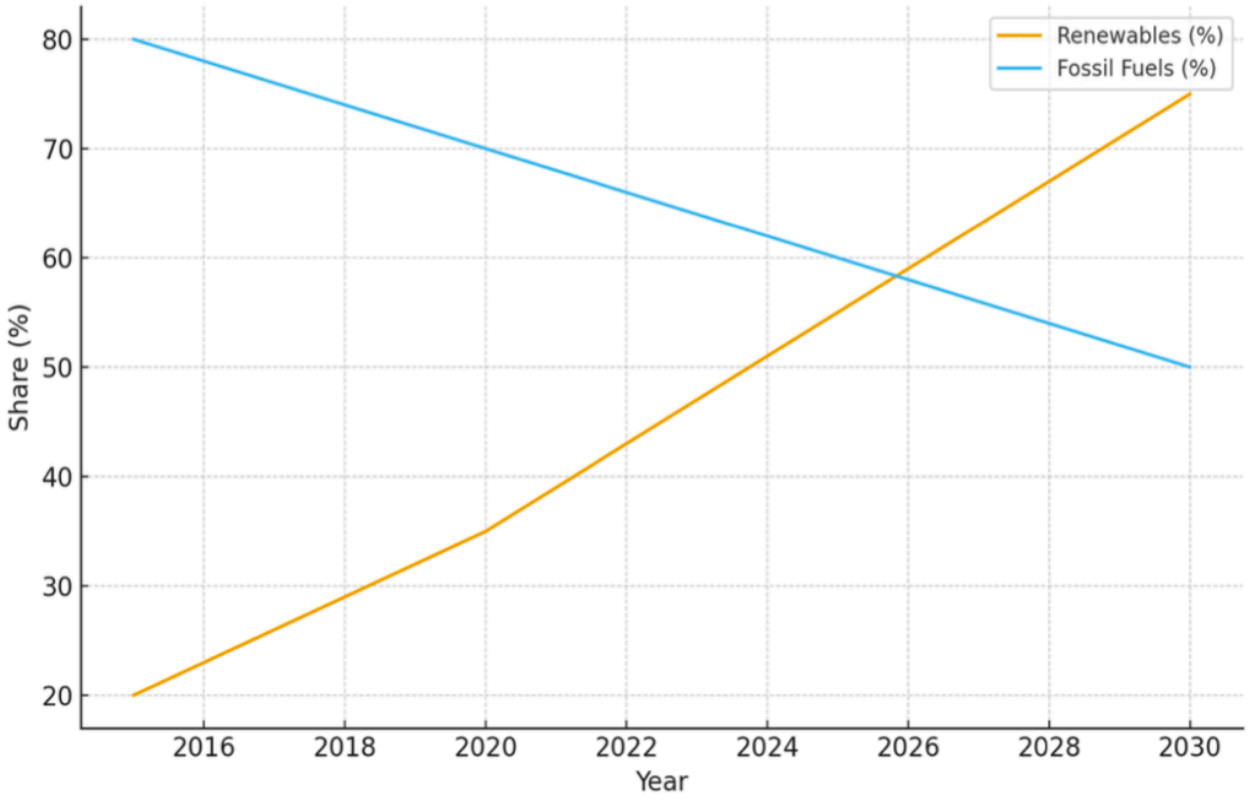
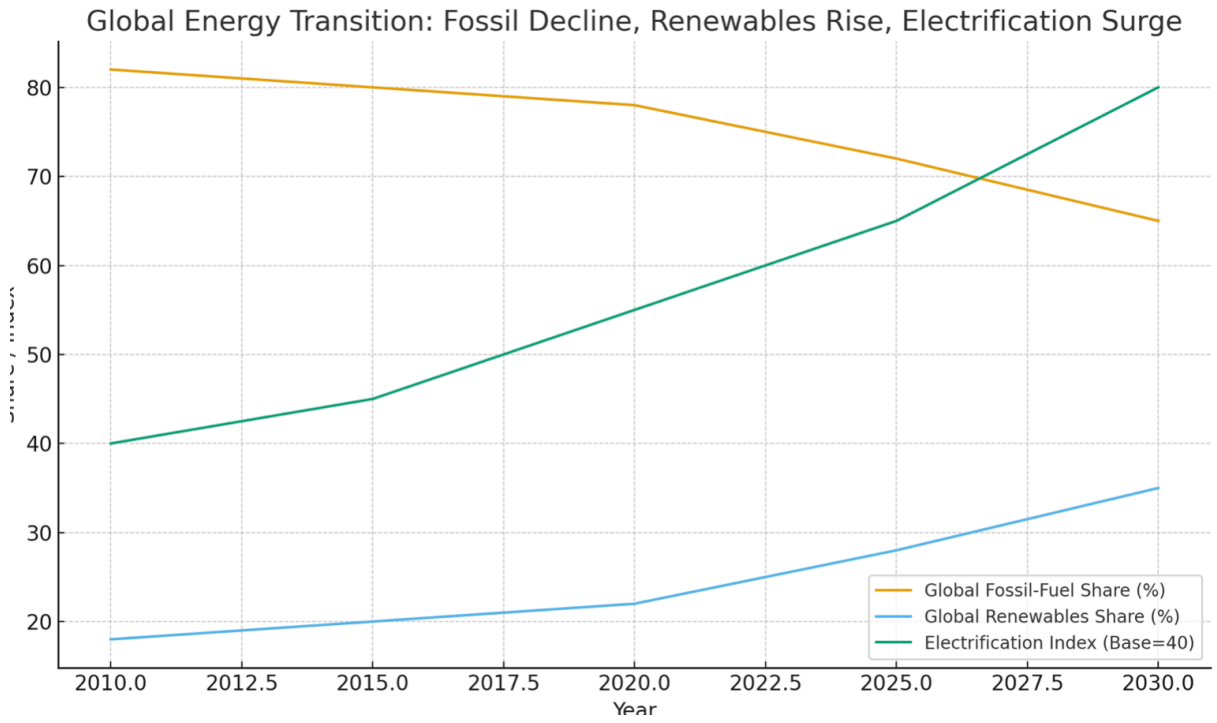
Europe’s Strategic Crossroads: Energy, AI & Competitiveness

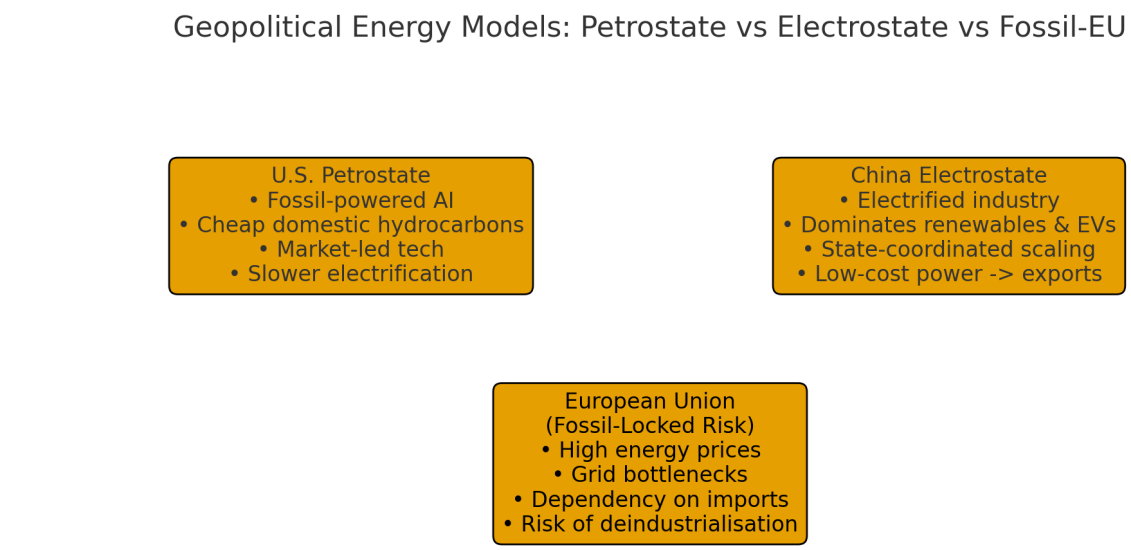
1. Global Energy Shift

Renewables are rising while fossil fuel share declines. Europe’s competitiveness depends on staying ahead in deployment speed and grid modernization.

