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INDIA

2022

# COAL vs RENEWABLES INVESTMENT REPORT

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is a Delhi based think tank that focuses on sustainable and accountable financing of infrastructure projects. CFA aims to strengthen and improve financial accountability within India.

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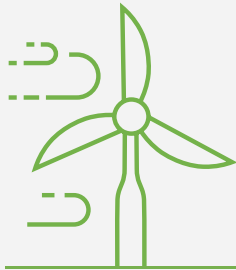
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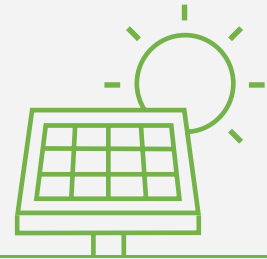
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## METHODOLOGY

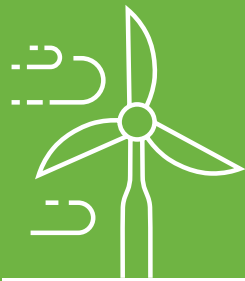


**T**his analysis assessed **44 project finance loans** across 42 coal and renewable energy projects in India that reached a financial closure between 1 January 2021 and 31 December 2021. Renewable energy projects are defined as either hydroelectric, geothermal, wave, wind or solar power projects. Total lending amounted to **INR 33,893 crore (USD 4,598 million)**, of which **100% flowed to renewable energy projects**. The total capacity across all projects identified was **8.5 GW**.

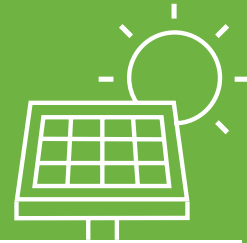
Deals were initially identified on at least one of three subscription-based financial databases: Bloomberg Professional, IJ Global and Thomson Reuters. Following identification, each deal was cross-referenced across these databases. Thereafter, deals were corroborated with various resources, including company records, market disclosures and media reports. Where information on the deal was inconsistent, a decision was made on which sources were the most reliable in accurately reflecting the size and nature of the deal.

Importantly, this analysis only included project finance lending and excluded corporate lending. All dollar amounts are in US dollars (USD) unless otherwise stated. All lending was either in Indian Rupees (INR) or USD. The value of each loan is the amount specified on the date of financial closure. This analysis used the US Federal Reserve exchange rate to convert and aggregate lending, using the exchange rate specified on the date of financial closure. When there was no exchange rate available for the day of the transaction, this analysis used the rate of the closest available date.

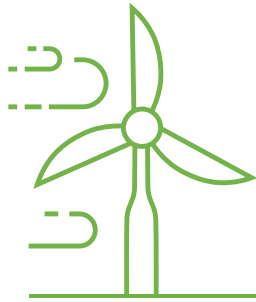
This analysis is not meant to be an exhaustive list of all power sector loans in India. Rather, it provides a snapshot of the project finance landscape for coal and renewable energy. This analysis builds on and refers to previous iterations of this report in 2017, 2018, 2019 and 2020.



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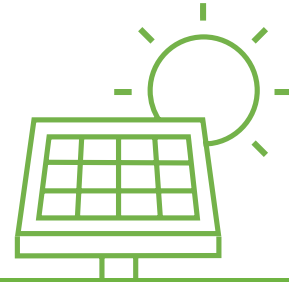


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1.

