Navigating the Energy Transition

Major Trends Shaping the Industry

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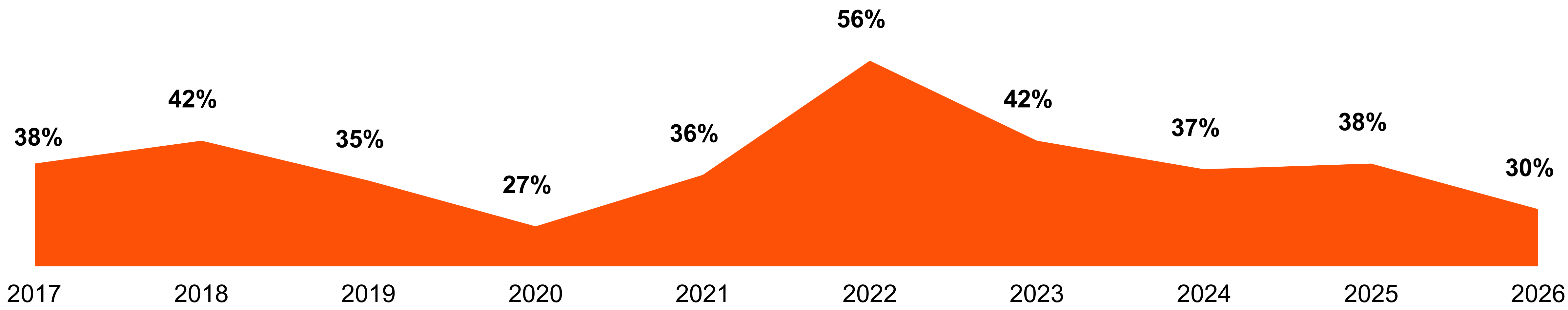
Confidence in growth is on lowest level since 2020

PwC Global CEO Survey 2026

CEO confidence in 12-month revenue growth



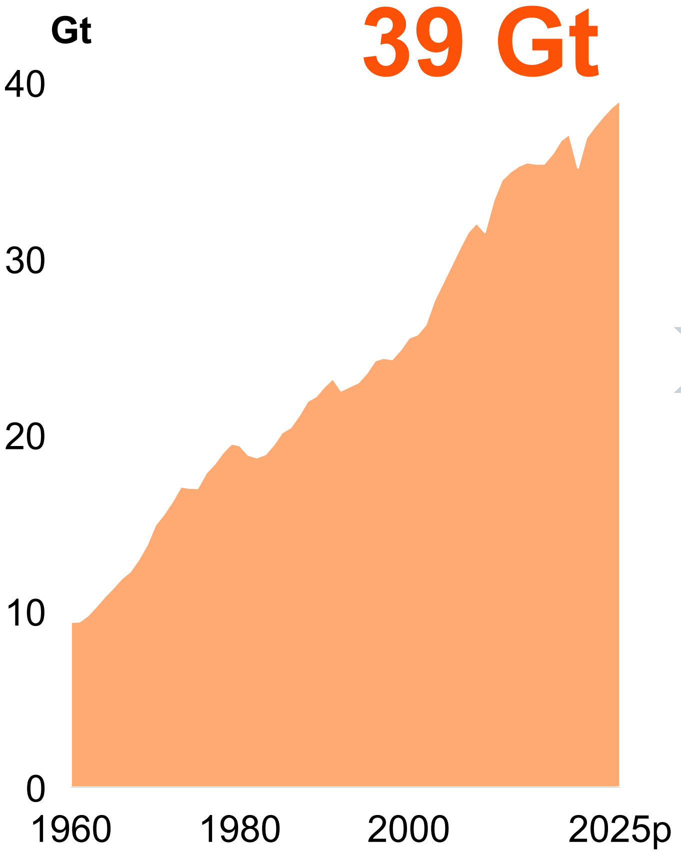
Top threats:

- **Macroeconomic volatility**
- **Cyber risk**
- **Technology disruption**
- **Geopolitical conflict**

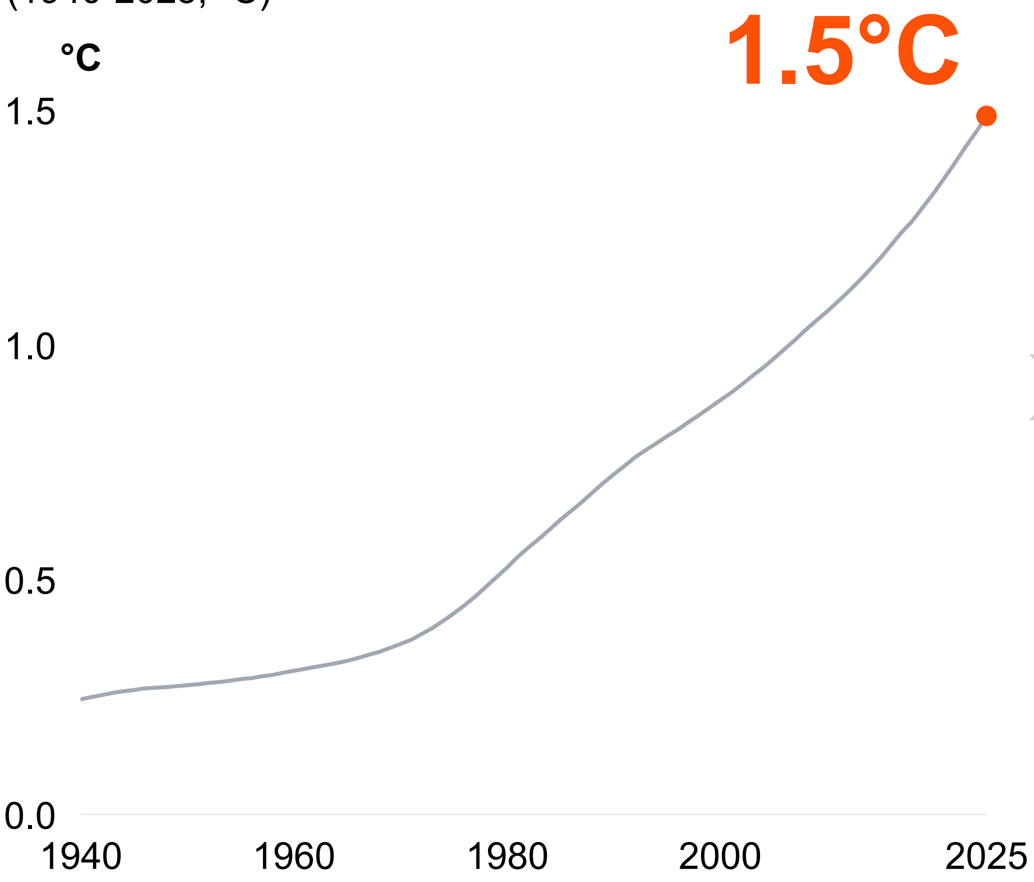
Source: PwC Global CEO Survey 2025

Emissions at a record level and the second-warmest year

Global CO_2 emissions
(1960-2024 and 2025 projection, Gt)



Global surface air temp. anomalies vs 1850-1900
(1940-2025, °C)



