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2025 Trends

Renewable Energy and Solar Research Report

Your speakers today

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PULSE

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BY RATEDPOWER

About the report

140+	renewable energy professionals
41	countries
6	continents

01. Industry situation

A summary of the industry situation

29%
Increase in solar panels installed in 2024

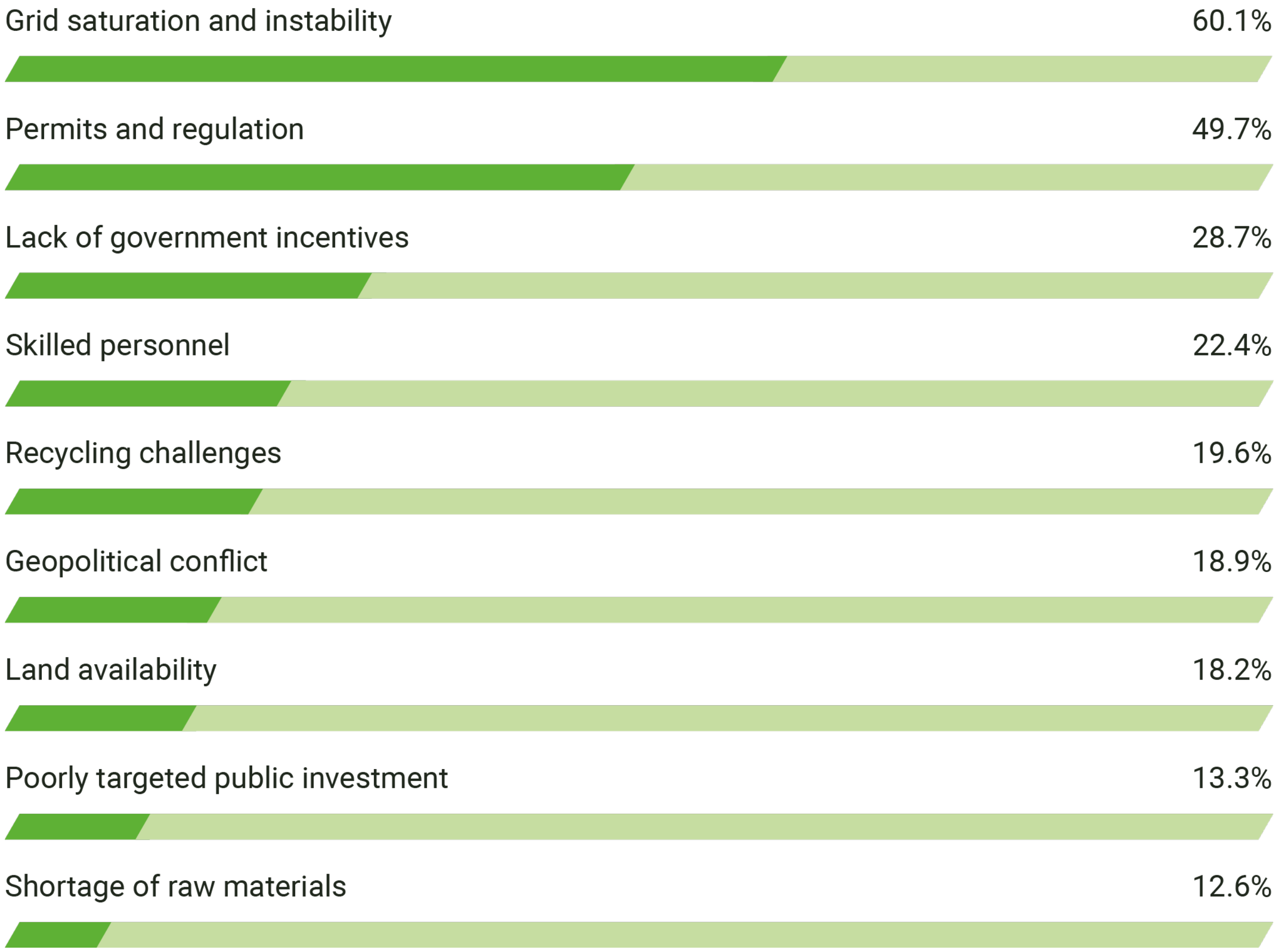
666 GW
Increase in renewable energy capacity in 2024

$3 trillion
Global clean energy investments

$2 trillion
Allocated to renewables, EVs, and nuclear power

46%
Clean energy generation by 2030

Challenges, according to respondents



Other challenges

- Lack of skilled personnel.
- Rising costs.
- Land availability.
- Recycling challenges.
- Raw material shortages and misdirected public investment.

Trends identified

Storage solutions

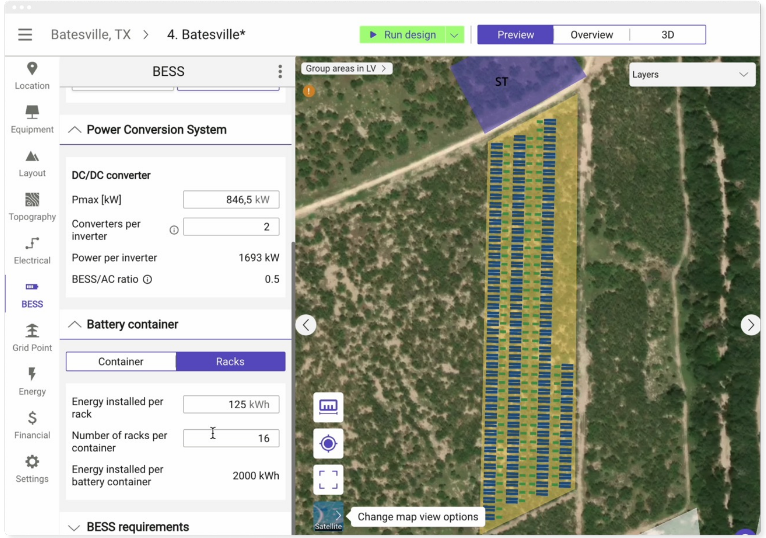
Agri-PV, floating solar, wind offshore

AI, machine learning, and digitalization

Trends identified

Storage (BESS)

- Need for lower prices:
  - $165/kWh in 2024
  - 40% YoY vs. 2023
- Need for R&D investments to advance technology and sourcing of sustainable materials.
- Importance of clear regulatory framework and government incentives.
- Key markets in 2024:
  - **China** (36 GW installed in 2024)
  - **United States** (13 GW)
  - **Europe** (10 GW)
  - **Australia** (2 GW)



Trends identified

Agri-PV

- Need for **policies that incentivize farmers** through tax breaks & subsidies.
- **Germany, France, Italy and the Netherlands**: regulations adapted to agriculture and electricity production.
    - **+200 agri-PV projects throughout Europe.**

Offshore Wind

- Challenges:
    - Supply chain disruptions.
    - High upfront costs
    - High O&M costs.

- Countries leading the race in 2024:
    - **China** (6.9 GW installed in 2024)
    - **The Netherlands** (1.7 GW)
    - **United Kingdom**
    - **United States**

Trends identified

Floating Solar

- **Expectations to install 20 GW between 2024 and 2030**
- Challenges:
  - High upfront, operating and maintenance costs.
  - Environmental impacts.
  - Materials longevity.
  - Regulatory barriers.

