Assessing adequacy in WB6

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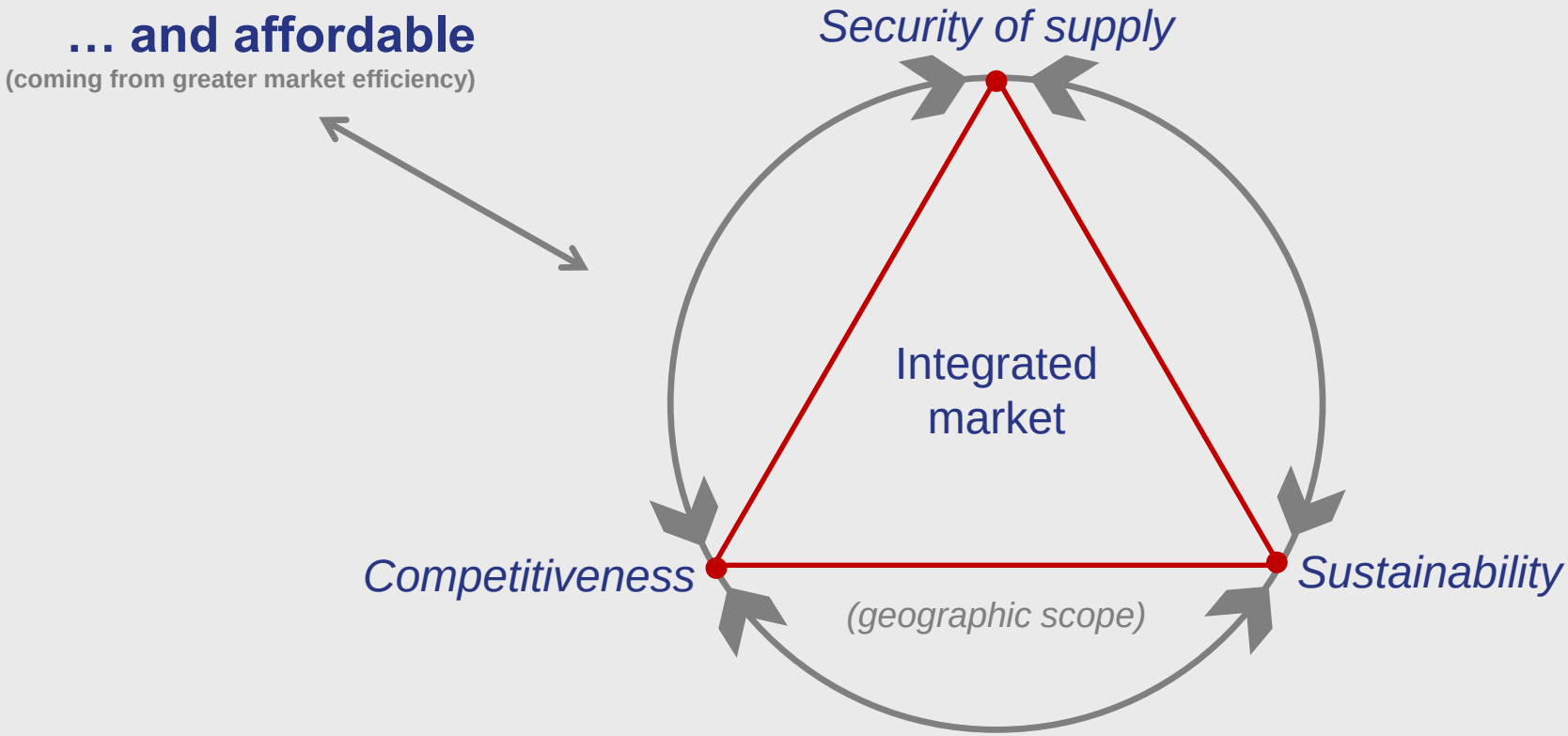
The end is for what we start



TA on Adequacy assessment on WB6

- Early this year ECS launched a TA project on Adequacy Assessment and Capacity Mechanisms
- Aim:
  - Assessing potential issues with SoS (Task 1)
  - Designing means to address them through market and potential capacity supportive mechanisms (Task 2)
- Consultant: FTI CONSULTING COMPASS LEXECON ENERGY
- Assessment of existing development plans; adequacy reports; fundamental data, interview with TSOs
- Preliminary results available … slides developed by Consultant!

