

**Arulmigu Kandaswamy Temple, Thiruporur****Tender Notice No: 1/1424- date 07.08.2014**

Sealed Bids in Two Envelope system are invited by The Executive Officer of the respective temples at their office up to **3.00 P.M on 27.08.2014** from the Registered reputed firms who have requisite knowledge & experience for the works detailed below. The tenders will be opened by the above said officers at their office **at 4.00 P.M** on the same day in the presence of the Bidders or their agent who choose to be present.

Si .No	Name of work	Value of work in lakhs	Period of contract	Earnest money deposit	Cost of tender document	VAT	Date of availability of Bid documents	Last date for receipts of Bid	Time&Date of opening of Bid
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1.	Supply , installation , commissioning &5 years Comprehensive Maintenance of Grid Interactive 10 KWp SPV power plant without battery at Arulmigu Kandaswamy Temple , Thiruporur –603110	13.50	3 Months	Rs.13,500/	Rs.6,000/	Rs.300/-	07.08.2014 - 26.08.2014	Upto 3.00 PM on 27.08.2014	4.00PM on 27.08.14

## Grid Interactive SPV power Plant

Tender schedule for the above works can be down loaded at free of cost from the web site [www.tenders.tnhrce.org](http://www.tenders.tnhrce.org) ,[www.thiruporurmurugantemple.tnhrce.in](http://www.thiruporurmurugantemple.tnhrce.in) [www.tenders.tn.gov.in](http://www.tenders.tn.gov.in) or can be purchased after remitting Tender schedule cost temple treasury and VAT to be remitted to Government Treasury under the head of account 0040 – 00102AE – 0104. A Pre-bid meeting shall be held at the office of the Executive Officer, Arulmigu Ekambaranathar Thirukoil, Kanchipuram town,taluk and dist.. on **17.08.2014 at 11.00 hrs.** for clarification of doubt/s, if any, regarding the scope of the works, conditions of contract or any other matter relating to the Project. For this reason, queries, if any, must be sent to the Executive Officer, Arulmigu Ekambaranathar Thirukoil, Kanchipuram town, taluk and dist.. at least three days prior to the scheduled date for the Pre-bid meeting. All other details of the works and any information can be had from the respective offices on any working day during working hours.

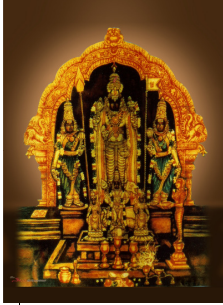
Fit Person

Arulmigu Kandaswamy Temple,  
Thiruporur- 603110.

Executive officer

Arulmigu Kandaswamy Temple,  
Thiruporur - 603110.

**BID DOCUMENTS**



**ARULMIGU KANDASWAMY THIRUKOIL  
THIRUPORUR, KANCHIPURAM (DIST)**

**Tender for Supply, installation, commissioning &  
5 years comprehensive maintenance of Grid Interactive 10KWp  
SPV Power plant without Battery at**

**Arulmigu Kandaswamy Thirukoil,  
at Thiruporur**

**Tender Reference: 1/1424- date 07.08.2014**

**Issued To:**

**CONTENT OF THE BID DOCUMENT**

<b>Section -A</b>	<b>Tender Eligibility &amp; Instructions</b>
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ACRONYMS		
Sl.No	Parameter	Details
1.	AC	Alternating Current
2.	BIS	Bureau of Indian Standard
3.	BOS	Balance Of System
4.	CDM	Clean Development Mechanism
5.	DC	Direct Current
6.	DOD	Depth Of Discharge
7.	IEC	International Electro technical Commission
8.	IGBT	Insulated Gate Bipolar Transistor
9.	LT	Low Tension
10.	MCB	Miniature Circuit Breaker
11.	MCCB	Moulded Case Circuit Breaker
12.	MOV	Metal Oxide Varistor
13.	MPPT	Maximum Power Point Tracking
14.	NABL	National Accreditation Board for testing and calibration Laboratories
15.	PCU	Power Conditioning Unit
16.	PSC	Pre Stressed Concrete
17.	PVC	Poly Vinyl Chloride
18.	PWM	Pulse Width Modulation
19.	RFID	Radio Frequency Identification
20.	SPV	Solar Photo Voltaic
21.	SS	Stainless Steel
22.	STC	Standard Testing Conditions
23.	TANGEDCO	Tamil Nadu Generation and Distribution Corporation Limited
24.	AKST	Arulmigu Kandaswamy Thirukoil
25.	THD	Total Harmonic Distortion
26.	SADP	Special Area Development Programme
27.	EO	Executive officer

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### Short Titles used in the Tender Document

1.	<b>Bidder</b>	Bidder means the party who makes a formal offer in pursuance of the Tender floated
2.	<b>Successful Bidder</b>	Successful Bidder means the Bidder who becomes successful through the Tender process.
3.	<b>Day</b>	A day means a calendar day
4.	<b>Cost</b>	Cost means the total cost to be incurred towards the supply, installation, commissioning, testing and 5 year comprehensive maintenance of SPV systems
5.	<b>Purchaser</b>	Purchaser means the <b>AKST</b> for whom the procurement is made through this Tender.
6.	<b>AKST</b>	Arulmigu KandaSwamy Thirukoil
7.	<b>Commissioning</b>	Commissioning means the energisation of SPV systems and the functioning has to be tested.
8.	<b>End user</b>	End user means the Authorised persons of Arulmigu Kandaswamy Thirukoil, Thiruporur

### **Applicability of Tamil Nadu Transparency in Tenders Act 1998**

This Tender process will be governed by The Tamil Nadu Transparency in Tenders Act 1998 and The Tamil Nadu Transparency in Tenders Rules, 2000 (<http://www.tn.gov.in/gorders/fin446-e.htm>) as amended from time to time.

### **Checklist for Enclosures**

**(Bidder should fill up YES or NO without fail)**

#	<b>Bid Enclosures</b>	<b>YES or NO</b>
1.	Whether the Tender is submitted in <b>Two covers Technical Bid and Price Bid?</b>	
2.	Whether Two covers along with EMD cover are put into an outer cover?	
3.	<b>Whether Technical Bid (Envelope- A) contains the following</b>	
3.1	Bidder's undertaking covering letter in the Letter Head shall be signed by the authority, stamped and submitted.	

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3.2	Signed and stamped Letter of Authorisation or Power of Attorney for signing the Tender document shall be submitted.	
3.3	Bidder's undertaking in the Letter Head for minimum quantity offered shall be signed and stamped and submitted.	
3.4	All pages of the blank Tender document in full shall be signed by the authority, stamped and submitted	
3.5	Earnest Money Deposit (EMD) amount as specified in the Tender shall be submitted	
<b>#</b>	<b>Bid Enclosures</b>	<b>YES orNO</b>
3.6	Filled up Technical Bid shall be signed by the authority, stamped and submitted	
3.7	All supporting documents for proving the Eligibility Criteria shall be signed by the authority and stamped in all pages	
<b>3.8</b>	<b>Supporting documents to meet the Eligibility Criteria</b>	<b>YES orNO</b>
	a) All the supporting documents to meet the Eligibility Criteria as laid down in the Tender under Eligibility Criteria shall be signed by the authority and stamped	
	b) Bidder's Certificate of Incorporation or Registration	
	c) Annual Report including Balance Sheet and Profit & Loss accounts for the past one year should be submitted.	
	g) Clientele list for the SPV power plants installed	
	i) Bidder's undertaking letter to meet the Blacklisting criteria shall be submitted	
3.9	Following Test Certificates & Reports as per clause 15	
	<b>i. SPV Modules</b>	
	<b>a) IEC 61215 / IS 14286 for Crystalline Modules</b>	
	<b>b) IEC 61730 Part 1 &amp; 2</b>	
	<b>c) IEC 61701</b>	
	<b>d) STC performance certificate</b>	
	<b>ii. Balance of System (for PV Power Plants)</b>	
	a) Power Conditioners / Inverters – IEC 61683 & IEC 60083-2(1,2,14,30),IEC62116,IEC 62109/Equivalent standards	
	b) Cables- IEC 60189, IS 694/ IS 1554 & IS/IEC 69947or Equivalent IS standard	
	c) Switches / Circuit Breakers/ Connectors – IS/IEC 60947 part I,II,III & EN 50521	
	d) Junction Boxes / Enclosures of Inverters - IP 65 & IEC 62208	

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<b>4.</b>	<b>Whether Price Bid (Envelope-B) contains the following</b>	
	a) Filled Price Bid with signature and stamp in all pages shall be submitted	
	b) Whether corrections or overwriting if any is attested?	

### **IMPORTANT NOTE:**

Bidders must ensure that they submit all the required documents indicated in the Tender document without fail. Bids received without supporting documents for the various requirements mentioned in the tender document or test certificate are liable to be rejected at the initial stage itself. The data sheet for the critical components should be submitted by the Bidder for the scrutiny.

## Grid Interactive SPV power Plant

### SECTION –A

#### TENDER ELIGIBILITY AND INSTRUCTIONS

##### 1.Introduction

Tender for Supply, installation, commissioning & 5years comprehensive maintenance of Grid Interactive SPV Power plant without Battery for a capacity of 10KWp at Arulmigu Kandaswamy Temple, Thiruporur.

Sl.No.	Details of work	Location	Capacity
	Supply, installation Commissioning and five years comprehensive maintenance of Grid Interactive SPV power plant of 10KWp without battery	Arulmigu Kandaswamy Temple,Thiruporur.	10KWp

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<b>2. Tender Data Sheet</b>		
<b>1.</b>	Tender inviting Authority, Designation and Address	The Executive Officer ,Arulmigu Kandaswamy Temple, Thiruporur - 603110.
<b>2.</b>	a) Name of the Work	Tender for Supply, installation, commissioning & 5years comprehensive maintenance of Grid Interactive SPV Power plant without Battery for a capacity of 10 K W p @ Arulmigu Kandaswamy Temple, Thiruporur - 603110.
	b) Tender Reference	<b>1/1424- date 07.08.2014</b>
	c) Place of execution	Arulmigu Kandaswamy Temple, Thiruporur - 603110.
<b>3.</b>	a) Tender documents available place and due date for obtaining tender	On all working days between 11.00 A.M. and 5.00 P.M. from 07.08.2014 to 26.08.2014 from the Address mentioned in column (1) above. Alternatively, Tender documents can be downloaded free of cost from <a href="http://www.tenders.tn.gov.in">www.tenders.tn.gov.in</a>
	b) Cost of Tender Document	Rs.6000 /= per+5%Vat Tender Document for direct purchase from AKST. The Tender document fee is waived for the downloaded Tender Document.
<b>4.</b>	Earnest Money Deposit (EMD)	RS.13,500/=EMD has to be paid by way of Demand Draft or Banker's Cheque drawn in favour of the Executive Officer, AKST, Thiruporur only
<b>5</b>	Pre –Bid meeting date and place	On 17.08.2014 @ Office of The Executive officer, Arulmigu Ekambaranathar Temple, Kanchipuram
<b>6.</b>	Due Date, Time and Place of submission of Tender	Up to 27.08 .2014at 3.00 P.M. @ the address mentioned in column (1) above
<b>7.</b>	Date, Time and Place of Tender opening	On 27.08.2014 at 4.00 P.M. @ the address mentioned in column (1) above
<b>8.</b>	Date, Time and Place of opening of Price Bids	Will be intimated only to the bidders qualified in Techno commercial bid.

### 3. Tender Cost and EMD

#### 3.1 Cost of Bidding

The Bidders should bear all costs associated with the preparation and submission of Bids. AKST will in no way be responsible or liable for these charges/costs incurred regardless of the conduct or outcome of the bidding process.

