

RENEWABLE ENERGY **IN INDIA**

UNLOCKING INVESTMENT
OPPORTUNITIES



A CLEAN ENERGY FUTURE

India targets reliable and sustainable power solutions to tackle the challenges of industrial growth, rapid urbanization and an expanding population

From the most advanced cities to emerging markets, the challenge of securing access to a reliable supply of sustainable energy that meets increasing demand is a priority all over the world. The environmental impact of fossil fuels, along with addressing increased consumption, energy security, power shortages and access to energy for a rapidly growing population is driving the focus on new and renewable energy sources.

India's power consumption is anticipated to double by 2020. As a part of the country's overall strategy to meet this increasing demand, India has accelerated the development of renewable energy projects to ensure its 1.3 billion strong population has access to clean, reliable and affordable energy. This has been propelled by Prime Minister Modi's vision of a clean energy future for India.

Key market milestones have been achieved, including the launch of the world's largest solar park (Shakti Sthala, 2,000MW) and ReNew Power's multi-investor acquisition in 2018 of Ostro Energy for an estimated US\$1.55 billion, to form the largest renewable energy company in India.

The government's commitment to reduce emissions was declared at COP 21 in Paris in 2015 and its ability to act is underpinned by improving market economics – creating a strong business environment for renewable energy investment. India has an increasing track record of realizing installed capacity, enhanced market transparency, and more robust government policy around the renewables sector. With increasing energy consumption, India has become an attractive market presenting significant investment opportunities for investors to be part of its clean energy future.

PROGRESSION

- India's progressive 2022 renewable energy installed capacity target of 175GW will include 100 GW of solar power (60 GW ground-mounted, 40 GW from rooftop), 60 GW wind and 15 GW of biomass and small hydro projects
- Clear government policy, initiatives and financial incentives are facilitating the rapid growth in renewables and provide a lower risk environment for investors
- 62GW of installed renewable energy capacity was achieved by December 2017
- Solar energy is the principal market segment by GW size, with India currently ranking 6th in the world by installed capacity, and the 4th largest for wind globally.

“The current renewable energy capacity in India is expected to double by 2022”

MARKET INVESTMENT CHALLENGES

Despite its attractiveness as a sector, there are market challenges to be addressed to create a more favorable environment for investors.

The Indian government has implemented a wide-range of actions to develop its renewables energy sector, including allowing up to 100% investment from foreign direct investors in renewable energy generation and distribution. This has made the sector increasingly attractive to investors, resulting in rapid growth. However, there remains many market challenges which are likely to hinder investors from fully capitalizing on this growing market segment.

To address some of these challenges, which are not restricted to India or emerging markets, there is a need for enhanced policy implementation supporting the renewable market. This includes a more robust approach to off-take agreements, building adequate transmission capacity and regulatory provisions between central and state level government to facilitate easier land acquisition, feed-in-tariffs, competitive bidding guidelines and improved access to project finance.

Things for foreign and domestic investors in the renewables sector to consider:

- There is a need to enhance existing infrastructure, grid constraints and wider integration
- Energy losses through inefficient transmission and distribution network, diminishing potential returns
- Policy and regulatory frameworks need to be refined to reduce uncertainties and mitigate investor risk
- Bureaucratic regulatory system at state and national level are reducing investment attractiveness
- Inefficient state owned distribution companies impacting off-take
- Differing policy requirements at both the federal and state level
- Falling tariffs for renewables although offset by continuous technology development that will reduce the cost of generation

CASE STUDY

SOLAR CAPABILITY

Environmental and social impact assessment to mitigate investment risks in solar projects in India

Arcadis India was commissioned to undertake an environmental and social impact assessment for five proposed solar power projects, with a combined capacity of 215MW, to identify all related risks and propose mitigation measures. The assessment was conducted in accordance with International Finance Corporation (IFC) performance standards, Asian Development Bank (ADB) social safeguards and Equator Principles (EP).

The assessment was conducted during the pre-construction phase, allowing stakeholders to make fully informed financial decisions before the start of construction. The assessment was conducted in compliance with local regulatory bodies and lender's requirements.



WHAT DOES THIS MEAN FOR INVESTORS?

India's renewable energy sector is an increasingly sought after area of investment. The growth of the industry and progressive policy change has triggered rapid transformation, creating a focus for domestic and foreign investors. However, with all fast-evolving opportunities, there is often increased uncertainty and risk around the supporting infrastructure, supply chain readiness and operational processes.

We see the need for a more comprehensive level of due diligence to instill investment confidence. This includes looking at site validation, financial model assumptions, grid connectivity evaluations, operational performance planning and environmental and social impact (ESG). The current administration focuses on project commencement and is progressing quickly to meet their headline

objective of 175 GW installed capacity, but with limited consideration given to financial governance and legislative measures.

The eagerness to promote projects to the financing, planning and construction phases, before having comprehensive legislation and processes in place is not protecting investors' interests. Independent, local sector technical and environmental knowledge is critical to understand, assess and future proof investment risks and returns.

Arcadis has advised on over 100 renewable energy transactions in India. Our track record and sector expertise allows us to provide informed insights on realizing the investment potentials of India's renewable energy sector.

Our mission is to create exceptional and sustainable outcomes for our clients in natural and built asset environments. We understand that we will achieve this only by working differently and realizing our goals to create sustainable solutions and deliver exceptional outcomes for our clients, while helping our people realize their potential and enjoying the journey together. What makes us different...

OUR PASSION FOR IMPROVING QUALITY OF LIFE

WE FOCUS ON DELIVERING EXCEPTIONAL AND SUSTAINABLE OUTCOMES

Focusing on achieving outcomes ensures the services, solutions and propositions we deliver on client projects and programs of work are designed to help them achieve, if not exceed, their overarching goals. We do this safely and consistently, for every client, whatever the challenge, wherever they are in the world.

WE UNDERSTAND OUR CLIENTS' BUSINESSES AND EVOLVING NEEDS

We are known for the depth of our technical knowledge and expertise in the planning, creation, operation and renewal or regeneration of natural and built assets. Our capabilities span a wide range of professional disciplines, 18 core value propositions, 19 global market sectors and experience operating in over 70 countries.

WE ARE LEADERS IN DESIGNING, CREATING, OPERATING AND MAINTAINING SUSTAINABLE SOCIETIES

The world continues to develop and change, at a pace of increasing alacrity and with mounting pressure on our natural and built resources. At Arcadis, we understand that cities, urban and rural habitats need to respond to societal changes. Whether they're challenged with rapid urbanization, increased mobility or environmental changes, we help clients meet each challenge safely, securely and in a way that improves quality of life.

WE ARE NEVER FAR FROM WHERE WE'RE NEEDED

Our global network of some 300+ offices worldwide ensures we are never far from where our clients need us. We believe in the power of diversity, combining our global capabilities with local knowledge. Operating to the highest standards of health, safety and integrity gives our clients a long term partner they can trust.

OUR PASSION IS TO IMPROVE THE QUALITY OF LIFE AND TO BE RECOGNIZED AS THE BEST; BY OUR CLIENTS, OUR SHAREHOLDERS, OUR PEOPLE AND THE COMMUNITIES IN WHICH WE LIVE AND WORK.



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“ From climate change to urbanization, we live in an increasingly complex world. Whatever the challenge, we deliver exceptional and sustainable outcomes for our clients. We work collaboratively to create value through built and natural assets that work in harmony with their surroundings. ”

Arcadis. Improving quality of life

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