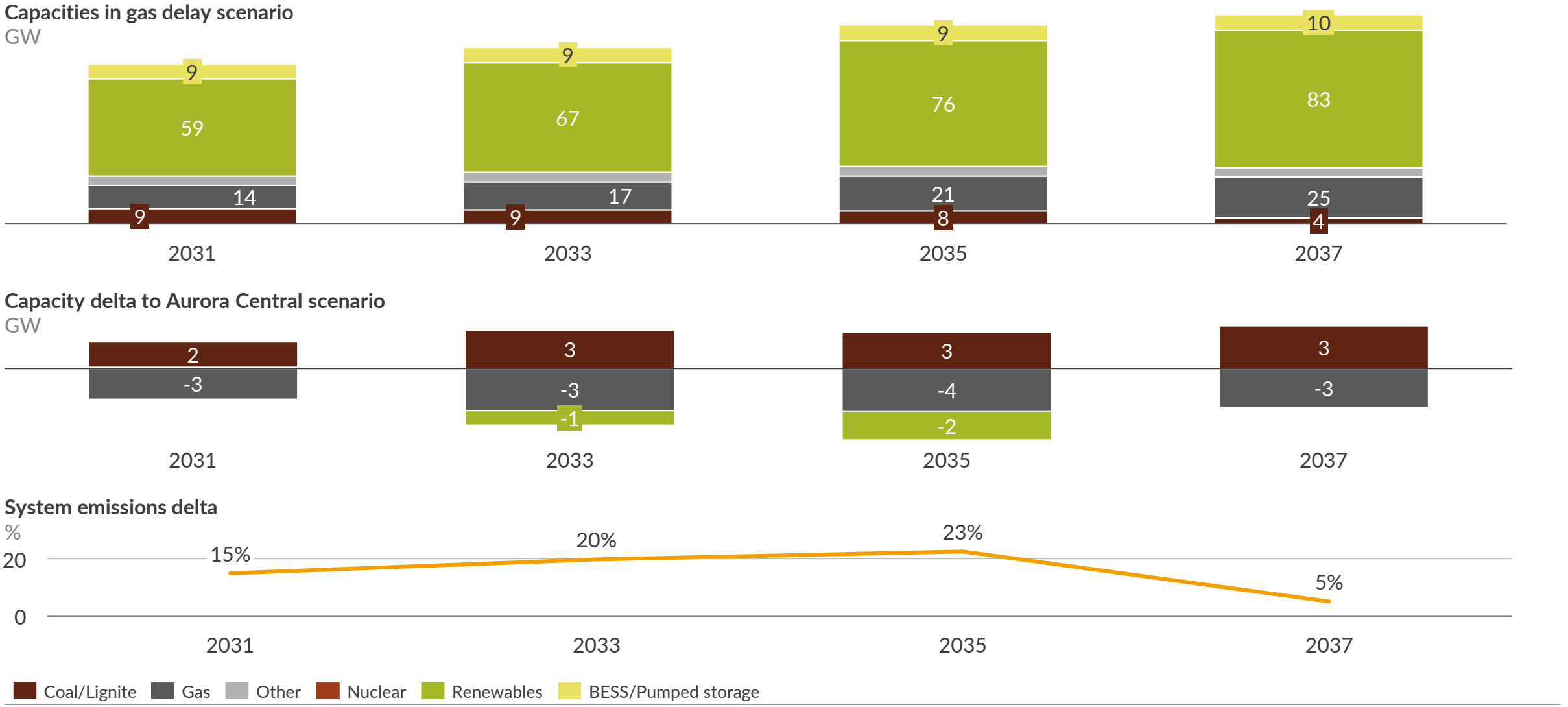
Gas delay scenario



# … which leads to significant renewables curtailment, while spreads do not increase sufficiently to turn the battery business case

