

Contracts and Agreements in RE power generation projects

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Key Agreements in a RE power project

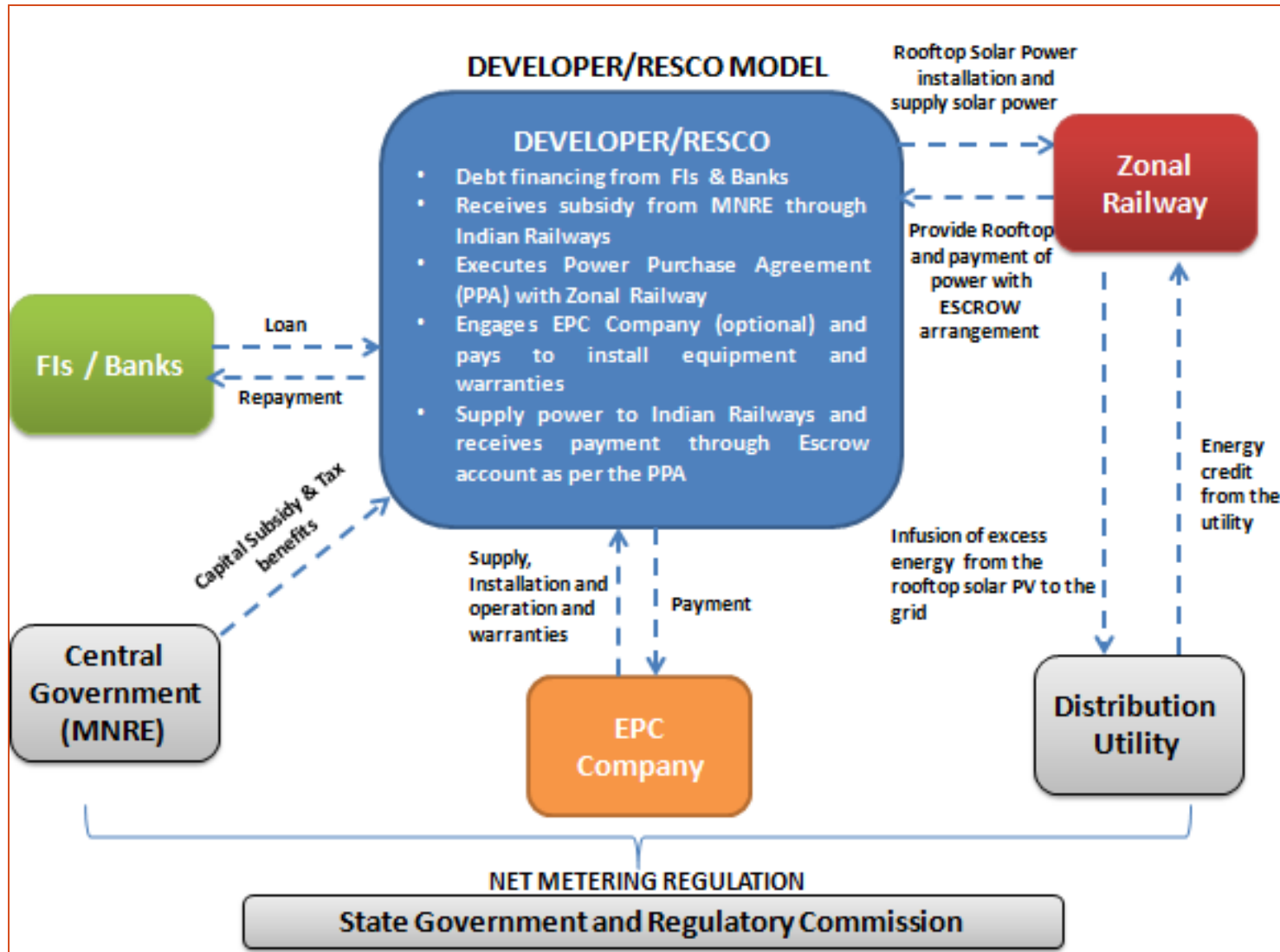
PPA- Power Purchase Agreement

- Power Purchase Agreement is the contract signed between the developer of the power project and electricity consumer
- It is mostly applicable when the project is deployed under PPP / Developer mode by a RESCO
- The PPA is agreed at a tariff (Rs/kWh) and at conditions under which the power developer will supply electricity to the consumer throughout the agreed tenure
- The tenure of the PPA may vary from 10 year to 25 years based on the RE source and agreement between the two parties

Land / Rooftop Lease / Rent Agreement

- The consumer of the power may or may not have the legal ownership of the project site
- Non Involvement of site owner as a party to PPA is a critical issue which needs to be addressed by reviewing the Lease / Rent Agreement

