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Renewable Energy Investment Surges in India

Investment Will Need to More Than Double to Meet 2030 Goals

Executive Summary

Investment in electricity generation in India has rebounded from its slump during the COVID-19 pandemic, with 15.5 gigawatts (GW) of renewable energy capacity – representing an investment of a record US$14.5 billion – added in the past financial year.

The majority of the money flowed through acquisitions, which accounted for 42% of the total investment in FY2021/22. Most of the other biggest deals were packaged as bonds, debt, equity investment and mezzanine funding.

Acquisitions accounted for 42% of the total investment in renewables in FY2021/22.

The largest deal was SB Energy's exit from the Indian renewables sector in October 2021 with a sale of assets worth US$3.5 billion. Other key deals included Reliance New Energy Solar's acquisition of REC Solar holding assets and a host of organisations like Vector Green, Adani Green, ReNew Power, Indian Railway Finance Corporation, Azure Power raising money in the bonds market.

The investment in FY2021/22 is an increase of 125% over FY2020/21 and 72% over pre-pandemic FY2019/20. However, investment in renewables would need to more than double to about US$30-40bn per year for India to reach its target of 450GW of renewable energy capacity by 2030.

In an environment of high economic growth, increasing energy demand will necessitate rapid growth in renewable energy capacity addition.

This will require investment in an entire "ecosystem" to help states accelerate adoption of renewable energy, including flexible generation like battery storage and pumped hydro; expansion of transmission and distribution networks; modernisation and digitalisation of the grid; domestic manufacturing of solar modules, cells, wafers and electrolysers; promotion of electric vehicles; and more deployment of decentralised renewable energy like rooftop solar.

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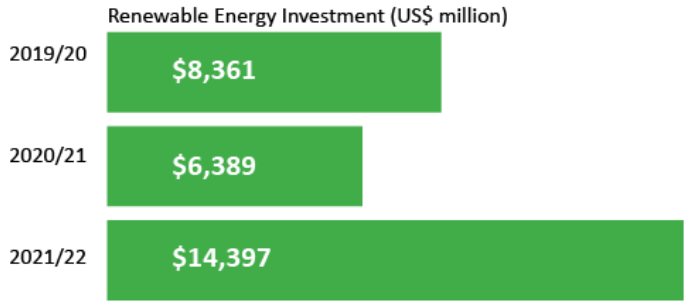
Introduction

Investment in electricity generation is on the rise, rebounding from the lull when demand fell due to the COVID-19 pandemic. India added 15.5 gigawatts (GW)[1] of renewable energy (RE) capacity thanks to a surge in investment in the financial year (FY) 2021/22.

In FY2020/21, investment in RE in India declined by 24%, from US$8.4bn in FY2019/20 to US$6.4bn. However, with the revival of energy demand and commitments from corporations, banks and financial institutions to exit fossil fuel investments, the share of RE investment is rising.

In FY2021/22, investment in RE totalled a record US$14.5bn, an increase of 125% from FY2020/21 and 72% from pre-pandemic times in FY2019/20.

Figure 1: Renewable Energy Investment Since FY2019/20



Source: JMK Research.

To boost energy security and self-reliance, the government is making efforts to reduce reliance on coal and oil and gas imports by looking at alternative clean energy technologies – an approach that has gained prominence as high imported oil and gas prices due to the Russia-Ukraine war fuel double digit inflation in India.

As a result of the rising fuel costs, the government is having to provide huge amounts of subsidies for fertilisers, LPG cylinders etc to help people cope with increasing prices. Also, in April and May 2022, exceptionally high energy demand due to extreme heat and coal supply bottlenecks led to a power shortage. The crisis could not have been averted by increasing coal imports because imported coal prices were three to four times higher than a year earlier.

On the other hand, as per Climate Risk Horizons,[2] the April power crisis could have been averted if India had been on track to achieve the 2022 renewable energy target. The additional generation from solar and wind would have eased the energy

[1] CEA. All India installed capacity (in MW) of power stations. March 2022.
[2] The Economic Times. Achieving 2022 renewable energy targets would have averted India's April power crisis. 20 May, 2022.

shortage and allowed power plants to conserve their dwindling coal stocks for evening peak periods when solar generation dips.

To address climate change and greenhouse gas emissions, India committed to reaching 175GW of RE capacity by the end of 2022, and increased it to 450GW by 2030, as part of its Paris Agreement goal. India would need about US$30-40bn on an annual basis to meet this goal. Even as renewable energy investment is increasing, what India needs now is for those investments to more than double.