Trends identified

IA, machine learning y digitalization

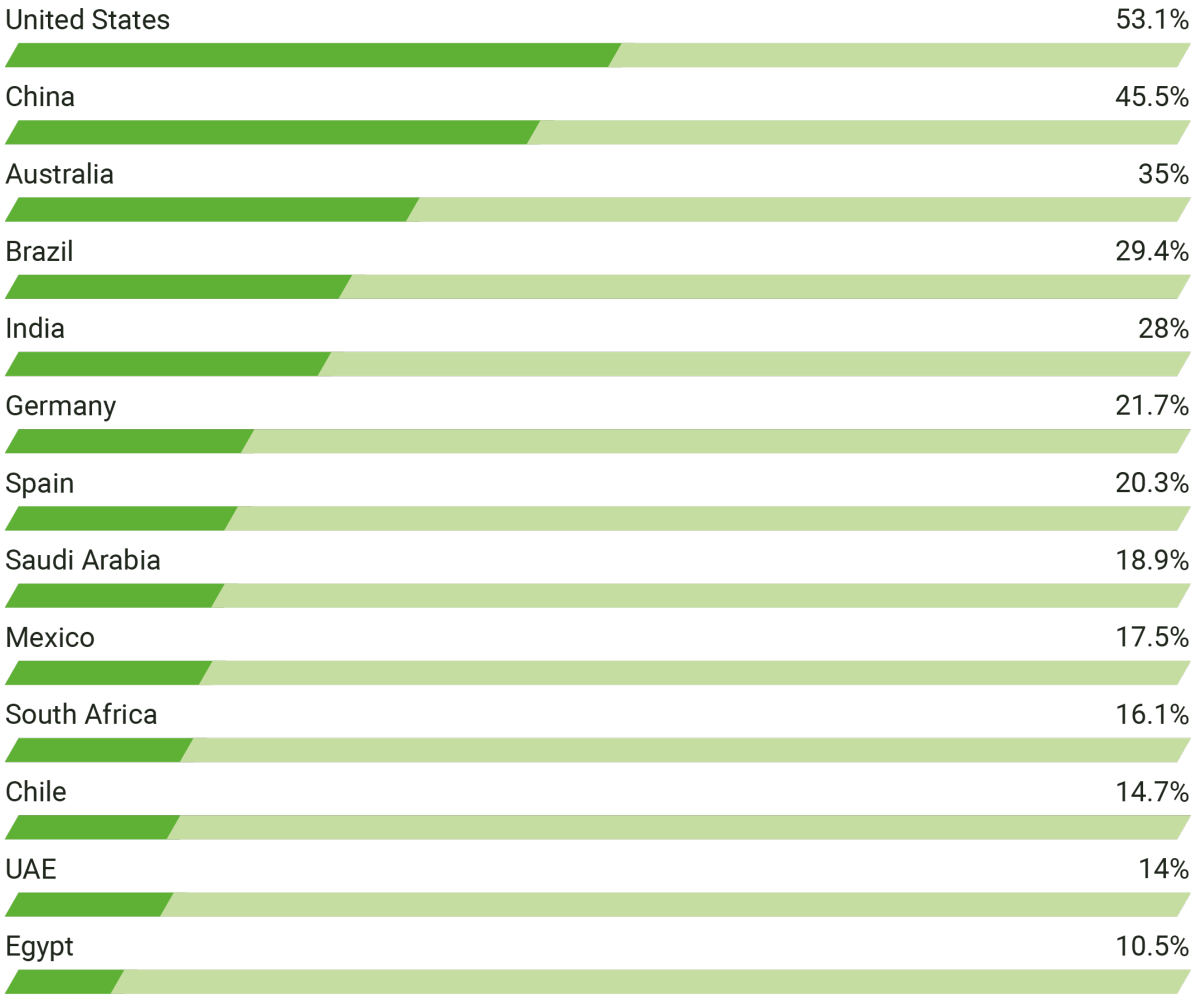
- The digitalization of the energy industry worldwide was valued at 49,5 billion US$ in 2023.
- 28,4% CAGR between 2024 and 2032.
- Use cases:
    - Predictive maintenance
    - Optimize grid management.
    - Enable smart grid technologies.
    - Enhance energy forecasts.