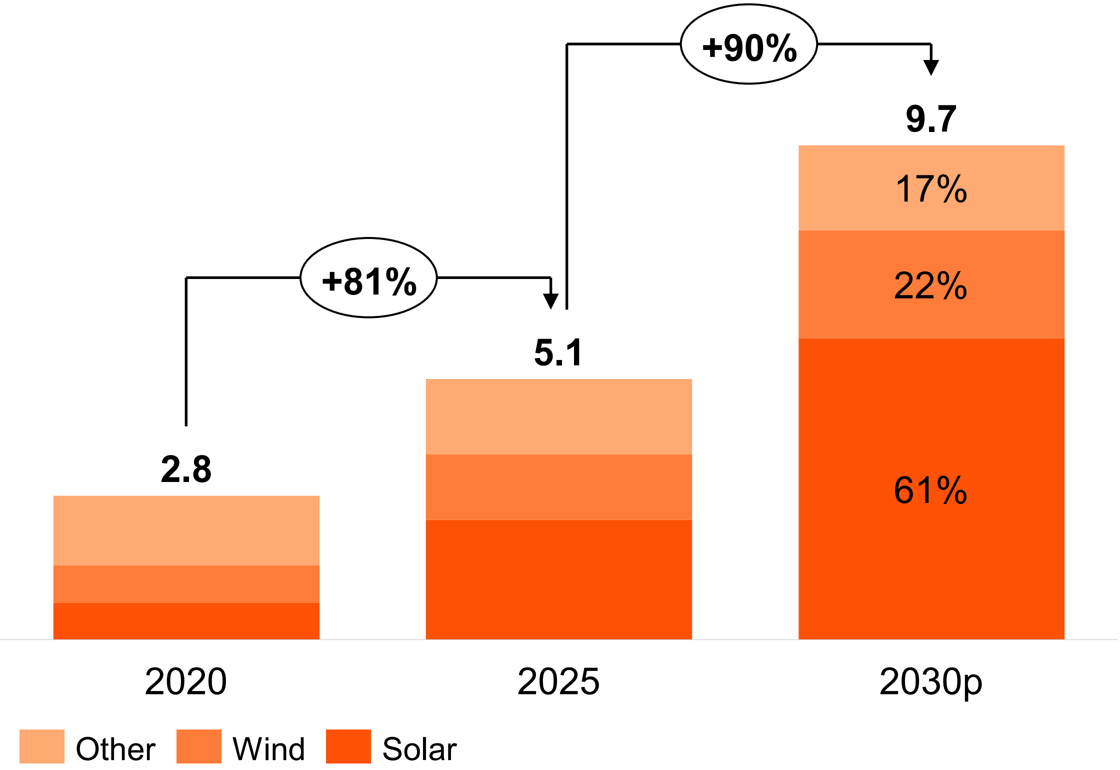
~3°C

Estimated warming in 2050 with currently implemented policies

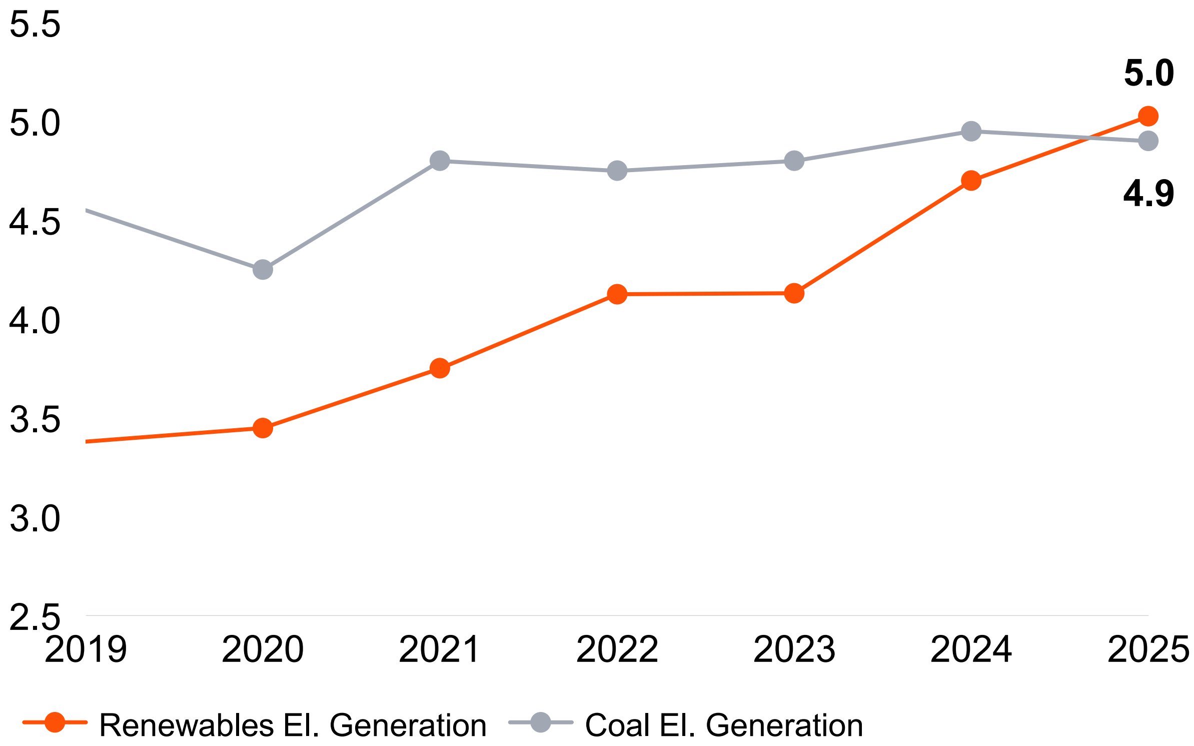
Source: Global Carbon Project, Earth System Science Data, Copernicus Climate Change Service, PwC analysis

Energy transition will continue

Global installed RES capacity
(2020-2025, and 2030 projection[1], TW)



Electricity generation volume
(2019-2025, ths.TWh)

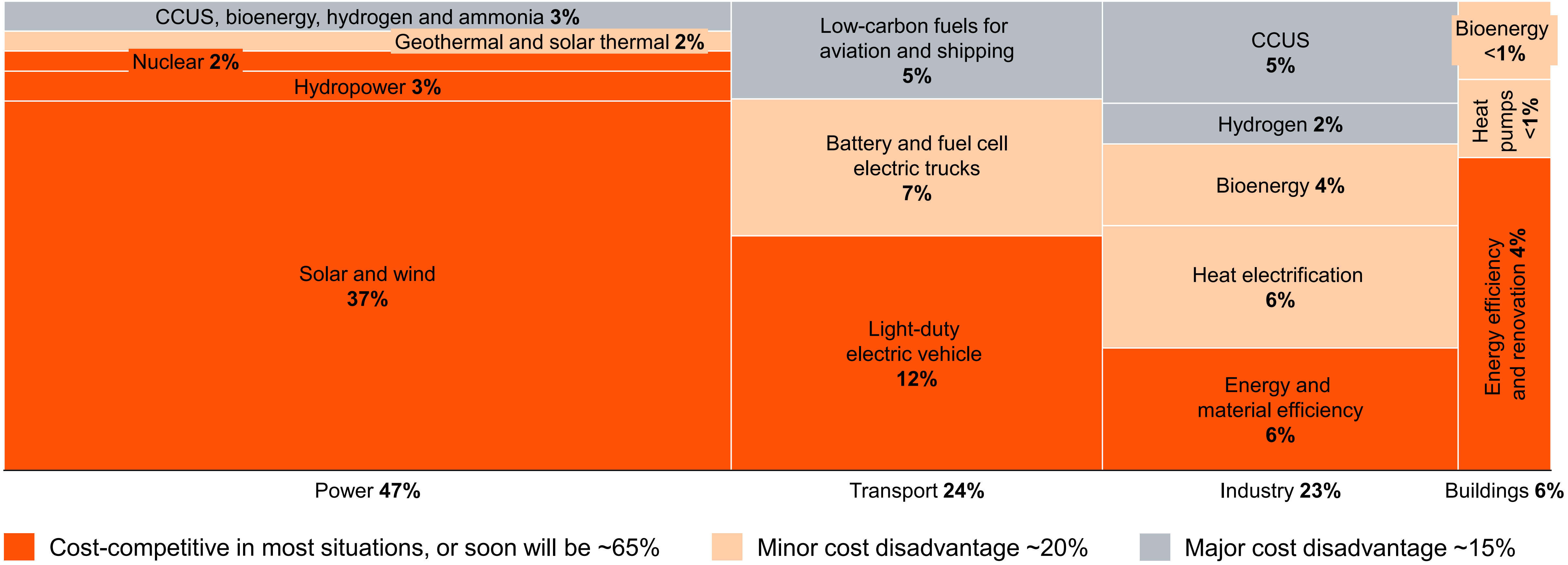


Notes: 1) Main case scenario projection

Source: IEA, IRENA, Nat Bullard decarbonization deck, PwC analysis

2/3 of energy related emissions can be decarbonized with positive financials

Energy-sector emissions reductions[1] needed for the 1.5 °C goal by 2050



Notes: 1) Expressed as a percentage of net GT CO_2 per year with annual emissions at projected 2050 level

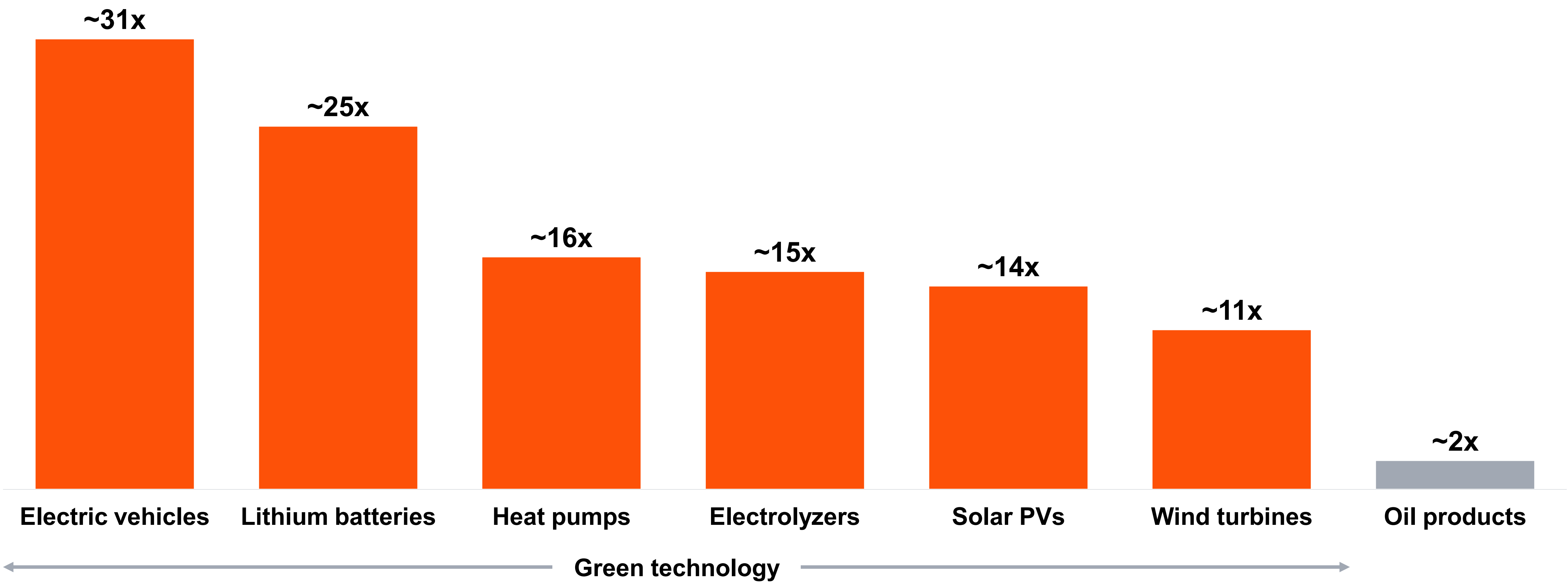
Source: IEA, Hoglund – Isaksson et al. (2021), PwC analysis