Domestic and international financial institutions are scaling up deployment of renewable energy capacities in India and are preparing for the next wave of sectoral reforms. The government needs to act as an enabler by rolling out "big bang" policies and reforms[3] to accelerate the transition to a more sustainable energy economy while harnessing more investment, job creation in the renewable energy sector and reducing reliance on fossil fuel imports.

Key Investment Deals

Key investment deals in Indian renewable energy generation in FY2021/22 totalled US$14.5bn, a strong gain in momentum after a drop in renewable energy investments in FY2020/21.

Table 1: Top 10 Deals in 2021/22

	Company Name	Deal Type	Acquirer/Investor	Deal Value (US$m)
FY2021/22	SB Energy	Acquisition	Adani Green Energy Limited	3500
	Vector Green	Bond		1031
	REC Solar Holdings	Acquisition	Reliance New Energy Solar	771
	Adani Green Energy Limited	Bond		750
	Reliance Industries (RIL)	Debt	ANZ, Credit Agricole, DBS Bank, HSBC, and MUFG	736
	ReNew Power	JV deal	RMG Acquisition Corporation II (RMG II)	610
	ReNew Power	Bond		585
	Indian Railway Finance Corporation (IRFC)	Bond		500
	Avaada Energy	Equity	Global Power Synergy Public Company (GPSC)	453
	Azure Power	Bond		414

Source: JMK Research.

[3] IEEFA. India's Energy Sector Companies: Riding on a New Wave of Growth. April 2022.

In FY2021/22, new players such as Reliance New Energy, Vector Green etc. entered the market and are gaining a dominant market share. Over 57% of the deals included capital investment to five renewable energy companies – SB Energy, ReNew Power, Vector Green, REC Ltd and Azure Power. Five investors contributed 43% of the total investment – Adani Green Energy Limited (AGEL), Reliance New Energy Solar, a consortium of banks (led by ANZ, Credit Agricole, DBS Bank, HSBC, and MUFG), RMG and Global Power Synergy Public Company (GPSC). The biggest chunk of investment was through bonds, totalling US$4bn.

The composition of the Indian RE sector changed significantly in 2020 and 2021, in terms of companies with the largest share in setting up capacity compared with 2019. AGEL has one of the largest pipelines and operational portfolios among the Indian RE players and aggressive targets of 25GW by 2025 and 45GW by 2030.[4] The company is the first Indian member of the GRI South Asia Charter on Sustainability Imperatives[5] and received India's best environmental score in ESG rating by Edelweiss ESG.[6] Also, it is the only company in India's renewable sector disclosing greenhouse gas (GHG) emissions in all three scopes in CDP's India Disclosure Report 2021.[7]

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Further, Abu Dhabi-based International Holding Company PJSC (IHC) will invest ~Rs15,400 crore (US$2bn) in three Adani Group portfolio companies: AGEL, Adani Transmission Limited (ATL) and Adani Enterprises Limited (AEL).[8] AGEL signed the world's largest green power purchase agreement (PPA) with the Solar Energy Corporation of India (SECI) in December 2021 to supply 4667MW,[9] part of the 8GW awarded under SECI's manufacturing-linked solar tender.

NTPC is another company with big RE plans. A longstanding thermal power player, the public sector undertaking is pivoting towards renewable energy. NTPC is the first energy company in India to declare its energy compact goals – 60GW of RE capacity by 2032 and a 10% reduction in net energy intensity by 2032.[10] NTPC won 2.8GW of RE capacity in FY2022. The company aims to assemble a portfolio