#### 3.2 Tender Document Fee

- a) The Tender documents may also be purchased from the office of AKST on payment of fees in Indian Rupees as mentioned in the Tender Data sheet. The Tender document is not transferable to any other Bidder.
- b) The Tender document cost may be paid by way of Demand Draft / Banker's Cheque in favour of "The Executive Officer, Arulmigu Kandaswamy Temple, Thiruporur - 603110."
- c) Alternatively, the Tender document can be downloaded free of cost from the website mentioned in the Tender data sheet.

#### 3.3 Earnest Money Deposit (EMD)

- a) An EMD amount as specified in the Tender should be paid in Indian Rupees by way of Demand Draft or Banker's cheque only, from any of the Nationalized banks, drawn in favour of "The Executive Officer, Arulmigu Kandaswamy Temple, Thiruporur - 603110. payable at Thiruporur. EMD submitted in any other forms will be SUMMARILY REJECTED.
- b) The EMD shall be kept in the Techno Commercial Bid Cover.
- c) The EMD amount of the bidders not qualified in the Techno commercial bid will be refunded. The EMD amount of the bidders qualified in the techno commercial bid will be refunded after finalisation and signing of agreement with the successful bidder. The EMD amount held by AKST till it is refunded to the unsuccessful Bidders will not earn any interest thereof.

## Grid Interactive SPV power Plant

- d) The EMD amount paid by the Successful Bidder(s) will be adjusted towards Security Deposit payable by them. If the successful Bidder submits Security Deposit for the stipulated value in full in the form of DD/ by way of Bank Guarantee, the EMD will be refunded.
- e) The EMD amount will be forfeited by AKST, if the Bidder withdraws the bid during the period of its validity specified in the tender or if the successful Bidder fails to sign the contract or the successful Bidder fails to remit Security Deposit within the respective due dates.
- f) **The bids received without the specified EMD amount will be SUMMARILY REJECTED.**
- g) For the categories of Industries exempted from payment of Earnest Money Deposit see (Annexure I).

### 4. Tender Eligibility Criteria

The Bidder(s) should meet the following Eligibility Criteria to participate in the Tender and should enclose documentary proof for fulfilling the Eligibility in the Techno commercial Bid.

S.No	Minimum Eligibility Criteria	Proof to be submitted for fulfilling the Eligibility Criteria
1.	Bidder shall be a Registered Company or firm in existence for at least the past One audited year.	Certificate of Incorporation of the company or certificate of Registration of the firm shall be submitted.
2.	The Bidder shall use only SPV modules manufactured in India	Necessary Self undertaking letter shall be submitted
3.	Bidders should have a minimum turnover of total cost of system quoted by him/her, during the last three years (2010-11, 2011-12, 2012-13, 2013-2014)	a) Annual Report b) Balance Sheet & c) Profit & Loss accounts for any one audited years from 2009-10 shall be submitted towards meeting annual turnover criteria.
4.	Bidder should have installed SPV power plants of cumulative capacity not less than 25KWp	Copy of Work Orders along with proof for satisfactory completion of that work shall be submitted



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5.	The Bidder shall quote for entire quantity of 10Kwp.	Necessary under taking shall be enclosed in this regard.
6.	Various components of the SPV system shall conform to the MNRE standards as per clause "15".	Copy of test certificates along with reports for each component shall be submitted.
7.	Bidder should not be currently blacklisted by any of the State or Central Government or organisations of the State or Central Government as on date of submission of tender	Necessary Undertaking letter should be furnished.

### 5. Instructions to the Bidder

#### 5.1 General Instructions

1. a) It will be imperative for each Bidder(s) to familiarise himself/ themselves with the Prevailing legal situations for the execution of contract. AKST shall not entertain any request for clarification from the Bidder regarding such legal aspects of submission of the Bids
- b) It will be the responsibility of the Bidder that all factors have been investigated and considered while submitting the Bids and no claim whatsoever including those of financial adjustments to the contract awarded under this tender will be entertained by AKST. Neither any time schedule nor financial adjustments arising thereof shall be permitted on account of failure by the Bidder to apprise themselves.
- c) The Bidder shall be deemed to have satisfied him/herself fully before Bidding as to the correctness and sufficiency of its Bids for the contract and price quoted in the Bid to cover all obligations under this Tender.
- d) It must be clearly understood that the Terms and Conditions and specifications are intended to be strictly enforced. No escalation of cost in the Tender by the Bidder will be permitted throughout the period of Agreement or throughout the period of completion of contract whichever is later on account of any reasons whatsoever.

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- e) The Bidder shall make all arrangements as part of the contract for Supply, Installation, Commissioning, Testing and 5 year Comprehensive Maintenance of SPV power plants and train the personnel at their own cost.
  
- f) The Bidder should be fully and completely responsible to AKST and State Government for all the deliveries and deliverables. The bidder shall be responsible for the proper functioning of the finally erected systems.

### **5.2 Language of the Bids**

The bid prepared by the Bidder as well as all correspondence and documents relating to the bid shall be in **English** only. The supporting documents and printed literature furnished by the Bidder may be in any another language provided they are accompanied by an accurate translation in English duly notarised, in which case, for all purposes of the Bid, the translation shall govern. Bids received without such translation copy will be rejected.

### **5.3 Bid Currency**

Price should be quoted in Indian Rupees (INR) only and Payment shall be made in Indian Rupees only. Price quoted in any currency other than INR will be rejected.

### **5.4 Clarifications and Amendments**

- a) A prospective Bidder requiring any clarification in the Tender may address AKST by Registered post or by personal delivery under acknowledgement. No clarifications will be offered by AKST within 48 hrs prior to the time of opening of the Tender.
  
- b) Before the closing date of the Tender, clarifications and amendments, if any, will be notified in the government website mentioned in the Tender Data sheet. The Bidders should periodically check for the amendments or corrigendum or information in the website till the closing date of this Tender. AKST will make individual communication by email to only those bidders who have purchased the tender document from the office of AKST. AKST will not make any individual communication to others and will in no way be responsible for any ignorance pleaded by Bidders.

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- c) AKST is not responsible for any misinterpretation of the provisions of this tender document on account of the Bidders failure to update the Bid documents based on changes announced through individual communication/ website as the case may be.

### **5.5 Contacting Tender Inviting Authority**

- a) Bidders shall not make attempts to establish unsolicited and unauthorised contact with the Tender Inviting Authority or Tender Scrutiny Committee or Tender Accepting Authority after the opening of the Tender and prior to the notification of the Award and any attempt by any Bidder to bring to bear extraneous pressures on the Tender Inviting/Scrutiny/Accepting Authority may lead to disqualification of the Bidder.
- b) Notwithstanding anything mentioned above, the Tender Inviting/Scrutiny/Accepting Authority may seek bona-fide clarifications from Bidders relating to the tenders submitted by them during the evaluation of tenders.

### **5.6 Force Majeure**

Neither AKST nor the Successful Bidder shall be liable to the other for any delay or failure in the performance of their respective obligations due to causes or contingencies beyond their reasonable control such as:

- Natural phenomena including but not limited to earthquakes, floods and epidemics.
- Acts of any Government authority, domestic or foreign including but not limited to war declared or undeclared, priorities and quarantine restrictions.
- Accidents or disruptions including, but not limited to fire, explosions, breakdown of essential machinery or equipment.

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### 5.7 Arbitration

In case of any dispute, the matter will be referred to a sole Arbitrator to be appointed by the Commissioner, HR&CE Department, Chennai under the “Arbitration and Conciliation Act 1996”. The arbitration shall be held in Thiruporur (INDIA) and the language shall be English only. Subject to the above, the Courts at Chengalpetu, Kancheepuram Dist only shall have jurisdiction in the matter.

## SECTION – B

### BID SUBMISSION AND EVALUATION

## 6. Bid Preparation

Bidders should examine all Instructions, Terms and Conditions and Technical specifications as given in the Tender documents. Failure to furnish information required by the Bid or submission of Bids not substantially responsive or viable in every respect will be at the Bidders’ risk and may result in rejection of Bids. Bidders should strictly submit the Bid as specified in the Tender, failing which the bids will be held as non-responsive and will be rejected.

### 6.1 Letter of Authorisation

A letter of Authorisation from the Board of Directors or Managing Director or CEO of Bidder organisation authorising the Tender submitting authority should be submitted in the Techno commercial Bid. The Bids received without the Letter of Authorisation or Power of Attorney will be summarily rejected.

## 7. Bid Submission

The Bids should be submitted separately in two parts namely viz. **(1) Techno commercial Bid** and **(2) Price Bid**. The Techno commercial Bid and Price Bid shall be submitted in two separate covers. The Bids shall be addressed to “The Executive Officer, Arulmigu Kandaswamy Temple, Thiruporur - 603110”.  
Tamil Nadu, India.

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### 7.1. Techno Commercial Bid (Envelope – A )

- a) The Techno commercial Bid enables AKST to evaluate whether the Bidder is techno commercially competent and capable of executing the order. Only those Bids which qualify in the Techno commercial stage will be eligible for the Price bid opening. The Price Bid of Bidders who failed in the Techno commercial stage will not be opened.
- b) The Techno commercial Bid format as given in the Tender shall be filled, signed and stamped in all pages. AKST will not be responsible for the errors committed in the Bids by the Bidders.
- c) **The Techno commercial Bid should strictly not contain any Price indications or otherwise the Bids will be summarily rejected.**

#### 7.1.1 Details to be furnished in the Techno Commercial Bid

- a) The EMD amount should be submitted in the prescribed form.
- b) Authorisation letter from the Board of Directors/ Chairman & Managing Director or Power of Attorney or CEO to sign the Tender documents should be submitted. The Tenders received without Authorisation letter or Power of Attorney will not be considered for further processing.
- c) The blank Tender document in full should be printed, signed by the authorised person and stamped in all pages and should be submitted as a token of accepting the conditions.
- d) The Techno Commercial Bid should be duly filled, signed by the authorised person and stamped in all the pages and should be submitted.
- e) The supporting documents to prove Bidder's eligibility should be duly attested and should be submitted.
- f) Test certificates along with test reports shall be submitted for components/ systems from notified testing agencies as per "clause 16".

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- g) The published Annual Report should be signed by the authorised person and stamped in all pages and should be submitted.
- h) The bidder should indicate the manufacturing plant addresses.
- i) All the required documents insisted in the Tender should be enclosed in the Techno Commercial Bid. No document would be allowed to be supplemented / exchanged after opening of the bids.
- j) The documentary evidence shall establish Bidder's qualifications to the satisfaction of AKST.

### 7.1.2 Signing the Techno Commercial Bid

- a) The Bids shall be typed and shall be signed by the Authorised official of Bidder. All pages of the bid shall be signed and stamped by the authorised person
- b) Any alterations, deletions or overwriting will be treated as valid only if they are attested by the full signature by the authorised person.

### 7.1.3 Sealing the Techno Commercial Bid

The Techno Commercial bid shall be placed in a separate cover (Envelope-A) and sealed appropriately. The Techno Commercial bid cover shall be superscribed with "Techno Commercial Bid (Envelope A) –**Supply, installation , commissioning & 5 years comprehensive maintenance of Grid interactive 10KWp SPV Power plants without Battery at Arulmigu Kandaswamy Temple, Thiruporur - 603110– Tender Ref.:** \_\_\_\_\_ due on \_\_\_\_\_." The "**FROM**" address and "**TO**" address shall be written without fail otherwise the Techno Commercial bid is liable for rejection.

## 7.2 Price Bid (Envelope-B)

### 7.2.1 Details to be furnished

- a) All the Price items as asked in the Tender should be filled in the Price Bid format as given in the Tender. The prices quoted shall be in **INDIAN RUPEES (INR) only**. The Tender is liable for rejection if Price Bid contains conditional offers or partial offers and if quoted in any currency other than INR.

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- b) The cost quoted by the Bidder shall include the breakup cost of the components of SPV Power plant viz., panel, power conditioning unit, etc.
- c) The cost quoted by the Bidder shall be kept firm for a period specified in the Tender from the date of opening of the Tender. The Bidder should keep the Price firm during the period of Contract including the period of extension of time if any. The Bidders should particularly take note of this factor before submitting the Bids.

