

Worldwide renewable energy availability

Global Renewable Energy Targets:

- 50% of global electricity generation from renewables by 2030 (IEA)
- 100% of global electricity generation from renewables by 2050 (IRENA)

Current Status (2024):

- Solar Power: 940 GW (installed capacity), growing at 20% annually
- Wind Power: 840 GW (installed capacity), growing at 15% annually
- Hydro Power: 1,200 GW (installed capacity), steady growth
- Geothermal Energy: 14 GW (installed capacity), slow growth
- Biomass Energy: 130 GW (installed capacity), steady growth

Regional Breakdown:

- Asia: 40% of global renewable energy capacity
- Europe: 25% of global renewable energy capacity
- North America: 20% of global renewable energy capacity
- South America: 5% of global renewable energy capacity
- Africa: 5% of global renewable energy capacity

Key Players:

- China: Leading solar and wind power market
- Europe: Leading wind power market
- USA: Leading geothermal energy market
- Brazil: Leading biomass energy market

Renewable energy in India

India's renewable energy sector is growing rapidly, with a focus on solar, wind, hydro, and biomass energy.

Renewable Energy Targets:

50% of total electricity generation from renewable sources by 2030

Current Status (2024):

- Solar Power: 64 GW (installed capacity), targeting 100 GW by 2025
- Wind Power: 41 GW (installed capacity), targeting 60 GW by 2025
- Hydro Power: 46 GW (installed capacity), targeting 50 GW by 2025
- Biomass Power: 10 GW (installed capacity), targeting 15 GW by 2025
- Geothermal Energy: 0.07 GW (installed capacity), targeting 1 GW by 2025

Challenges:

- Intermittency and grid integration
- Land acquisition and infrastructure development
- Financing and funding
- Policy and regulatory framework

Opportunities:

- Energy security and independence
- Job creation and economic growth
- Reduced greenhouse gas emissions
- Improved air quality