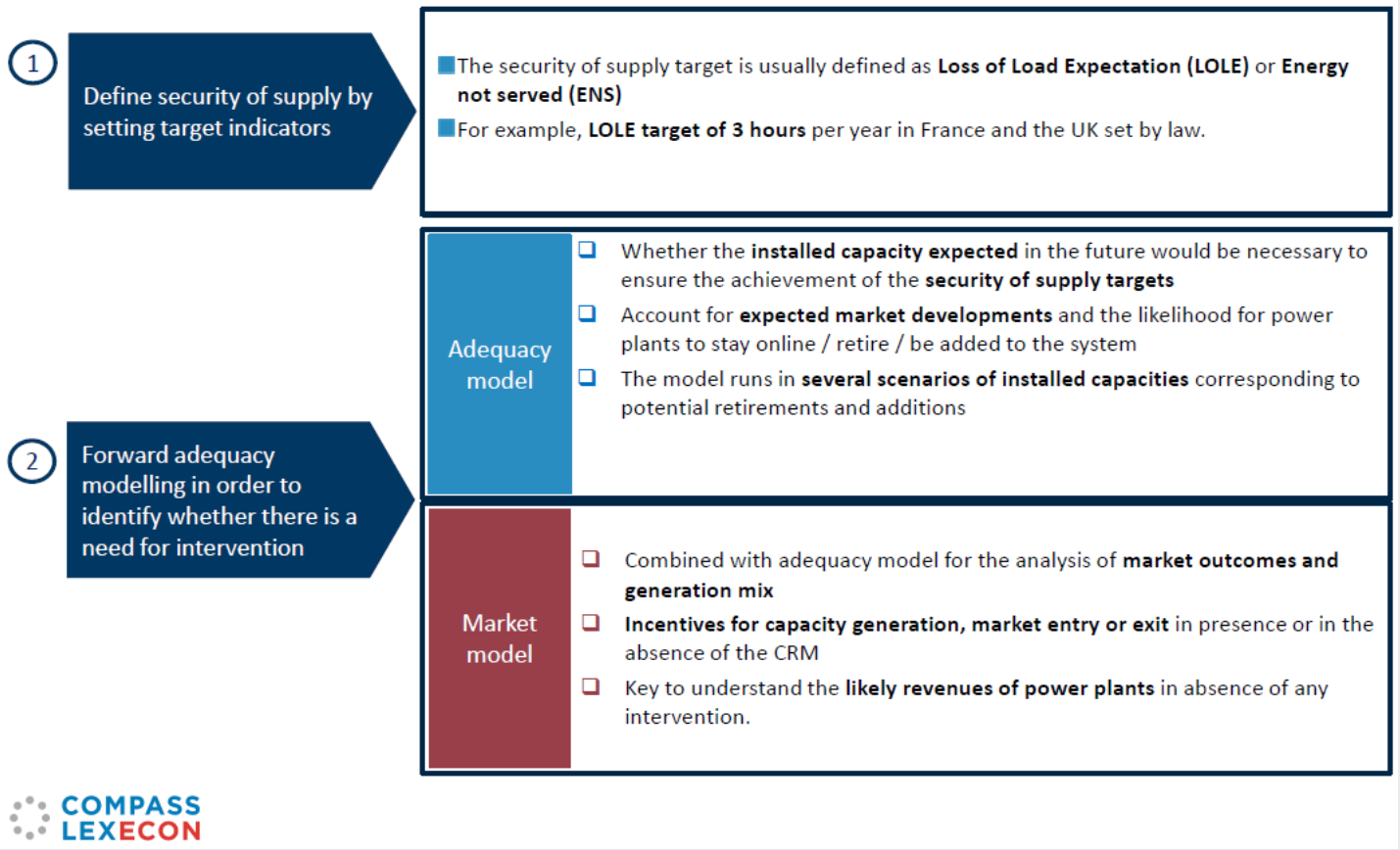
Adequacy assessment – geographic scope

WB6 countries: Detailed modelling on a plant-by-plant basis

Countries interconnected with WB6 countries: Aggregated modelling on a technology level

Other countries: Not modelled (only the import/export volumes with the "blue countries" are considered, based on historical data)

Forward looking adequacy outlook



Assumption for scenario definition

i. Wholesale power market reforms;

ii. Market coupling within and with neighbouring EU MSs

iii. 2030 RES developments,

iv. Impact of LCPD

v. CO2 price

1. **Base Case Scenario** – (i), (ii), (iii) + LCPD + Capacity forecast based on TSOs Base Case
2. **Energy Only Market (EOM) EU ETS 2030 Scenario** - Base Case + Economic investment and shutdown decisions + EU ETS from 2030 onwards
3. **Energy Only Market EU ETS 2025 Scenario** - Base Case + Economic investment and shutdown decisions + EU ETS from 2025 onwards
4. Assessment of CO2 price/costs - **loading**

Market assumptions

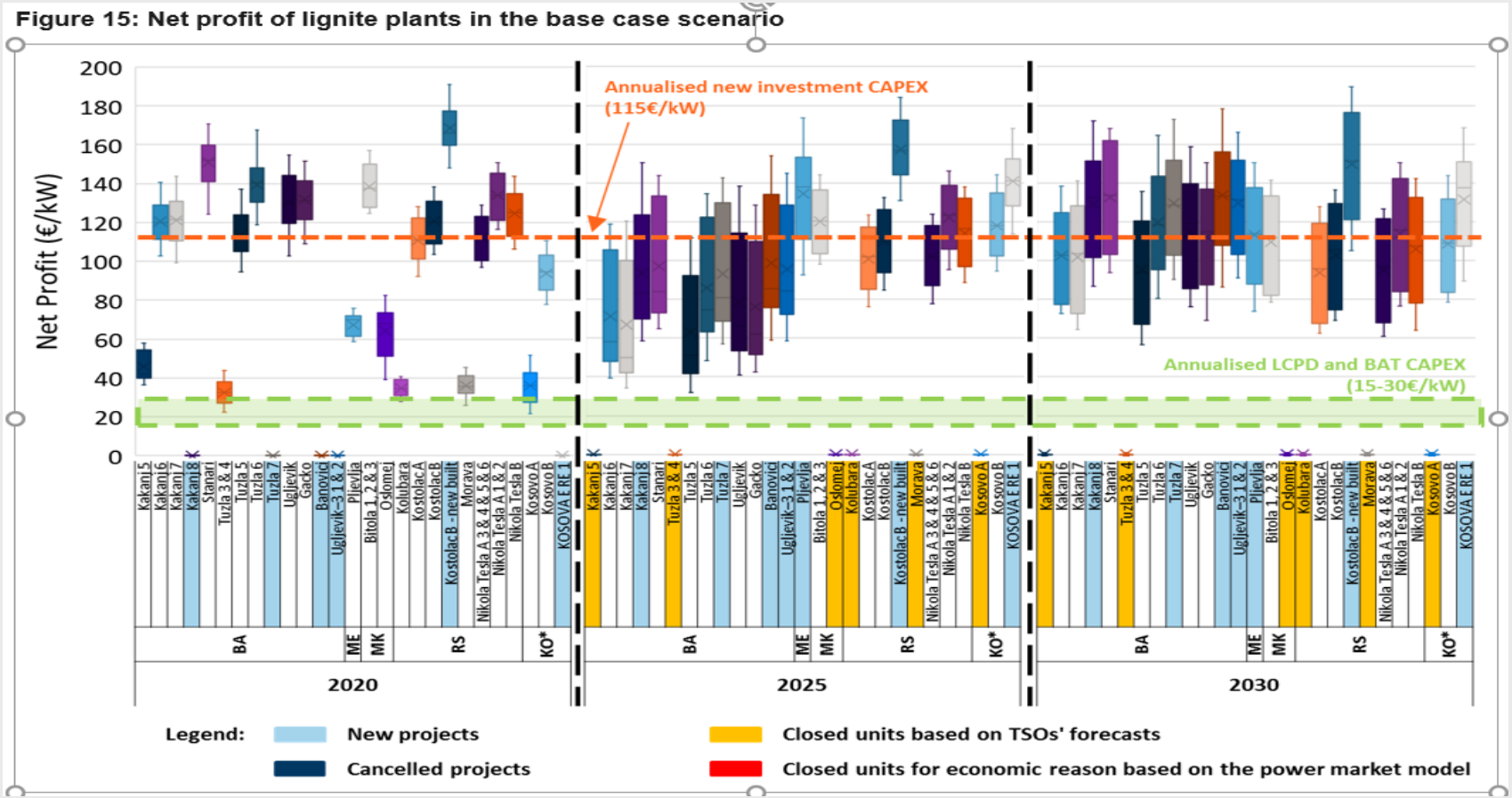
- (i) power supply (e.g. generation capacity and demand side response),
- (ii) power demand (including reserves),
- (iii) cross-border interconnection capacity,
- (iv) commodities including gas, coal, oil, CO2, and
- (v) cost

- Economic analyses based on energy-only market (bidding based on SRMC)
  - *Net profit = Energy revenues + Ancillary services revenues - Variable Generation costs - Fixed O&M costs*
- Net profit is compared with annualized CAPEX

