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# India's Power Sale Agreement (PSA) Hold-Up: Fixing a Renewable Energy Bottleneck

## *Potential Solutions for an Aggravating Renewable Energy Industry Conundrum*

### Introduction

India has committed to achieve 175 gigawatts (GW) of installed renewable energy capacity by 2022, which includes 100GW of solar and 60GW of wind. In 2018, the government expanded its ambition to target 450GW of renewable capacity by 2030.<sup>1</sup> However, the nation has a long way to go to meet the designated targets of the solar and wind sectors. As at February 2021, the cumulative installed solar and wind capacity stood at around 39GW each.<sup>2</sup> A further 50GW of renewable energy capacity is at various stages of implementation and another 27GW is at various stages of bidding.<sup>3</sup> In order to ramp up capacity addition, it is crucial to remove all bottlenecks in the Indian renewable energy market.

A major bottleneck that has been impeding the development of new solar and wind projects is the delay by distribution companies (discoms) in signing power sale agreements (PSAs) with Solar Energy Corporation of India (SECI). SECI generally signs power purchase agreements (PPAs) with developers prior to drawing up PSAs with discoms which then offtake the power from developers' projects. However SECI, the intermediary power procurer, has recently been struggling to find end buyers (discoms). Most state utilities remain laggards in terms of procuring renewable power, despite having to comply with Renewable Purchase Obligations (RPO) imposed by the centre. In addition to facing various technical and economic challenges, discoms, anticipating a decline in solar module prices and hence a reduction in future solar auction tariffs, have been reluctant to sign PPAs/PSAs.

The first state to attempt to renegotiate or renege on a renewable power purchase contract was Andhra Pradesh with the Y.S. Jaganmohan Reddy government's decision in July 2019 to lower the cost of solar and wind power purchase contracts formed under the previous elected government. However, in a ruling by the Appellate Tribunal for Electricity (APTEL) in February 2020, the Andhra Pradesh discoms were prohibited from revising the tariffs. Following suit, the Punjab

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<sup>1</sup> CNBC. [India has some huge renewable energy goals. But can they be achieved?](#) 3 March 2020.

<sup>2</sup> CEA. [All India Installed Capacity as on 28-02-2021](#). February 2021.

<sup>3</sup> Economic Times. [India achieves 92.97 GW of renewable energy capacity in Feb this year](#). 16 March 2021.

government, in June 2020, requested a discount on power tariffs from solar power developers with effect from 1 July 2020, citing a “financial crunch” owing to the COVID-induced lockdown. In a more recent precedent, state discom Gujarat Urja Vikas Nigam Ltd. (GUVNL), with the approval of Gujarat Electricity Regulatory Commission, rescinded on a power purchase contract for the 700MW Dholera solar park auction, which saw winning tariffs of Rs2.78-2.81/kWh, and is planning to retender the capacity in an attempt to discover lower tariff rates.

Irrespective of the legal status (signed or unsigned) that governs a power purchase contract, a discom's action of retracting its commitment to purchase renewable energy significantly demoralises the industry and its stakeholders. The past several months have seen a rise in uncontracted yet tendered renewable energy capacity. This industry headwind majorly impacts the project developers that are/have been awarded projects with unsigned PSAs.

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## Impact of Delays in Signing of PSAs

