

# Financing Renewables

Instruments to provide low-cost, long-term debt



The shortfall in overall infrastructure financing during the Twelfth Plan stands at around Rs 14.75 trillion, according to Planning Commission estimates. Of this, the estimated shortage in renewable energy financing amounts to Rs 101 billion for solar and Rs 414 billion for wind energy. The government has made attempts to bridge this investment gap through a number of initiatives such as infrastructure debt funds (IDFs) and the National Clean Energy Fund. However, given the ambitious renewable energy targets and limited resource availability, there is a need to explore alternative modes of financing for renewable energy projects by leveraging the existing financial resources effectively.

The Climate Policy Initiative's (CPI) recent report, "Solving India's Renewable Energy Financing Challenge: Instruments to Provide Low-cost, Long-term Debt" explores various financing instruments that can reduce funding costs for renewable energy projects in India.

The study explores three categories of instruments used to finance renewable energy projects across the world: instruments that provide access to previously untapped low-cost, long-term funds from domestic capital markets; instruments that provide access to foreign debt; and

guarantee instruments that mitigate the risks associated with projects. The study identifies the following five instruments that address the key issues associated with debt financing and assesses their feasibility for implementation in India.

## Government bonds

Since the government holds the highest credit rating in the domestic market, it can raise money at the lowest possible interest rate. Based on the maturity period, the yield on government securities varies from 7.6 per cent to 8 per cent. The government can pass on the benefit of its ability to borrow at the lowest rate possible to borrowers by lending at the same rate or at a minimum required margin. In addition, through this mechanism, the government can provide a fixed interest rate loan to renewable energy projects.

**Potential reduction in cost:** Government bonds can help reduce developers' cost of debt. The highest reduction (of up to 4.5 percentage points on the baseline of a typical domestic loan provided at 12.3 per cent interest) can be achieved when the government lends at a borrowing rate of 7.8 per cent, provided that it does not add any margin to cover expenses related to the project risk premium. If the government charges for administrative/transaction costs as well as the project risk pre-

mium, but is able to keep these costs below 2 per cent, it can still lend at the best commercial rate of 9.8 per cent, the same as the State Bank of India's base rate. The borrower will receive benefits of up to 2.5 percentage points. However, if the government is not able to keep the costs below 2 per cent, it should aim to match the lowest margin offered by government-owned financial institutions such as the Power Finance Corporation, which offers a margin of 3.4 per cent. This would result in the reduction of developers' cost of debt by up to 1.1 percentage points.

**Feasibility of implementation:** If this scheme is implemented through one of the government-owned financial intermediaries, it must be ensured that their margins are reduced for renewable energy lending. However, government direct lending programmes are expected to crowd out private investments in the sector. The government should design these programmes in such a manner that crowding out of private investments can be restricted. For example, the programme can be allowed to support a specific renewable energy technology only for a limited period or a predetermined capacity installation in order to increase the feasibility of this instrument.

## IDF-Mutual fund model

While the central government has set up IDFs to finance infrastructure projects, currently, only the mutual fund (MF) model is used for power projects, including renewable energy projects. An IDF-MF functions like a typical MF, which issues units to raise money and invests the proceeds in debt securities/bonds issued by infrastructure companies and project developers. An IDF-MF diversifies the risk of investing in infrastructure projects since

the units derive their value from a basket of bonds rather than an individual bond.

**Potential reduction in cost:** If the IDF-MF mechanism is successful in developing the corporate bond market in India, the cost of debt for the borrower could reduce by up to 3 percentage points from the current median interest rate of 12.3 per cent on a 10-year domestic loan for renewable energy projects. For example, NTPC Limited, which has an AAA rating, issued a 10-year corporate bond in 2012 with a coupon rate of 9.26 per cent. Hence, depending on the rating, a renewable energy project developer could issue bonds at 9.3-12.3 per cent, with a possible saving of up to 3 percentage points. Using the cash flow models, the study finds that lowering the cost of debt by 3 per cent and increasing the tenor by five years would reduce the delivered cost of renewable energy projects by approximately 14.5 per cent, as compared to projects that do not receive any federal support and rely on commercial loans.

**Feasibility of implementation:** The implementation feasibility of IDF-MFs is high. The framework for IDFs has been estab-

lished by the government and the first IDFs under the MF and non-banking financial company (NBFC) models have already been approved by the respective regulatory bodies. However, the amount of additional money that an IDF-MF can mobilise depends on the design and eventual success of the scheme. With the current design, the fund would mostly attract additional domestic capital from insurance and pension funds, but may not attract further foreign investment as the units of the fund would be issued in Indian currency.