## INTRODUCTION



In early August, the Union Cabinet [approved](#) India's updated Nationally Determined Contributions (NDC) that have hence been formally communicated to the United Nations Framework Convention on Climate Change (UNFCCC). These include goals like reducing the emission intensity of India's GDP by 45% by 2030, from 2005 levels and achieving about 50 percent cumulative installed electricity capacity from non-fossil fuel-based energy resources by 2030. In comparison to the statements made in Glasgow, the new NDC dilutes India's climate pledge. During COP26, India promised that 50% of its energy would be from renewable energy sources by 2030. The new NDC, however, states that India will have 50% cumulative electric power installed capacity from renewable energy resources by the same date. Using 50% of electricity capacity (and not energy generation) weakens the target, as wind and solar have lower availability than conventional plants - meaning more capacity from wind and solar (somewhere between 2 and 3 times, depending on the renewable resource), needs to be built to meet a 50% generation share then a 50% capacity share. Meanwhile, using cumulative capacity as a measure adds older capacity to the calculation (when some of the new capacity is simply repowering older, retiring power plants), and thus increases the perceived amount of renewable energy availability in India. Along with mid-term goals, India's long-term target to achieve net zero by 2070 attracted much debate since Prime Minister Modi's announcement in Glasgow last year. Even though India moved up to rank 8th on the Climate Change Performance Index scale, its renewable energy pathway is not on track for the 2030 target. . India's recent commitment to low carbon pathways at COP27 at Sharm-El-Sheikh would have been a promising signal had it been willing to wean off coal. This could also potentially cause delays in its recently announced [Long Term Strategy](#) at the meeting.

Despite the contractions in the economy, renewable energy projects have outpaced coal projects with a growth rate of 128%. India has set an ambitious renewable energy capacity target. By the end of the decade, India aims to rely on non-fossil fuel sources for close to 60% of its power needs. However, as 50% of the installed capacity would be non-fossil fuel based as per its target, obtaining 60% of its power needs from this capacity is unrealistic. Wind and solar plants would take up the majority of the new non-fossil fuel capacity to reach the target. Despite their lower cost per unit of electricity produced, the amount of electricity wind and solar generate for every unit of capacity (the "capacity factor"), is lower than that of fossil plants - typically between 2 and 3 times -, because wind and sun are variable resources. Therefore, renewable projects need to be scaled up considerably to reach this goal.

Fortunately, India's lending towards RE continues to grow, while coal lending experiences a steady decline. This is also reflected in the continued downward trend in terms of bank lending. While PFC and REC continue to finance the loan referred to in the previous report, there are no new project finance loans being given to new coal capacity in 2021.

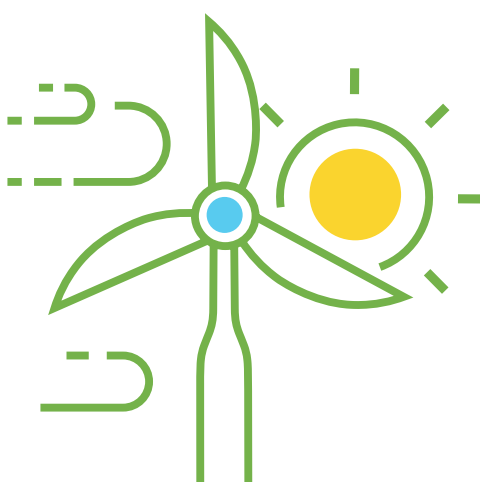
2021 was marked by Covid-19-related disruptions and lockdowns, and led to the [first contraction of India's GDP in 40 years](#). Nevertheless, the total grid power supply increased by 10% as India's economic recovery and warmer weather conditions in the summer drove its demand. India added **13.5 GW** of renewable energy capacity in the financial year 2021-22, which is **128%** higher than in FY 2020-21, most of it being solar energy. This had a significant impact on prices: according to [BNEF](#), the power from new solar capacity in India is now cheaper than the power from existing fossil energy plants.

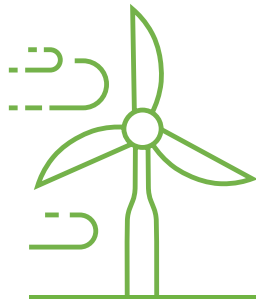
Nonetheless, coal still provides 74% of India's electricity, whereas wind and solar correspond to only 8%. According to BNEF, as India's coal fleet is relatively young, there is little financial incentive to finance their premature retirement. In addition, Indian coal PPAs support the economic viability of coal plants through a fixed price component independent of actual output, a policy that inhibits drastic emission cuts.