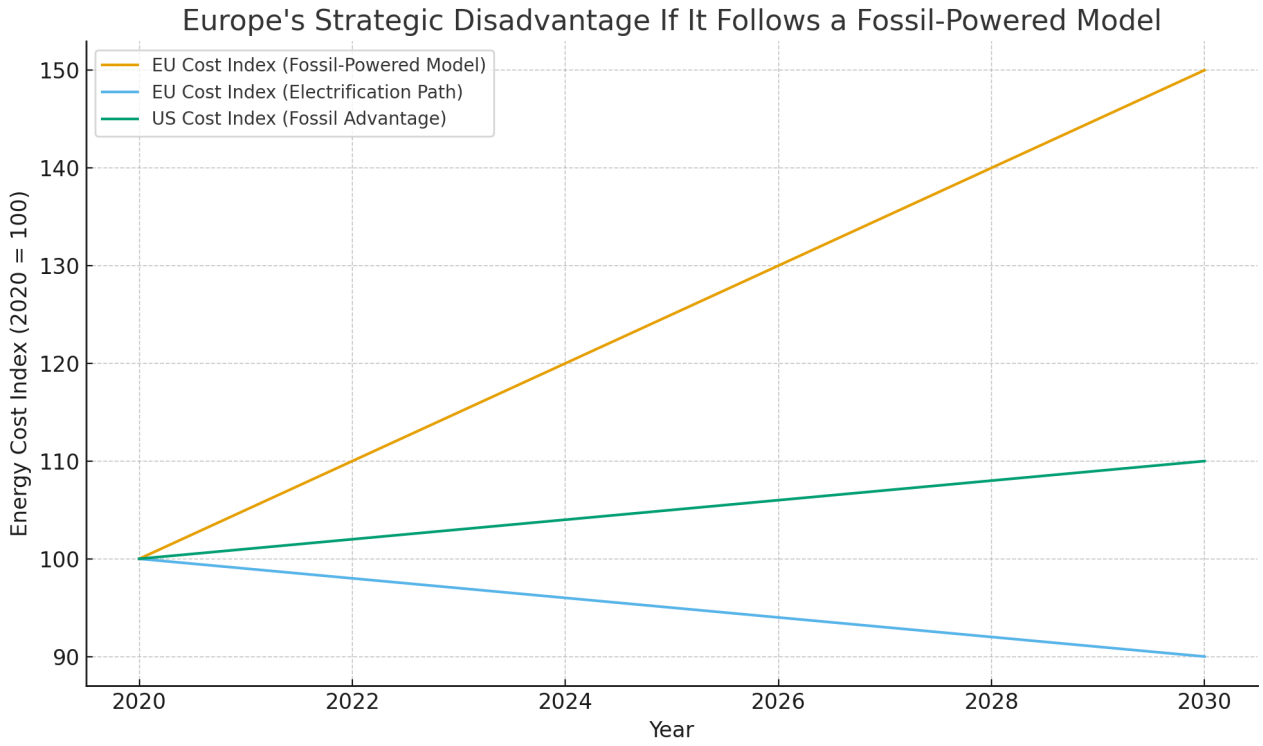




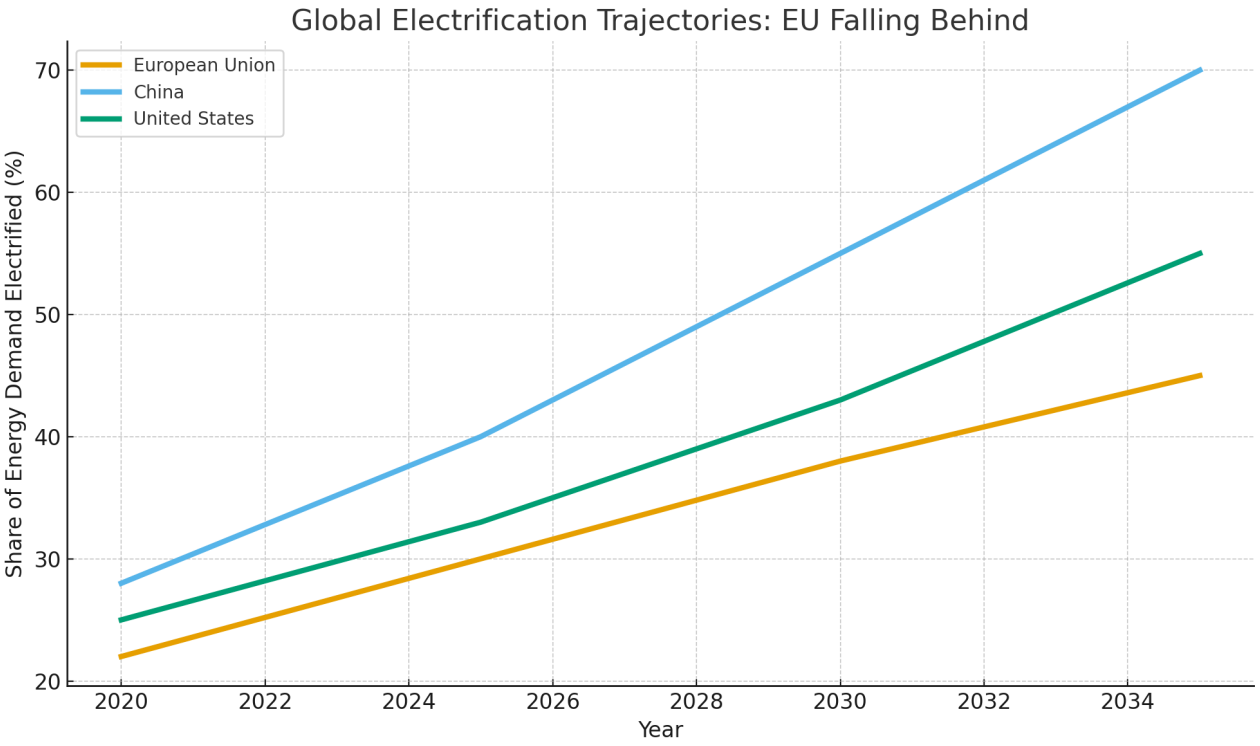
2. Energy Models

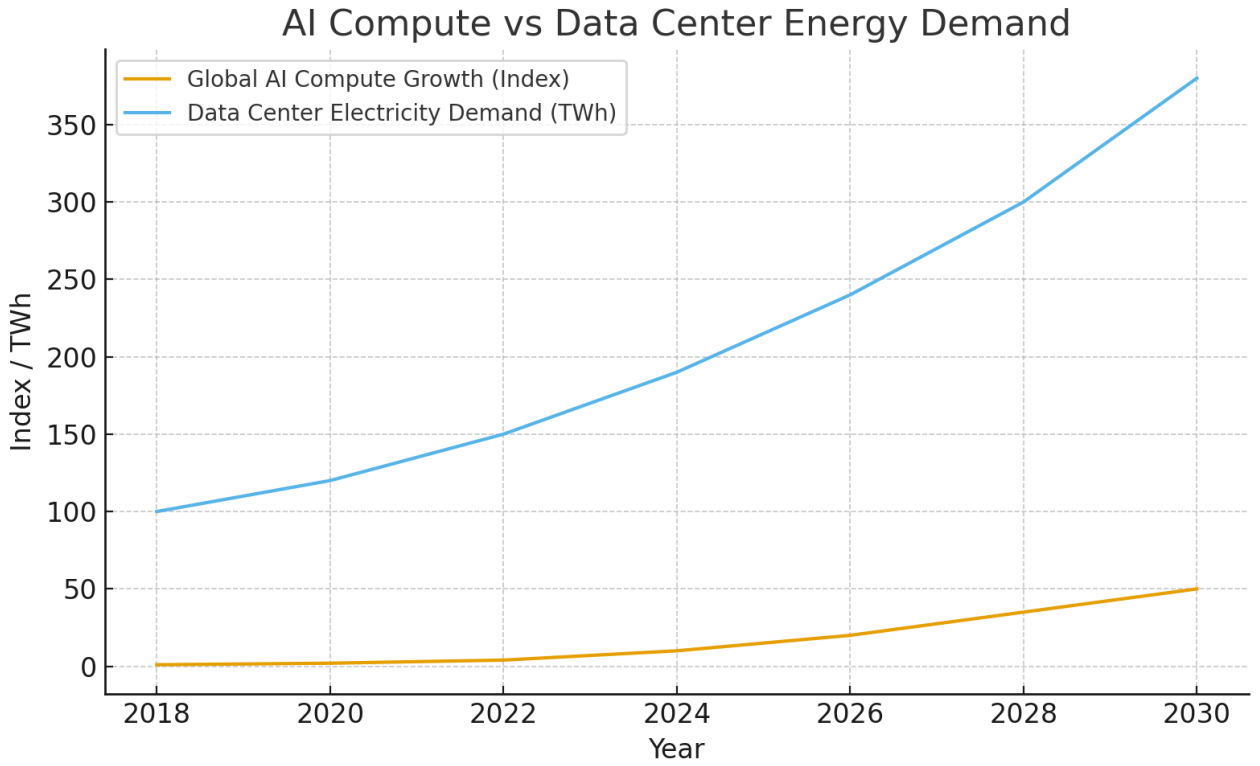


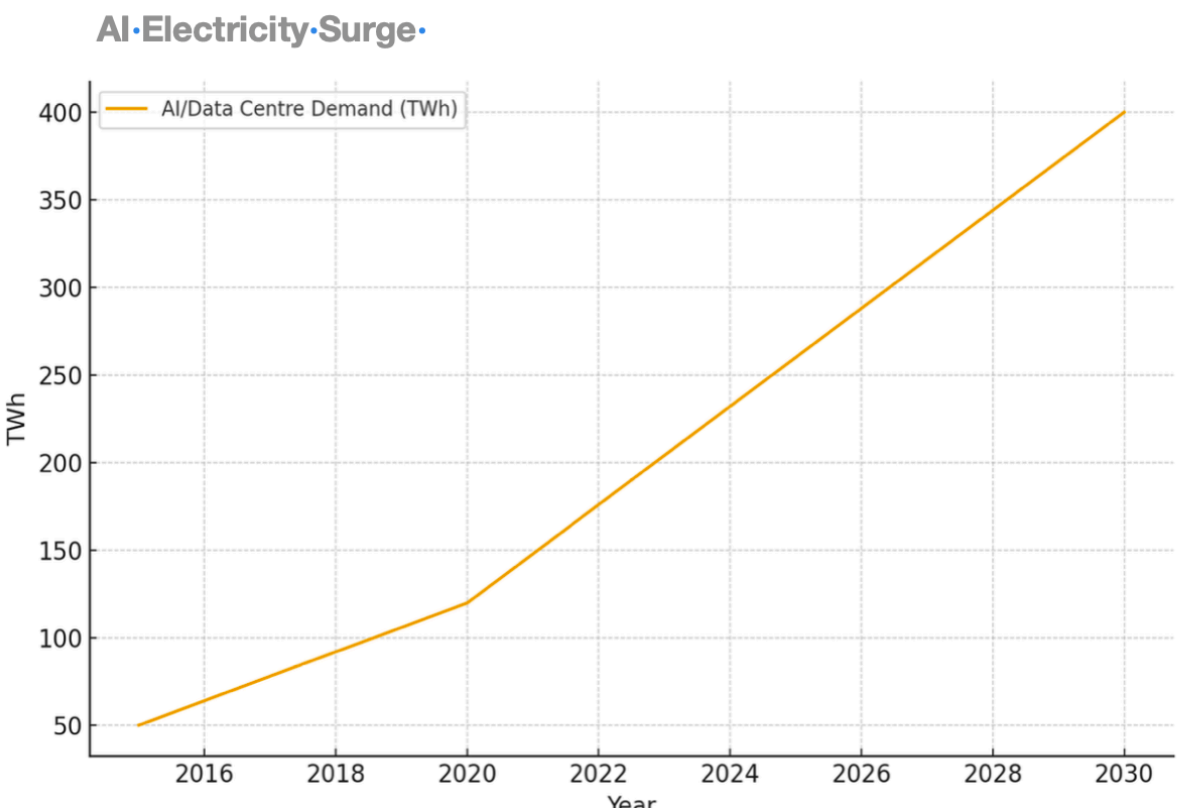
2. Europe at a crossroad



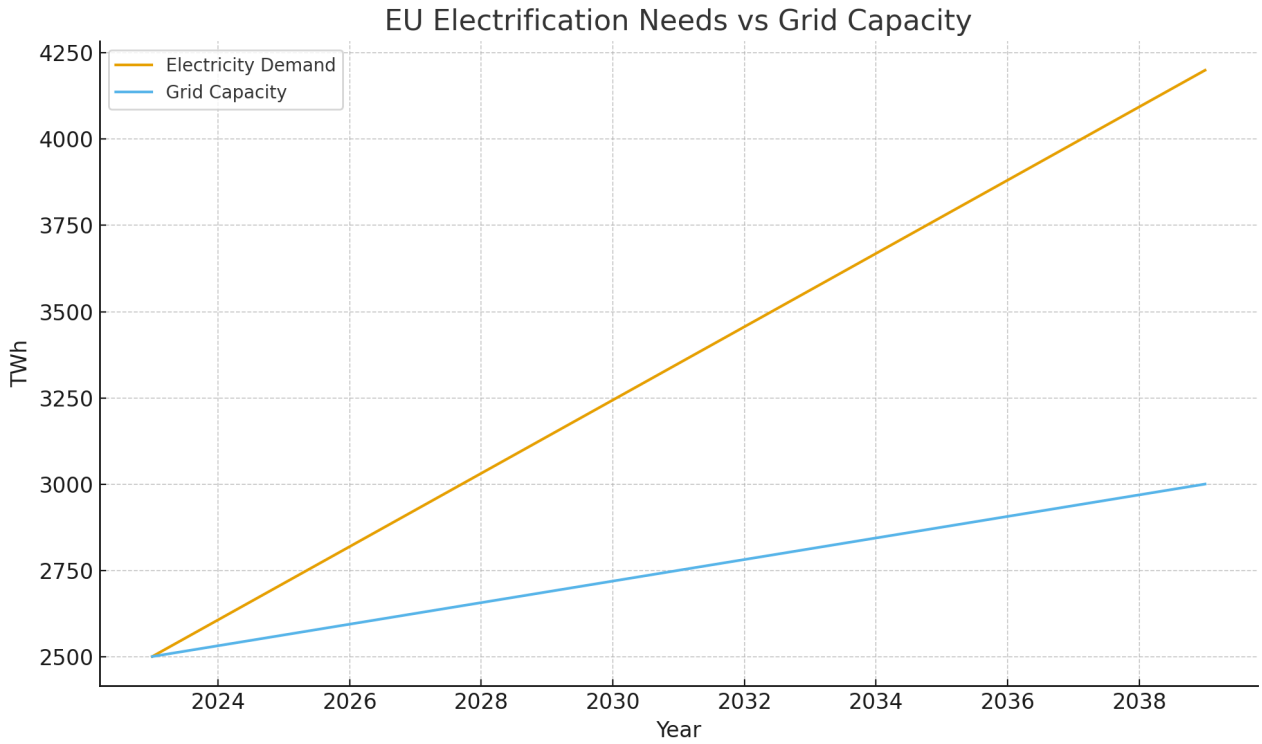
