



2016 Top Markets Report **Renewable Energy** Country Case Study

India

Type: Large Market; Small Market Share

Under reform-minded Prime Minister Narendra Modi, India set new goals for renewable energy that go above and beyond its own manufacturing capacity. This has stimulated investment in the sector and promoted increased deployment across a range of technologies, particularly solar energy. U.S. exporters, however, have found the Indian market frustrating, and are often perplexed by bureaucratic obstacles, infrastructure weakness and continuing emphasis on local content in certain projects.

Sector Rankings

Geothermal N/A	Hydropower 2
Solar 2	Wind 22

Overall Ranking



India is already a major renewable energy market (with the sixth largest renewable energy capacity)¹ despite fossil fuels still accounting for 75 percent of its energy mix.² A new national government commitment to clean energy should facilitate growth over the next several years. According to ITA’s projections, only two markets will install more renewable energy capacity through 2017 than India – China and Japan.

In 2014, India elected Narendra Modi in a sweeping election that carried with it a broad mandate to improve India’s power sector. Modi had a strong track record of developing renewable energy from his time as chief minister in Gujarat and he has continued to support clean energy development during his time as Prime Minister. This has been bolstered by India’s participation in the COP21 negotiations, where it emphasized climate financing that would benefit the country’s transition to renewable energy sources.³

The Modi administration’s largest and most perplexing challenge is arguably India’s significant need for power,

especially in rural areas. Rolling brownouts have hampered economic growth and limited foreign investment in the country. The July 2012 blackout that affected 620 million people, for example, was seen as a global embarrassment and remains a politically contentious topic to this day.⁴ This has been combined with a growing realization of the need to reduce the country’s emissions profile, which means India must address its dependence on heavy, coal-fired electricity generation. Encouraging energy efficiency upgrades for coal power plants, doubling the tax on coal power production, and pairing new coal power plants with solar installations are among the ways India is tackling this long-term problem.

Upon entering office, Modi reiterated his campaign pledge to ensure 24/7 power for all Indians. Given India’s ongoing difficulties in thermal generation, new renewable energy investment will likely need to be relied on to meet this commitment. While significant development is expected in the wind and hydropower sectors, solar is expected to play the most important role in India’s power mix among renewables going

forward – both as a result of falling solar prices and Prime Minister Modi’s history with the technology.

Overview of the Renewable Energy Market

Renewable energy projects in India have begun to be developed and commissioned at a higher rate, as the market responds to positive steps by the Modi government to encourage investment and make projects more attractive. In particular, new financing mechanisms announced by India should facilitate increased investment and installed capacity, and help India get closer to meeting its installation goals for both wind and solar.

Since July 2014, Prime Minister Modi has doubled the tax on coal three times, the latest proposal of which will generate an estimated \$4 billion to fund several important clean energy subsidies.⁵ A 10-year tax holiday has also been extended to power companies that begin operations in India by 2017.⁶

In an effort to support additional investment opportunities for renewable energy development, India’s finance minister allowed Indian banks to raise long-term funds for lending to the infrastructure sector through the easing of constraints on liquidity, cash reserves, and priority lending.⁷

In November 2014, India again garnered international attention by announcing it would dramatically increase its solar energy targets to 100 GW by 2022 and 40 GW of wind by 2022. While ITA does not expect India to meet these targets, the ambitious nature of their announcement sends a positive signal to the market of India’s willingness to use its policy tools to drive development.

One of the steps that India has taken to ensure successful implementation of its ambitious renewable energy goals is to make its distribution companies financially strong in order to ensure positive offtake of the renewable energy power generated. In November 2015, the Indian government announced a fixed tenure package to revive these electricity distribution companies, which have been mired in deep financial crises. The program intends to empower distribution companies with the opportunity to break even in the next 2-3 years.⁸

Challenges and Barriers to Renewable Energy Exports

While many positive developments do suggest growing U.S. export competitiveness in India, exporters face several important structural challenges. First, India continues to have a complex business environment and the electricity sector is no exception. Exporters must engage with a slow, often bureaucratic regulatory system that includes highly regulated electricity prices and inefficient state-owned distribution companies. Developers of all power generation technologies face the same hurdles, which can slow development and make investment decisions less attractive. India is conducting reverse auctions for the capacity of new projects at both the federal and state level, but local content requirements (LCRs) are currently implemented on a case-by-case basis with no clear pattern.

Secondly, India’s underdeveloped transmission and distribution (T&D) system also remains an impediment to projects.⁹ Losses stemming from the inefficiency of T&D are estimated at nearly 17 percent of total electrical output.

Barriers also exist regarding the availability of land for renewable energy development, a problem epitomized by the struggle to get the parliament to sign off on the Land Acquisition Bill.¹⁰ Despite Prime Minister Modi’s strong majority in India’s lower house of Parliament, he does not have a majority in the upper house to press his land acquisition reform agenda.

Opportunities for U.S. Companies

The size of the Indian renewable energy market should drive export growth, as should the surprisingly high market share enjoyed by U.S. suppliers, which have often benefited from the presence of the U.S. Export-Import Bank in the country. As such, India moved up to number three on this year’s *Renewable Energy Top Markets Report*.

