

## 5.6 Qualification requirements to be met by the bidders

- a. Technical Eligibility Criteria: Applicants must demonstrate experience in developing infrastructure sector projects within the past five (5) years. Specific details will be outlined in the Request for Proposal (RfS), including:
  - Minimum Aggregate Capital Expenditure: The total capital expenditure for all qualifying infrastructure projects undertaken in the last five (5) years must meet a threshold specified in the RfS.
  - Minimum Capital Expenditure per Project: Each qualifying infrastructure project must have a minimum capital expenditure as defined in the RfS.
- b. Financial Eligibility Criteria:
  - ii. *Net-worth/Assets under Management (AUM) or Investible Funds: Net-worth equivalent of at least 20% of the estimated capital cost of the contracted capacity of the PSP for the financial year in which bids are issued. The estimated capital cost will be determined by the Bidding Agency.*

## 6.1 Technical Requirements in Bid Documents

- a. The procurer shall specify the following while defining the technical requirements for PSP:
  - i. Power capacity in MW
  - ii. Energy capacity in MWh
  - iii. Pumping/ Generation duration in hours per day (Maximum number of Continuous and Non-Continuous hours in a day)
  - iv. Usage in cycles per day/month/quarter/year/entire contract period as applicable.
- b. The Procurer may choose to specify additional performance parameters also for bid evaluation as per its requirement:
  - i. Availability (%)
  - ii. Switchover time between generation and pumping mode and vice versa.
  - iii. Cycle Losses, if applicable
  - iv. Other performance parameters

The performance parameters will be evaluated based on operational data, considering either the entire project or the contracted capacity, as applicable.

## 7.2 Earnest Money Deposit (EMD)

- a EMD shall not be less than **2% (two percent)** of the estimated capital cost of the contracted capacity in MW for the new PSP for the year in which bids are invited or as per the upper limit stipulated by Ministry of Finance from time to time, whichever is lower.
- b EMD shall be released within 15 days of issue of LOA for other than selected bidder.

## 7.3 Performance Guarantee (PG)

- a PG shall not be less than **5% (five percent)** of the estimated capital cost of the contracted capacity in MW for the new PSP for the year in which bids are invited, or as per the upper limit stipulated by Ministry of Finance from time to time, whichever is lower.
- d **Timeline** 'D' = Sixty (60) days, 'M' = Six (6) months

# PART C: CONTRACT

## A. GENERAL CONDITIONS OF CONTRACT

### 1. Contract Award and Conclusion

- 1.1. The PPA shall be signed by the Procurer with the successful Bidder/ Project Company or the SPV as the case may be.

- 1.2. In case of involvement of an Intermediary Procurer, the Intermediary Procurer shall enter into a PPA with the Developer(s) and a PSA with the End Procurer (s). The PSA shall contain the relevant provisions of the PPA to enable back-to-back contracting of stored energy/storage capacity between the Developer and the Procurer. The PPA(s) should preferably be signed immediately after signing of the PSA(s). The Intermediary Procurer shall be entitled to charge a trading margin at 7 paise per unit of discharged energy or as specified by the Appropriate Commission, for composite tariff model and 1% of the capacity charges in (Rs/MW/month) or as specified by the Appropriate Commission, for Tolling tariff model, from the Procurer for purchase and sale of storage capacity or stored energy.
- 1.3. The power procurement for Distribution licensees in some States is centralized through a holding company or a government agency. Such companies/ agencies will be considered as Procurer and not as Intermediary Procurer for the purposes of these Guidelines.
- 1.4. In case of delay in signing of PPA beyond a period of six (6) months from the date of issuance of LoAs, or any other extended date as mutually agreed between the Bidding Agency and the successful bidders not exceeding 12 months, the awarded capacity shall stand cancelled. In certain cases, after the above deadline, if the cumulative capacity eligible for signing of PPAs is lower than the cumulative capacity awarded under the tender, further course of action to be decided by the Bidding Agency will be clearly specified in the Bid document.
- 1.5. To ensure transparency, the Procurer shall, after the execution of the PPA, publicly disclose the name(s) of the successful bidder(s) and the tariff/ charges quoted by them together with breakup into components, if any. The public disclosure shall be made by posting the requisite details on the website of the Procurer for at least thirty (30) days.
- 1.6. The Procurer or the Intermediary Procurer shall approach the Appropriate Commission for adoption of tariff under section 63 of the Act within thirty (30) days of issue of LoA.
- 1.7. The tariff shall be adopted by the Appropriate Commission within sixty (60) days of the application date. If the Appropriate Commission fails to decide within sixty (60) days of the application date, the Procurer(s) shall grant an extension of time in Scheduled Commencement of Supply Date (SCSD) and Financial Closure (FC) Date to the Developer. This extension should correspond to the time taken by the Appropriate Commission in adoption of tariff beyond sixty (60) days of application date.
- 1.8. The PPA shall include standard provisions, including but not limited to the following, which, unless otherwise specified, will be mirrored in the PSA.