3. Global AI Electricity Surge

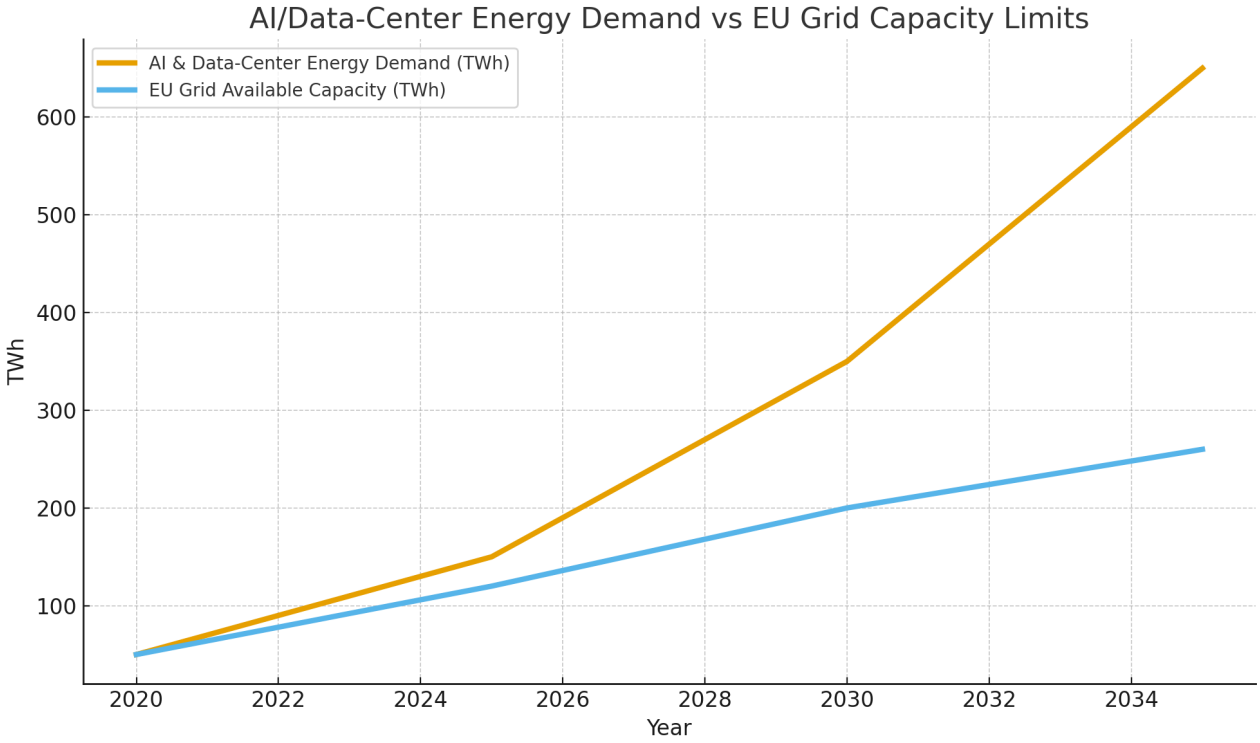


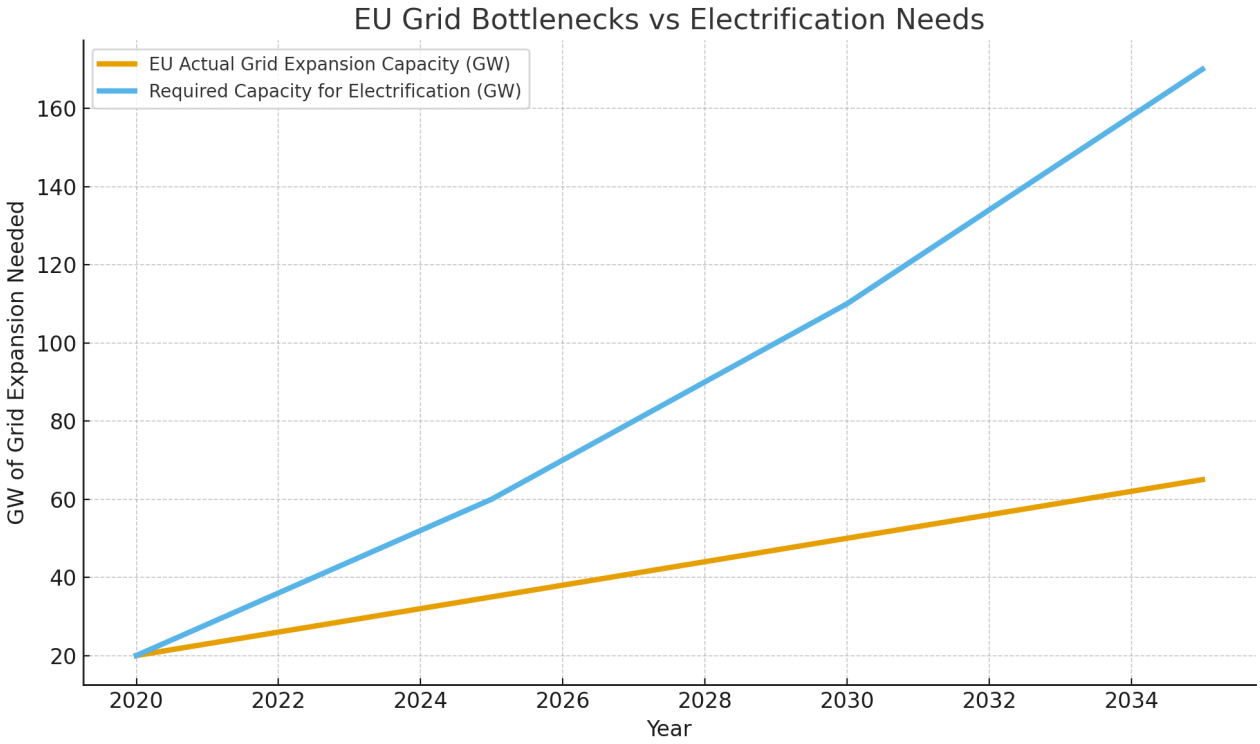




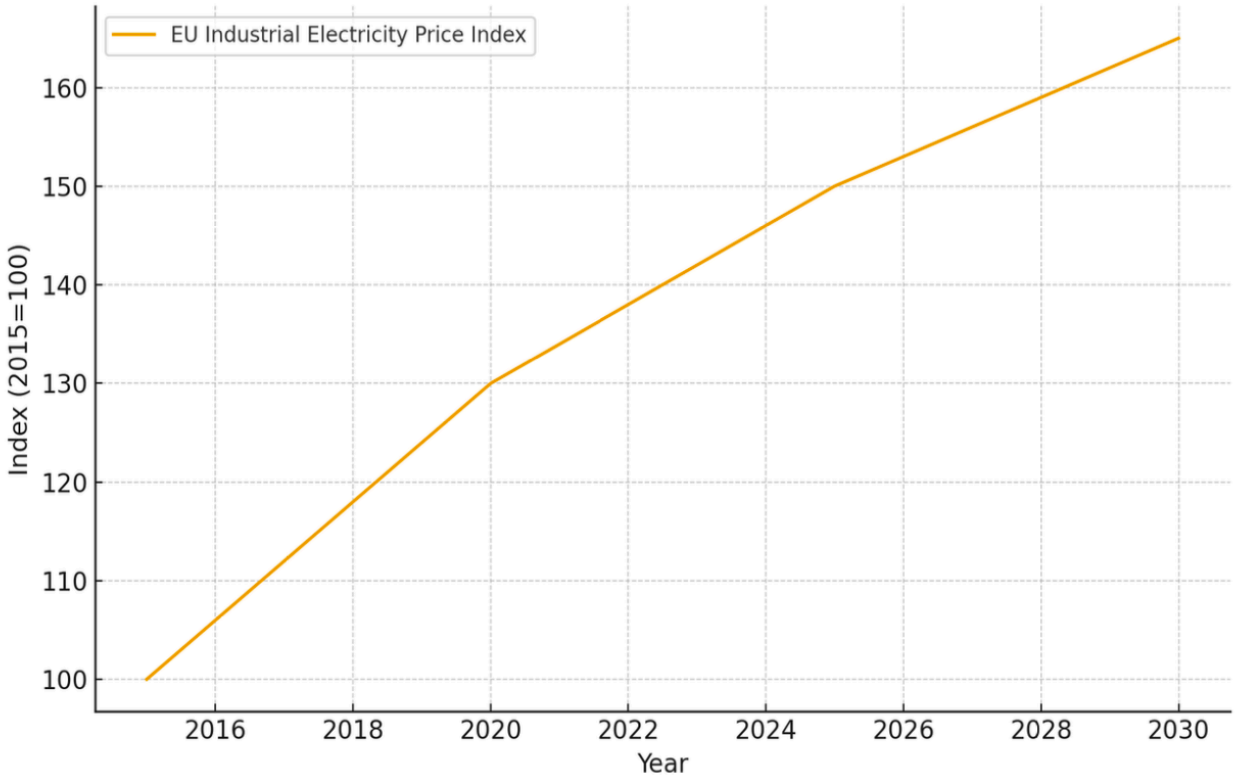
4. Europe's Energy Shortfall



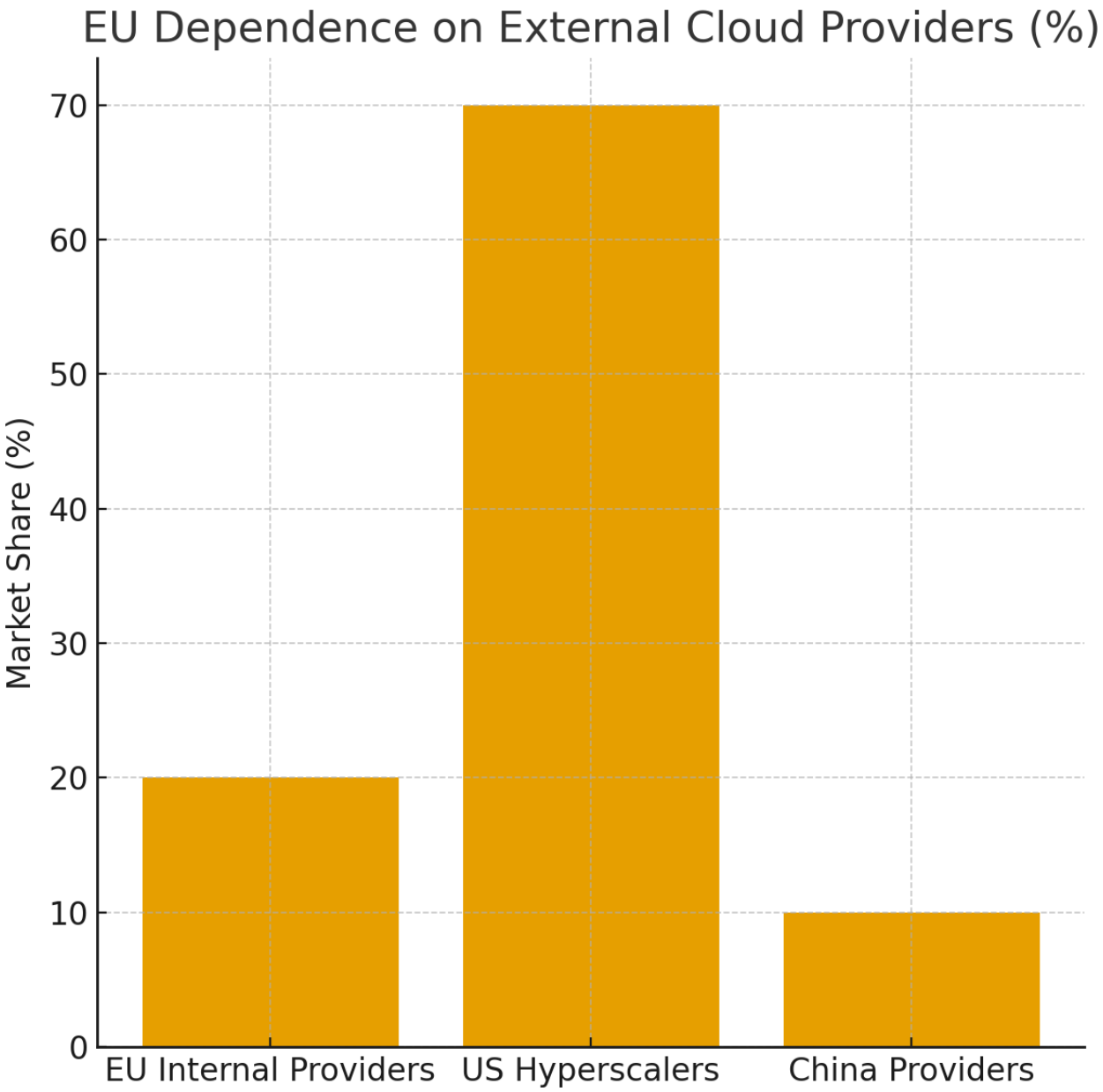

AI/Data-Center Energy Demand vs EU Grid Capacity Limits
AI & Data-Center Energy Demand (TWh)
EU Grid Available Capacity (TWh)
TWh
100
200
300
400
500
600
2020
2022
2024
2026
2028
2030
2032
2034
Year


EU Grid Bottlenecks vs Electrification Needs
EU Actual Grid Expansion Capacity (GW)
Required Capacity for Electrification (GW)
GW of Grid Expansion Needed
20
40
60
80
100
120
140
160
2020
2022
2024
2026
2028
2030
2032
2034
Year

4. Europe’s High Industrial Energy Costs
Europe’s high energy prices undermine manufacturing. Large-scale renewables can stabilise and reduce costs long-term.