Even though India has made impressive progress, 43% capacity additions are still lacking to reach its interim target of 175 GW of renewables by December 2022. This means that for its 2030 target, India would need to install renewables 2.5 times faster than today. According to Ember, this is partly due to the unequal commitment of Indian states to align with national targets. Moreover, Russia's invasion of Ukraine and the accompanying effects on the global energy markets will be critical to determining the speed of India's energy transition in the coming years.

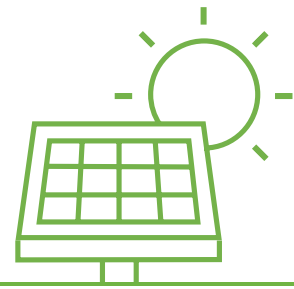
Interestingly, however, in mid-September 2022, the Union power ministry moved a proposal to grant PFC and REC the status of a development financial institution (DFI) for energy transition. If this comes to pass, both the government-owned financial institutions could become the nodal agencies for financing the energy transition in the country. By some estimates, India would need 10 trillion dollars to transition to net zero by 2070 and a nodal agency would play a big part in facilitating the necessary finance.

The Reserve Bank of India also recently shared a discussion paper on Climate Risk and Sustainable Finance that has suggested strongly that banks follow the Task Force on Climate-Related Financial Disclosures (TCFD) and shared suggestions on how private banks can deal with climate change risk and scale up green finance. Despite the geopolitics and depression in the markets over the last few years, some of these measures could potentially amp up the finance necessary for RE projects to scale up at the necessary pace.





## 2. SUMMARY



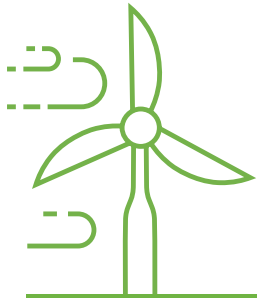
- For the first time, **100% of the value of the project finance loans identified in 2021 went to renewable energy projects<sup>1</sup>**. This is a considerable increase compared to 2020, where renewable energy loans accounted for 74%.
- Total funding for new energy projects in 2021 is **60% lower compared to 2017** levels. Moreover, when inflation is taken into account, the real value of the amount lent for new energy projects in 2021 even shows a decrease compared to 2020 levels.
- Primary financing - funding allocated to construct new projects - continued to dominate the project financing landscape in India. **79% of all deals were categorised as primary financing** deals, with refinancing constituting the remaining 21%.
- Financing for renewable energy has increased. A total of **INR 33,893 crore (USD 4,598 million) went to renewable projects in 2021**, all of which were solar and wind - a **39% year-on-year increase from 2020**.
- Like last year, solar power is the dominant renewable energy, accounting for **83% of renewable energy deals and wind for 17%<sup>2</sup>**.
- Cumulatively, **commercial banks supplied INR 25,443 crore (USD 3,454 million)** to renewable energy projects, **representing the majority (75%)** of such loans and showing a significant increase compared to 2020. The State Bank of India was replaced by the commercial bank L&T Finance for providing the largest loan of renewable energy, pouring INR 4,214 crore (USD 565 million) into the sector (a 60% increase compared to the biggest loan in 2020).
- Rajasthan is by far the biggest beneficiary of renewable energy lending, with INR 22,187 crore (USD 3,039 million), or 65% of all renewable energy loans.** This represents a 10% increase in comparison to 2020. The second biggest beneficiary is Gujarat, with **INR 4,024 crore (USD 540 million)**.

<sup>1</sup>

A coal loan which was signed in 2021 was already counted in the last report and is therefore not included in this analysis. Including it would mean that 20% of the total value went to coal power plants, whereas 80% to renewable projects.

