SOLAR BUSINESSES: HOW COS LIKE TATA POWER SOLAR, SELCO ARE MAKING PROFITS FROM RENEWABLE ENERGY
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The New Wave of Solar Businesses

A set of entrepreneurs and big companies are making sure the solar revolution pays as it accelerates, says **Anindya Upadhyay**

Rahul Gupta could not manage to get a job in 2010 when he graduated from IIT Roorkee. This March his company, Rays Power Experts, will clock a combined turnover of Rs 600 crore in four years of its existence. At 27, Gupta has 125 employees working under him and is already preparing to compete with well-established companies to bid for large solar parks. Gupta's story suggests that solar energy sector is no more only about preserving the planet. It also makes great business sense.

Solar energy makes business sense for small entrepreneurs as well as big corporate houses such as Tata and Adani. The dwindling cost of producing energy from the sun has made a compelling case for big companies to start up businesses. The government has plans of installing 100 GW of solar power in India by 2022, instead of an earlier target of 20,000 MW, which itself looked ambitious once upon a time. Thus, solar energy has transitioned from being merely corporate social responsibility to opening up a sea of opportunities within a span of four to five years.

Rahul Puri, chairman of Hindustan Power Projects, will add 2 GW of solar power over the next two years by investing Rs 12,000 crore, adding to his portfolio of thermal and hydroelectric power. In fact, according to Puri, more conventional power producers like him will in the next few years start investing heavily in renewable energy. The solar revolution, meanwhile, is not confined to setting up megawatts and large solar parks. It finds its best application in the remotest Indian villages where transmission lines and government agencies haven't reached in almost seven decades.

In such areas, social good and profits go hand in hand. When Tarun Singh — an electrical engineer working in the US for eight years — came back to India to start his own venture, the renewable energy sector was a 'no-brainer'. He realised power was still as scarce in his home state Bihar for the rural poor as he remembered from his childhood days. In June 2010, he started Veddis Solars, bringing solar energy solutions to villages of almost all districts in Bihar. Another large area of growth includes decentralised or rooftop solar power for commercial buildings.

Shubham Sandeep, an alumnus of IIT Delhi, gave up his cushy investment banking job at Deutsche bank within two years of joining it and teamed up with batchmate Nimesh Gupta to start a solar rooftop installation company, Aeon Solaris, in 2013. At the end of two years, the 26-year-old Sandeep is eyeing a turnover of ₹10 crore.

Installation of solar energy in the country, whether it is large-megawatt parks or local solutions, cannot fully take off without having adequate domestic manufacturing. The government's new target has speeded up production as well. Tata Power Solar CEO Ajay Goyal in 2014 increased module manufacturing capacity by 60% to take it to 200 MW a year. Depending on further government policies, his company is prepared to make the additional necessary investments.

The promising business prospects of the solar energy also made Sumant Sinha, the owner of Renew Power, which was originally a wind energy company, diversify into this business in 2013 December. Soon after, ReNew Power bagged the largest tender in Telangana of 140 MW, taking its total solar projects to 250 MW in a year's time. The company aims at installing 100 MW every year for the next three to five years.

But if the solar sector has created a new area spilling over with business opportunities, it also requires an ecosystem for entrepreneurs. There is movement here as well, as experienced workers in the field have taken to mentoring budding entrepreneurs. Harish Hande, recipient of the Ramon Magsasysay award in 2011 in the field of social entrepreneurship, had demonstrated in 1995 how energy is related to poverty reduction when he established his for-profit organisation SELCO. Hande, an IITian and alumnus of the Massachusetts Institute of Technology, is mentoring entrepreneurs.

Solar energy price is reaching parity with conventional energy when pitted against good quality and imported coal. While its future course depends on several factors, not always predictable, its recent growth makes it a strong contender for a large part of India's energy needs. Here is the story so far, told by the recent participants in the growth.


Tarun Singh interacts with a World Bank Drinking Water and Sanitation team

Remote Connections

Tarun Singh Co: Veddis Solaris
Designation: CEO

When I decided on my venture, I believed a large chunk of the country's GDP comes from agriculture, and that farmers desperately need energy to make their lives easier and more productive. We started a household lighting project called 'Bijuria' under which a micro grid was installed in Kayam — one of the most backward regions of Bihar with no electricity. It now supplies 50 Wh to each of the 175 households throughout the night for seven hours at ₹120 a month and will do so for 25 years.

We believed solar energy should be made suitable to meet the needs of villages and the local environment, which led us to innovate in solar applications.

