

Changing generation mix and flow patterns in CEE/SEE

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(EDEM)**

Agenda



- 01** A glimpse into the future – coal/lignite phase out
- 02** Net flow changes in coming years
- 03** Regional RES expansion & Fit for 55 package
- 04** Conclusions

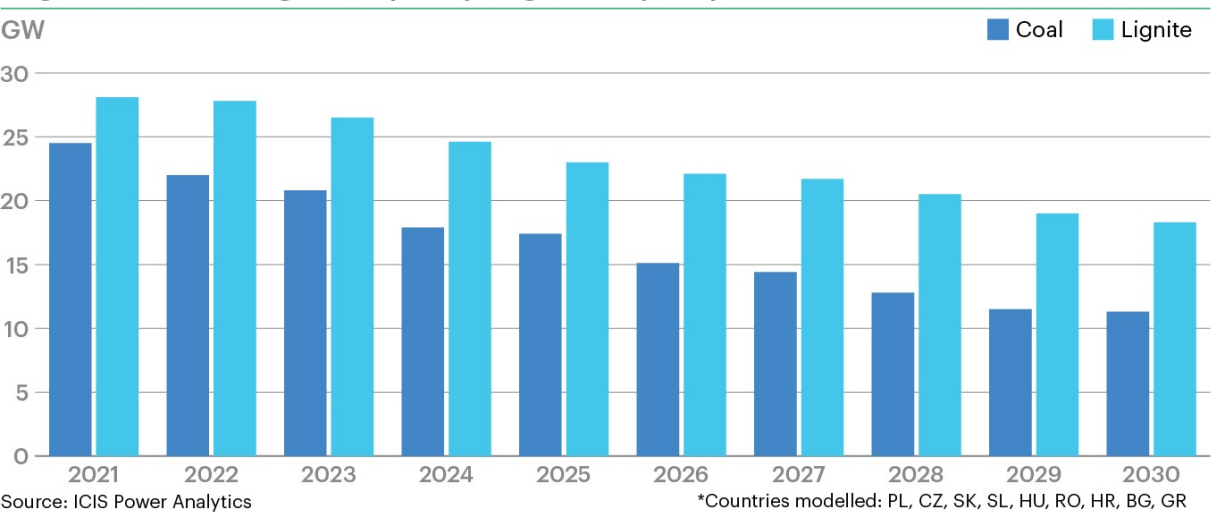


A glimpse into the future –
coal/lignite phase out

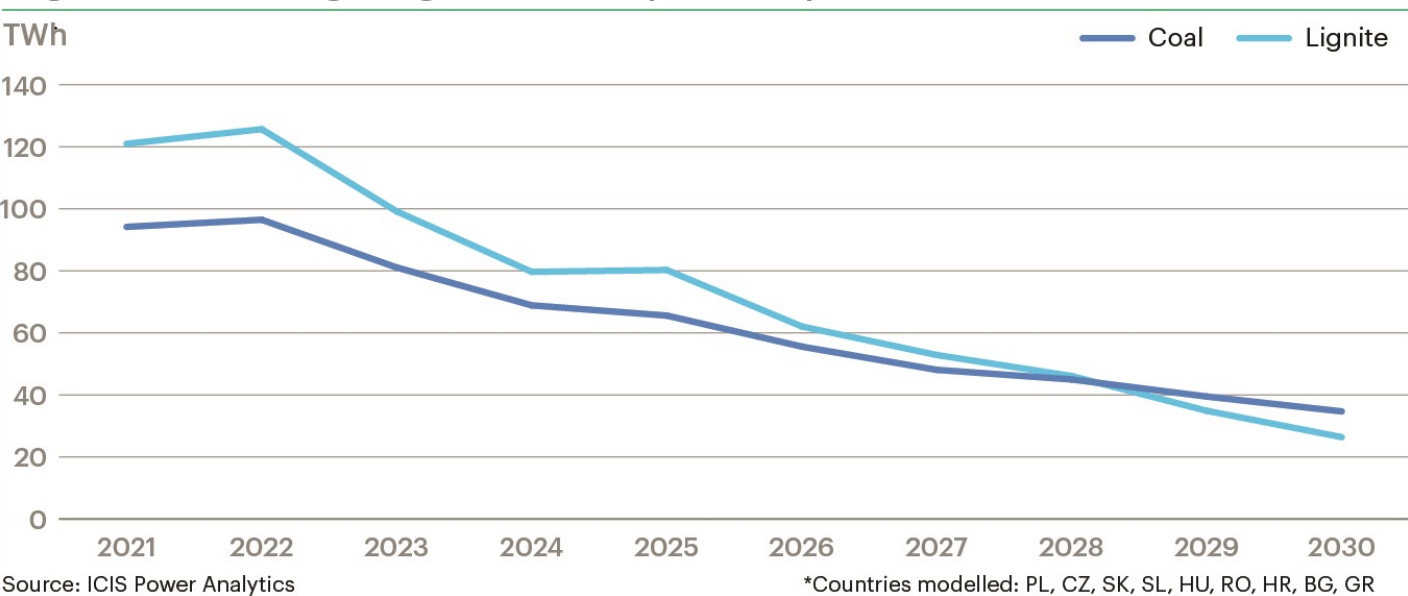
Coal/lignite capacity and generation expected to decline



