TBC CAPITAL

# **WIND ENERGY**
# IN THE CAUCASUS

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## Key findings

- The share of installed wind power capacity in total global renewable installed capacity increased from 2% in 2000 to 25% in 2025.
- Compared to other renewable alternatives, including hydropower and solar energy, the levelized cost of electricity (LCOE) generated by wind power plants is currently the lowest, amounting to 3.4 US cents per kilowatt-hour, while the average weighted efficiency stands at around 34%.
- Capital expenditure per megawatt of installed wind power capacity has been consistently declining year by year and reached USD 1.0 million by 2024.
- According to the latest data, Chinese wind turbine manufacturers have strengthened their market positions, and by 2025, 8 out of the world’s 10 largest companies in the sector are Chinese.
- Within the Caucasus region, wind power capacity remains at an early stage of development compared to other renewable energy sources; however, significant projects are being implemented in Georgia and Azerbaijan in 2026.
- In 2025, Georgia met 4.4 TWh of its electricity demand through thermal generation and electricity imports, while the development of wind energy projects will help reduce the country’s winter electricity deficit.

The latest global trends in wind energy

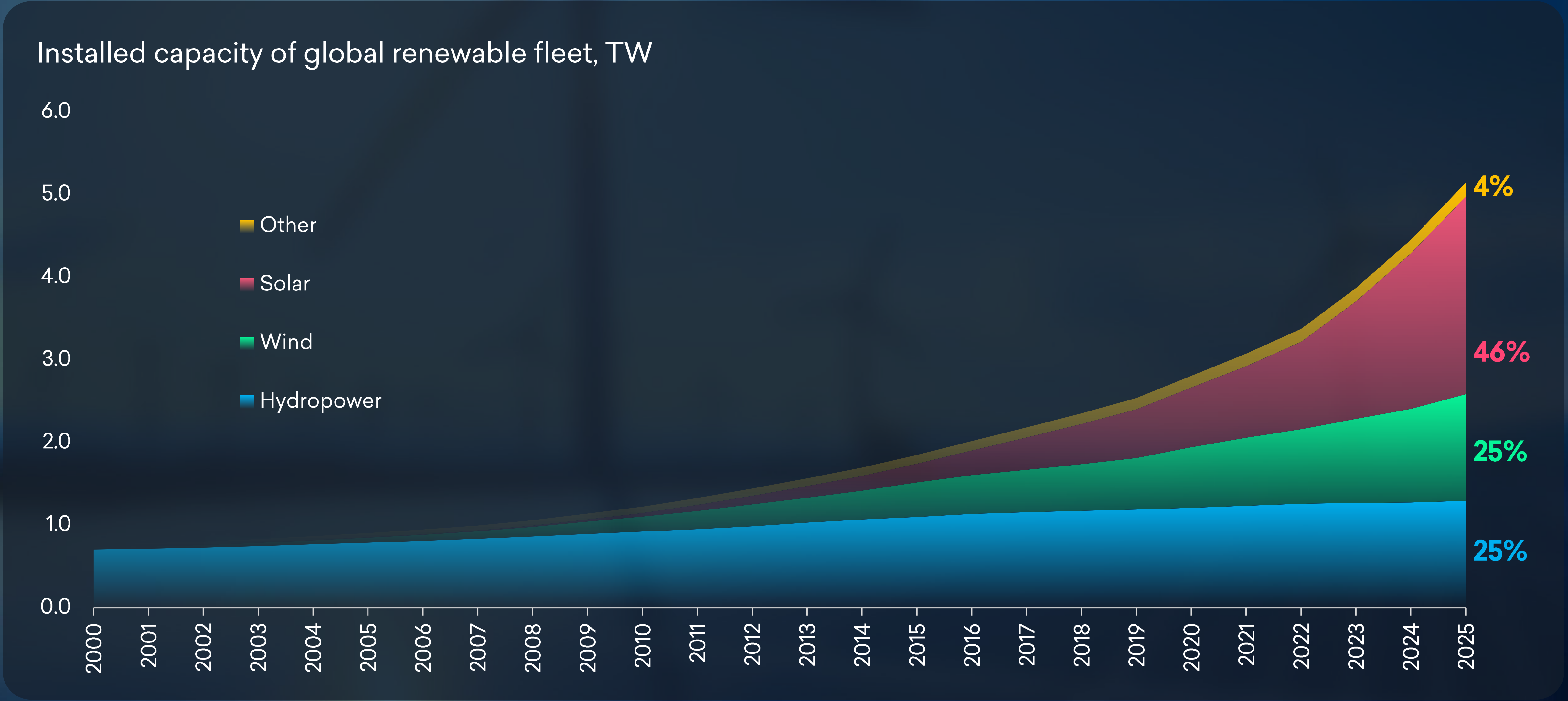
Georgia's electricity balance snapshot

Wind energy in the Caucasus

Investing in Georgia's wind energy

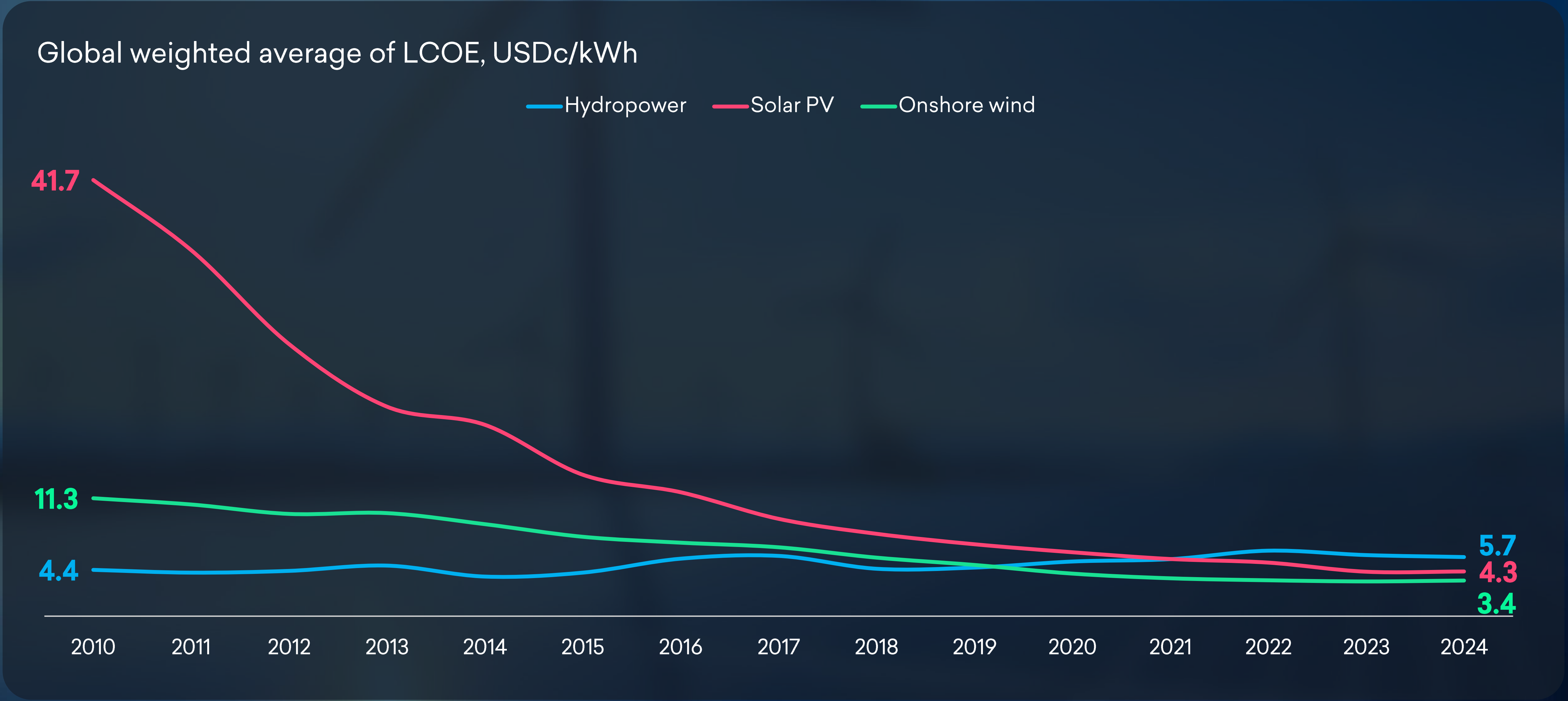
# The latest global trends in wind energy

# The share of wind power in the global renewable capacity went from 2% in 2000 to 25% at the end of 2025 and is expected to outpace hydro capacity in the short term period




Source: IRENA

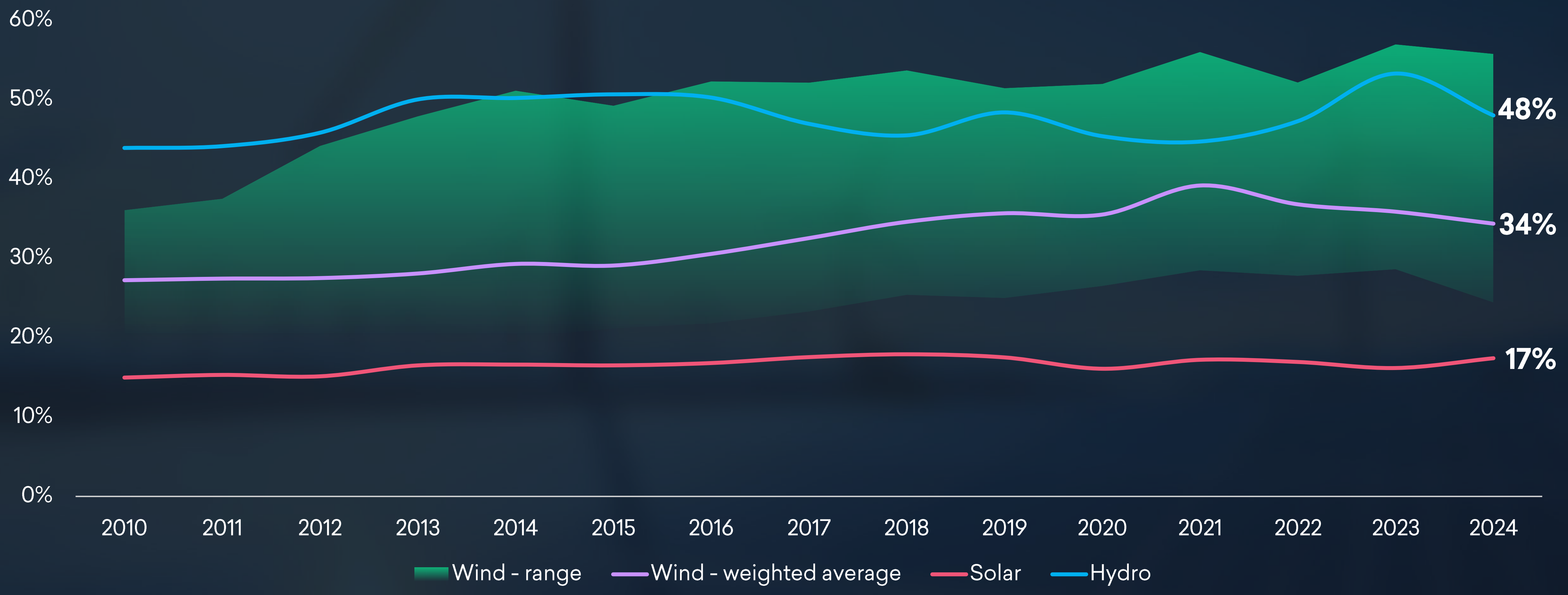
## After accounting for different costs and lifetime generation, wind delivers the lowest LCOE among generation technologies




