



File No-01/14(07)/2016/NISE-PV (Maintenance)

**NATIONAL INSTITUTE OF SOLAR ENERGY**

(An autonomous Institute of Ministry of New & Renewable Energy)

**GURGAON**

**Supply, installation, testing and commissioning of One No. of New LT Panel at Old Building, and Modifications of one no of existing Lt Panel in New Building (Suryabhawan), and source and load control with SCADA and other required hardware – reg.**

Extension of period for submission of bids

**Subject:-** Supply, installation, testing and commissioning of One No. of New LT Panel at Old Building, and Modifications of one no of existing Lt Panel in New Building (Suryabhawan), and source and load control with SCADA and other required hardware – reg.

Sealed tenders were invited from Smart Grid solution providers having an annual turnover of not less than 1 CR during the last three years for supply, installation, testing and commissioning of LT & HT Panels also essentially having experience of at least 500 kWp of Micro-grid with experience of integrating PV, Battery, Grid and Diesel Generator set (As a single project). One No. of New LT Panel at Old Building, and Modifications of one no of existing Lt Panel in New Building (Surya Bhawan), and source and load control with SCADA and other required hardware as per the technical specifications & standards given in the tender document

The last date of receipt of bids was 27<sup>th</sup> May, 2016. However, the Competent Authority has decided to extend the period for submission of bids by ten days. Therefore, bidders may submit their bids any day on or before 01:00 PM, 7<sup>th</sup> June, 2016. The date and time of opening of bids will be intimated to the bidders in due course.

**National Institute of Solar Energy**  
Gwal Pahari, Gurgaon-Faridabad Road  
Gurgaon 122003 Haryana

**NOTICE INVITING TENDER**

SUB- Supply, installation, testing and commissioning of **One No. of New LT Panel at Old Building, and Modifications of one no of existing Lt Panel in New Building (Suryabhawan), and source and load control with SCADA and other required hardware – reg.**

Sealed Tenders are invited from Smart Grid solution providers having an annual turnover of not less than One CR during the last three years for office of the Director General, National Institute of Solar Energy (NISE) Gurgaon for supply, installation, testing and commissioning of One No. of New LT Panel at Old Building, and Modifications of one no of existing Lt Panel in New Building (Suryabhawan), and source and load control with SCADA and other required hardware as per technical specifications & standards given in tender document.

The tender document and detailed technical specifications along with tender terms and conditions may be downloaded from the website of Ministry of New and Renewable Energy: [www.mnre.gov.in](http://www.mnre.gov.in) and National Institute of Solar Energy: [www.nise.res.in](http://www.nise.res.in). The interested bidders must visit the NISE Campus, Gurgaon on any working day between 10.00AM to 4.00 PM to assess & inspect the job requirement before submitting the bid.

Submitting of Tenders	Sealed bids both Technical & Price Bids to be submitted in different envelopes super-scribed Technical Bid for LT panels and Price Bid put in bigger envelopes may be dropped in the Tender Box placed at Reception Room in the Institute.
Earnest Money Deposit	Rs.1,75,000/- only (refundable to the unsuccessful bidders without any interest) by Demand Draft drawn in favor of “National Institute of Solar Energy” payable at Gurgaon
Last date for submission of bids	1.00 P.M. on 27 <sup>th</sup> May, 2016
Date of opening of Technical bids	3.00 P.M. on 27 <sup>th</sup> May, 2016
Opening of Price Bid	The time and date of opening of commercial bid will be intimated to the technically qualified bidders
Address for Communication	The Director General, National Institute of Solar Energy, Faridabad-Gurgaon Road, Gwal Pahari, Gurgaon 122003, Haryana, India.

## INSTRUCTIONS TO BIDDER

### 1. Eligibility of Bidders

- i) The Bidder should be a reputed smart grid solutions provider having an annual turnover of not less than 1 CR during the last three years, who must have experience in at least one similar kind of jobs. The proof of turnover and list of clientele will be submitted with the bids. Such equipment must be of the most recent series/models incorporating the latest improvements in design. The models should be in successful operation for at least one year as on date of Bid Opening.
- ii) Details of Service Centers located in Gurgaon or adjoining areas and information on Service support facilities that would be provided after the warranty period (In the Service Support Form).
- iii) That, the Bidder shall be equipped and able to carry out the Supplier's maintenance, repairs and Spare parts, stocking obligations prescribed by the conditions of the contract.
- iv) That the adequate and specialized expertise is already available or will be made available following the execution of the contract in the Purchaser's city, to ensure that the support services are responsive and adequate.
- v) That the Bidder will assume total responsibility for the fault-free operation of equipment and Maintenance during the warranty period and provide necessary maintenance services for five years after end of warranty period if required.
- vi) Bidders who meet the criteria given above are subject to be disqualified, if they have made untrue or false representation in the forms, statements and attachments submitted in proof of the qualification requirements or have a record of poor performance, not properly completing the contract, inordinate delays in completion or financial failure, etc.