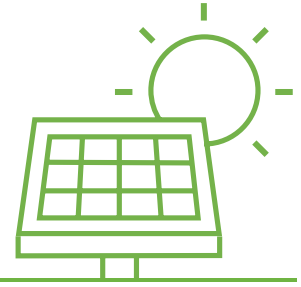
<sup>2</sup>

A significant hybrid project for wind and solar was included, assuming a 4:1 split between both technologies.



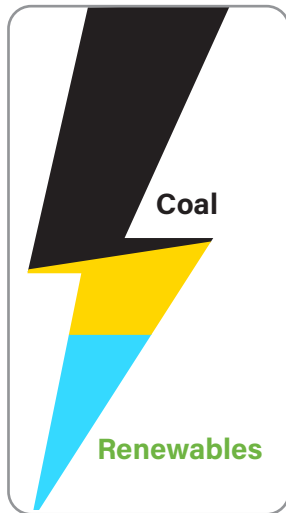
### 3.

## PROJECT FINANCING TO DIFFERENT TYPES OF ENERGY PROJECTS, 2017-21



### Renewables vs Coal Financing

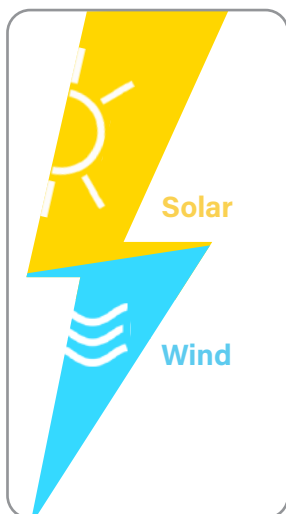
Values in ₹ cr



	Coal-Fired	Renewables	Grand Total	Inflation Adjusted*
2017	60,767	22,913	83,680	104,334
2018	6,081	24,442	30,524	37,133
2019	1,100	22,971	24,071	27,926
2020	8,520	24,377	32,897	35,450
2021	0	33,893	33,893	33,893

### Solar vs Wind Financing

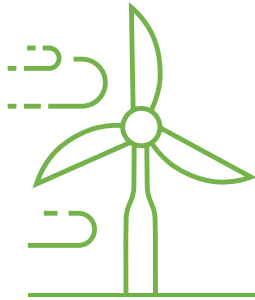
Values in ₹ cr



	Solar	Wind	Grand Total	Inflation Adjusted*
2017	15,536	7,377	22,913	28,568
2018	14,578	9,864	24,442	29,734
2019	16,054	6,917	22,971	27,926
2020	19,743	4,634	24,377	25,269
2021	28,159	5,734	33,893	33,893

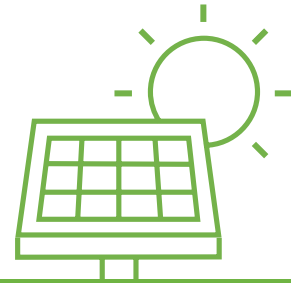
\* Total after adjusting for inflation at 2021 prices





## 4.

### WHO IS LENDING TO COAL?



In 2021, no new coal power projects received any project finance. This is the fifth edition of this report and the first time where no new project finance for coal power projects has been reported. One coal power project, identified last year, was granted a standby credit facility.

This does not mean no additional coal power project was funded in 2021 - since the scope of this analysis only looks at project finance, and not equity or corporate finance, it provides a snapshot of the energy finance landscape in India.

The plant granted a standby credit facility this year was the [1.32 GW Buxar thermal power plant in Bihar](#). It received a total of **INR 1,024 crore (USD 141 million)** in loans from three banks (see table below). Last year, when it was the only coal plant to receive project financing, it secured loans from Power Finance Corporation (PFC) and Rural Electrification Corporation (REC). The total project amounts to **INR 8,448 crore (USD 1,665 million)**.