Source: IRENA

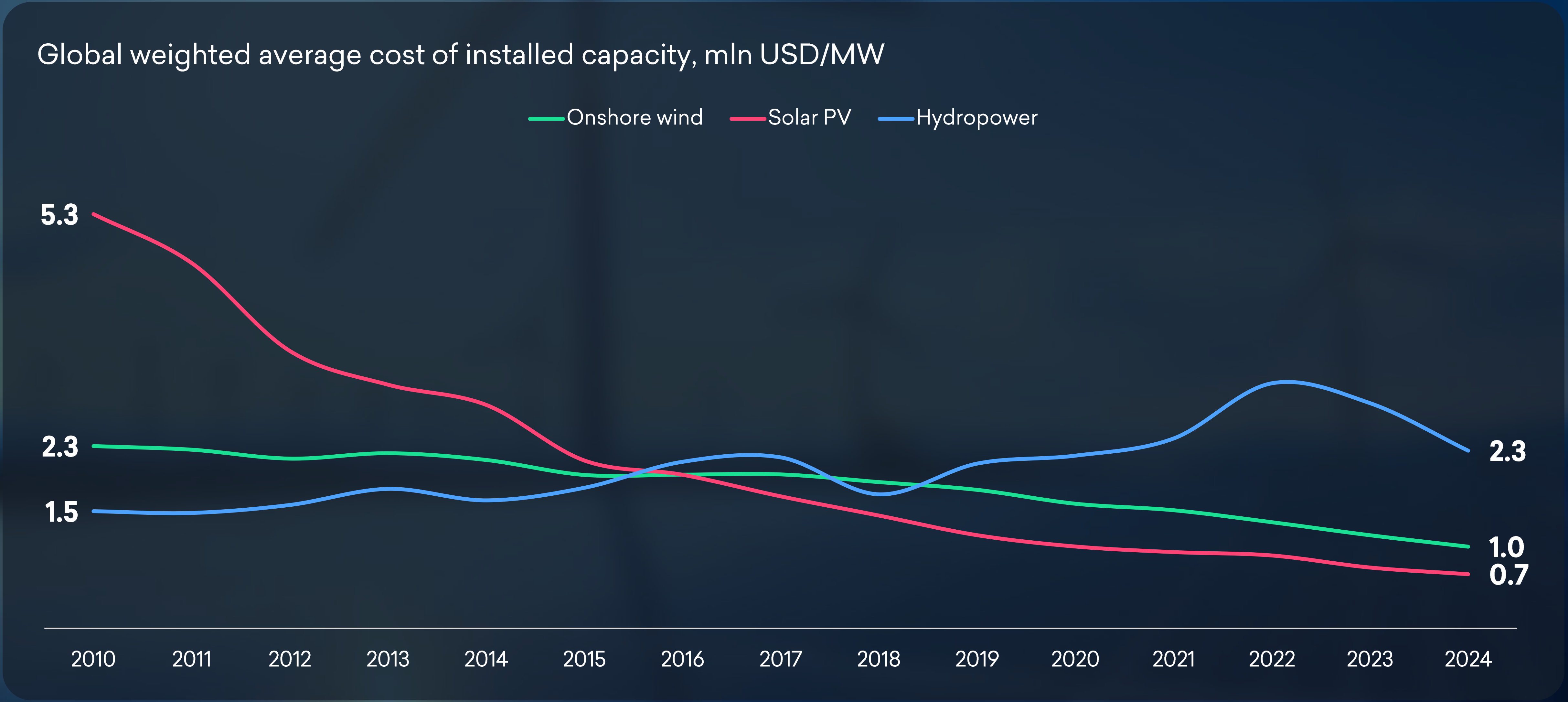
## While the weighted average capacity factor for wind has increased, the widening range suggests growing importance of site-specific conditions and turbine manufacturer differences

