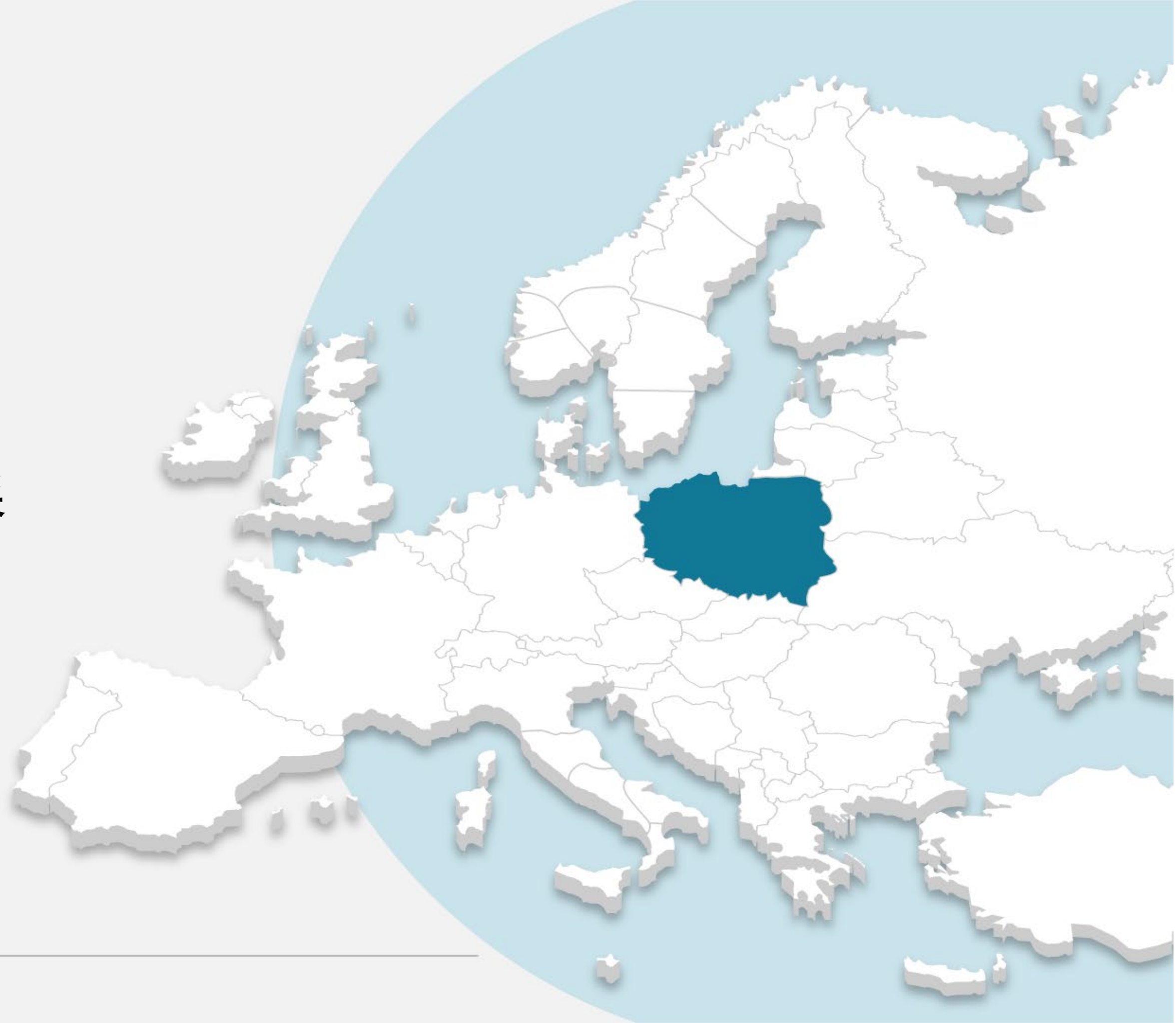


Experience and progress of Poland's Coal Transition

波兰煤炭转型的经验与进展

Joanna Pandra PhD.
President of Forum Energii
Shanghai, 6.11.2025

约翰娜·麦考维克 博士
波兰能源转型论坛总裁



European energy transition think tank from Poland

来自欧洲波兰的能源转型智库

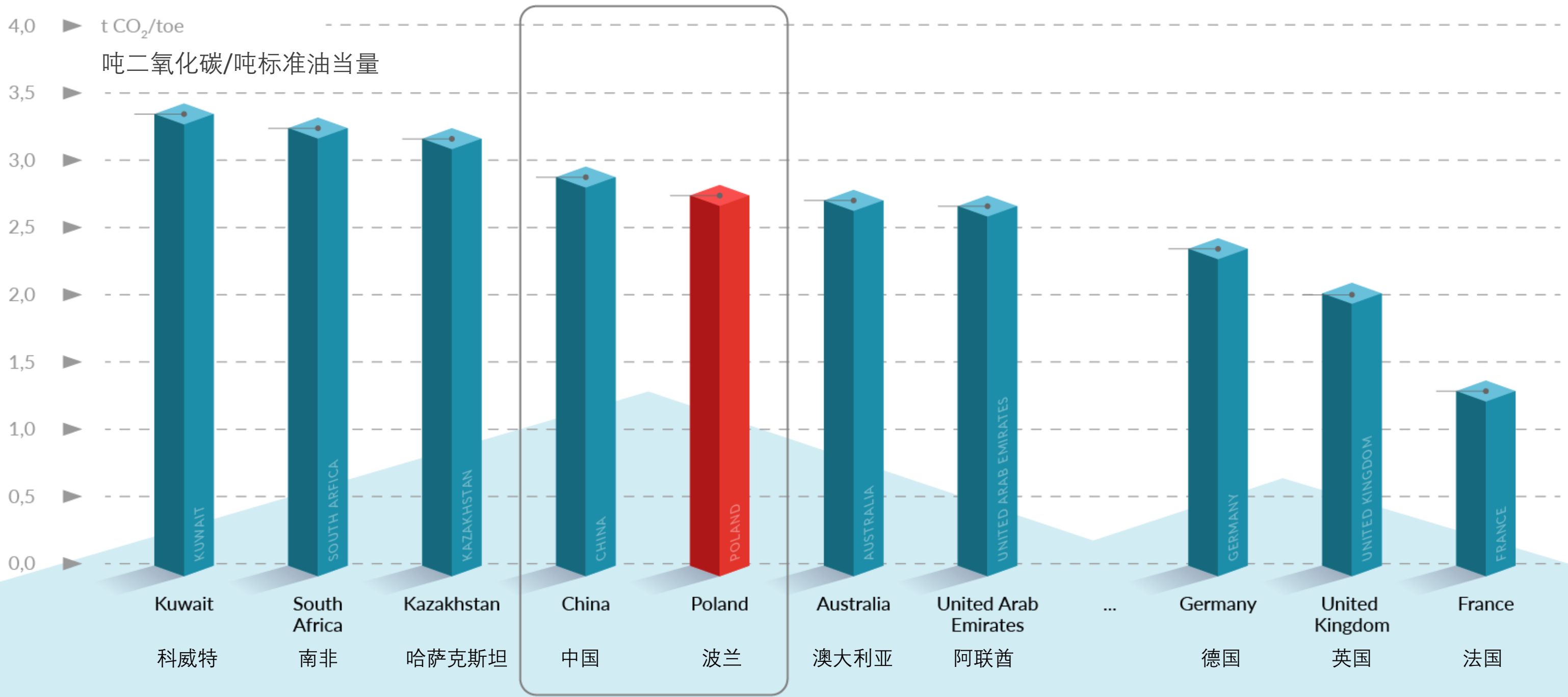
- 10 years of experience
 - 已经成立10年
- Multidisciplinary team of 30 experts
 - 30位专家组成的跨领域团队
- Data driven and science based
 - 数据驱动，科学实证
- Non profit, non commercial
 - 非营利性
- Independent and collaborative bridge builder
 - 秉持独立，构建协同沟通纽带



The Polish economy ranks 5th in the world

in terms of emissions per unit of primary energy consumed (2023)