## 2. Term

The term of the PPA will be determined by the Procurer based on the intended use of the plant, and this will be explicitly specified in the RfS document. Following the expiry of the PPA period, the Developer will be free to continue operating the Project. It is important to note that when the Project site is designated by the Procurer, the Procurer's responsibility for land arrangements shall be limited to the PPA period.

## 3. Performance Parameters

Performance parameters and other conditions shall be as specified in the **Special Conditions of Contract**

## 4. Liquidated Damages

- 4.1. The Liquidated Damages on account of shortfall in meeting performance criteria, specified in the Bidding Documents, PPA, or PSA, should be genuine and a reasonable estimate of potential damages for the Procurer/ Intermediary Procurer(s).
- 4.2. Any shortfall in availability of capacity below the committed capacity shall incur charges on a pro-rata basis at the capacity rate or at a predetermined number specified in the RfS.
- 4.3. Predefined Liquidated Damages for deviations related to ancillary services parameters, as specified in the RfS, will be imposed.
- 4.4. Any other Liquidated Damages specified in the **Special Conditions of Contract** and RfS Document.

## 5. Terms of procurement

- 5.1. The penalty for non-performance shall be as specified in the RfS. The scheduling and its punching thereof at different Regional Load Despatch Centres (RLDCs) / State Load Despatch Centres (SLDCs) (including the injecting, intervening and buyer SLDCs / RLDCs) shall be the responsibility of Developer.
- 5.2. Additional terms will be as specified in the **Special Conditions of Contract**

**6. Deviation Settlement Mechanism (DSM)**

For deviations from schedule, the DSM (Deviation Settlement Mechanism) shall be applicable as per the prevailing regulations. The DSM charges at the Project end shall be settled by the Developer.

**7. Financial Closure (FC)**

The following provisions shall be applicable only in case of new Projects to be commissioned by the Developers.

- a. The Developer must achieve Financial Closure (FC) within the period specified in the **Special Conditions of Contract** from the Effective Date of PPA. However, if there is a need to modify this period for any reason, the Procurer has the authority to do so.
- b. In case of a delay in achieving Financial Closure, the Procurer/ Intermediary Procurer will encash the PG, unless the delay is due to allotment of land by the Government, delay caused by Government (not attributed to the Developer), or due to Force Majeure. The Procurer may consider an extension for Financial Closure upon the Developer's request, subject to payment of extension charges specified in the **Special Conditions of Contract**. This extension will not affect the SCSD. Any extension charges paid will be refunded without interest upon successful commissioning within the SCSD. Any non-refunded penalties or extension charges shall go to the Procurer.

