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Financing India's Renewable Energy Vision

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ABSTRACT India's target of achieving 175 GW of renewable energy capacity by 2022 might appear ambitious, but it is crucial as it will have a positive impact on the country's economic growth, energy security and the fight against climate change. Financing is emerging as the key challenge to this vision, slowing down the pace of growth; as of December 2019, over 50 percent of the 2022 target is yet to be achieved. This brief outlines India's existing renewable energy financing landscape and identifies the challenges therein. The most critical issue facing India's financing framework is the lack of innovative financing options that will offer larger sums at lower interest rates and for longer durations. Overall, sound financing will boost the number and size of the projects, ultimately translating to accelerated renewable energy growth.

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INTRODUCTION

To understand the importance of financing in renewable energy, it is vital to analyse the required scale—and urgency—of renewable power generation in India. India is at a critical juncture where economic growth and the well-being of its citizens hinge upon their access to energy.[1] Against the backdrop of the global discourse on combating climate change and India's own Nationally Determined Contributions,[a] the country's energy needs will depend heavily on clean and renewable sources. It is estimated that nearly 15 percent of India's 1.25 billion population still do not have access to electricity,[2] and it is likely that millions more are still literally living in the dark even in the regions already deemed 'electrified'.[3]

In April 2018, the Indian government announced that all villages in the country were 'electrified';[4] this does not, however, mean full electrification. A village is considered electrified if 10 percent of its households and public places are connected to the grid. In reality, less than eight percent of the newly electrified villages had all homes electrified,[5] and less than 50 percent of all village households in India receive more than 12 hours of electricity per day.[6] With an average power per capita consumption of 1,181 kWh[7]—one of the lowest in the world[8]—Indians are energy-starved, and the demand far outweighs the supply.

India is the world's third largest emitter of greenhouse gases after China and the United States (US),[9] and will likely continue to be a significant emitter in the next two decades. According to government data, by 2030, nearly 50 percent of India's power generation will depend on coal, despite exponential growth in renewable energy.[10] By 2040, the power sector will be responsible for nearly 80 percent of India's total carbon emissions.[11]

Ensuring energy security and keeping emissions low, primarily by reducing the dependence on hydrocarbons, are two key priorities for India. In July 2018, the Indian government set a target of installing 175 GW of renewable energy capacity by 2022, which includes 100 GW from solar power, 60 GW from wind power, 10 GW from bio-power and 5 GW from small hydro-power.[12] The total investment required to achieve this target has been estimated at US$150-200 billion.[13] In his address to the UN Climate Action Summit in September 2019, Prime Minister Narendra Modi announced that India would take the overall target to 450 GW,[14] requiring significantly huge investments.[15]

ASSESSING INDIA'S RENEWABLE ENERGY TARGETS

India has made limited progress towards achieving 175 GW renewable energy capacity by 2022 since first announcing the target in July 2018. As of 30 June 2019, India has installed a total of 33.7 GW of solar capacity,[16] with 66.3 GW left to be installed in just about three years. Even going by the 2010 Jawaharlal Nehru National Solar Mission target of achieving 20 GW of solar power by 2022,[17] progress has been slow, with India achieving only about 34 percent of the target in 75 percent of the timeframe.

a 40 percent of installed power generation capacity from non-fossil fuel sources and reduce emission intensity of GDP by 33-35 percent from 2005 levels by 2030.

India plans to install 60 GW of wind power by 2022, but has only installed 37.5 GW as of December 2019.[18] The task of adding at least 7-8 GW of wind power capacity each year to achieve the 2022 target appears difficult given the progress made so far.[19] By the end of 2019, India has managed a total installed renewable power capacity of about 85.9 GW.[20] With 51 percent of the 2022 renewable energy target yet to be achieved, India will need to add at least 30 GW of capacity per year for the next three years to get anywhere near the goal.