波兰经济在单位能耗排放量指标上位居全球第五（2023年）



2,8 mln. buildings
heated by coal
280万栋建筑 燃煤供暖

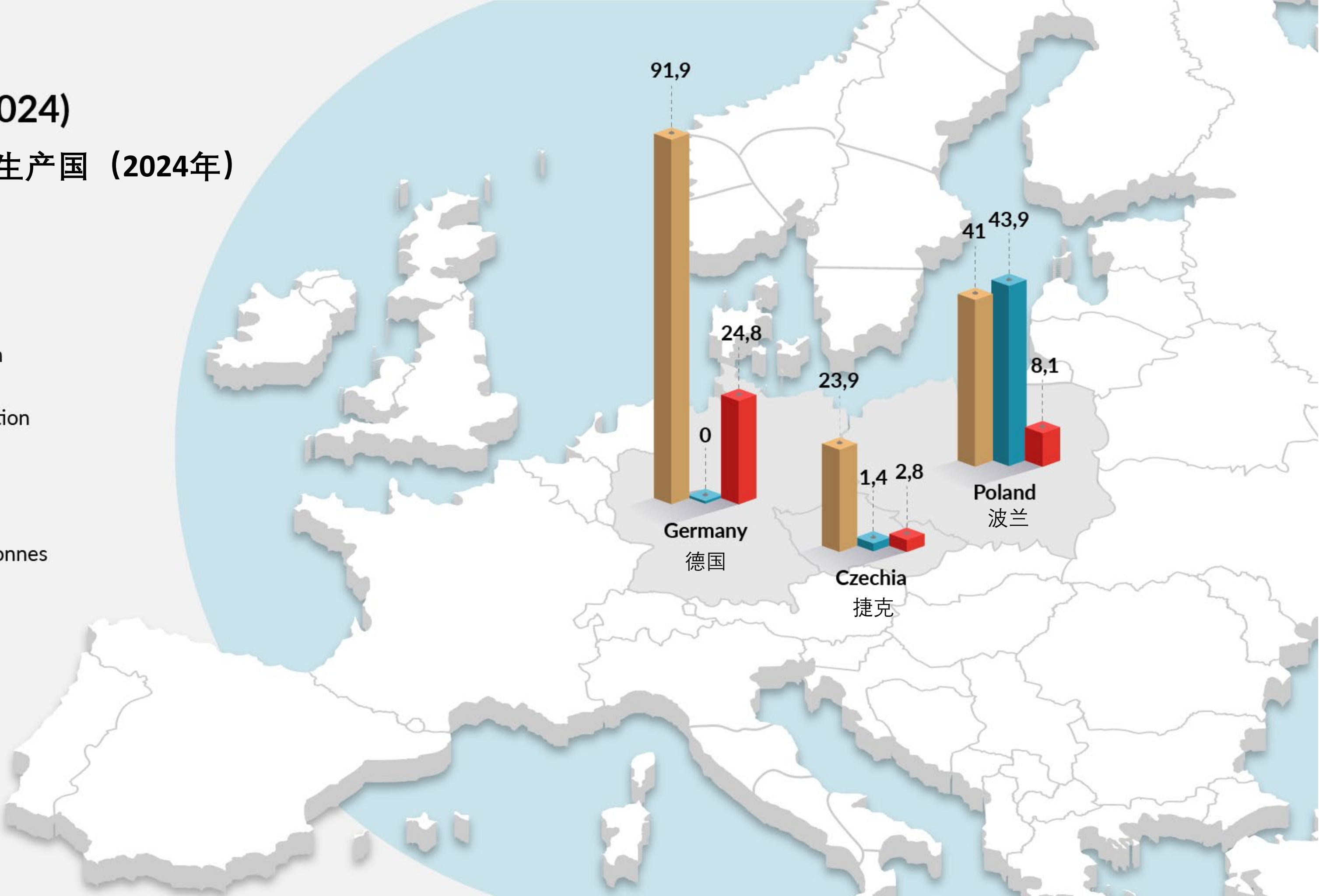


EU's 3 coal producers (2024)

欧盟三大煤炭生产国（2024年）

- lignite production
褐煤产量
- hard coal production
硬煤产量
- coal imports
煤炭进口量