**8. Transmission Connectivity**

- 8.1. The responsibility of obtaining Transmission Connectivity to ISTS network under GNA regulation or to the InSTS network will lie with the Developer and shall be at the cost of Developer.
- 8.2. The Developer within '**D**' days of issuance of the LoA shall apply for Connectivity/GNA/Open Access to the CTU/STU Grid (as required) for technical feasibility of Connectivity/Open Access of the plant to InSTS/ISTS substation. The value of '**D**' is specified in the **Special Conditions of Contract**.
- 8.3. The End Procurer shall be liable for Inter-state/ Intra-State transmission charges and losses beyond the Delivery Point under the Applicable Laws. Inter-State/ Intra-State Transmission Charges and losses up to the Delivery Point shall be borne by the Developer.
- 8.4. The energy supplied to the Procurer shall be measured at the Metering Point or any additional point(s) as specified in the Bidding Document. The Metering Point shall be the low voltage bus bar of the InSTS/ ISTS substation at which power is injected in the transmission system of STU/CTU.
- 8.5. Unless otherwise provided, the transmission of power up to the point of interconnection where metering is done for energy accounting shall be the responsibility of Developer and at its own cost. Additional conditions shall be as specified in the **Special Conditions of Contract**.

**9. Commencement of Supply**

- 9.1. The PPA between the Developer and Procurer/Intermediary procurer shall clearly indicate the SCSD and quantum of capacity.
- 9.2. The projects shall generally commence services, within a period specified in the **Special Conditions of Contract**. However, if for some reason, the SCSD period needs to be kept longer/ shorter than that provided in these Guidelines, the Procurer can do the same.
- 9.3. **Early Commencement.** The Developer shall be permitted commencement of Supply corresponding to full as well as part contracted capacity, even prior to the SCSD. The Developer shall give at least '**D**' days (as specified in the **Special Conditions of Contract**) advance notice to both the End Procurer(s) and Intermediary Procurer regarding the advance commissioning of full or part contracted capacity. The End Procurer(s) and Intermediary Procurer shall give acceptance for availing such storage capacity or stored energy within '**D**' days from the date of service of notice. In case both the End Procurer(s) and Intermediary Procurer do not give their acceptance within the stipulated period, the developer can sell the stored energy/storage capacity to the extent not accepted by the End Procurer(s) and Intermediary Procurer in the power exchanges or through bilateral arrangements. In case both the End Procurer(s) and Intermediary Procurer give their acceptance, the End Procurer(s) will be accorded priority in availing the Supply.
- 9.4. **Part Commencement of Supply.** In case of part commencement of the contracted capacity, the minimum capacity for the acceptance shall be as specified in **Special Conditions of Contract**. However, penalties, as per the PPA, may apply to the non-commissioned part. Despite part or full commencement dates, the SCSD remains unchanged. The PPA remains in force for the entire term, starting from the SCSD.

**9.5. Early and Part Commencement of Supply.** In case of early and part commencement, the tariff payable by the End Procurer(s) and Intermediary Procurer shall be equal to the PPA tariff. Other conditions for early and part commencement shall be as specified in **Special Conditions of Contract**.

**9.6. Delay in Commencement of Supply** beyond the SCSD shall involve penalties on the Developer, as detailed below:

- a. For Delay in Commencement of Supply up to 6 (six) months from SCSD, encashment of Performance Guarantee (PG), on per day basis and proportionate to the contracted capacity that has not commenced Supply.
- b. For Delay in Commencement of Supply beyond six months from SCSD, the contracted storage capacity shall stand reduced to the project capacity that has commenced Supply within the period of SCSD plus 6 (six) months. The PPA for the balance contracted capacity that has not commenced Supply shall stand terminated.

**9.7. Delay in Commencement of Supply on account of delay in Connectivity/Grid Access Operationalisation**

Delays in granting or operationalizing Grid Access by CTU/STU, or in the readiness of the ISTS/InSTS substation at the Delivery Point/Injection Point, including the power evacuation and transmission infrastructure of the ISTS/InSTS network until the SCSD, are considered as delays beyond the Developer's control, if the following conditions are met:

- a. The Developer has completed all application formalities as per the Connectivity Procedure.
- b. The Developer has adhered to the relevant procedure notified by the Appropriate Commission/CTU/STU.
- c. The delay is caused by STU/CTU/transmission licensee and is beyond the Developer's control.