We turned around a rural drinking water scheme in Unnao and Darbhanga, which had become defunct due to power cuts or theft of electric wires. We wondered: 'Why not connect the 15-25 horsepower pumps to solar energy?' Now 20 such schemes are running through this initiative. Now we're thinking of using solar water pump panels to generate energy for other farm chores.

But you need to look at this like any other business. Our business became profitable from the second year. 'Bijuria' is making ₹21,000 a month and at this rate we'll break even in three years.

THE SILENT SOLAR REVOLUTION

Solar has started making sound business sense in India instead of merely being a pleasantry for people who care for the planet

Solar energy prices have reached parity with conventional (thermal) energy in four years

From Rs 16-18 per unit in 2008, costs have come down to Rs 6-7 per unit in 2014

India has higher irradiation as compared with other countries

Therefore, solar becomes a good business opportunity not only for megawatt-scale projects but also for small rural applications and rooftop generation

Big businesses, private equity, venture capitalists and small entrepreneurs – all are investing heavily

Global Power Targets

COUNTRY	SOLAR TARGET	
China	100 gigawatt	(by 2020)
India	100 gigawatt from 3 gigawatt in 2014	(by 2022)
Japan	33 gigawatt	(by 2020)
Germany	52 gigawatt	(by 2020)

Source: Bridge to India

₹16-18 cr	₹6-7 cr	₹6 L cr
Cost of setting up 1 megawatt in 2009	Cost of setting up 1 megawatt in 2014	Cost of setting up 100 gigawatt by 2022

US interested in helping India fund 100 GW installation

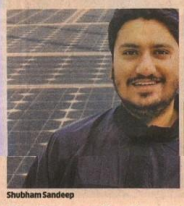
Evolution of an Ecosystem

Harish Hande Company: SELCO
Designation: MD and co-founder

In the past three years, we have guided 70-80 solar entrepreneurs at SELCO. We decided to pass on the experience so youngsters don't make the mistakes we did.

A youngster from Manipur has been struggling to do something for his region. He was having problems at various steps, including when banks asked him for a guarantee against his loans. We provided that guarantee. A few years down the line, this person will be generating income, wouldn't have defaulted and will not require a guarantee for another loan. An ecosystem for these entrepreneurs should be created by making finance easily available.

We must understand that merely putting up a bulb will not make a child study. The issue is to make energy cheaply available in a decentralised way so it can help in poverty alleviation. Evolution of an ecosystem leads to sustainable development. This will lead to creation of assets; not conglomerates but enterprises. Finally, the focus should not merely be on solar energy but on creating income-generating products. These will provide an incentive for local manufacturing and create opportunities for a lot many entrepreneurs. This will help businesses see the value of what they're creating.


Shubham Sandeep


Nimesh Gupta

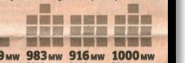
It's a Two-way Street

Shubham Sandeep, Nimesh Gupta Co: Aeon Solaris Designation: Directors, co-founders

As I was from the electrical field, I had a fair idea of the advantages of distributed generation. We chose this industry because we believe in sustainable businesses. India doesn't require tech businesses any more as there are several other pressing issues like water, energy, sanitation and so on.

Distributed rooftop is poised to be an 8-10 GW market in the next four to five years, we see a huge opportunity. Since the market is huge, the business is profitable only when one does volumes. We make money on every individual project but as a company, we're going to be profitable by March 2015. We arrange the funds ourselves so that the end user doesn't incur an upfront capital cost. We tie up with high net worth individuals, power producers and other investors who want a fixed return on their investments. In this sense, we fund the capital cost. They give us the capital and we offer a price to the end user, which is lower than his current electricity bill. This is how we use solar energy to meet requirements of two parties, providing clean power to one, while guaranteeing returns on investments and making money ourselves.

Solar capacity addition in India over past few years (MW)



2011	2012	2013	2014
189 MW	983 MW	916 MW	1000 MW

PE investments in the solar sector

YEAR	2014	2013	2012
NO. OF DEALS	9	0	4
AMOUNT	$216 million (till Oct '14)	0	$32 million

Investing in the Future

Ratul Puri Co: Hindustan Power Projects
Chairman

We currently have 500 MW of solar capacity. Our goal is to try and build about 2 GW of solar in the next three years and then scale it up. A significant portion of our incremental investment plan will be focused on solar.

We've so far invested ₹14,000-15,000 crore, of which ₹6500-7,000 crore has gone into solar (over the past three years), ₹7,000 crore into coal-thermal and the balance is spread across others. On an ongoing basis, 2 GW capacity over the next two years is going to be built out on an investment of ₹12,000 crore. We'll invest in the conventional side too over a longer horizon.

We won't have an incremental cost to the economy putting renewables on stream. Eventually, conventional energy companies will be investing much more aggressively in the renewable space because you invest where the future lies. The conventional energy sector in India is in distress and has gone through very challenging times in the past few years.