**State Bank of India**  
Standby Loan  
₹ 414 cr  
US \$57.09 mn

**Canara Bank**  
Standby Loan  
₹ 330 cr  
US \$45.63 mn

**India Infrastructure  
Finance Corporation**  
Standby Loan  
₹ 279 cr  
US \$38.47 mn

A standby credit facility is usually an additional source of finance meant to be used alongside another cheaper source of finance, or in case the previous financing options do not work. The earlier financial closure with PFC and REC reached in 2020 was via a [Memorandum of Understanding](#).

In 2019, PFC acquired a 56% stake in REC. However, the merger between the two financial corporations has stalled due to technical reasons. A new proposal for another non-banking entity to buy PFC's 56% in REC is being discussed. Another proposal aims to grant PFC and REC the status of Development Finance Institutions, to make them lead financial institutes for energy transition funding.

In the last several years, PFC and REC have emerged as the financiers of last resort for coal power projects in India as international financiers have increasingly shunned funding coal power projects. Unlike their international peers, the majority of the banks in India have not announced any coal or fossil fuel finance policy.

Two exceptions are the Federal Bank, India's 11th largest private commercial bank, which announced in 2021 that it will discontinue financing of any new coal projects, including coal-fired power plants. Another bank, Sarvodaya Small Finance Bank has also announced an end to financing coal projects.

Despite this, India ranked fourth globally between 2019 and 2021 for financing coal projects, amounting to INR 489,539 crore (USD 64,971 million). Among those who have either provided loans or underwriting services, or have shareholdings in coal companies, are ICICI Bank, State Bank of India, Axis Bank, and Life Insurance Corporation.

Loans and underwritings of selected banks 2019 - 2021 (Source: Global Coal Exit List)						
Bank	Loans		Underwritings		Total	
	USD million	₹ crore	USD million	₹ crore	USD million	₹ crore
ICICI Bank			11,053	80,492	11,053	80,492
State Bank of India	4,653	33,887	3,079	22,424	7,732	56,311
Axis Bank	15	110	6,245	45,479	6,260	45,589
HDFC Bank	349	2,539	4,958	36,104	5,306	38,643
Kotak Mahindra Bank			2,941	21,419	2,941	21,419
Yes Bank	156	1,133	2,581	18,794	2,736	19,927
Canara Bank	1,460	10,632	11	82	1,471	10,714
IDFC			431	3,140	431	3,140
Infrastructure Finance Com.	384	2,800			384	2,800

Most of the private power producers have either cancelled coal power projects or have announced a no new coal policy. Tata Power was the first private power producer to not only announce a no new coal policy, but also a coal phaseout plan. NTPC, owned by the Indian government and the country's largest coal power producer, committed to build no new greenfield coal projects.

According to India's draft National Electricity Plan released in early September 2022, India has reduced its 2032 coal capacity targets by 18GW compared to an earlier report released by the Central Electricity Authority (CEA) in 2020. The target for installed solar power capacity by 2032 has been increased by 18%. The National Electricity Plan is released every five years and acts as a guiding policy for any power capacity additions and electricity demand projections.