	Investment costs			Refurbishment costs (LCPD and BAT standard)		
Technology	**Amortization period (years)**	**Annualised costs for 2020 (€/kW)**	**Annualised costs for 2030 (€/kW)**	**Amortization period (years)**	**Annualised costs for 2020 (€/kW)**	**Annualised costs for 2030 (€/kW)**
Coal	35	115		10	15-30	
CCGT	30	65		/	/	/
OCGT	25	45		/	/	/
Battery	10	140	80	/	/	/
Long term storage	20	125	80	/	/	/

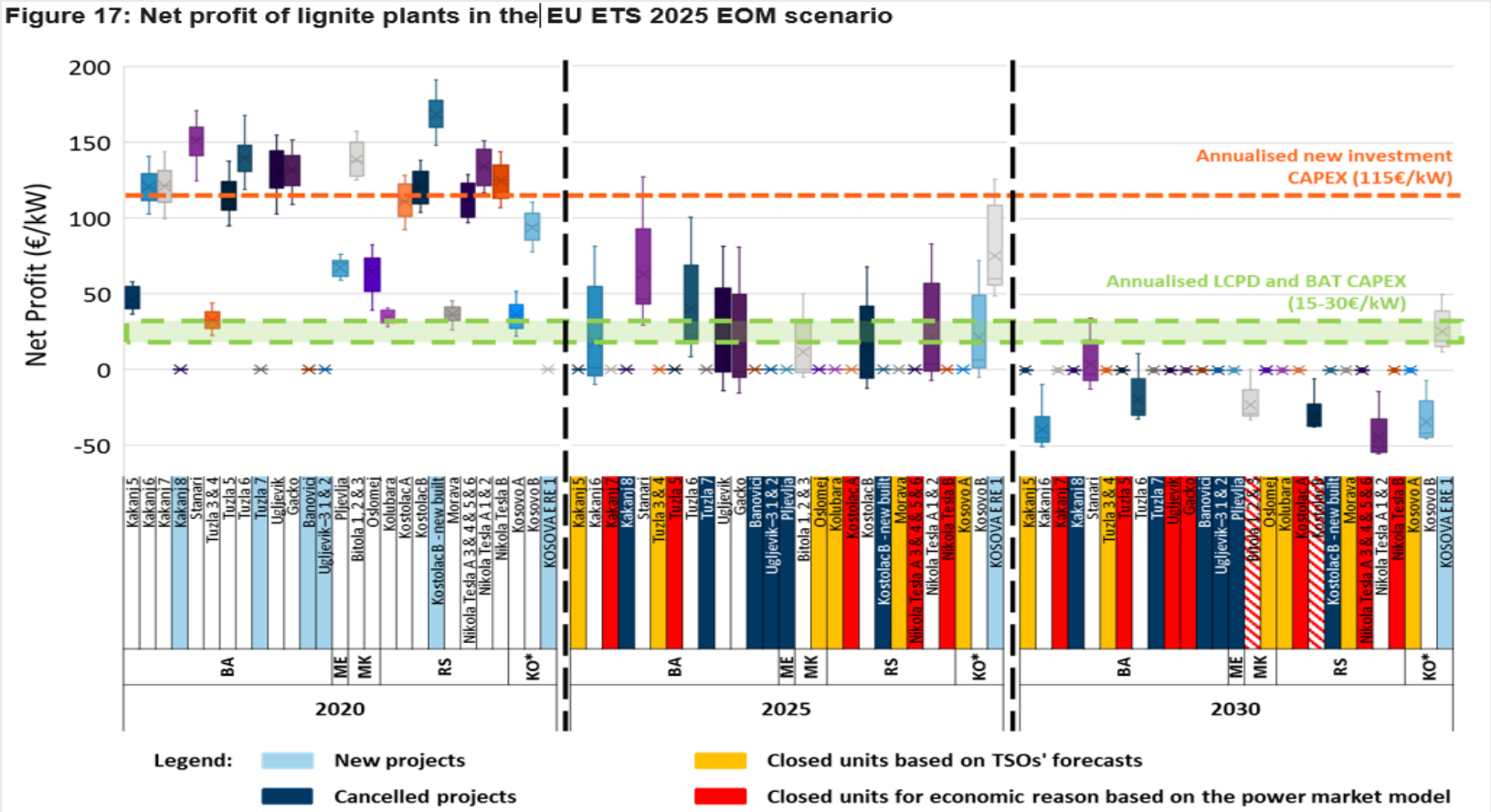