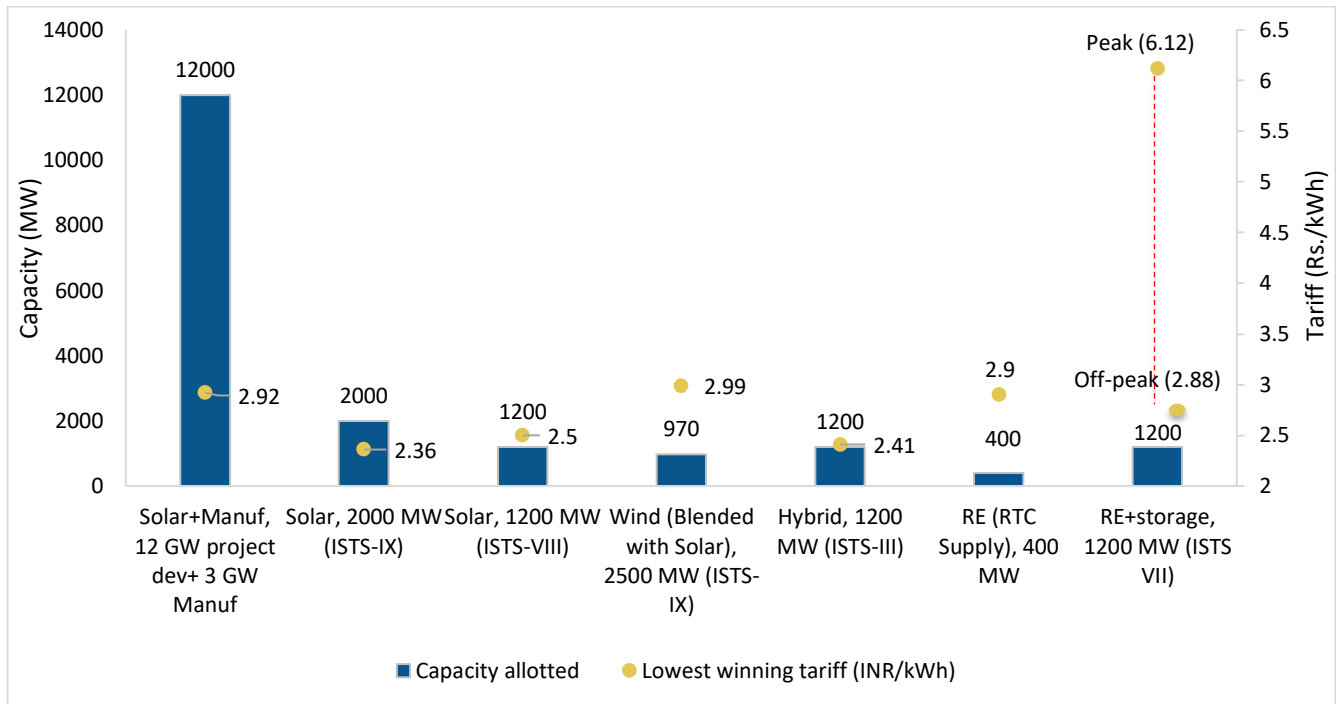
The missing link of PSAs in the due process of supply of power from one entity to another affects the entire value chain, by disturbing the schedule and activities of all stakeholders involved in the process. The growing number of PSAs in limbo gradually weakens the renewable energy installation progress for institutions at various levels. Specifically, the impacts are as follows:

- **Dampening of investor confidence:** Debt financiers are becoming increasingly wary of investing in renewable energy on account of their past experiences of delays in signing PPAs. Lately, these institutions have only been sanctioning loan disbursements after PPAs/PSAs have been executed. Meanwhile, equity investors are becoming increasingly sceptical about the performance of potential future renewable energy investments as the SECI-discom issue continues.
- **Rise in business uncertainty for developers:** As renewable energy prices under plain vanilla tenders continue to decline, developers face a major risk to their market operability. With discoms attempting to close in on prices near benchmark-low power tariffs, developers will need to skilfully evaluate the stretchable limits of their risk appetite. Moreover, in the absence of a PSA, it becomes virtually impossible for these players to secure debt financing from banks and non-banking financial companies (NBFCs).
- **Difficulty meeting renewable energy targets:** With state-owned discoms unwilling to contract with SECI for long-term PPAs, it will become increasingly difficult for India to meet its annual capacity addition target and ultimately its national renewable energy target of 175GW by 2022.

- Losing grip on project viability:** Developers compete aggressively against each other while bidding for projects, taking into consideration different forms of financial risk. However, the viability of the project comes under threat if hedging risk owing to delays in the execution of PSAs is not accounted for in the bid price calculation and there is currency depreciation during the delay period. Shortcomings in gauging the actual risk of module price fluctuation during and post the delay period could also have a similar effect on the overall project viability.

As a result of unsigned PSAs, many renewable energy projects tendered by SECI have been suspended indefinitely. The figures below depict 7 such projects which add up to 18.9GW of capacity. This represents the total amount of capacity on hold due to delays in signing PSAs.

