Figure 1 Indian RE developers can leverage four routes to raise debt

Lender type	Domestic INR	International USD
Institutional debt (Banks and NBFCs)	**Dominant source:** amounts difficult to determine, typically clubbed into power	**Recently emerging:** initially driven by development banks, lenders now entering
Debt capital markets (Bonds)	**Largely untapped:** few and small issuances by private developers	**Fast growing:** 21 bond issuances totalling USD 11.2 billion

Source: CEEW-CEF research

Raising debt through bond markets, particularly through the issue of 'green bonds', has been a fast-growing source of funds. Domestic bond markets have remained untapped by private RE developers since issuances by ReNew Power and Hero Future Energies in 2016 (Singh, Dutt, and Sidhu 2020). Incidentally, sovereign-backed NTPC has raised significant funds from domestic bond markets for financing its thermal-dominated portfolio. As of June 2021, over USD 7 billion worth of domestic INR bonds is outstanding (NTPC 2021). However, domestic bond markets have recently seen encouraging activity from RE developers, with Vector Green Energy successfully raising INR 1,237 crores (USD 166 million)[4] in July 2021. Interestingly, the issue received a AAA credit rating from Indian rating agencies, which is a first for Indian green bonds (Roy 2021). Whether this issue is an early indicator of a potential increase in developer activity in domestic bond markets remains to be seen.

The major challenges faced by developers in raising efficient INR funding include limitations placed on power-sector lending for banks and NBFCs, maturity and size constraints, and covenants that do not allow efficient recycling of capital refinancing loans. International bond markets allow developers to raise large and recyclable amounts of capital.

International bond markets have shown significant interest in Indian green bond offerings. Our analysis suggests that Indian RE developers have raised a total of USD 11.2 billion through green bonds since 2014. In addition, other institutions, including Indian lending institutions and non-financial, non-power corporates, have raised a further USD 4.4 billion, bringing the total green bond issuance in international bond markets to USD 15.6 billion.

Issuances by RE developers make up 70% of all Indian green bonds in international markets.


Image: iStock

4. Conversion rate taken as INR 74.33 per USD 1.00 as per RBI July rates.

BOX 1 What are 'green' bonds?

Bond issuers have typically relied on frameworks developed by international bodies to label their bonds as 'green'. Popular frameworks leveraged include those by the Climate Bonds Initiative, Sustainalytics, CICERO, and International Capital Market Association (ICMA), which specify pre-issuance and post-issuance requirements for the bond to be classified as 'green'. These organisations also provide certifications, typically through third-party auditors. In 2017, the Securities and Exchange Board of India (SEBI) issued guidelines specifying mandatory disclosures, use of proceeds, and reporting standards for green bonds (SEBI 2017). These guidelines specify that debt raised through a green bond offering must be used for financing or refinancing projects across eight end-use themes, including RE projects.

Green bonds come under the broader ambit of environmental, social, and governance (ESG) financing. ESG-related bonds are predominantly of two types – use of proceeds and key performance indicator (KPI)-linked. For use of proceeds bonds, the funds raised are invested in projects that achieve ESG goals. For KPI-linked bonds, bond parameters, such as the coupon rate applicable, are based on the achievement of ESG-related KPIs. Figure 2 depicts the characteristics and relationships of these four different bond types.

Figure 2 **ESG-related bonds typically consist of two types**

Use of proceeds bonds

Green bonds fund projects addressing climate change, such as renewable energy, mass transportation, and risk adaptation

Social bonds fund social development focused projects, such as access to services and affordable housing

Sustainability bonds combine end-use themes of both green bonds and social bonds

KPI-linked bonds

Sustainability-linked bonds link bond parameters such as the coupon rate to the achievement of KPIs, such as cutting emissions intensity and water usage

Source: CEEW-CEF analysis

India has seen multiple issuances of social bonds, such as those by the Pimpri Chinchwad Municipal Corporation (Bhosale 2020) and Shriram Transport Finance (STFC 2021). UltraTech Cement issued India's first sustainability-linked bond with a USD 400 million bond in 2021. The bond linked the coupon rate to the achievement of emissions intensity reduction targets (Das 2021).

