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TIMELINE OF THE STEEP FALL IN TARIFF BIDS ...

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| 2010 The first round of National Solar Mission auction saw bids between ₹10.95/unit and ₹12.76/unit | 2011 Second round saw bids between ₹7.49/unit and ₹9.39/unit | 2012 Fourth round of bidding took place; lowest bid was ₹7/unit | 2013 Foreign investors entered. Six auctions took place with some "outliers" bidding below ₹5/unit. | 2014 Large projects were bid out with ₹7/unit as the average bid | 2015 Andhra Pradesh solar park bagged by SunEdison at record low of ₹4.63/unit. Companies bidding below ₹5/unit increased. |
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INDIA 100 GW SOLAR POWER TIMELINE

By 2022, India aims for installed solar power capacity of 100 GW vs original target of 22 GW

40 GW rooftop solar power capacity

60 GW utility-scale solar power projects

SHADOWS OF THERMAL POWER GLOOM LOOM OVER SOLAR INDUSTRY

While India's solar power tariffs are declining, the industry may be at risk if costs escalate on account of currency fluctuations and project delays. In addition, transmission networks aren't expanding rapidly enough to absorb the capacity of solar power being built. **Rachita Prasad** reports

A day before bids for a solar park in Andhra Pradesh closed, executives at a foreign investor-backed company found it hard to conceal their excitement. After a go-ahead from the bosses to go "aggressive" and a lot of number crunching, they reduced their bid to below Rs 5 a unit. What were the chances they wouldn't win? They didn't. US-based SunEdison bagged the project, quoting the lowest-ever bid of Rs 4.63 a unit.

India's solar energy sector has seen record capacity addition and tariffs bid for new projects have fallen to unprecedented levels. But is the "sunrise industry" at risk of repeating the mistakes of the thermal power industry?

While solar power developers are bidding aggressively, they're not leaving enough room for cost escalation, threatening the viability of projects. As the sector adds generation capacity, transmission infrastructure isn't expanding as quickly.

Also, like the thermal power industry, the solar sector's growth hinges on buying cheap equipment from overseas even as Indian equipment manufacturers bleed.

"The government asked us to run and the industry sprinted. The sector has not learnt lessons from the thermal power sector and most solar power developers are bidding very aggressively. If their call goes wrong, it will have a far-reaching effect," said Sunil Jain, chief executive officer at the renewable arm of Hero Group-Hero Future Energies. "This business has become like the ecommerce game—people

are not playing on bottom line but are trying to build high valuation by adding large capacities so that they can exit later."

Jain's company bid for and lost the Andhra Pradesh project.

For almost a decade since the early 2000s, thermal power companies aggressively offered low tariffs to grab projects offered by the government. When fuel prices increased and project execution cost escalated due to delays, they found that the power purchase agreement didn't have a provision for tariff revision.

Tata Power, which bagged the Mundra ultra-mega power project with a bid of Rs 2.26 a unit, had to book an impairment charge when Indonesian coal prices increased. Reliance Power's bids of Rs 1.77 a unit for the Tilaiya ultra-mega power project and Rs 1.196 for Sasan were celebrated in 2007-2009. The company has now exited Tilaiya and is said to have asked state-run Power Finance Corporation to buy out its Sasan project.

The contract for solar power doesn't include a tariff revision provision, either. While solar power projects don't have to worry about escalating fuel costs, their pricing projections are exposed to risks related to project execution, foreign exchange and equipment and replacement costs.

"A bid below Rs 5 can at best give modest returns, which is not encouraging for investors and may impact capital flow," said Sumant Sinha, chief executive officer of ReNew Power.

Sinha said that for National Solar Mission projects, bids could settle at Rs 5-5.25 a unit

A solar power project typically takes 7-8 months to be set up, while the transmission line that connects it to the grid may take 24-36 months

given that execution is easier and financing options are better, while that for state projects could be 25-30% higher.

"I met some Chinese solar power companies who were horrified to hear our tariff has fallen to 7 cents while it's still about 13 cents in China," Sinha said.

SunEdison has said it will sell 425 MW of projects in India to its 'yieldco' TerraForm Global Inc. for \$231 million. Yieldcos are typically set up by clean-energy companies to buy their power plants. The developers get capital for new projects while yieldcos hold assets that generate revenue from selling electricity. Most companies setting up solar projects in India are looking at selling to yieldcos in the US.

"The global renewable market is not as attractive so investors are keen to invest in India. Their yield expectation is low but with bids close to Rs 4.50, even they appear to be taking a risk. They are bidding today on the assumption that panel prices will fall more in a year when they place orders," said Salil Garg, Director at Fitch Group-India Ratings & Research.

Experts said solar panel prices are likely to remain flat and not fall as steeply as in the past as the glut in the market is getting absorbed.

"While solar power does not have fuel cost, that cost is front-loaded as the solar panels need to run for 25 years. But most companies are buying panels from China and there are quality concerns," Garg said.

At a conference on solar energy last week, when Tarun Kapoor, joint secretary in the Ministry of New and Renewable Energy, was asked if bidders were being screened for quality, he said, "We are not."

PricewaterhouseCoopers and Mytrah Energy said in a report that Indian renewable energy presents a profitable growth opportunity for investors even as tariffs are declining. Their contention is that India's renewable energy development is demand driven, unlike in Europe, which offers subsidies or bears losses incurred in displacing existing coal or nuclear power.

Critics believe the industry is not mature enough to absorb such a steep fall in tariffs. While the government is pushing for green

corridors, the transmission system needs big investments and fast execution. A solar power project typically takes 7-8 months to be set up, while the transmission line that connects it to the grid may take 24-36 months.

"The low tariffs have put a lot of pressure on manufacturers to lower prices. Indian makers are grappling with stiff competition from China. Developers wouldn't be able to develop these projects without compromising on quality and cutting corners," said Gyanesh Chaudhary, managing director of equipment maker Vikram Solar.

The private sector thrived on cheap imports from China while building coal and gas-based power projects, while multi-crore investments by private companies such as Larsen & Toubro, Thermax and BGR on core equipment manufacturing units are yet to turn profitable. Solar power developers, too, are sourcing from China, not leaving much opportunity for the beleaguered equipment makers to 'Make in India.'