Energy security emerges as a top priority

1

Green tech trade barriers have surged

Estimated growth in global trade restrictions by sector (2024 vs. 2015)



Source: UN Comtrade, IEA, BloombergNEF, PwC analysis

Approach to energy security differs across the key regions

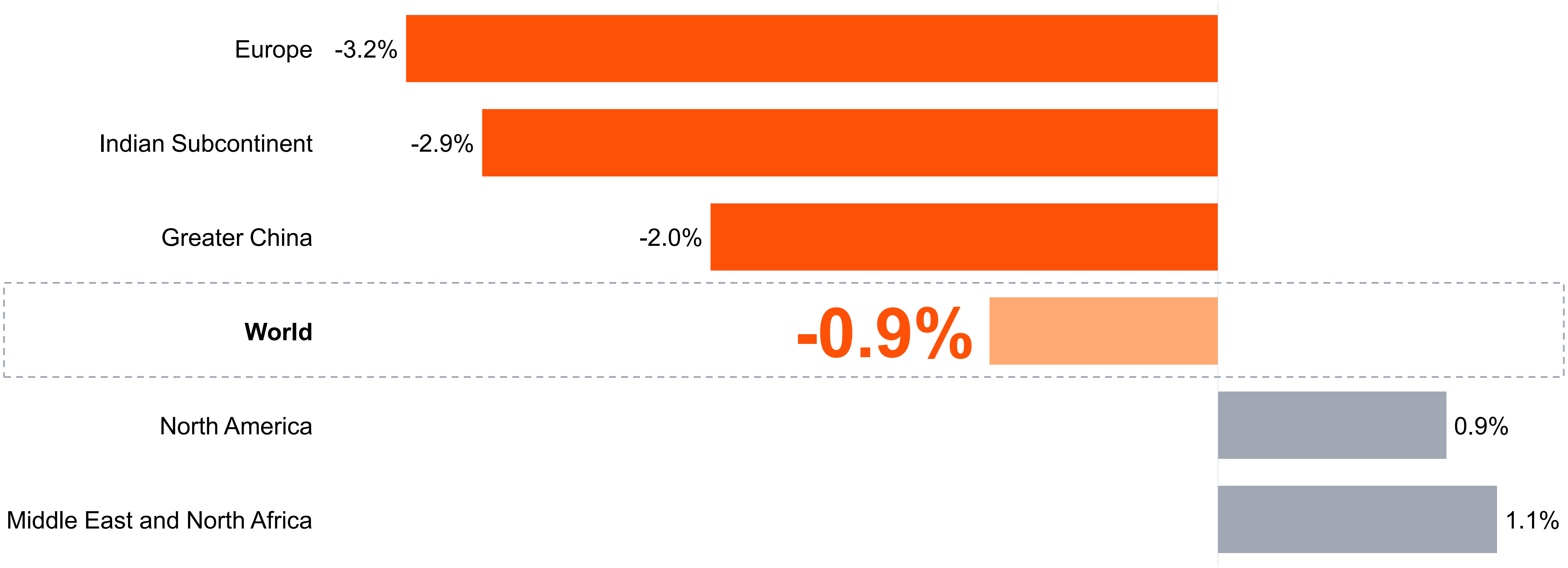
Region	United States	China	Europe
Focus	**Maximizing domestic oil & gas production while supporting development of a diversified energy portfolio**	**Investing massively in RES, energy storage and grid, while leveraging its coal reserves**	**Reducing fossil-fuel dependence by scaling up RES and electrification**
Key evidence	• **Record-high** crude **oil** production • **Rapid LNG** export **growth** • **Wind and solar overtaking** traditional baseload sources • **Lowering** gasoline **prices**	• **Half** of all **renewable energy investments** are in China • **Record-high grid investments** with ~45% growth since 2020 • **Coal capacity still growing** with new projects in development	• **>90% of oil and gas** consumption is **imported** • **Renewable energy** accounts for **more than half of the mix** • **Electricity** demand **increases**, while **oil & gas is down**

Source: PwC analysis

Energy security policies contribute to a net fall in global emissions over time

Emission change by 2040

Impact of energy security policies on energy-related CO_2 emissions
(2024 projection)



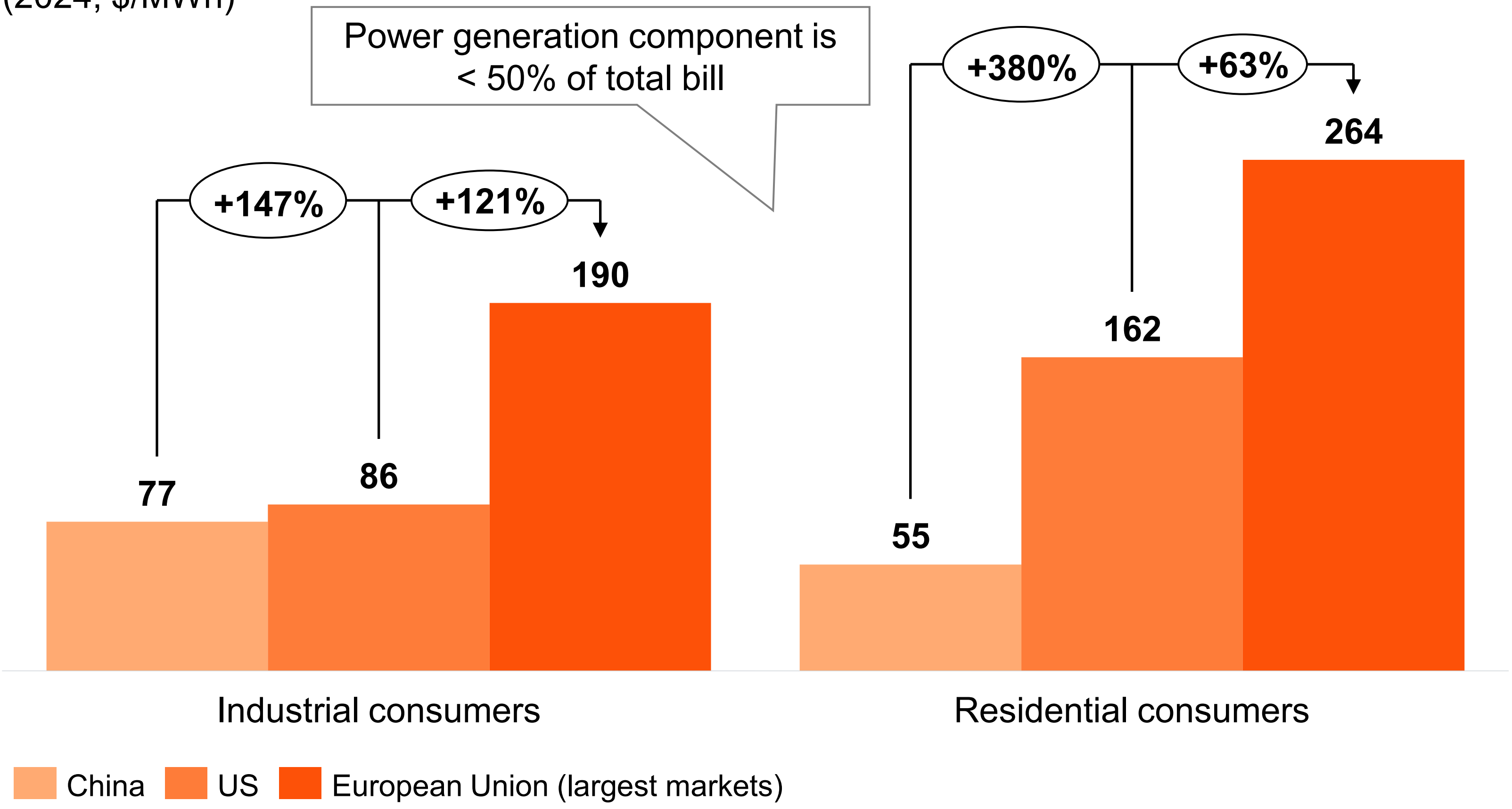
Source: DNV Energy Transition Outlook 2025

Public support for the energy transition has been shaken

2

Higher energy prices lead to diminishing public support for transition

End consumer average electricity prices
(2024, $/MWh)



Top political priorities in Europe
(Eurobarometer survey)