### 7.2.2 Signing the Price Bids

- a) The Bid shall be typed and shall be signed by the Bidder or a person or persons duly authorised to bind the Bidder to the Contract. All pages of the bid document including the supporting documents shall be signed and stamped by the authorised person.
- b) Any alterations, deletions or overwriting shall be treated valid only if they are attested by full signature by the authorised person.

### 7.2.3 Sealing the Price Bid

The Price Bids shall be placed in a separate cover (Envelope-B) and sealed appropriately. The Price Bid cover shall be superscribed with “**Price Bid (Envelope B)**– Supply, installation , commissioning & 5 years comprehensive maintenance of Grid Interactive 10KWp Grid interactive SPV Power plants without Battery at Arulmigu Kandaswamy Temple, Thiruporur - 603110. Tender Ref.:\_\_\_\_  
\_\_\_\_\_” The “FROM” address and “TO” address shall be written without fail otherwise the Price Bid is liable for rejection.

### 7.3 Outer Cover

**The EMD cover, Techno Commercial Bid cover (Envelope-A) and Price Bid cover (Envelope-B) shall then be put in a single outer cover and sealed. The outer cover shall be superscribed with Supply, installation , commissioning & 5 years comprehensive maintenance of 10KWp Grid interactive SPV Power plants without Battery at**

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Arulmigu Kandaswamy Temple, Thiruporur - 603110. Tender Ref.: \_\_\_\_\_ due on \_\_\_.”

**The “FROM” address and “TO” address shall be written without fail otherwise the Bid is liable for rejection.**

### **7.4 Mode of Submission of Bids**

- a) The Bids should be dropped in the Tender box kept at AKST, office, Thiruporur- 603110, Tamil Nadu, India, on or before the due date and time. The Bids will not be received personally.
- b) Alternatively, if the Bidder prefers to submit the Bid by post, the Bidders should ensure that the Bids reach AKST on or before the due date and time. AKST will not be liable or responsible for any postal delay or any other delay whatsoever.
- c) The Bids received after Due Date and Time or Unsealed or in incomplete shape or submitted by Facsimiles (FAX) will be summarily rejected.

### **7.5 Modification and withdrawal of Bids**

The Bids once submitted cannot be modified or amended or withdrawn.

## **8. Bid Opening**

### **8.1 Techno Commercial Bid Opening**

The Tender outer cover and Techno commercial Bid cover, only on satisfying EMD conditions, will be opened **at AKST** on the date and time as specified in the Tender Data sheet or any other date published in the website specified. The Tender will be opened in the presence of the Bidders who choose to be present. The representative(s) of the Bidder who chooses to attend Tender opening shall bring an authorisation letter from the Bidder. A maximum of two representatives for each Bidder would be allowed to attend the Tender opening.

### **8.2 Tender Validity**

- a) Bids submitted shall remain valid for a period of 180 days from the date of Tender opening. If the bid validity is lesser than 180 days, the Bid will be rejected as non-responsive.



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- b) In exceptional circumstances, AKST may solicit the Bidders to extend the validity. The Bidder should extend price validity and Bid security validity.

### 8.3 Initial Scrutiny

Initial Bid scrutiny will be held and Tenders as given below will be treated as non-responsive.

Tender received **without** EMD amount

Tender **not** submitted in two parts as specified in the Tender and signing and stamping in all pages of the Bid

Tender received **without** the Letter of Authorisation as specified in the Tender

Tender found with **suppression of facts/details**

Tender with **incomplete** information, subjective, conditional offers and partial offers

Tender submitted **without** supporting documents to prove Eligibility criteria and Evaluation

Tender **not** complying with any of the clauses stipulated in the Tender

Tender with **lesser** validity period

**Tender submitted without** sample test report of components from the Testing Agency

All responsive Bids will be considered for further evaluation. The decision of EO , AKST will be final in this regard.

### 8.4 Clarifications by AKST

When deemed necessary, EO,AKST may seek bona-fide clarifications on any aspect from the Bidder. However, that would not entitle the Bidder to change or cause any change in the substance of the Bid or price quoted. During the course of Techno commercial Bid evaluation, EO,AKST may seek additional information or historical documents for verification to facilitate decision making. In case the Bidder failed to comply with the requirements of AKST as stated above, such Bids at the discretion of EO, shall be rejected as technically non-responsive.

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### 8.5 Price Bid Opening

Bidders who are qualified in Techno commercial Bid (Envelope-A) only will be called for Price Bid opening. The Price Bids will be opened in the presence of the Bidders at AKST. The Bidders or their authorised representatives (maximum two) will be allowed to take part in the Price Bid opening.

## 9. Bid Evaluation

### 9.1 Suppression of facts and misleading information

- a) During the Bid evaluation, if any suppression or misrepresentation of information is brought to the notice of EO,AKST, EO shall have the right to reject the Bid and if after selection, EO ,AKST would terminate the contract as the case may be, will be without any compensation to the Bidder and the EMD/ Security Deposit as the case may be, shall be forfeited.
- b) Bidders should note that any figures in the proof documents submitted by the Bidders for proving their eligibility is found suppressed or erased, EO,AKST shall have the right to seek the correct facts and figures or reject such Bids.
- c) The Tender calls for full copies of documents to prove the Bidder's experience, capacity and other requirements to undertake the project.

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### 9.2 Techno Commercial Bid Evaluation

- a) The Bidders who have duly complied with the Eligibility Criteria will be eligible for further processing.
- b) The Tenders, which do not conform to the Technical Specifications or Tender conditions or Tenders from Bidders without adequate capabilities for supply & installation, will be rejected. The Eligible Bidders alone will be considered for further evaluation.

### 9.3 Price Bid Evaluation

- 1) Bidders who are qualified in Techno commercial Bid (Envelope-A) only will be called for Price Bid opening. The Price Bids will be opened in the presence of the Bidders at AKST. The Bidders or their authorised representatives (maximum two) will be allowed to take part in the Price Bid opening.
- 2) The Price Bid evaluation will be conducted as stipulated in the Tamil Nadu Transparency in Tenders Act 1998 and Tamil Nadu Transparency in Tenders Rules 2000. The Price evaluation will include all Duties and Taxes as given below.
  - (i) In cases of discrepancy between the cost quoted in Words and in Figures, the lower of the two will be considered.
  - (ii) In evaluation of the price of articles which are subject to excise duty, the price will be determined inclusive of such excise duty;
  - (iii) In a tender where all the tenderers are from within the State of Tamil Nadu, or where all the tenderers are from outside the State of Tamil Nadu, the sales tax/TNVAT shall be included for the evaluation of the price; and
  - (iv) In a tender where the tenderers are both from the State of Tamil Nadu as well as from outside the State of Tamil Nadu, TNVAT shall be excluded for the evaluation of the price”.
- 3) The lowest cost **per category** as per the above evaluation will be adjudged as L<sub>1</sub>. AKST will not be responsible for any erroneous calculation of tax rates or

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any subsequent changes in rates or structure of applicable taxes. All differences arising out as above shall be fully borne by the Successful Bidder.

- 4) AKST will negotiate with the Lowest Cost offered Bidder (L1) for further reduction of the price. EO,AKST reserves the right to ask other Bidders to match **L<sub>1</sub>** price.

### **9.4 Award of Contract**

- 1) EO,AKST reserves the right to apportion the total quantity among the **L<sub>1</sub>** Bidder and other Bidders who have agreed to match **L<sub>1</sub>** rate.
- 2) No dispute can be raised by any Bidder whose Bid has been rejected and no claims will be entertained or paid on this account.

### **9.5 EO , AKST reserves the right to;**

- 1) Negotiate with the Bidder whose offer is the lowest evaluated price for further reduction of prices.
- 2) Insist on quality/specification of materials to be supplied.
- 3) Modify, reduce or increase the quantity requirements to an extent of 25% of the Tendered quantity as per the provisions of Tamil Nadu Transparency in Tenders Act 1998 and Tamil Nadu Transparency in Tenders Rules, 2000.
- 4) Change the list of areas of installation locations from time to time based upon the requirement.
- 5) Ask other qualified Bidders to match **L<sub>1</sub>** price
- 6) Reallocate the quantity to other Bidder.If performance of the Bidder is not as per the completion Schedule.
- 7) Inspect the bidders' factory / office premises and based on the inspection, modify the quantity ordered.
- 8) Withhold any amount for the deficiencies in the service aspect of SPV systems installed at the identified locations.

## SECTION – C

### AWARD AND EXECUTION

#### 10. Award of Work

##### 10.1 Acceptance of the Tender

The final acceptance of the Tender is entirely vested with EO, AKST who reserves the right to accept or reject any or all of the Tenders in full or in part. The Tender accepting authority may also reject any Tender for reasons such as changes in the new technologies, court orders, accidents or calamities and other unforeseen circumstances. After acceptance of the Tender by AKST, the Bidder shall have no right to withdraw their Tender or claim higher price.

##### 10.2 Letter of Acceptance (LOA)

After acceptance of the Tender by AKST, a Letter of Acceptance (LOA) will be issued only to the Successful Bidder(s). AKST has the right to issue LOA to more than one bidder.

##### 10.3 Payment of Security Deposit (SD)

- a) The Successful Bidders will be required to remit the Security Deposit equivalent to 5% (Five percent) of the value of the Work Order inclusive of EMD amount. The SD should be paid by way of Demand Draft drawn in favour of “ Executive officer, Arulmigu Kandaswamy Temple, Thiruporur - 603110.” payable at Thiruporur or in the form of unconditional and irrevocable Bank Guarantee, valid till the completion of 5 year comprehensive maintenance. **The SD should be paid within 10 days** from the date of issue of **Letter of Acceptance by AKST.**
  
- b) The Security Deposit will be refunded to the Successful Bidder only after successful installation and commissioning of the systems and after completion of 5 year comprehensive maintenance period. The Security Deposit held by AKST till it is refunded to the Successful Bidder will not earn any interest thereof.

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- c) The Security Deposit/EMD will be forfeited if the Successful Bidder(s) withdraw(s) the Bid during the period of Bid validity specified in the Tender or if the Bidder fails to sign the contract.

### 10.4 Execution of Agreement

- a) The Successful Bidder shall execute a Contract in the INR 100 non-judicial stamp paper bought in Tamil Nadu only in the name of the Bidder, within 10 days from the date of Letter of Acceptance issued by AKST.
- b) The Successful Bidder shall not assign or make over the contract, the benefit or burden thereof to any other person or persons or body corporate for the execution of the contract or any part thereof without the prior written consent of EO,AKST. EO reserves his right to cancel the work order either in part or full, if this condition is violated.
- c) In case of the successful bidder fails to execute necessary agreements as prescribed, within the stipulated period, then his EMD shall be forfeited and his tender held as non responsive.

### 10.5 Release of Firm Work Order

**After execution of the Contract and payment of Security Deposit, “Firm Work Order” for Supply, installation , commissioning & 5 years comprehensive maintenance of 10KWp SPV Power plant without Battery at Arulmigu Kandaswamy Temple, Thiruporur - 603110. will be issued to the Successful Bidder by AKST.**

### 10.6. Installation & Completion Schedule

- a) **The entire work involving Supply, installation & commissioning of 10KWp SPV Power plant without battery in Arulmigu Kandaswamy Temple, Thiruporur - 603110. with 5 years CMC should be completed within 90 days of work order issued.**

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S.No	Period	Quantity to be Installed
1.	90 days from the date of issue of W.O	100% work should be satisfactorily completed as per the technical specifications.