## Technical Specifications.

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### Scope of work

The scope of work under this tender is

1. Remote operation of VCB of HT panel at Substation
2. Construction of new LT panel at Substation for old building
3. Modification of existing LT Panel at new building (Surya Bhawan)
4. BUS connection between two LT panels at Surya Bhawan and old building
5. Addition of existing capacitor bank to LT panel for reactive power compensation at both Surya Bhawan and old Building.

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### Detailed Specifications

#### 6. Modification to exiting HT panel

- 6.1. At present NISE has an existing HT panel. That is located in between the grid supply and NISE complex connection.
- 6.2. The incomer of this HT panel in 11kV 3 phase supply from the grid. (3 phase/3 wire or 3 phase/4 wire)

- 6.3. The outgoing of this HT panel is 11 kV (3 phase/3 wire or 3 phase/4 wire) supply goes to two units of 11 kV to 415 V transformers. Two transformers each branch total 4 transformers of 640 kVA each.
- 6.4. The incomer has VCB, operated through relay and outgoing has manual circuit breaker.
- 6.5. The HT panel has 11 kV BUS
- 6.6. Now the actual scope of work is remotely operate and control VCB provided in existing HT panel. This can be incorporated as a new panel or as a modification of existing panel (if not possible in existing HT panel VCB).
- 6.7. The existing HT panel will be fitted with incomer and outgoing indication lamp for each phase. It will also have a 24 Volt DC input in Active Hi configuration. (24V DC given to the input will activate the VCB while less than 20V DC at this terminal will deactivate the VCB)
- 6.8. There should be a manual overwrite switch for this operation.

## **7. Construction of new LT panel**

- 7.1. From the above HT panel, there will be 2 LT panels. One panel will newly developed, constructed and other will be existing panel. This section describes the new panel.
- 7.2. The scope of the work will be
  - 7.2.1.1. The LT panel will have two incomer BUS of 0.4 kV. This will be named as LT1C0.4. These two transformers will get connected to these BUSs, only one transformer will be operational at a time, other will be in standby mode.
  - 7.2.1.2. Each transformer will have a manual circuit breaker at the primary side which is already provided and secondary connection will be connected through motorized circuit breaker (ACB) of 630 Amps .
  - 7.2.1.3. The ACBs will be operated with 24V DC in Active High mode. A logic must be built in that at any given point of time both ACBs will not be on.
  - 7.2.1.4. All phases of incomers and outgoing must have indicators
  - 7.2.1.5. All the ACB should be connected through meters, meters may be bidirectional if there is two way power flow.
  - 7.2.1.6. Adequate protection of LA, earthing, will be taken
  - 7.2.1.7. Proper earthing and proper fire extinguishers must be provided as per the electrical safety code.
- 7.2.2. Supply, installation, wiring and commissioning of indoor LT panel with following specifications. This also includes the supply, installation wiring and commissions of following internal items inside the LT panel.
  - 7.2.2.1. The LT panel will have only one 0.4kV BUS connected through two transformer, five different PV sources, 3 Diesel generators, one capacitor panel, and 17 outputs.
  - 7.2.2.2. These switches will be connected through motorized switches (ACBs) which can be operated automatically by 24V DC Active High Mode as well as with manual override.
  - 7.2.2.3. The out put switches will be five Nos of 250 Amps, seven Nos of 300 Amps and seven Nos of 400 Amps.
  - 7.2.2.4. Each PV source will be of 100 KW capacity and switch will be provided accordingly and synchronized relay required should be provided.
  - 7.2.2.5. Diesel Generator will be connected through the synchronization relay

- 7.2.2.6. All the motorized Circuit breaker will have a potential free contact for indication to SCADA system for the status of the circuit breaker.
- 7.2.2.7. All the circuit breaker will be operated by +24V DC axillary signal. When this signal is present, the circuit breaker will be in ON condition. If the signal is absent the circuit breaker will be in OFF condition.
- 7.2.2.8. The capacity of each BUS and motorised circuit breaker will be 1.5 MVA
- 7.2.2.9. Each connection will have manual circuit breaker with required capacity that can override the motorised circuit breaker.
- 7.2.2.10. The panel will have indicating lamp and bidirectional meter for each bus as well as for the states of motorised circuit breaker and for each connections.
- 7.2.2.11. There will be a protection relay panel for each of the bus protecting for over voltage, under voltage, over current, over frequency, under frequency, earth leak and rapid increase of current. The protection relay must have RS 485 communication port and standard MODBUS protocol for communication to SCADA. The register map for the MODBUS protocol must be supplied.
- 7.2.2.12. There will be a tri-vector meter or by directional meter (if two way power flow) for each BUS. The tri-vector meter must have RS 485 communication port and standard MODBUS protocol for communication to SCADA. The register map for the MODBUS protocol must be supplied.