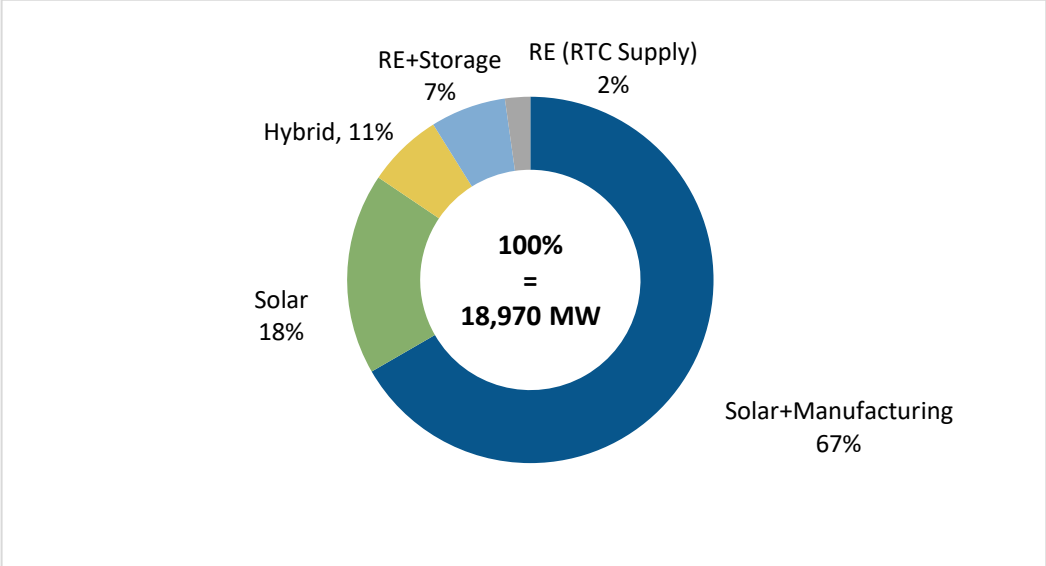
**Figure 1: SECI's Renewable Energy Projects With PSA Execution Delays**



Source: JMK Research.

Solar+manufacturing tenders contribute the largest share of the SECI project capacity in limbo at 63% of the aggregate capacity. The second most-impacted category of projects is plain vanilla solar tenders with a 17% share. This is followed by hybrid at 11% and RE+Storage projects at 7%.

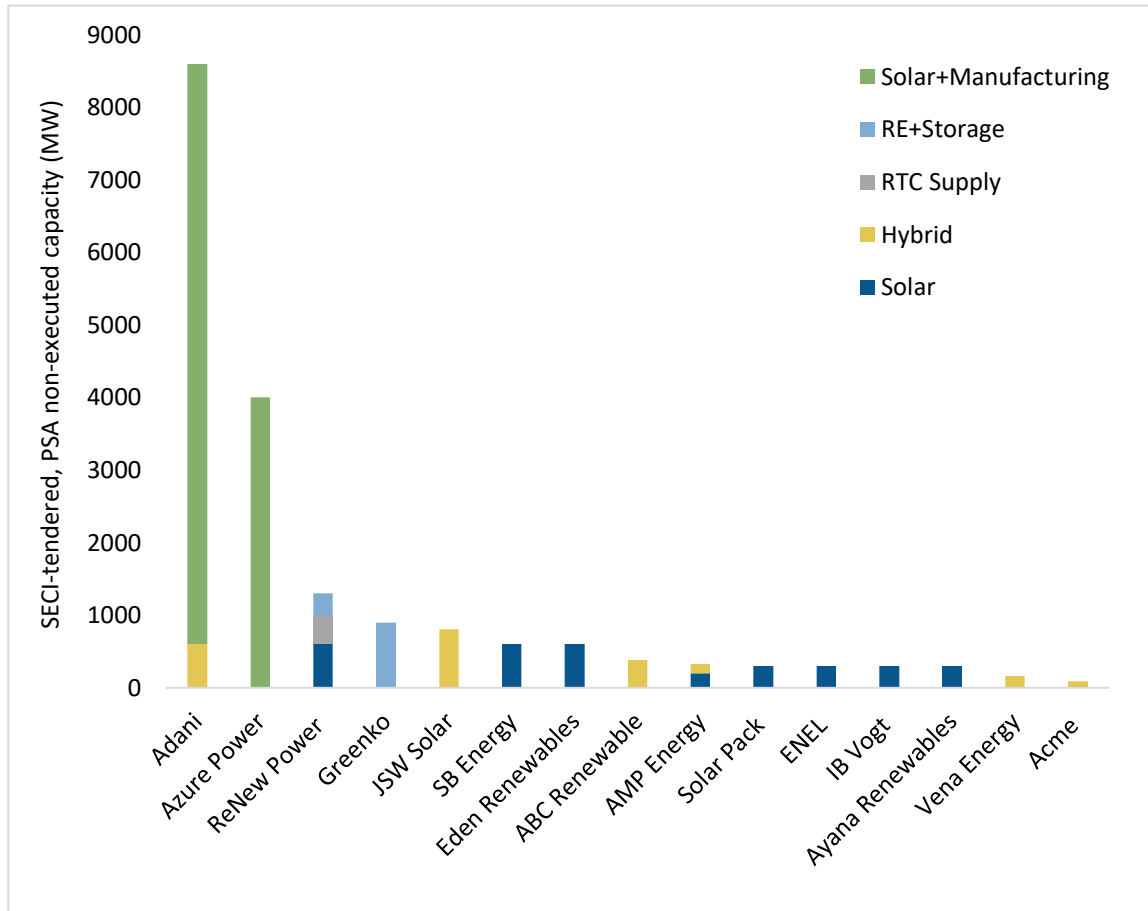
**Figure 2: Capacity on Hold Owing to Non-Executed PSAs (Technology-Wise)**