Global weighted average capacity factors of renewable technologies, %




Source: IRENA

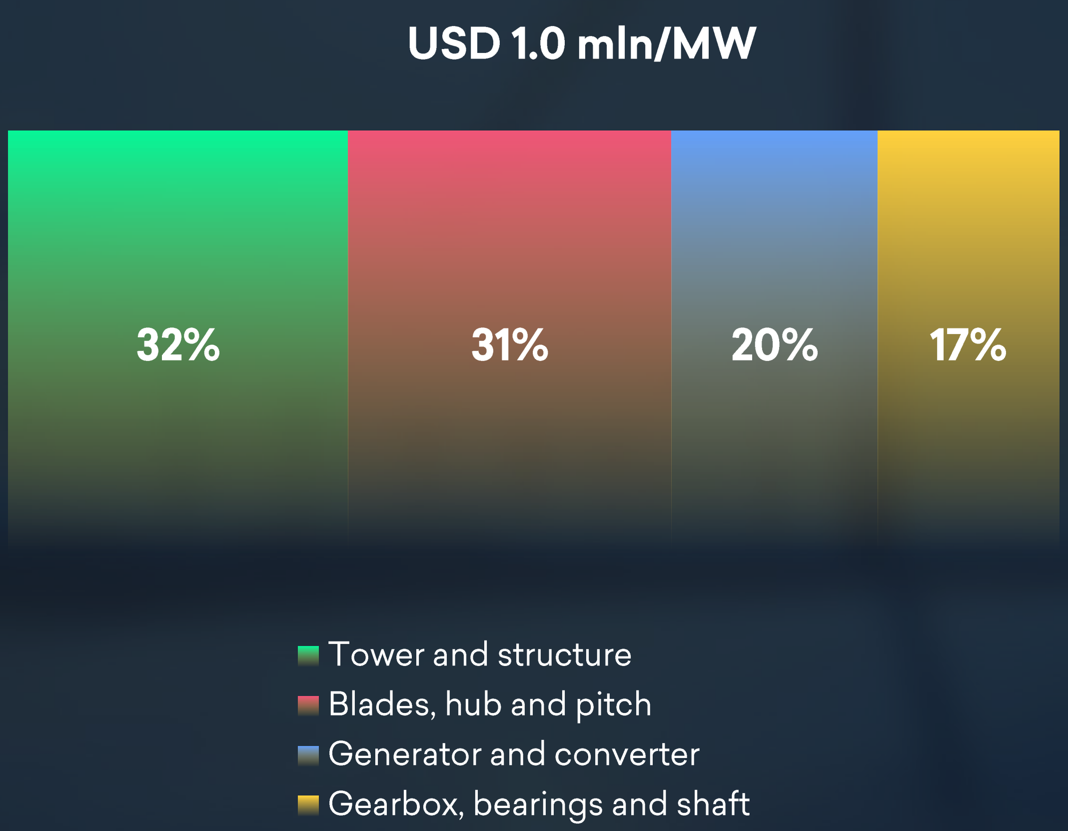
# Among the technologies observed, wind CAPEX per MW has exhibited the most consistent decline over time, without any sudden shifts, approaching USD 1.0 mln by 2024



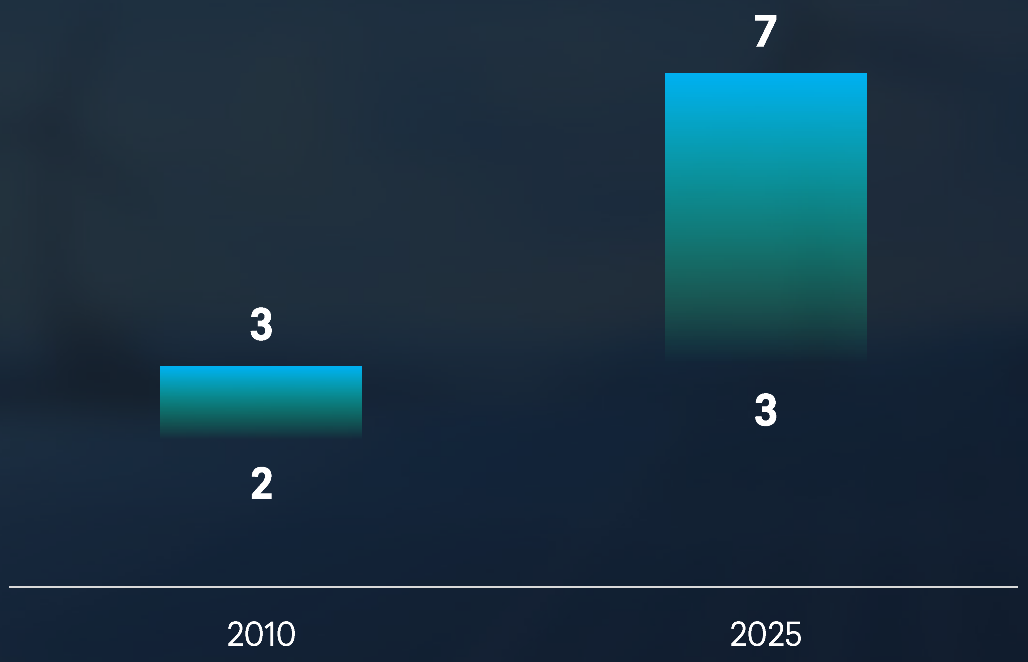

Source: IRENA

# While cost per MW has declined over time, increasing turbine capacity has raised project scale, making market entry a sizeable investment