Figure 3 shows the geographic split of cumulative green bond issuances in domestic and international markets as of December 2020. The share of Indian green bonds is significantly smaller compared to that of other countries. Four countries, namely, the US, China, France, and Germany, have a cumulative market share of over 50 per cent. Governments in Europe are aggressively targeting green bond markets. The German government recently issued a green bond with an unprecedented maturity of 30 years given that green bonds have maturities typically in the 5 – 10 year range (Ainger 2021). The British government too has strongly indicated its interest in green bonds, stating that it will raise GBP 15 billion (USD 21 billion[5]) in green bonds in 2021 (Oliver 2021).

This report focuses on the role of international bonds in financing India's RE projects. There are three key sections – approach and methodology, the state of the sector, and a deep dive into the RE portfolio that the bonds have refinanced. Our analysis dissects the key bond and RE portfolio parameters of developer-issued green bonds. We intend to help newer developers and other key stakeholders make informed decisions as they tap into the rich fund sources available in international bond markets.

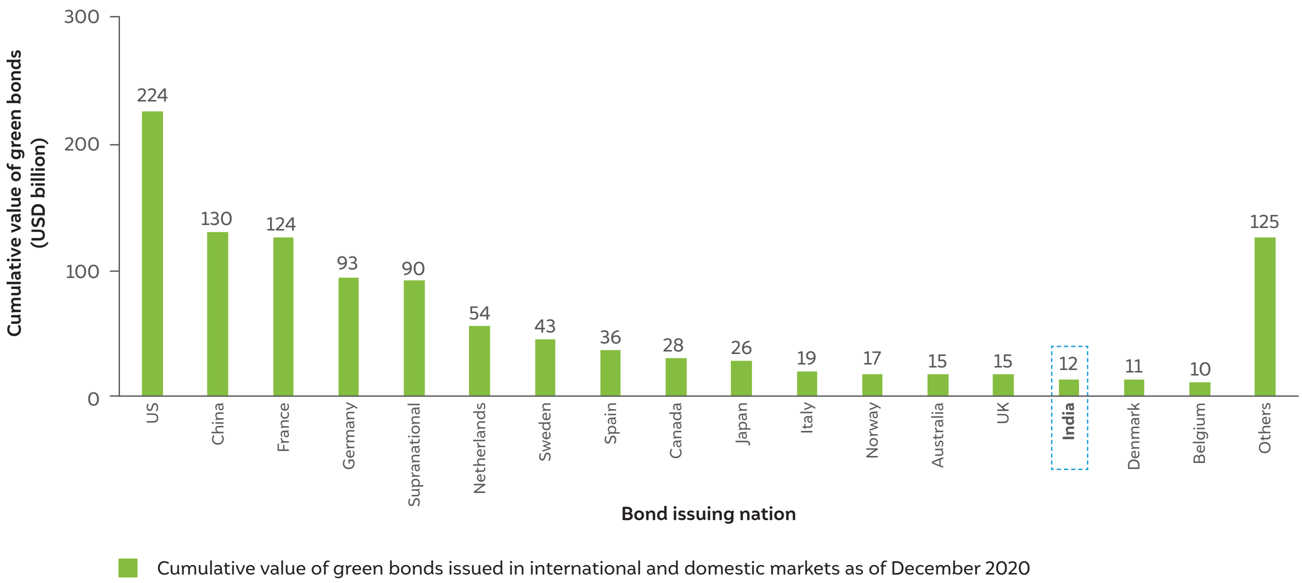
2. Study approach and methodology

In this study, we analyse green bonds[6] issued by Indian entities, specifically RE developers, in international bond markets. These bonds are either denominated in a foreign currency (typically USD) or in INR through a masala bond offering. We followed a three-step process for primary research:

1. **Green bond identification and database creation**: We built up a database of green bonds issued by Indian entities in international bond markets through a comprehensive review of exchange listing information, corporate press releases, and media reports. The information gathered was cross-verified with public documents released by institutions such as the Climate Bonds Initiative, Climate Policy Initiative, and the Reserve Bank of India.

2. **Baselining of bond parameters and portfolio details**: We obtained details on bond parameters (maturity, the coupon rate, use of proceeds, rating, and restricted group details) through

Figure 3 India significantly lags behind developed markets in issuing green bonds; US, China and European nations lead



Source: Climate Bonds Initiative. 2020. "Green Bond Data Platform." Accessed June 5, 2021. https://www.climatebonds.net/market/data/.