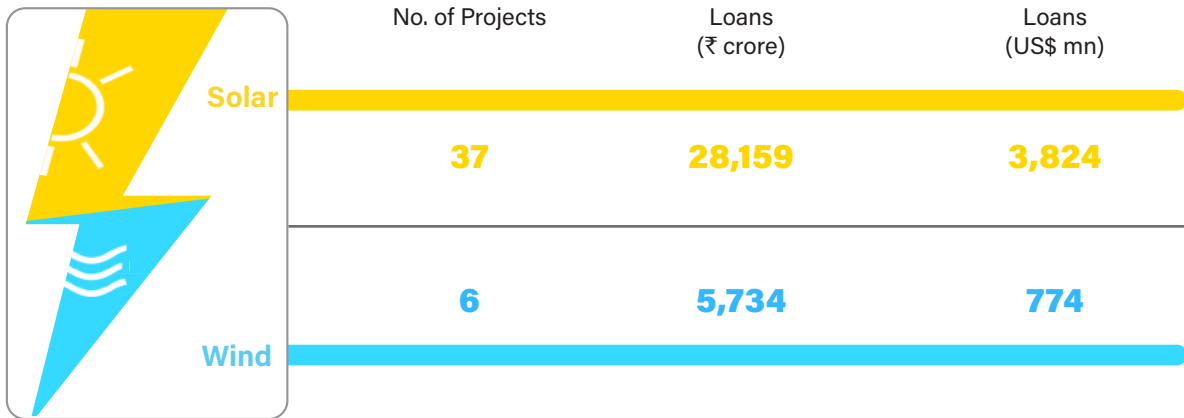


**I**n 2021, there were **43 renewable energy project financing deals**, which provided a total of INR 33,893 crore (USD 4,597 million) in loans. Even though this is a nearly 40% increase in comparison to 2020 levels, inflation rates in 2021 have a sobering effect on the magnitude of such increase.

Solar energy was once again the renewable energy of choice, accounting for 37 deals. These financed a cumulative **7.17 GW of solar PV** (up from 5.18 GW in 2020). According to [BNEF](#), the availability of capital is driven by the offer of 25-year PPAs at scale, secured by a central government sovereign guarantee. Indeed **solar lending surged by over 40%** compared to 2020 and by 75% compared to 2019. The **INR 28,159 crore (USD 3,824 million)** that went into solar projects this year accounted for **83% of renewable energy financing**.

Of the 43 renewable energy deals, the remaining six funded **1.32 GW of wind energy projects** (compared to 997 MW in 2020). **The amount loaned increased by 24% to INR 5,734 crore (USD 774 million) compared to 2020 levels**. This increase however appears quite moderate when taking into account inflation. Moreover, it still represents a 17% decrease in spending compared to 2019 levels. Overall, wind comprised 17% of total renewable energy lending in 2021.

Adani Green Energy secured funding for the single largest deal in this analysis, the 1.69 GW hybrid Jaisalmer project. Due to the lack of information on the distribution of wind and solar in this project, the loan amount was divided in a 4:1 ratio between solar and wind respectively. This assumption is based on the distribution in a new hybrid project commissioned by Adani this year. According to the [IEA](#), 2021 showed a limited wind capacity due to a lack of tendering and issues with the availability of suitable sites.



## 5.1

### The majority of renewable energy loans were to construct new projects

Total funding for new energy projects in 2021 is 60% lower compared to 2017 levels. Moreover, when inflation is taken into account, the real value of the amount lent for new energy projects in 2021 even shows a decrease compared to 2020 levels.

**Among renewable energy loans, 79%, equal to INR 26,897 crore (USD 3,655 million), was designated as primary financing.** For solar energy, 80% of financing was to build new projects, while this was the case for 76% of loans for wind power. Refinancing existing projects constituted INR 6,996 crore (USD 943 million) in funding, representing 21% of total renewable energy funding. This is an increase in comparison to 2020, where refinancing renewable projects accounted for 16%. Evidently, investment into older projects grew slightly in comparison to new wind or solar projects in 2021.