### 10.7 Release of SD

The Security Deposit will be refunded to the Successful Bidder on completion of entire work involving Supply, installation , commissioning & 5 years comprehensive maintenance of SPV Power plants without Battery at Arulmigu Kandaswamy Temple, Thiruporur - 603110. (10KWp)subject to satisfaction of AKST. Such completion would be arrived at when the entire work as stated above is completed by the Bidder as per the contract agreement and as per Work Order (s) issued by AKST from time to time.

### 10.8 Termination of Contract

#### 10.8.1 Termination for default

a) AKST may without prejudice to any other remedy for breach of contract, by written notice of default with a notice period of 7 days, sent to the Successful Bidder, terminate the contract in whole or part, (i) if the Successful Bidder fails to Supply, install , commission & testing of SPV Power plants without Battery at Arulmigu Kandaswamy Temple, Thiruporur - 603110. (10KWp)within the time period(s)specified in the Contract, or fails to fulfil the requirements as per the Delivery Schedule or within any extension thereof granted by AKST; or (ii) if the Successful Bidder fails to perform any of the obligation(s) under the contract; or (iii) if the Successful Bidder, in the judgment of AKST, has engaged in fraudulent and corrupt practices in competing for or in executing the Contract.

b)

In the event AKST terminates the Contract in whole or in part, AKST may opt upon

c)

terms and in such manner as it deems appropriate, the services of the other bidders. However, the Successful Bidder shall continue the performance of the contract to the extent not terminated.

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### 10.8.2 Termination for Insolvency

AKST may at any time terminate the Contract by giving written notice with a notice period of 7 days to the Successful Bidder, if the Successful Bidder becomes bankrupt or otherwise insolvent. In this event, termination will be without compensation to the Successful Bidder, provided that such termination will not prejudice or affect any right of action or remedy that has accrued or will accrue thereafter to AKST.

### 10.8.3 Termination for Convenience

AKST may by written notice, with a notice period of seven days sent to the Successful Bidder, may terminate the Contract, in whole or in part, at any time for its convenience. The notice of termination shall specify that termination is for AKST's convenience, the extent to which performance of work under the Contract is terminated, and the date upon which such termination becomes effective. On termination, the successful Bidder is not entitled to any compensation whatsoever

## 11. Execution of Work

### 11.1 Scope of work

- a) The scope of work covers for Supply, Installation, commissioning & 5 years comprehensive maintenance of Grid Interactive SPV Power plant without Battery for a capacity of 10 KW p at. Arulmigu Kandaswamy Temple, Thiruporur - 603110. Any deviation will not be accepted under any circumstance.
- b) Insuring the goods in transit as well as the commissioned systems during 5 year comprehensive maintenance period is the responsibility of the bidders.



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- c) Comprehensive maintenance of system is for 5 years. The comprehensive maintenance shall include preventive maintenance service visits monthly till the completion period of comprehensive maintenance. The maintenance shall include replacement of all parts or components found defective due to manufacturing defect or because of wear and tear. If the **SPV Power Plants** are not functional, the same should be repaired or restored or replaced within 2 days.

### **11.2 Insurance**

Transportation of components to the installation site and insuring the goods in transit is the responsibility of the Bidder. The goods installed under the contract should be covered for comprehensive Insurance by the Successful Bidder against loss (or) damage incidental to transportation, storage at site and delivery to site during the erection period. The successful bidder should ensure adequate insurance for the systems against robbery, theft, burglary and acts of God such as natural calamities, flood etc., during the comprehensive maintenance period.

### **11.3 Handing Over**

- a) The system shall be handed over to the Authorised person on the same day of Installation & Commissioning, through prescribed handing over and taking over format.

### **11.4 Comprehensive Maintenance for 5 years**

- a) The Successful Bidder should provide 5 year comprehensive maintenance of the SPV systems, which shall include corrective maintenance as well as routine service calls.
- b) The service personnel of the Successful Bidder will make routine maintenance visits. Apart from this any complaint registered/ service calls received / faults notified should be attended to and rectified within 2 days.
- c) The deputed personnel shall be in a position to check and test all the equipments regularly, so that preventive actions, if any, could be taken

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well in advance to save any equipment from damage.

- d) Normal and preventive maintenance of the SPV systems such as cleaning of module surface, tightening of all electrical connections, changing of tilt angle of module mounting structure, etc. are also the duties of the deputed personnel during maintenance visits.
- e) During operation and maintenance period of the SPV systems, if there is any loss or damage of any component due to miss management/miss handling or due to any other reasons pertaining to the deputed personnel, what-so-ever, the supplier shall be responsible for immediate replacement/rectification. The damaged component may be repaired or replaced by new component.
- f) The maintenance  
e shall include replacement of all parts. If the SPV Power Plants/ are not functional, the same should be repaired/ restored/ replaced within 2 days.
- g) If the successful bidder, having been notified by the end user fails to rectify the defect(s) and restore the SPV systems to good working condition within the period specified above, then a penalty of Rs. 500 per KW per day of the breakdown period will be levied.

### 11.5 Product Take Back & Recycling

Proper decommissioning and recycling of SPV panels , electronics etc., are necessary to ensure that harmful materials are not released in to the environment. Hence an under taking from the successful bidder for product take back after expiry of their life shall be submitted.

### 11.6 Warranty

1. (a) The SPV panel shall carry a warranty of minimum 25 years.
- (b) The SPV panel must be warranted for their output peak watt capacity which should not be less than 90% at the end of 10 years and 80% at the end of 25 years
- (c)The PCU/ inverter /charge controller shall carry a warranty of minimum 5

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years.

2. The power conditioners/inverters/ maximum power point tracker units/ distribution boards/digital meters/ switchgear/ storage batteries and overall workmanship of the SPV power plants including mechanical structures and electrical works must be warranted against any manufacturing/ design/ installation/performance defects for a minimum period of 5 years.
3. The warranty will be against breakages, malfunctions, **non fulfillment of guaranteed performance** and breakdowns due to manufacturing defects or defects that may arise due to improper operation of electrical / electronic components of the system but do not include physical damages by the end users.
4. The above warranty shall take effect from the date on which the system is taken over by the users/beneficiaries.
5. The successful tenderer shall be liable to make good the loss by replacing the defective product during the warranty period for the entire system free of cost, failing which AKST would deduct the amount from the amount retained by AKST as per Payment terms and will be blacklisted.
6. The warranty will cover all the materials and goods involved in the installation and commissioning of SPV systems by the successful Bidder under this contract irrespective of the fact whether these have been manufactured by the Successful Bidder or not. The decision in this regard by AKST is final and binding on the successful bidder.
7. The successful bidder shall undertake to supply spares free of cost for the maintenance of the offered items during the warranty period. The successful bidder should keep all the spares available for sale at least for a period of 5 years after the completion of the warranty period.
8. If the operation or use of the system proves to be unsatisfactory during the warranty period, the Successful Bidder shall replace the faulty ones or carry out necessary repairs as per the warranty terms and conditions agreed upon with AKST.
9. In case the Successful Bidder fails to carry out the warranty regulations, EO, AKST would engage any other agency and carry out the service/replacement and deduct the amounts from the warranty amount retained by AKST as per the

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Payment terms or from their pending bills or any money due or payable to them.

10. AKST reserves the right to claim damages and Costs for non-fulfillment of warranty, apart from forfeiting un-paid amount if any, in the event of unsatisfactory maintenance.

### 11.7 Traceability of the product to be supplied

In order to prevent the misuse of the product such as unauthorised sale or diversion to the open market, the following incorporation shall be made in the product.

RFID shall be provided in the SPV panels

### 12. Liquidated Damages

- 1) This is a time bound project. Any delay will make the project fruitless. Hence if the Successful Bidder fails to commission the system as within the delivery period specified, Liquidated Damages at the rate of 0.5% per completed week on the value of the unfinished portion of the work order will be levied subject to a maximum of 10%.
- 2) The Liquidated Damages amount will be automatically deducted from the Bills submitted by the Successful Bidder. Even if the installation is not completed, AKST will make alternate arrangements and the cost incurred by AKST for doing the same will be recovered from the Successful Bidder.

### 13. Payment Terms

- 1) All payments will be made in INR only.
- 2) No advance will be paid or no letter of credit will be issued.
- 3) Agreement value shall be derived after deducting 30% subsidy of total tender cost.
- 4) a) 85% payment of above said agreement value (clause 3) will be released after successful completion of installation, commissioning, &

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- b) 15% payment will be made after the completion of 1 year CMC period against submission of 4 Nos. irrevocable BGs of 3% each of contract value valid for 12 months, 24 months , 36 months and 51 months respectively. The 4 Nos. Irrevocable BGs will be released every year after satisfactory functioning of **SPV power plant** . In case of default , BGs will be encased.
- 5) The payment will be subject to fulfillment of Warranty/ Comprehensive Maintenance obligations.
- 6) If the Duties and/or Taxes have been reduced retrospectively, the successful bidder is liable to return the same.
- 7) The Successful Bidder will have full and exclusive liability for payment of all Duties, Taxes and other statutory payments payable under any or all of the Statutes/Laws/Acts etc now or hereafter imposed.
- 8) It will be responsibility of the bidder to claim the 30% subsidy amount of state or central government subsidy.If there is no subsidy of state or central government,it is the responsibility of the bidder to produce necessary connected documents in this regard to obtain any concession

## SECTION D

### 14. TECHNICAL SPECIFICATION

#### 1. TECHNICAL SPECIFICATION

##### 1.1 TECHNICAL SPECIFICATION FOR GRID INTERACTIVE SPV POWER PLANT

**Supply, installation, commissioning & 5 years comprehensive maintenance of SPV Power plants without Battery**

#### **Scope of Work**

The Scope of Work shall include the following,

- a. Design, manufacture and supply of Solar PV Power Plant
- b. Detailed planning for smooth execution of the project
- c. Performance testing of the complete system & warranty of the system for 5

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- years faultless operation
- d. Risk liability of all personnel associated with the implementation realization of the project and O&M Period
  - e. Operation & Maintenance of the Power Plant for 5 Years including 5 years of warranty period.

### I. Technical Specifications of Major Components of Solar PV Power Plant

1. Solar PV modules and array
2. Module mounting structures for Solar PV Modules
3. Junction Boxes
4. Power Conditioning Unit
5. DC & AC Distribution Boards
6. Cables and installation accessories
7. Earthing and lightning protection
8. Grid Islanding

The SPV Power Plant proposed without battery backup should be designed with necessary features to supplement the grid power during day time .

#### 1.Solar PV modules and array

- (i) **Only indigenous modules shall be used in the project.** Solar module shall be Mono / Multi crystalline type. The peak power output of the PV Module shall be min **100Wp** under STC. Module Voc minimum of **21V**. The power output of the PV module must be reported under standard test conditions (STC). I\_V curve of the sample module should be submitted.

Electrical conversion efficiency of SPV Module shall be in excess of 15%.

Indigenous Modules using PV cells manufactured in USA/Germany/France/ Austria/ Finland/Thaiwan shall be used on work.

- (ii) The mechanical structure shall withstand gusts of wind / cyclonic wind up to 200km/hr from back side of the panel.
- (iii) The offered module shall be in accordance with the requirements of MNRE. Latest edition of IEC 61215 / IS 14286 for Crystalline. SPV modules shall be certified by NABL/IECQ accredited test centre. The bidder shall submit appropriate certificates.

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- (iv) PV modules must quality to IEC 61730 Part 1- requirements for construction & Part 2 – requirements for testing, for safety qualification.
- (v) PV modules must also qualify Salt Mist Corrosion Testing as per IEC 61701.