5. Conversion rate taken at USD 1.38 per GBP 1.00 as per Bank of England's July 2021 rate.
6. For the purpose of this study, we have considered bonds issued by pureplay RE developers without a 'green' certification (Greenko USD 550 million bond in 2014) as green bonds.

publicly available listing documents. We obtained geographic placement data for listed bonds by reviewing news reports, corporate press releases, and primary interviews.

3. **Analysis methodology**: We focused on green bonds issued by Indian RE developers, which constitute 72 per cent of such issuances[7] in international markets. Lenders and non-power, non-financial corporates issued the remaining bonds. Upon analysing the bonds, we found that reporting standards for the deployment of offering proceeds differ widely across issuers and could therefore not be mapped to a specific megawatt (MW) capacity of RE financed. Therefore, we limited the focus of this report to developer-issued green bonds.

We present our findings in two parts. First, we detail the characteristics and trends in developer-issued bonds – their issuers, maturity, coupon rates, spreads, use of proceeds, bond placement, and bond ratings. Second, we delve into the RE portfolio thus refinanced and detail trends in technologies, offtaker profiles, and project characteristics.

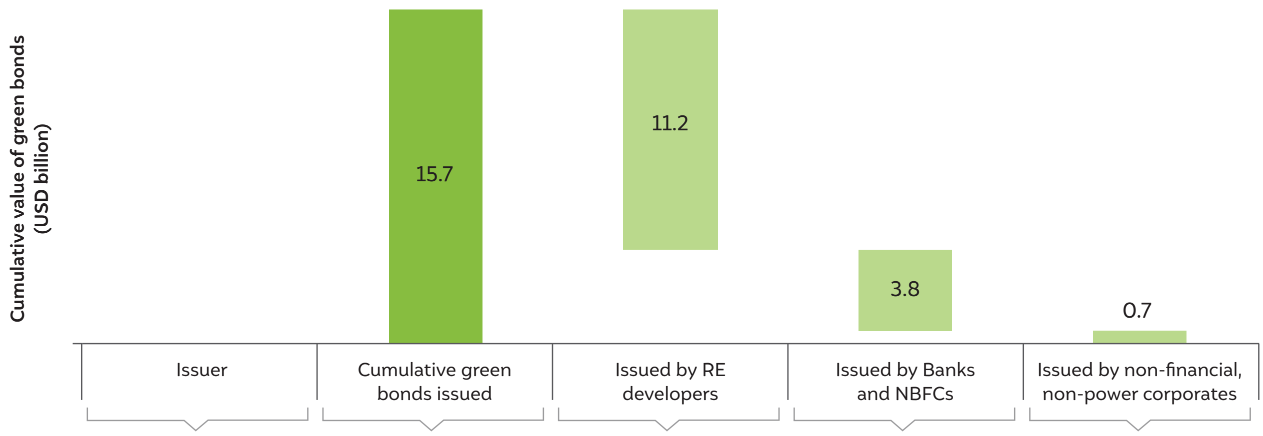
3. State of the green bond market

3.1 How large is the green bond market?

RE developers, financiers, and other non-financial, non-power corporates from India have raised green bonds worth USD 15.6 billion between 2014 and the first half of 2021. Figure 4 depicts the capacity split of USD 15.6 billion between developers, banks and NBFCs, and non-power corporates.

Incidentally, the Greenko group, which raised the first bond (USD 550 million), did not specifically label it as a green bond in their documents. It was, however, considered green due to the nature of the projects financed by the proceeds (Kidney 2014). The Export-Import Bank of India issued India's first labelled green bond in international markets in 2015 (Hindu 2015). NTPC was the first among project developers to issue a labelled green bond on the London Stock Exchange (LSEG) in 2016. The bond was also the world's maiden green masala bond (LSEG 2016).