The SCSD for such projects will be adjusted to a date thirty (30) days after the readiness of the Delivery Point and power evacuation infrastructure and/or the operationalization of the Grid Access. The decision regarding the necessary extension due to the above-mentioned factors will be made by the Procurer/Intermediary Procurer.

**10. Compensation for Offtake Constraints**

Compensation for Offtake Constraints due to transmission unavailability and grid security shall be as specified in the **Special Conditions of Contract**.

**11. Payment Security Mechanism**

**11.1.** In case the End Procurers are Distribution Licensees where the tariff is determined or adopted by the Appropriate Commission, adequate payment security shall be provided as per Electricity (Late Payment Surcharge and Related Matters) Rules, 2022 including amendments and clarifications issued from time to time.

**11.2.** If the Supply is meant for sale through power markets, the shortfall/surplus in revenue shall be treated as per the relevant Guidelines/orders issued by the Central Government and regulated by the Central Commission.

**12. Force Majeure**

**12.1.** The PPA shall contain provisions with regard to force majeure definitions, exclusions, applicability, and available relief on account of force majeure, as per the industry standards.

**12.2.** The Developer shall intimate the Procurer about the occurrence of force majeure within 15 (fifteen) days of the start of the force majeure and the Procurer shall respond on his claim within 15 days of the receipt of the intimation.

**13. Event of Default and Consequences Thereof**

While detailed provisions with regard to the event of default of the concerned parties and its resulting consequences shall be given in the PPA/PSA, the broad principles of contractually dealing with the default of the Developer and the Procurers (excluding the Intermediary Procurer) shall be as follows.

- a. For delay in commencement of Supply beyond SCSD, the Developer event of default shall have been construed to have occurred and consequences shall be in accordance with these Guidelines.

- b. In the event the Developer fails to maintain the minimum performance requirement continuously for a period specified in the RfS, the Developer shall be in default and the PPA shall be liable to be terminated. Further, the Developer shall be liable to pay to the Procurer, damages, equivalent to '**M' months** (as specified in **Special Conditions of Contract**), or balance PPA period whichever is less, of tariff for its contracted capacity.
- c. In the event the Developer assigns or novates any of its rights or obligations contrary to the terms of the PPA, or repudiates the PPA, or commits any other acts or omissions as laid down in the PPA and is also unable to cure any of the aforesaid within the cure period, as may be provided in the PPA, the Developer shall pay to the Procurer, damages, equivalent to '**M' months** (as specified in **Special Conditions of Contract**), or balance PPA period whichever is less, of tariff for its contracted capacity. The Procurer shall have the right to recover the said damages by way of forfeiture of Performance Guarantee, if any, without prejudice to resorting to any other legal course or remedy.
- d. In addition to the levy of damages as aforesaid, in the event of a default by the Developer, the lenders shall be entitled to exercise their rights of substitution, in accordance with the substitution provisions provided in the PPA and in concurrence with the Procurers. However, in the event the lenders are unable to substitute the defaulting Developer within the stipulated period, the Procurer may terminate the PPA.
- e. If the Procurer/Intermediary procurer is in default on account of reasons including inter alia failure in timely payment of the dues, in accordance with the RfS or repudiation of the PPA, the Developer may terminate the PPA at its discretion. The defaulting Procurer shall pay to the Developer, damages, equivalent to '**M' months** (as specified in the **Special Conditions of Contract**), or balance PPA period whichever is less, of charges for its contracted capacity.
- f. If the Developer agrees to Supply all or part of the Contracted Capacity of the Procurer from an alternate source during the period between the SCSD and ACSD, and on the terms specified in the PPA, the Damages payable under this Clause will be proportionally reduced based on the extent of such Supply vis-à-vis the Contracted Capacity. If the Project is not completed and the ACSD does not occur within 180 days from the SCSD, and unless the delay is on account of Force Majeure or attributable to the Procurer, the Procurer may terminate the PPA at its discretion.