## **8. Modification of existing LT Panel**

- 8.1. Presently there is LT panel in NISE complex in new building. The same has to be modified. This has to be done with following specifications.
- 8.2. The scope will be to supply, install in existing panel, wiring at the existing panel and commissioning of modified panel. The modifications will be as with the following specifications.
  - 8.2.1. The existing LT BUS will be called as LT2C0.4 The existing BUS has need to be provided automatic disconnecter from incomer and bidirectional meter.
  - 8.2.2. There are three BUSs of 0.4kV, 640 kVA w in existing LT panel . each will be called as DGL1, DGL2 and Grid L3.
  - 8.2.3. Each new bus will get connected to LT2C0.4 BUS through motorized circuit breaker of adequate capacity.
  - 8.2.4. The motorized Circuit breaker will have a potential free contact for indication to SCADA system for the status of the circuit breaker.
  - 8.2.5. The circuit breaker will be operated by +24V DC axillary signal. When this signal is present, the circuit breaker will be in ON condition. If the signal is absent the circuit breaker will be in OFF condition
  - 8.2.6. Each of BUS DGL1, DGL2 and Grid L3 will have 10 (ten) connection. Each with automatic motorized circuit breaker with adequate capacity.
  - 8.2.7. Each input and output must be provided with indicator.

## **9. BUS connection between two LT panels**

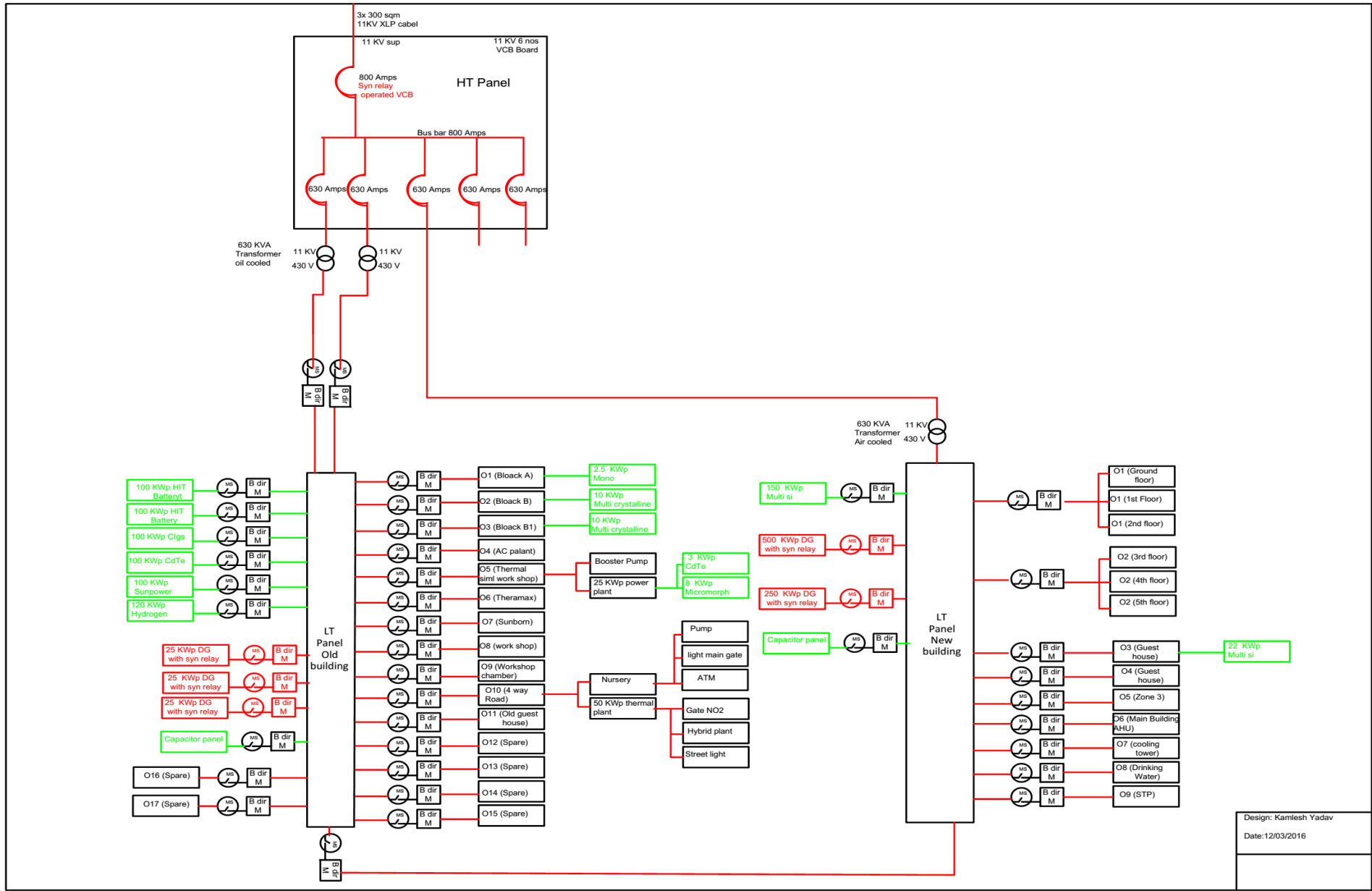
- 9.1. The two common LT buses LT1C0.4 and LT2C0.4 are connected using Aluminum cable.
- 9.2. These two panels are away from each other by 900 meters
- 9.3. There will be one automatic disconnect for cable mounted inside the LT panels.
- 9.4. The scope of the work will be to supply, installation, connection and commissioning of automatic disconnect inside the LT panel for both cable.

