

INTERVIEW WITH MANOJ KUMAR UPADHYAY



**Chairman and
Managing Director, ACME
Cleantech Solutions**

EQ: What are your plans for the foray in Renewable Energy Sector in India and other countries....

MKU: We are a Solar Power Developer with a portfolio of 1650 MW. We forayed into this sector in the year 2010. I can proudly say that we have played a significant role in shaping this industry. We are planning to be at 7500 MW by 2019. We are also exploring other geographies to evaluate business potentials. However, it is still very early for me to comment on that.

EQ: Whats your view on the Government of India target of 100GW Solar and 75GW Wind Power by 2022....Can we achieve that and what would be the challenges

MKU: The intent of Government of India is very clear and the kind of support which this sector has been receiving is phenomenal. That means, the thrust is not only on the policy framework but also on the implementation. Therefore, I do not have any doubt on the figures.

However, there are some issues which need to be looked into to enable commissioning of the plant within the stipulated time lines of the PPAs. As such these timelines are very aggressive. Most of the projects needs to be commissioned within 12-15 months of signing the PPA.

Examples, Solar Power Plants are land intrinsic projects and require mostly rural wasteland. Whereas, data of most of the rural have not been updated in the revenue records. In view of this, land acquisition becomes a huge challenge.

Second, availability of the lender. Most of the lenders in this sector are Public Sector lenders who are attuned to lending large thermal power projects. Financial closure of conventional power project, wherein gestation period is around 3-4 years, can be achieved over the horizon of 12-14 months and disbursement thereafter. However, financial closing of Solar Power Projects needs to be achieved within 3-5 months to enable the project commissioned within 12-15 months as per the PPA.

I am sure all stakeholders, including Solar Power Developers and various Government agencies are working on this aspect.

EQ: India has 750 GW of Solar Potential....By when should we be able to achieve that?

MKU: It is not about the achieving the potential of 750 GW. It is about serving the load in an appropriate manner with whatever capacity we add. I believe, in an electricity basket, electricity based on Renewable energy and particularly solar energy based electricity is going to play a crucial part.

Adding 200-300 GW can be done within the visible time lines. However, adding projects beyond this number will require coordinated concentrated efforts.

EQ: Kindly enlighten on "Energy Storage as Game Changer"....Technology & Cost Trends, Incentives and Government Support needed

MKU: The impact of the numbers which we are talking about on the evacuation needs to be seen. This is primarily because electricity based on renewable power is intermittent in nature. Energy storage solutions de-risks evacuation networks from such a threat. Therefore, I see this as a game changer in near future. With the developments happening in the storage domain, I am sure it will be cost competitive in times to come.

Incentives like capital subsidy, soft loans for longer tenures, cheaper electricity and more importantly, visibility on the take off are some of the supports required from the Government. Having said that, such incentives are required only to push this in view of the larger interest of safety of the evacuation system. Once people would start realizing its benefits, it will sustain on its own.

EQ: What pipeline of projects do you currently own, kindly specify the size of the project, its location, tariff, scheme, timeline of completion, its viability

MKU: As I have said, we have a portfolio of about 1500 MW out of which we have commissioned almost about 600 MW. Balance 900 MW are in different stages. These project sizes are from 15 MW to 70 MW ticket size. We have now presence almost across India. Starting from Gujarat all the way till Orissa and from Punjab till Tamilnadu.

EQ: Technology as a Game Changer in Solar PV Modules with emergence of 1500V, BiFacial Cells, PERC/PERT, 5-6 BusBars, Glass to Glass etc.... Please comment on the technology roadmap, its cost trends, adaptability, your preference

MKU: The sector is going through a very interesting transient phase. People have started realizing the potential of the electricity being generated from solar energy. Therefore emergence of new technologies or improvements in existing technologies are happening at a faster rate than anticipated. Technologies like Bifacial or glass to glass are some of the example of improvement. Whereas, PERC/PERT, whether Mono or Multi, HJT are some of the emerging technologies.

I foresee a correction of module efficiency of almost about 2-3% in couple of years with PERC coming in and almost about 6-7% with the introduction of HJT. Therefore we are likely to see module efficiency at about 23-24% by 2022-23. However, it is Nano technology which I feel would be an important event in this sector.

Price trend in a conventional technology has been declining. However with spur in demand led by US, China and India has made the prices stagnant in international market off late. With new technologies coming in, one need to wait and see the price trends. I am sure the developments would ultimately be beneficial for end consumer, because it does not bring the cost of electricity at an affordable price, it would not be a technology but only an R&D.