Figure 4 RE developers have issued over 70% of Indian green bonds in international markets



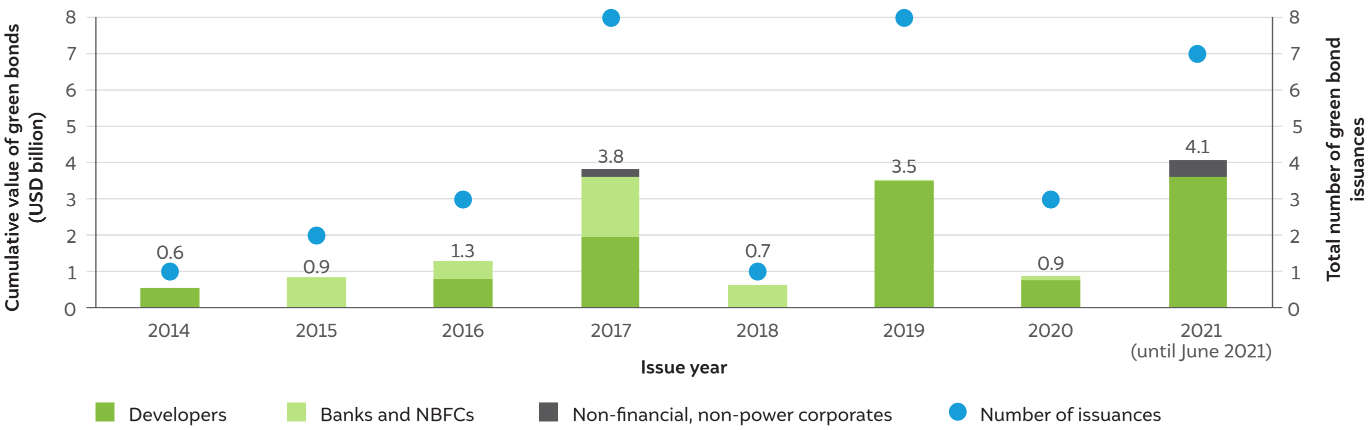
Issuer	Cumulative green bonds issued	Issued by RE developers	Issued by Banks and NBFCs	Issued by non-financial, non-power corporates
Number of issuances	33	21	10	2
Number of issuers	18	8	8	2

Source: CEEW-CEF compilation

7. Based on a CEEW-CEF compilation of green bonds issued by Indian entities.

Since 2019, project developers have been at the forefront of Indian green bond issuances. Figure 5 shows that listings in the first half of 2021 have already crossed the previous one-year record set in 2017. With over USD 4.1 billion issued till June 2021, Indian green bond activity in international markets has rebounded sharply since a slowdown in issuances in 2020 due to the COVID-19 pandemic. In subsequent sections, we focus exclusively on bonds issued by RE developers.

Figure 5 **Cumulative green bond value in the first 6 months of 2021 has surpassed the previous one-year record**



Source: CEEW-CEF compilation

BOX 2 How are bonds raised in international markets regulated by the Reserve Bank of India?

Indian RE developers can use multiple channels to raise funds from international markets. Our analysis found that 13 of the 21 international green bonds raised by developers were issued by foreign-based entities. In this channel, a foreign-incorporated company, which may or may not be a subsidiary of the developer's Indian group company, issues green bonds in international markets. This foreign investor then on-lends the bond proceeds to Indian entities through securities issued to Indian project special purpose vehicles (SPVs). The remaining eight issuances were made directly by India-based entities in international bond markets.

The Reserve Bank of India (RBI) has provided several channels for foreign investments in Indian bonds and securities. The 'voluntary retention route' (VRR) is a popular channel leveraged by RE developers for their green bonds. RBI notified the VRR in 2019 to remove previous restrictions imposed on foreign borrowing (RBI 2019a). Through the VRR, foreign investors, such as the developer-linked companies raising green bonds, can invest in Indian securities, such as those issued by Indian project SPVs, to facilitate on-lending, subject to basic limitations on durations and amounts. The same applies to green bonds issued directly by India-incorporated entities.

If the VRR route is not leveraged, foreign borrowings may be subject to the RBI's External Commercial Borrowing (ECB) directions. These were updated in 2019 to detail the minimum maturity periods for corporate bonds in international markets and introduce certain relaxations (RBI 2019b). The ECB route typically involves more restrictions than the VRR route, making VRR the preferred option among developers.

Source: CEEW-CEF compilation