Regional coal and lignite capacity to gradually drop



Regional coal and lignite generation to plummet post 2025



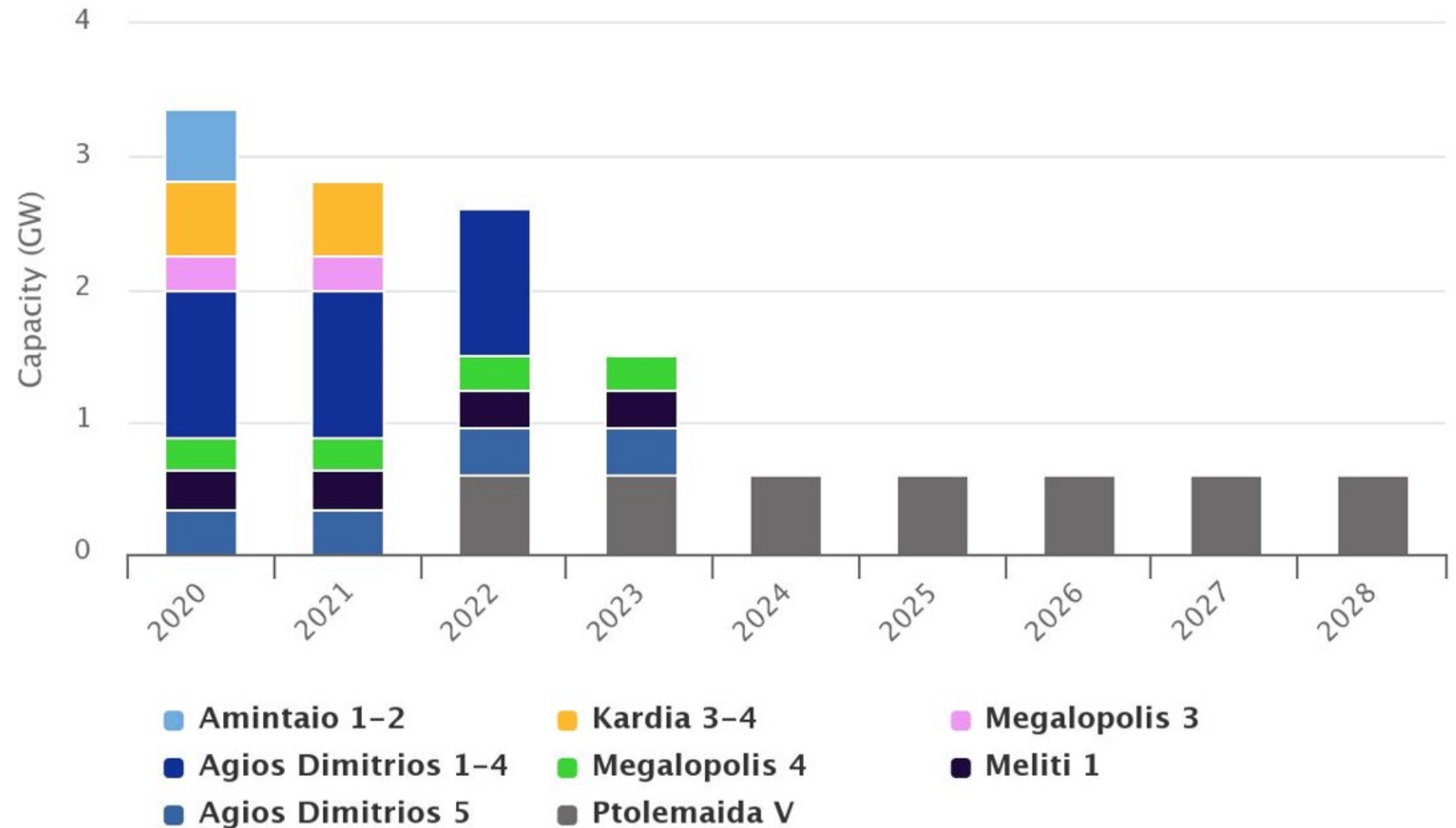
Greece leading the transition – phase-out time line