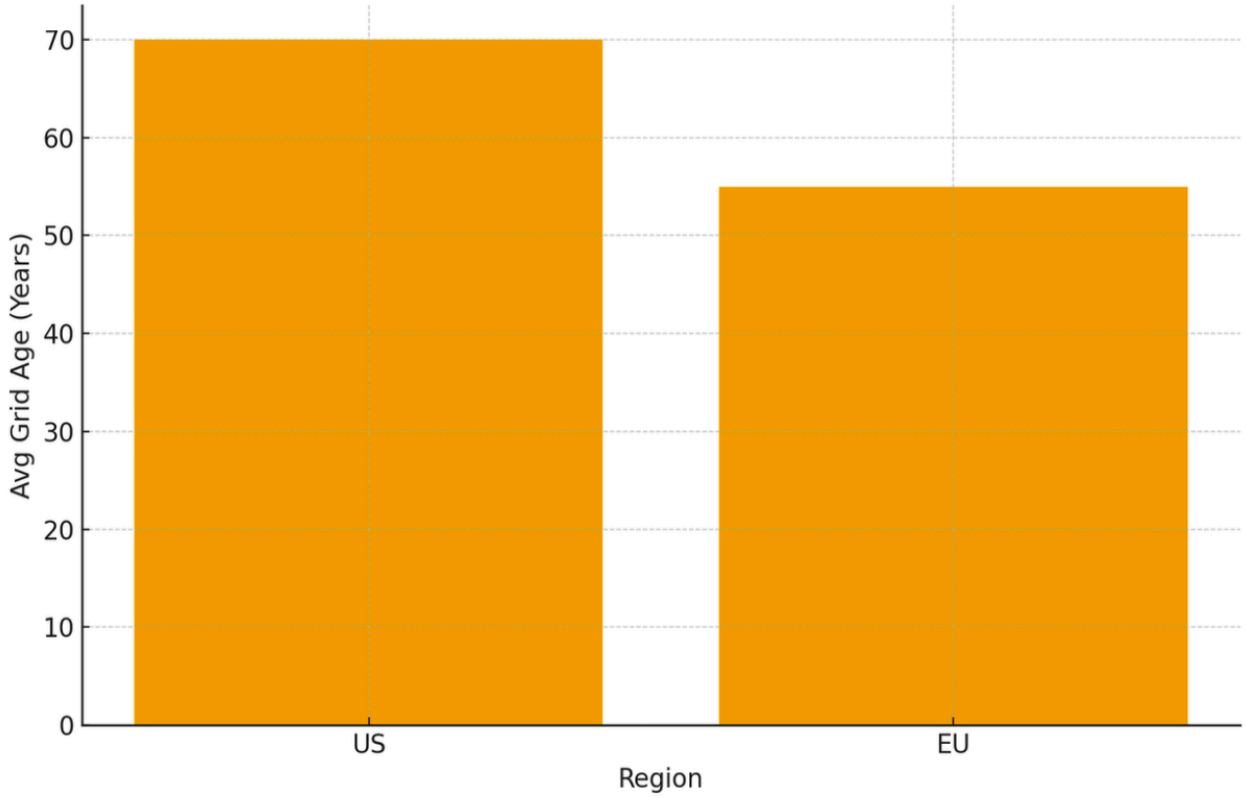


5. EU’s Technology Dependency

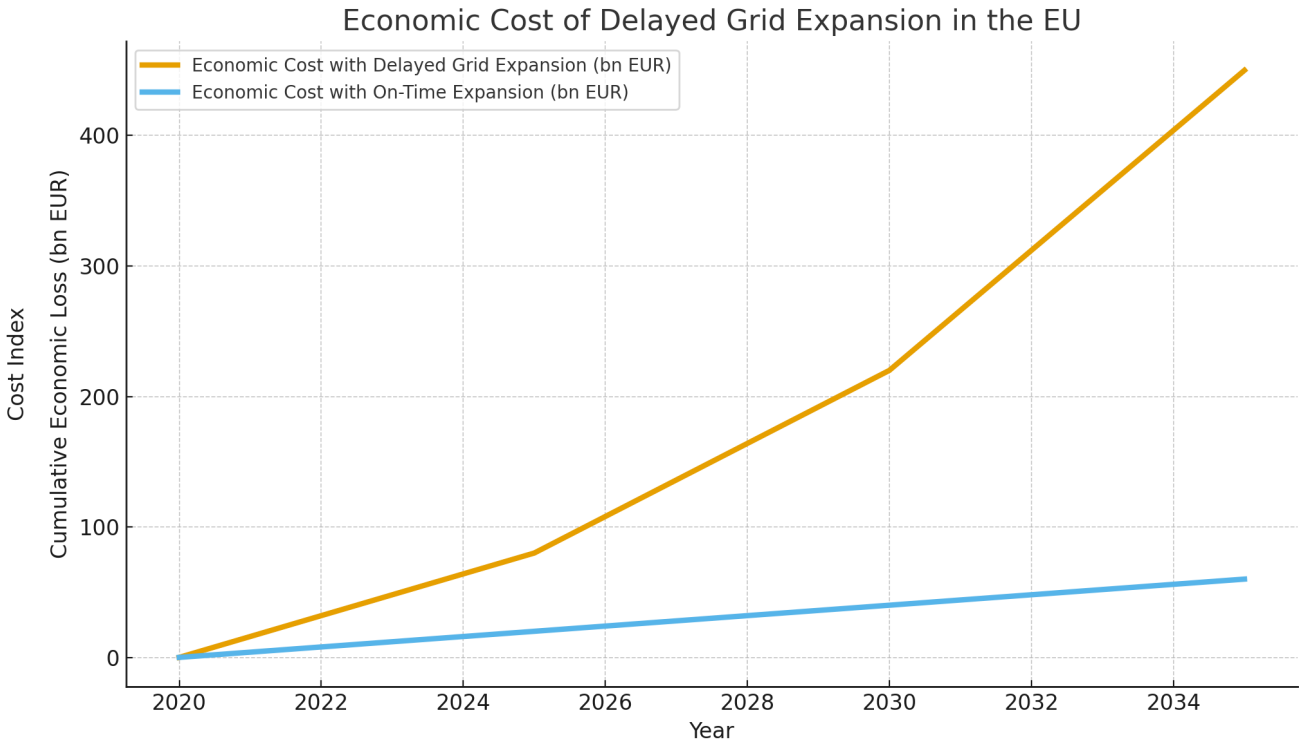


4. Ageing Transmission Grids

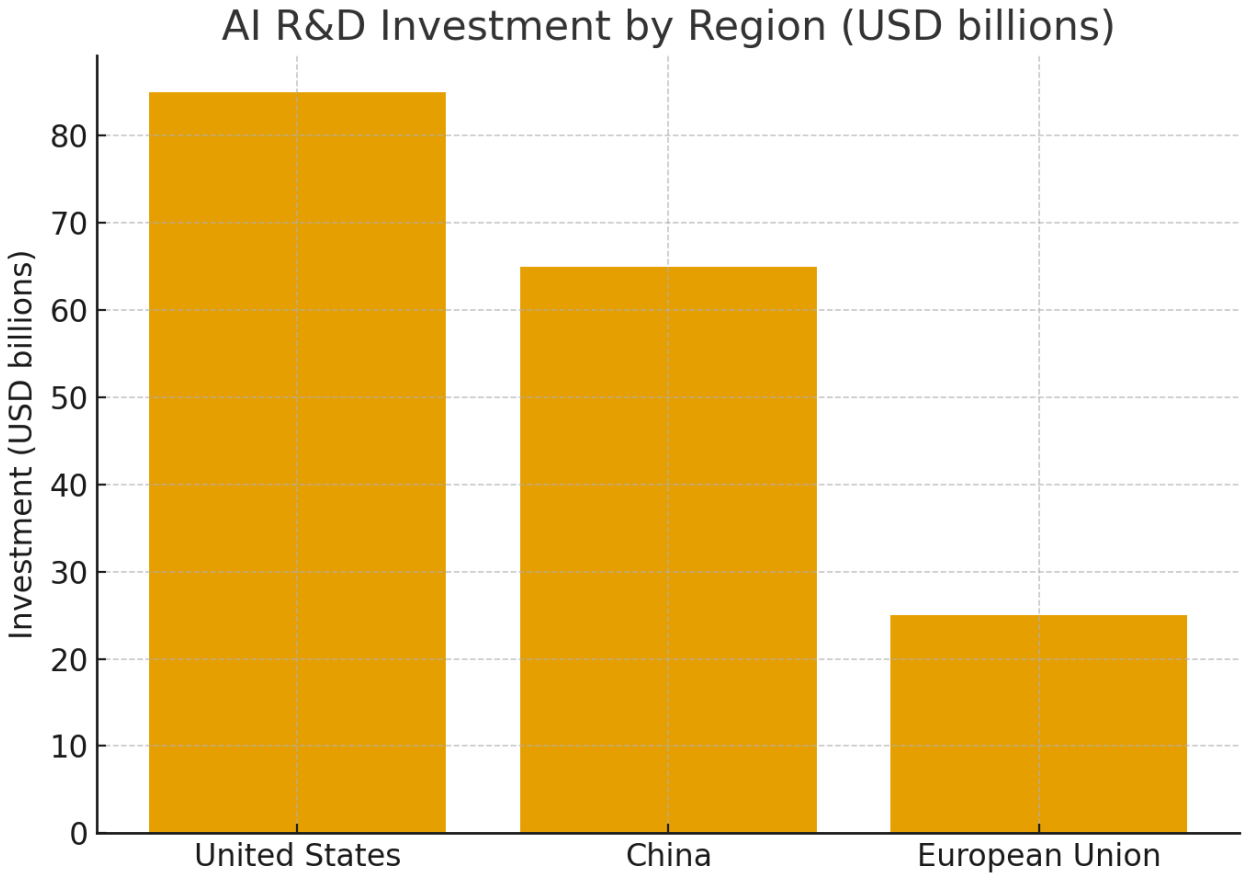
Both the U.S. and EU face ageing grids. Europe must modernise transmission rapidly to support electrification and AI.