### 1.1 Other general requirements of PV module

- (i) Module mismatch loss should be less than 3%
- (ii) The module frame shall be made of corrosion resistant materials, which is electrolytically compatible with the structural material used for mounting the module.
- (iii) Protective devices against surges at the PV module shall be provided. Low voltage drop bypass diodes shall be provided .
- (iv) Module Junction box (weather resistant) shall be designed for long life out door operation in harsh environment and protected against surges through an appropriate rated surge arrestor earthed separately.
- (v) PV modules used in solar power plants must be warranted for output wattage, which should not be less than 90% at the end of 10 years and 80% at the end of 25 years.
- (vi) Each PV module must use a RF identification tag. The following information must be mentioned in the RFID used on each module (This can be inside or outside the laminate, but must be able to withstand harsh environmental conditions.)
  1. Name of the manufacturer of PV Module
  2. Name of the Manufacturer of Solar cells
  3. Month and year of the manufacture (separately for solar cells and module)
  4. Country of origin (solar cells)
  5. I-V curve for the module
  6.  $W_m$ ,  $I_m$ ,  $V_m$  and FF for the module
  7. Unique Serial No and Model No of the module
  8. Date and year of obtaining IEC PV module qualification certificate
  9. Name of the test lab issuing IEC certificate
  10. Other relevant information on traceability of solar cells and module as per ISO 9000 standard.

### 1.2 Orientation and Tilt of PV Module

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Modules shall be North-South oriented and the Tilt angle shall be such that to give maximum annual energy output.

### **Module mounting structure**

- The array structure shall be made of hot dip galvanized MS angles of size not less than 50 mm x 50 mm x 6 mm size. The minimum thickness of galvanization shall be at least 120 microns. All nuts & bolts shall be made of very good quality stainless steel. The minimum clearance of the lowest part of the module structure and the developed ground level shall not be less than 500 mm.
- Leg assembly of module mounting structure made of different diameter galvanized tubes are accepted. The work should be completed with supply, fitting fixing of clamps, saddles, nut & bolts etc. While quoting the rate, the bidder may mention the design & type of structure offered. All nuts & bolts shall be made of very good quality stainless steel.
- The structure shall be designed to allow easy replacement of any module and shall be in line with site requirements
- The structure shall be designed for simple mechanical and electrical installation.

It shall support SPV modules at a given orientation, absorb and transfer the mechanical loads to the ground properly. There shall be no requirement of welding or complex machinery at site.

- The array structure shall be so designed that it will occupy minimum space without sacrificing the output from SPV panels at the same time it will withstand wind speed up to maximum of 200 km/hr.
- The manufacturer shall specify installation details of the PV modules and the support structures with appropriate diagrams and drawings.
- The drawings along with detailed design shall be submitted to AKST for approval before starting the work. The work will be carried out as per designs approved by AKST.
- PCC ARRAY FOUNDATION BASE: The legs of the structures made with GI angles will be fixed and grouted in the PCC foundation columns made with 1:2:4 cement concrete. The minimum clearance of the lowest part of any module structure shall not be less than 500 mm from ground level. While making foundation design, due consideration shall be given to weight of module assembly, maximum wind speed of 200 km/hr and seismic factors for the site.
- The bidder can visit the site before quoting the rate for civil works. After taking in to consideration all aspects of the site, condition of soil etc., the bidder shall quote for civil works. No extra claim shall be entertained at post project stage. The foundation design of module structure design shall be submitted to AKST



## Grid Interactive SPV power Plant

for approval. The work will be carried out as per designs approved by AKST.

- In case of any defects arising in the building during guarantee period of Five year, the contractor shall rectify the same at their own cost.

### 3. Junction Boxes

The junction boxes shall be dust proof, vermin and waterproof and made of FRP.

The terminals shall be connected to copper bus bar arrangement of proper sizes. The junction boxes shall have suitable cable entry points fitted with cable glands of appropriate sizes for both incoming and outgoing cables. Suitable markings shall be provided on the bus bar for easy identification and cable ferrules shall be fitted at the cable termination points for identification. Each main junction box shall be fitted with appropriate rating blocking diode. The junction boxes shall be of reputed make.

The junction boxes shall have suitable arrangement for the Following:

- Combine groups of modules into independent charging sub-arrays that shall be wired to the controller.
- Provide arrangement for disconnection for each of the groups.
- Provide a test point for each sub-group for quick fault location.
- To provide group array isolation.
- The rating of the JB's shall be suitable with adequate safety factor to inter connect the Solar PV array.

### 4. Inverter:

The power conditioner unit/ string inverter / central inverter should be provided to convert DC power produced by SPV modules, in to AC power. The power conditioning unit/inverter should be grid interactive and also DG set interactive if necessary. Inverter output should be compatible with the grid frequency. Typical technical features of the inverter shall be as follows:

- Nominal AC output voltage and frequency : 415V, 3 phase, 50 Hz
- Accuracy of AC voltage control :  $\pm 1$  %
- Output frequency : 50 Hz
- Accuracy of frequency control :  $\pm 0.1$ %
- Grid Frequency Synchronization range  $\pm 3$  Hz
- Maximum Input DC Voltage : depending on the inverter used.
- Ambient temperature considered : 40°C
- Humidity : 95 % Non condensing

## Grid Interactive SPV power Plant

- Protection of Enclosure :
  - a) IP-20(Minimum) for indoor.
  - b) IP-65(Minimum) for outdoor.
- Grid Frequency Tolerance range  $\pm 3\%$
- Grid Voltage tolerance : - 20% & + 15 %
- No-load losses : Less than 1% of rated power
- Inverter efficiency(minimum) : >90%
- THD : < 3%
- PCU/inverter shall be capable of complete automatic operation including wake-up, synchronization & shutdown.
- Built-in meter and data logger to monitor plant performance through external computer shall be provided.
- The power conditioning units / inverters should comply with applicable IEC/ equivalent BIS standard for efficiency measurements and environmental tests as per standard codes IEC 61683 and IEC 60068 2(1, 2,14,30).
- The charge controller/ MPPT units should qualify IEC 62093 and IEC 60068 2 (1, 2,14,30). The junction boxes/ enclosures should be IP 65(for outdoor)/ IP 54 (indoor) and as per IEC 62208 specifications.
- The PCU/ inverters should be tested from the MNRE approved test centres / NABL /BIS accredited testing- calibration laboratories.
- In case of imported power conditioning units, these should be approved by international test houses.

### 4.1 Integration of PV Power with Grid:

The output power from SPV would be fed to the inverters which converts DC produced by SPV array to AC and feeds it into the main electricity grid after synchronization. In case of grid failure, or low or high voltage, solar PV system shall be out of synchronization and shall be disconnected from the grid. Once the DG set comes into service PV system shall again be synchronized with DG supply and load requirement would be met to the extent of availability of power. 4 pole isolation of inverter output with respect to the grid/ DG power connection need to be provided

### Data Monitoring

A data logging system for plant control and monitoring shall be provided .

## Grid Interactive SPV power Plant

### 5. DC & AC Distribution Boards

#### AC Distribution Board (ACDB)

- An ACDB shall be provided in between PCU and Loads.
- It shall have MCB/MCCB of suitable rating for connection and disconnection of PCU from load.
- It shall have MCB's to supply power to control room loads such as exhaust fans, lighting loads and power plug sockets.
- It shall have AC voltmeter , Ammeter, Energy meter to record energy supplied to loads.

#### DC Distribution Board (DCDB)

DC Distribution panel is needed to receive the DC output from the array field, with analog measurement panel for voltage, current from different MJBs so as to check any failure in the array field. It shall have MCCBs of suitable rating for connection and disconnection of array sections. DCDB shall be fabricated by CRC Sheet to comply with IP 65 protection.

### 6. Cables and accessories

- The cables used in the system should be ISI marked PVC insulated armoured Copper conductor. Cables of various sizes as per load requirement for connecting all the modules / arrays to Junction Boxes and from Junction Boxes to DC distribution box and from DC distribution box to inverter. Copper Cables of appropriate size would be provided from Inverter onwards in A.C. side.
- Only copper wires of appropriate size and of reputed-make shall have to be used..
- The permissible voltage drop from the SPV Generator to the Charge controller/inverter shall not be more than 2% of peak power voltage of the SPV power source (generating system).
- All connections should be properly terminated, soldered and/or sealed from outdoor and indoor elements. Relevant codes and operating manuals must be followed. Extensive wiring and terminations (connection points) for all PV components is needed along with electrical connection to lighting loads.
- All the Cu PVC insulated Armoured. Sheathed cables required for the plant will be provided by the manufacturer.

# Grid Interactive SPV power Plant

## 7. Earthing and Lightning Protection

### i. Earthing Protection

Each array structure of the PV yard should be grounded/ earthed properly as per IS:3043 -1987. In addition the lightning arrester/masts should also be provided inside the array field. Provision should be kept for shorting and grounding of the PV array at the time of maintenance work. All metal casing/shielding of the plant should be thoroughly grounded in accordance with Indian Electricity Act/IE Rules. Earth Resistance shall be tested in presence of the representative of Department/SECI as and when required after earthing by calibrated earth tester. PCU .ACDB and DCDB should also be earthed properly. Earth resistance shall not be more than 5 ohms. It shall be ensured that all the earths are bonded together to make them at the same potential. The earthing conductor shall be rated for the maximum short circuit current, and shall be 1.56 times the short circuit current. The area of cross-section of conductor shall not be less than 1.6 sq mm in any case.

### ii. Lightning protection

There shall be the required number of suitable lightning arrestors (ESE) installed in the array area. Lightning protection shall be provided by the use of metal oxide arrestors and suitable earthing such that induced transients find an alternate route to earth. Protection shall meet the safety rules as per Indian Electricity Act 2003/IE rules.

### iii Earthing and Lightning Arrester

The SPV Power Plant should be provided with lightning and over voltage protection. The principal aim in this protection is to reduce the over voltage to a tolerable value before it reaches the PV or other sub-systems components. The source of over voltage can be lightning or any other atmospheric disturbances. The array structure of the PV yard shall be grounded properly using adequate number of earthing kits. All metal casing/shielding of the plant shall be thoroughly grounded to ensure safety of the power plant.

- Each Kit should contain Super earth mixture, Galvanized Clamp and SS Rod.
- Galvanized clamps should withstand adverse weather conditions and ensure firm connections.
- Connections using lead-Out cable (double insulated) IG627.
- Each kit should be 1.2Mt long and weight 5 Kg.
- The Stainless Steel Rod should be made of AISI 304 grade steel and tested as per IS:9879-1998
- 
- The Super Earth Kt Should be tested by Govt. approved testing laboratory for resistance of grounding system using Fall-of-Potential method of measurement.

## Grid Interactive SPV power Plant

Copy of the test certificate should be enclosed (The testing laboratory should be accredited by Govt. of India).

### 8. Grid Islanding

PV system software and control system shall be equipped with islanding protection. In addition to disconnection from the grid (islanding protection i.e. on no supply) ,under and over voltage conditions shall also be provided. PV systems shall be provided with adequate rating fuses, fuses on inverter input side (DC) as well as output side (AC) for overload and short circuit protection and disconnecting switches to isolate the DC and AC system for maintenances as needed. Fuses of adequate rating shall also be provided in each solar array module to protect them against short circuit.

A manual disconnect 4pole isolation switch beside automatic disconnection to grid would have to be provided at utility end to isolate the grid connection by the utility personal to carry out any maintenance. This switch shall be locked by the utility personal.

### 9. DOCUMENTATION

- (i) An Operation, Instruction and Maintenance Manual, in English and Tamil, should be provided with the SPV Power Plant System.

The following minimum details must be provided in the Manual:

- (a) About Photo Voltaics
- (b) About PV module.
- (c) About electronics used
- (d) Clear instructions about mounting of PV module.
- (e) DO's and DONT's,
- (f) Clear instructions on regular maintenance and trouble shooting of solar Power plants..
- (g) Name and address of the person or service centre to be contacted in case of failure or complaint

- (ii) Warranty Card & Service entry card shall be provided with the SPV Power Plant systems. Approval of EO,AKST needs to be obtained on the content of Manual,

# Grid Interactive SPV power Plant

Warranty card& Service entry card.

