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## Tying up Long Term PPAs by Discoms: How much is too much?

In India, till now Discoms predominantly enter into long term Power Purchase Agreement for upto 25 years to manage their power requirement, the residual requirement, if arises, is met through medium and short term contracts

**D**iscoms have a great role to play to ensure the electricity being consumed each second is available to us uninterrupted. To ensure supply, Discoms enter into power purchase agreements with generators, traders to meet the power requirement in the area of their operation. In India, till now Discoms predominantly enter into long term Power Purchase Agreement for upto 25 years to manage their power requirement, the residual requirement, if arises, is met through medium and short term con-

tracts. These PPAs constitute two payment streams: fixed charges based on capacity declared available by generators and variable charges based on the scheduled generation as required by Discom. On the face of it, it might look to be very simple and sorted but there are numerous complexities that the Discom has to consider before taking the plunge.

Discoms are constantly burdened with the role to continuously make right choices in selecting right set of generators at right time to meet demand.

It is important for the Discoms to give a serious thought while signing a long term power purchase agreement as:

- **The Contracts are for a long period and cannot be terminated:** These long term contracts are mostly for a period of over 25 years and cannot be terminated before the end of the period. Therefore, a discom has to ascertain its demand projections and other factors for 25 years in advance before signing the PPA. The prices of power through other sources, demand in the

### Discoms managing surpluses in case of over-contracting: A loss-loss situation

The recent change in the deviation settlement regulations has changed the way in which the Discom used to manage its surplus. Before the new regulations came into force, the utility, if surplus, had the option to under draw and get some pre-determined compensation depending on the frequency of the grid. The variable cost of the plant in this way was compensated to some extent and it was not a complete loss to the Discom. The new regulations on

deviations puts a limit on the quantity that a Discom can deviate from the schedule and attracts penalty if the deviation is beyond the permissible limit and now the Discom may end up paying both, variable cost to generator and penalty to system operator in case it under-draws beyond the permissible limit, and that too without using the electricity. Another option to manage this surplus is to sell it in the market. But since the maximum surplus will be

in the off-peak hours, the price of power during this period is anyway going to be at its lowest and the utility may only be able to recover the variable cost or just a portion of it.

The fixed cost will be payable by the Discom in both the scenarios, therefore, the Discom is better-off meeting its deficits from the market rather than being surplus and selling it in the market.

Ideally, the discoms should sign long term PPAs only for the base

load and balance requirement can be better managed through the medium and short term market.

The case study below examines the two scenarios where the Discom has tied up PPA based on the projected base load for next 25 years and therefore is surplus in the current year vis-à-vis a scenario where Discom only ties up PPA for the base load of the recent year and purchases deficits from the market.

area of supply of the Discom or other factors may change the requirement of the contracted power considerably.

- **Huge cost implications:** The Discoms have to pay the capacity charge irrespective of the power consumed by the Discom. If the Discom over contracts than its actual power requirement, the Discom will have to pay the capacity charge for the entire 25 year period for the power it does not even require. In such a scenario, the only option left for the Discom is to pay fixed cost to the gener-

ating stations on the declared available capacity, save variable cost to the extent generator is not asked to generate.

Globally, all countries have moved away from long term contracts, since predicting the status of the sector 25 years in advance with certain level of accuracy is difficult. A discom may either over contract or under contract. The prices can change considerably making the Discom worse off because of signing a PPA at high cost.

Infact, this is the situation currently being witnessed in India, in the past dec-

ade, PPAs were signed by the Discoms for variable charges between Rs4- 6 per unit and sometimes even above that. The situation now is that the prices in the short term market are below Rs 3 per unit on a daily basis. West Bengal has recently done a medium term contract for 6 months by inviting bids and conducting a reverse auction and has managed to source 500 MW of RTC power at rates between Rs2.7-Rs 2.9. This is now forcing Discoms to look for ways to get out of the high cost PPAs signed by them earlier ◀◀

## Case Study

- **Scenario 1:** Long Term PPA for projected base load of next 25 years (selling surplus in the market)
- **Scenario 2:** Long term PPA for the base load of the current year (buying deficits from the market).

### Way forward for Long Term PPAs

It will be premature to say that Discoms should altogether stop signing long term PPAs, since they want to ensure security of supply for a longer period but an in-depth analysis is required for assessing the accurate requirement of the PPA. Below are a

few suggestions which can help Discoms to take an informed decision on how much quantum should be tied up in long term PPA.

- PPA for base demand only: As a thumb rule, the PPA should be signed for the base demand only, the seasonal variations and peak should be arranged through the medium and short term market. This will help Discoms to limit over contracting the PPAs and save on the capacity charge as the peak and seasonal quantum is not required throughout the year.

- PPA on rolling basis: While projecting the demand for the 25 years, the PPA should be signed for the base load expected for the next 5 years only. Every year the demand for the next 5 years should be re assessed and additional PPAs can be signed if required to meet the base load.
- A cost benefit analysis can be conducted at this point to ensure the cost for contracting more than the base load and the monetary benefit of meeting that demand through the PPA instead of the other available medium and short term option.

Particulars	Scenario 1: PPA for BL of next 25 year	Scenario 2: PPA for BL of recent year	Remarks/Assumption
Base Load (MW)	12,000	12,000	
Peak Load (MW)	18,000	18,000	
Base demand 25 yrs (MW)	18,000	18,000	
Long Term Contract (MW)	18,000	12,000	
Shortage/Surplus off peak (MW)	6,000	0	Surplus of 6000 MW in Scenario 1
Peak Shortage/Surplus (MW)	0	-6,000	Shortage of 6000 MW in Scenario 2
Fixed Cost for long term/day	(64.8 Cr)	(43.2 Cr)	Avg. Fixed cost:Rs 1.5/unit
Variable Cost for long term/day	(172.8 Cr)	(115.2 Cr)	Avg. variable cost:Rs 4/unit
Cost for short term peak/day	-	(12.96 Cr)	Peak of 6 hours (Price Rs3.6/unit*)
Cost for short term off peak/day	33.48 Cr	-	Off peak of 18 hours (Price 3.1/unit*)
Net Result NR	(204.12 Cr)	(171.36 Cr)	Net cost payable by Discoms per day
Benefit/Loss per day (NR Scenario 2 – NR Scenario 1)		32.76 Cr	Saving per day as per above calculations if contracted only for recent year base load

Brackets indicate the cost payable by the Discom. \*Average Exchange peak and off peak price for FY 14-15