Rank	Priority	Recent trend
1	Economy	↗
2	Security	↗
3	Sustainability	↘

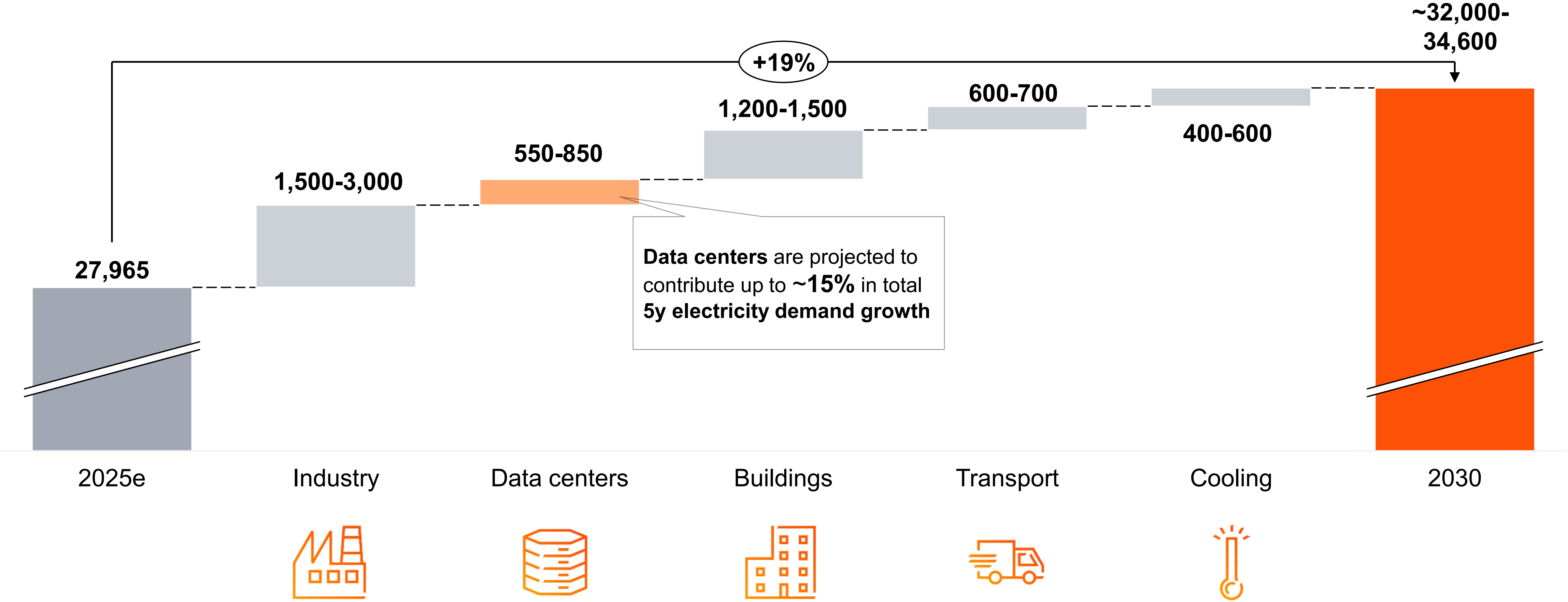
Source: OECD, US Energy Information Administration, IEA, Eurostat, Statista, PwC analysis

There are structural changes to the electricity demand

3

Industry is projected to be the key driver of electricity demand growth

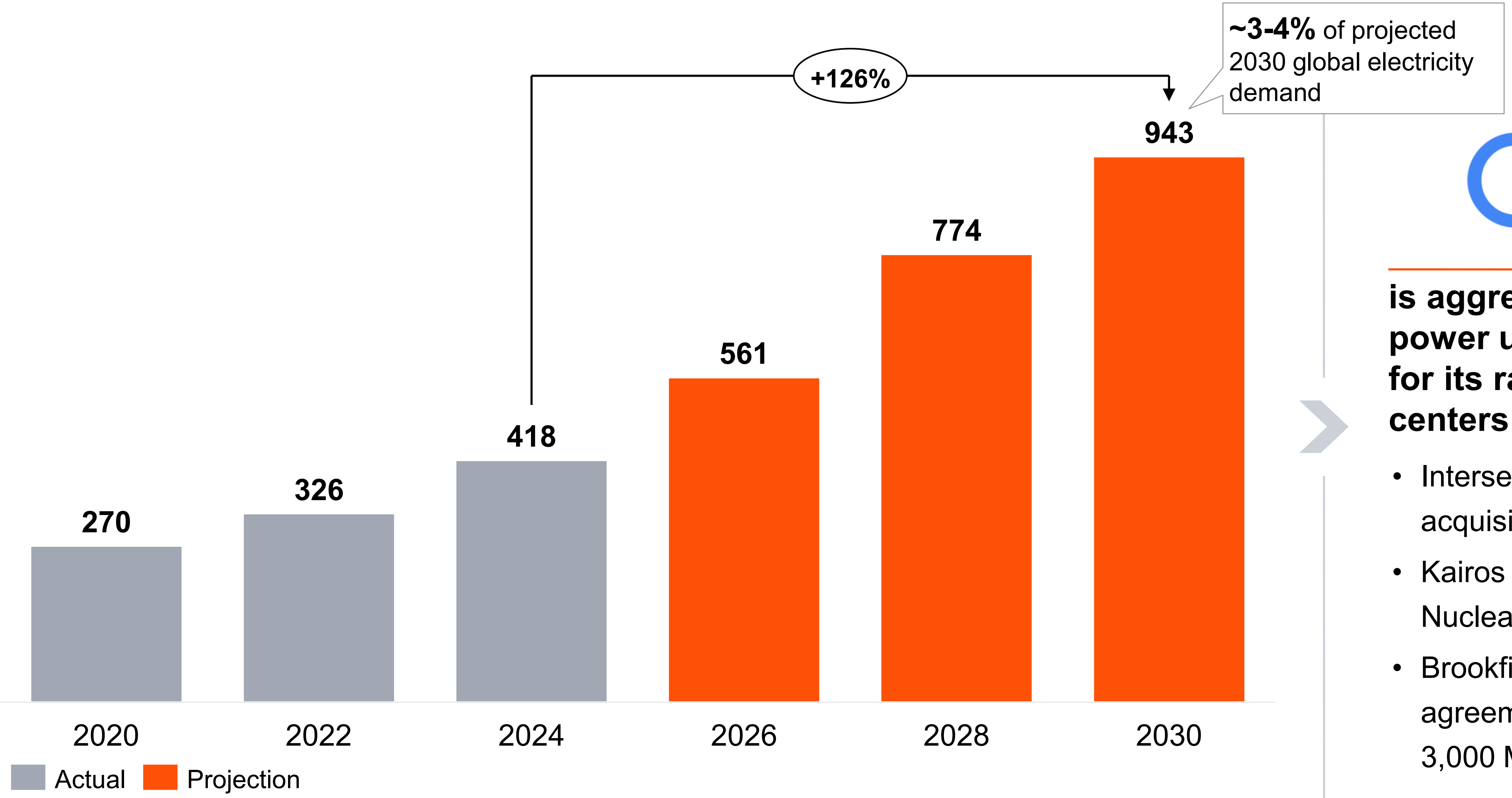
Projected 5-year electricity growth by driver, 2025-2030 (TWh)[1]



Note: 1) EPS BAU and IEA STEPS scenario
Source: Energy Policy Simulator, IEA, PwC Analysis

Power demand from data centers is projected to double by 2030

Global Data Center Power Demand, 2020-2030 (TWh)



Google

is aggressively investing in power utilities to secure energy for its rapidly expanding AI data centers

- Intersect Power – $4.75 bil. acquisition in ‘25
- Kairos Power, NextEra Energy – Nuclear power partnerships
- Brookfield Renewable – $3 bil. agreement in ’25 to secure up to 3,000 MW of hydropower

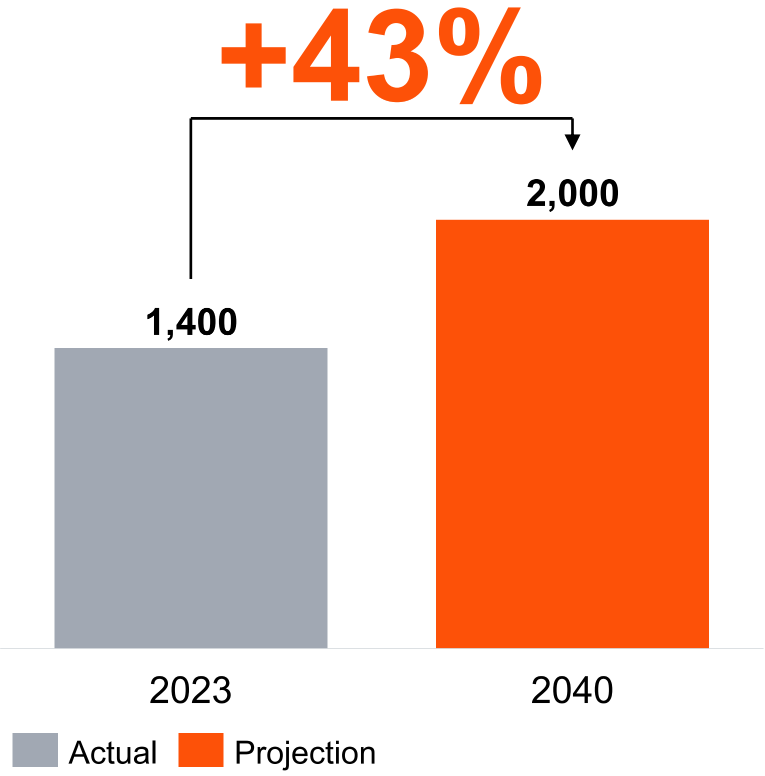
Sources: IEA, UtilityDive, Data Center Dynamics, Reuters, PwC analysis