## 15. TECHNICAL REQUIREMENTS/STANDARDS

<b>A. SPV POWER PLANTS:</b>
-----------------------------

### 1. PV MODULES:

- 1.1 The PV modules must conform to the latest edition of any of the following IEC / equivalent BIS Standards for PV module design qualification and type approval:  
Crystalline Silicon Terrestrial PV Modules      IEC 61215 / IS14286
- 1.2 In addition, the modules must conform to IEC 61730 Part 1- requirements for construction & Part 2 – requirements for testing, for safety qualification.
- 1.3 PV modules must qualify Salt Mist Corrosion Testing as per IEC 61701.

### B. TEST CERTIFICATES / REPORTS TO BE FURNISHED:

- (i) Test Certificates along with test reports from IECQ / NABL accredited laboratory for relevant IEC / equivalent BIS standard.
- (ii) STC Performance certificate along with test report from one of the IECQ / NABL accredited laboratories including Solar Energy Centre, Gurgoan.

### C. BALANCE OF SYSTEM (BoS) ITEMS/ COMPONENTS:

- 1.1 The Bos components of the SPV power plants/ systems must conform to the latest edition of IEC/ equivalent BIS Standards as specified below:

Bos item	IEC/Equivalent BIS standard
----------	-----------------------------

## Grid Interactive SPV power Plant

/component	Standard Description	Standard Number
<ul style="list-style-type: none"> <li>• Power Conditioner s/ Inverters</li> </ul>	Efficiency Measurements Environmental Testing	IEC 61683 IEC60083-2(1,2,14,30), IEC62116,IEC62109,IEC62103,IEC60664-1
<ul style="list-style-type: none"> <li>• MPPT units</li> </ul>	Design Qualification Environmental Testing	IEC 62093 IEC 600068 2(1,2,14,30)
<ul style="list-style-type: none"> <li>• Cables</li> </ul>	General Test and Measuring Method  PVC insulated cables for working voltage up to 600V and including 1100 V UV resistant for outdoor installation	Relevant IS standards
<ul style="list-style-type: none"> <li>• Switches/ Circuit Breakers/ Connectors</li> </ul>	General Requirements Connectors Safety	IS /IEC 60947 part I,II,III EN 50521
<ul style="list-style-type: none"> <li>• Junction Boxes/ Enclosures of Inverters/ Charge Controllers</li> </ul>	General Requirements	IP 65(Minimum)Outdoor IEC 62208 IP 20 (Minimum)Indoor

1.2 Test certificates for the BoS items/ components shall be from any of the NABL/IECQ accredited laboratories or MNRE approved test centres.

## SECTION – E

## Grid Interactive SPV power Plant

### FORMAT AND ANNEXURE

#### F.1 Techno Commercial Bid (Envelope-A)

(All pages of the Techno commercial Bid should be organised, annexed with proof documents, serially numbered and stitched/or spiral bound in tact and submitted) Loose pages shall not be accepted.

##### F1.1 Profile of the Bidder

S.No	Particulars	Bidder
1.	Name of the Company	
2.	Year of incorporation	
3.	<b>Registered office</b>	
	Address	
	Office Telephone Number	
	Fax Number	
	<b>Contact Person</b>	
	Name	
	Personal Telephone Number	
	Mobile Number	
	Email Address	
5.	<b>Local office(s)in Tamil Nadu</b>	
	Address	
	Office Telephone Number	
	Fax Number	
6.	<b>Tender signing authority</b>	
	Name	
	Address	
	Personal Telephone Number	
	Email Address	
	Please enclose Authorisation or Power of Attorney to sign and submit the Tender	
7.	Address for communications under the current Tender	
8.	<b>Registration Details</b>	
	Permanent Account Number	
	VAT Registration Number	
	CST Registration Number	
	Service Tax Registration Number	
9.	Banker's Name, Address and Account Number	

##### F1.2 EMD Amount

S.No.	Particulars	Please furnish details
1.	Name of the Bank	
2.	Demand Draft (DD) Number	
3.	DD Date	
4.	DD Amount	

##### F1.3 Furnish details for meeting the Eligibility Criteria

###### 1) Details about Incorporation



## Grid Interactive SPV power Plant

S. No.	Description	Bidder
1.	Year of Incorporation	
2.	Please enclose Certificate of Incorporation	

### 2) Details about Annual Turnover

S. No.	Audited years	Bidder
1.	2011-2012	
2.	2010-2011	
3.	2009-2010	
4.	Please enclose audited Annual Report including Balance sheets and Profit and Loss accounts for any one of audited years	

### 3 Details about minimum quantity installed

S. No	Name , Address & contact details of the Client	Capacity/ Quantity Installed (KWp / Nos)	Date of Commissioning
1.			
2.			
.			
.			
.			

## F.1.4 TECHNICAL BID FOR 10KWpSPV POWER PLANT

A.	SPV MODULE	To be furnished by the Bidder
1.	Type of Module	
2.	Make	
3.	Availability of RFID tag	
4.	Max power at STC Pmax (W)	
5.	Max power voltage Vmp(V)	
6.	Max power current Imp(A)	
7.	Open circuit voltage Voc (V)	

## Grid Interactive SPV power Plant

8.	Short circuit current $I_{sc}$ (A)	
9.	Load voltage $V_{ld}$ (V)	
10.	Conversion Efficiency	
11.	No of cells per module	
12.	No of bypass diodes	
13.	Solar module frame material	
14.	Module Dimension	
15.	Module Weight	
16.	No of Modules	
17.	Array Capacity	
18.	Series/ parallel combination	
19.	Other details	
<b>B.</b>	<b>MODULE MOUNTING STRUCTURE</b>	
1.	Type (Design drawing to be enclosed)	
2.	Structure material	
3.	Size	
4.	Structure leg material	
5.	Height & Dia of leg	
6.	Tilt angle	
7.	PCC Foundation size	
8.	Other details	
<b>C.</b>	<b>PCU</b>	
1	Make	
2	No. of MPPT	
3	Type	
4	Nominal Capacity	
5	Input Voltage	
6	Output voltage	
7	Voltage Regulation @ 70% load	
8	Output frequency	
9	Efficiency at rated output	

## Grid Interactive SPV power Plant

10	Power Factor at Rated output	
11	Voltage THD	
12	Current THD	
13	Crest Factor	
14	Operating Temp	
15	Protections	
16	i. Ground fault monitoring,	
17	ii. Short circuit	
18	iii. Over & Under frequency	
19	iv. Over i/p & o/p voltage	
20	a. grid monitoring,	
21	v. DC disconnect device,	
22	vi. DC reverse polarity protection	
23	vii. AC short circuit current capability	
24	viii. Galvanically isolated, Protection class IEC 62103/Over voltage category according to IEC 60664-1	
25	i. Grid Islanding protection	
D	DC/AC Distrubution	
1.	DC Side Quantity & Ratings of MCBs	
2.	AC Side Quantity & Capacity of MCB	
3.	Details of measuring instruments	
4.	Auto change over provision to grid in case of failure of Inverter	
5.	Other details	
E.	CABLES	
1.	Make	
2.	Size & Quantity	
3.	Standard	
4.	Other details	
F.	EARTHING	
1.	Details of points earthed	
2.	Earth Resistance	

## Grid Interactive SPV power Plant

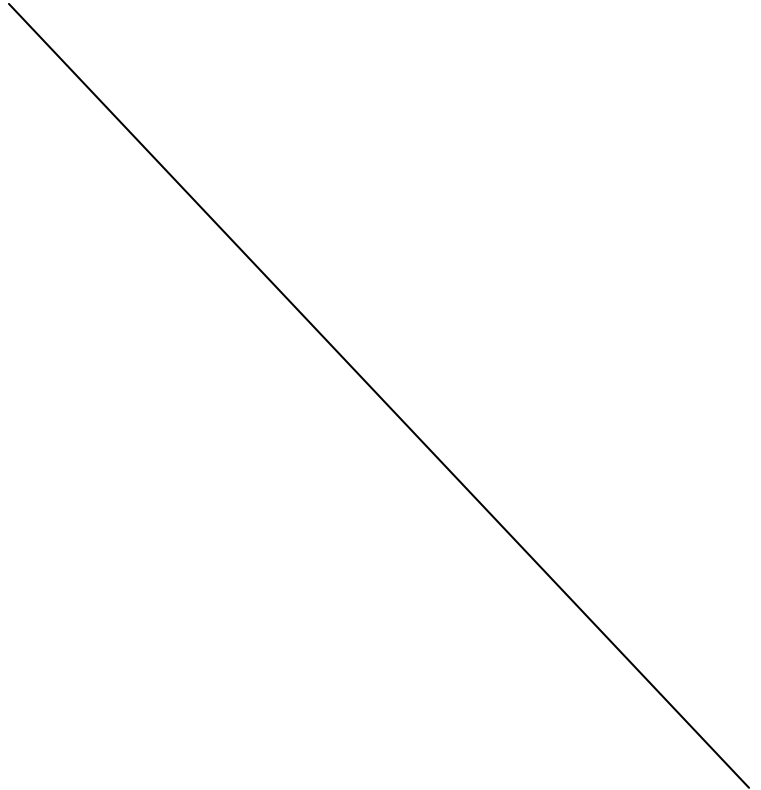
**Signature of the authorised person:**

**Name of the authorised person:**

**Designation:**

**Name and Address of Bidder**

**Stamp of bidder**



Grid Interactive SPV power Plant

F-2 PRICE BID (Envelope-B)

**Tender for Supply, installation, commissioning &  
5years comprehensive maintenance of SPV Power plant of capacity 10KWp without Battery at  
Arulmigu Kandaswamy Temple, Thiruporur - 603110.Tender Reference:-  
PRICE BID FOR 10KWp SPV POWER PLANTS**

The cost of SPV power plants shall include their respective components as per their respective technical specification, including cables, MCBs, switches, fuses etc.,as per the site requirement

S.No	Cost of Grid interactive 10KWp SPV Power plant without Battery (Rs) (a)	Comprehensive maintenance for 5 years (Rs) (b)	Total cost of SPV power plant including 5 years AMC (Rs) (a)+(b)

Rupees in words -----

Cost is inclusive of all taxes, insurance, octroi, transportation, loading-unloading, installation, testing & commissioning and CMC for 5 years. The amount of CST/TNVAT and percentage shall be indicated explicitly & separately.

(Signatures of the authorized signatory)

Date:

Name:

Place:

Designation:

Company seal:

# Grid Interactive SPV power Plant

## BILL OF MATERIAL

S.No.	Description	Total quantity	UOM	Cost/ each Rs.	Total Cost Rs.
I)	Supply of the following for 10 KWp Solar Power Grid connected system				
1	SPV module - (minimum 100 wp crystalline) Only indigenous modules using PV cells manufactured in USA/Germany/France/Austria/ Finland/Thaiwan shall be used on work	As per the capacity of module	No		
2	Module mounting structure	Suitable for S.No.1	set		
3	Array Junction Box	Suitable for S.No.1	No		
4	Main Junction Box	1	No		
5	On-Grid Power Conditioning Unit (PCU)	1	No		
6	Copper Cables (1100V Grade UV protected ) of the following sizes				
a.	1Cx4 sqmm	160	RM		
b.	1Cx6 sqmm	300	RM		
c.	1Cx16 sqmm	200	RM		
d.	2CX6 sqmm	150	RM		
e.	4CX10 sqmm	100	RM		
7	Communication Interface with Data logging and Monitoring system with R S 232/485 communication Fort	1	No		
8	AC Distribution Board with MCB, Voltmeter, ammeter and energy meter for PUC output	1	set		
9	DC Distribution Board	1	set		
10	Super Earthing Kit	4	No		
11	Lightning and overvoltage protection	1			
12	PCU spares	1	set		
	Sub Total (Item 1 to 12)				
	Taxes @ 5%				
13	Civil works and others If any, Please specify separately	1	set		
II)	Installation Charges	1	set		
14	Service Tax @12.36 % on Item(II)				
	Total				
15	Comprehensive Maintenance charges for five years	1	No		
16	Total				

## Grid Interactive SPV power Plant

### **F. 3 Bidder's undertaking covering letter**

(Letter should be submitted on Bidder(s) Letter Head)

Date:

To  
The Executive Officer,  
Arulmigu Kandaswamy Temple,  
Thiruporur - 603110.