5. Costs of Delay

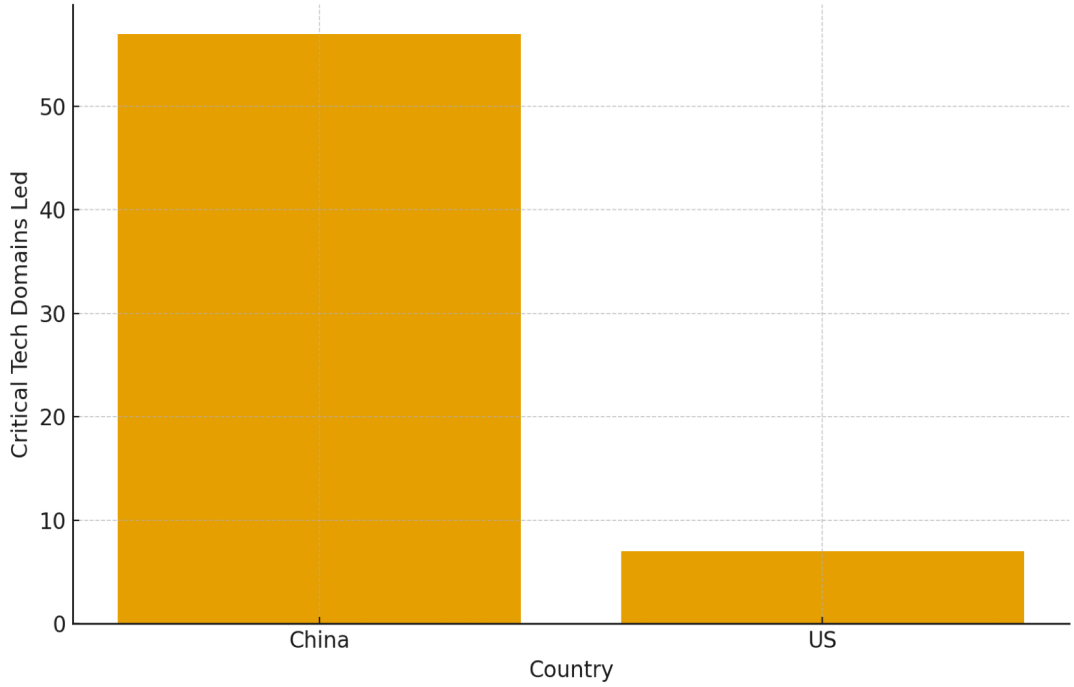


5. Global Investment

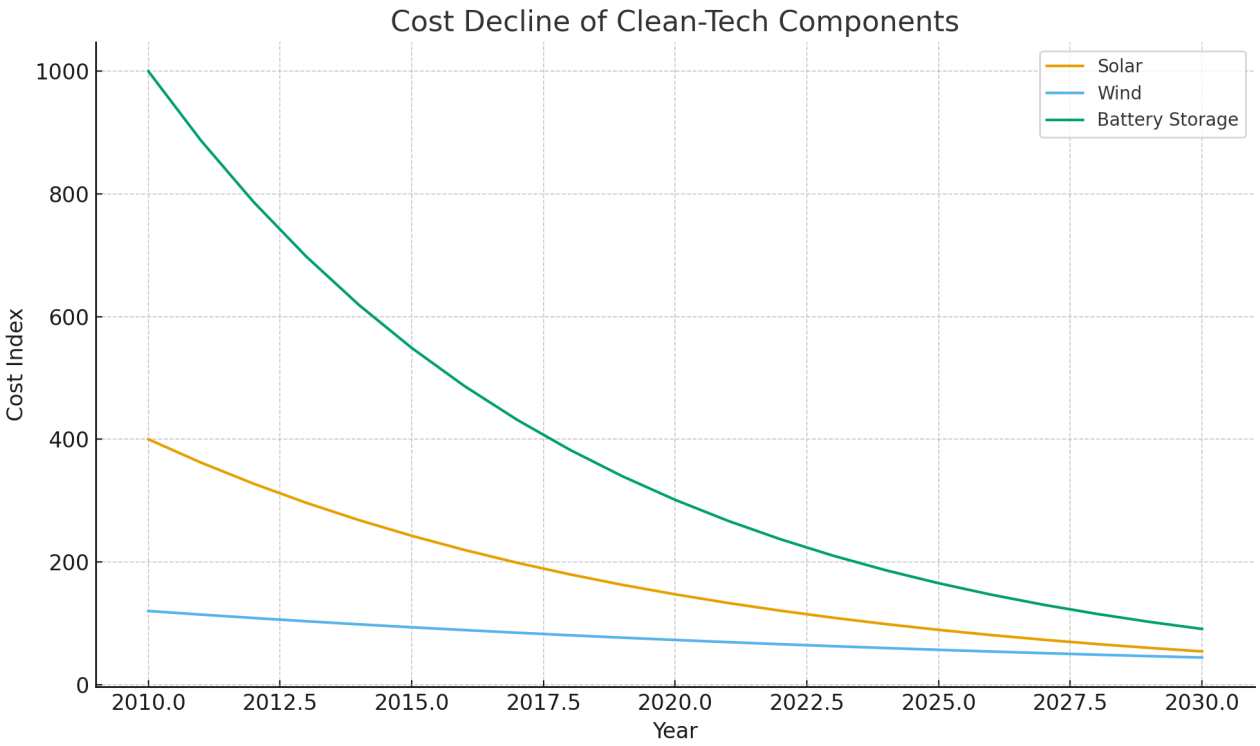


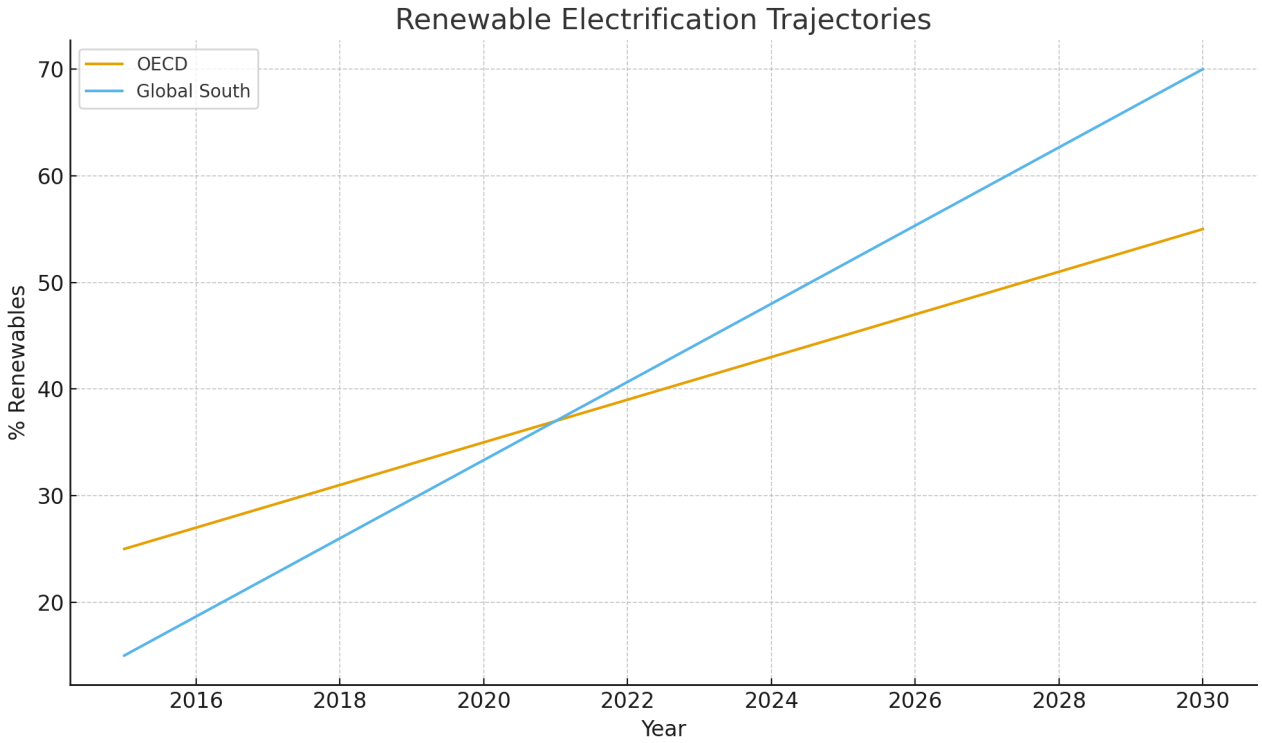
5. Critical Technology Leadership

China leads in 57 of 64 critical technologies. Europe must link decarbonisation with digital sovereignty to remain relevant.