note: values in million tonnes
注：计量单位为百万吨



The share of **RES** in electricity production is accelerating (13 - 31%),
coal (hard & lignite) is decreasing (83 -> 57%)

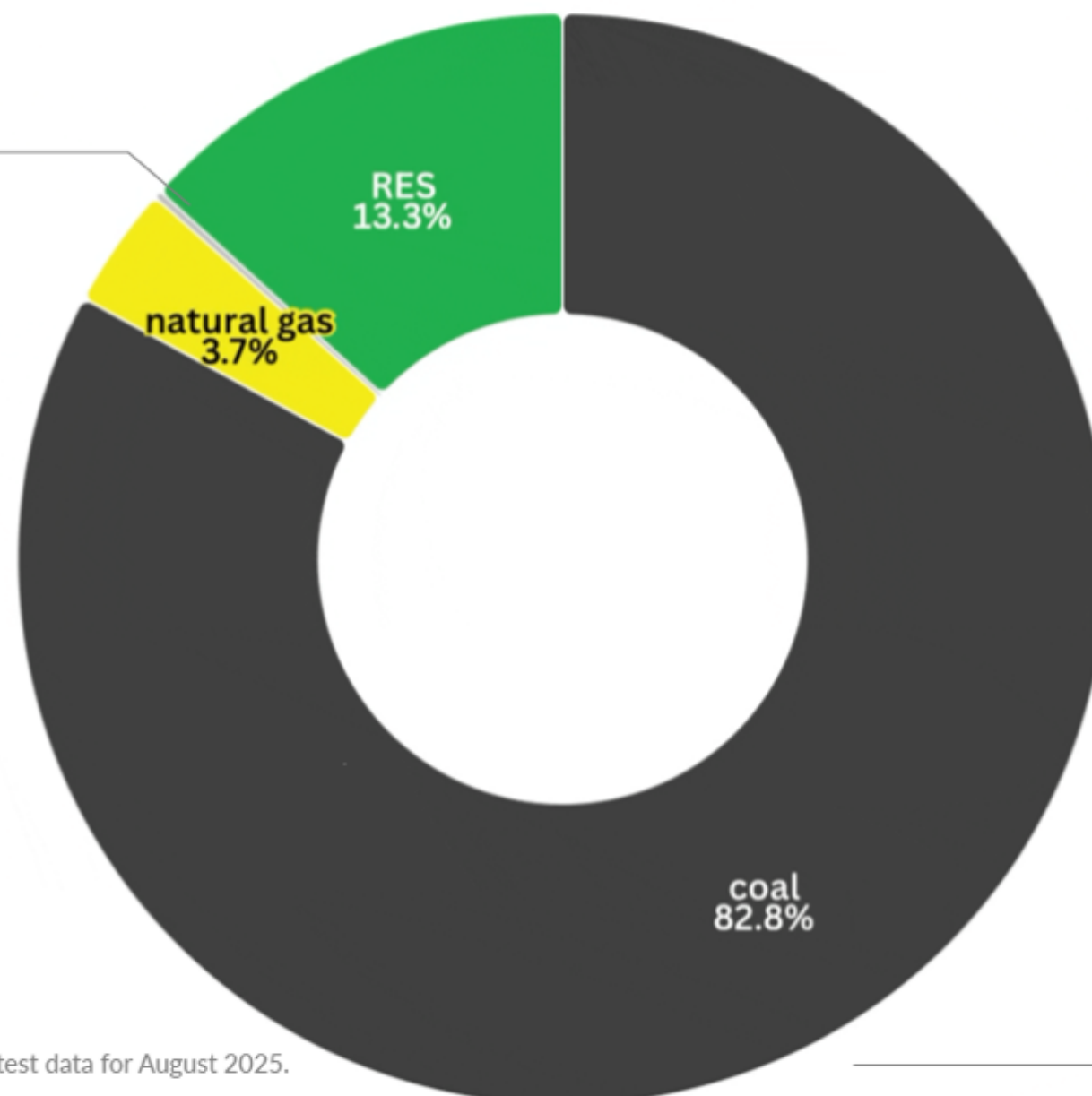
可再生能源发电 占比加速提升 (13%→31%)

煤炭发电 (硬煤与褐煤) 比重逐步下降 (83%→57%)



