

Solar potential 75 thousand GW by 2050 with long duration storage

- ISA – LDES Council report projects a bold target of 75,000 gigawatts of solar capacity by 2050, with long duration energy storage to fully realize the potential of these solar installations for complete decarbonization
- LDES will become a \$4 trillion industry by 2040, with an installed capacity potential of 8 TW

DUBAI, UAE – DEC. 4, 2023 – With long duration storage capacity, the potential of solar capacity by 2050 could go up to 75 thousand gigawatts, said a report released by the International Solar Alliance (ISA) and LDES Council. The groundbreaking report released today by the ISA and the Long Duration Energy Storage (LDES) Council unveils a bold vision for the future of renewable energy, showcasing the pivotal role of Long Duration Energy Storage in realizing ambitious solar targets. The report, presented at COP 28 in Dubai, emphasizes the transformative potential of combining solar energy with LDES to ensure continuous, reliable, and affordable renewable energy.

Key Findings of the Report:

- **Solar Energy Targets:** The report sets a bold target of 75,000 gigawatts of solar capacity by 2050, emphasizing the necessity of LDES to fully realize the potential of these solar installations for complete decarbonization.
- **Economic Viability in Isolated Regions:** The study presents a case study of isolated island utilities in the US, demonstrating the financial viability of LDES in areas with limited interconnectivity and high local fuel costs. The combination of solar, wind, and LDES emerges as the most cost-effective solution for achieving 100% renewable energy.
- **Global Market Potential:** The LDES Council estimates that LDES will become a \$4 trillion industry by 2040, with an installed capacity potential of 8 TW. This growth is essential for enabling solar energy to meet global electricity demands affordably and reliably.
- **Barriers and Solutions:** The report identifies barriers to the widespread adoption of solar and LDES, including regulatory challenges, financing issues, and technical limitations, and proposes solutions to overcome these hurdles.

Quotes:

“Solar, already the most economical source of new electricity globally, will further strengthen its competitive advantage. Combined with Long Duration Energy Storage, solar becomes a continuous, reliable 24/7 energy source,” remarks **Dr. Ajay Mathur**, Director General of the International Solar Alliance.

“Developing long duration energy storage is the best pathway to full decarbonization for economies worldwide. LDES provides the scaffolding for reliable, resilient, around-the-clock renewable energy for industry and the electric grid,” asserts **Julia Souder**, Chief Executive Officer of the LDES Council.



Policy Recommendations:

The report concludes with a set of policy recommendations, urging increased global targets for solar and LDES, streamlined permitting processes, enhanced R&D, and the reallocation of fossil fuel subsidies to renewable sources and energy storage. The goal is to ensure an equitable transition to renewable energy, accompanied by green job creation and local economic recovery.

Economic Benefits:

The white paper underscores the substantial economic benefits of solar and LDES, including the creation of green jobs, local economic recovery, and resilience against climate challenges. It emphasizes the pivotal role of these technologies in providing affordable and primary energy sources, particularly in emerging economies.

The ISA and LDES Council call upon global leaders, policymakers, and industry stakeholders to recognize the transformative role of solar and long duration energy storage in facilitating a just and equitable energy transition. The alliance emphasizes that the partnership of solar energy and LDES is not merely a pathway to achieving net-zero targets but also a driver of economic growth and sustainable development on a global scale.

About LDES Council:

The Long Duration Energy Storage Council is a global nonprofit advancing decarbonization by facilitating the accelerated deployment of long-duration energy storage. The executive-led organization convenes members, publishes research, and serves as an advocate to advance the goals and objectives of the energy companies, equipment manufacturers, financial institutions, and technology innovators it represents.

About the International Solar Alliance:

The International Solar Alliance (ISA) is an action-oriented, member-driven, collaborative platform for increased deployment of solar energy technologies as a means for bringing energy access, ensuring energy security, and driving energy transition in its member countries. The ISA strives to develop and deploy cost-effective and transformational energy solutions powered by the sun to help member countries develop low-carbon growth trajectories, with particular focus on delivering impact in countries categorized as Least Developed Countries (LDCs) and the Small Island Developing States (SIDS). Being a global platform, ISA's partnerships with multilateral development banks (MDBs), development financial institutions (DFIs), private and public sector organizations, civil society and other international institutions is key to delivering the change it seeks to see in the world going ahead.

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