Market model results

Figure 15: Net profit of lignite plants in the base case scenario



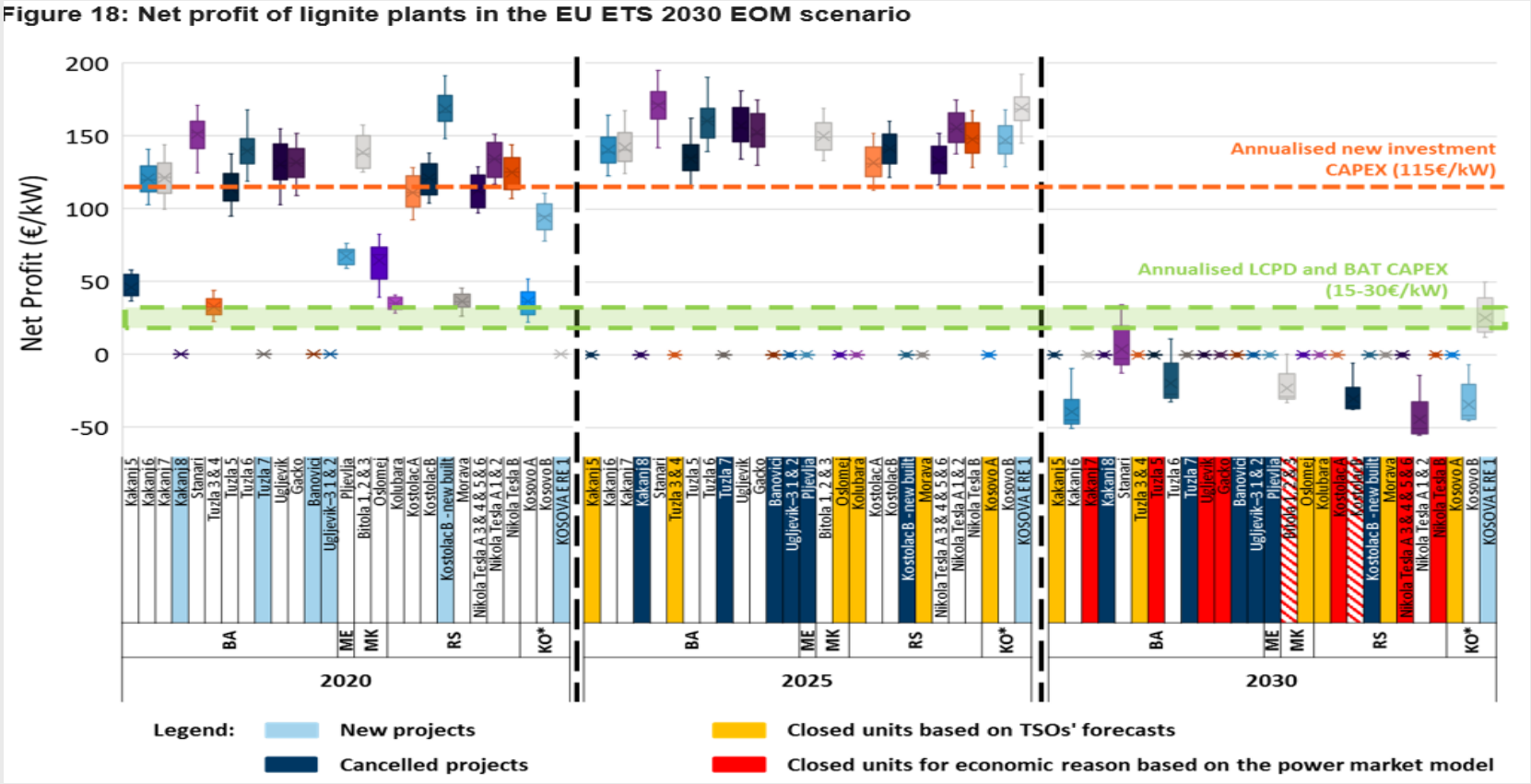
Market model results

Figure 17: Net profit of lignite plants in the EU ETS 2025 EOM scenario

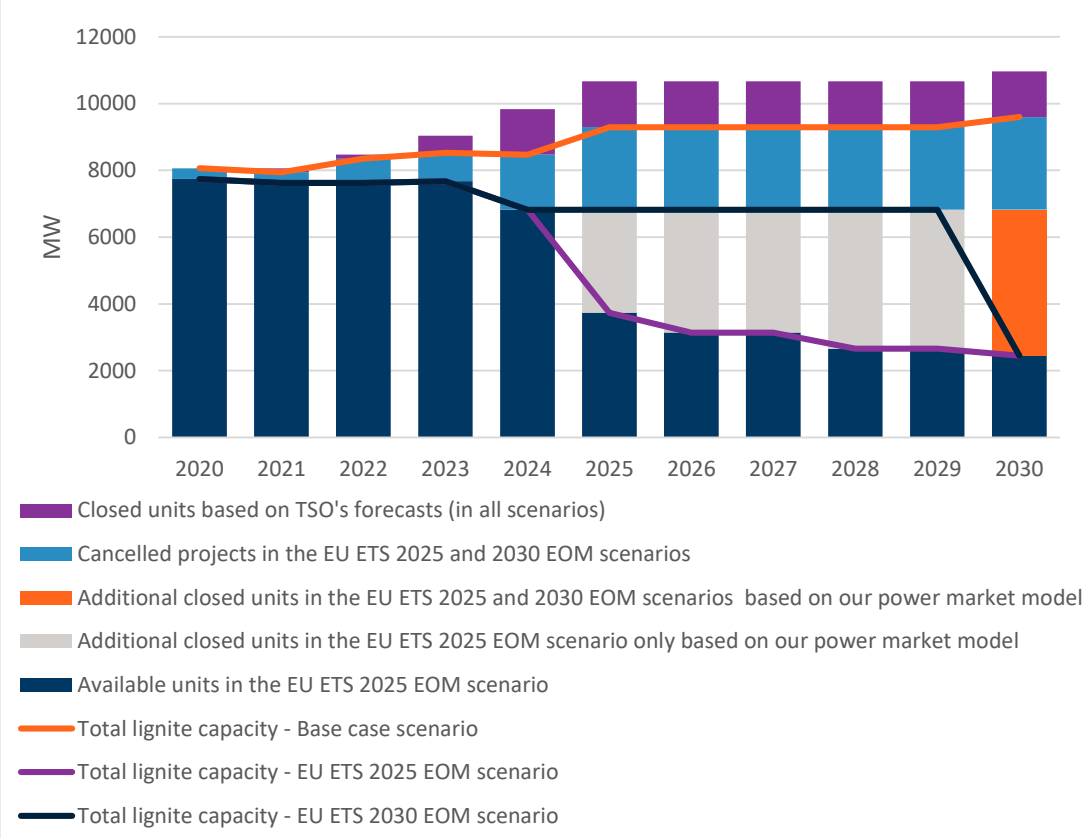


Market model results

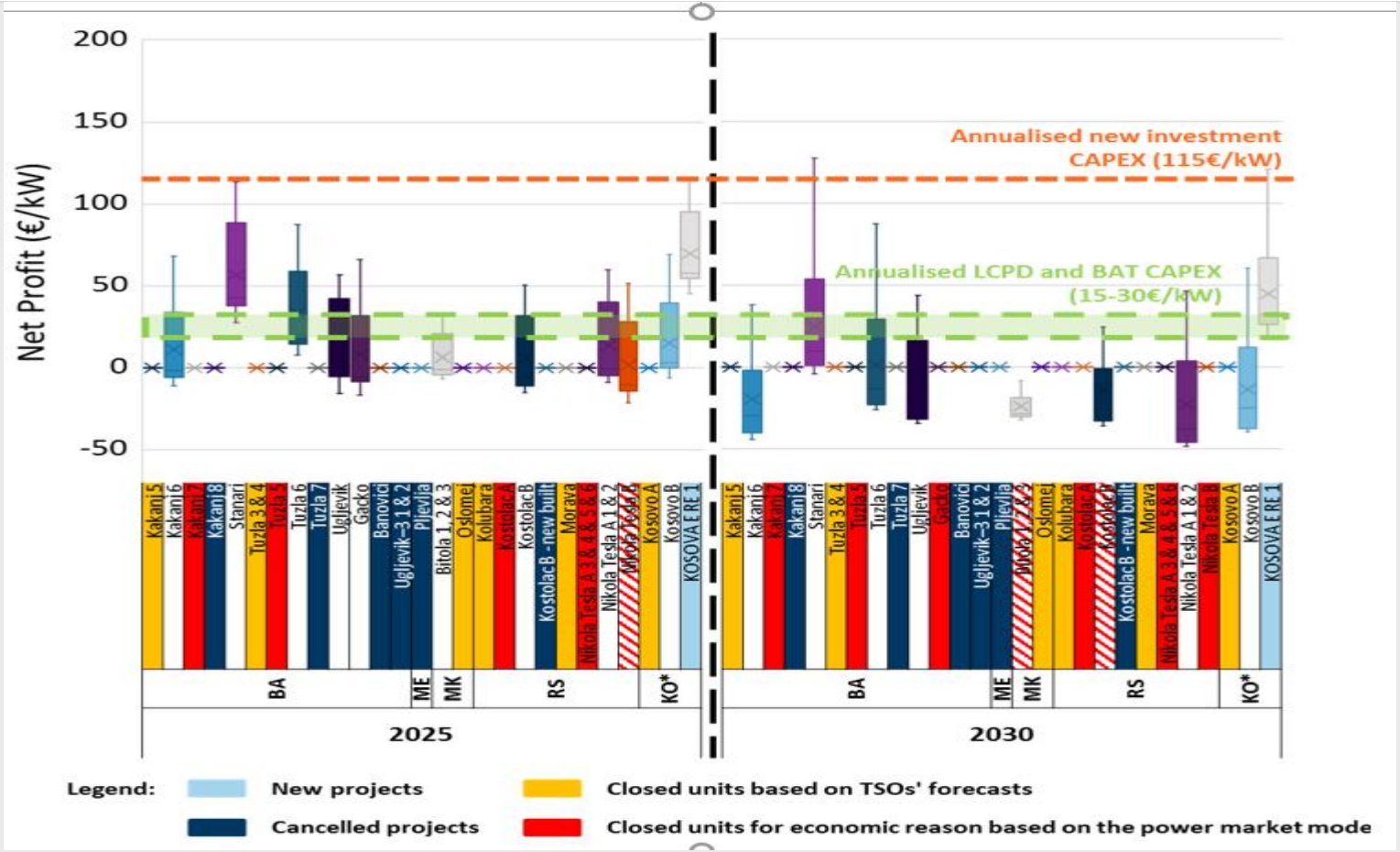
Figure 18: Net profit of lignite plants in the EU ETS 2030 EOM scenario