Market reform plans:

- 3.4GW lignite capacity to exit market by end 2023
- Lignite plants to form part of strategic reserve 2021-2023
- 660MW Ptolemaida V – last remaining from 2023 to 2028
- Possible conversion of Ptolemaida V to 1GW CCGT by 2025

Greek lignite closure timeline by unit

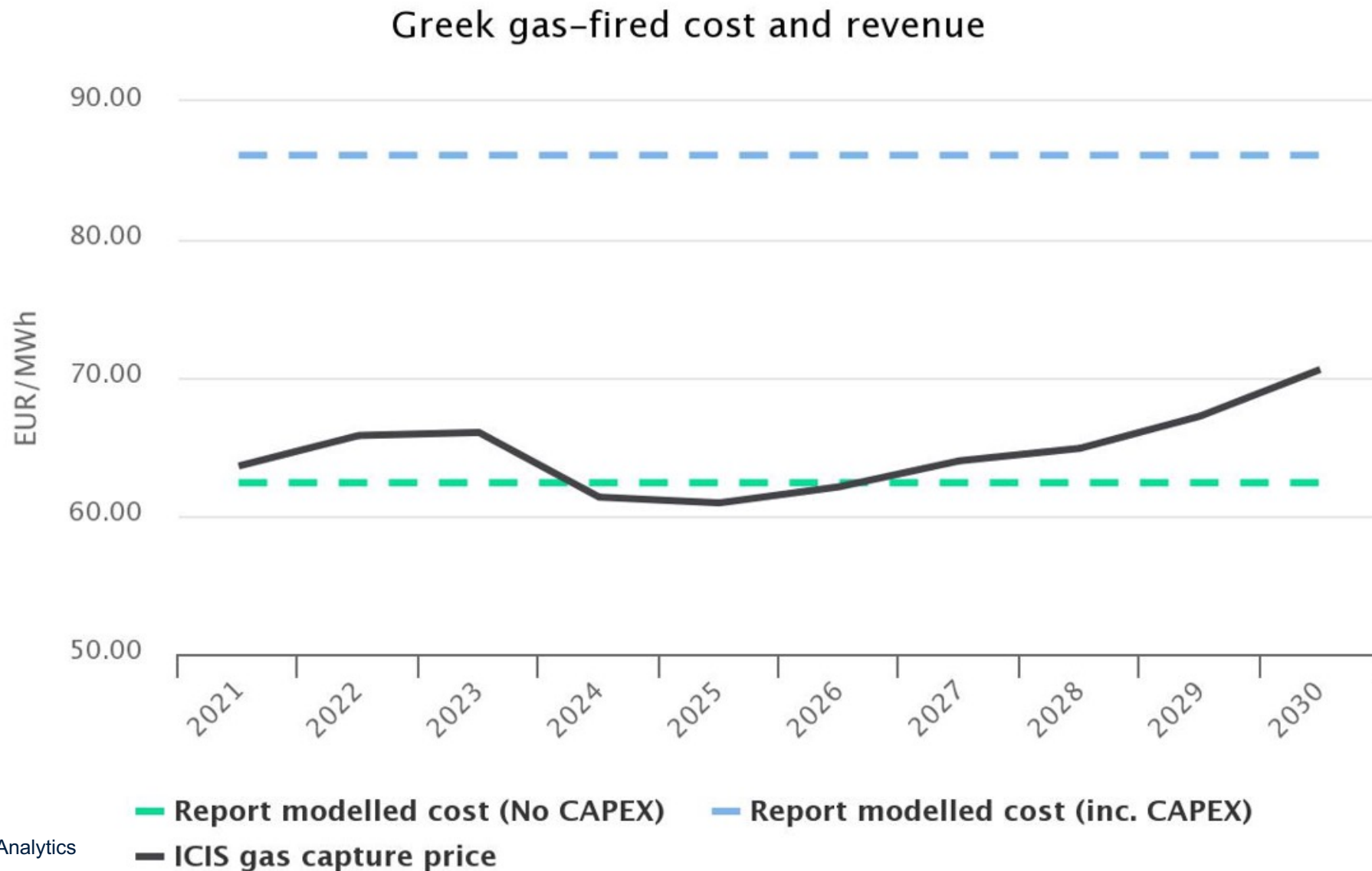


Greece leading the transition – need for CCGT support



Market reform plans:

- Capacity remuneration mechanism (CRM) from end-2023 to ensure new CCGT investments
- 825MW Agios Nikolaos CCGT due online by end of 2021
- 3.3GW CCGT projects in pipeline



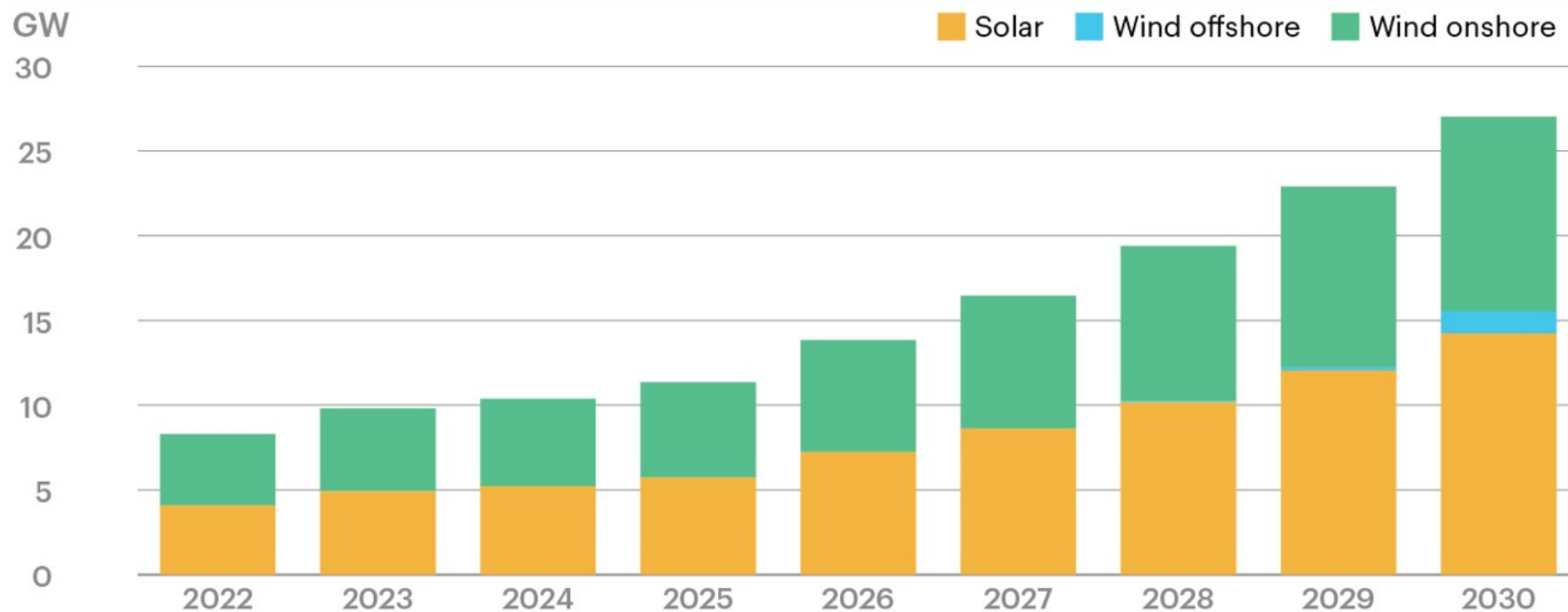
Greece leading the transition – solar to take center stage



Renewable expansion:

- Greece targets 19GW RES installed capacity by 2030, up from 10GW in 2020 (NECP)
- ICIS modelling predicts 27GW RES capacity by 2030 amid solar growth outstripping NECP target
- Joint-technology renewables auctions to be extended to 2024