While the revision of India's renewable energy target is welcome, the gap between actual and target capacity additions is widening due to a number of reasons. Solar capacity addition decreased from 82 percent in 2016-18 to 76 percent in 2017-18, before slowing down further to 30 percent in 2018-19.[21] There has been a similar trend in the wind power sector, with a decrease from 21 percent in 2016-17 to five percent in 2017-18, rising marginally to eight percent in 2018-19.[22]

In early 2019, research company Wood Mackenzie estimated that India will miss its 2022 renewable energy target by about 25 percent.[23] This was followed by a report by global analytical firm Crisil saying that India would miss the target by 42 percent.[24] In fact, eight GW solar bids worth INR 40,000 crore have been cancelled in FY 2018-19.[25] The safeguard duty, low tariffs, high taxation and interest rates, a depreciating rupee and uncertain regulatory policies have hit investor sentiment and contributed to the sluggish growth in the renewable energy sector. Coupled with the nature of India's financial markets—characterised by high capital costs and lack of adequate debt financing—these factors have presented greater financing challenges for the sector. Given that the sector's prospects depend on the availability of US$80-100 billion in investments from domestic and foreign sources over the next four years, financing projects is becoming the sore point in the renewable energy growth story.

RENEWABLE ENERGY FINANCING IN INDIA

Funding based on risk profile

Traditionally, lower risk of returns on investment has been associated with the conventional thermal power projects as compared to the higher risk renewable energy projects. This translated into two types of trends. First, the government-backed investment laid greater focus on the predominant hydrocarbon projects, while the private sector showed more interest in investing in renewable energy projects, which had to access and mobilise capital in a competitive and financially viable manner in the long run. In 2017, for instance, renewables attracted investment mostly from private commercial banks such as L&T Finance and Yes Bank, while coal-fired power plants were almost entirely backed by government banks or financial institutions such as Power Finance Corporation and State Bank of India.[26] Second, the renewable sector's higher risk profile also translated to attracting more debt financing to the tune of 70 percent, with just 30 percent equity investment in the same year.[27]

Emergence of lenders

There has been growing lender interest in India's renewable energy sector. The sector's

initial growth stage was financed by concessional loans from multilateral agencies like the World Bank and the Asian Development Bank, but with renewable energy finding its footing, commercial financing options have increased.[28] For instance, the share of multilateral development banks in solar financing declined from almost 10 percent in 2016 to two percent in 2017.[29]