## **10. Addition of existing capacitor bank to LT panel for reactive power compensation.**

- 10.1. NISE has an Existing LT Capacitor bank 200VAR.
- 10.2. This bank has to be integrated to LT1C0.4 BUS.
- 10.3. The bank must be activated depending on reactive load.
- 10.4. The scope of the work is: supply, wiring, installation and commissioning of control logic to integrate the existing capacitor bank to existing BUS, based on reactive load.

**Bill of Material for LT Panel**

<b>Item</b>	<b>Specifications</b>	<b>Quantity</b>	<b>Recommended Brands</b>	<b>Specifications</b>
<b>Synchronise Relay</b>	3 phase grid synchronisation relay with 3 phase voltage and current from two sources and synchroniser output	15	Alstom / ABB	IEC 870-S
<b>Air Circuit Breaker</b>	3 phase motorised Air Circuit Breaker 100 kVA operated at 24V DC with potential free contact for SCADA	9	ABB/Schneider/Areva/GE/Cooper Bushman	IEC 947, IEC 408
	3 phase motorised Air Circuit Breaker 250 kVA operated at 24V DC with potential free contact for SCADA	7	ABB/Schneider/Areva/GE	IEC 947, IEC 408
	3 phase motorised Air Circuit Breaker 500 kVA operated at 24V DC with potential free contact for SCADA	24	ABB/Schneider/Areva/GE	IEC 947, IEC 408
	3 phase motorised Air Circuit Breaker 750 kVA operated at 24V DC with potential free contact for SCADA	4	ABB/Schneider/Areva/GE	IEC 947, IEC 408
<b>TVM</b>	AC Three Phase Bi directional Trisector meter with MOD BUS communication protocol	43	Secure/ L & T	
<b>Panel Indicator Bulb</b>	set of 3 indicator bulbs each for each phase	43	Any	
<b>Bus Bar</b>	Three Phase Bus Bar 1,200 Amp with Neutral and Earth bus bars	2	Any - Not specific	
<b>Bus Terminator</b>	Terminator to connect the incoming cables to BUS	172	Any - Not specific	
<b>Ground Fault Relay</b>	Ground Fault Detection Relay	2	ABB/Schneider/Areva/GE	
<b>Hooter</b>	Hooter for Alarm	2	Any	
<b>Connectors</b>	SCADA connection termination Screw Connector	2	Phoenix	
<b>Panel Bulb + Socket</b>	Operation bulb or tube light with 5 Amp socket and plug for panel repair	2	Ancher, Philips,	
<b>DC Power Supply</b>	24 V DC power supply of required capacity with one stand by	4	Phoenix	