Greek RES capacity likely to outstrip NECP targets by 2030



Source: ICIS Power Analytics

Romania & Bulgaria – lack of clear strategy



Romania :

- **3.7GW** coal capacity to shut down by end-2026
- Remaining **800MW** to stay online by 2032
- **But** CE Oltenia plans to close **1.85GW** by 2026 and keep **1.65GW** running

Bulgaria:

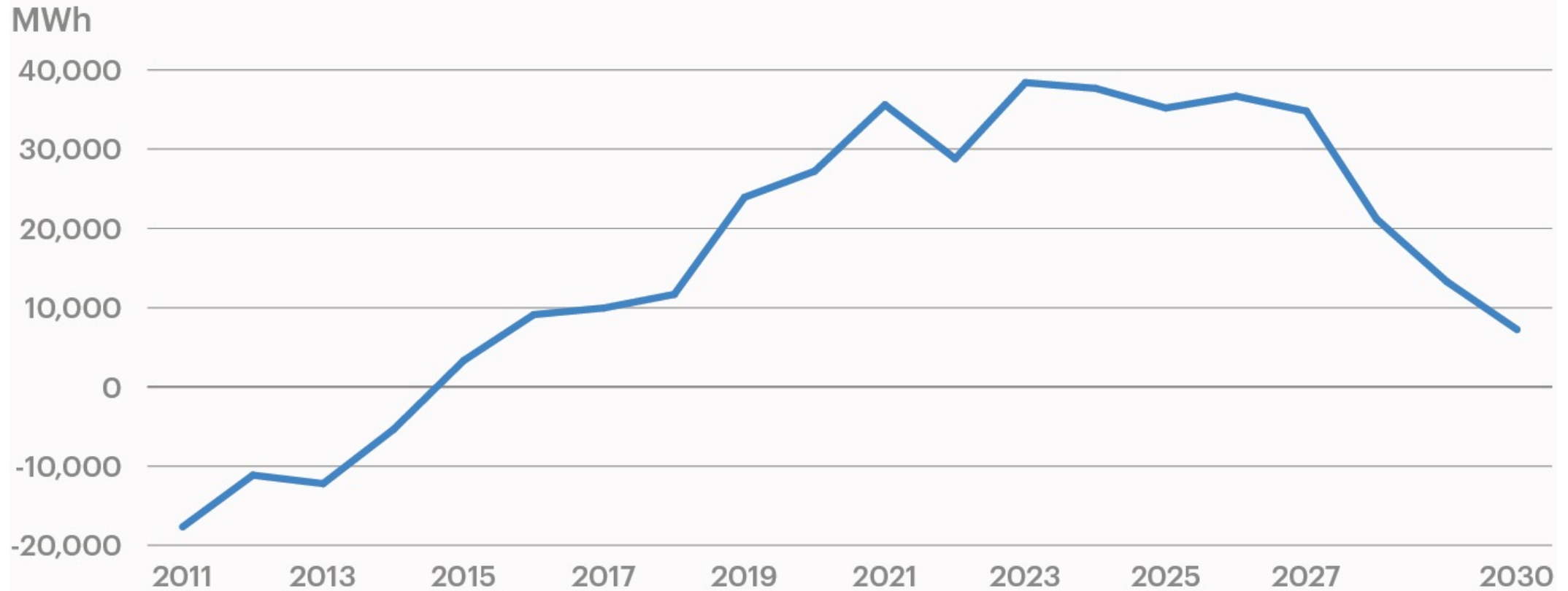
- **1.6GW** Maritsa East 2 (ME2) to be replaced with **1GW** CCGT by **2025**
- New gas/hydrogen infrastructure in the Maritsa basin to encourage coal-to-gas switch at privately owned coal plants but no firm timelines
- Full phase-out of **4.9GW** coal capacity **by 2040**