Source: JMK Research.

As many as 15 project developers have SECI-tendered projects in their pipeline that are yet to undergo the PSA execution phase. Out of which, the top 3 developers (in terms of those with the highest amount of capacity on hold) Adani, Azure Power and ReNew Power have more than 1GW capacity each in limbo.

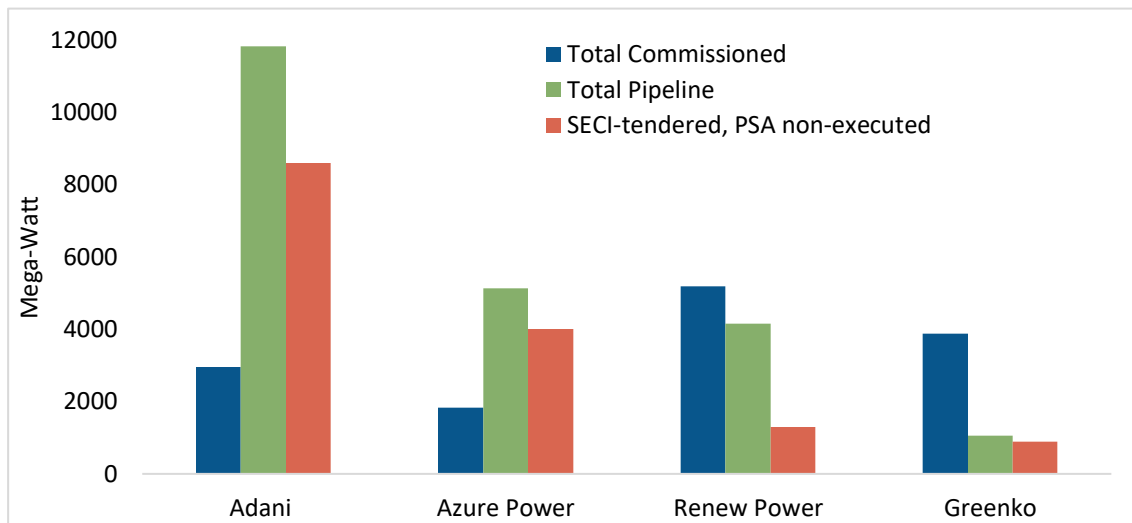
**Figure 3: SECI-Tendered Capacities in Limbo Owing to Non-Executed PSAs (Developer-Wise Distribution)**



Source: JMK Research.

Considering all of the SECI-tendered capacities with non-executed PSAs, the combined capacities of Adani, Azure Power, ReNew Power and Greenko alone form a 78% share of the aggregate capacity in limbo. These prominent developers have on average 37% of their entire (installed+pipeline) project portfolios represented by SECI-tendered projects with non-executed PSAs. This significant share of capacity poses a substantial risk to the overall conversion of projects in the pipeline.