Natural gas and nuclear energy are back again

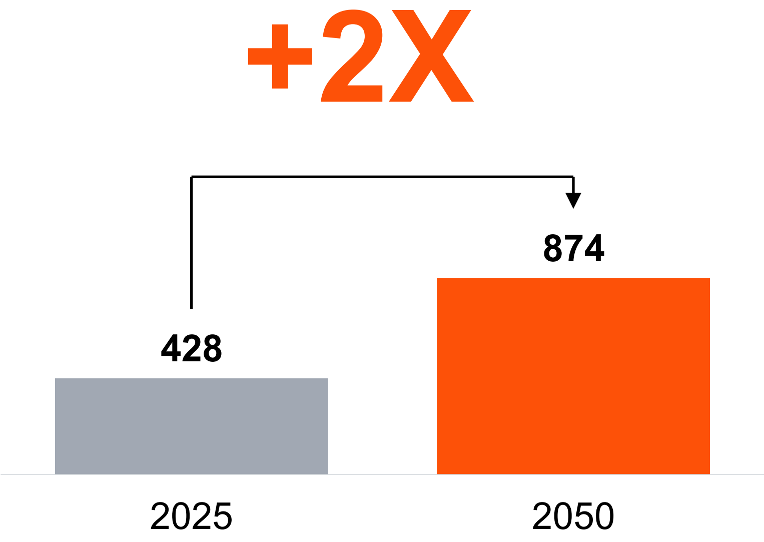
4

Gas and nuclear are on the rise again, with SMRs entering the picture

Projected gas-fired capacity expansion
(2023-2040, GW)



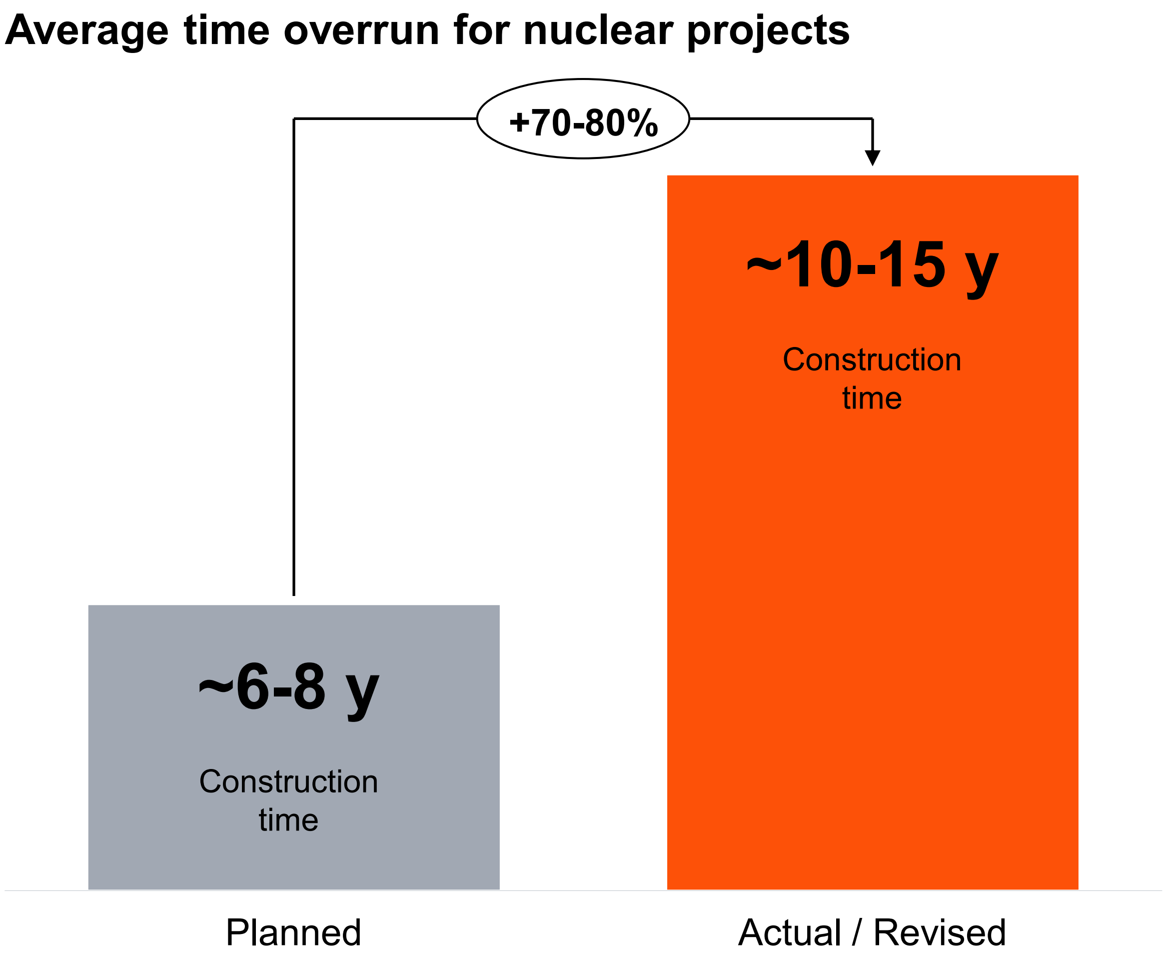
Nuclear power capacity – APS Scenario
(2025-2050, GW)

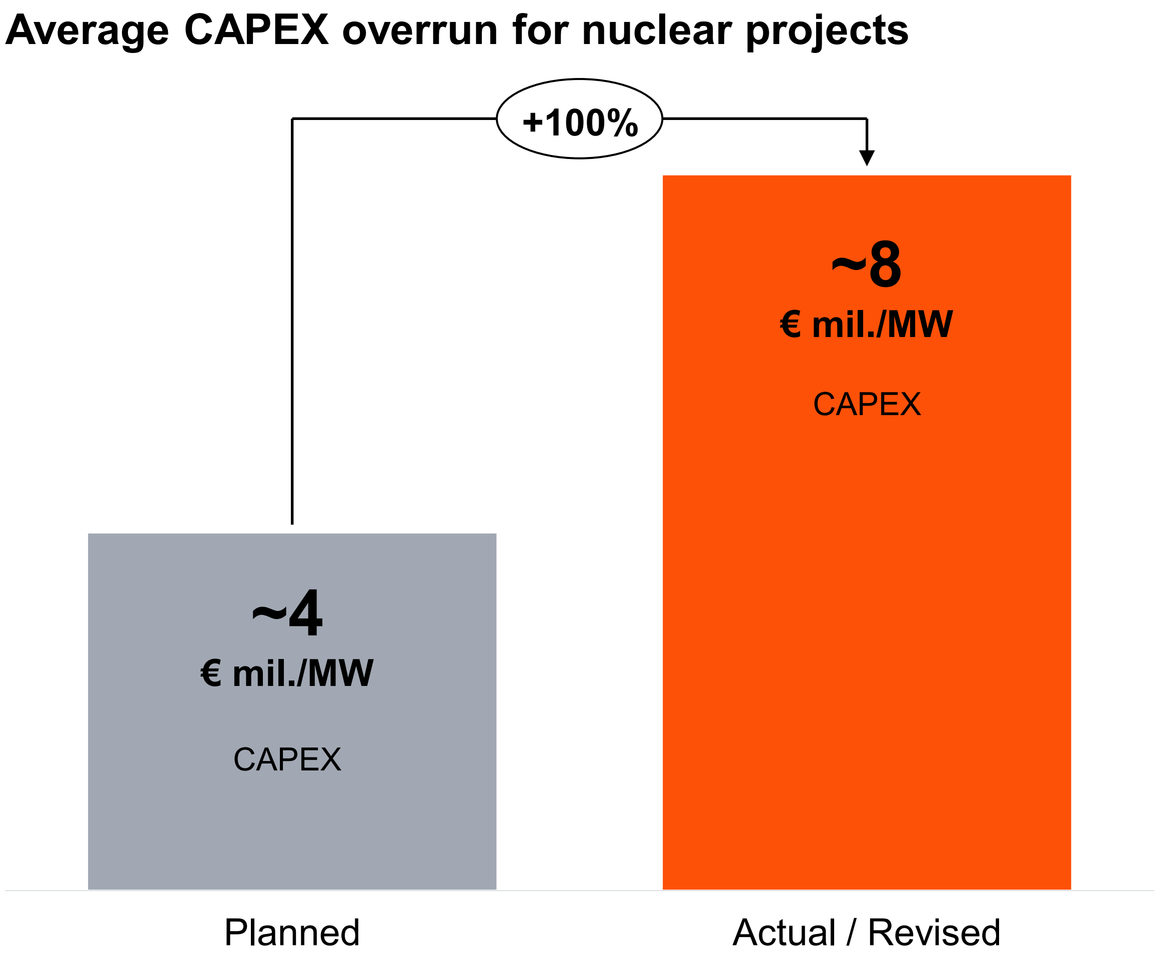


SMR installed capacity – APS Base case
(2025-2050, GW)