Breakdown of cost by major components, %



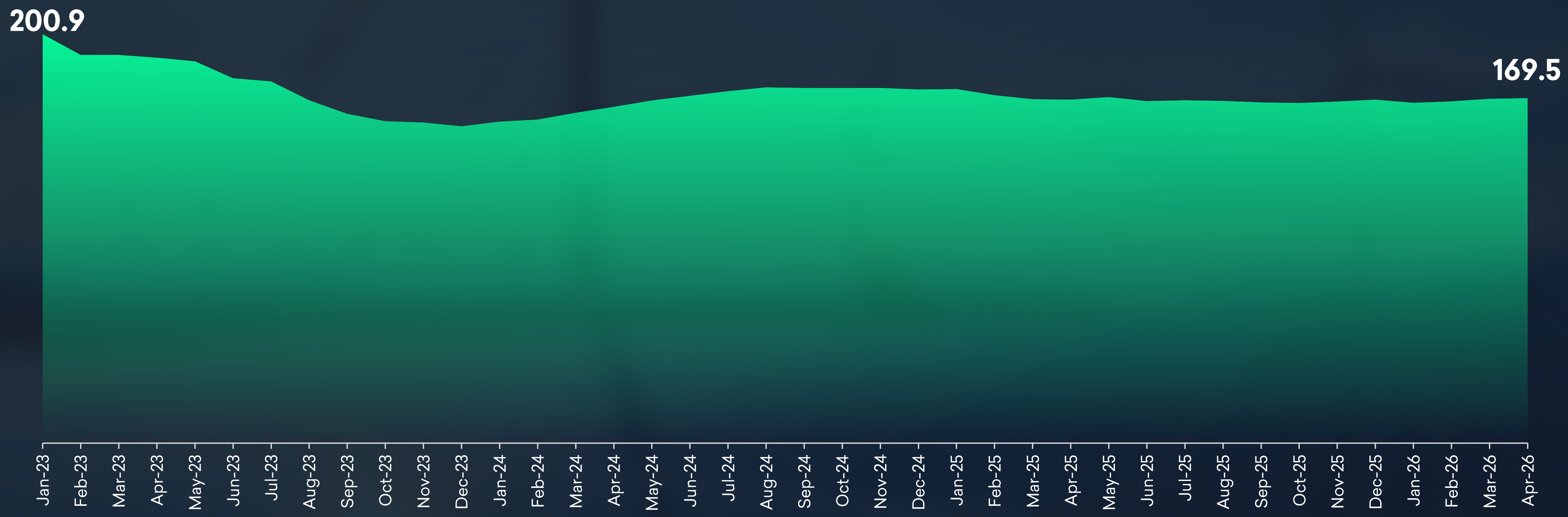

Range of single wind turbine installed capacity, MW




Source: IRENA, University of Michigan

## Regardless the tense global geopolitical environment, the breakbulk sea transport has remained more or less stable in the past three years

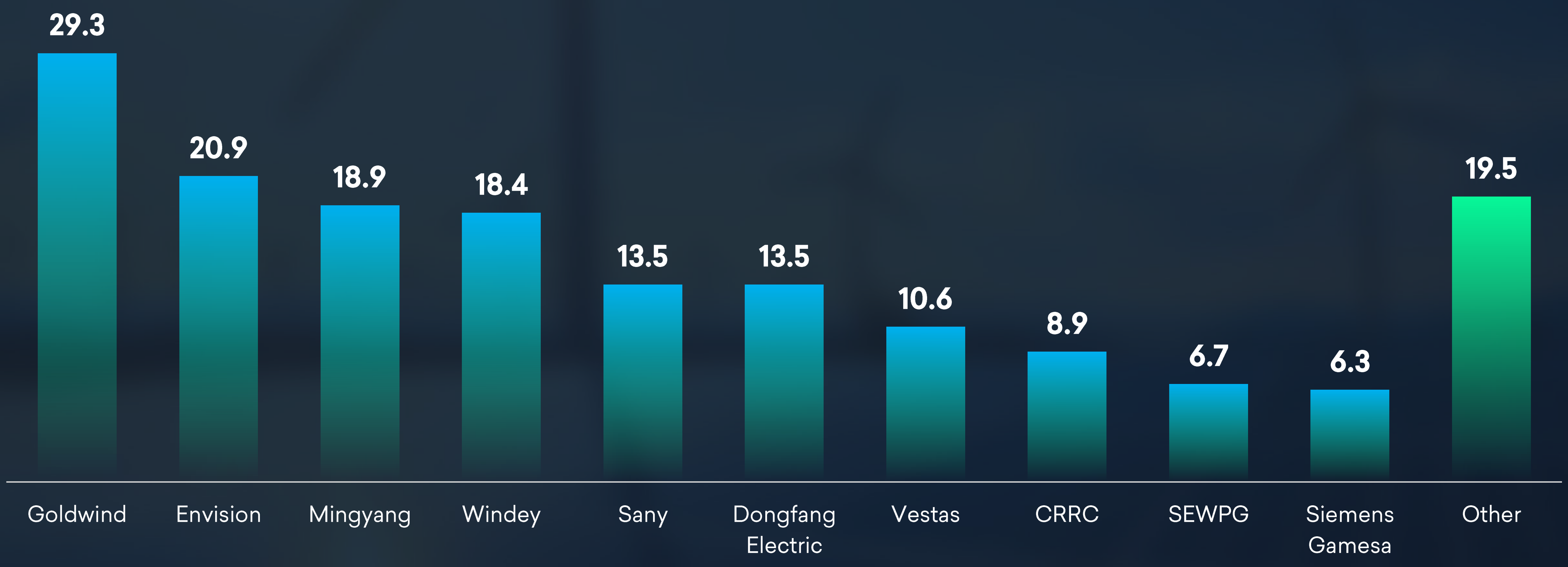
Global breakbulk sea transport index, 2019=100




Source: Drewry

# Chinese turbine manufacturers strengthened their position as the world's leading suppliers, accounting for eight of the top ten players in 2025