Dear Sir,

**Sub: Tender for Supply, installation , commissioning & 5 years comprehensive maintenance of Grid Interactive 10 KWp** SPV Power plants without Battery at Arulmigu Kandaswamy Temple, Thiruporur - 603110.-Reg

Ref:Tender Reference AKST/

\*\*\*\*

- 1. We have examined the tender for Supply, installation , commissioning & 5 years comprehensive maintenance of 10 KWpSPV Power plant without Battery in Arulmigu Kandaswamy Temple, Thiruporur - 603110. as specified in the Tender. We undertake to meet the requirements and services as required in the Tender document.**
2. We attach our Techno commercial Bid and Price Bid in separate sealed covers as required by the Tender both of which together constitutes our proposal, in full conformity with the said Tender.
3. We have read the provisions of Tender and confirm that these are acceptable to us. We further declare that additional conditions, variations, deviations, if any, found in our response shall not be given effect to.
4. We undertake, if our Bid is accepted, to adhere to the requirements as specified in the Tender or such modified plan as may subsequently be agreed.
5. We agree to unconditionally accept all the terms and conditions set out in the Tender document and also agree to abide by this Bid response for a period as mentioned in the Tender from the date fixed for bid opening and it shall remain binding upon us with full force and virtue, until within this period a formal contract is prepared and executed, this Bid response, together with your written

## Grid Interactive SPV power Plant

acceptance thereof in your notification of award, shall constitute a binding contract between us and AKST.

6. We affirm that the information contained in the Techno commercial Bid or any part thereof, including its schedules, and other documents, etc. delivered or to be delivered to AKST is true, accurate, and complete. This proposal includes all information necessary to ensure that the statements therein do not in whole or in part mislead AKST as to any material fact.
7. We agree that AKST is not bound to accept the lowest or any Bid you may receive. We also agree that you reserve the right in absolute sense to reject all or any of the products/ service specified in the bid response without assigning any reason whatsoever.
8. It is hereby confirmed that I/We are entitled to act on behalf of our company/ organization and empowered to sign this document as well as such other documents, which may be required in this connection.
9. We also declare that our Company/Organisation is not blacklisted by any of the State or Central Government and organisations of the State or Central Government.

**Signature of the authorised person:**

**Name of the authorised person:**

**Designation:**

**Name and Address of Bidder**

**Stamp of bidder**



# Grid Interactive SPV power Plant

## **CERTIFICATE AS TO AUTHORISED SIGNATORIES**

I, certify that I am(Name) ..... (Designation) .....,and  
that (Name)..... who signed the above Bid has been duly  
authorized to sign the same on behalf of our Organisation.

Date:

Signature:

Seal:

**F.4 Model Form of Contract**

**To be executed on a Rs.100- Non-judicial Stamp paper bought in Tamil Nadu by the Successful Bidder for Supply, installation , commissioning & 5 years comprehensive maintenance of 10 KWp SPV Power plant without Battery at Arulmigu Kandaswamy Temple, Thiruporur - 603110. ( **NO FIGURES IN NUMERALS OR WORDS SHALL BE FILLED UP IN THIS SAMPLE FORM AT THE TIME OF SUBMISSION OF TENDER**)**

**CONTRACT**

This Contract is entered into at Chennai on the ..... day of 2013 between  
The Executive Officer, Arulmigu Kandaswamy Temple, Thiruporur - 603110., having its Head Office at North Giriveethi, Adivaram, Thiruporur-603110 Tamil Nadu, India, hereinafter referred to as "AKST" (Which term shall mean and include its successors and permitted assigns) on behalf of Government of Tamil Nadu, hereinafter referred to as "Implementing Agency" and ....., a Company registered under .....and having its Registered office at ..... hereinafter referred to as the "Successful Bidder" (Which term shall mean and include its successors and permitted assigns)

**Whereas ADST on behalf of the Government of Tamil Nadu invited a tender vide Tender Ref. No. ADST/ \_\_\_\_\_ for Supply, installation , commissioning & 5 years comprehensive maintenance of (10 KWp) SPV Power plant without Battery in Arulmigu Dhandayuthapaniswamy Thirukoil, Palani, in the State of Tamil Nadu and the Successful Bidder was selected as per the following terms and conditions:-**

This document on having been signed by both the parties shall constitute a binding contract between the parties and shall remain in force for a period of five years. But in the event of any breach of the Contract at any time on the part of the Successful Bidder, the contract shall be terminated by AKST without compensation to the Successful Bidder. The contract may also be put to an end at any time by the Implementing Agency upon giving seven days notice to the Successful Bidder.

**The Successful Bidder agrees for Supply, Installation, Commissioning, Testing**

## Grid Interactive SPV power Plant

and 5 year Comprehensive Maintenance of as per the Terms & Conditions given below.

### 1. Installation & Completion Schedule

The entire work involving Supply, installation , commissioning & testing of 10 KWp) SPV Power plant without Battery in Government Building(Secretariat),Chennai and 10KWpSPV Power plant without Battery in Arulmigu Kandaswamy Temple, Thiruporur - 603110, within 90days.

### 2. Insurance

Transportation of components to the installation site and insuring the goods in transit is the responsibility of the Bidder. The goods installed under the contract should be covered for comprehensive Insurance by the Successful Bidder against loss (or) damage incidental to transportation, storage at site and delivery to site during the erection period. The successful bidder should ensure adequate insurance for the systems against robbery, theft, burglary and acts of God such as natural calamities, flood etc., during the 5 year comprehensive maintenance period.

### 3. Comprehensive Maintenance

- a) Comprehensive Maintenance charge for 5 years .
- b) The Successful Bidder should provide 5 year comprehensive maintenance of the SPV systems, which shall include corrective maintenance at the identified locations.
- c) The service personnel of the Successful Bidder will make routine maintenance visits. Apart from this any complaint registered/ service calls received should be attended to and rectified within 2 days.
- d) The deputed personnel shall be in a position to check and test all the equipments regularly, so that preventive actions, if any, could be taken well in advance to save any equipment from damage.
- e) Normal and preventive maintenance of the SPV systems such as

## Grid Interactive SPV power Plant

cleaning of module surface, topping up of batteries, tightening of all electrical connections, changing of tilt angle of module mounting structure, cleaning & greasing of battery terminals, etc. are also the duties of the deputed personnel during maintenance visits.

- f) During operation and maintenance period of the SPV systems, if there is any loss or damage of any component due to miss management/miss handling or due to any other reasons pertaining to the deputed personnel, what-so-ever, the supplier shall be responsible for immediate replacement/rectification. The damaged component may be repaired or replaced by new component.
- g) The maintenance shall include replacement of all parts.
- h) If the successful bidder, fails to rectify the defect(s) and restore the SPV Power plants to good working condition within 2 days, then a penalty of Rs. 500 per KW per day breakdown period will be levied.
- i) AKST reserves the right to claim damages and Costs for non-fulfilment of warranty, apart from forfeiting unpaid amount, if any, in the event of unsatisfactory maintenance.

#### **4. Liquidated Damages for delayed installations**

- a. This is a time bound project. Any delay will make the project fruitless. . Hence if the Successful Bidder fails to commission the system within the delivery period as specified, Liquidated Damages at the rate of 0.5% per completed week on the value of the unfinished portion of the work will be levied subject to a maximum of 10%. The Liquidated Damages amount will be automatically deducted from the Bills submitted by the Successful Bidder. Even, if installation is not completed, AKST will make alternate arrangements and the cost incurred by AKST for doing the same will be recovered from the Successful Bidder.

#### **5. Warranty**

- 1. a) The SPV panel shall carry a warranty of minimum 25 years.  
(b) The SPV panel must be warranted for their output peak watt capacity which

## Grid Interactive SPV power Plant

should not be less than 90% at the end of 10 years and 80% at the end of 25 years

- (c) The PCU/ inverter /charge controller shall carry a warranty of minimum 5 years.
2. The power conditioners/inverters/ maximum power point tracker units/ distribution boards/digital meters/ switchgear/ storage batteries and overall workmanship of the SPV power plants including mechanical structures and electrical works must be warranted against any manufacturing/ design/ installation/performance defects for a minimum period of 5 years.
3. The warranty will be against breakages, malfunctions, **non fulfilment of guaranteed performance** and breakdowns due to manufacturing defects or defects that may arise due to improper operation of electrical / electronic components of the system but do not include physical damages by the end users.
4. The above warranty shall take effect from the date on which the system is taken over by the users/beneficiaries.
5. The successful tenderer shall be liable to make good the loss by replacing the defective product during the warranty period for the entire system free of cost, failing which AKST would deduct the amount from the amount retained by AKST as per Payment terms and will be blacklisted.
6. The warranty will cover all the materials and goods involved in the installation and commissioning of SPV systems by the successful Bidder under this contract irrespective of the fact whether these have been manufactured by the Successful Bidder or not. The decision in this regard by AKST is final and binding on the successful bidder.
7. The successful bidder shall undertake to supply spares free of cost for the maintenance of the offered items during the warranty period. The successful bidder should keep all the spares available for sale at least for a period of 5 years after the completion of the warranty period.
8. If the operation or use of the system proves to be unsatisfactory during the warranty period, the Successful Bidder shall replace the faulty ones or carry out necessary repairs as per the warranty terms and conditions agreed upon with AKST.

## Grid Interactive SPV power Plant

9. In case the Successful Bidder fails to carry out the warranty regulations, AKST would engage any other agency and carry out the service/replacement and deduct the amounts from the warranty amount retained by AKST as per the Payment terms or from their pending bills or any money due or payable to them.
10. AKST reserves the right to claim damages and Costs for non-fulfilment of warranty, apart from forfeiting un-paid amount if any, in the event of unsatisfactory maintenance.

### **6. PAYMENT TERMS:**

- 1) All payments will be made in INR only.
- 2) No advance will be paid or no letter of credit will be issued.
- 3) 85% payment will be released after successful completion of installation, commissioning, and acceptance by beneficiary after successful inspection.
- 4) 15% payment will be made after the completion of 1 year CMC period against submission of 4 Nos. irrevocable BGs of 3% each of contract value valid for 12 months, 24 months, 36 months and 51 months respectively. The 4 Nos. Irrevocable BGs will be released every year after satisfactory functioning of **SPV power plant**. In case of default, BGs will be encashed.
- 5) The payment will be subject to fulfilment of Warranty/ Comprehensive Maintenance obligations.
- 6) If the Duties and/or Taxes have been reduced retrospectively, the successful bidder is liable to return the same.
- 7) The Successful Bidder will have full and exclusive liability for payment of all Duties, Taxes and other statutory payments payable under any or all of the Statutes/Laws/Acts etc now or hereafter imposed.

### **7. Product take back & Re-Cycling:**

Proper decommissioning and recycling of SPV panels & electronics etc., are necessary to ensure that harmful materials are not released in to the

## Grid Interactive SPV power Plant

environment. Hence the successful bidder has to take back all the components after expiry of their life and proper recycling has to be done.

### **8. Force Majeure**

Neither the Beneficiary/AKST nor the Successful Bidder shall be liable to the other for any delay or failure in the performance of their respective obligations due to causes or contingencies beyond their reasonable control such as:

- Natural phenomena including but not limited to earthquakes, floods and epidemics.
- Acts of any Government authority, domestic or foreign including but not limited to war declared or undeclared, priorities and quarantine restrictions.
- Accidents or disruptions including, but not limited to fire, explosions, breakdown of essential machinery or equipment, power and water shortages.