#### 14. Change in Law

The provisions for Change in law shall be specified in the RfS and PPA, in accordance with the Electricity (Timely Recovery of Costs due to Change in Law) Rules, 2021. Further, the term Change in Law ("CIL") shall refer to the occurrence of any event related to the project from seven (7) days prior to the last date of Bid Submission.

#### 15. Minimum Paid-up Share Capital/ Shareholding to be held by the Promoter

- 15.1. The successful bidder, if being a single company, shall ensure that its shareholding in the SPV/ project company executing the PPA shall not fall below 51% (fifty-one percent) at any time prior to the ACSD. In the event the successful bidder is a consortium, then the combined shareholding of the consortium members in the SPV/ project company executing the PPA, shall not fall below 51% at any time prior to the ACSD. Further, in case the Project is executed by the successful bidder itself, it shall ensure that the controlling shareholding of the bidding company/consortium remains unchanged until the ACSD. The successful bidder shall provide the information about its shareholding to the Procurer before signing of the PPA with Procurer.
- 15.2. Any change in the shareholding after the ACSD can be undertaken under intimation to the Procurer.
- 15.3. In the event, the Developer is in default to the lender(s), the lenders shall be entitled to undertake "Substitution of Promoter" in consultation with the Procurers.

#### 16. Construction and Performance Monitoring

- 16.1. All grid-connected projects, covered under these Guidelines, must install necessary equipment to continuously record the Project's performance. The Developer shall be required to submit this data to Authorities/Agencies as specified in the RfS Document in online/electronic mode for the entire duration of PPA. In this regard, they shall also mandatorily grant access to the Procurer and Ministry of Power/ Central Electricity Authority or any other agency designated by Appropriate Government, to the remote monitoring portal of the power plants on a 24×7 basis. Geo-tagging of the Projects shall be mandatory.
- 16.2. When a Project Site is identified by the Developer then the Developer shall be responsible for obtaining all the clearances and the Procurer shall not be responsible for delay in obtaining such clearances. The Developer should ensure that various preparatory and implementation activities are completed as per the timelines stipulated in the RfS to ensure timely commencement of Supply.

**17. Role of State Nodal Agencies and Other Facilitators**

The State Nodal Agencies appointed by respective State Governments will provide necessary support to facilitate the required approvals and sanctions in a time bound manner to achieve commissioning of the Projects within the scheduled timeline. This may include facilitation in the following areas:

- a. Co-ordination among various State and Central agencies for speedy implementation of Projects.
- b. Support during commissioning of Projects.

**18. Dispute Resolution Mechanism**

- 18.1. Any dispute related to tariff or the matters dealt under provisions of Section 79 and Section 86 of the Electricity Act, 2003 shall be adjudicated by the Appropriate Commission. All other disputes shall be resolved by the Dispute Resolution Committee set up by the Appropriate Government and if the Committee fails to resolve the dispute, it shall be resolved through arbitration under the Indian Arbitration and Conciliation Act, 1996.
- 18.2. The Dispute Resolution Committee will be an additional forum beyond the provisions of the law and can be used by the relevant parties at their option.

**B. SPECIAL CONDITIONS OF CONTRACT**

*The clauses in the Special Conditions correspond to and must be read in conjunction with the clauses in the General Conditions within the respective part of the document.*

**3. Performance Parameters**

- a. The performance parameters of the Project specified in the bidding documents, which may include availability, charging/discharging rate, efficiency, ramp rate, cycling losses, capacity degradation, and daily/monthly cycles, shall be clearly articulated in the PPA. Where availability is a performance criterion, the PPA should specify the minimum level at which the Developer must maintain the PSP Capacity. Depending on the PSP's intended usage, the Developer may need to meet monthly and/or annual availability requirements or declare availability on a day-ahead basis. The Procurer may specify specific hours and performance parameters, restricting the minimum availability criteria to specified hours or peak hours, with any shortfalls calculated accordingly.
- b. When the contract is for storage, the energy shall be procured independently by the End Procurer and stored in the provided capacity. The Developer will return the stored energy, accounting for predetermined conversion losses. The End Procurer is obligated to pay the storage charge for the provided capacity, whether or not the capacity is fully utilized.