Feb 2015 - Jan 2016

From 13.2% in 2015 to ...
从2015年的13.2%提升至

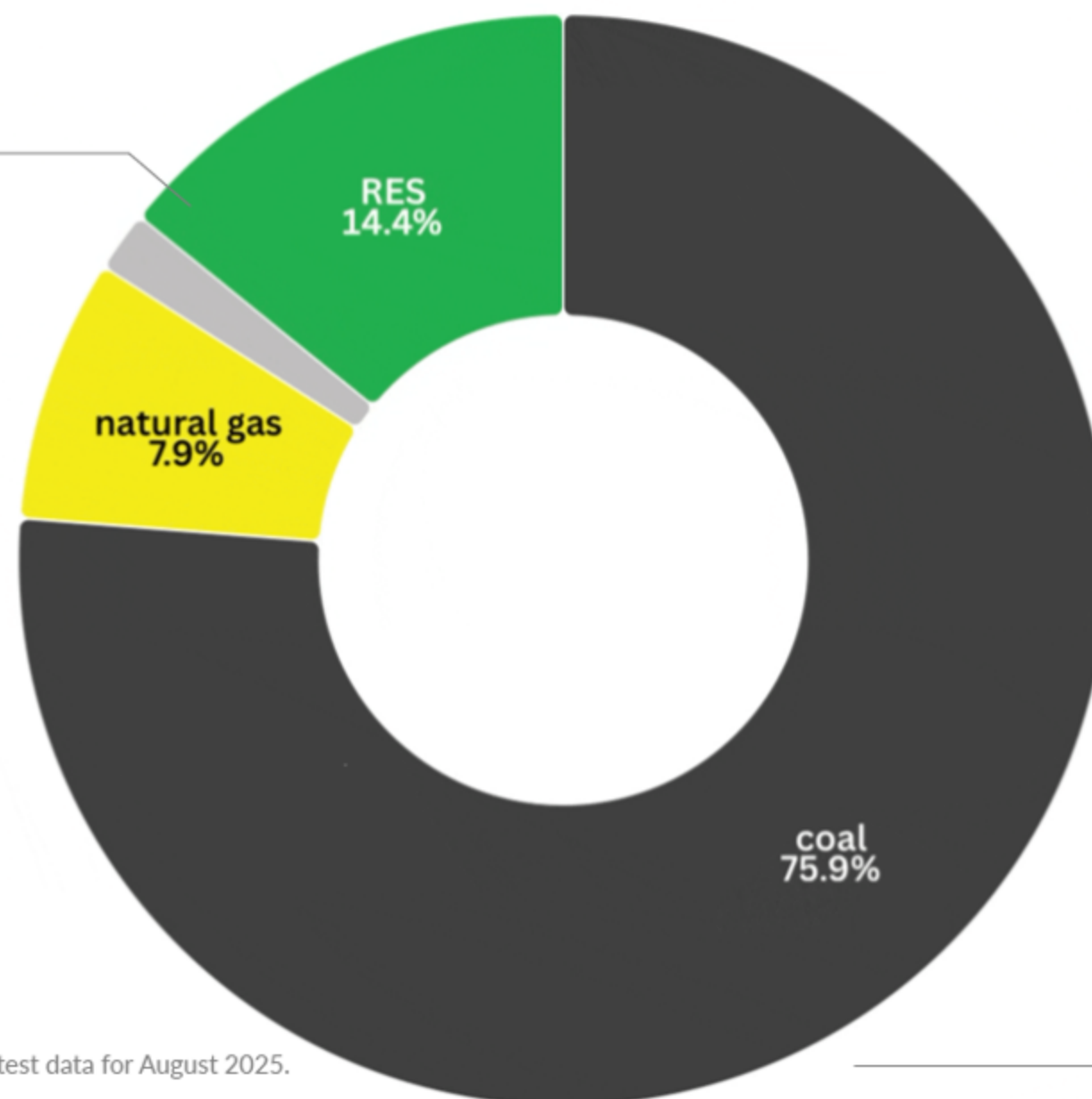


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Aug 2018 - Jul 2019

From 13.2% in 2015 to ...
从2015年的13.2%提升至

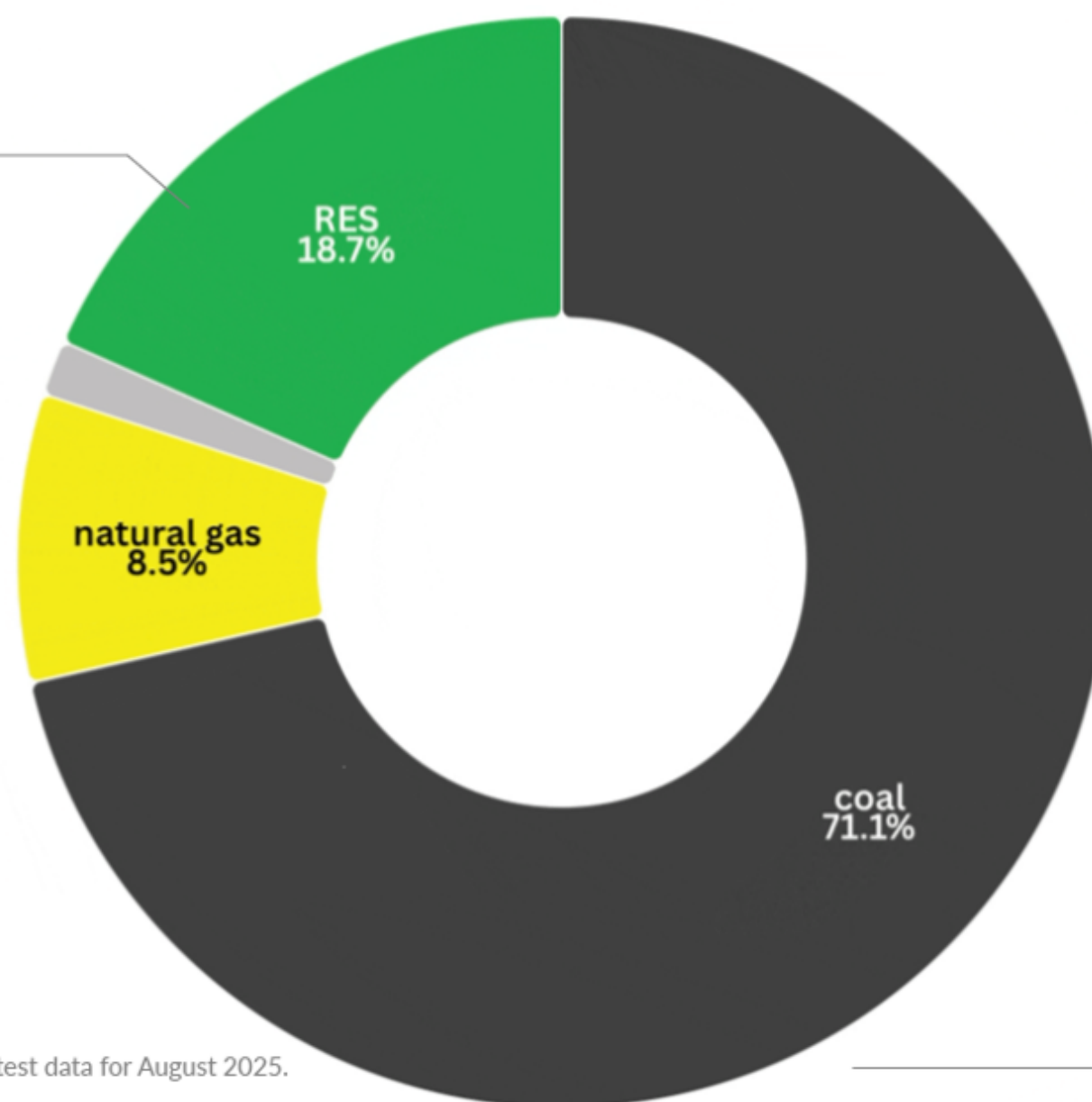


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|| ————— ● ————— Mar 2021 - Feb 2022