**Partial credit guarantee**

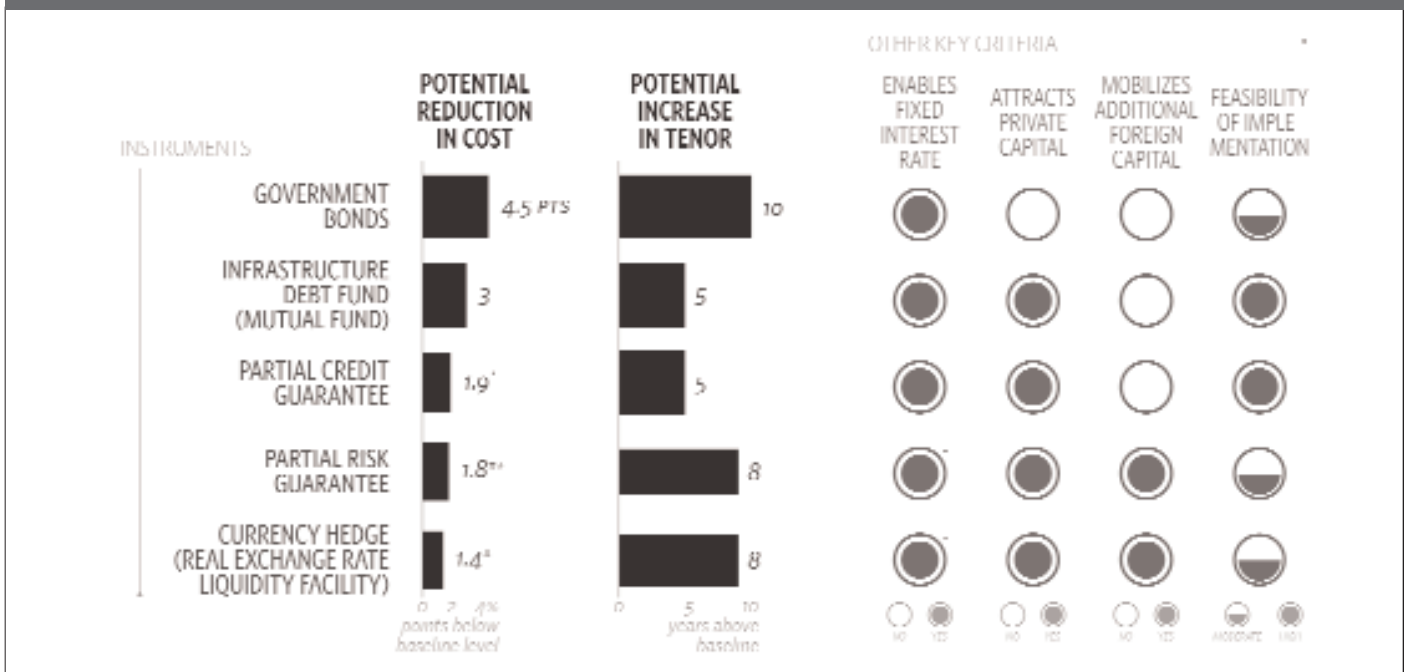
Partial credit guarantees reduce the cost of debt by enhancing the credit rating of a project. The guarantor agency (usually a multilateral agency or a private financial institution) leverages its higher credit rating to reduce project financing risks by guaranteeing a specific proportion of the borrowing. For bonds with a lower credit rating, the cost of debt is higher since the expected risk premium is higher. For example, the cost of borrowing for an AA-rated bond is up to 3.48 per cent lower than a BBB-rated bond.

**Potential reduction in cost:** The net reduc-

tion in the cost of debt through a partial credit guarantee is estimated at 1.4-1.9 percentage points. The benefit is highest (1.9 per cent) in the case of credit enhancement from A to AA, which is possible if banks bear the construction risk and if project bonds are issued after the construction period, when the requisite level of credit enhancement is lower on account of reduced risks. Using the cash flow models, the study estimates that reducing the cost of debt by 1.9 percentage points and increasing the tenor by five years would reduce the cost of developing renewable energy projects by approximately 10.5 per cent, as compared to projects which involve raising funds at a cost equivalent to a typical A-rated bond.

**Feasibility of implementation:** The implementation feasibility of partial credit guarantees in India is high. Institutional frameworks like India Infrastructure Finance Company Limited are already offering such guarantees, which lower the implementation cost. However, partial credit guarantees require coordination among several stakeholders, including lenders, the multilateral agency (which offers counter-guarantees), project developers

Potential impact of financing instruments on the terms of debt



and guarantors. Further, partial credit guarantees are only effective in mobilising debt in a well-developed bond market, which is currently not available in India.