Poll time:

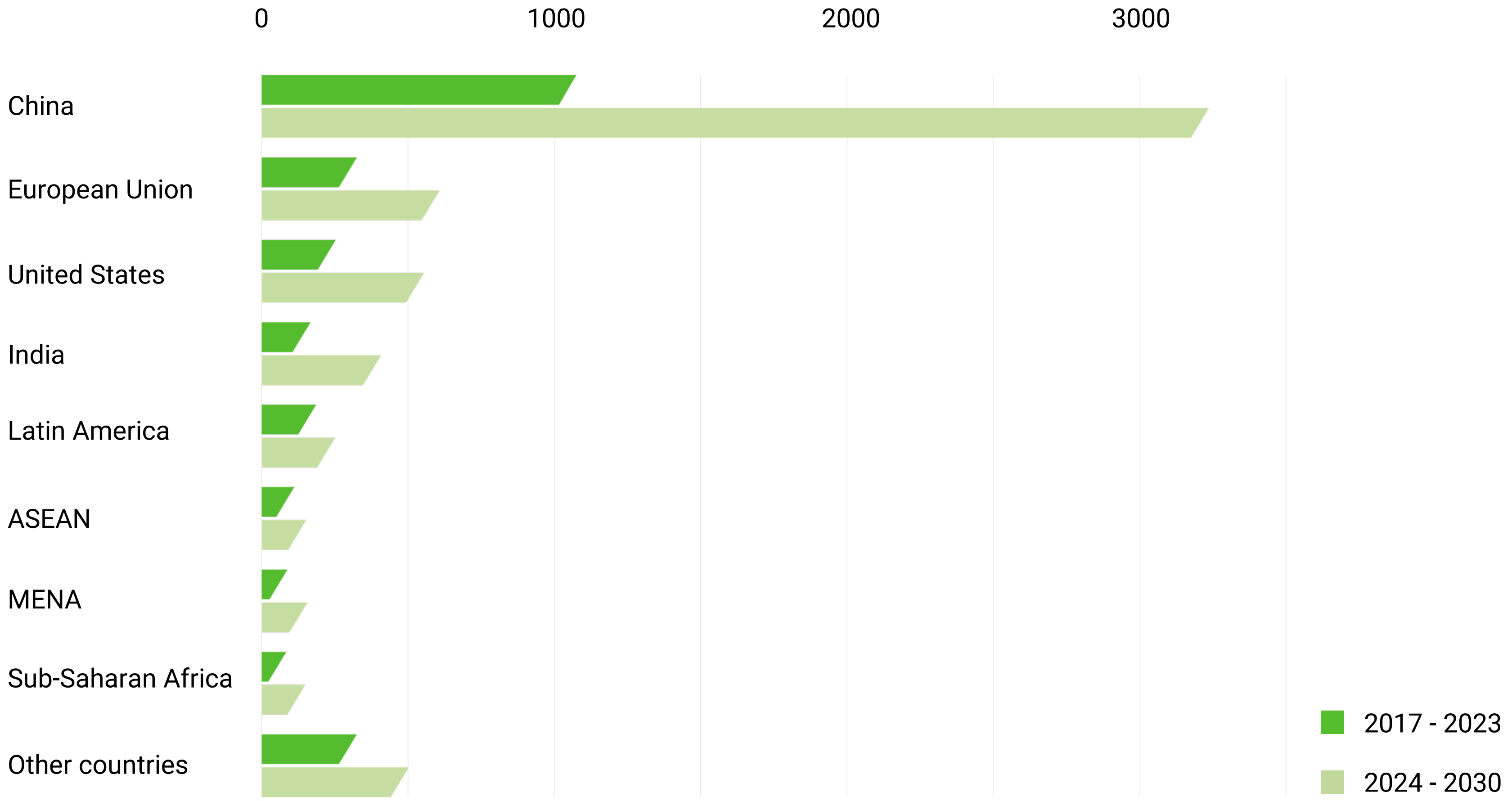
Which countries have the highest renewable capacity growth potential for 2025?

Regional growth hotspots

Countries with the highest potential for 2025 according to our survey

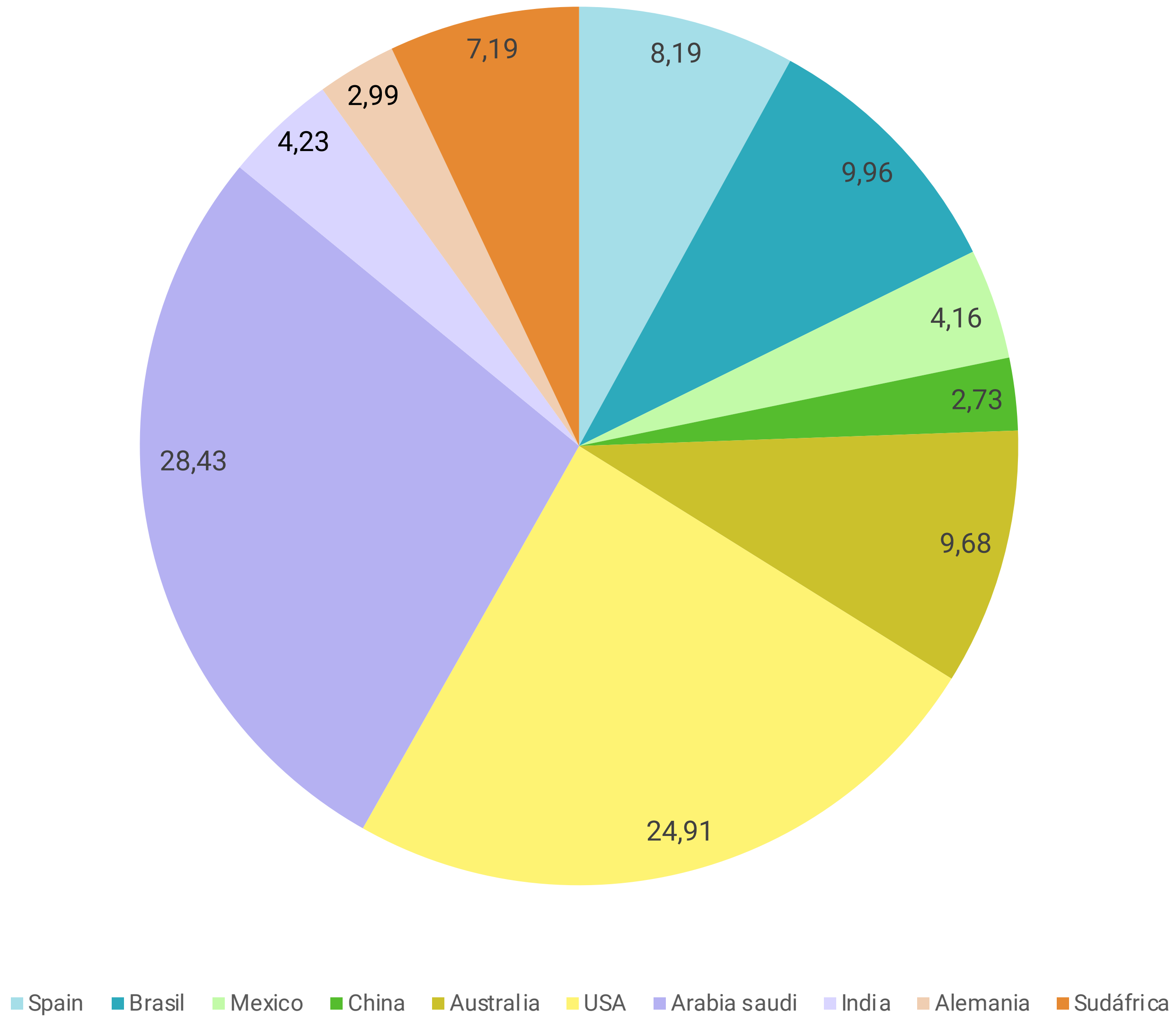


Growth of renewable electricity capacity by country/region, main case, 2017-2030 (GW)