**Figure 4: Capacity Distribution of 4 Major Grid-Scale Project Developers**



Source: JMK Research.

## Why Is PSA Signing Delayed or Cancelled?

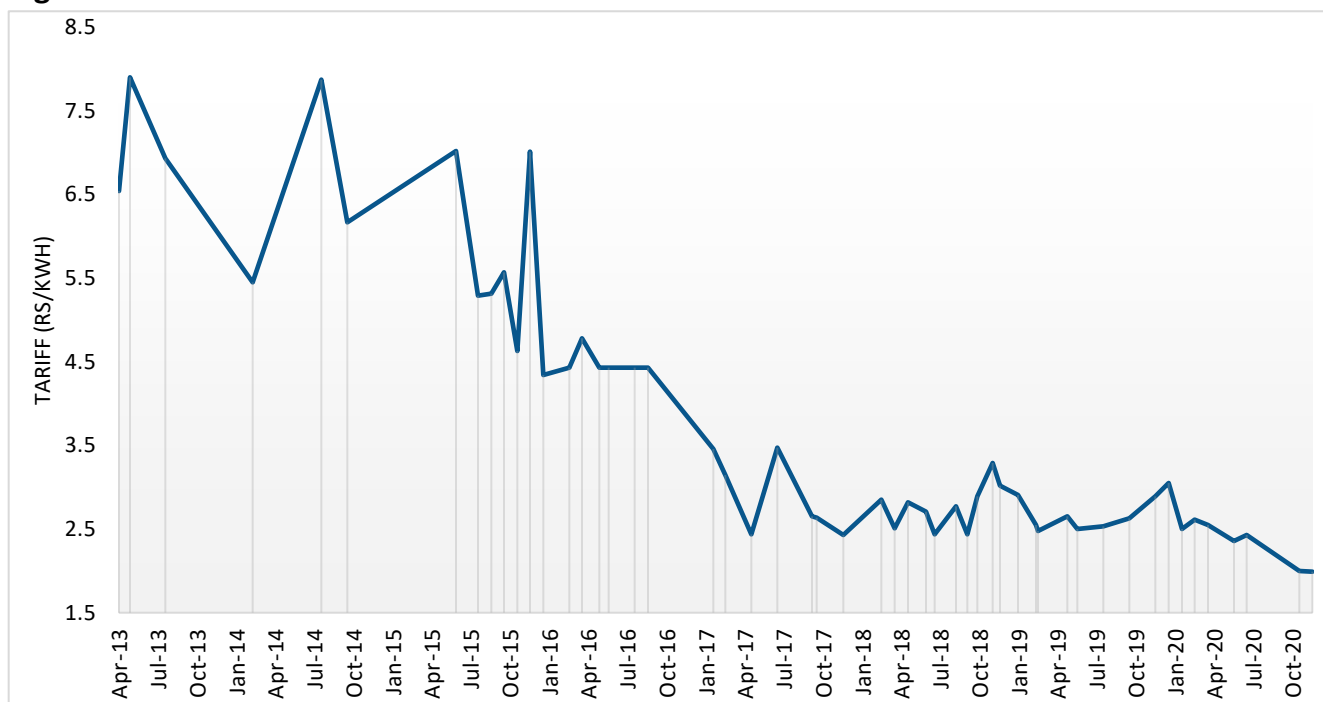
### Falling Tariffs

Observing the historic downward trend of solar prices and predicting further drops in tariffs in the future, discoms have backed away from signing PSAs, and even at times unilaterally revoked past agreements.

The Indian solar tariff trend exemplifies the deflationary nature of the cost of solar power. Solar tariffs in India have fallen by 75% over the last 7 years (refer Figure 5), largely driven by reductions in module prices and increased availability of low-cost funds. The introduction of competitive bidding in 2016 provided additional momentum to the decline in the solar prices. With the removal of ceiling tariffs for new solar and wind tenders in February 2020, the range of quoted bids in auctions shifted from Rs2.5-2.87/kWh to Rs1.99-2.97/kWh.

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Figure 5: Solar Tariff Trend in India



Source: JMK Research.