Case Study - Agreements – Indian Railways, RESCO Model



Lease / PPA – Contract Relationships

The table below shows arrangements among parties involved in rooftop solar power and their contractual relationship in terms of Lease Agreement or Power Purchase Agreement (PPA)

Owner of roof	Relation	Applicant (Owner of the solar plant)	Relation	Who consumes Solar energy	Metering scheme
Consumer		Consumer		Consumer	Self Consumption
Consumer		Consumer		Consumer	Net Metering
Consumer		Consumer		Utility	Gross Metering
Third Party	Lease Agreement	Consumer		Consumer	Self Consumption
Third Party	Lease Agreement	Consumer		Consumer	Net Metering
Third Party	Lease Agreement	Consumer		Utility	Gross Metering
Third Party		Third party	PPA	Consumer	Self Consumption
Third Party		Third party	PPA	Consumer	Net Metering
Third Party		Third party	PPA	Utility	Gross Metering
Consumer	PPA	RESCO	PPA	Consumer	Self Consumption
Consumer	PPA	RESCO	PPA	Consumer	Net Metering
Consumer	Lease Agreement	RESCO	PPA	Utility	Gross Metering
Third Party	Lease Agreement	RESCO	PPA	Consumer	Self Consumption
Third Party	Lease Agreement	RESCO	PPA	Consumer	Net Metering
Third Party	Lease Agreement	RESCO	PPA	Utility	Gross Metering

The third party in the table refers to the owner of the solar plant who is not the consumer who is not the

Power Purchase Agreements – Details (1/12)

Conditions Precedent

Activities needed to be completed prior to the execution of PPA are listed as conditions precedent. The conditions precedent is important to specify in PPA to indicate the activities without which the PPA can not be signed by the parties.

For example the model PPA by Indian Railways have following conditions precedent:

- Performance Security / Guarantee to Railways by developer
- Execution of Escrow and Substitution Agreement
- Drawings and Project completion schedule (Approved by Railways)
- Execute Financing Agreements (Deliver copies to Zonal Railway)

Power Purchase Agreements – Details (2/12)

Payment Security Mechanism

A mechanism that is adopted to avoid the default against performance and payment for solar power. It could be Letter of Credit or Bank Guarantee. It gives the party authority to retain the amount equivalent to the amount defaulted by another party.

For Example:

In the PPA of Indian Railways the Solar Power Developer will be providing Rs. 20 lakh per MW. This will be retained by Indian Railways for a specified period and then returned to the solar power developer. This will protect Indian Railways against generation below the promised benchmark due to poor performance.

Power Purchase Agreements – Details (3/12)

Right of Way

Some of the building, their premises and rooftops may not have a general access due to security reasons. The installation and operation of the rooftop solar power may require such access which shall be agreed in the PPA.

For Example:

In the PPA of Indian Railways the Right of Way means the access to the site with the intention of using it for installation of Project, including the way from the entry point to the rooftop through the shortest accessible way, easements and other rights of way, howsoever described, necessary for construction, operation and maintenance of the Projects.

Power Purchase Agreements – Details (4/12)

Deemed Generation

- This is a concept to address any loss of generation due to any reason beyond the control of the rooftop developer and not covered under Force Majeure.
- Deemed generation protects the developer and the lender from delays in the repayment of the loan. It is crucial to assess whether the deemed generation clause has been included in the contract and appropriately worded to cover all eventualities.
- The key eventualities have been highlighted below:
 - ✓ In the event of consumer failing to off-take the electricity generated due to non-availability of reference voltage or lack of demand
 - ✓ Unplanned displacement of the system
 - ✓ Any loss of generation due to new shadowing / obstructing objects in future

Power Purchase Agreements – Details (5/12)

Performance Indicators

- The project is structured based on an estimated revenue earned, based on certain estimated performance of RE system. A minimum performance level can be guaranteed as agreed under PPA.
- This can be assured in terms of a benchmark Capacity Utilization Factor below which the developer has to pay a penalty in addition to the loss.
- This ensures that developers implement best available technology in the market to achieve the benchmark CUF. However the CUF of the project is also largely based on the local weather conditions. Hence the benchmark CUF shall be estimated carefully so as to be in the interest of both the parties.
- Benchmark CUF/ Performance Ratio in the existing PPA in the location or CUF calculated by State Electricity Regulatory Commission for solar could be a fair indicator to derive the benchmark CUF.

Power Purchase Agreements – Details (6/12)

Tariff

- The price agreed under PPA to be paid for a unit of electricity generated from RE plant is called tariff.
- It is applicable for the complete tenure of the PPA, however the structure of the tariff can be combination or any of the following:
 - **Constant Tariff** – constant levelized tariff is agreed for tenure of the agreement.
 - **Constant Escalation** – Starts from base tariff in year one and escalates based on a predefined rate. The period of escalation may vary in 5 years, 10 years, 15 years or for full tenure of PPA.
 - **Variable Escalation** – A variable tariff with variable escalation can also be used. For example 5 percent from 1st to 5th year, 6 percent from 6th to 10th year, 7 percent from 11th to 15th years and so on.