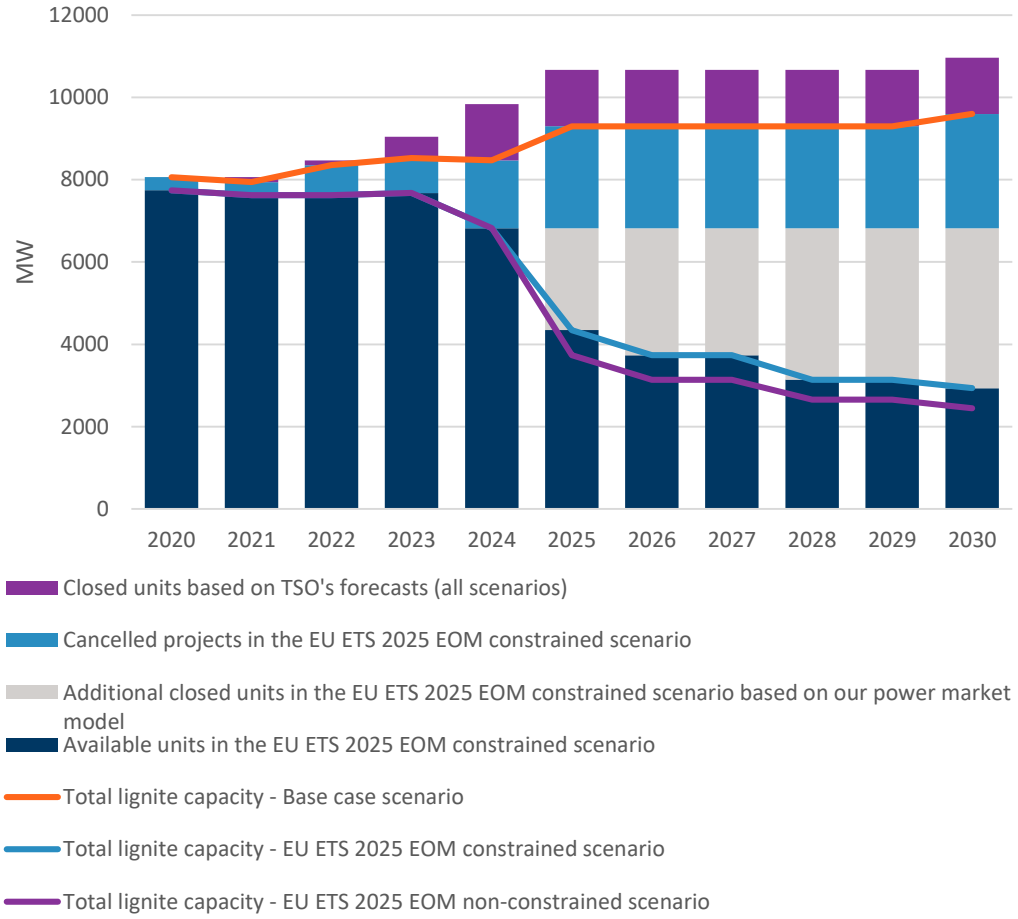
Net capacity in MW



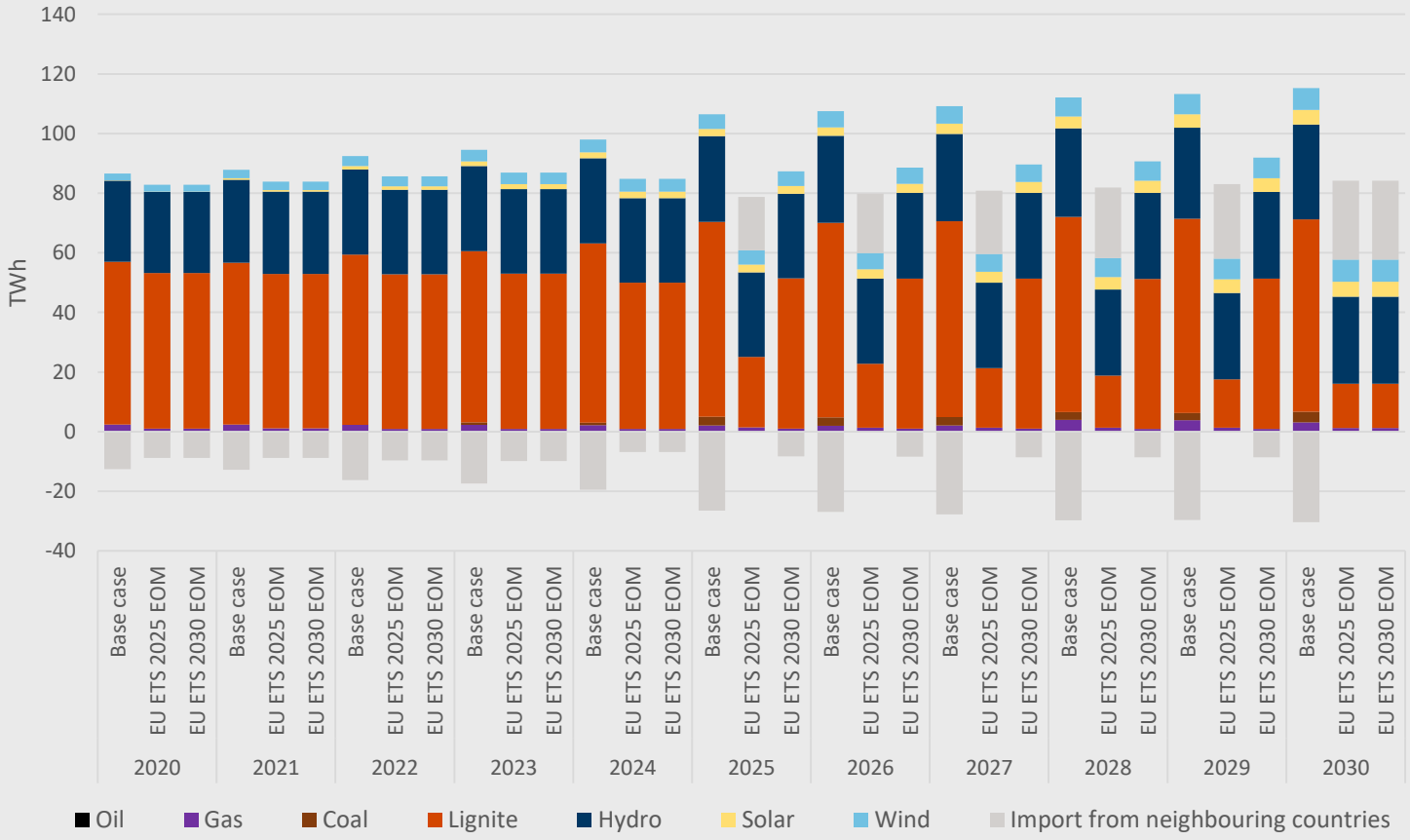
Market model results – cross-border sensitivity



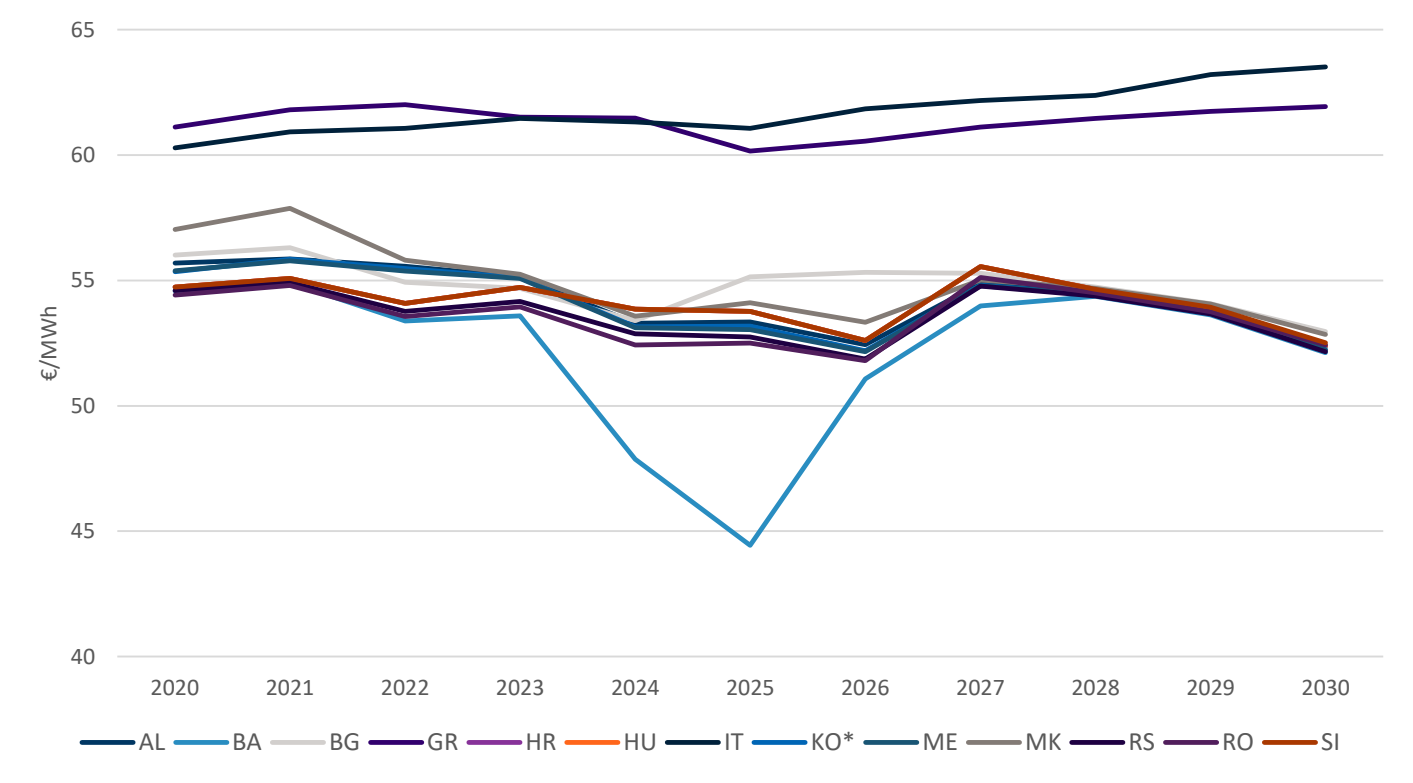
Net capacity in MW – cross-border sensitivity



