

# POWER

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## Expert call: Sun shining on Indian solar sector

- The Indian solar capacity to reach 100GW in a year from 68GW currently; further ramp up to 280GW likely by 2030
- Indian government is encouraging local manufacturing; industry to become globally competitive in 7-8 years as local value chain develops
- There is concurrent focus on storage technologies, with pumped storage appearing the most viable near term

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We hosted an investor call with Mr. Subrahmanyam Pulipaka, Chief Executive Officer of National Solar Energy Federation. Key takeaways:

**280GW** by **2030** likely: India has set a target of 500GW of non-fossil fuel-based energy by 2030, which includes 280GW of solar and 140GW of wind capacities. India currently has ~68GW solar and ~43GW wind capacity as of May 31, 2023. The next 7 years are expected to witness accelerated growth in order to achieve this target. Mr. Pulipaka expects 2030 target to be achieved.

India to leapfrog to 2<sup>nd</sup> largest manufacturing base globally: The government is supporting local manufacturing with a combination of duties and incentives. It has introduced a 40% custom duty on imported solar modules and 25% on solar cells to support local manufacturing. Further, it has outlined Rs 240bn in production linked incentives (PLI) to support 48.3GW per year of local manufacturing. The PLI support provides a relief of ~15-20%. India is likely to be the second largest producer of both module and polysilicon wafers after China by 2027. Projects are largely on track.

**Cost competitive in 7 years:** India can be price competitive globally in the next 6-7 years as its entire local value chain (polysilicon, wafers, cells and modules) develops. While China is currently facing over-supply across different components, it is expanding domestic installations to improve market balance.

**Some aggressive solar bids may become unviable**: Solar projects, awarded before the introduction of import duty in March 2021, are facing execution risk as the bidders not only did not assume potential increase in import tariffs but also bid aggressively. Further, these solar developers were banking on an exemption, which was rejected by the government, making viability of these projects uncertain.

**Key players involved in solar manufacturing:** Integrated players include Reliance New Solar Energy, Indosol Solar, First Solar, Adani Infrastructure, Shirdi Sai Electricals. Other players include Waaree Energies, Avaada ventures, ReNew Solar, Tata Power Solar, L&T, Vikram Solar, Grew Energy.





## Other takeaways

Indian manufacturing focused on mono-perc and HJT solar technologies. Both meet minimum efficiency threshold of 20.5%/ 21.5% in PLI-1 and PLI-2 although HJT (heterojunction) has higher efficiency than PERC (Passivated Emitter and Rear Cell). The third technology, Tandem has even higher efficiency of 23-24% but has not gained traction in India yet.

**Physical Opportunities:** Several states are aggressively adding renewable capacities in the available landscapes. In the solar segment, Uttar Pradesh and Madhya Pradesh have received significant interests in the recent times, while Andhra Pradesh and Tamil Nadu have largely been oversaturated in renewable capacities. Gujarat has been receiving steady investments.

**Pumped storage gaining importance**: To make renewable energy, which is intermittent, into RTC (round-the-clock) power, there is now a greater focus on storage systems. The government is awarding RTC power projects aggressively, which consist of solar, wind and battery capacities. Mr. Pulipaka believes Pumped storage is a sustainable option in the short and medium terms. He also expects adequate battery storage to come up over next 6-7 years, making it a viable option in the long term.

China pricing for its own benefit: After the imposition of higher duty on solar cells and modules by India, China started exporting wafers to India at a higher price to counter higher duties on end products. However, players like Vikram Solar and Waaree Energies are integrating backward into wafer-to-cell capacities.

China's over-production is translating into over-consumption in China: China is set to achieve its 2030 target (3.3TW) by 2024. High trade barrier across around 15 countries has resulted in over-supply in China and has tripled its installation of solar modules over last 18 months.

**Component prices favourable**: Prices of components in the solar value chain have decreased in recent days in the Chinese market. However, India is not able to take advantage due to lack of local manufacturing.



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