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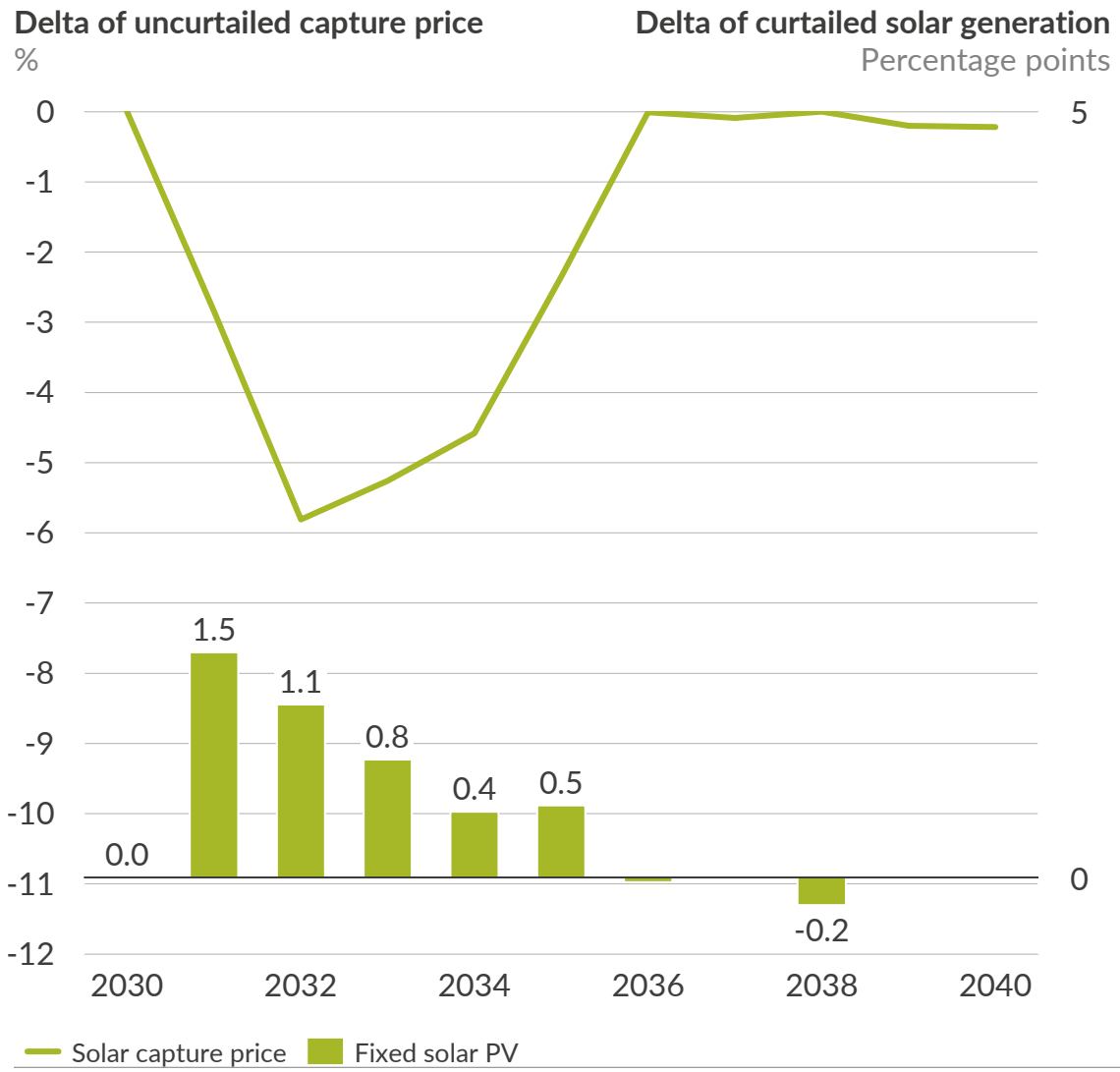
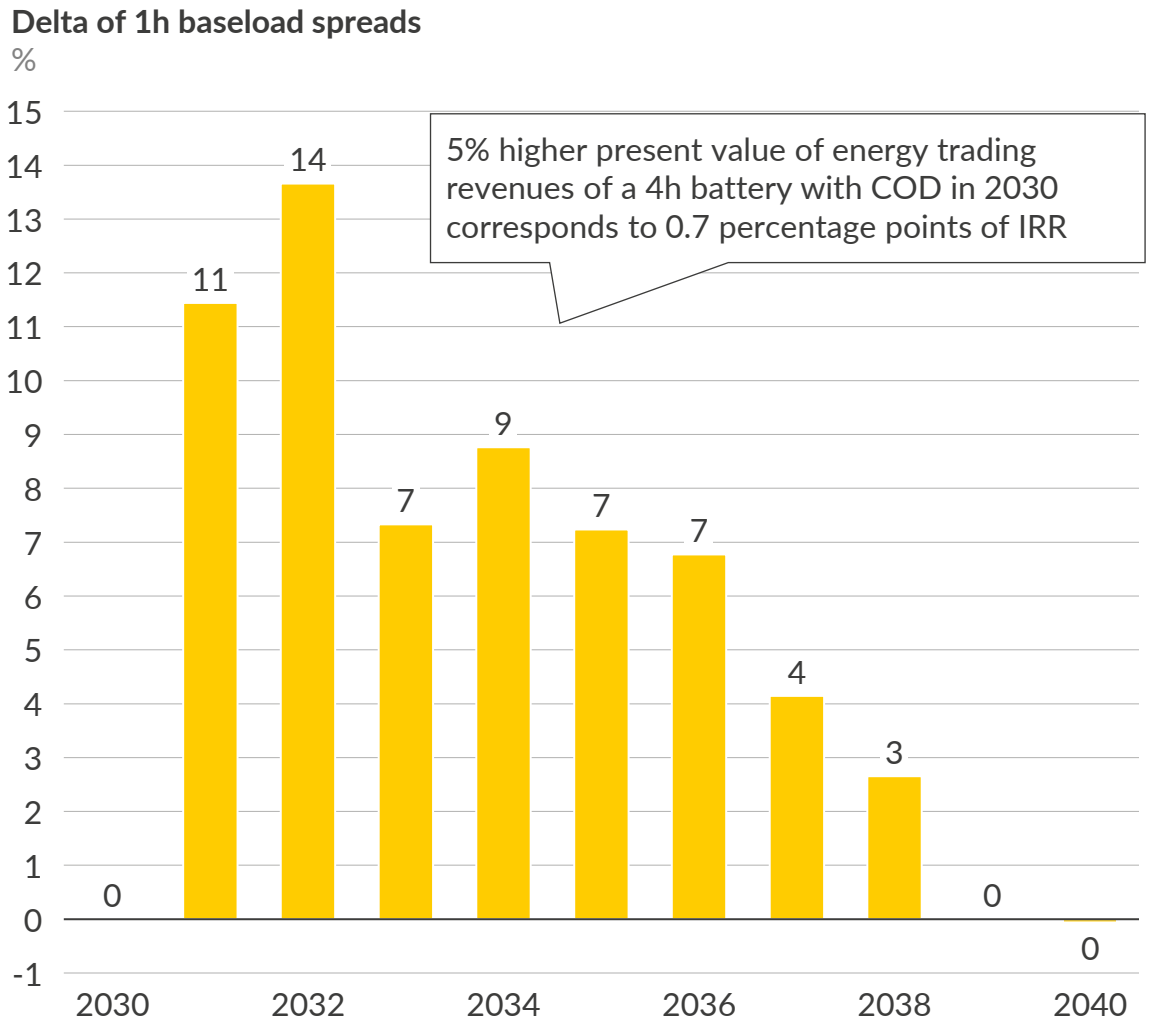
Gas delay scenario



