

Indian Renewable Energy Outlook 2015



INDIAN RENEWABLE ENERGY OUTLOOK, 2015

India faces serious challenges of climate change and energy security. The country's energy mix is dominated by fossil fuels, with 68 per cent of total power generated from coal. High dependence on imported oil & coal, large power deficits, and high energy intensity all pose serious challenges to climate change and India's energy security.

To overcome these challenges, India has set ambitious renewable energy targets over the next decade. As part of its Union Budget 2015-2016, India aims to install 60 GW of wind power capacity and 100 GW of solar power capacity by 2022, which is more than six times the current installed capacities of approximately 22 GW and 3 GW, respectively.

However this important task is made difficult by the government's limited budget, which is constrained by a large fiscal deficit and multiple development priorities. Since government support is required when renewable energy is more expensive than fossil fuel energy which is to be replaced, there is a need for an objective comparison between the levelized costs of electricity from renewable energy and fossil fuels.

Like coal, gas and oil have witnessed considerable price volatility in recent years. Development of renewable energy sources, which are indigenous and distributed and have low marginal costs of generation, can increase energy security by diversifying supply, reducing import dependence, and mitigating fuel price volatility.

Accelerating the use of renewable energy is indispensable if India is to meet its commitments to reduce its carbon intensity. The power sector contributes nearly half of the country's carbon emissions. On average, every GW of additional renewable energy capacity reduces CO2 emissions by 3.3 million tonne a year. Local ancillary benefits in terms of reduced mortality and morbidity from lower particulate concentrations are estimated at 334 lives saved per million tonne of carbon abated.

Renewable energy development can also be an important tool for spurring regional economic development, particularly for many under-developed states, which have the greatest potential for developing such resources. It can provide secure electricity supply to foster domestic and industrial development, attract new investments, and hence serve as an important employment growth engine generating additional income.

Moreover, renewable energy is seen as the next big technology industry, with the potential to transform the trillion dollar energy industry across the world. China seized this initiative to become a world leader in manufacturing renewable energy equipment. India's early and aggressive incentives for the wind sector have led to the development of world class players. Investing in renewable energy would enable India to develop globally competitive industries and technologies that can provide new opportunities for growth and leadership by corporate India.

Although the global pricing of carbon is still variable, the economic value of local environmental and health impacts is more clearly understood. In the absence of a global agreement on climate change mitigation efforts, the global economic benefits cannot be internalized. Internalization of other externalities, such as the impact on economic development and energy security, will only increase the economic potential.

The financial incentives for state utilities to buy renewable power are substantial only when compared with short-term power procurement cost. The feed-in tariffs for wind, small hydro and biomass are typically lower than the short-term power purchase charges, such as trading and unscheduled interchange (UI). Reallocating the money that would have been spent buying short-term power to investment in renewable energy can yield significant savings. However, the core of electricity

procurement by utilities still rests with power purchase agreements with coal- or gas-fired plants. Compared to the financial cost of coal-based generation, renewable capacity is not financially viable. Solar energy is not financially viable at any of these opportunity costs and will require subsidies in the short to medium term particularly if renewable purchase obligations are enhanced rapidly in line with the targets of the National Action Plan on Climate Change.

However, there is almost zero escalation in the variable cost of generation from renewable sources; in contrast, the variable cost of fossil-fuel based power generation is expected to increase. Most utility expansion models are unable to account for the hedging value of renewables against the price volatility of fossil fuel-based generation. Renewables are the only free hedging mechanism against the price volatility of fossil fuels. Moreover, renewable energy increases the price certainty of the entire portfolio and enhances energy security.

SNP Infra Research have conducted a wide range market survey to project a path finding guide for the various stakeholders in the renewable energy sector of India. It is a mix of primary and secondary research compilation in line with fact finding approach and projecting the opportunity size for the investors in India.

In this report, we aim to see the way forward for the renewable energy sector in India amidst identified challenges faced by the sector. The report also categorically discussed about the latest trends, market directions as well as the changing strategies adopted by the market players to counter the changing dynamics of the energy sector in India. This report will help them adapt and get prepared to realize the underlying opportunities and see off the challenges while being aggressive and focused as a competitor in the renewable energy sector.

SNP Infra Research hopes that the collective insights shared in the report contribute towards shaping better strategies and enables government with valuable inputs that ensures long-term viable growth of the sector.

A MUST BUY FOR:

- Power developers (wind & solar energy developers, small hydro & biomass energy developers)
- Power equipment manufacturers
- Power traders
- Power exchanges
- Central power players
- Transmission and distribution companies, banks
- Project financiers
- Consultants
- Investment bankers
- Policy makers
- Research companies
- Technology providers
- Government agencies
- Regulatory institutions
- Industrial consumers of energy
- RE development agencies
- Financial institutions etc.

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