New additions in wind installed capacity by turbine producers, GW, 2025

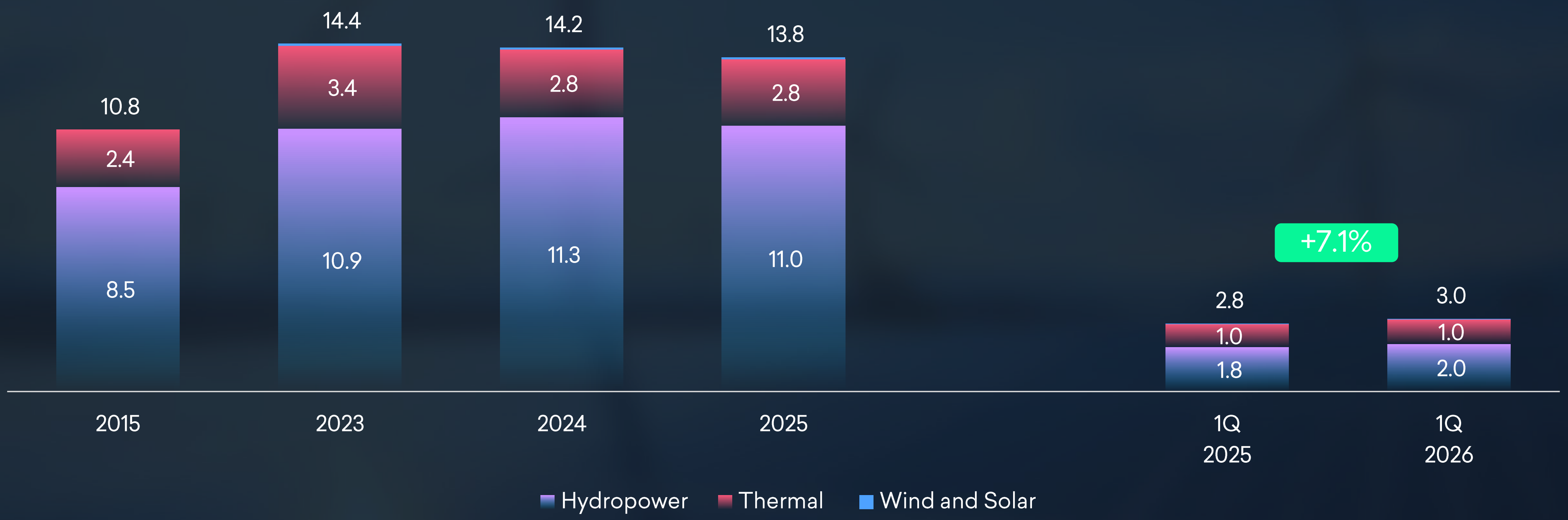



Source: Bloomberg

# Georgia’s electricity balance snapshot

# On average, electricity generation in Georgia has increased by 2.5% annually in the last 10 years

Electricity generation in Georgia, TWh



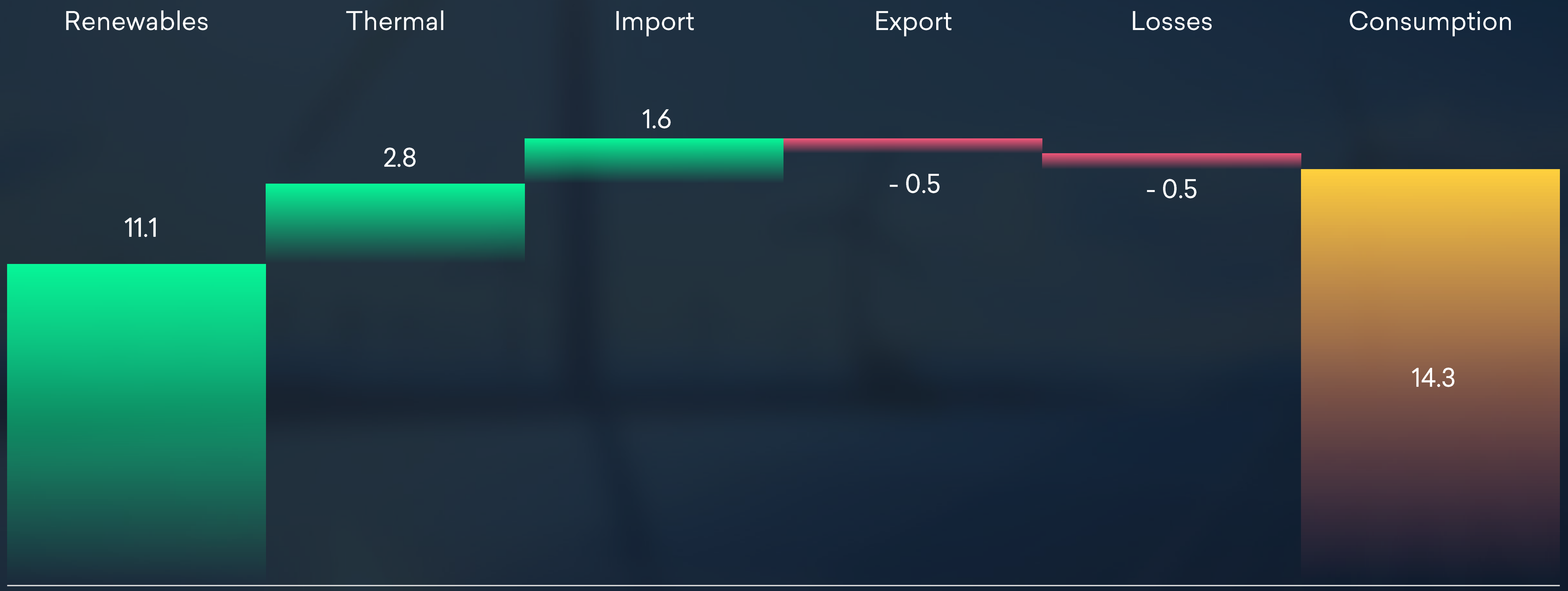

Source: ESCO, GNERC, TBC Capital

## During the same period, electricity consumption increased by an average of 3.3% annually and the growing trend to persist in the coming years