**4.4. Additional Liquidated damages for performance shortfalls**

The Developer shall bear the cost of energy loss exceeding the guaranteed parameter (specified in the RfS Document) at the tariff of input energy provided by the procurer or any number specified in the RfS.

**5.2 Additional Terms of Procurement**

- a. For any deficiency in available capacity/energy, the PPA shall have appropriate provisions for liquidated damages. The amount of such penalty will be equal to one and a half times of the PPA tariff for the shortfall in storage capacity/ energy, in accordance with the terms of the PPA.
- b. In case, the availability of energy is more than the maximum specified annual contracted stored energy, the Developer will be free to sell it to any other entity without providing the first right of refusal to the Procurer(s).
- c. The Developer may also sell un-requisitioned capacity/energy to any third party or power exchange without requiring NOC from the Procurer(s).

**7. Financial Closure**

- a. Financial Closure period will be within **12 months**.

- b.** Extension charges will be **Rs. 1,000 per MW** of contracted capacity per day of delay in SCSD.

## **8. Transmission Connectivity**

- 8.2** Connectivity/GNA/Open Access to the CTU/STU Grid to be applied with 'D' = Sixty (60) days of issue of LoA.

### **8.5. Transmission Connectivity additional conditions**

In case of procurement of storage capacity, the responsibility of supplying charging energy to the contracted PSP capacity at the Metering Point as well as transmission of discharged energy from contracted PSP capacity beyond the Metering Point shall be that of the End Procurer.

## **9. Commencement of Supply**

### **9.2 Commencement of Storage Schedule**

- (i) Projects shall generally commence within a period of:

Sl. No.	Procurement Mode Type	Type of PSP	SCSD (Months) after Effective Date of PPA
1.	Mode 1	Off-river	48 months
		On-river	66 months
2.	Mode 2	-	As per the requirement of procurer

### **9.3 Early Commencement**

Notice period will be at least 'D' = Fifteen (15) days

### **9.4 Minimum part capacity for commissioning**

The minimum capacity of first part for part commissioning shall be 50% of Project Capacity or 50 MW, whichever is lower.

### **9.5. Early and Part Commissioning**

In capacity procurement contracts, if the project is partially commissioned, payments according to the PPA may be made on pro-rata basis, proportionate to the commissioned capacity. The decision to procure the part-commissioned capacity lies solely with the Procurer/Intermediary Procurer. If they choose not to consider procurement until full commissioning, the part-commissioned capacity can be sold in the open market until the SCSD.

## **10. Compensation for off-take constraints**

The Procurer may be constrained to off-take the energy storage capacity offered/ power scheduled by the Developer on account of transmission constraints and grid security and in such case, the applicable Compensation for reduced off-take shall be as under:

- a. In case of procurement being on Tolling Tariff Model:** Period of reduced off-take to be considered as deemed available for payment to Developer if the annual availability is less than normative annual availability specified in RfS. The total availability after such adjustment shall not be higher than normative availability.
- b. In case of procurement being on Composite Tariff Model:** If the annual energy supplied falls below the contracted amount specified in the Request for Selection (RfS), the following provision shall apply:
  - (i). Payment Adjustment:** - The Procurer for the reduced energy will pay at a rate stipulated in the RfS but not exceeding 60% of the composite tariff in the Power Purchase Agreement (PPA).