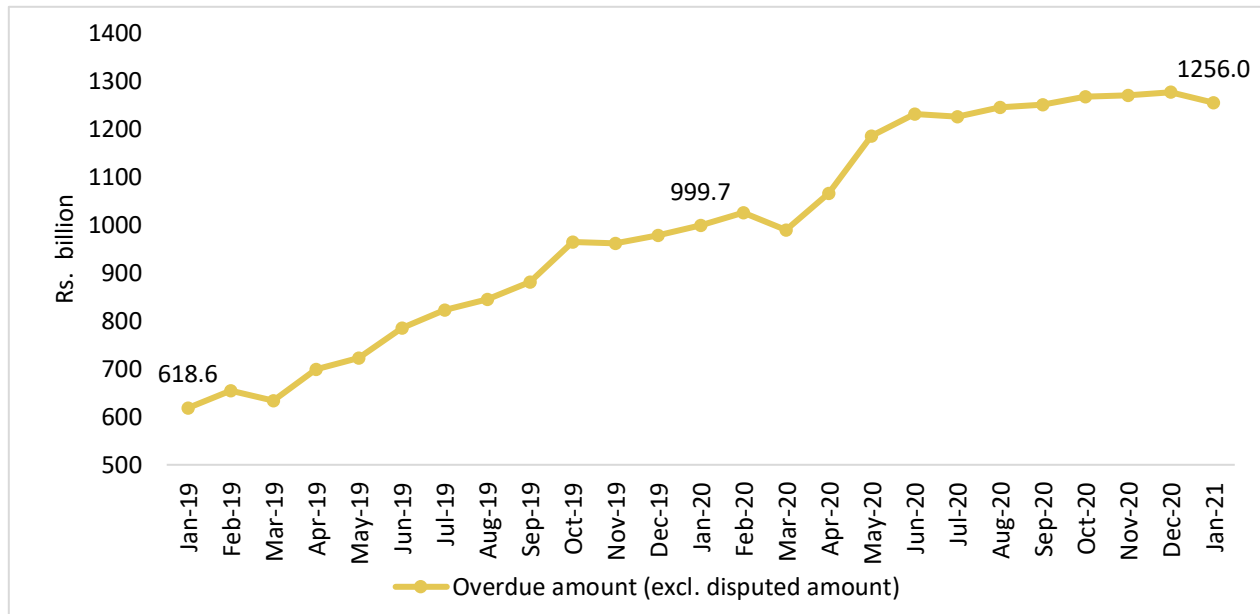
## Discom Woes

The delays in signing power purchase contracts and thus the slow capacity addition of renewable energy can be primarily attributed to the general dilapidated system of discoms. India's electricity distribution sector has been in a state of turmoil for a very long time, and operational inefficiencies are the root cause. Low-grade power infrastructure, electricity theft and poor consumer billing and payment collection are the key operational challenges persisting among distribution companies pan-India. Furthermore, the heavy cross-subsidisation of residential and agricultural consumers by the premium commercial and industrial (C&I) segment aggravate the technical and commercial losses. These operational aberrations have been exacerbated over time due to lack of effective policy implementation, which has translated to rising financial distress in the sector.

The average Aggregate Technical and Commercial (AT&C) losses for the majority of states is 24.31% as of Q2 FY2021.<sup>4</sup> Also, the discoms incur a loss of Rs0.56 for every unit of electricity sold. The discoms' financial losses have led to delayed payments to generation companies (gencos) which have in turn come under financial pressure. The COVID-induced lockdown last year has only worsened the state of affairs in the power sector. The combined overdue payment to gencos by the discoms reached a whopping Rs1256 billion by January 2021.

<sup>4</sup> Ministry of Power [UDAY portal](#).