# In the late 2030s, a nuclear renaissance is reshaping the outlook on baseload power, reducing the investible volumes for gas, RES & BESS

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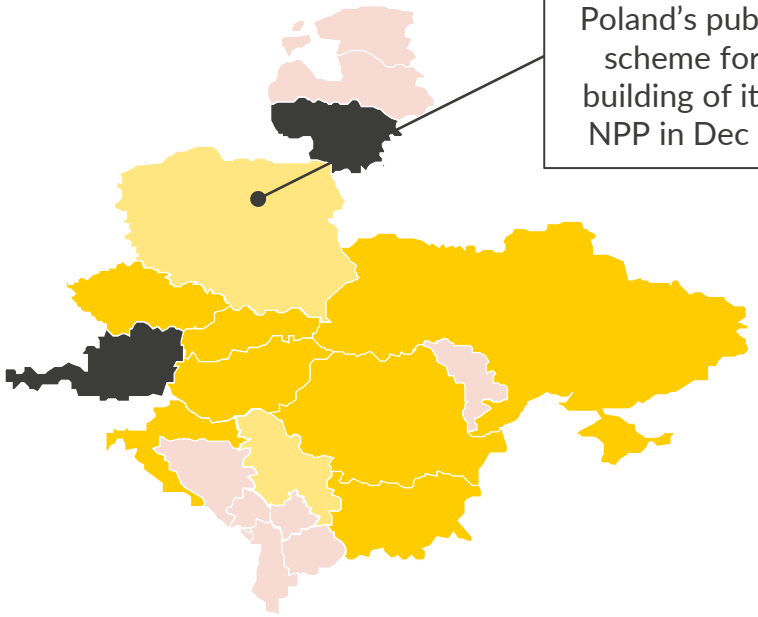
**Nuclear energy policy and planning[1], 2025**