## 11. GENERAL CONDITIONS OF CONTRACT

1. **Codes & Standards:** The LT Panels and its components shall comply with the latest edition of the applicable standards.
2. **Inspections and Tests:** All routine test & acceptance tests as per relevant standards and specification shall be carried out by the vendor on the premises of the MANUFACTURER. Charges for all these tests for all the equipment & components shall be included. Drawings and production data shall be furnished to the inspectors at no charge basis to the Purchaser, Should any inspected or tested Goods fail to conform to the specifications, the Purchaser may reject the goods.
3. **Commissioning Check Tests/Performance and Guarantee Test:** In addition to the checks and test recommended by the manufacturer, the contractor shall supervise the following acceptance tests to be carried out on each set.
4. **Certificate:** The vendor shall furnish, at its own cost, test certificate for the various material and equipment as called for. Such certificate shall be from the manufactures for the particular consignment / lot/piece and shall be dully authenticated by respective consultants.
5. **Packing:** The Supplier shall provide such packing of the Goods as is required to prevent their damage or deterioration during transit to their final destination as indicated in the Contract. The packing shall be sufficient to withstand, without limitation, rough handling during transit and exposure to extreme temperatures, salt and precipitation during transit and open storage. Packing case size and weights shall take into consideration, where appropriate, the remoteness of the Goods' final destination and the absence of heavy handling facilities at all points in transit.
6. **Delivery and Documents:** Delivery of the goods should be made within 04 weeks from the date of placement of purchase order. Within 24 hours of shipment, the supplier shall notify the purchaser and the insurance company by cable/telex/fax/e mail the full details of the shipment including contract number, railway receipt number/ AWB etc. and date, description of goods, quantity, name of the consignee, invoice etc. The Supplier shall mail the following documents to the purchaser with copy to the insurance company:
  - i) Copies of the Supplier invoice showing contract number, goods' description, quantity, and unit price, total amount;
  - ii) Acknowledgment of receipt of goods from the consignee(s) by the transporters; iii) Insurance certificate, if any.
  - iii) Manufacturer's/Supplier's warranty certificate;
  - iv) Inspection Certificate issued by the inspector of SINP, and the Supplier's factory inspection report; and Certificate of Origin.
  - v) Two copies of the packing list identifying the contents of each package.
7. The above documents should be received by the Purchaser before arrival of the Goods (except where the Goods have been delivered directly to the Consignee with all documents) and, if not received, the Supplier will be responsible for any consequent expenses.
8. **Insurance:** For delivery of goods at the purchaser's premises, the insurance shall be obtained by the Supplier to an amount equal to 110% of the value of the goods from "warehouse to warehouse" (final destinations) on "All Risks" basis including War Risks and Strikes.
9. **Transportation :** Where the Supplier is required under the Contract to transport the Goods

- to a specified place of destination including insurance, as shall be specified in the Contract, shall be arranged by the Supplier, and the related cost shall be included in the Contract Price.
10. **Warranty:** The vendors must provide full comprehensive warranty for a period of 12 months (one year)  
Post installation. During this period they should provide for all spare and parts required for repair and maintenance along with repair maintenance service within 12 hrs. of communication of such services cell. Warranty of 1 year against manufacturing defects.
  11. **AMC:** The vendor must have provision for prompt and high quality after-sales services after Completion of the warranty period in an AMC basis (Hardware Portion) and must quote the cost of such AMC in the main tender for the 2nd and 3rd year.
  12. **Payment: Payment:** 40% advance & 50% against delivery of material at site & 10% after testing & commissioning and acceptance of the system /equipment to the entire satisfaction of the Purchaser and on production of unconditional performance bank guarantee of the amount of EMD which will be retained for a period of one year towards warranty.
  13. **Taxes and Duties:** Suppliers shall be entirely responsible for all taxes, duties, license fees, road permits, etc., incurred until delivery of the contracted Goods to the Purchaser. Being the purchases for scientific purpose, the customs/Excise duty exemptions are applicable.
  14. **Penalty Clause:** If the Supplier fails to deliver the Goods or to perform the Services within the period(s) specified in the Contract, the Purchaser shall, without prejudice to its other remedies under the Contract, deduct from the Contract Price, as penalty (Half percent of contract price per week of delay subject to a ceiling of 5% of final contract price).
  15. **Applicable Law:** The Contract shall be interpreted in accordance with the laws of the Union of India and all disputes shall be subject to place of jurisdiction in Gurgaon, Haryana.

16. THE FOLLOWING FORMS TO BE FILLED BY  
THE BIDDER

- Performance
- Statement form
- Service
- Support
- details;
- Manufacturer's
- Authorization Form
- Certificate of experience of

one similar jobs. NOTES

NISE, Gurgaon reserve right to accept or reject any or all applications without assigning any reasons.

Sd/-  
(Dr O S Sastry)  
Director General, NISE