Like other large markets, exporters and policy-makers are well served to consider distinct regions or states as different opportunities. Karnataka and Tamil Nadu, in India’s far south, enjoy strong regional clusters of wind, solar, and hydropower companies and thus can be good destinations for export promotion activities. Gujarat and Rajasthan have excellent wind and solar resources and a history of successful clean energy projects. However, India’s northern and eastern states

do not offer strong resource potential and future development there is unlikely.

Wind

India's wind supply chain remains extensive, with local companies dominating the market. In fact, India enjoys 10 GW of wind turbine manufacturing capacity – three times its domestic demand, making it a key exporter to the international turbine market.¹¹ The restoration of accelerated depreciation benefits in July 2014, which had supported wind investment in the past, should increase funding for the sector and accelerate development in the years ahead.¹²

American exporters unfortunately can expect to be at a severe disadvantage. According to ITA projections, only around one percent of the Indian wind import market will be captured by U.S. exports. U.S. companies may find some opportunities exporting component parts, as India does not charge an import duty for wind turbine components and exporters like AMSC, for example, have successfully licensed wind turbine technology for years.¹³

Notably, the Indian offshore market appears to be gaining momentum. In October 2014, the Indian Government announced the first offshore wind project, which is still under development off the coast of Gujarat.¹⁴ In September 2015, the Government of India introduced a new national offshore wind policy.¹⁵ The policy designated the Minister of New and Renewable Energy as the agency in charge of implementation and tasked the National Institute of Wind Energy with allocating offshore blocks.

Solar

The outlook for exports in this sector has been murky over the past several years due to the LCRs of the Jawaharlal Nehru National Solar Mission (JNNSM), India's flagship solar incentive program. The World Trade Organization (WTO) established a panel in May

2014 on India's solar LCRs at the request of the United States. In February 2016, a WTO dispute settlement panel found that India's domestic content requirements under the JNNSM are inconsistent with India's obligations under international trade agreements.¹⁶ Under WTO rules, India may appeal the panel's decision.

While LCRs limit the opportunity for Indian buyers and project developers to source technology on international markets, some solar technologies have continued to be imported. At this stage, the Modi Government even appears willing to allow some foreign imports in an effort to stimulate investment and deploy technology more quickly. With domestic manufacturing capacity covering at best 10 percent of their lofty solar goal, the prospects for U.S. exporters have increased dramatically, despite historically facing local content barriers. Even so, the exporters must still contend with competition from China and other regional suppliers.

With all of these factors taken into consideration, ITA projects that U.S. exporters will capture nearly 9 percent of India's import market – more than double the market share of U.S.-based solar suppliers globally and nearly triple the expected market share in China. India therefore ranks second on ITA's list of top solar export markets in the short-term and its overall ranking has been propelled higher this year as well. Exporters may also find opportunities to supply wafers or polysilicon to Indian buyers, as India maintains almost no production capability in these technologies.

Hydropower

With its own fully developed hydropower supply chain, 46 GW of installed capacity, and only 2 GW of planned development, the Indian hydropower market remains both mature and difficult to enter for U.S. firms.

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- ¹ Bloomberg New Energy Finance, India County Profile.
- ² IEA, India Energy Outlook 2015,
http://www.worldenergyoutlook.org/media/weowebsite/2015/IndiaEnergyOutlook_WEO2015.pdf
- ³ Hindustan Times, "COP21 Agreement," 13 December 2015. <http://www.hindustantimes.com/world/cop21-agreement-all-you-need-to-know-about-paris-climate-change-deal/story-BrmIrkUHIJ0jBahYxbjdqL.html>
- ⁴ Ernst & Young, Renewable energy country attractiveness indices, Issue 35, November 2012.
- ⁵ Bloomberg New Energy Finance, "India Doubles Clean Energy Tax on Coal, Risking Debt Revamp," February 29, 2016.
- ⁶ Business Monitor International, "India Renewables Report" 16 December 2014.
- ⁷ Bloomberg New Energy Finance, "H2 2014 India Market Outlook" 8 August 2014.
- ⁸ Reuters, "India unveils rescue package for power sector," 5 November 2015. <http://in.reuters.com/article/india-power-rescue-idINKCNOSU22E20151105>
- ⁹ Business Monitor International, "India Renewables Report Q2 2016," February 2016.
- ¹⁰ Quartz India, "Timeline: 200 years of India's struggle with land acquisition laws," 5 August 2015. <http://qz.com/471117/timeline-200-years-of-indias-struggle-with-land-acquisition-laws/>
- ¹¹ Bloomberg New Energy Finance, "Climatescope 2014: India."
- ¹² Bloomberg New Energy Finance, "H2 2014 India Market Outlook" 8 August 2014.
- ¹³ Bloomberg New Energy Finance, "H1 2013 India Market Outlook."
- ¹⁴ Business Monitor International, "India Renewables Report" 16 December 2014
- ¹⁵ Mondaq India, "National Offshore Wind Energy Policy, 2015," 6 November 2015.
<http://www.mondaq.com/india/x/441280/Renewables/National+Offshore+Wind+Energy+Policy+2015>
- ¹⁶ World Trade Organization, "WTO issues panel report on India's domestic content requirements for solar products," 24 February 2016. https://www.wto.org/english/news_e/news16_e/news16_e/456r_e.htm