From 13.2% in 2015 to ...
从2015年的13.2%提升至

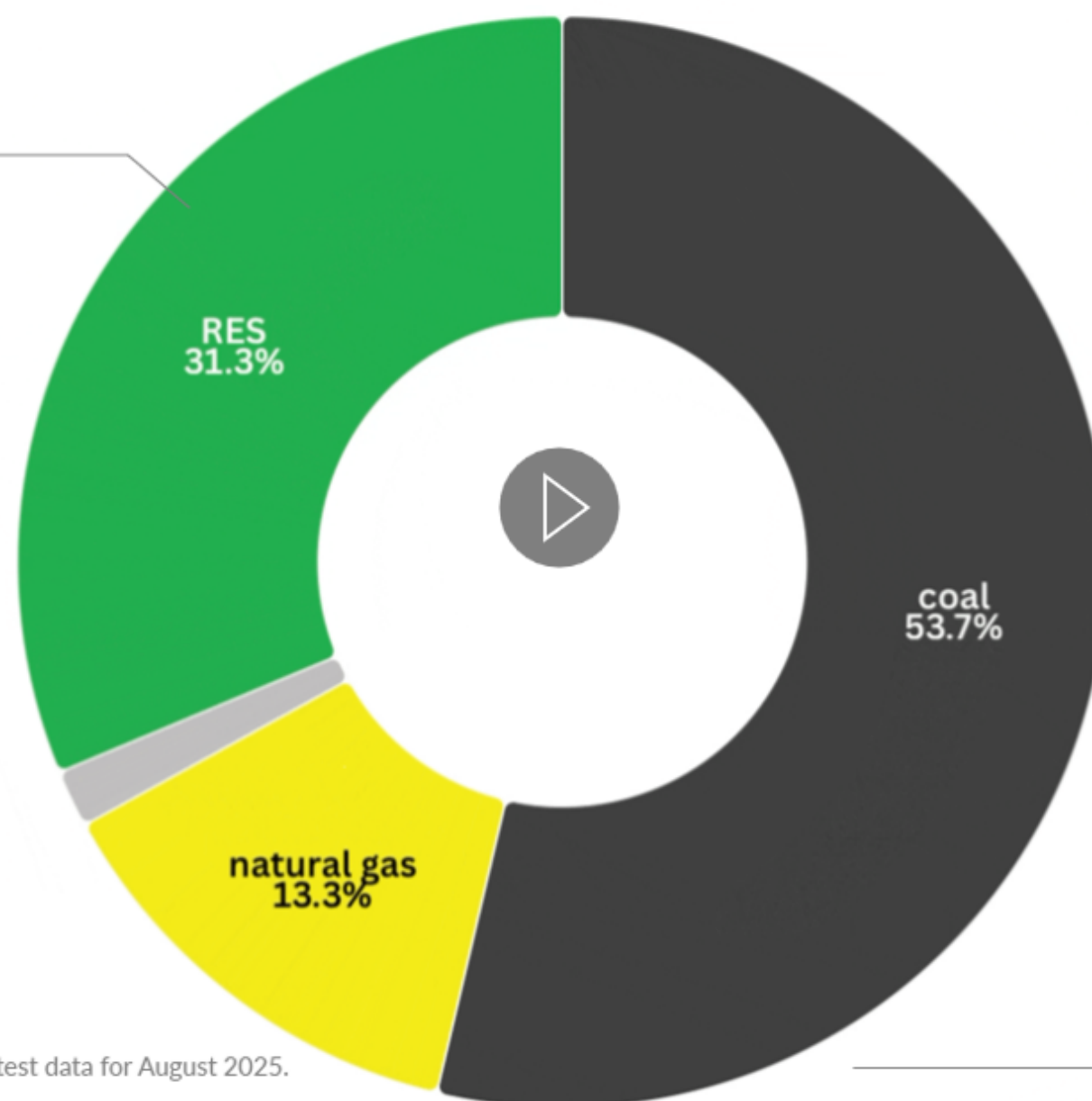


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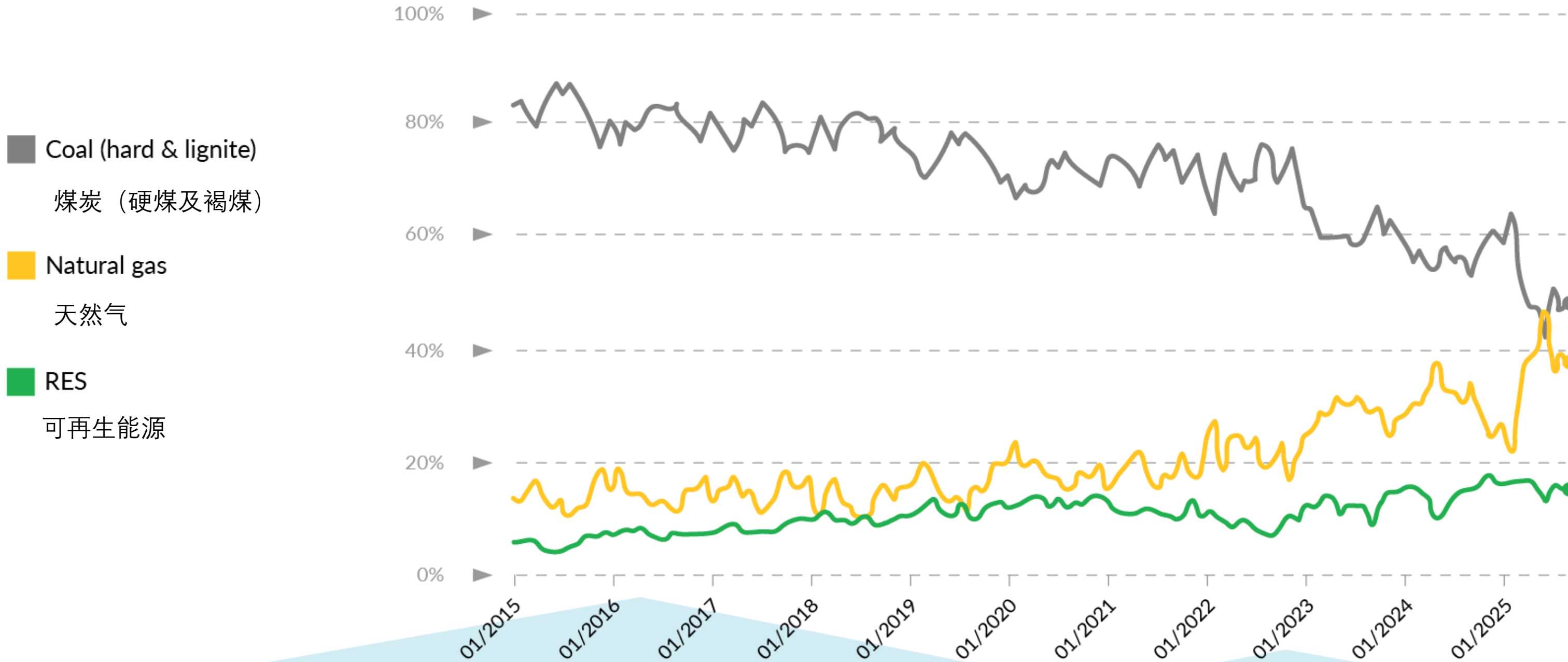
► ● Sep 2024 - Aug 2025