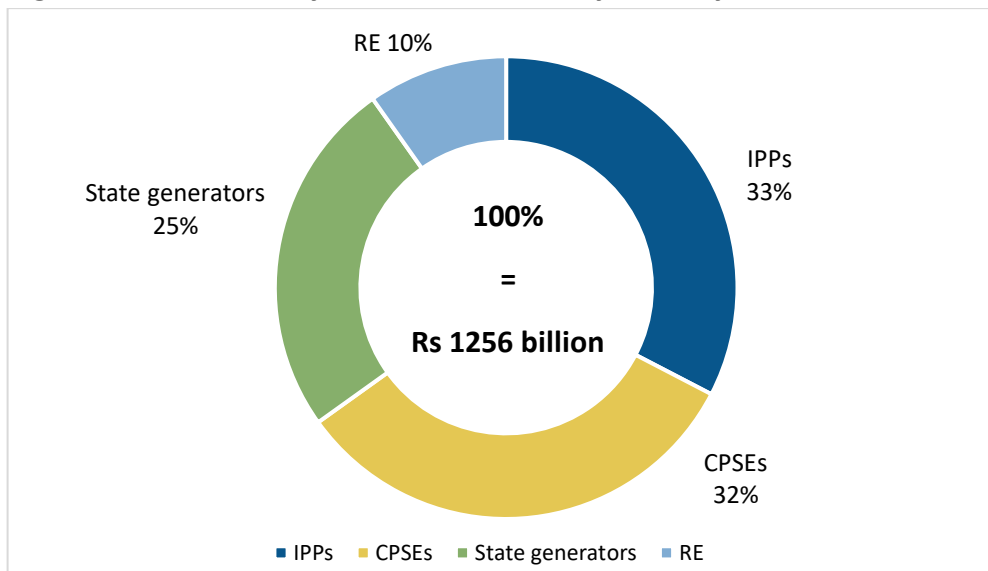
**Figure 6: Discoms' Combined Overdue Payment to All Gencos**



Source: PRAAPTI Portal, Ministry of Power.

The renewable energy gencos are owed approximately Rs123 billion in overdue payments by pan-India discoms. This sum constitutes 10% of the total overdue payment to all categories of gencos.

**Figure 7: Overdue Payments to Gencos by January 2021**



Source: PRAAPTI Portal.

Discoms, already burdened by mounting dues arising from technical and commercial inefficiencies, are additionally taxed with mandatory procurement of renewable energy up to a predetermined level of their overall energy mix. The



discoms, therefore, inherently seek out different avenues to mitigate expenses and losses, one of which, ostensibly, is to defer purchase of power from SECI indefinitely.

Falling power demand and low economic growth worsened discom woes in 2020. However, with demand now picking up and the imposition of 40% basic customs duty (BCD) on solar modules, a further fall in tariffs is highly unlikely in the near-term. Therefore, it is likely that discoms will fast track the process to tie up power procurement options from RE sources.

## Measures To Persuade Discoms To Sign PSAs

- **Minimum renewable energy purchase requirement:** A notification from the Ministry of Power in June 2018<sup>5</sup> regarding the long term growth trajectory of Renewable Purchase Obligations (RPOs) for solar as well as non-solar requires discoms in all states and union territories to purchase 21% of their total power needs from renewable energy sources by 2021/22 (solar and non-solar purchase obligations are 10.5% each). The current penalty provisions for non-fulfilment of RPOs are ineffective, and this has led to non-compliance among many states. However, the [draft Electricity Act \(Amendment\) Bill, 2020](#) introduced in April 2020 proposes amendments to the penalties, and if implemented, the Bill would significantly improve compliance. The proposed penalty trajectory is as follows:
  - Rs0.50/kWh for the shortfall in the first year of default
  - Rs1/kWh for the shortfall in the second year of default
  - Rs2/kWh after the second year of default
- **Tariff pooling:** SECI's tariff bundling or pooling mechanism (the weighted average of the tariffs discovered in auctions every 6 months is taken to provide a composite pooled tariff) tends to be more attractive for discoms. The resultant tariff eliminates the undue advantage of certain discoms in securing power purchase contracts at relatively low tariffs in the latest auctions.
- **Electricity contract enforcement authority:** The Ministry of Power's draft Electricity Act (Amendment) Bill, 2020 also contains a proposal intended to ensure the sanctity of contracts. It proposes setting up a Central Enforcement Authority to enforce contracts related to purchase, sale or transmission of power between generating, distribution or transmission companies. Under this proposal, each party would have to fulfil their contractual obligations.
- **Hybrid power project PSA signing deadline:** According to a recent MNRE guideline for tariff-based competitive bidding for procurement of power from grid-connected wind-solar hybrid projects, if SECI is unable to enter

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<sup>5</sup> Ministry of Power. [Long term RPO trajectory notification, June 2018.](#)

into a PSA within 6 months of the issue of a letter of award then those projects would be cancelled.