### **9. The following documents shall be deemed to form and be read and constructed as part of this Contract.**

- a) Technical Specifications
- b) Tender Terms and Conditions
- c) Amendments issued by AKST for the Tender document
- d) Corrigendum/Clarifications issued by AKST for the Tender document
- e) Detailed final offer of the Successful Bidder
- f) Work Order(s) issued by AKST from time to time
- g) Correspondence made by AKST to the successful Bidder from time to time during the period of the contract. Wherever the offer conditions furnished by the Successful Bidder are at variance with conditions of this contract or conditions stipulated in the work order, the latter shall prevail over the offer conditions furnished by the Successful Bidder.

### **10. Waiver of any terms and conditions by AKST / Beneficiary in writing shall not have the effect of waiving or abandoning other terms and conditions of the contract.**

### **11. (a) Unless otherwise provided in the Contract, any notice, request, consent or**

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other communication given or required to be given hereunder shall be given by mailing the same by registered mail, postage prepaid to AKST at its registered office

(b) Any notice to the Successful Bidder shall be deemed to be sufficiently served, if given or left in writing at their usual or last known place of abode or business.

### **12. Termination of Contract**

#### **12.1 Termination for default**

- a) EO, AKST may without prejudice to any other remedy for breach of contract, by written notice of default with a notice period of seven days, sent to the Successful Bidder, terminate the contract in whole or part, (i) if the Successful Bidder fails to install and commission the SPV systems within the delivery Schedule or within any extension thereof granted by EO, AKST; or (ii) if the Successful Bidder fails to perform any of the obligation(s) under the contract; or (iii) if the Successful Bidder, in the judgement of EO, AKST, has engaged in fraudulent and corrupt practices in competing for or in executing the Contract.
- b) In the event EO, AKST terminates the Contract in whole or in part, AKST may procure, upon terms and in such manner as it deems appropriate, the goods and services similar to those tendered and the Successful Bidder shall be liable to AKST for any additional costs for these. However, the Successful Bidder shall continue the performance of the contract to the extent not terminated.

#### **12.2 Termination for Insolvency**

EO, AKST may at any time terminate the Contract by giving written notice with a notice period of 7 days to the Successful Bidder, if the Successful Bidder becomes bankrupt or otherwise insolvent. In this event, termination will be without compensation to the Successful Bidder, provided that such termination will not prejudice or affect any right of action or remedy that has accrued or will accrue thereafter to AKST.



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### **12.3 Termination for Convenience**

EO, AKST may by written notice, with a notice period of seven days sent to the Successful Bidder, may terminate the Contract, in whole or in part, at any time for its convenience. The notice of termination shall specify that termination is for AKST's convenience, the extent to which performance of work under the Contract is terminated, and the date upon which such termination becomes effective. On termination, the successful Bidder is not entitled to any compensation whatsoever.

If the installation & commissioning is not effected as specified in the work order, EO, AKST shall have the full authority to cancel the order and to take any such action that will be deemed fit in the circumstances.

- 13.** In case of failure by the Successful Bidder to install and commission the SPV systems within the period specified or in case of installations made by them, not being of the stipulated quality and specifications. EO, AKST shall have the power to reject any such installations.
- 14.** In case of any dispute, the matter will be referred to a sole Arbitrator to be appointed by the Commissioner,HR&CE Department,Govt Of Tamil Nadu,Chennai-34 in accordance with the Arbitration and Conciliation Act1996. The arbitration shall be held in Thiruporur, India and the language English only.
- 15.** Subject to the above, the Courts at Chengalpet alone only shall have jurisdiction in the matter.

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In Witness whereof the parties hereto have signed on the day, month and year above written in the presence of

Executive Officer,  
Arulmigu Kandaswamy  
Temple, Thiruporur - 603110.

For and on behalf of  
Successful Bidder

Witnesses:

- 1.
- 2.
- 3.

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**F- 5 Bank Guarantee Format**

(To be executed in Rs.100/- Stamp Paper)

To  
The Executive Officer,  
Arulmigu Kandaswamy Thirukoil,  
Thiruporur - 603110

Bank Guarantee No:  
Amount of Guarantee:  
Guarantee covers from:  
Last date for lodgement of claim:

This Deed of Guarantee executed by ..... (Bankers Name & Address) having our Head Office at .....(address) (hereinafter referred to as "the Bank") in favour of The Executive officer, Arulmigu Kandaswamy Temple, Thiruporur - 603110. hereinafter referred to as "the Beneficiary") for an amount not exceeding Rs.\_\_\_\_\_-/- (Rupees \_\_\_\_\_ Only) as per the request of M/s. \_\_\_\_\_ having its office address at \_\_\_\_\_(hereinafter referred to as "Supplier") against Letter of Acceptance reference \_\_\_\_\_dated \_\_/\_\_/\_\_\_\_ of The Executive officer, Arulmigu Kandaswamy Temple, Thiruporur - 603110..This guarantee is issued subject to the condition that the liability of the Bank under this guarantee is limited to a maximum Rs.\_\_\_\_\_-/- (Rupees \_\_\_\_\_ Only) and the guarantee shall remain in full force up to 60 months from the date of Bank Guarantee and cannot be invoked otherwise by a written demand or claim by the beneficiary under the Guarantee served on the Bank before 2 months from the date of Bank Guarantee.

AND WHEREAS it has been stipulated by you in the said ORDER that the supplier shall furnish you with a Bank Guarantee by a Scheduled/

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Nationalised Bank for the sum specified therein as security for compliance with the Supplier's performance obligations for a period in accordance with the contract.

AND WHEREAS we have agreed to give the Agency a Guarantee.

THEREFORE, we (Bankers address)....., hereby affirm that we are Guarantors and responsible to you on behalf of the Supplier up to a total of Rs.\_\_\_\_\_-/- (Rupees \_\_\_\_\_ Only) and we undertake to pay you, upon your first written demand declaring the Supplier to be in default under the contract and without any demur, cavil or argument, any sum or sums within the limit of Rs.\_\_\_\_\_-/- (Rupees \_\_\_\_\_ Only) as aforesaid, without your needing to prove or show grounds or reasons for your demand or the sum specified therein. We will pay the guaranteed amount notwithstanding any objection or dispute whatsoever raised by the Supplier.

This Guarantee is valid until 60 months from the date of Bank Guarantee.

Notwithstanding, anything contained herein

Our liability under this guarantee shall not exceed Rs.\_\_\_\_\_-/- (Rupees \_\_\_\_\_ Only). This Bank Guarantee shall be valid up to 60 months from the date of Bank Guarantee and we are liable to pay the guaranteed amount or any part thereof under this Bank Guarantee only and only if you serve upon us a written claim or demand on or before 2 months.

In witness whereof the Bank, through its authorised Officer, has set its, hand and stamp on this ..... at \_\_\_\_\_.

Witness:  
(Name in Block Letters)

(Signature)

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**F. 6 FORMAT FOR SUBMISSION OF PERFORMANCE CERTIFICATE FROM THE  
END USER BY THE SUPPLIER**

**To Whomsoever it may concern**

This is to Certify that the SPV system installed by-----  
at the premises of -----on----- is  
working satisfactorily.

Signature of the Beneficiary

Name in Block Letters:  
Designation:  
Organisation

Signature of the Supplier

Name in Block Letters:  
Designation:  
Organisation

Date:

Place:

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### F.7 DRAFT UNDERTAKING IN LIEU OF E.M.D.

**(To be furnished in non-judicial stamp paper of value not less than Rs.80/)**

THIS DEED OF UNDERTAKING EXECUTED AT \_\_\_\_\_ ON THIS  
THE \_\_\_\_\_ DAY OF \_\_\_\_\_ TWO  
THOUSAND AND BY M/S. \_\_\_\_\_ a  
company registered under companies Act 1956, having its registered office at  
\_\_\_\_\_ hereafter called "Tenderer" (which expression shall where the  
context so admits mean and include their Agents, Representatives, Successors-in-  
office and Assigns)

TO AND IN FAVOUR OF The Executive officer, Arulmigu Kandaswamy Temple,  
Thiruporur - 603110. herein called the "EO,AKST" (which expression shall where the  
context so admits mean and include its successors in office and Assigns).

WHEREAS the tenderer is required to pay Earnest Money Deposit of Rs. \_\_\_\_\_ for  
participation in the tender for supply and installation of \_\_\_\_\_ in terms  
of specification No. \_\_\_\_\_

AND WHEREAS the tenderer is exempted from payment of EMD as per  
\_\_\_\_\_, subject to the tenderer executing an undertaking to the  
value \_\_\_\_\_ of \_\_\_\_\_ Rs. \_\_\_\_\_ (Rupees  
\_\_\_\_\_ only) representing the amount  
equivalent to the amount of EMD specified to be paid to AKST in the event of non-  
fulfillment or breach of any of the conditions of the tender by the Tenderer as  
mentioned hereunder. AND WHEREAS in consideration of the acceptance by AKST of  
the above proposal, The tenderer has agreed to pay to AKST the said amount of  
Rs. \_\_\_\_\_ in the event of :-

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- i. Withdrawing his tender before the expiry of the validity period
- ii. Withdrawing his tender after acceptance or fails to remit the Security Deposit.
- iii. Violating any of the conditions of the tender issued by the competent authority.

NOW THE CONDITION OF THE above written undertaking is such that if the tenderer shall duly and faithfully observe and perform the conditions specified as above, then the above written undertaking shall be void, otherwise it shall remain in full force.

The tenderer undertakes not to revoke this guarantee till the contract is completed under the terms of contract.

The expression, 'tenderer' and 'AKST' hereinafter before used shall include their respective successors and assign in office.

IN WITNESS WHERE OF THIRU \_\_\_\_\_  
acting for and on behalf of the Tenderer has signed this deed on the day, month and year herein before first mentioned.

**SIGNATURE**

**NAME IN BLOCK LETTERS**

**SEAL OF THE COMPANY**

**In the presence of Witnesses**

Signature

Name and Address

Signature

Name and Address

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### A.1 EMD Exemption

- i) The Small Scale Industrial units located within the State and Registered with the Tamil Nadu Small Industries Development Corporation.
  - ii) The Small Scale Industrial units located within the State and Registered with National Small Industries Corporation (NSIC).
  - iii) The SSI units holding Permanent Registration certificate from the District Industries Centres of Directorate of Industries and Commerce in respect of those items for which the Registration Certificate has been obtained.
  - iv) Departments of the Government of Tamil Nadu.
  - v) Undertakings and Corporations owned by Government of Tamil Nadu.
  - vi) Labour Contract Co-operative Societies registered within Tamil Nadu.
  - vii) Tiny Industries classified under SSI, registered with the State of Tamil Nadu, and Registration Certificate issued by Department of Industries and Commerce/Government of Tamil Nadu.
  - viii) Small Scale Industrial units located outside the State but registered with National Small Industries Corporation (NSIC) in respect of the items manufactured by them.
- a) Industries exempted from payment of EMD shall enclose duly attested Photostat copy of their Registration Certificate showing the subject materials specifying capacity which they are permitted to manufacture and the period of validity of the certificate as proof of eligibility for exemption from payment of EMD.
  - b) Those Bidders who are exempted from payment of E.M.D, shall furnish in lieu of EMD an under taking in a non-judicial stamp paper of value not less than Rs. 80.00 (Rupees Eighty only) in the prescribed format, as per **Format - 7** to the effect to pay penalty an amount equivalent to EMD in the event of non-fulfilment or non-observance of any of the conditions stipulated in the contract consequent to such breach of contract.
  - c) Undertaking and proof of exemption of EMD shall be kept in the EMD cover as specified in clause A-1 TENDERS RECEIVED WITHOUT PROOF FOR EXEMPTION OF EMD AND UNDERTAKING WILL NOT BE READOUT AND WILL BE REJECTED SUMMARILY.



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