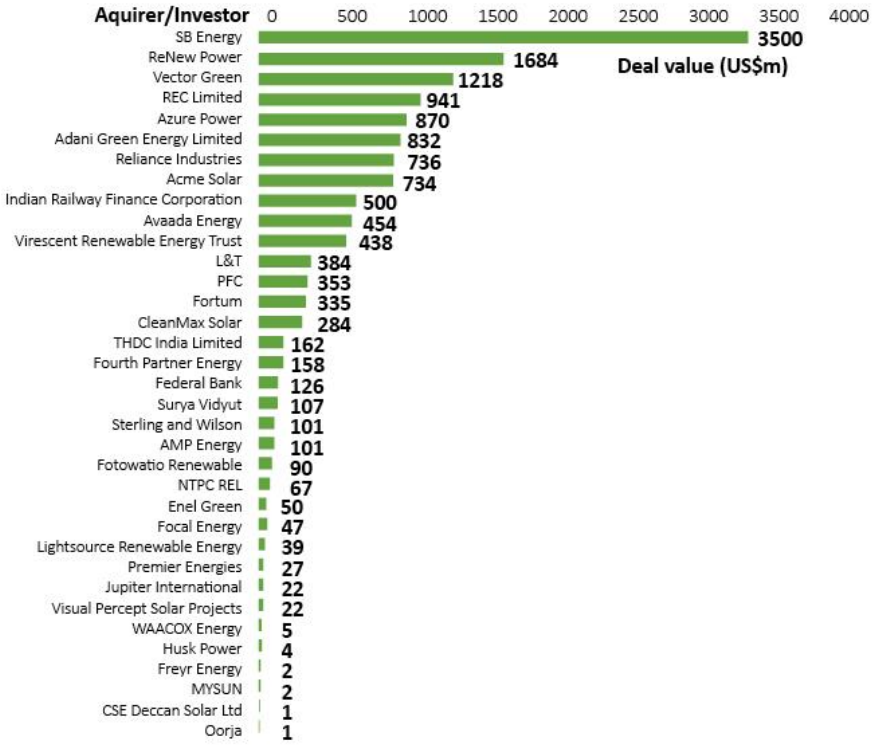
[4] Adani. Media Releases. Adani Companies AGEL And ATL Declare Energy Compact Goals As Part Of COP26. November 2021.
[5] Adani Media Releases. Adani Green First In India To Achieve GRI South Asia Charter Member Status. February 2022.
[6] AGEL. 2nd Jefferies India ESG Summit. December 2021.
[7] Adani. Media Releases. Adani Green Energy Ltd Announces FY22 Results. May 2022.
[8] Adani. Media Releases. Adani Portfolio Companies Complete INR 15400 Cr Primary Equity Transaction With IHC. May 2022.
[9] BusinessToday. Adani Green Energy signs green PPA with SECI to supply 4,667 MW renewable energy. December 2021.
[10] NTPC. Press Release. NTPC Declares its Energy Compact Goals towards sustainability. June 2021.

of 7-8GW of total RE capacity by FY2023 before transferring the assets to NTPC Renewable Energy Ltd for monetisation in the same year.

State Bank of India (SBI) is the largest lender to the RE sector in India and has also floated green bonds of US$800m to support its green lending plans. The bank dual listed green bonds of US$650 million on the India International Exchange (India INX) and Luxembourg Stock Exchange.[11] SBI has formulated a policy on ESG-compliant lending to companies. However, the policy is not yet being used as grounds to deny loans.

In January 2022, SBI launched a dedicated centralised processing cell – the Surya Shakti Cell – in collaboration with Tata Power Solar Systems in a bid to finance solar power projects (with capacity up to 1MW).[12]

Figure 2: Investment Acquired by Key Developers FY2021/22



Source: JMK Research.

Big players such as Adani Green, Acme and Azure continue to raise investment for deployment of RE. In October 2021, AGEL acquired the SB Energy portfolio in India for US$3.5bn. The portfolio holds 1700MW of operational renewable assets, 2554MW of assets under construction and 700MW of assets near construction.

[11] Business Standard. SBI lists $650mn green bonds on India INX, Luxembourg Stock Exchange. November 2021.
[12] Tata Power. Media Release. SBI launches 'Surya Shakti Cell'; partners with Tata Power for financing Solar projects. January 2022.

