



The future of energy is solar and it looks very bright

Modi's ambitious plans for renewables can be attained if the Centre offers fiscal incentives and states follow Rajasthan's land acquisition model

The sun, says the Rig Veda, is the soul of all beings. Yoga, a globally acclaimed symbol of India's soft power, begins with the surya namaskar. Today, faced with our soaring energy demand, potentially irreversible climate change and depleting fossil fuel reserves, we are now turning to the sun for clean and renewable power, which will not only safeguard the nation's long-term energy security but also the future of the planet. Prime Minister Narendra Modi has not only articulated this mantra but has also redefined India's renewable energy ambitions and goals.

Thanks to his push for solar power, the power ministry has dramatically scaled up our national solar power target of 100 GW by 2022. India's current installed solar capacity is 3 GW, which means 10 GW of new capacity has to be added each year. This is in addition to the rooftop solar target of 40 GW. The PM has described this shift in the mindset as India's 'quantum leap' from "Megawatt to Gigawatt".

The real challenge lies in the effective execution of the plan. However, we have done quick capacity addition before: India has added more capacity in conventional energy — over 140 GW — in the last 10 years than it did in the 55 years between 1947 and 2003. Over a third of this capacity was created by the private sector. The same can be done in the solar power sector. There are global success stories to learn from — and improve upon: China, for instance, added nearly 13 GW solar capacity in 2013. Similarly, Germany, Italy and Japan have added substantial solar capacity of 7 GW each per year.

The best international developers can install a 100 MW plant in about 90 days, which means 1 MW per day. In India, more than 40 developers have shown a keen interest in being a part of the PM's renewable energy dream. Even if 25 of these developers build simultaneously on 25 sites in the top five states with solar potential — Rajasthan, Jammu and Kashmir, Maharashtra, Madhya Pradesh and Andhra Pradesh — at 1 MW per day, we will have more than our desired



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objective of 10,000 MW per year.

Unlike conventional sources of energy, the word 'mega' has a different connotation when it comes to solar power. At the core is the availability of land at competitive rates so that projects remain viable.

Every additional megawatt of solar power needs five acres of land. To generate 60 GW of solar power — the balance 40 GW will come from roof-top installations — we will need 3,00,000 acres of land or an area equivalent to more than twice of Mumbai.

Land acquisition on this scale cannot be done by the private sector. The government will have to step in a major way to ensure acquisition and also make the land available on long-term leases at affordable rates.

The new solar energy policy being implemented by Rajasthan incorporates a number of path-breaking initiatives for speedier land acquisition. In the true spirit of competitive federalism, other states can emulate the Rajasthan model even as the latter continues to learn, improve and innovate.

The strength of the Rajasthan model lies in its unique land-leasing plan. It has expanded the definition of farming to

include solar farms, thereby doing away with the earlier cumbersome requirement of change in the land use pattern. Second, it seeks to lease on nominal rent and not buy the land from the farmer for the duration of the power purchase agreement (PPA). At the end of the PPA period of 25 years, the project is dismantled and the land is returned to the farmer. Hence, the ownership of land as well as the capital appreciation of land value during the lease period rightfully accrues to the farmer.

Adding 10 GW of additional capacity every year will need an investment of around ₹80,000 crore per year. This will comprise nearly ₹20,000 crore of equity and the balance in debt. On the equity side, the required investment will be available from local and global capital, including private equity provided investors get a fair return. But the debt part is no less important and will only happen if we have bankable PPAs with credit-worthy customers.

The financial health of the State-run utilities will have to be restored without delay. Without bankable customers, equity and debt holders would not invest in any project. The bankability of the buyers

(State discoms) could be improved by enabling the sale of power through the NTPC Vidyut Vyapar Nigam Limited, the trading affiliate of NTPC.

The per unit price of solar power has come down in the last three years — from ₹20 per unit to ₹6.50-₹7 now. But the price is still higher compared to conventional power. To reduce costs, we will have to make solar power grids competitive. This can be done by improving viability of companies. The government must introduce fiscal incentives such as elimination or reduction of MAT and waiver of customs duties for solar plant equipment should be considered. To reduce interest rates and make adequate funds available for investment till the target of 100 GW is achieved, lending to solar projects must be treated as priority-sector lending.

Such a large-scale solar programme cannot be sustained only through imports. In the 'Make in India' programme, an appropriate ecosystem should be created for the large-scale production of solar panels and other related components in India, which would also save the country precious foreign exchange and create jobs.

Alongside, the Electricity Act of 2003 needs urgent amendment to put in place a robust compliance mechanism towards the enforcement of renewable power/generation obligations as proposed in the Electricity Act 2014, which is currently awaiting parliamentary approval.

The government also needs to upgrade the country's power grids, capitalise the distribution companies, create green energy corridors for inter-and intra-state transmission networks and establish a national university for renewable energy that can focus on research in renewable energy technologies.

The task before us is huge but achievable. As my father, Dhirubhai Ambani used to say, "If you can dream it, you can do it".

In Modi, we have a visionary leader. He can help us fulfil this dream.

And the optimist in me believes, he will.

Anil D Ambani is chairman, Reliance Group
The views expressed by the author are personal