Net flow changes in
coming years





Region to keep net importer position until late 2020s



Source: ENTSO-E (historic); ICIS Power Analytics

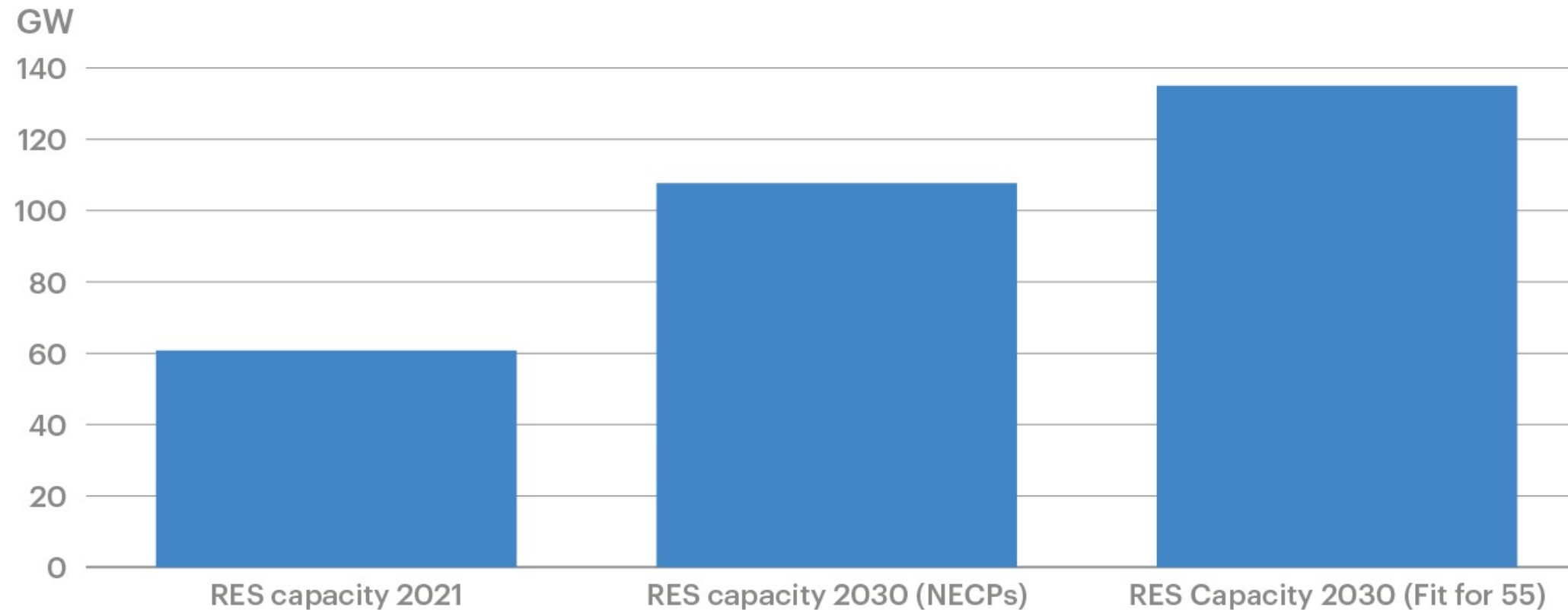
*Countries modelled: PL, CZ, SK, SL, HU, RO, HR, BG, GR

Regional RES expansion & Fit for 55 package





Region will need to more than double existing RES capacity to meet new targets



Source: ICIS Power Analytics

*Countries modelled: PL, CZ, SK, SL, HU, RO, HR, BG, GR

Regional RES investment potential – support schemes



- Governments betting on competitive auctions
- But are they the way forward?
- Where do batteries fit in?

Recent ICIS headlines:

- **Solar power plants make gains in latest Polish auction rounds**
- **Bulgaria to auction 1.7GW new renewable capacity by 2025**
- **Market-based support schemes attracts investors to Balkan renewable projects**
- **Hungarian large solar projects likely to operate subsidy-free – auction results**



Regional RES investment potential - PPAs



Recent ICIS headlines:

- **First Greek solar power purchase agreement signed**
- **Greek MYTILINEOS eyes 2.5GW renewables, new PPAs and batteries by 2030**
- **Axpo Romania open for new long-term PPA opportunities**
- **Axpo Bulgaria eyes pilot PPAs, more renewables by 2025**
- **Investors eye 8.5GW renewable capacity in Bulgaria, says ESO**
- **116GW offshore wind potential could boost Bulgaria's energy transition, says CSD**



Conclusions



- The economics of coal/lignite plants expected to deteriorate further based on higher carbon prices
- With Greece leading the way, governments will still require to come up with detailed plans for an official phase-out
- The CEE/SEE region will remain dependent on imports until 2027
- The trend will start to subside thereafter if RES deployments accelerates
- The Fit for 55 package will require NECP targets for RES capacity to be upgraded
- Investor interest is evident
- Governments need to provide the right framework for market-based support mechanisms

Thank you!

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