- Operating & planning/building new nuclear power plants (NPPs)
- Planning or constructing first NPPs
- Operating nuclear power plants with plans for nuclear phase-out
- Has gone through a nuclear exit
- No NPPs and no plans to build them

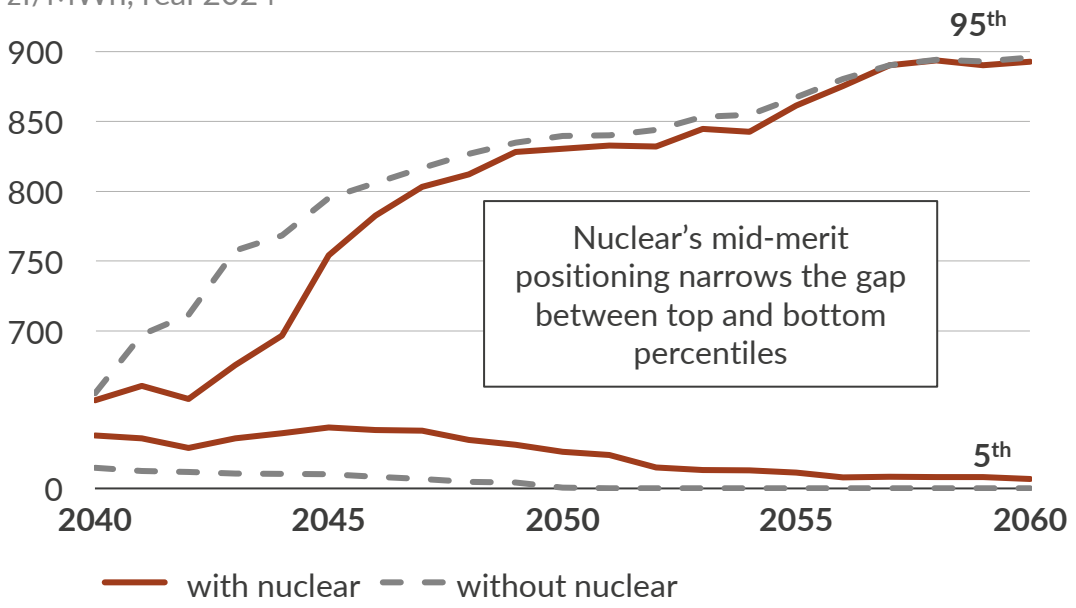


The EC ratified Poland's public aid scheme for the building of its first NPP in Dec 2025

## Poland plans up to 9 GW of nuclear reactors

**Price percentiles – 95th and 5th (2040-2060)**

zł/MWh, real 2024




**Missed investment until 2060**

| BESS | RES | Gas |
|---|---|---|
| -35% | -10% | -8% |

**Avoided emissions until 2060**

| % of $CO_2e$ |
|---|
| -13% |

1) Encompasses expressed interest in and sustained political discussion about building nuclear power plants, excluding small modular reactors, and announced plans to do so.

Sources: Aurora Energy Research, International Atomic Energy Agency, National Governments, European Commission, World Nuclear Association

# Key takeaways

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As CEE is moving away from lignite and coal, gas is seen as the main replacement technology. However, investors face the risk of increasing costs and timelines due to soaring demand, as well as the risk of non-existent or inadequate governmental support mechanisms.

A delay of gas capacities in favour of maintaining coal in the system poses a risk scenario for renewables investments: In the example of Poland, 3GW of coal remaining in the market until nuclear COD leads to up to 6% lower capture prices for solar.

In case of a gas delay, batteries benefit from higher spreads (up to +14% in the case of Poland). While the impact on the business case is significant (IRR +0.7%), it does not justify capacities above what is already contracted in the CM, due to the saturated market environment expected after 2030.

With its mid-merit-order positioning, nuclear reduces the investible volume for gas, but also renewables and batteries. In Poland, although 9GW of nuclear displace 36GW of solar and wind assets as well as 9GW of batteries between 2035 and 2060, cumulative $CO_2$ emissions are reduced by 13%.