Source: Enerdata, EMBER, Bloomberg, GlobalData, IEA, PwC Analysis

Nuclear projects tend to end with significant CAPEX & time overruns



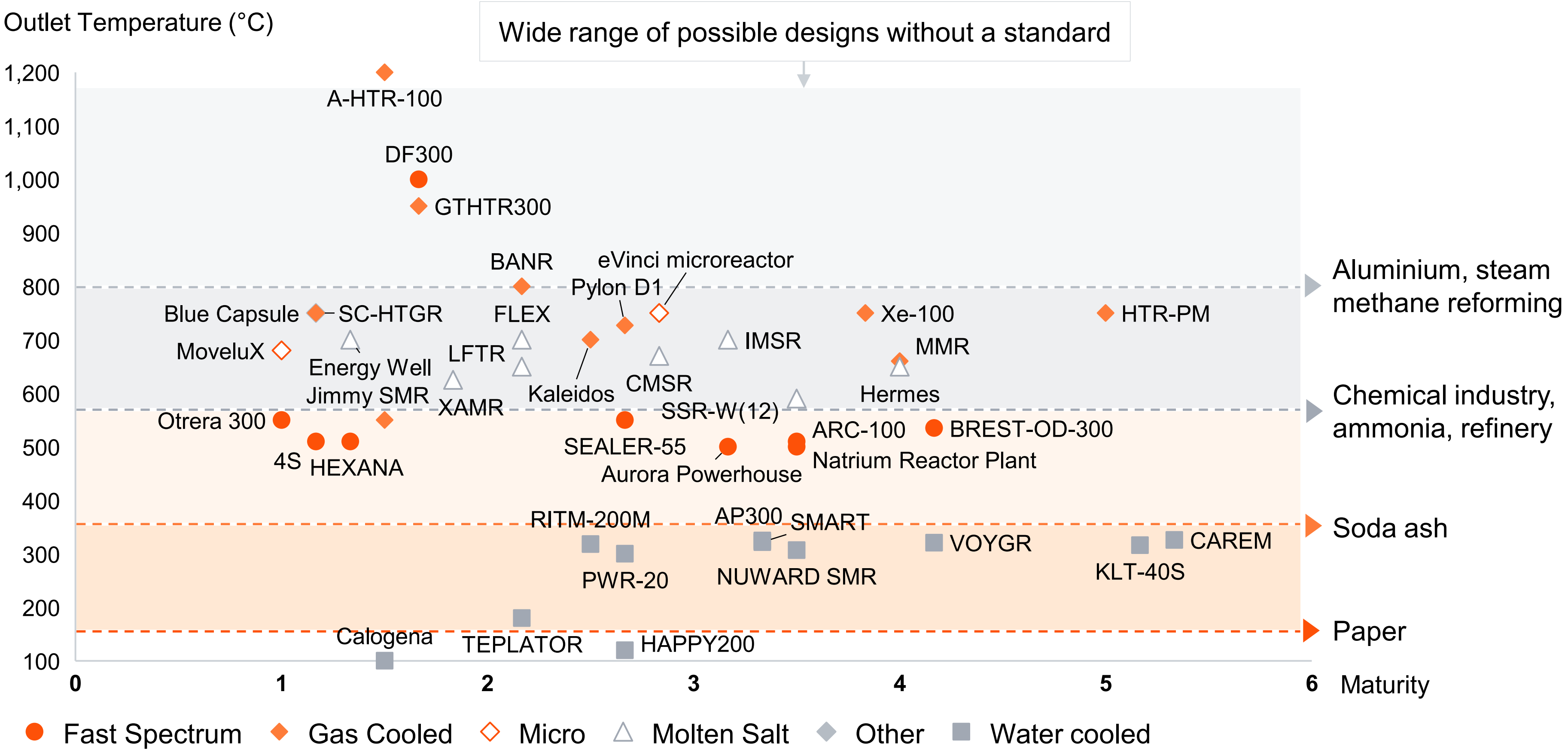


Source: World Nuclear News, World Nuclear Associations, IEA, IAEA, ENS, PwC analysis

The variety and maturity of SMR tech. designs poses strategic challenges

Development of SMR technology designs and key challenges

SMR designs mapped by maturity[1] and outlet temperature



Strategic challenges for SMRs OEM

01
Time-to-market & technology readiness

02
Delivering at scale to unlock competitiveness

03
Managing decentralized fuel supply chain

04
Governance and O&M capabilities

Notes: 1) Average maturity evaluated on 6 dimensions: licensing, siting, financing, supply chain, engagements and fuels

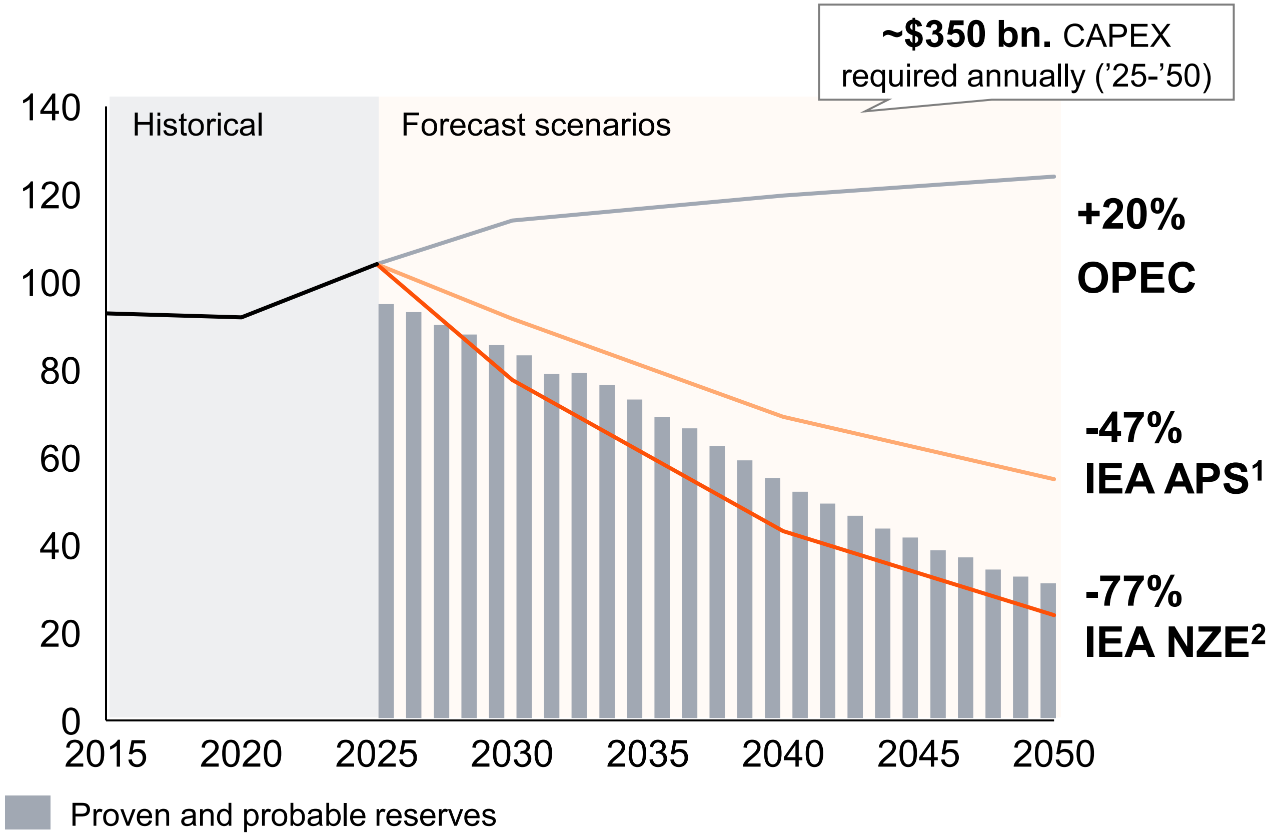
Source: NEA, PwC Analysis

Demand for LNG will stay strong, oil keeps pushing but with rising uncertainty

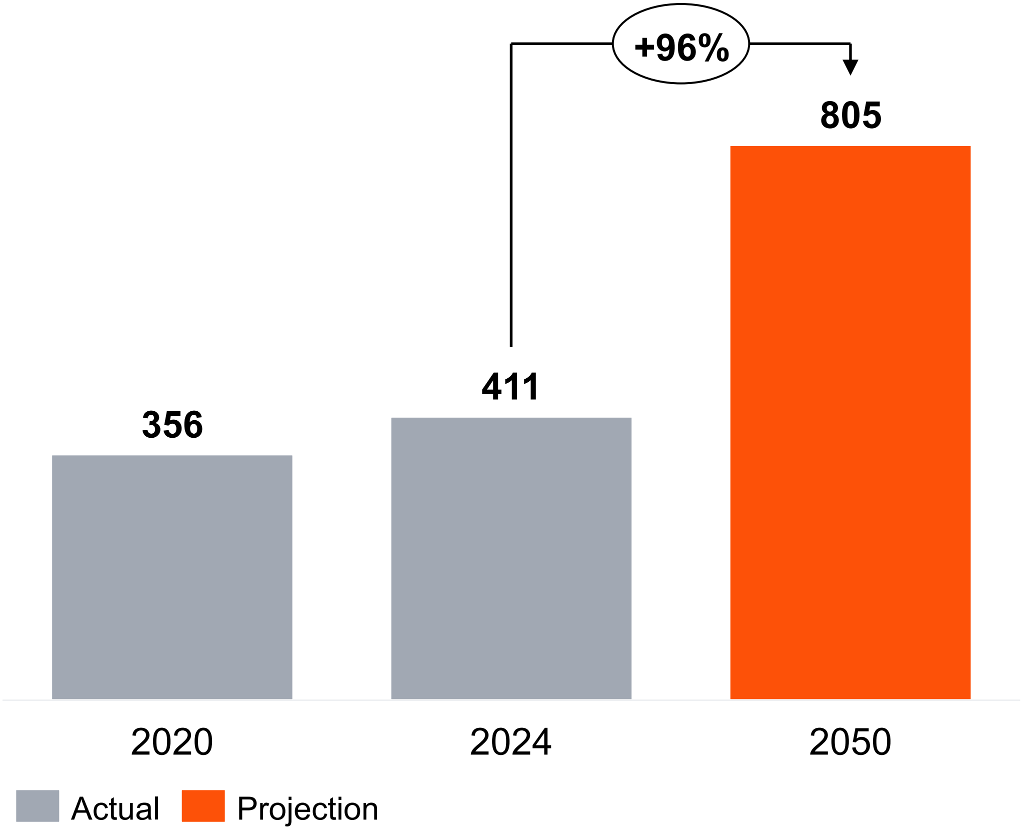
5

Oil and gas continue to play a significant role, with uncertain projections

Global oil demand – historical and forecast scenarios in relation to proven & probable oil reserves (2020-2025, 2050 projection, mb/d)