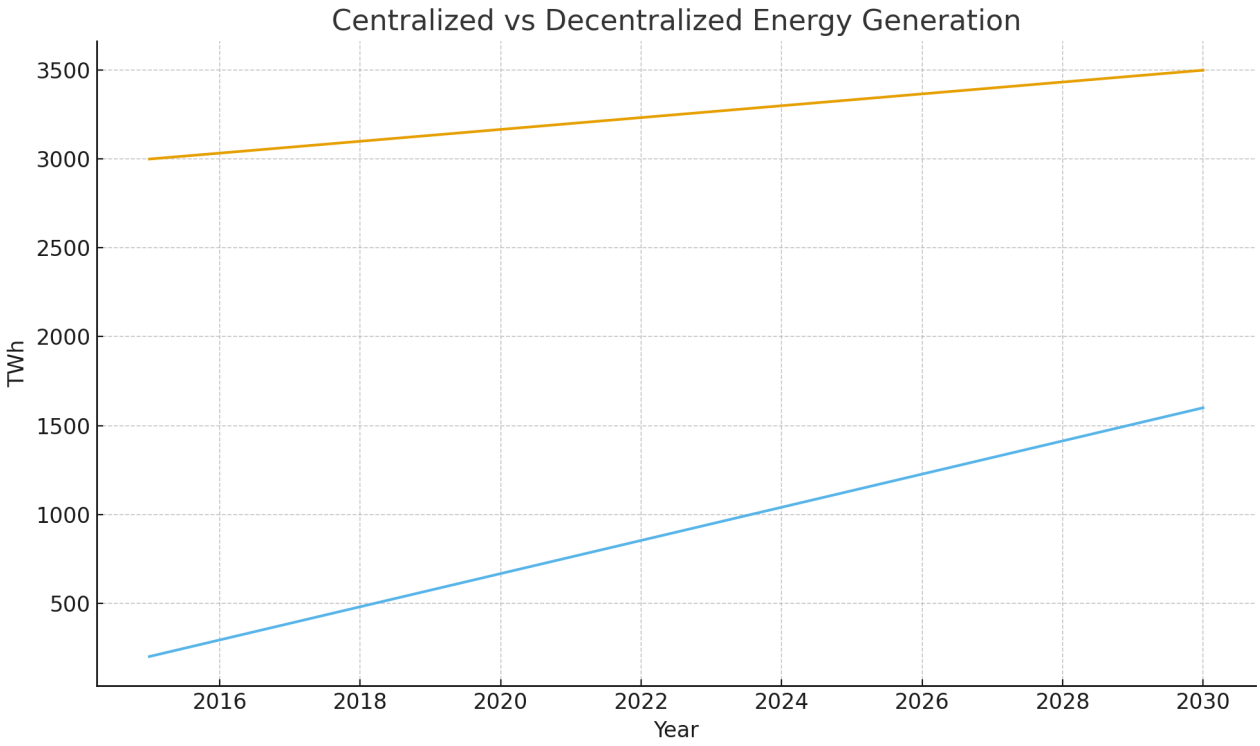


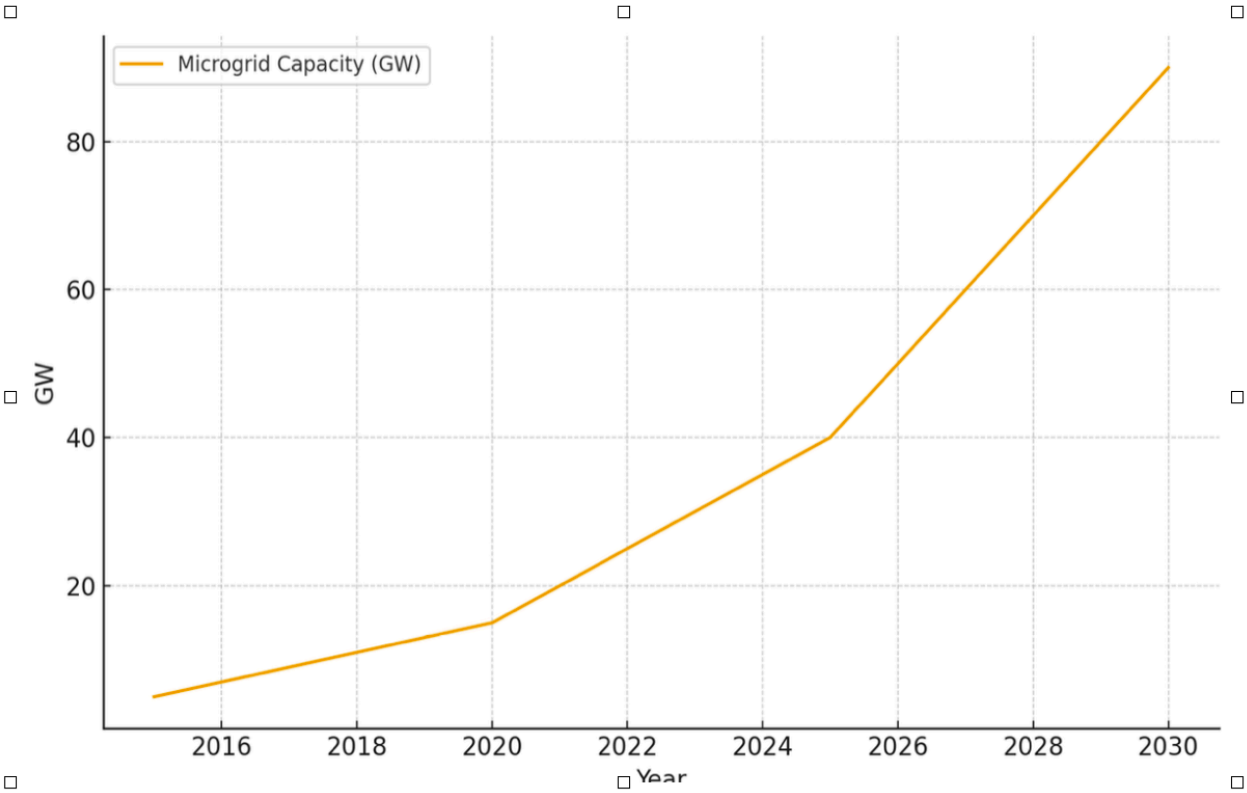
6. Renewables and Cost Declines





7. Decentralised Energy Systems
Microgrids and distributed energy provide resilience and lower costs—Europe's strategic advantage if deployed at scale.




Microgrid Capacity (GW)
GW
80
60
40
20
2016
2018
2020
2022
2024
2026
2028
2030
Year