



WORLD SOLAR REPORT: ECONOMY

NEWS: What is the extent of the global share of solar energy?

WHAT'S IN THE NEWS?

World Solar Report 2024: Highlights and Insights

Introduction

- Published by the **International Solar Alliance (ISA)**, the **World Solar Report 2024** provides a comprehensive overview of global solar energy advancements, market trends, and technological innovations.

Global Solar Capacity Growth

- Historic Increase in Solar Capacity:**
 - Global solar capacity surged from **1.22 GW in 2000** to **1,419 GW in 2023**, reflecting a **CAGR of 36%**.
 - Solar energy now constitutes **75% of all renewable capacity additions worldwide**.

Technological Advancements in Solar Energy

1. Quantum Dot Solar Cells:

- Achieved **18.1% efficiency**, significantly improving energy capture.
- Enables **atmospheric water harvesting**, promoting water access in arid regions.

2. Self-Healing Solar Panels:

- Designed to **repair surface damages** autonomously, enhancing lifespan and minimizing maintenance.

3. Solar-Powered Phyto-Mining:

- Uses solar energy to extract valuable **metals from soil**, providing a sustainable alternative to conventional mining.

4. Infrastructure Integration:

- Solar Paver Blocks** and **Building Integrated Photovoltaics (BIPV)**, including transparent solar panels, enable **energy generation alongside light transmission** for structures.



5. Material Optimization:

- Innovations target reducing dependency on **critical materials** like lithium and rare earth elements.
- Emphasis on **recycling panels** and establishing **circular economy practices**.

Reducing Costs and Global Market Trends

1. Cost Trends:

- **Utility-scale solar PV costs** have fallen consistently, with **average auction prices** at **\$40/MWh** globally.
- India recorded the **lowest auction price** at **\$34/MWh**.

2. Market Dominance:

- **China** leads with **609 GW** (43% of global capacity).
- The **U.S.** follows with **137.73 GW** (10% of global capacity).

3. Solar PV Manufacturing:

- Manufacturing capacity for **wafers, cells, and modules** almost doubled in 2023.
- **China** retains dominance in manufacturing output.

Impact on Other Industries

1. Employment Growth:

- Solar PV employment reached **7.1 million jobs in 2023**, reflecting its **economic importance**.

2. Agriculture Transformation:

- **Solar-powered irrigation systems** and **agrivoltaics** are revolutionizing farming.
- Solar pumps projected to grow at **5.8% CAGR (2021–2027)**.

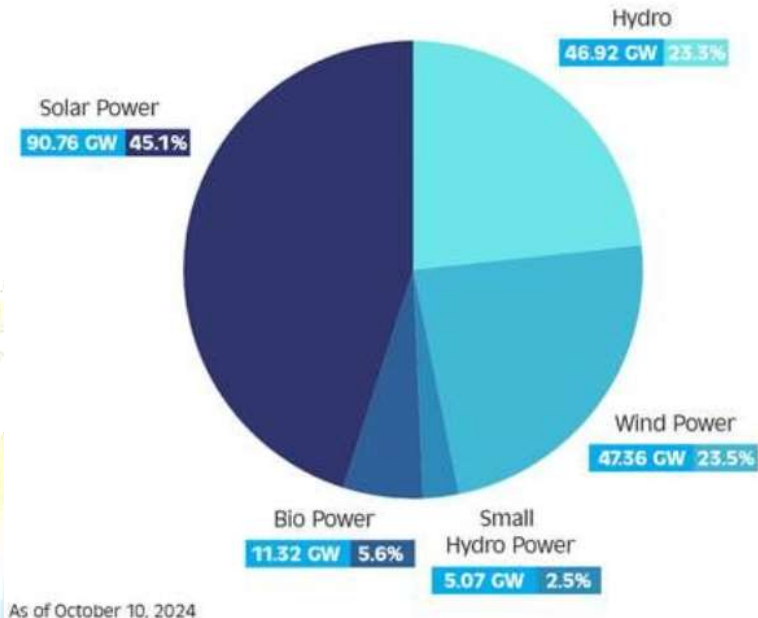
3. Pay-as-You-Go Models:

- Increasing solar adoption, especially in **developing countries**, by making solar energy affordable.



Renewable Energy

Capacity in India



Challenges and Focus Areas

- **Technology and Finance Transfer:**
 - Efforts needed to support **least-developed countries (LDCs)** and **small island developing states (SIDS)** in solar energy adoption.
 - Focus on bridging gaps in technology and financial access.

Conclusion

- The report underscores that technological innovations and cost reductions are the driving forces behind the rapid adoption of solar energy globally. Continued efforts in equitable technology and resource distribution can further enhance solar energy's global reach

Source : <https://www.thehindu.com/business/Industry/what-is-the-extent-of-the-global-share-of-solar-energy-explained/article68970585.ece#:~:text=As%20of%202023%2C%20China%20dominates,a%205%2D6%25%20share.>