Global LNG Imports – historical and forecast (2020-2025, 2050 projection, Mt)



Notes: 1) IEA Announced Pledges Scenario 2) IEA Net Zero Emissions

Source: GECF, IEA, Rystad Energy, PwC Analysis

Green technology cost trajectories are diverging

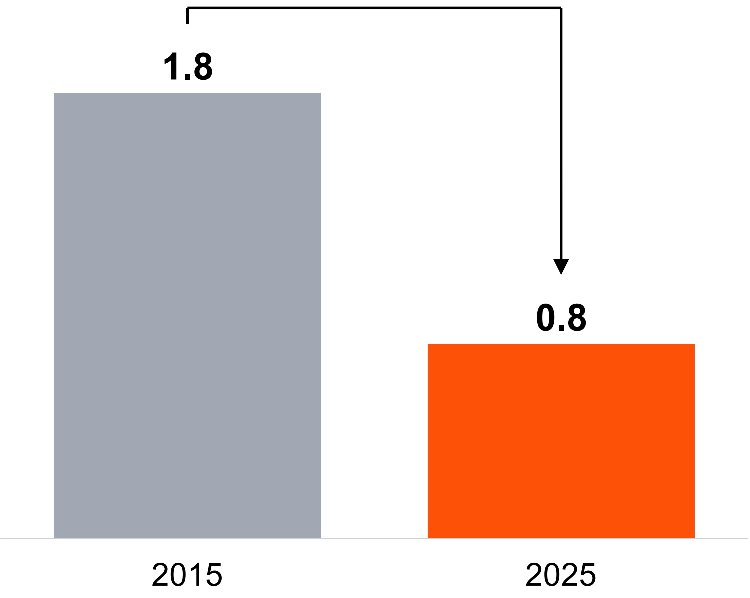
6

Cost of the key energy transition technologies has fallen tremendously…

Key Energy Transition Technologies

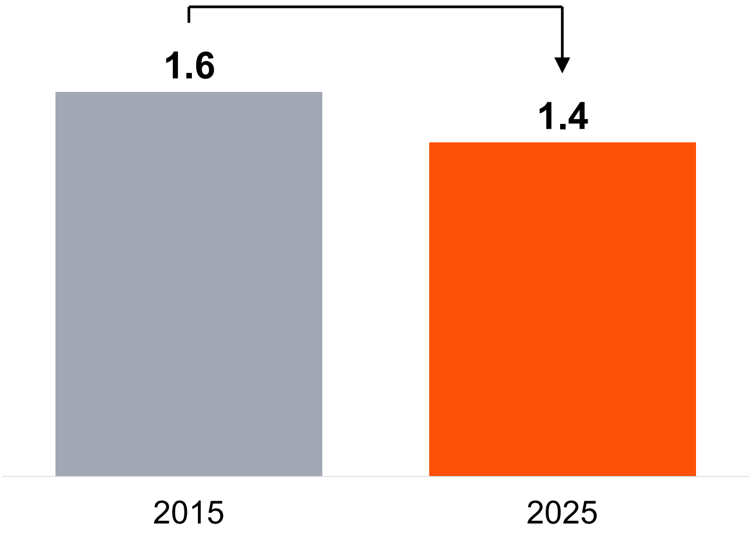
Solar PV investment cost
($/MW, in mil.)

-56%



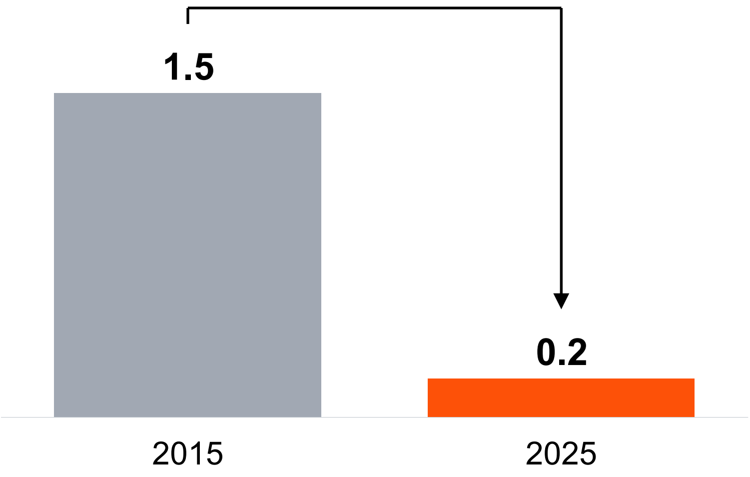
Onshore wind investment cost
($/MW, in mil.)

-13%



Battery investment cost
($/kWh, in ths.)

-88%

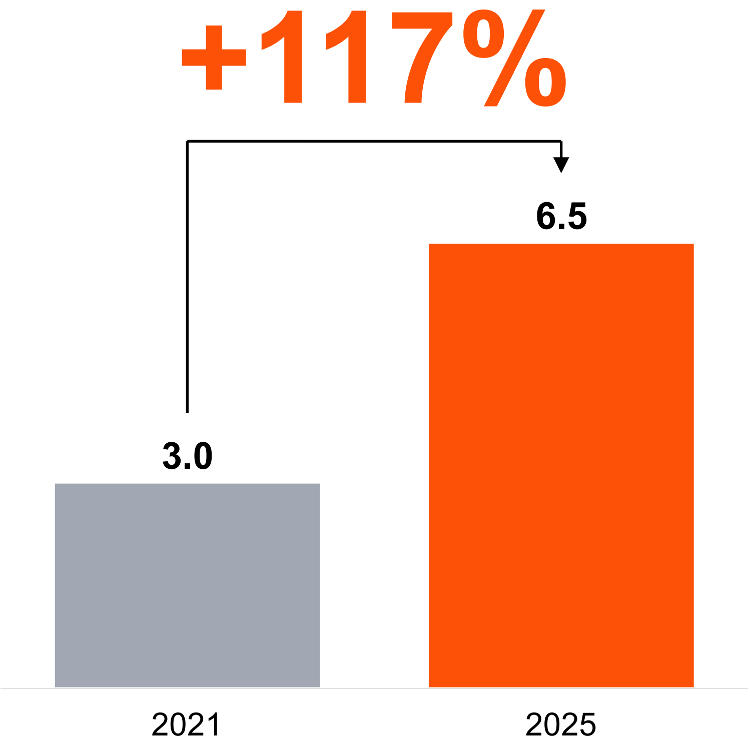


Source: IRENA, IEA, Bloomberg NEF, EIA, GE Vernova, , S&P Global, Reuters, TenneT, Amprion, SO Hertz, SSEN Transmission, NeuConnect, Terna, National Grid, PwC Analysis

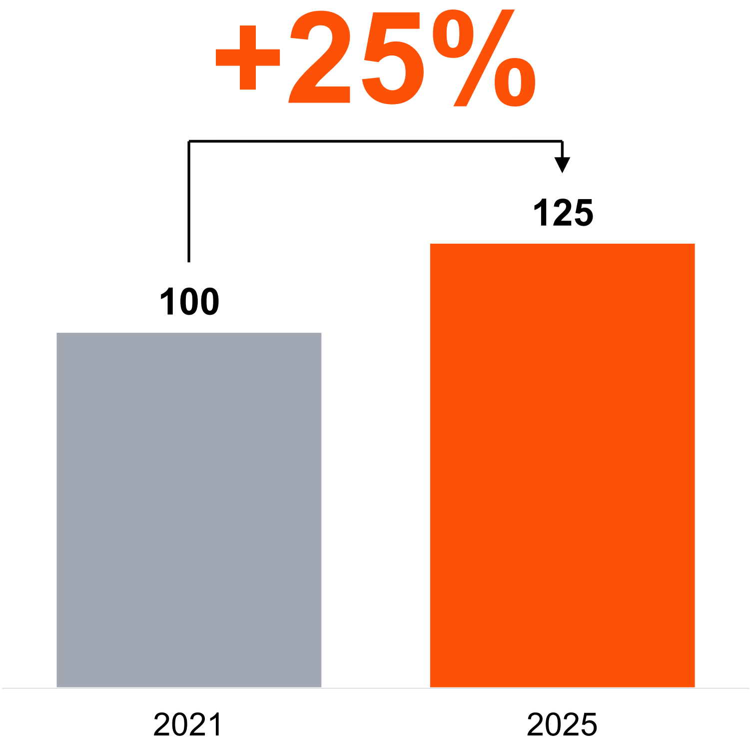
…While for some others price forecasts keep rising

Pioneer energy technologies costing more than expected

Green hydrogen cost – 2030 Forecast
(€/kg)

