

The authors



Shreyas Garg
shreyas.garg@ceew.in

Shreyas is a consultant at the CEEW Centre for Energy Finance. He previously worked as a management consultant with a specific focus on infrastructure and renewable energy.

“Calls for increasing supply of climate finance to developing nations have grown sharply in the past year. At the same time, international markets have shown consistently strong interest in green bonds issued by Indian developers. Indian entities must leverage these advantages and ramp up green bond activity to turbo-charge India’s energy transition.”



Rishabh Jain
rishabh.jain@ceew.in

Rishabh, a public policy practitioner, leads Market Intelligence at the CEEW Centre for Energy Finance and works closely with key decision-makers in the Indian RE sector. Previously, he worked in India’s solar manufacturing sector.

“India requires billions of dollars to meet the 2030 renewable energy target. Domestic institutional debt has its limitations. International green bonds can improve the accessibility of finance at better interest rates. Renewable energy developers, lenders, investors, and other potential market participants will benefit from this analysis as they look for new avenues for raising either investments or money.”



Gagan Sidhu
gagan.sidhu@ceew.in

Gagan is Director–CEEW Centre for Energy Finance. He was previously CFO of a renewable energy business, and, before that, an investment banker.

“India’s renewable energy ambitions require capital to flow at an unprecedented scale. In this context, the remarkable international bond market appetite for issuances by Indian renewable energy developers is a strong vote of confidence for the sector. All the more reason for domestic bond market participants to take note and catch up in funding renewables.”



2021 has seen a ramp-up in green bond issuances, with developers raising USD 3.6 billion in the first 6 months, higher than any previous 12-month period.

Contents

Executive summary	i
1. Introduction	3
2. Study approach and methodology	6
3. State of the green bond market	7
3.1 How large is the green bond market?	7
3.2 Which developers have issued green bonds?	9
3.3 How has green bond pricing evolved?	10
3.4 Who buys green bonds at issuance?	12
4. Portfolios financed by green bonds	13
4.1 Which renewable energy sources have powered green bond growth?	14
4.2 Which utilities offtake restricted group capacity?	15
4.3 Is project operational history a key concern for investors?	17
4.4 What is the tariff mix of refinanced capacity?	17
5. Conclusion	19
References	20
Annexures	22



Tables

Table 1	List of green bonds issued by Indian developers in international bond markets	22
Table 2	List of green bonds issued by Indian lenders and non-financial, non-power corporates in international bond markets	23

Boxes

Box 1	What are 'green' bonds?	5
Box 2	How are bonds raised in international markets regulated by the Reserve Bank of India?	8
Box 3	Adani Green Energy's 20-year green bond	12
Box 4	Refinancing green bonds – Greenko and ReNew Power's repeat issuances	18

Figures

Figure ES1	Greenko and ReNew Power dominate Indian RE green bond issuances	i
Figure 1	Indian RE developers can leverage four routes to raise debt	4
Figure 2	ESG-related bonds typically consist of two types	5
Figure 3	India significantly lags behind developed markets in issuing green bonds; US, China and European nations lead	6
Figure 4	RE developers have issued over 70% of Indian green bonds in international markets	7
Figure 5	Cumulative green bond value in the first 6 months of 2021 has surpassed the previous one-year record	8
Figure 6	Greenko and ReNew Power dominate Indian developer-issued green bonds	9
Figure 7	Most bonds have a maturity period between 5 and 10 years	9
Figure 8	Two green bonds, both by Greenko, have crossed the USD 1 billion mark; the average green bond size is just over USD 500 million	10
Figure 9	Green bonds worth over USD 5 billion will mature by 2024	10
Figure 10	Bond coupon rates have typically ranged between 4-6%	11
Figure 11	The spread against the US treasury benchmark has sharply decreased in 2021	11
Figure 12	Asian investors have purchased almost half of all proceeds from developer-issued green bonds	12
Figure 13	Over 80% of bond proceeds were allocated for refinancing	13
Figure 14	While developers have achieved lower interest rates than domestic INR loans through green bonds, the differential is reduced due to hedging costs	14
Figure 15	Wind and solar each make up 40% of the refinanced RE portfolio	14

Figure 16	Bond portfolio technologies follow the early capacity development trend for the issuer	15
Figure 17	State utilities dominate the offtake of refinanced RE portfolios	15
Figure 18	Five states make up 70% of the 6.4 GW capacity with state utilities as offtakers	16
Figure 19	Bond portfolios are largely contracted by state utilities; the share of central offtake has no noticeable impact on spread	16
Figure 20	Offtakers for 39% of the 6.4 GW capacity with state utilities are rated below A	16
Figure 21	The bond spread has not materially increased or decreased with higher years of operational history	17
Figure 22	The average portfolio tariff has remained around INR 5/kWh with no noticeable trend against bond spread	18
Figure 23	Both developers obtained a cost advantage on their previous green bonds through the 2021 issue	18