## **13. Event of Default and Consequences Thereof**

- b** Damages equivalent to 'M' = 24 (Twenty-Four) months
- c** Damages equivalent to 'M' = 24 (Twenty-Four) months
- e** Damages equivalent to 'M' = 24 (Twenty-Four) months

## Appendix-I

**Technical Parameters of PSP, PSP Characterization and Performance Parameters**

- I.** For **Mode 1 Procurement**, the Procurer shall submit the Pre-Feasibility Report (PFR) and Detailed Project Report (DPR) of the project along with the RfS, which shall also specify the status of requisite clearances and approvals, including those already obtained or applied for by the Procurer. However, for **Mode 2 Procurement**, relevant information may be specified in the tender.
- II.** A tentative format for the PFR is provided below. The table below is not exhaustive, and the Procurer may add additional information as needed.
- III.** General Technical particulars for PSP shall be as under (applicable for Mode-I only):

S. No.	Parameter	Unit
1	Type of Power plant (Underground/Surface)	
2	Type of PSP	
3	Capacity of the plant	MW
4	Duration of storage	Hours
5	Number of Generation Cycles (per Day)	
6	Number of Pumping Cycles (per Day)	
7	Number of units	
8	Unit Capacity (Turbine/Pump)	MW
9	Maximum Head (Turbine)	Meter
10	Rated Head (Turbine)	Meter
11	Minimum Head (Turbine)	Meter
12	Maximum Head (Pump)	Meter
13	Rated Head (Pump)	Meter
14	Minimum Head (Pump)	Meter
15	Elevation & dimensions of upper dam	Meter
16	Elevation & dimensions of lower dam	Meter
17	Maximum head(upper/lower)	Meter
18	Minimum head (upper/lower)	Meter
19	Suction Head	Meter
20	Proposed Speed	RPM
21	Upper reservoir capacity	MCM
22	Lower reservoir capacity	MCM
23	Live storage capacity (Upper/Lower Reservoir)	MCM
24	Unit Discharge	Cubic Meter/ Second
25	Length of water conductor system	Meter
26	Centre line of unit	Meter
27	Planned Unit spacing	Meter
28	Planned Elevation of machine floor	Meter
29	Generator barrel diameter	Meter
30	Planned Size of powerhouse (L X W X H)	MxMxM
31	Planned Size of Transformer Cavern/Hall (L X W X H)	MxMxM
32	Planned Switchyard Type (AIS/GIS)	
33	Planned Maximum possible transportation dimensions of any E&M equipment	MxMxM
34	Planned Max possible weight of any E&M equipment	Kg
35	Planned Size of Switchyard (L X W)	MxM
36	Transmission Voltage	kV
37	Proposed Nearest Pooling Station	
38	Proposed Location/Locations of Pumping Energy Source	

**IV. Technical features and performance of PSP Machine**

Features	Requirements
Efficiency	Pump Turbine eff. >90.5% Motor Generator eff. >98%
Cycle efficiency*	>75%

Fast transition between operating modes	~7 - 15 min
Power factor	
Controllable reactive power	Yes
Grid oscillation damping (PSS)	Yes
Inertia	Yes
Fast transition in turbine power (min.-Full load) / (Full – min. load)	<60s. Limited by hydraulic transient.
Synchronous Condenser Mode	Yes

*\*Procurer may specify any higher efficiency not exceeding 80%.*

#### V. Codes & Standards

1. Material and equipment pertaining to construction and machine shall conform to relevant IS codes and international codes.
2. Field and laboratory testing, and procedures for material shall conform to relevant IS codes and international codes.

#### VI. Design & Safety

1. These projects shall have simpler design with minimum requirement of River Diversion works, Desilting & Silt Flushing arrangements, Surge Chambers and very small water conductor systems.
2. Location of project shall have minimal environmental issues such as, Fisheries, Environmental Flows and CAT Plans including R&R.

**Note:** *Bidding Agency may modify these specifications based on specific requirements considering applicable Guidelines, Standards, etc. issued by CEA or any other Govt. Agency.*

HEMANT KUMAR PANDEY, Chief Engineer