Source: Bahar, Heymi, et al. “Renewables 2024 - Analysis and Forecast to 2030.” IEA, Oct. 2024

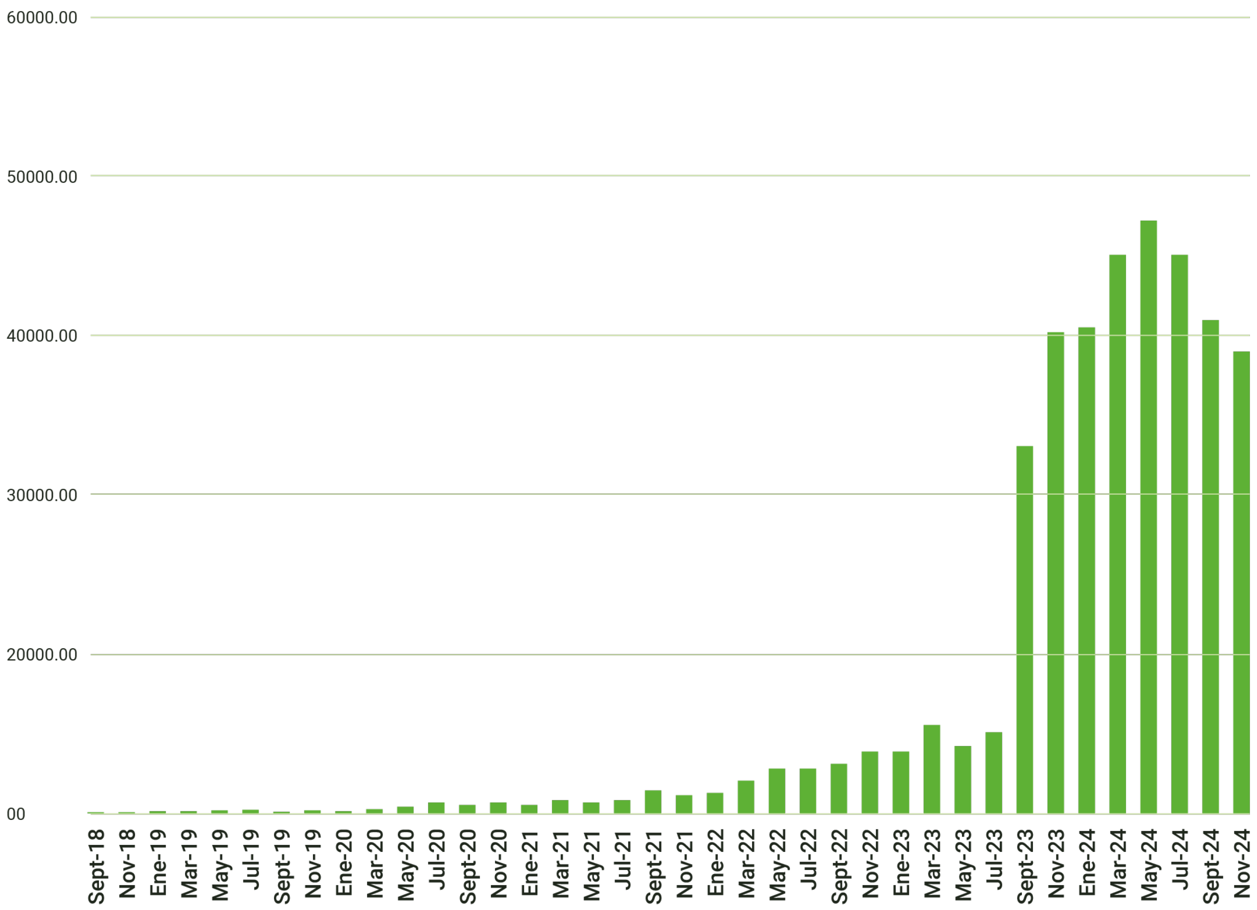
Percentage of simulation power in RatedPower in 2024



Country	Simulation Power %
Saudi Arabia	28.43
USA	24.91
Brazil	9.96
Australia	9.68
Spain	8.19
South Africa	7.19
India	4.23
Mexico	4.16
Germany	2.99
China	2.73

Stats from RatedPower's platform

Number of simulations over time (indexed)



Our data

- **42K** projects
- **3.35 TW** designed

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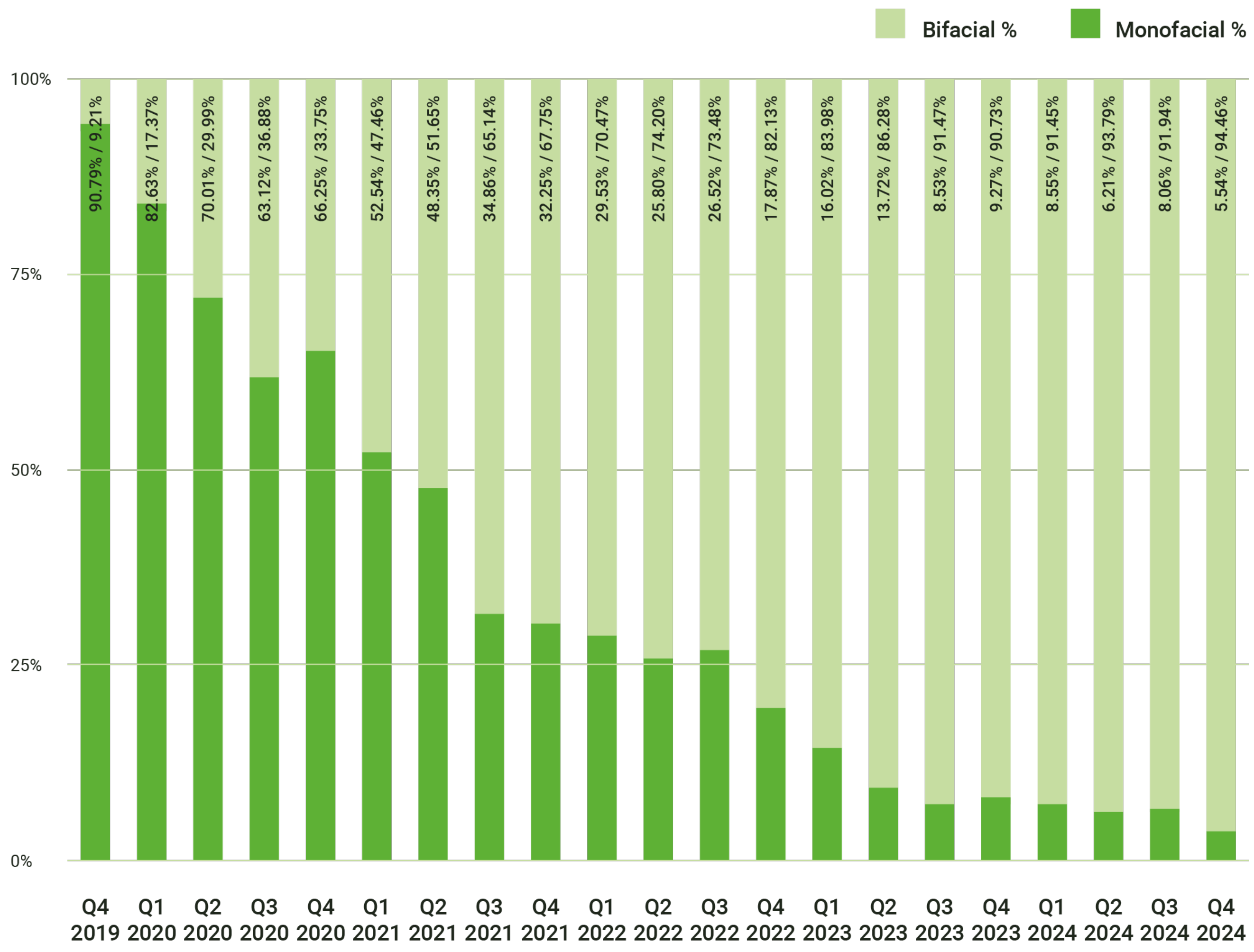
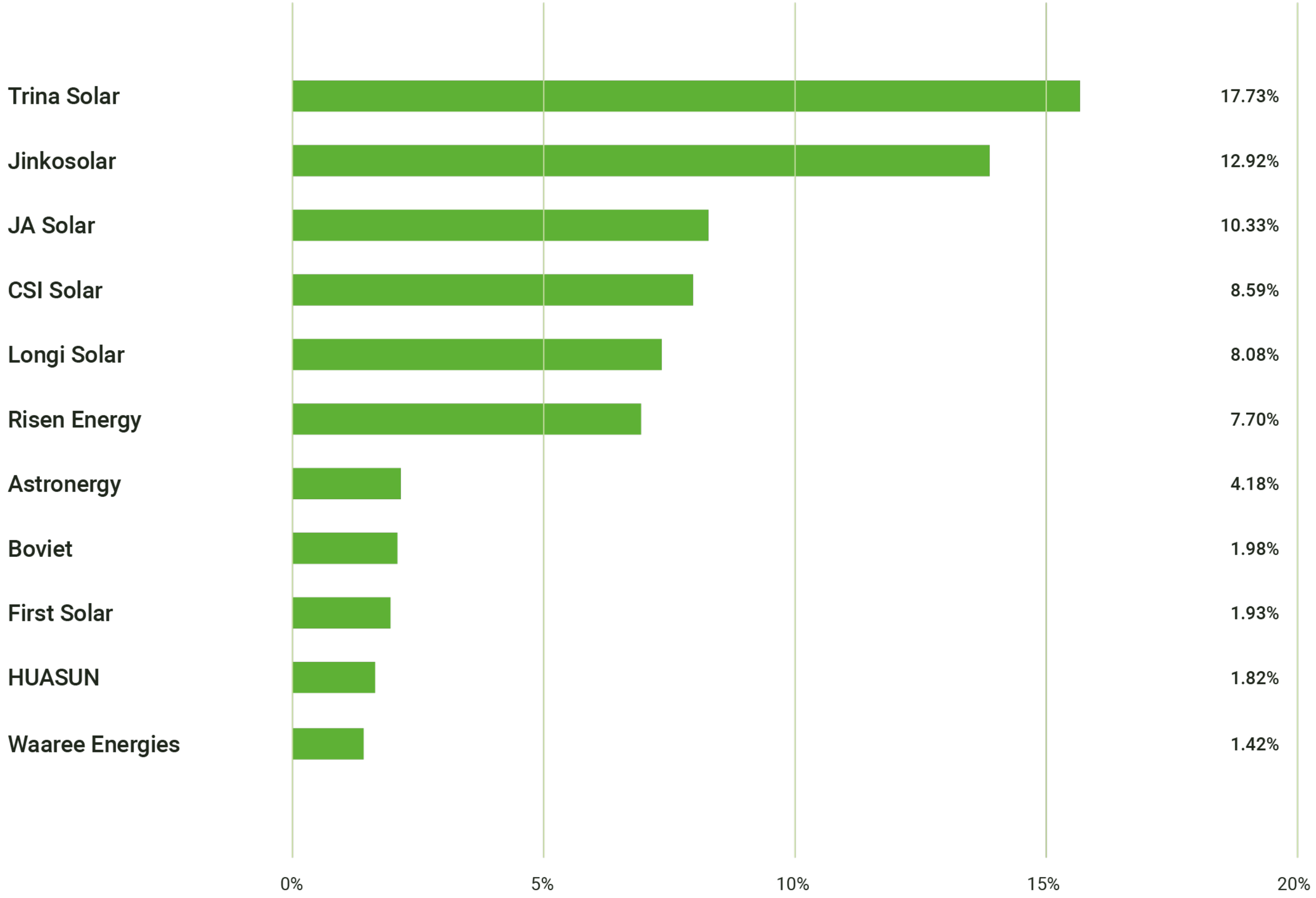
Module preference (monofacial, bifacial) global per quarter