### Partial risk guarantee

While partial credit guarantees cover defaults arising from all risks subject to a predetermined maximum amount, partial risk guarantees cover all defaults arising from a specific risk. A partial risk guarantee typically covers the entire debt amount as well as interest payments.

**Potential reduction in cost:** The net reduction in the cost of debt depends on the structure of the guarantee and the extent of risk coverage. For example, the cost of foreign debt for renewable energy in India is approximately 13 per cent, which includes a premium of 2.2 per cent for liquidity, volatility and political risk. If this risk premium is covered by a partial risk guarantee and a guarantee fee of 0.4 per cent is paid, then the maximum reduction possible would be up to 1.8 percentage points.

By facilitating the mobilisation of private foreign capital, partial risk guarantees provide access to longer-tenor financing. The instrument would most likely extend the tenor up to 18 years from the usual 10 years as it reduces the risk involved for foreign lenders. Using the cash flow model, the study estimates that reducing the cost of debt by 1.8 percentage points and increasing the tenor by eight years would decrease the delivered cost of renewable energy projects by approximately 12.7 per cent, as compared to projects that do not receive any federal support and rely on commercial loans.

**Feasibility of implementation:** India has the necessary infrastructure and regulatory framework for adopting such a risk guarantee mechanism. However, one of the drawbacks of a partial risk guarantee is the sovereign counterguarantee requirement. Multilateral funding agencies such as the World Bank provide partial risk guarantees only if the government agrees to provide a counterguarantee for

any drawdown on the guarantee amount.

### Exchange rate liquidity facility

While foreign funds are available to Indian project developers at lower rates than domestic debt, the high costs of hedging associated with lack of liquidity and depth of derivative markets often neutralise the benefit of low-cost foreign funds.

The government could introduce an exchange rate liquidity facility that can act as a standby credit line to mitigate the currency depreciation risk for renewable energy developers accessing foreign loans. This would help developers to draw funds from the facility when the domestic currency depreciates and the project's cash flows available for debt service (converted into US dollars) fall below a predetermined floor value. The exchange rate liquidity facility is likely to encourage project developers to opt for foreign loans as it provides a cheaper currency hedge option as compared to existing market instruments, which currently account for about 7 per cent of the debt cost.

**Potential reduction in cost:** At an assumed commitment fee of 0.85 per cent, as compared to the baseline foreign debt cost of 13 per cent, the liquidity facility can reduce the cost of debt by up to 1.4 per cent. Although foreign loans could be extended up to 18 years, the lack of currency hedging instruments for such long durations limits the tenor to 10 years. Using the cash flow model, the study finds that reducing the cost of debt by 1.4 per cent and increasing the tenor by eight years would decrease the delivered cost of renewable energy by approximately 11.2 per cent.

**Feasibility of implementation:** The feasibility of introducing this facility in India is moderate. If the Indian government plans to introduce this facility for renewable power projects, it needs to educate project developers about its benefits.

### Other promising instruments

● **IDF-NBFC model:** IDF-NBFCs were est-

ablished to provide long-term finance to infrastructure projects. However, the IDF-NBFC model may not be used to fund renewable energy projects as it can refinance only those projects that have been developed under the public-private partnership model.

- **Mezzanine capital:** Mezzanine finance could be used to reduce the overall capital cost by bridging the gap between debt and equity. The institutional feasibility of mezzanine finance in India is uncertain and the possibility of using it requires further analysis.
- **Asset-backed securities:** Asset-backed securities make it possible to match the tenor of financing with the useful life of an asset. However, the success of such a facility in India is uncertain due to shallow bond markets and project delays.
- **Sovereign bonds:** The central government could raise money through the issue of sovereign bonds in order to provide concessional finance for renewable power projects. However, the lack of a precedent in the government for issuing sovereign bonds may act as a hurdle in implementation.
- **Green/Climate bonds:** Green bonds are fixed-income instruments that could provide an avenue for mainstream investors to invest in environmental projects.

### Policy recommendations

In order to determine the relevance of the various financing instruments in the Indian context, CPI recommends an analysis of these instruments. The analysis should focus on improving the direct government lending programme and IDFs by increasing their effectiveness and suitability for renewable energy projects; credit guarantee on project selection and reducing the cost of implementation; assessment of guarantee programmes that have been implemented globally to check their feasibility in the Indian context; etc. Going forward, the government would need to take a lead role in introducing financing instruments as they can help meet the ambitious renewable energy targets by addressing the financing challenges associated with these projects. ■