EQ: What are the expected generation from these projects in terms of kwh per DC or AC capacity

MKU: We are working with CUF within the range of 20-24% depending upon the boundry conditions being laid down in the PPA.

EQ: As a Developer do you have plans for backward integration with manufacturing of Modules/ Cells/Wafers etc....Currently would you buy from Indian or Asian or other manufacturer ?

MKU: Currently, we are buying module from open market. Be it from Indian or Asian or from any geography.

Backward integration is something which we are still exploring. However, we may not look beyond Modules and Cells.

We, as a country, needs to be self reliance on the technology of the entire eco system of the PV module chain and the kind of support Government of India is extending. I believe, "Make in India" would be a huge success and we would like to be a party to it.

EQ: Inverter Technology : Please comment of Central vs String, Container vs Civil Structure for Inverter, System Design and Architecture

MKU: Central and String inverters have different applications. While Central inverter is primarily used for ground mounted system, String inverter is for small PV / Rooftop system.

Further, we have observed that losses in string inverters are higher compared to central inverter. Therefore, central inverter has edge over string inverter in ground mounted system.

Similarly, Containerized structure for inverters are primarily for the geographies where maximum ambient temperature is say at about 35 – 40 dec. For the areas where maximum ambient temperature touches 45 deg C, It is advisable to use civil structure. This is because the for inverters, the ambient temperature of a room in which it is placed is a very important factor. At higher temperature, it would degrade the performance of the inverter.

EQ: Mounting & Tracking : What kind of mounting would you adapt....fixed or tilt of seasonal tilt etc....In Tracking... what are your view on the technology available , its cost-benefit analysis, O&M

MKU: We generally go with fixed tilt, wherever possible, as it optimizes the cost and requirement of the structure.

EQ: Challenges : Comment on Various challenges such as Aggressive bidding, Land , Finance, Grid Connection, PPA, Forex Fluctuation, Pricing & Tech Trends, Payments risks

MKU: I believe, every bidder is aware about the exigencies of the bids they participating into. Therefore, they would have done their calculations before coming out with the numbers which we are witnessing now. So, whether it's a aggressive bid or not is not an important issue. Afterall, it would benefit the Discoms and ultimately the end user. We all need to work together for ultimately realizing such plants coming up and running. Having said so, we need to understand that we should not get carried away with such numbers. We need to wait and watch before writing anything off.

About other challenges, I see, land is going to be a crucial factor in time to come. There are other issues like Finance, forex fluctuations etc. But I believe, developers before bidding would have factored in all such issues. It's a developer issue. Government of India and other state governments are doing their bit to help this further. However, I would like to draw attention on the evacuation network.

EQ: Financing : Enlighten our readers with the Financial Engineering needed in an aggressive price bid scenario... Source & Cost of Debt,Debt Equity Ratio, Project & Equity IRR, Interest Rates & their trends



MKU: As I have already said, I do not know whether these bids are aggressive or not. One has to wait and watch. Therefore terming them as aggressive would be little too harsh. Further, financial reengineering is not something which is general for all the organization. Every organization has their unique USP and they try to leverage on that. Therefore there is no specific answer to this.

Example, Some organization believes in monetizing things, some may look for bonds etc.

Green bonds, InVits etc. are some of the other financial tools available to the developers.

EQ: Modern sources of finance such as Green / Climate Bonds, International Finance, Yieldcos, etc.... Please enlighten with the latest and future financing trends

MKU: International finance for indian projects is currently happening through financial institutions borrowing green bonds in international markets and passing on benefits to lenders. Yieldcos are a mixed bag and that model is still to be perfected keeping in mind currency differences and return expectations, yield/growth expectations. ECB regulations in India aren't currently

favorable to permit refinancing etc so we don't see direct ECB financing picking up with large developers.

EQ: Rooftop Solar : Whats your plans for Rooftop Solar Market, Governemnt Target of 40GW rooftop solar by 2022 (Please comment) , Various Models such as RESCO etc... Opportunities & Challenges, Policies & Regulations etc...

MKU: Rooftop is one segment which has huge potential. We have a separate team here which looks after this sector.

The sector would primarily be evolving on pure commercial transaction and would depend upon the value which one would offer to such customers as it is a B2C kind of transactions. Therefore, we may not see longer tenure transactions as we see with Discoms. However, the returns in terms of tangible and non tangible values would be significantly higher. There are players who either choose Capex or opex model to serve these markets depending upon their strategies. However, we believe in Opex scenario wherein we de-risks consumers on the aspects of maintenance as there are specific skills requires for the same. We offer our expertise in this case and thereby creating maximum values for the customers.