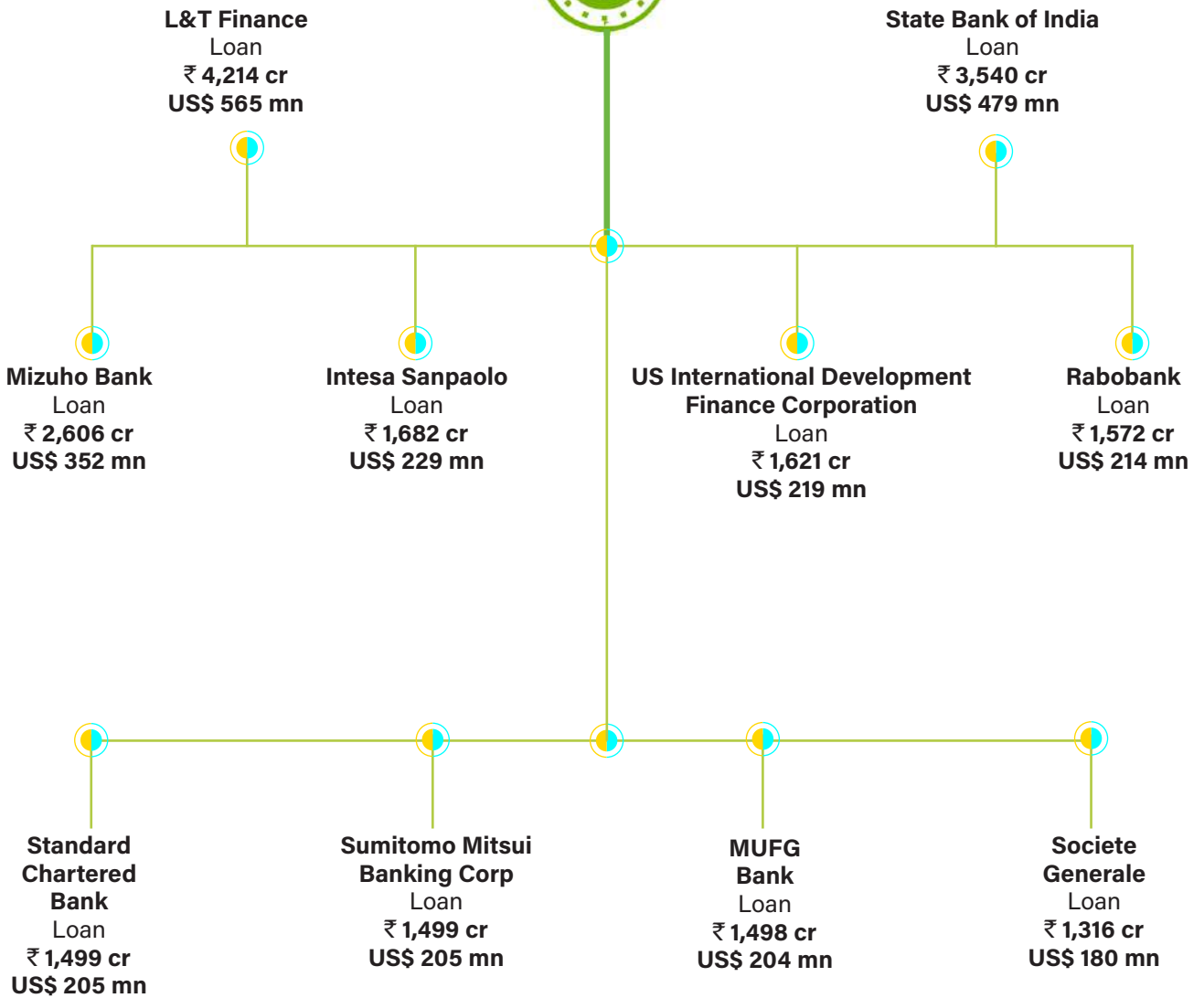


## 5.2

### Stated-owned lenders are becoming increasingly significant

In terms of renewable energy financiers, the majority of loans (75%) came from commercial banks (compared to 56% in 2020). The share of funding provided by government banks stayed constant at 19% in 2020. Notably, the State Bank of India was the second largest lender to renewable energy projects, providing INR 3,540 crore (USD 479 million) in loans, a 34% increase from its loan a year before. The largest lender was L&T Finance, which lent INR 4,214 crore (USD 565 million), a rise of 120% compared with 2020.

The proportion of commercial lending for renewable projects increased to 75%, having fallen between 2018-2020. This suggests that the COVID-19 pandemic did not suppress private finance.





