



Driving Foreign Investment to Renewable Energy in India: A Payment Security Mechanism to Address Off-Taker Risk

As India prepares to meet its increasing energy demands, which will likely double by 2030, the government has set a path towards ambitious renewable energy targets of 175GW by 2022. Raising enough finance will be central to achieving these targets. The Indian government has stated that a significant portion of finance for these targets will need to come from foreign investors (Business Standard, 2015).

However, **foreign investors face a significant barrier to investing in renewable energy in India: off-taker risk.**

An off-take agreement is a power purchase agreement between a producer and buyer (or off-taker) of power, typically negotiated prior to construction of a project, that guarantees that the buyer will purchase a certain amount of electricity. This makes it easier for the producer to secure financing. Off-taker risk is the risk that the buyer/off-taker will not fulfill its contractual obligations. Off-taker risk is a key contributor to the overall credit risk of a power project.

In India, public sector electricity distribution companies (DISCOMs) are the primary off-takers of electricity. However, DISCOMs are in a poor financial state, which is a major concern among foreign investors. State-level DISCOMs, with debt of INR 3.04 trillion and accumulated losses of INR 2.52 trillion, are on the brink of financial collapse (Livemint, 2014). Because DISCOMs are public sector entities, the government frequently steps in to provide financial assistance to ensure that the payments are eventually made. However, investors perceive DISCOMs to be at risk of failing to make payments on time. Delayed payments are still a major contributor to off-taker risk.

One solution to mitigate off-taker risk is a government-sponsored standalone fund, called a payment security mechanism, that would provide assurance that the payments under power purchase agreements are made on time. The government is in the best position to manage off-taker risk through supporting a payment security mechanism, since DISCOMs are public entities, and the government has an informational and enforcement advantage with them.¹

In India, there is precedent in the government providing financial support for payment security mechanisms to support power procurement, and a few payment security mechanisms already exist for the government's major solar power initiative, called the Jawaharlal Nehru National Solar Mission (JNNSM), by central entities such as the NTPC Vidyut Vyapar Nigam as well as the Solar Energy Corporation of India (MNRE, 2011; SECI, 2014).

However, despite these payment security mechanisms, there has not been much interest from foreign investors (Livemint, 2015). This is likely due to two reasons. First, **our analysis indicates that current payment security mechanisms appear to be inadequate in covering the risk of delayed payments.** But more importantly, and underlying the first reason, **even an examination of the adequacy of these mechanisms is not easily possible, because the frameworks for these mechanisms are not publicly available.** These two reasons, perception of inadequacy and lack of transparency, may have deterred investor interest.

In order to attract more investment for renewable energy from foreign investors, the Indian government can develop a more transparent framework for payment security mechanisms which demonstrates adequate risk coverage.

Payment security mechanisms which are not attracting investor interest are not effectively using the government funds that have been allocated to them. **In order to attract more interest from foreign investors, and therefore better use existing government funds, a more transparent framework for developing payment security mechanisms is required, which can demonstrate adequate risk coverage. As a starting point, CPI developed a potential framework and applied it to an existing payment security mechanism in order to assess its adequacy in risk coverage.**

¹ Government intervention is justified when multiple conditions are satisfied. We discuss these in the accompanying technical paper.

We designed our framework using elements of credit and financial guarantees, specifically the probability of default (the likelihood that payment will be delayed), exposure at default (the amount not paid due to default), and recovery after default (the percentage of exposure at default that is eventually recovered) (Hsiao, 2001; Marrison, 2001). We estimated the probability of payment default using a modified version of the popular Z-score methodology (Altman, 2000; Crosbie, 2003), which uses key financial characteristics of the firm under investigation – in this case, the DISCOM. We estimated the exposure at default as the payment for one year's worth of electricity produced at the contracted per unit price, based on typical delays and power purchase agreement legalities, and the recovery after default as 100% of the guaranteed payment after delay.

We applied our framework to retrospectively estimate the size of an existing payment security mechanism involving a central solar power aggregator, which buys power from multiple generators and sells power to multiple off-takers deployed under JNNNSM Phase 2, Batch 1. To do so, we selected a sample of DISCOMs representing the credit spread of all the DISCOMs (MoP, 2013). For the supported capacity of this central aggregator, which was 750MW, we estimated the size of the payment security mechanism using our framework

to be INR 4160 million or INR 5.55 million/MW. This is less than 10% of capital costs of the solar power deployed (750MW), but almost three times the size of the existing payment security mechanism for JNNNSM Phase 2, Batch 1. **That is, our preliminary results indicate that the existing payment security mechanism may not have been adequate in covering the risk of delayed payment from DISCOMs.**

This demonstrates the need for the government to provide transparent frameworks for payment security mechanisms, in order to enable assessment of the mechanisms' adequacy in covering the risk of delayed payments. **Investors will be more attracted to payment security mechanisms that can demonstrate their adequate risk coverage. The payment security mechanism framework that CPI has developed could be a good starting point for the Indian government to develop a more transparent framework.**

While more transparency around frameworks for payment security mechanisms is needed, it is also only a short-term solution. Longer-term fixes for reducing off-taker risk will require better financial and operational management of DISCOMs and associated stakeholders, including structural fixes for DISCOMs, such as UDAY (Livemint, 2014), a newly introduced scheme for financially restructuring DISCOMs.

References

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