Power Purchase Agreements – Details (7/12)

Central Financial Assistance- CFA (if applicable)

- CFA is the support from Central Government in form of subsidies / VGFs / etc.
- If applicable then following shall be included in the PPA
 - ✓ Pre conditions to avail the CFA shall be indicated e.g. MNRE requirements on Domestic Content , Technical Specifications to be followed and empanelment
 - ✓ The modalities of channelling and disbursal of CFA shall be indicated

Buy Back Option

In case the buyout condition is included in the contract, the contract will also clearly define

- ✓ the **circumstances / situations** where the Buyout Clause will be invoked
- ✓ and the **price** at which the buyout will be undertaken.

Power Purchase Agreements – Details (8/12)

Escrow Account

Account that RE developer opens and maintains, in which all inflows and outflows of cash (capital and revenue / receipts and expenditures) are credited and debited in accordance with the provisions of the PPA.

Example of deposits

- (a) all funds constituting the Financial Package;
- (b) all payments on account of tariff and any other revenues from or in respect of the power project, including the proceeds of any rentals, deposits, capital receipts or insurance claims; and
- (c) all payments by consumers, after deduction of any outstanding Agreement Fee:

Example of the preference of withdrawals

- All taxes due and payable by the developer
- All payments relating to construction of the power project
- O&M Expenses
- Debt Service due in an Accounting Year etc.

Power Purchase Agreements – Details (9/12)

TERMINATION due to Default on PPA by Consumers

The occurrence of default on consumer side will not be limited to but cover the following:

- ✓ How many months of delay after the credit period will be considered as default?
- ✓ For non-availability of synchronizing power, what percent of operating hours lost is considered as default?
- ✓ For non-availability of access to the project site, what percent of days in a year is considered as default?
- ✓ In case of damage of major equipment caused by consumer, to what extent of damage leads to termination?

Power Purchase Agreements – Details (10/12)

TERMINATION due to Default on PPA by Seller / RESCO

The occurrence of default on seller / RESCO side will not be limited to but cover the following:

- ✓ How many months of non-availability of RE plant will be considered default?
- ✓ How many years of not achieving minimum guaranteed (Benchmark) CUF leads to default?
- ✓ Are there any pre mature termination clauses?
- ✓ What will be the impact of pre-mature termination on project feasibility?
- ✓ What is the compensation for pre mature termination?
- ✓ Are there any other termination clauses?
- ✓ What will be the impact of pre-mature termination on project feasibility?

Power Purchase Agreements – Details (11/12)

Indemnity Clause

Indemnified clause is included to indemnify, hold harmless and defend the parties to the agreement from and against any and all loss and/or damages. The situation where the indemnity clause is applicable will be clearly defined. For a fair agreement it is important to assess that indemnity clauses adequately indemnify both the parties.

Dispute Resolution

The dispute resolution process will be clearly laid out in the agreement with the appointment of authorities to resolve the dispute. The arbitration process will also be clearly defined in case the dispute is not resolved in the given period.

Power Purchase Agreements – Details (12/12)

Other conditions to be agreed in PPA

- Technical specifications and standards agreed to be provided by seller/ RESCO shall be clearly laid down in the agreement
- Grid Interconnection if applicable shall be done following the applicable regulations and codes
- All approvals, permits, safety requirements shall be clearly laid down for the project

Assessment of Risks

Risk during construction & mitigations

- Delay in gaining access rights to the site
- Delay due to limited access
- Procedures and application formats for grid interconnection not clearly developed by local DISCOM
- Appropriate timelines not defined for various approvals from the utility for the interconnection
- Delay to the project due to non-availability of approvals
- Risk in procurement of system components
- Absence of access to adequate bridge financing to cover for delays in approvals/ disbursements
- Unclear definitions of Commercial Operations Date and commissioning procedures

Risk during operation & mitigations

- Absence of deemed generation clause in RESCO mode PPA
- Absence of deemed generation clause to compensate loss due to new obstructions in future
- Inadequate Insurance cover
- Significant impact to loan repayment by damage to the plant
- Underperformance of the system as a risk to repayment of the loan
- Risk of additional charges being levied in future due to changes in policy/ regulation
- Delays in receipts

Summary

- Power Purchase Agreement – the most important document for RE project
- Land / rooftop lease / rental agreement important due to long life of the project
- Typical PPAs and Lease agreements being developed by various government agencies, lawyers and lenders
- Contractual obligation and validity most important concerns in India as innovative business models emerge
- Mix of innovative approach and regulated power sector

Thank you
