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**Jaymin Gajjar**

Research Engineer, Center for Study of Science, Technology &amp; Policy

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## India's solar race: Why are EPC players scrambling?

**While the rising solar investments are very encouraging and reaffirm India's position as a dynamic solar market, some stumbling blocks for certain sections in the value chain still remain.**

Mar 14, 2017, 06.07 PM IST

India's solar power capacity additions were anticipated to exceed 5.1 GW in FY 2016, which was a growth of 137 per cent over the capacity in 2015. But the solar sector performed beyond expectations and the total installed capacity crossed 10 GW by December 2016. Projections for the near future are bullish and experts expect that, henceforth, annual capacity additions will surpass 2016 achievements.

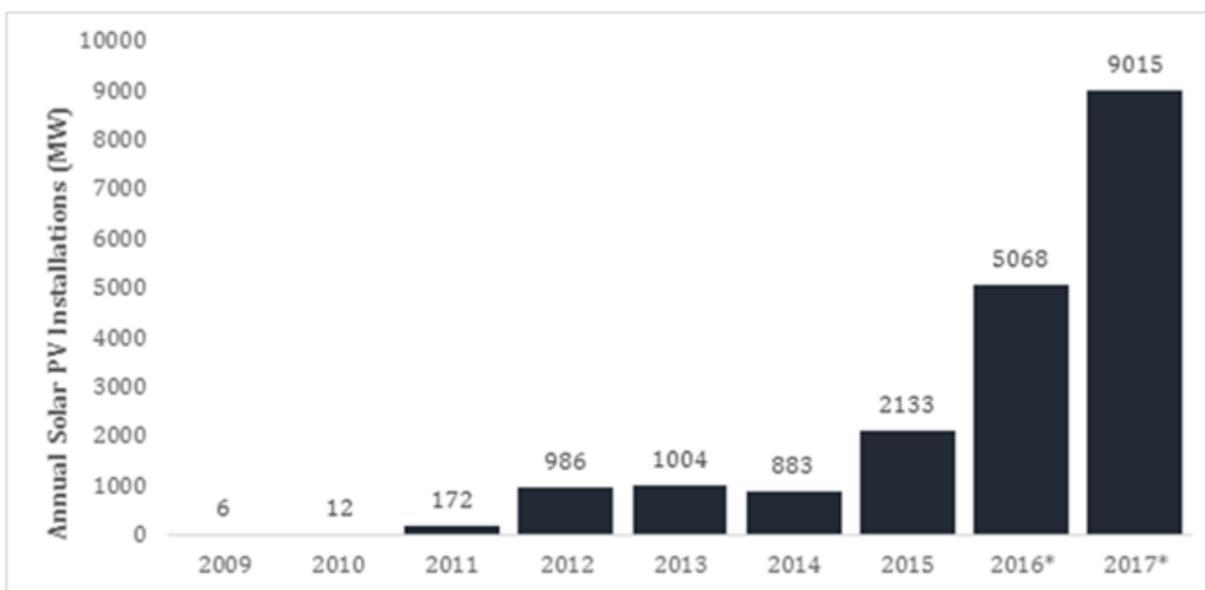


Figure 1: Annual capacity additions of solar in India

Over the past two years, complementary state and central government policies and the increasing price competitiveness of solar power have led to a surge in solar installations across India. In the process, developers and manufacturers have been able to reduce capital costs and provide solar energy at reasonable rates. The Indian solar market is maturing fast – a strong indicator is the rapidly rising investments being made by large international players and financial institutions in the Indian market. While this is very encouraging and reaffirms India's position as one of the most dynamic solar markets in the world, some stumbling blocks for certain sections in the value chain still remain.

Although all recent initiatives seem to encourage solar development, the system integrators and Engineering, Procurement and Construction (EPC) contractors appear to face certain concerns.

In order to get a foothold in the massive Indian solar market, international and domestic investors and developers are bidding aggressively. Today the unit prices have dropped to as low as INR 2.97/kWh in the country as can be seen in the case of the recently concluded Rewa solar park reverse bidding auctions in Madhya Pradesh. The prices of rooftop solar have dropped further to INR 3/kWh, albeit with capital subsidies from the Ministry of New and Renewable Energy (MNRE). Apart from the declining global PV module prices (because of the glut in China), there are other factors at play in India, which are leading to these drastic rate reductions. These include: FDI at lower rates of interest; and large investors and manufacturers have lower rates for India than in the rest of the world because of the market demands.

Today EPCs and system integrators – who are not vertically integrated like the bigger players – are becoming marginalised as their returns do not exceed 12%, which is considered unattractive compared to other investment options. As a result, they may find it difficult to survive in India in the long run.

The exchange rate of the rupee (INR) has a bearing on the capital costs and equity returns of the plant promoter.