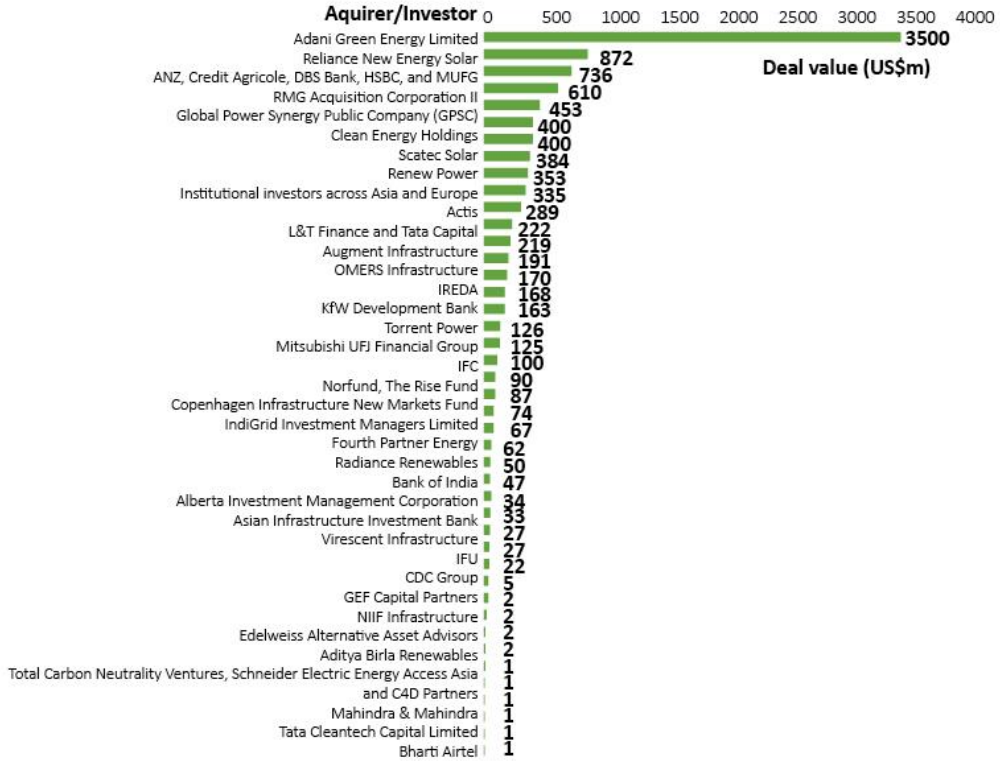
AGEL raised US$750m through three-year notes at the holding company level in September 2021 at the coupon rate of 4.375%.

Further, Indian developers are attracting huge investments from green bonds. In April 2021, ReNew Power raised money from green bonds with a tenor of 7.25 years at a fixed interest rate of 4.5% per annum, and another one in September at a 4.5% coupon rate for a tenor of 5.25 years. ReNew Power also struck a merger deal that allowed it to list on NASDAQ by completing its business combination with RMG Acquisition Corporation II, a special purpose acquisition company (SPAC). This was a landmark transaction, representing the biggest overseas listing of an Indian company via the SPAC route.

In September 2021 Azure Power raised bonds for solar energy with a deal value of US$414m. The bond will mature in 2026 and be issued at a low coupon rate of 3.575%. Vector Green, which invested in FY2019/20 in RattanIndia assets, is now becoming a big developer. In August 2021, Vector Green raised bonds for solar energy with a deal value of US$1bn for three years. Axis Bank and ICICI Bank are the guarantors of the operation. This will be the first AAA-rated green bond.

Power Finance Corporation (PFC) raised US$353m from a green bond with a 1.84% rate for a period of seven years. To build renewable energy capacity, Indian Railway Finance Corporation (IRFC) raised US$500m from a green bond with a tenor of 10 years and a coupon rate of 3.57%.

Figure 3: Key Investors in Renewable Energy FY2021/22



Source: JMK Research.

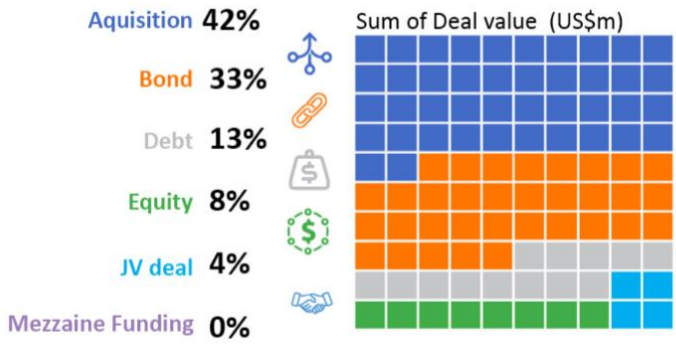
AGEL, which became India's largest developer with the acquisition of SB Energy assets, was the biggest investor in FY2021/22. Institutional investors and consortiums of banks are also lending heavily to RE deployment.

Reliance New Energy, the new kid on the block, is investing big money in RE deployment. The company acquired REC Solar Holding assets worth US$771m. Further, the company acquired a 40% equity stake in Sterling and Wilson and also provided debt of US$101m for a two-year loan at an annual interest of 10.5%.