Source: ESCO, GNERC, TBC Capital

# 4.4 TWh of electricity were used to meet local demand through thermal generation and direct electricity imports in 2025

Electricity balance of Georgia, 2025, TWh

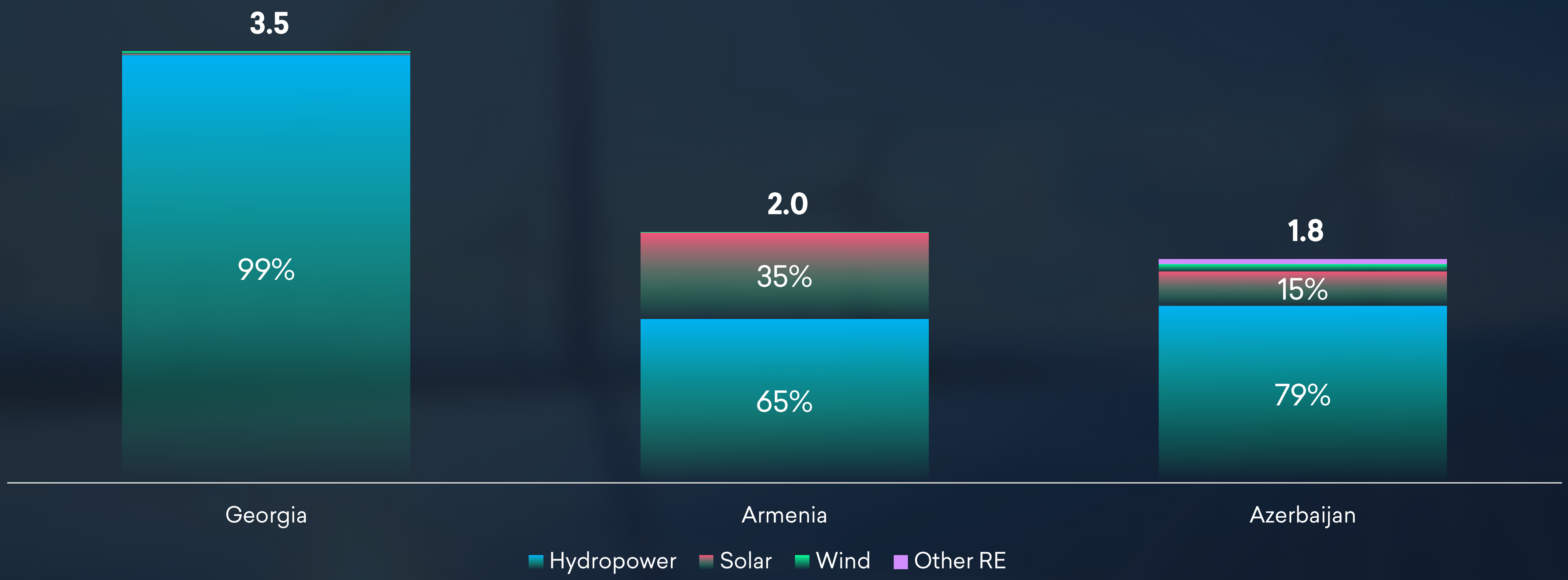



Source: ESCO, GNERC, TBC Capital

# Wind energy in the Caucasus

## As of 2025, renewable energy in the Caucasus region relies primarily on hydropower and solar, while wind power remains underdeveloped in all three countries