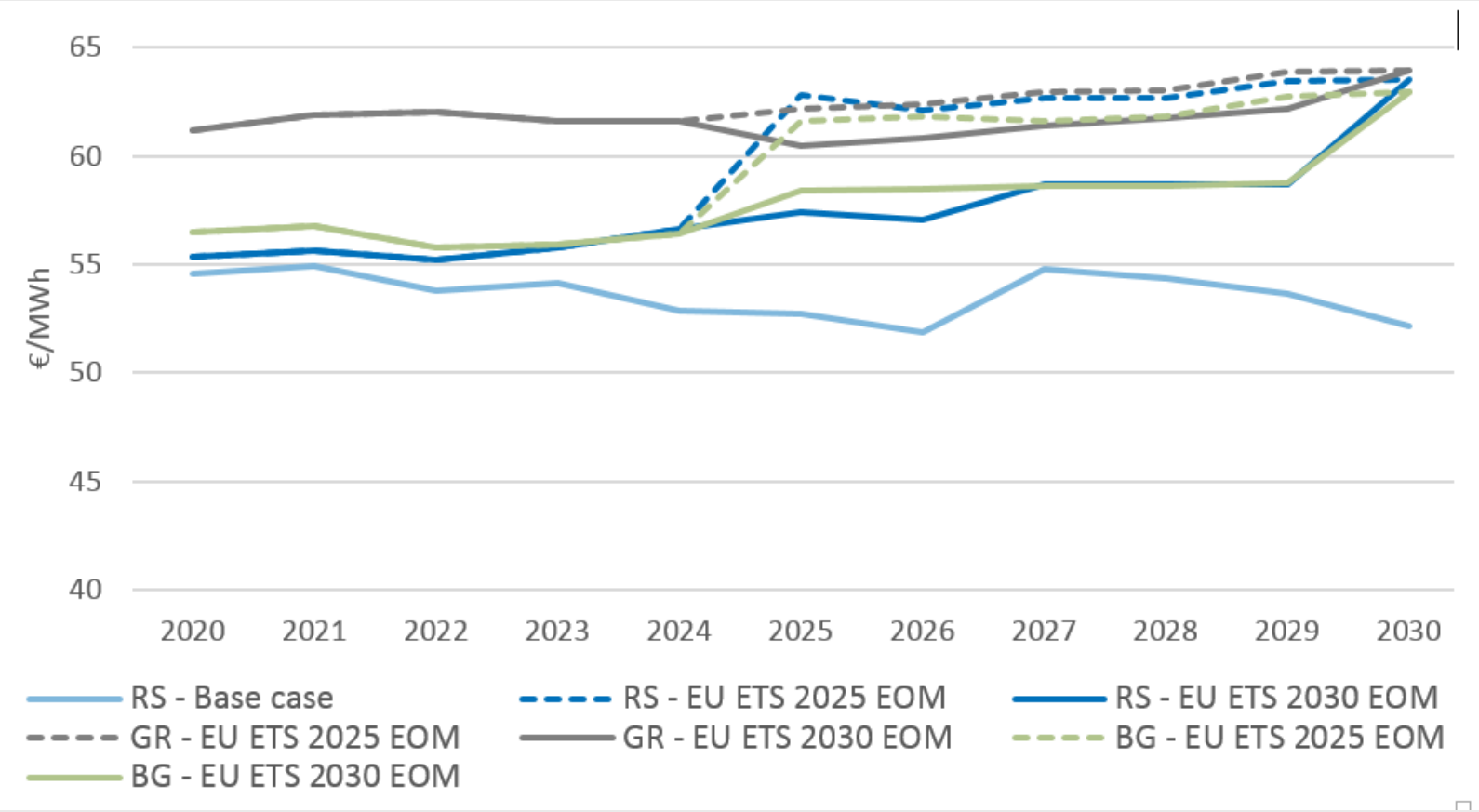
Generation outlook



Power price outlook – base case

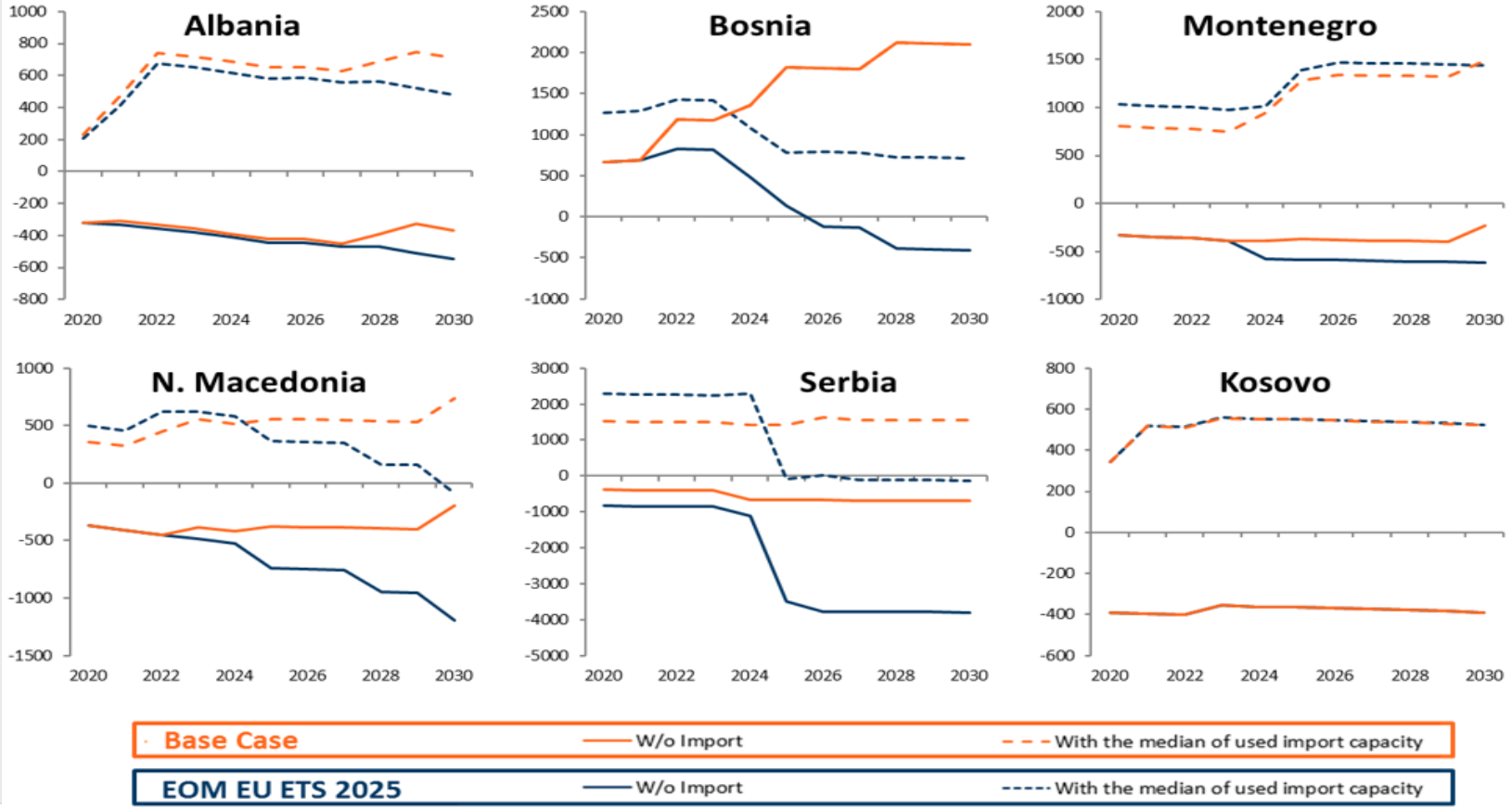


Power price outlook – comparisons



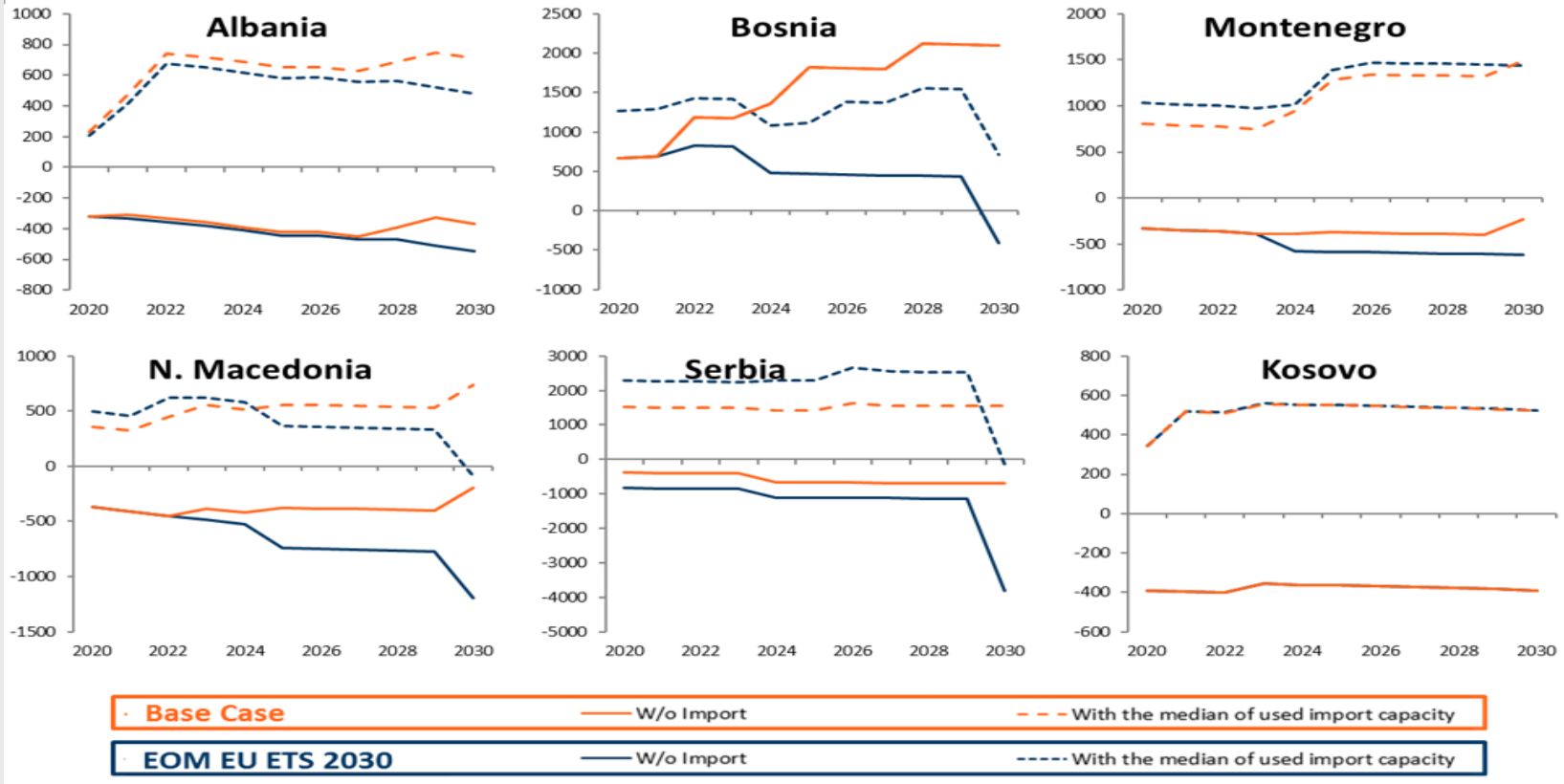
Adequacy – Importance of interconnections

Figure 25: Derated margin in WB6 countries in the EU ETS 2025 EOM (in MW)



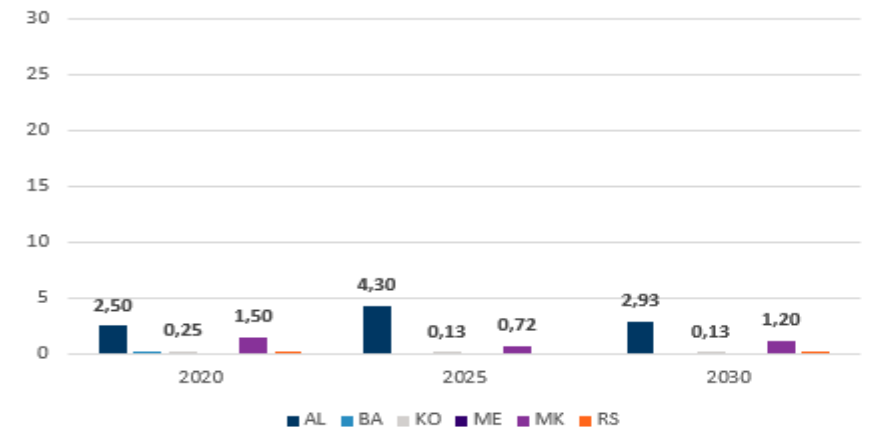
Adequacy – Importance of interconnections