The development of new assets has almost ceased. By 2016-17, the economy will perhaps touch 7%-plus growth and then we will need even more energy. Because renewable capacity can be created very quickly, India will have no choice but to push a renewable strategy much stronger, and it will have a much larger share in the energy mix.

Corporate Presence

Company	Amount ($M)	Investors
SolarArise	32.5	Kotak Mahindra (UK), Others
ACME Solar Energy	34	IFC
Azure Power	14.3	IFC
Hareon India		Nereus Capital
Surya Power Magic	0.5	Infuse Ventures, Intellecap Impact Investment Network (I3N)
Kotak Urja		Lightbox
Welspun Renewable Energy	24	GE Energy Financial Services
D Light Design	11	Nexus Ventures, DFJ, Acumen Fund, Omidyar Network, Gray Ghost Ventures, Others
Welspun Renewable Energy	85	DEG, ADB

Source: Venture Intelligence

'No Roadmap of Auctions'

Sumant Sinha Co: ReNew Power
Designation: Founder-CEO

We are already present in the rooftop segment but it needs lots of regulations like net-metering, storage. Can the grid accept fluctuations of both the periods when the sun is shining and when it's not? That's why our near-term focus is grid-connected solar projects. We have 250 MW of projects. The company bagged the first 50 MW project in Madhya Pradesh in February 2014. We also got an allocation of 60 MW in Andhra Pradesh and 140 MW in Telangana in the fourth quarter of 2014.

However, it is difficult to say how many MWs we want to have by the end of this year or the next. This is because there is no roadmap of how much the government is going to auction and when. The last bids were conducted seven months ago. After that, solar developers just sit and wait. That's the problem with the bidding scenario. Solar energy meets peaking requirement, it is more forecastable than wind and is also scalable. It has a lot more flexibility as a source.

This implies that one is able to disperse it and use it in different locations. In three to five years, solar energy is expected to reach parity with conventional forms of energy. In fact, all renewable energy today is at cost-parity with conventional power, as pollution costs are not taken into account. A revolution is in the making from a very small base, which is just 1% of the country's total generation at present. The 100 GW target is an indicator that the government is serious about the development of solar power in the country.

'Beef up Manufacturing'

Ajay Goel Co: Tata Power Solar
Designation: CEO

Setting up ultra mega solar parks is a good idea because investors don't face uncertainty in land acquisition. However, the chicken-and-egg situation here is the sub-scale Indian manufacturing. The Chinese came with huge scales of production from nowhere and started supplying everywhere in two to three years.

A manufacturing ecosystem is badly needed in India. The only reason why big investors haven't invested is because till now there was no vision of where demand will come from. At present, only 20% of the solar energy markets in terms of products belongs to the organised sector.

This reminds me of the early days of the computer market, where parts would be bought and assembled. But 15-20 years down the line, everyone has only a branded laptop or desktop. Similarly, we foresee 80% of the solar market to shift to organised players in the next five to six years. The government's target of installing 100 GW of solar power by 2022 is a thought in the right direction.

The government is now saying it will create demand. Building ultra mega solar parks is a step to ensure this. Distributed generation aimed at replacing diesel and kerosene options has to be done as well. In this sense, the industry has to educate the consumer about the right product and solar's benefits.

Betting on Rooftop Power

Rahul Gupta
Co: Rays Power Experts
Designation: Director

In 2010, it was very expensive to set up a solar plant but the returns were high too. At that time I only saw it as a steady source of income. So I teamed up with a friend and decided to set up a small one in my home state Rajasthan and then enjoy returns for a long time. We soon realised that it was extremely difficult because there was no information even about how to fill tender documents, no experienced people around and, of course, no money. The pains taken to figure out how it was done taught me all about engineering procurement and construction, and that's what our company is all about.

In 2010, I had no clue about what I was doing. We didn't even know who was genuine in the business. I came up with this model to pool together small investors, who were interested in setting up half-to-1 MW solar plants, and set up a solar park. My first was a 25 MW plant in Kolayat, Rajasthan. The company reached break after three years and generated income from the fourth year. Right now our profitability is at 7-8%.

Between then and now, the costs and returns of installing a solar project have come down. A lot of funding is available but no one talks of a 1-2 MW plant. People are now talking of 20-50 MW projects. To me, this implies that all opportunities are for big players and there's lesser space now for those like us as we were in 2010-11. We aspire to have at least 4-5% of the targeted 100 GW of solar power by 2022.

Rooftop solar power is something we are executing in a big way because it gives us the satisfaction of making one household secure with clean energy.