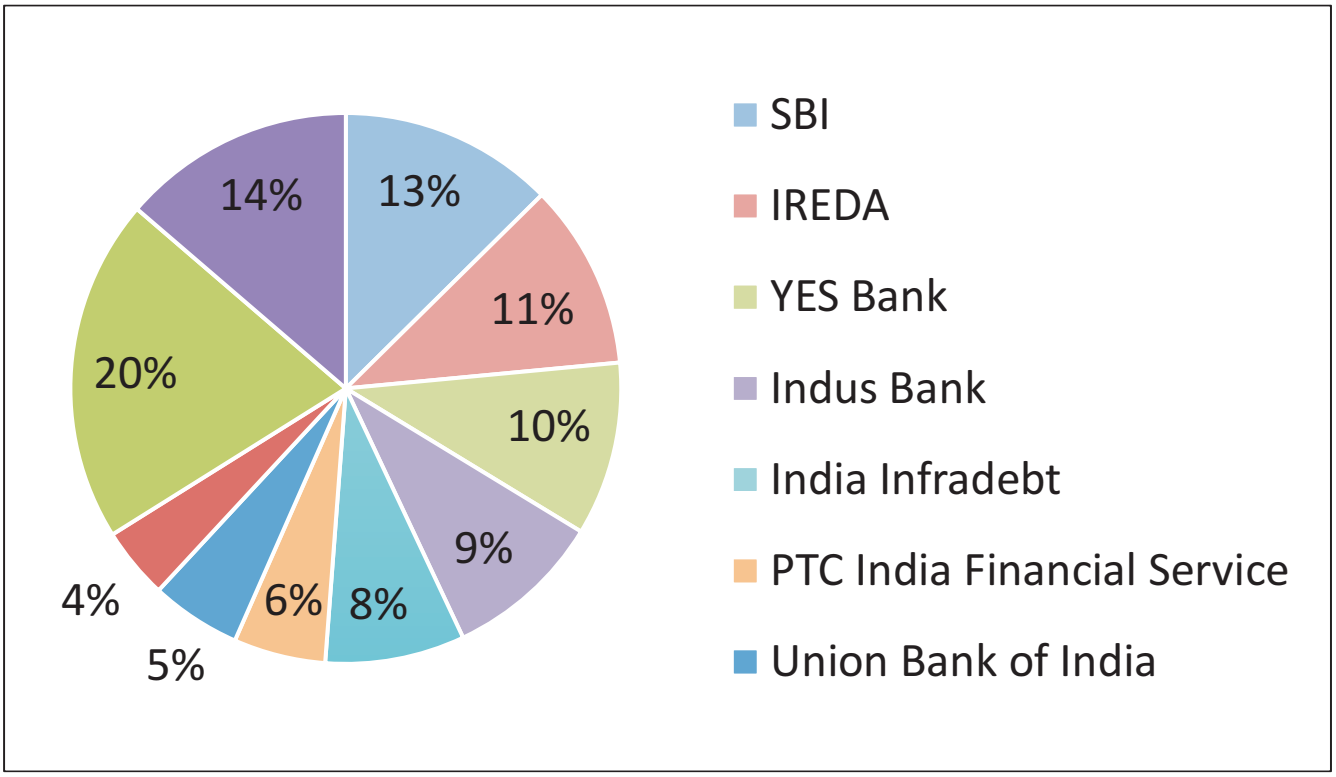
Banking vs. non-banking institutions

While a large number of banking and non-banking institutions are financing renewable energy projects, the latter's commitment is growing significantly. Sixty renewable energy projects drew in financing of over US$2.5 billion in 2017, nearly 60 percent of which came from non-banking financial institutions, with IDFC offering almost a fifth of the total investment made.[30] (See Figure 3)

Government funding

The Indian government has played a key role in mobilising funds for renewable energy projects. Initial efforts were concentrated on building a corpus of funds—the National Clean Energy Fund, now known as the National Clean Energy & Environment Fund (NCEEF)—from the proceeds of coal cess (carbon tax on coal).[31] The government-owned Indian Renewable Energy Development Agency (IREDA) utilises a part of the NCEEF to lend to banks at a two-percent interest rate, which is further loaned out for renewable energy projects at a concessional interest rate.[32] Budgeted estimates for 2017-18 show that over INR 53,410 million has been allocated to the Ministry of New and Renewable Energy (MNRE) from the fund to support renewable energy development efforts across the country.[33]

Figure 1: Commitments made by financial institutions in 2017



Source: Centre for Financial Accountability data

The IREDA also sources funds from international agencies, such as the World Bank,[34] to provide financial support at a low interest rate to the developers of renewable energy projects. Besides offering soft loans, the IREDA also provides generation-based incentives for solar and wind projects, and capital subsidies for solar water heater systems.[35]

Green bonds

The IREDA has also made use of the 'masala bond' financial instrument to offer a unique financing tool called 'green masala bonds'. These are bonds issued outside India but denominated in Indian Rupees and specifically finances green projects. In 2017, it issued the inaugural green masala bond, a five-year dated bond that raised about US$300 million with an interest rate of 7.125 percent.[36]

Green bonds are a promising debt instrument for India, which is among the world's top 10 green bond-issuing countries. As of August 2019, India has issued US$8.6 billion-worth of bonds, 80 percent of which were used to finance renewable energy projects in the country.[37]

CHALLENGES TO RENEWABLE ENERGY FINANCING IN INDIA

There are many channels to financing renewable energy projects. However, they are not without shortcomings in the fast-evolving sector, especially given the government's policy and regulatory priorities.

India continues to be an expensive destination for investors in the renewable energy sector, largely due to the high cost of debt.[38] Loans are available at variable rather than fixed interest rates, and the average interest rates in India are in the 12-15 percent range; in comparison, interest rates in the US and Europe are in the five to seven-percent range. Banks prefer to lend over the short-term (around six to eight years), causing asset-liability mismatch and making it less attractive to borrowers who are looking for longer-term loans.[39] Insurance and pension funds are the ideal financing options, but they constitute a small fraction of financial savings in India.[40] India must focus on developing long-term debt funding avenues to boost investor sentiment in renewable energy.