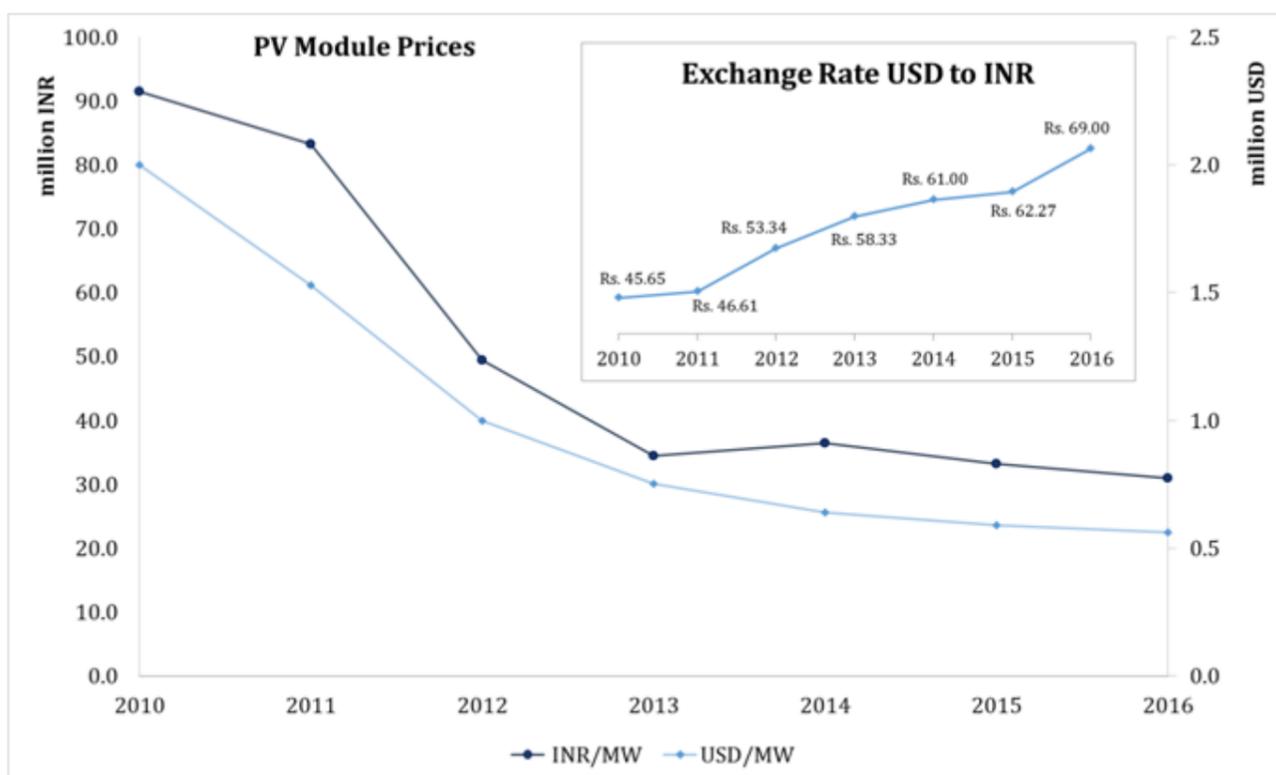


Figure 2: Fluctuations in module prices and INR -USD exchange rate

EPC players installing solar projects, using imported components (mainly solar modules), have to account for fluctuation of the US dollar (USD) as it impacts their profit margins.

Based on our research findings, we find that solar module costs represented more than 50% of the project cost from FY 2010-11 to FY 2015-16.

Figure 2 above shows that while the solar panel prices (in USD) have been dropping annually during 2010-16, the exchange rate (USD to INR) has been increasing consistently. While the cost of solar panels declined by 72% from USD 2 million to USD 0.6 million during FY 2010-16, the USD-to-INR exchange rate increased by 51% over the same period. Hence, even though module prices reduced due to better business dynamics, the EPC players could not maximise their profits in the presence of a surging exchange rate.

From a policy perspective, decisions made with respect to international trade, investments and economics are generally prone to volatility and uncertainty. In such situations, the solar industry runs the risk of bottlenecks and stagnation especially with respect to obtaining finance. The aforementioned project returns of 12% give the impression that the EPC business is unreliable in the Indian solar industry and only big players with MW-scale businesses can sustain themselves in the long run.

Considering these issues, one option for EPC players is to acquire a large number of projects to achieve significant economies of scale. An option for the central government is to enter into multilateral trade agreements, which can be incorporated under collaborations like ASEAN with powerhouses of module/cell manufacturing such as China, Taiwan, Malaysia and Japan, and to avoid the influences of USD by hedging in suitable currencies. This might, however, raise questions at the World Trade Organisation where India and the USA are already debating aggressively over the former's compliance with the Domestic Content Requirement (DCR) clause. However, certain complicated decisions can be taken after weighing the pros and cons in detail to create a sustainable environment for local EPC players in India

(Ashish Nigam, Research Engineer and Saptak Ghosh, Research Scientist at CSTEP contributed to this article as co-authors.)

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### About Jaymin Gajjar

Jaymin Gajjar is with the Center for Study of Science, Technology and Policy (CSTEP). His interests lie in designing, modelling & simulation of Solar PV & Thermal Power Plants and estimating the potential of solar plants. He holds an M.Tech in Energy System & Technologies from Pandit Deendayal Petroleum University, Gandhinagar, Gujarat. Prior to joining CSTEP, he worked with Gujarat Energy Research & Management Institute (GERMI).