- **Introduction of Integrated Renewable Energy Planning (IRP):** This method of strategic planning enables systematic procurement of renewable power by discoms over a specific period of time. On the basis of electricity demand projection related to the discom's area of power supply and according to the phase-out schedule of the existing conventional power plants, each discom should be required to devise a long-term plan estimating the capacity of renewable power to be integrated into its power mix every year.
- **Enhanced cross-entity coordination to obtain relevant agreements before bidding:** Before planning any new tenders, SECI must first close the existing unsigned PSAs. Further, SECI could significantly alleviate risks involved in project execution by seeking assurance on purchase of power and requisite approvals from discoms and State Electricity Regulatory Commissions (SERCs) before planning an auction, which is akin to prior procedure followed for bidding in the thermal sector. For example, in the case of SECI's 1070MW grid-connected solar PV power projects in Rajasthan (Tranche-III), there was power purchase assurance from the off-taker. A pre-approved PSA from the Rajasthan discom meant there was no risk of a delay in signing a PPA/PSA which in turn led to a record low solar tariff of Rs2/kWh in this specific tender.
- **Tariff renegotiation:** Although it would be an unfair practice to help formalise a PSA under normal circumstances, tariff renegotiation could be viewed as a last resort under 'specific market conditions'. If a relevant market scenario changes so considerably that the average cost for generation and sale of energy to SECI decreases substantially then a developer could renegotiate and lower the initial PPA tariff with SECI in anticipation of a commensurate reduction in the PSA tariff between SECI and the discom. The case of Azure Power's 4000MW of stalled capacity associated with SECI's manufacturing-linked solar tender is one example. So far, SECI has not been able to sign PSAs with discoms for the capacity. However, Azure Power in its recent company statement mentioned that it now expects a markdown from the winning tariff that it quoted in the December 2019 auction in order to encourage PSA signing. Also, as the statement notes, the capital costs, interest rates and foreign exchange rates have improved since the date of auction.

## Conclusion

With 2022 just around the corner, India must look for ways to expedite its renewable energy installation drive to meet its national target of 175GW. Since its inception, SECI, as the intermediary procurer between gencos and discoms, has provided encouragement to the end buyer (discom) and end seller (genco) as well as to investors. And on account of SECI's active involvement, India's renewable energy market has charted tremendous growth over the past couple of years.

However, the deferment of PSA signing between SECI and discoms is proving a critical barrier to the pace of renewable energy capacity addition.

The discoms' expectation that power tariffs will fall further due to declining module prices has led to a reluctance to procure renewable energy and is broadly why SECI is having such difficulty in finding end buyers. This overtly cautious approach is not ill-founded – discoms have long been severely debt-ridden and impaired by their own set of techno-economic challenges. However, discoms' procrastination in signing PSAs is having an adverse impact on the morale of project developers and investors alike.

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Nearly 19GW of renewable energy project capacity tendered by SECI is in a state of limbo due to the non-execution of PSAs – 63% of which is manufacturing-linked solar projects alone. Expediting the execution of PSAs in relation to these projects would not only free up a major share of on-hold capacity but also reinvigorate the stakeholders impacted by the non-signing of various other PSAs.

Unsigned PSAs will also be an obstacle for the government's 'self-reliant' initiative to boost the domestic solar manufacturing industry. Looking at the current situation where there is no offtake of power for auctioned RE projects even by a central government entity like SECI, manufacturers and investors will be sceptical about potential demand for their domestic-made modules and cells.

Moreover, the imposition of 40% BCD on imported solar modules and 25% on imported solar cells from April 1, 2022 is likely to increase solar tariffs by 45-50 paisa/kWh in the near-term.<sup>6</sup> Further, supply might be constrained with electricity demand picking up in 2021 and with the closure of inefficient thermal power plants. Therefore, any further delays in signing of PSAs will likely turn out to be lost opportunities for discoms. Additionally, with stricter enforcement of RPO penalties under the draft Electricity Act (Amendment) Bill, discoms will have no choice but to tie up with RE sources for power procurement.

To conclude, it is crucial that India implements effective measures that would drive discoms to purchase power from SECI.

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<sup>6</sup> JMK Research. March 2021.

## About JMK Research & Analytics

JMK Research & Analytics provides research and advisory services to Indian and International clients across Renewables, Electric mobility, and the Battery storage market. [www.jmkresearch.com](http://www.jmkresearch.com)

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