From 13.2% in 2015 to ...
从2015年的13.2%提升至



Coal getting closer to 50%

煤炭占比将近五成

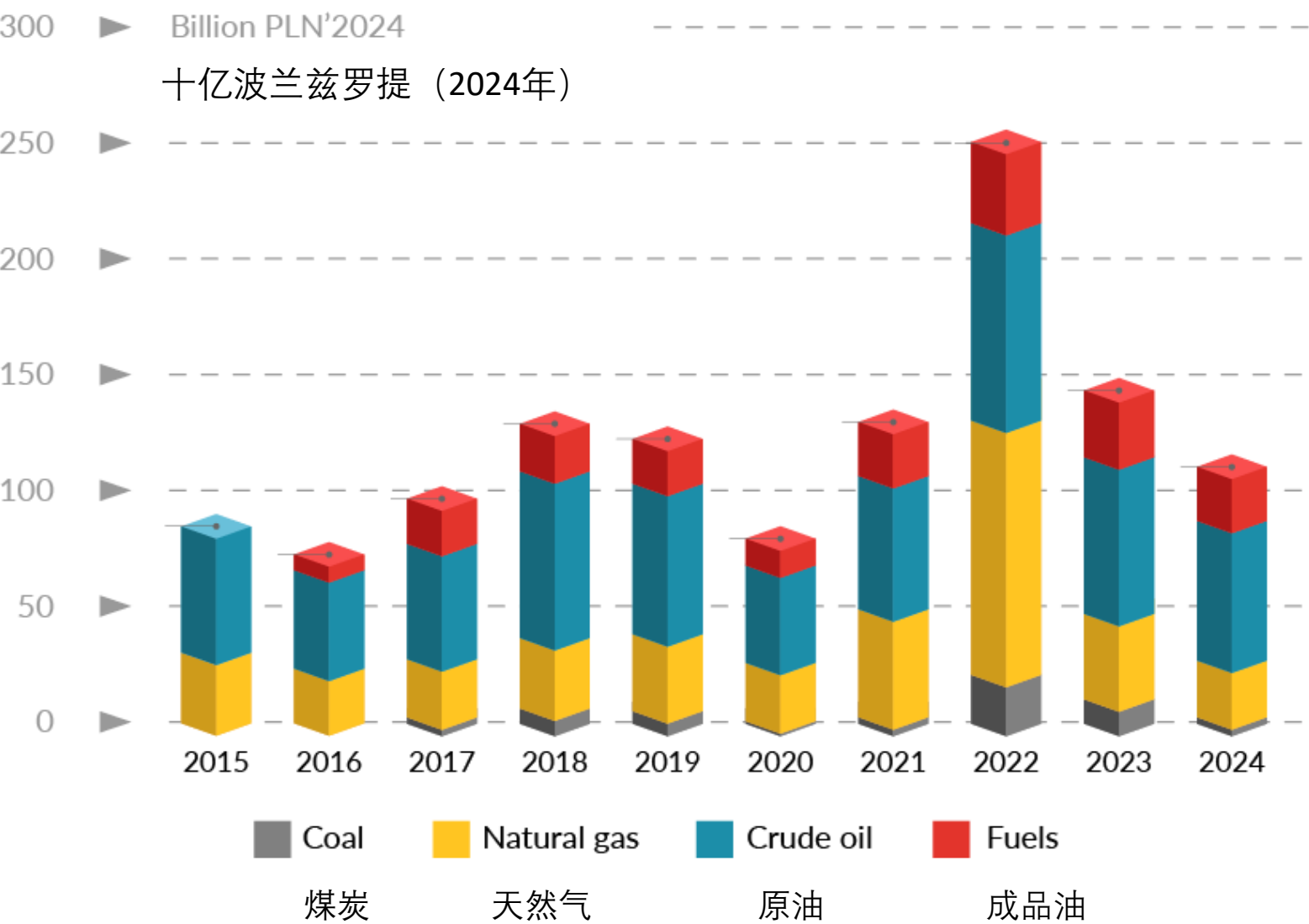


Imports

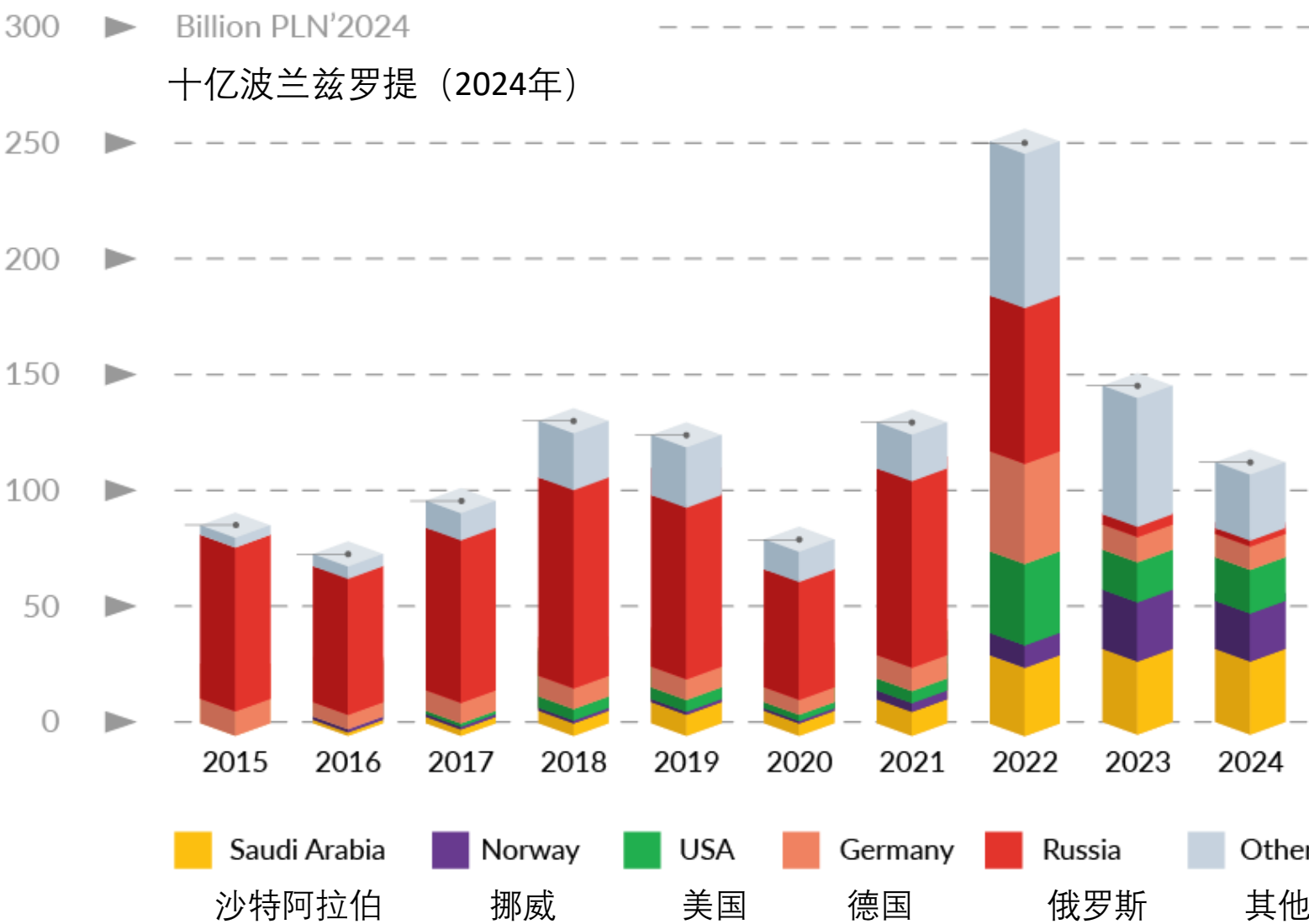
进口



Cost of net imports, by raw material and fuel*
按原材料及燃料划分的净进口成本



Cost of net imports, by partner country
按贸易伙伴国划分的净进口成本



Source: own elaboration based on data from GUS, Eurostat nad NBP. 翻譯

* In 2015 Poland was a net exporter of fuels. 翻譯

Coal regions in Poland

波兰煤炭产地



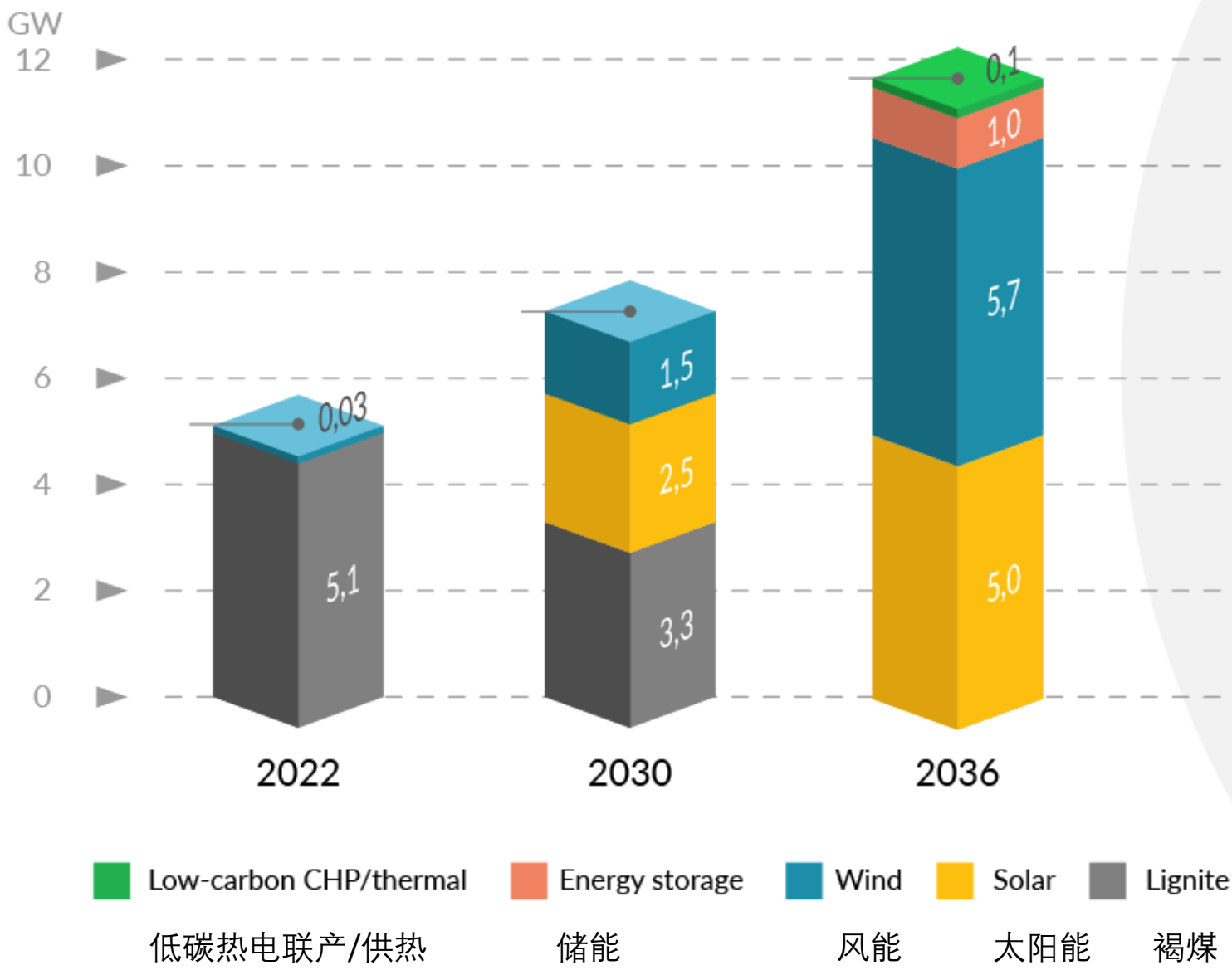
From coal to renewables

Bełchatów (5.1 GW)

从煤炭向可再生能源转型——贝乌哈图夫

Optimal renewables scenario

可再生能源最优发展路径



2 parallel paths: 两条并行发展路径

Energy 能源

- Grids infrastructure to be used
 - 合理利用电网基础设施
- Electricity generation
 - 发电结构优化
- Integration of renewables and flexibility
 - 可再生能源并网与柔性调节

People 民众

- Regional planning and new investments
 - 区域规划与新建投资
- Creating jobs
 - 就业岗位创造
- Dedicated funds
 - 专项资金保障



Transparent
state planing
透明战略布局

Conclusions 总结

- Future: RES, gas and nuclear
 - 未来能源结构：可再生能源、天然气与核能
- RES lower energy imports
 - 可再生能源降低能源对外依存度
- Challenges: flexibility, cost, grids, geopolitics
 - 面临挑战：系统柔性调节、成本控制、电网升级、地缘政治风险



THANK YOU

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