In FY2021/22, acquisitions accounted for 42% of the total investment. The largest deal was SB Energy's exit from the Indian RE sector with a sale of assets worth US$3.5bn. This was followed in terms of value by the Reliance New Energy Solar, Scatec Solar, ReNew Power and Actis deals.

Figure 4 shows the investment deal type, with the majority of the other biggest deals packaged as bonds, debt, equity investment, JV deal and mezzanine funding.

Figure 4: Investment by Deal Type FY2021/22

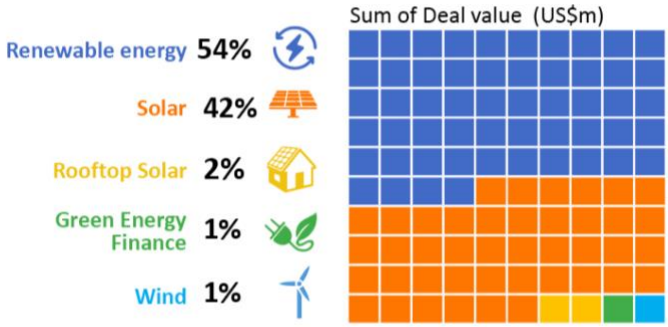


Source: JMK Research.

Mergers and acquisitions dominate in both FY2020/21 and FY2021/22. The share of equity in total financing declined from 41% in FY2019/20 to 22% in FY2020/21, then to 8% in FY2021/22. Companies are also raising money through loans and advances with the share increasing from 3% to 25% and declining to 13% during the same period. The share of bonds declined in FY2020/21 but has picked up again, accounting for 33% in FY2021/22.

In FY2021/22, renewable energy in general accounted for 54% of the total investment, solar had a 42% share, while only a small amount went to rooftop solar (2%), wind and green energy financing (1% each).

Figure 5: Investment by Sector Type FY2021/22



Source: JMK Research.

In FY2020/21 and FY2021/22, rooftop solar investment increased due to more demand from commercial and industrial (C&I) consumers for installation of rooftop solar power. The share of wind increased from 10% in FY2019/20 to 23% of the total investment in FY2020/21 but declined to just to 1% in FY2021/22. The only deal in the wind sector in FY2021/22 was Torrent Power's acquisition of 156MW of Surya Vidyut's wind power plants, spread across Gujarat, Rajasthan and Madhya Pradesh.

In May 2022 at the World Economic Forum in Davos, a few states signed memorandums of understanding (MoUs) for investment in the renewable energy sector. States pitching for investment will increase interest from developers and investors in building clean energy capacity, which will help the states to increase industrial and manufacturing capacity and create jobs.

Andhra Pradesh signed renewables investment agreements worth approximately US$16bn with Adani Green Energy, Greenko backed by Singapore's GIC, and Aurobindo Realty & Infrastructure.

Karnataka and Maharashtra each inked MoUs with ReNew Power for investments totalling Rs50,000 crore (US$6.5bn) in renewable energy, battery storage, and green hydrogen technologies.[13]

Domestic and Global Capital Must Accelerate to Finance Renewables Ecosystem

India will witness increasing energy demand on the back of high economic growth. The Government of India has undertaken initiatives to boost the manufacturing sector. Further, with increasing affordability of air-conditioners and rising temperatures, India is likely to witness increasing cooling loads.

[13] News18. Corridors of Power: Andhra, Maharashtra, Karnataka Lock Renewable Energy Deals with Investors in Davos. May 2022.

Rapid growth in capacity addition will be required to meet this increasing demand. India should adopt a pathway with more sustainable energy choices that will reduce reliance on imports and help build energy security in a system that is also less costly. Renewable energy is deflationary and prices are likely to go down, while coal-based power generation, on the other hand, is inflationary.

Accelerating the deployment of renewable energy would help India achieve its target of 450GW of renewables by 2030. With an increasing share of renewable energy, India needs to invest in an entire "ecosystem" to help states accelerate adoption of renewable energy. This "renewable plus" approach requires investment in

- Flexible sources such as battery storage and pumped hydro;
- Expansion of transmission and distribution networks;
- Modernisation and digitalisation of the grid;
- Domestic manufacturing of inputs like modules, cells, wafers, electrolysers etc;
- Promoting electric vehicles for transportation;
- Promoting more decentralised renewable energy like rooftop solar.

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