Installed capacity of renewable energy in Caucasus in 2025, GW




Source: IRENA, TBC Capital

# Countries in the Caucasus are actively planning and expanding wind capacity

## Georgia

**In 2026:**
18.75 MW already put into operation
207 MW planned by 2026

**By 2031:**
1,300 MW of wind capacity

**34 Projects**
29 – Early stage development
5 – construction stage

## Azerbaijan

**In 2026:**
240 MW commissioned

**Vast offshore potential:**
- 35 GW – fixed
- 122 GW – floating

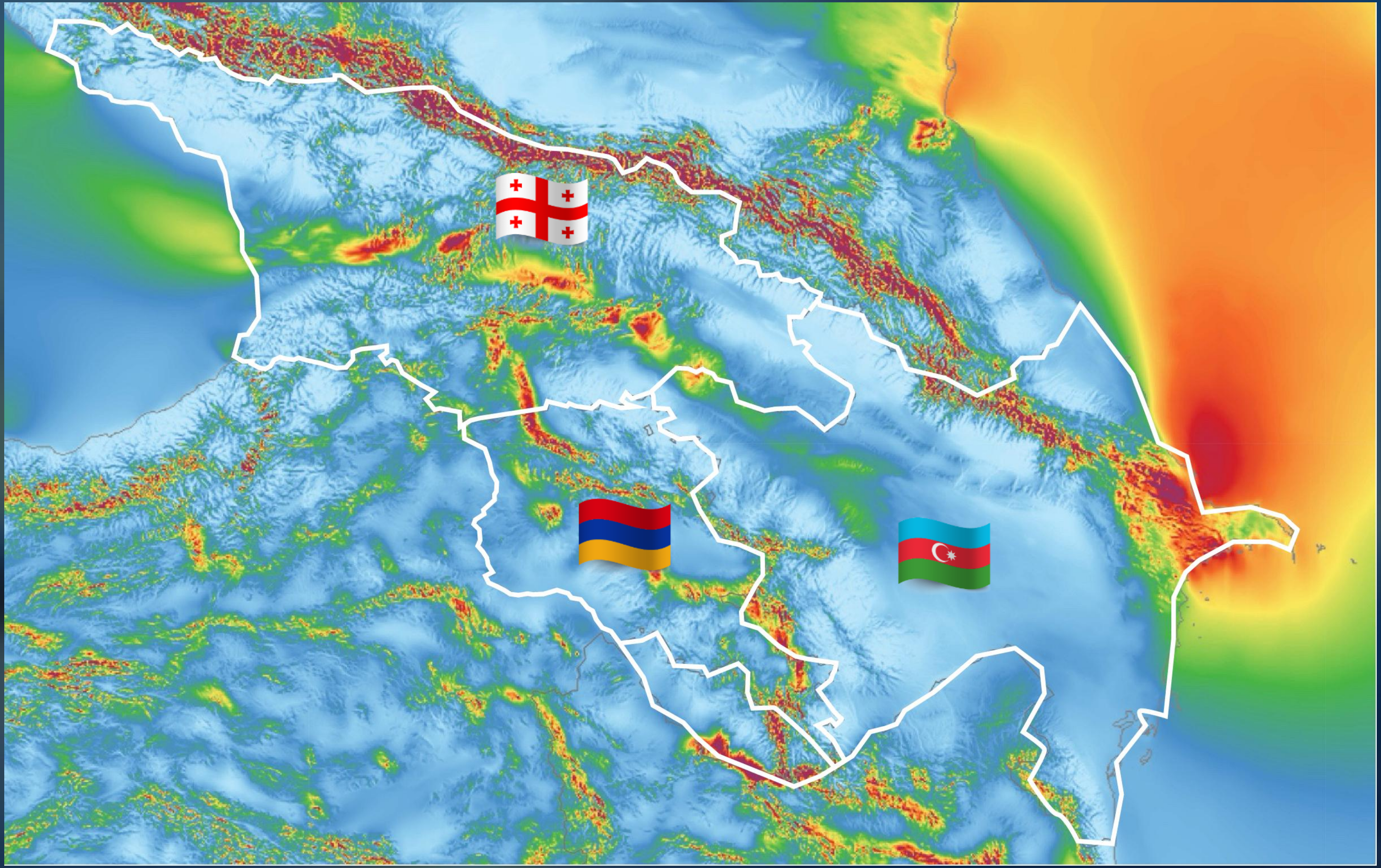
## Armenia

**By 2040:**
500 MW of wind capacity

**Viability Assessment for Wind Power** by ADB underway

Source: IFC, World Bank, ADB, MoESD

## The Caucasus benefits from strong onshore wind corridors, further enhanced by significant offshore wind potential in the Caspian Sea



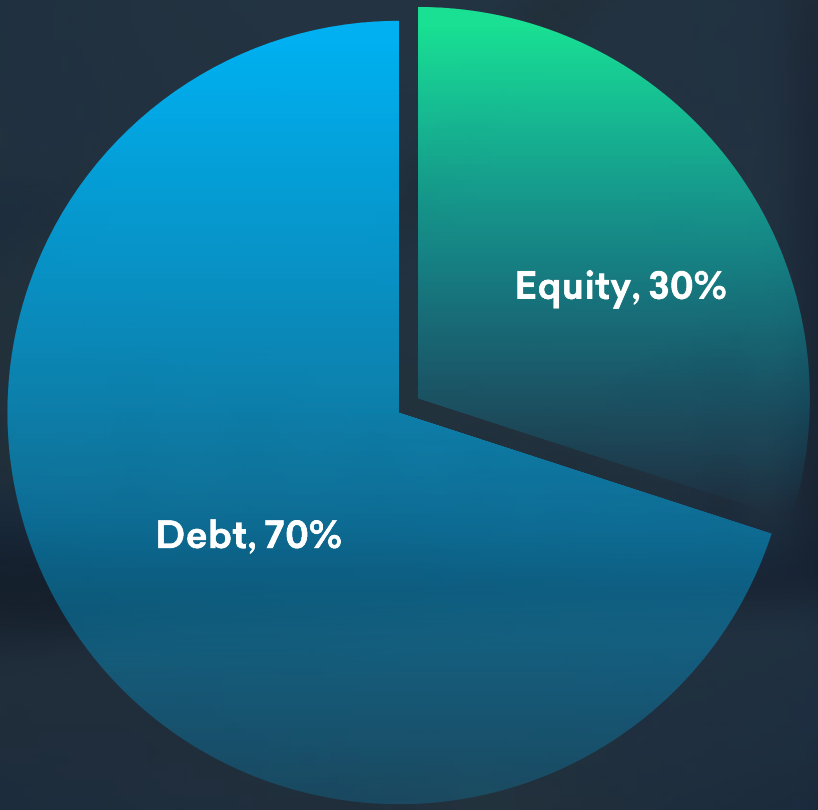
Mean wind power density at 100m height, W/m2

Source: Global Wind Atlas

# Investing in Georgia’s wind energy

# Wind plant profitability: Key assumptions

Capital structure (%)




**Loan term:**

Up to 15 years

**Plant factor:**

39.0 %

**Average annual tariff:**

5.7 USDc

**Installed capacity:**

50 MW

Source: TBC Bank, TBC Capital

# Potential wind plant profitability

| Payback period for equity investor | Project IRR | EBITDA margin | EBITDA/MW |
|---|---|---|---|
| **5.5 years** | **19.5%** | **83%** | **USD 163,000** |

Source: TBC Bank, TBC Capital

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