The renewable energy sector is also plagued by a wide array of risks related to the policy framework, particularly around safeguard duty and taxation. In a bid to promote the domestic manufacturing of solar panels, the Indian government in July 2018 imposed a safeguard duty for two years—25 percent for the first year, 20 percent for the next six months, and 15 percent for the final six months.[41] But domestic manufacturers do not have the capacity to meet an increased demand for solar panels, and so almost 90 percent of India's solar panel needs continue to be met by imports.[42,43] This has significantly hurt the margins and confidence levels of developers and investors.[44]

The continuous drop in solar tariffs is another factor deterring investment in India's renewable energy sector. The falling cost of solar panels and improvements in capacity utilisation have driven down tariffs from INR 12 per kWh in 2010[45] to INR 2.44 per kWh in 2017.[46] While low tariffs are lucrative for

distribution companies, they are less viable for developers. In 2018, the MNRE capped solar power tariffs at INR 2.50 for developers using domestic products and INR 2.68 for those using imported products. This change in panel pricing, coupled with currency exchange rates and varied efficiency in different states across the country, put developers at a disadvantage.[47]

The government's taxation policy is also proving to be a dampener for investors. In 2018, the Goods and Services Tax (GST) Council introduced a dual tax structure for solar power projects set up under engineering, procurement and construction (EPC) contracts, after the MNRE had originally announced that all solar projects would be taxed at five percent. According to the dual tax policy, 70 percent of the EPC contract value would be taxed at five percent, with the remaining 30 percent taxed at 18 percent. The new structure resulted in a final tax rate of eight to nine percent for almost all of India's solar parks, leading to an increase in final capital costs.[48] In a low tariff environment, such prohibitive taxation policies make investors, as well as EPC contractors and project owners, wary of participating in renewable energy projects.

Additionally, there are many issues with the institutions meant to provide a boost to the investment ecosystem. The renaming of the NCEEF to include 'environment' reflects a dilution of focus on the energy sector to encompass other broad-based environmental issues. For instance, a substantial portion of the NCEEF's corpus was used to finance the GST compensation fund and the *Namami Ganga* initiative.[49] The NCEEF also lacks appropriate monitoring and evaluation mechanisms to ensure the proper utilisation of funds.[50]

TOWARDS AN IMPROVED RENEWABLE ENERGY ECOSYSTEM

India is at a critical juncture in its transition to renewable energy, and while reaching the country's goals, it is important to maintain the confidence of all stakeholders (including panel manufacturers, developers, EPC contractors, investors and consumers). This will not be easy to do. The bid to support domestic manufacturing has made imports more expensive and has become an obstacle in increasing the investment in and size of renewable energy projects. The government may need to prioritise the viability of panel imports (as they are cost and quality competitive) over aggressively promoting domestic manufacturing, at least until the critical mass of the solar mission has been achieved. In the interest of scaling up investments, subsidising domestically-manufactured panels will prove more useful in the interim than making imported ones more expensive.

Large investment is critical to the size of the project as well as to sustain and boost numbers. Scaling up will drive down costs and secure better margins for investors. If India is serious about its commitment to a clean energy future, it needs to reduce the excessive reliance on the debt-equity financing model, and explore the capital markets for more innovative financial instruments. The focus must be on competitive interest rates, risk sharing models and longer tenures of capital. Importantly, the government must provide a more stable policy ecosystem.

CONCLUSION

India's renewable energy financing structure needs major reform to boost the flow of capital into the sector in order to achieve the ambitious 2022 targets. More innovative investment instruments must be developed, with government-supported financial institutions taking the lead. Overcoming the financial challenges to achieve the renewable energy target will lead to a significant growth in the financial sector, and will uncover the potential in sectors with a comparable risk profile, such as financing clean-tech avenues and climate change adaptation.

To achieve its energy transition goals, India must continue to focus on creating an optimum ecosystem through policy intervention, a stable regulatory framework, better coordination between stakeholders, and healthy demand growth, supported by a robust financial system. The shift in India's energy landscape over the past five years is testament to the realisation of a clean energy future, and it is only a matter of time until this goal is achieved. ORF

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