Module preferences

Top module manufacturers used in simulations, 2024



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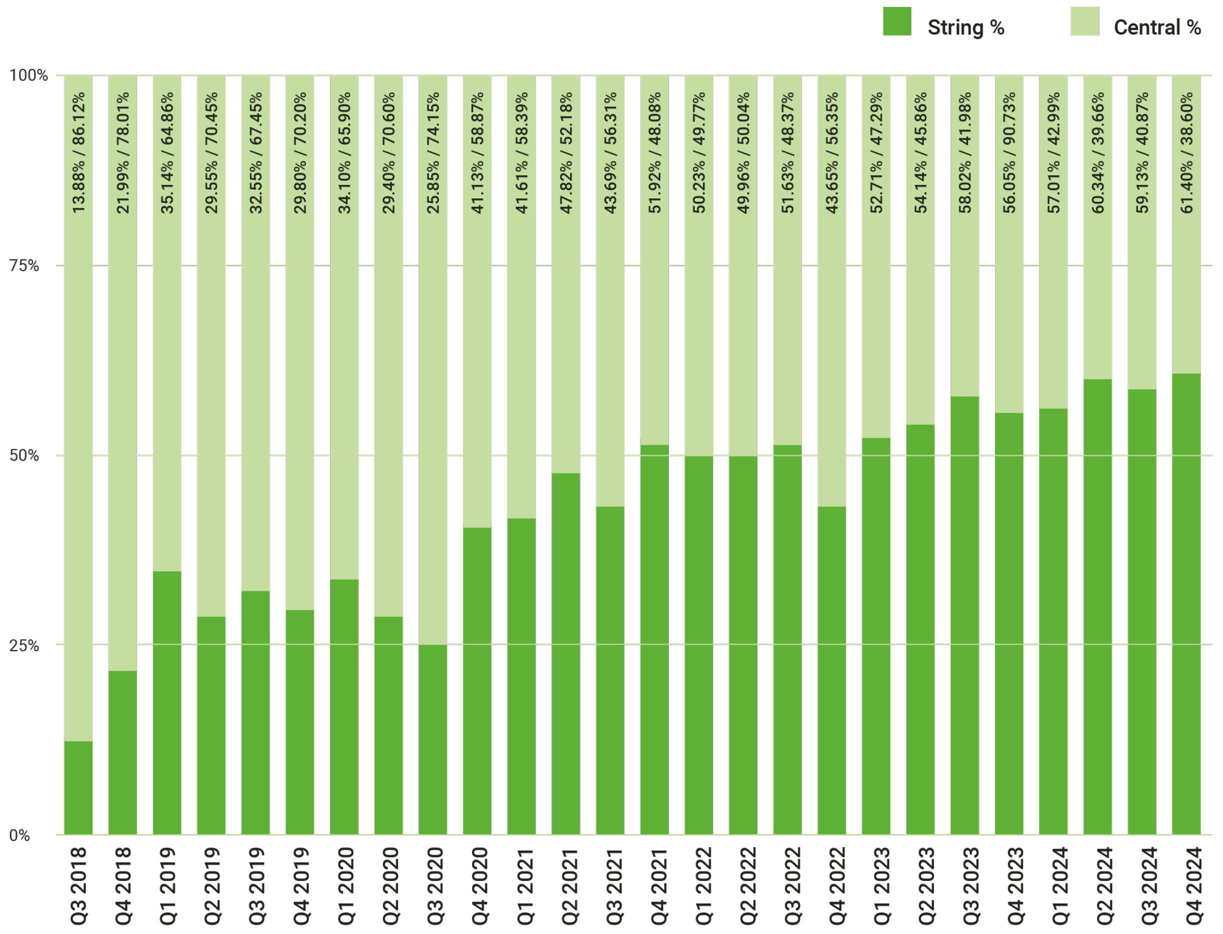
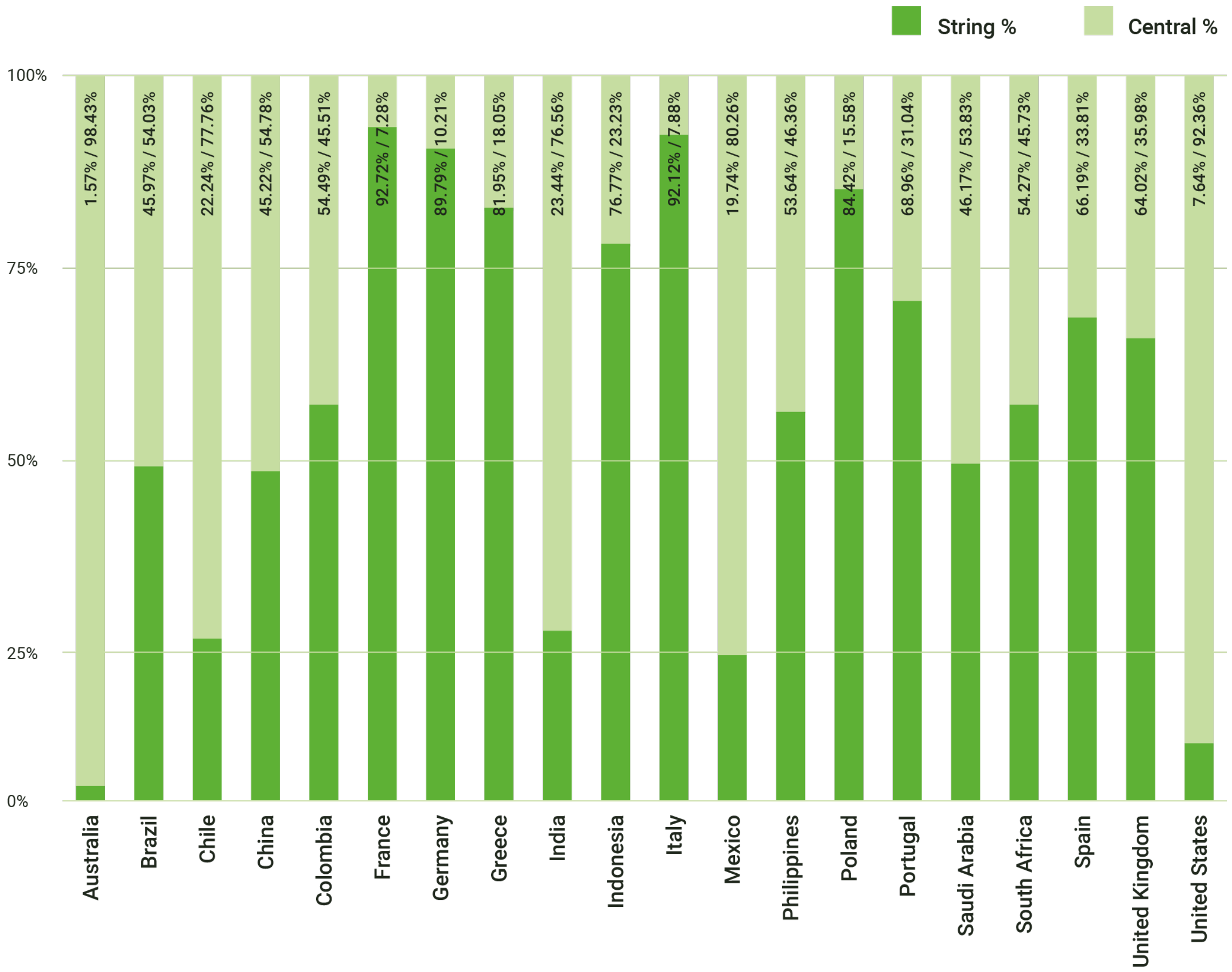
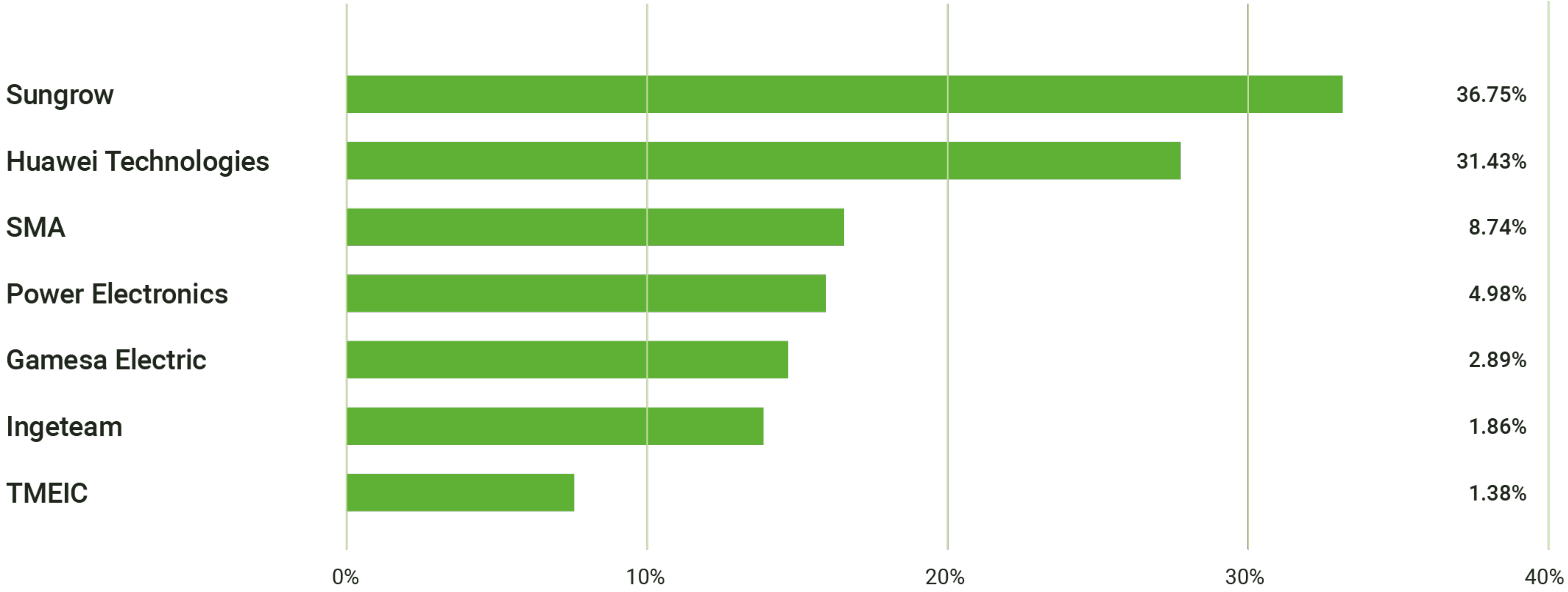
Inverters (central vs string), global, per quarter, 2024



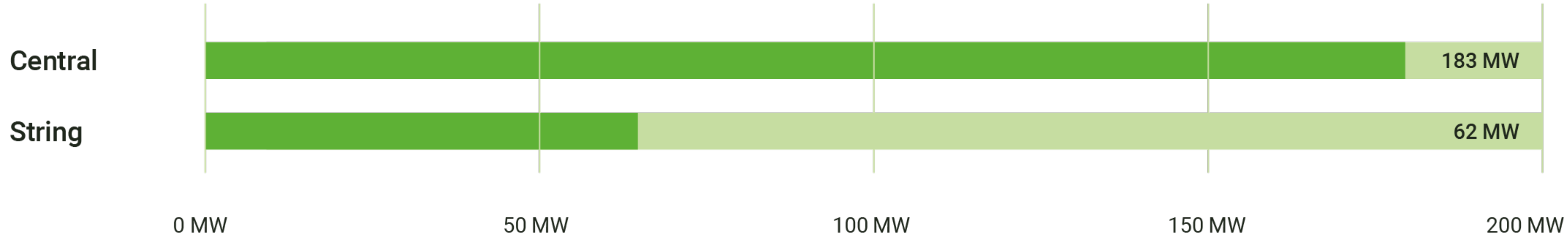
Preferred inverter manufacturers per geography, selected regions, 2024



