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SOLAR POWER**Comparative
(dis)advantage****It is a clear win for
India if we can get
technology right****Sourabh Sen**

THE solar manufacturing industry is in a state of flux. While the industry as a whole has grown and is maturing at a record pace, it has had its share of growing pains and the impact of global recession as companies folded, merged, or were purchased.

A few years ago, concentrated solar power (CSP) technologies got a lot of attention. CSP essentially concentrates the heat of the sun to make steam, which in turn runs a turbine that produces electricity. There are parabolic troughs, power towers, Stirling engines, and linear Fresnel reflectors, just to name a few. Project costs of CSP were more competitive than photo-voltaic (PV), and CSP proponents said economies of scale were on their side.

CSP projects need to be large to make the economics work. The solar power contracts for the first phase of the National Solar Mission (JNNSM) were divided into 5-20 megawatt (MW) chunks for PV projects, whereas the contracts for CSP could be as big as 100MW. Given these dynamics, larger projects stood a better chance of achieving economies of scale and, thus, reducing project costs. Incentive levels (tariffs) for CSP were actually lower than PV in the first batch of solar contracts because the prevailing wisdom was that CSP would be cheaper to build. But as we are

seeing around the world, CSP projects have struggled mightily as they have not been able to keep up with the rapid fall in PV prices and are now more expensive to build than PV. In fact, you can see that the Gujarat government has recognised this fact and its new CSP tariffs (for 2012-2015) are higher than the PV tariffs.

Thin-film PV technologies have come along as alternatives to crystalline PV, and have begun to make a dent in their market domination in India. While they are less efficient at converting sunlight into electricity than crystalline PV, they are cheaper and stand up better to the high temperatures of places like Rajasthan.

While PV plants take a fraction of the time to build (6-12 months) compared to CSP (three or more years), getting the best price for the top panels is a constant challenge and only the most experienced developers will get it. PV plants take up less land and have virtually no water requirements beyond periodic cleaning. On the other hand, CSP plants need to tap groundwater, which communities guard as if their lives depend on it.

Solar power is a clear win for India. We can be the global leader and reap the economic, social, and environmental benefits that come from developing clean, affordable, and reliable electricity, but we need to get it right on technology front.

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