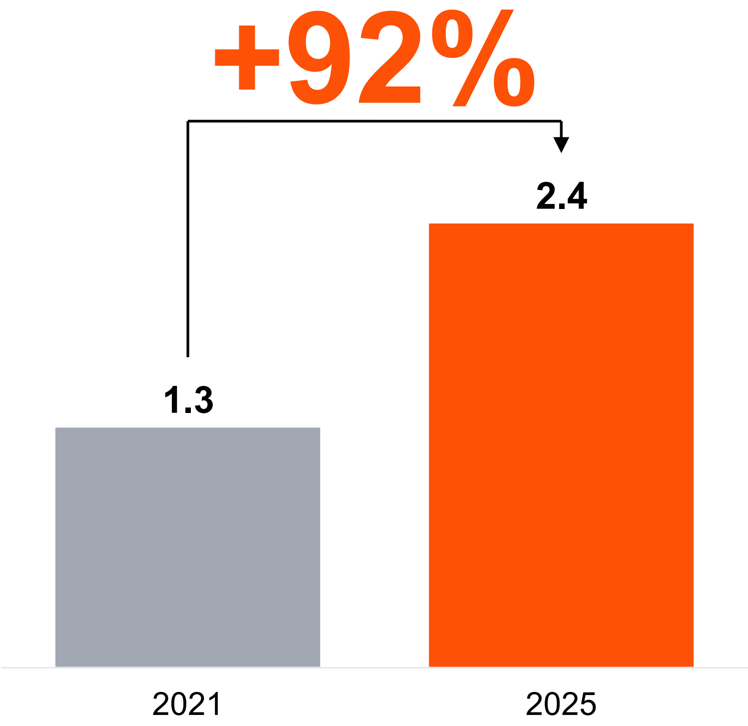


CCUS cost – 2030 Forecast
($/t$CO_2$)



Proven transitional tech costs rising due to constrained supply

CCGT turnkey cost – 2030 Forecast
($/kW, in ths.)



Source: IRENA, IEA, Bloomberg NEF, EIA, GE Vernova, , S&P Global, Reuters, TenneT, Amprion, SO Hertz, SSEN Transmission, NeuConnect, Terna, National Grid, PwC Analysis

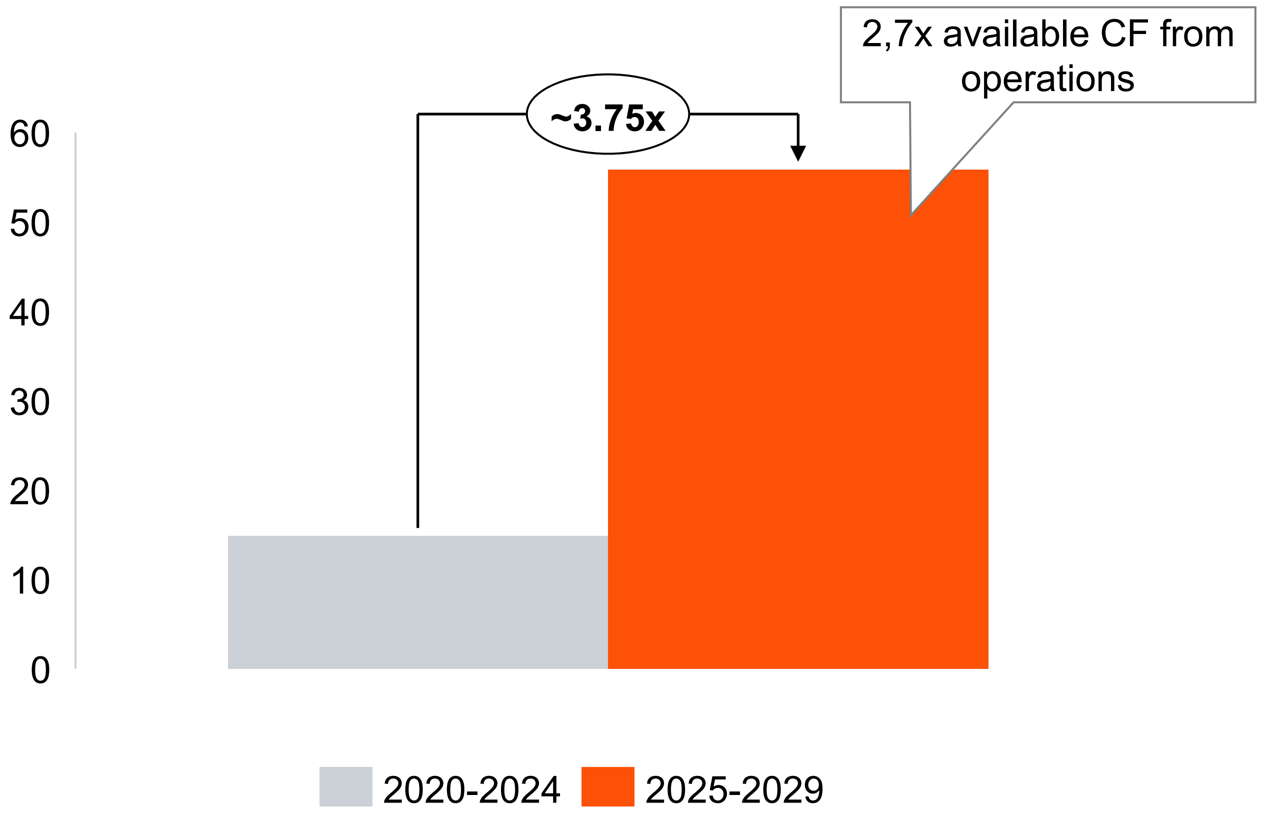
The investments needed in energy infrastructure demand new approaches

7

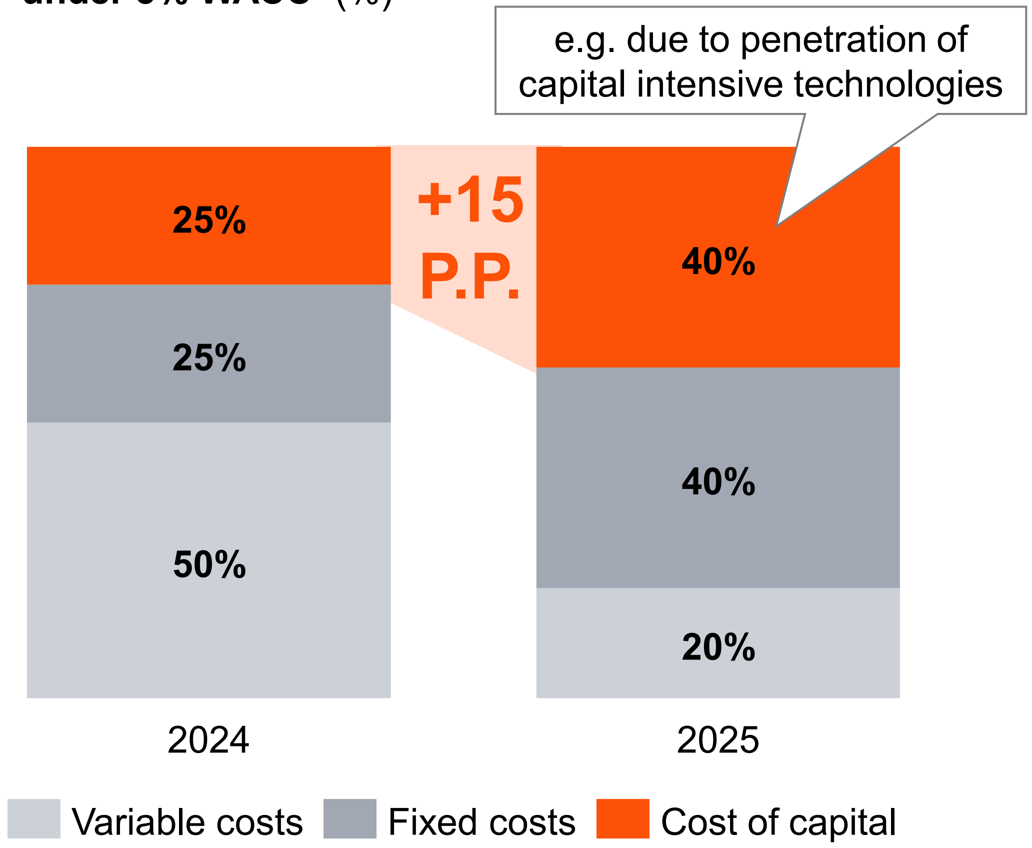
TSOs will face a significant CAPEX pressure and funding gap

CAPEX requirements and funding

Portfolio[1] average annual Capex of European TSOs
(€ bn.)



UK market example of electricity system costs under 5% WACC[2] (%)



Notes: 1) Leading TSOs from Germany, Netherlands, France, UK, and Norway; 2) Weighted average costs of capital

Source: S&P Global Capital IQ, company annual report, energy regulators and system operators reports, IEA, PwC Analysis

Selected recommendations for key market stakeholders

Policymakers

1 Put **total system cost and value** at the core of future market design

2 Accelerate **permitting as a critical enabler** for clean energy growth

3 Elevate **energy security and affordability to top national priorities** and fund it accordingly

Producers & Suppliers

4 Treat **integration of demand-side assets** as essential for future competitiveness and returns

5 Reinvent **operating models** to **structurally lower costs** over time

6 Win **customers** through **integrated decarbonization solutions**, not just commodity supply

Grid Operators

7 Understand **true limits** and **sweat the existing assets harder** before building new

8 Make **capital project execution excellence** and **supply chain resilience** core strategic priorities

9 **Enable faster permitting** & reform **grid connection** process radically

Thank you

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