Top inverter manufacturers used in simulations, 2024

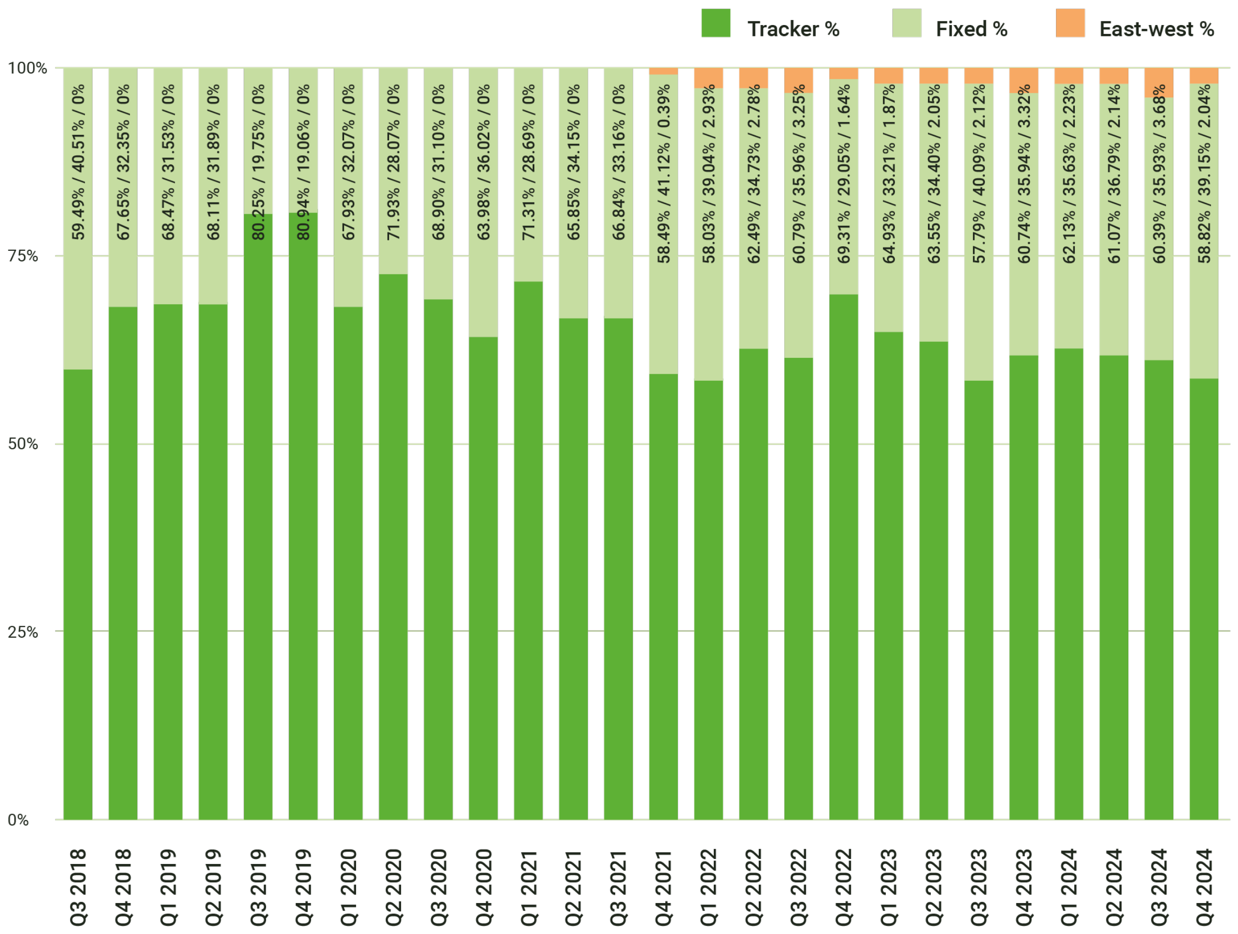


Average PV plant rated power per inverter type picked, 2024

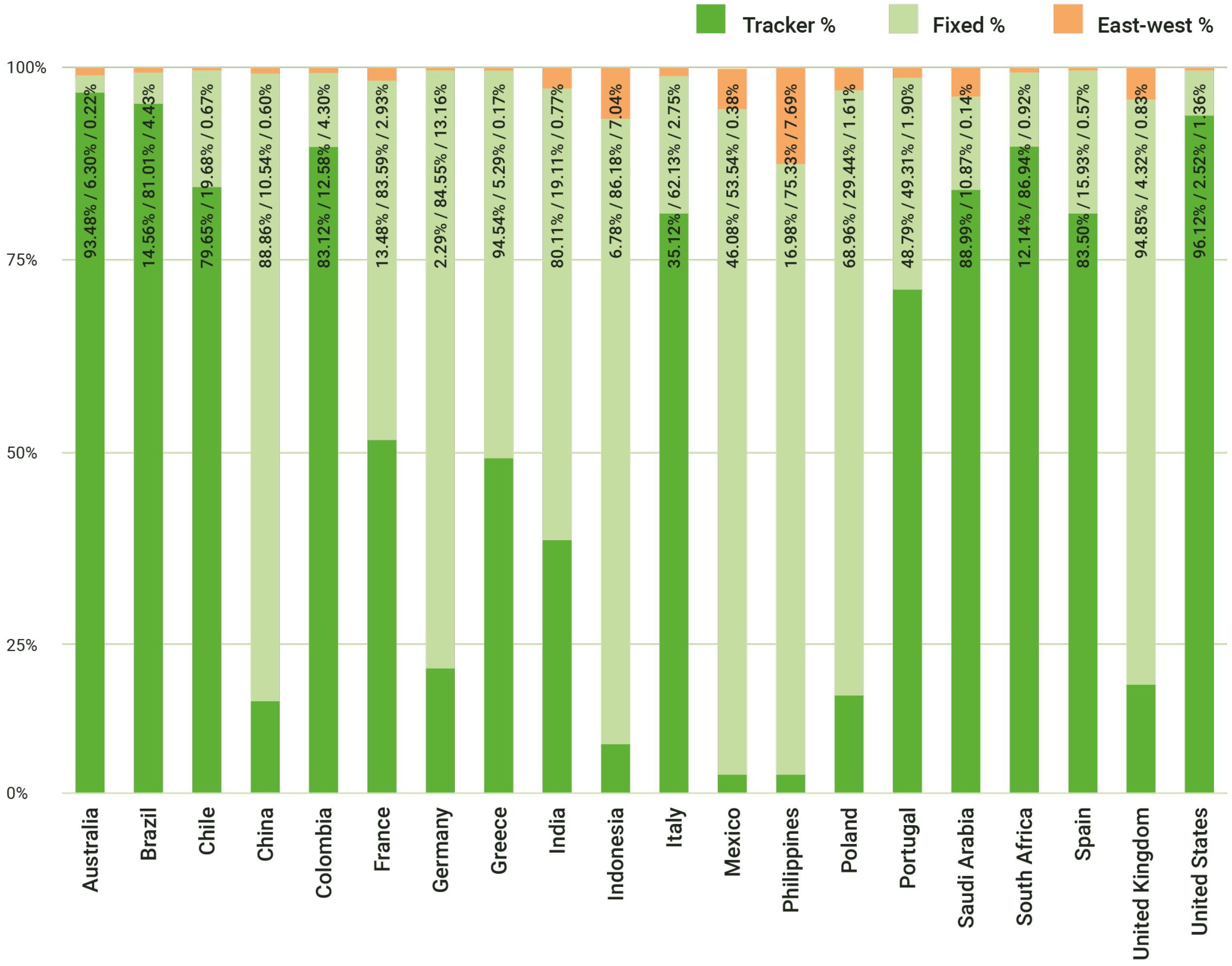


Structure preferences

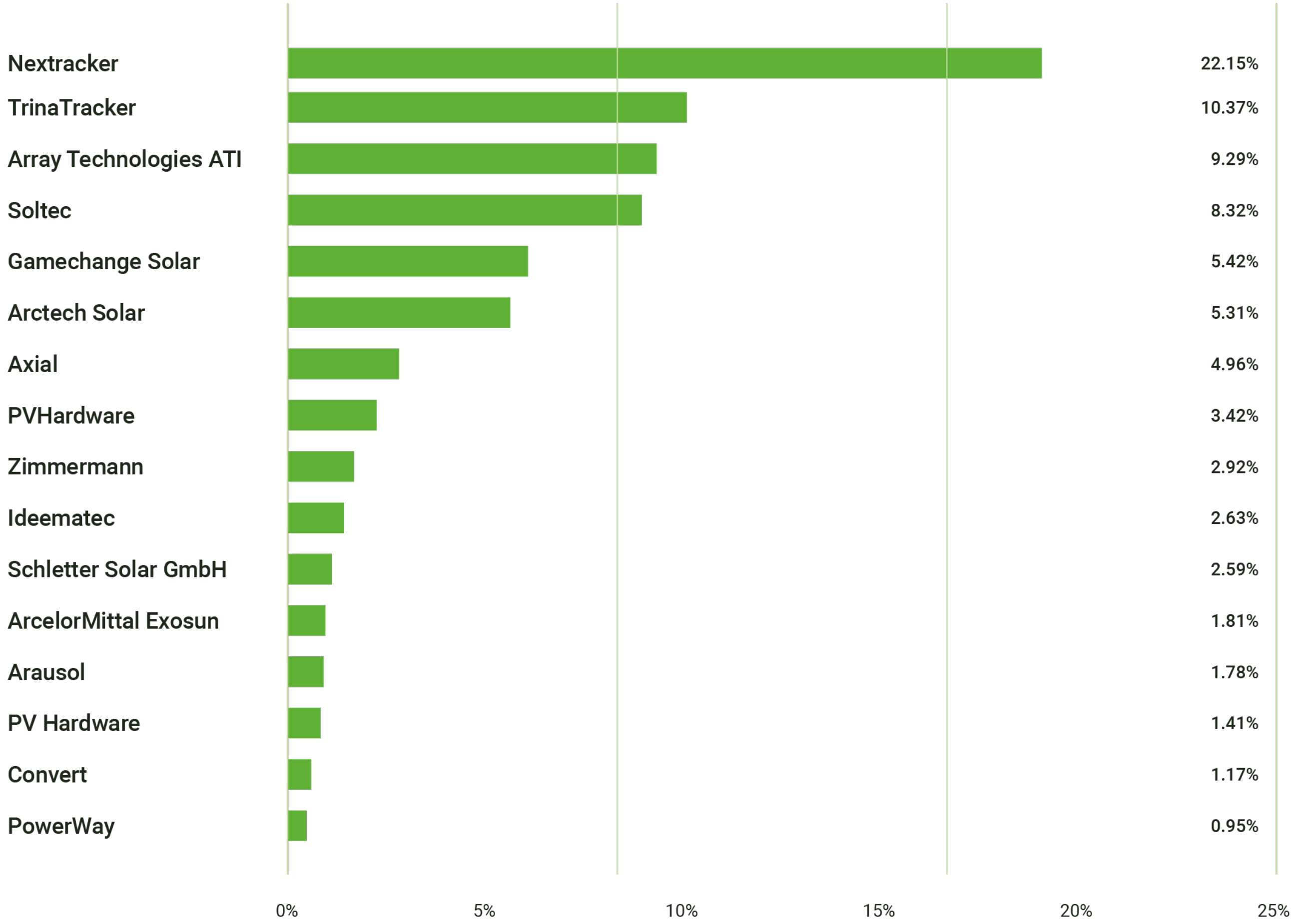
Preferred structures (Tracker, Fixed, East-West), global, per quarter