Figure 26: Derated margin in WB6 countries in the EU ETS 2030 EOM (in MW)

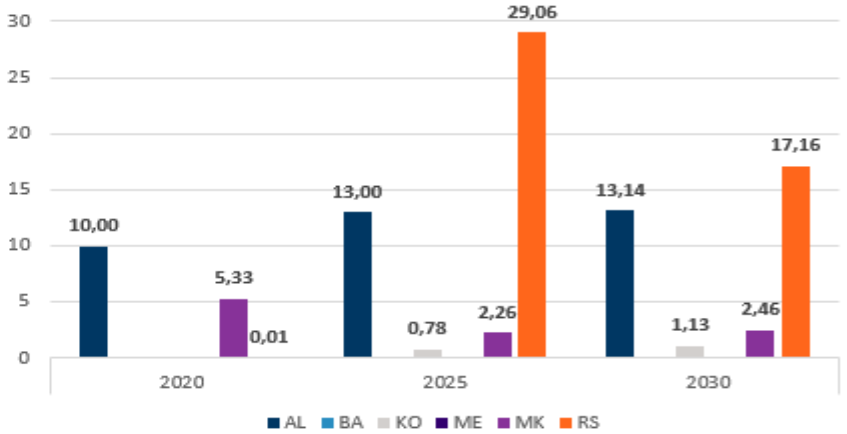


Adequacy – Importance of interconnections

Loss of Load Expectation for WB6 countries, in the Base case scenario (number of hours per year)



Loss of Load Expectation for WB6 countries, in the EU ETS 2025 scenario (number of hours per year)



Thank you!

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