

energetica



INDIA



MR. SAUGATA DATTA
PRESIDENT-BUSINESS DEVELOPMENT,
VIKRAM SOLAR PVT. LTD.

Global Trends in Solar Energy and India's role to play

Mr. Saugata Datta analyses the trends experienced by global solar industry in 2014 and the kind of role India can play in growth of solar installations. The clean energy future isn't just desirable – it's essential!

We are born in times when alternate energy, in a revolutionary way, will not be alternate anymore. Renewables, especially when solar energy is finally becoming a globally significant source of power.

The numbers are compelling. A record amount of solar power was supplied to the world's grids in 2014, pushing total cumulative capacity to 100 times the level it was in 2000. After hitting about 178 GW

of solar PV power capacity by the end of 2014 (just the beginning- only sufficient to supply 1% of global electricity demands), global solar PV capacity is expected to hit 200 GW shortly.

In 2014, the market was dominated by highest ever investments in solar and wind. Renewable sources made up the majority of new power capacity in many countries- Europe, China and USA, while bringing electricity to new markets across

the globe. Investment in solar jumped 29% to \$149.6 billion, the second highest figure ever, and these expenditures added an unprecedented 46GW of solar PV. It's hard to overstate how vast and remarkable this revolution is.

Fuelling this year's growth is the dramatic drop in costs of solar power generation. PV module prices are down 80% since 2009, the electricity produced by large-scale projects now costs less than half of what it



used to be five years ago. The market of solar PV growth today are driven by China, Japan, USA, and India. The growth in the competition globally has added a positive note to this revolution as solar PV is growing across the world with it.

The Chinese government recently adopted a “feed-in tariff” incentive program and set a goal to install 100,000 MW of solar projects by 2020. Researchers forecast that China will install 14,000 MW of solar PV this year — short of China’s 2015 target of 17,800 MW. When it comes to investment, in 2014, China led with \$83bn in clean energy funding, but many other countries followed closely behind. Some of the most promising countries — like Brazil, India and South Africa — are expected to lead the way. Others, like Kenya, which boasts one of the largest solar rooftop systems in the African continent, come across more as a pleasant surprise.

Researches indicate that U.S. will rank third this year for solar PV growth, behind Japan and China. U.S. installers will add about 8,000 MW of solar PV capacity, a nearly 30% jump above 2014 levels. As a fact of matter, the 100,000 MW of renewable capacity that were added around the globe in 2014 are equivalent to the total installed nuclear power capacity in the US. Imagine the popularity and acceptance of solar energy today — in a unique and never-heard-of election manifesto, Presidential candidate Hillary Clinton released ambitious plans and declared solar her “top priority”.

Emerging markets in Latin America, Africa and the Middle East are also expected to witness a surge in demand for solar projects over the next five years. Installations in those regions are expected to rise from about 1% of annual electricity demand to 17% by 2020. Such growth will signal a profound change in the global landscape for solar projects. Asian nations led all markets with a whopping 86% of the world’s 40GW total PV module production at the end of 2013, and China represented 64% of global production.

Over the last few years, for the first time ever in Europe, renewables produced more power than nuclear — and solar power played a key role in achieving this remarkable achievement. Interestingly, Solar now contributes 7.9% and 7.0% to the respec-

tive annual domestic consumption in Italy and Germany, which is currently the world leader in solar energy. In the first years of this century, it would have seemed improbable that, between 2004 and 2011, 70% of new power capacity added in Europe would come from renewable energy sources.

India’s New Stand on Energy

Here in India, we are witnessing exciting times from the standpoint of economic growth and rapid development. The past year has been marked by a number of remarkable initiatives from the government such as “Make in India”. India’s plan to generate 100 GW solar power by 2022 is not only commendable but also an ambitious step towards bringing in the green energy revolution. With India’s installed solar capacity currently at only 4 GW, this would be the most aspirational solar plan that any country has laid out so far. These targets, if realized, could dwarf current solar power giants such as Germany, Japan, and the United States in both domestic market size and exports.

If India has to achieve these targets, it can only happen with robust government policy in place. Fact remains that if it took the country about 5 years to reach the first 3 GW mark, a ramp up from the current 4GW to 100GW means an annual growth of 55% over 8 years, investments of \$100 billion (at current prices), 5 lakh acres of land (almost half the size of Goa), massive new infrastructure and convincing the financially stressed state discoms to buy all this solar power.

Leaving aside the rhetoric, let us assess India’s internal energy dynamics. Any objective review of the performance of the central and state electricity boards would indicate the serious constraints the country is facing to connect nearly one third of the population to electricity grids and ensure that the other two thirds that are connected receive a reliable and continuous supply.

India is the third largest producer of electricity in the world. It has 258 GW installed generating capacity. In spite of this, per capita electricity consumption was only 684 kWh in 2011. The country has been in power deficit for decades. A major reason is insufficient transmission capacity, com-

pared to generation capacities and load requirements. In 2012-13, the country’s domestic power exchanges failed to consume 100% of power generated due to transmission bottlenecks and serious mismanagement. This amounted to a loss of around \$212 million. The government estimates that 24 percent of generated electricity is lost each year during transmission and distribution.

One in three Indians still relies on sources like kerosene, diesel or biomass for energy needs, all of which contribute to indoor and outdoor pollution. A recent OECD study found a 12% rise in the mortality rate in India attributable to air pollution and estimated that the cost to society was \$500 billion. In India, indoor air pollution ranks second and outdoor pollution fifth among major silent killers, according to the Global Burden of Disease report. All this pollution can be avoided — Solar energy comes in as a viable option!

Keeping this all in mind, prospects for renewable energy appear more than promising. It can be generated and distributed locally. The government claims that harnessing 100GW of solar energy will generate nearly a million new jobs, a definite benefit for a country that needs to create 13 million new jobs each year.

Conventional Wisdom meets Unconventional Growth

Beyond all the big numbers and statistics, there’s also an intangible energy-building behind solar. Simply put, people are inspired by clean energy and recognize that it’s an idea whose time to excel has come. The interest in clean energy has spread to every corner of the globe, undermining the long-held assumption that a strong economic future is reliant on fossil fuels

The clean energy future isn’t just desirable — it’s essential!

We are living in a time interval called Anthropocene — in which many geologically significant conditions and processes will profoundly be altered by human activities — like never before. Our choices and actions will decide whether this will be an era in which human resourcefulness will allow 7 billion people to have access to clean forms of energy without compromising the vital life support systems of our planet ◀◀