Preferred structure type per geography, selected regions, 2024

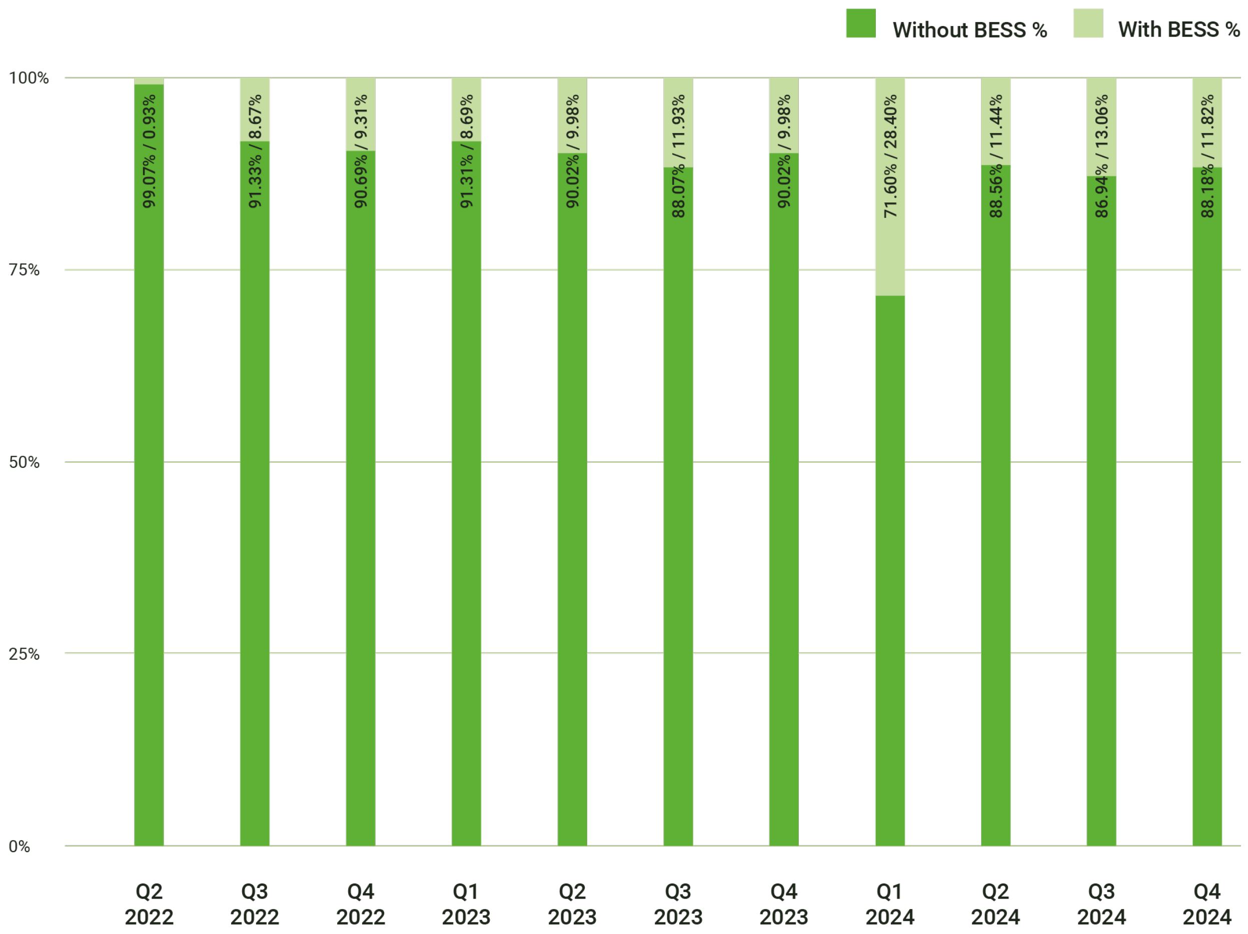


Top structure manufacturers used in simulations, 2024



BESS preferences

Hybrid solar plants over time (Global)



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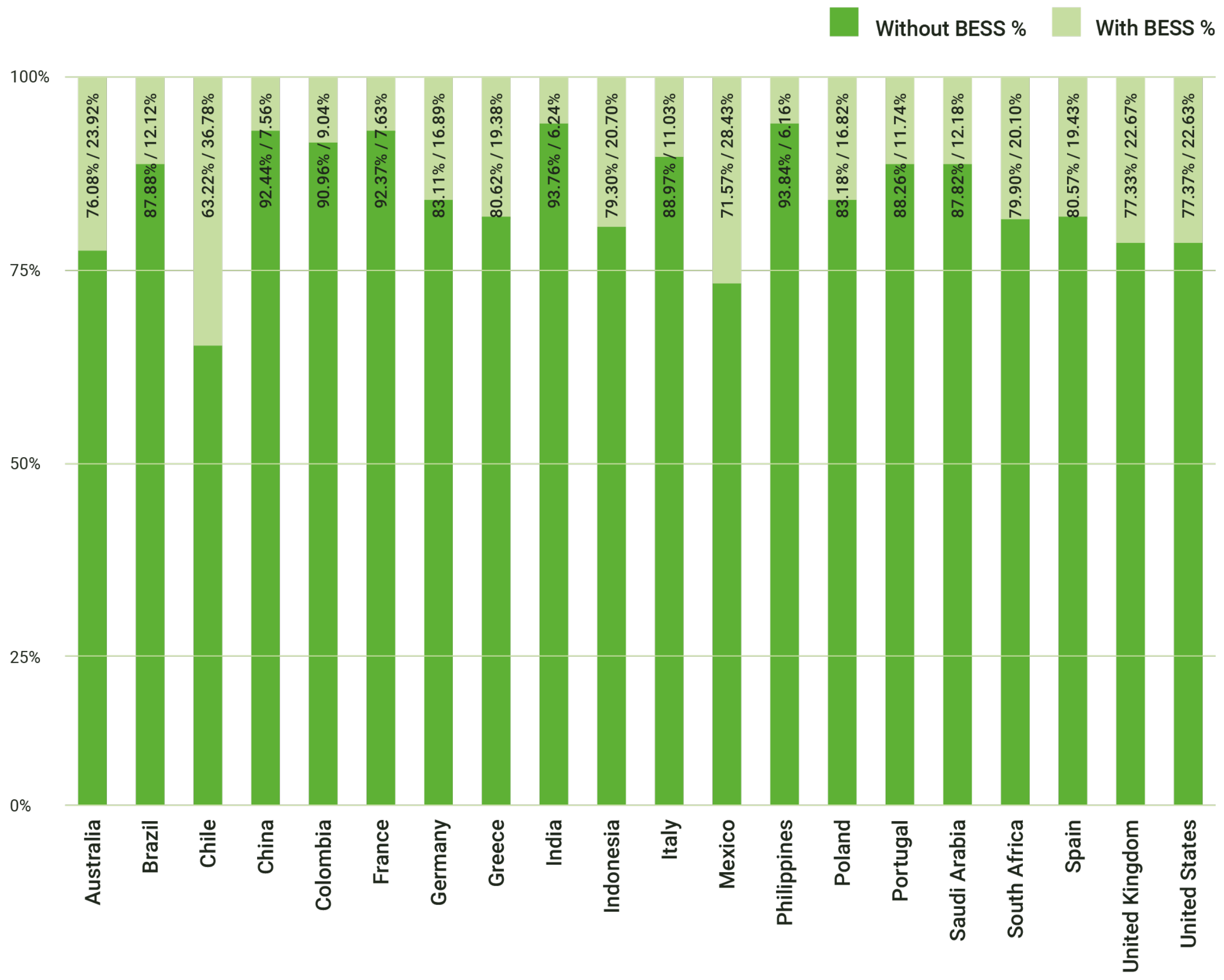
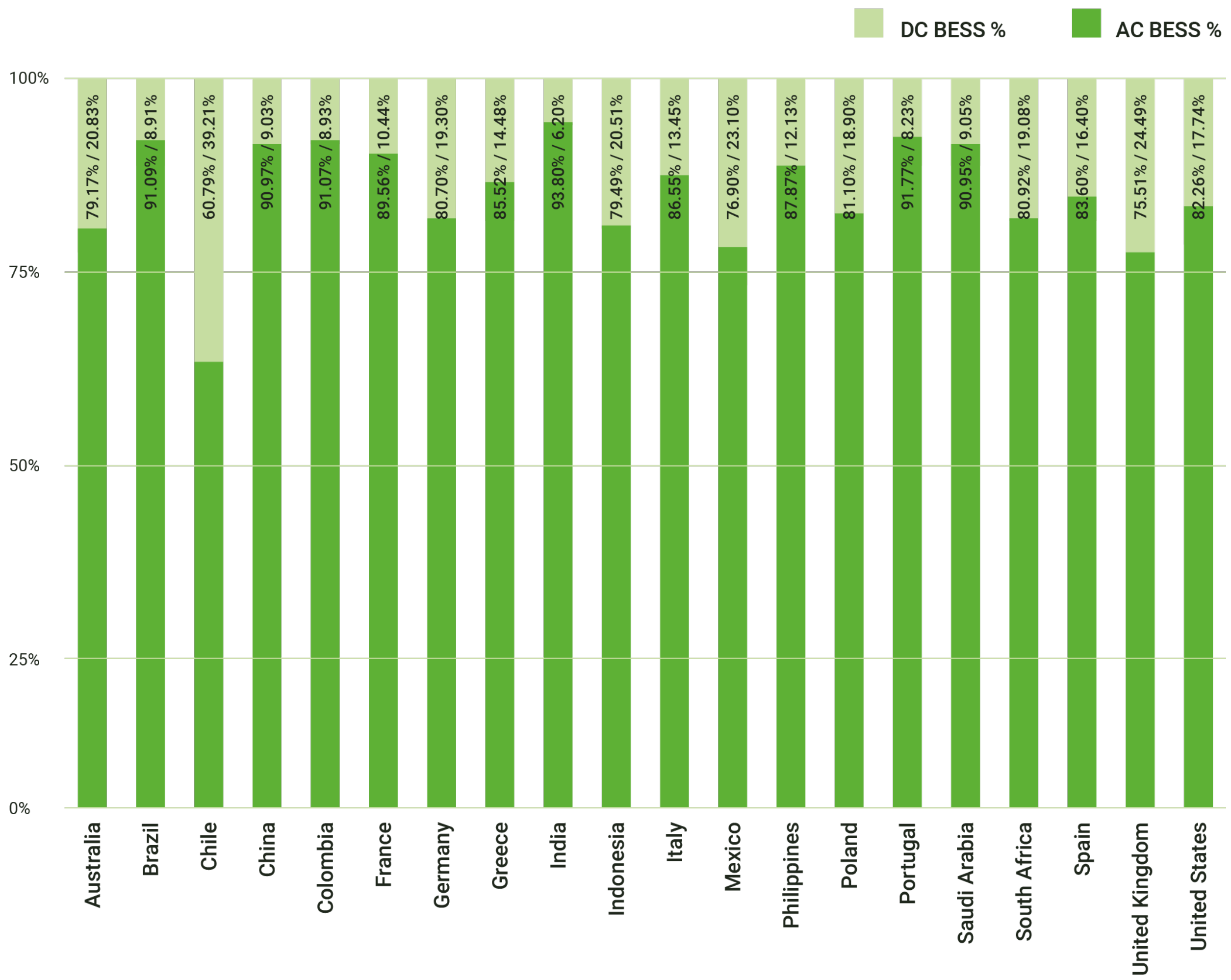
Hybrid solar plants in selected geographies, 2024