## 5.3 TOP 5 Renewables Projects

Project	Technology	Sponsor	Funded Capacity (MW)	Loan	
				₹ cr	US\$ mn
Adani Hybrid Energy Jaisalmer One	Hybrid	Adani Green Energy	1,690	9,883	1,350
SBG Andhra Pradesh Solar PV Plant	Solar	SB Energy	350	2,020	272
Bhuj Onshore Wind Plant	Wind	Alfanar Bhuj	300	1,650	220
Eden Renewables India Rajasthan Solar PV	Solar	EDF Renewables/ Total Eren	300	1,204	165
SBSR Rajasthan Solar PV Plant	Solar	SB Energy	300	1,209	164



## 5.4 TOP 5 Renewables Sponsors

Adani Green Energy topped the list with **INR 10,904 crore (USD 1,489 million)** in loans. Billionaire tycoon Gautam Adani's company was backed by banks such as Intesa Sanpaolo, MUFG Bank, Standard Chartered Bank and Sumitomo Mitsui Banking Corp, among others. Concerns were raised this year as its debt-equity ratio was identified as the **second worst** in Asia. After this, the Abu Dhabi-based International Holding Co. injected **\$500 million** to stabilise the debt ratio.

SB Energy and ReNew Power Limited were once again among the top renewable energy sponsors in 2021. After experiencing a drop of 80% in 2020, ReNew Power regained momentum by securing **INR 5,664 crore (USD 767 million)**, a **250%** year-on-year increase.

1

**Adani Green Energy  
(1690 MW)**

Total Loans  
₹ crore: **10,904**  
US\$: **1,489**

2

**ReNew Power  
(1150 MW)**

Total Loans  
₹ crore: **5,664**  
US\$: **767**

3

**SB Energy  
(650 MW)**

Total Loans  
₹ crore: **3,230**  
US\$: **437**

TOP 5

**Renewables Sponsors**

4

**Actis  
Greengem  
(450 MW)**

Total Loans  
₹ crore: **1,780**  
US\$: **242**

5

**Alfanar  
(300MW)**

Total Loans  
₹ crore: **1,650**  
US\$: **220**





## 5.5

### Renewable energy lending remains highly concentrated in Rajasthan

**Rajasthan is by far the top beneficiary of renewable energy lending, with INR 22,187 crore (USD 3,039 million),** or 65% of all renewable energy loans. This represents a 10% increase compared to 2020.

The second beneficiary is Gujarat, with INR 4,024 crore, half the amount it attracted in 2020. However, Gujarat continues to secure a significant portion of all wind project loans in India (36%). The reason for this is that Gujarat has high wind speeds and a favourable policy environment.<sup>3</sup>

With INR 3,508 crore (USD 481 million), Andhra Pradesh was also able to secure significant funding in 2021, increasing by 1,260% compared to 2020. This is mainly due to a loan for a 350 MW solar PV plant.

States	Solar (₹ cr) + Wind (₹ cr)		Renewables (₹ cr)	Renewables (US\$ mn)
Rajasthan <sup>4</sup>	20,210	1,977	22,186	3,018
Gujarat	917	3,106	4,025	549
Andhra Pradesh	3,508		3,508	472
Karnataka	1,410	650	2,060	282
Madhya Pradesh	1,112		1,112	51
Uttar Pradesh	527		527	72
Maharashtra	346		346	46
Telangana	129		129	17

<sup>3</sup> BNEF, "1H 2021 India Renewables Market Outlook", 19 March 2021. Accessed via Bloomberg Network.

<sup>4</sup> Adani Green Energy's 1.69 GW hybrid Jaisalmer project is in Rajasthan. 4:1 distribution of funding for solar and wind has been assumed.



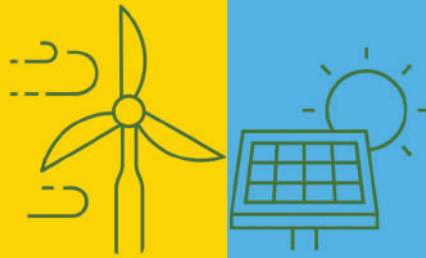


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