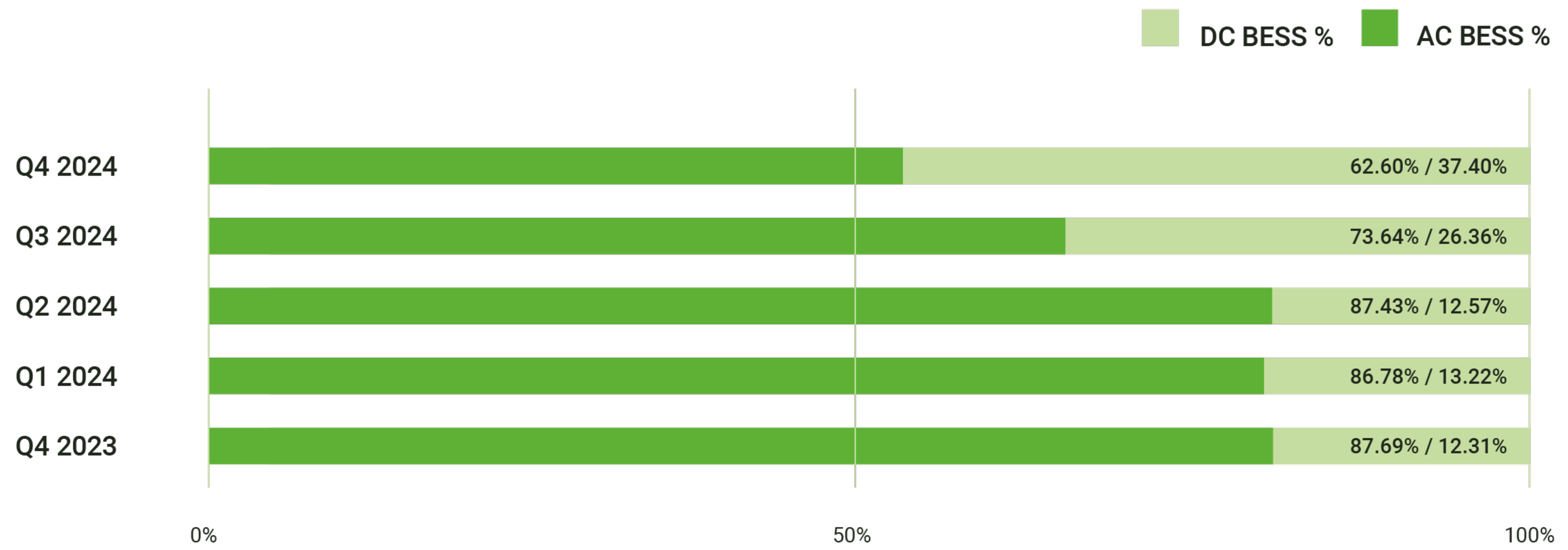


BESS preferences

AC vs DC BESS solar plants (selected regions), 2024



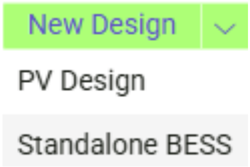
BESS type over time (AC vs DC)



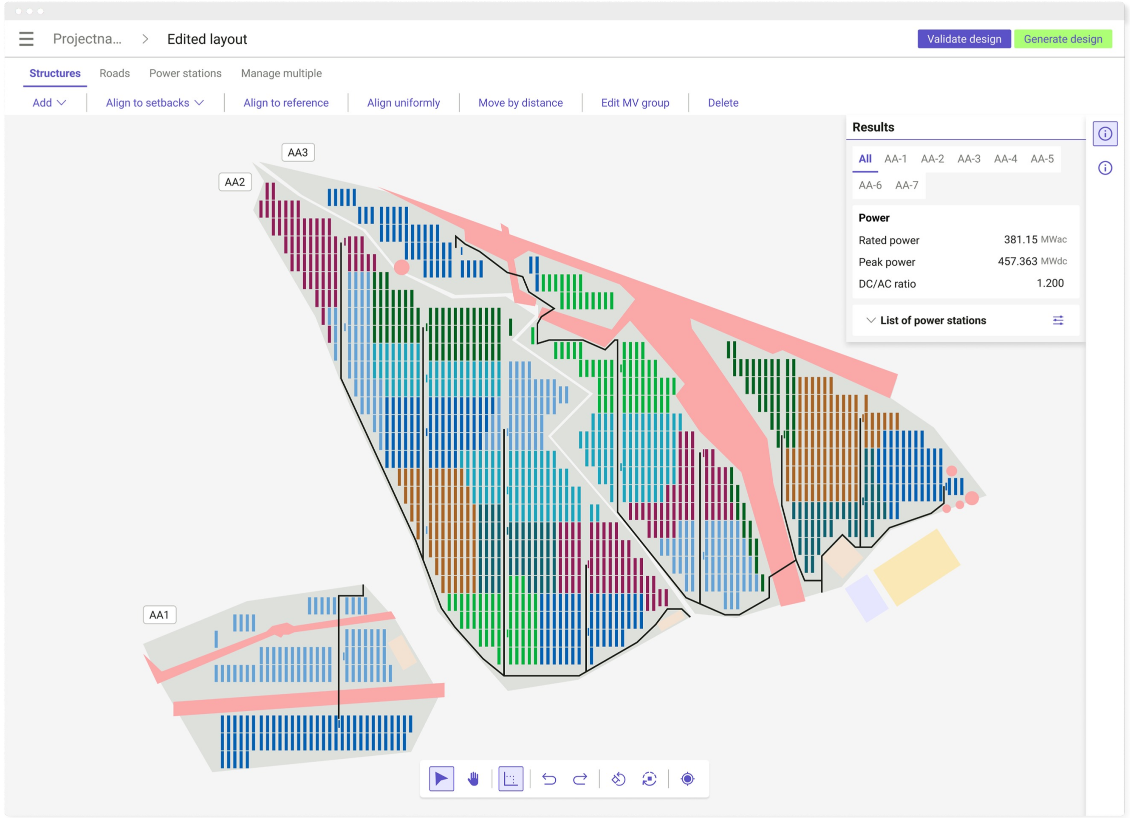
BESS preferences

BESS & Layout Editor features in RatedPower

Standalone BESS & BESS Arbitrage (Dispatch)



Layout Editor



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Renewable energy **remains resilient** despite shifting international relations and supply chain disruptions.

Concerns about **permitting and regulations are fading**.

Major markets like the **U.S., China, and Europe** are leading the way on achieving ambitious green targets.

The sector is embracing **innovation** and **technological advancements**.

Diversification in resources and global reach will be key for all stakeholders.

Government support and **strong market demand** will drive renewable growth.

Questions?

We're all ears!
Drop yours in the question box!

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