

**Request for Proposal
for
Design, Supply, installation & commissioning
of
75 kWp grid connected roof top solar power plant
and maintenance of the plant for 10 years
at
REPM Plant, Visakhapatnam**



IREL (India) Limited

(A Government of India Undertaking)

Plot No.,1207, Veer Savarkar Marg, ECIL Building,
Prabhadevi, Mumbai-400028,
Website: www.irel.co.in

CIN No. U15100MH1950GOI008187

Schedule Of Tender

Name of Work	Design, Supply, installation, integration with existing electrical system & commissioning of 75 KWp grid connected roof top solar PV power plant and maintenance of the plant for 10 years at REPM plant, Atchutapuram, BARC(Campus), Visakhapatnam, AP.
Type of Tender	Open Tender through GeM, Single Stage Two Bid System Two cover System
Tendering Mode: GEM Portal	Public tender (Two cover System) <input type="checkbox"/> Pre-Qualification and techno-commercial Bid <input type="checkbox"/> Financial Bid
Cost of Tender Document	NIL
Earnest Money Deposit (EMD)	Rs.1,13,000/- (<i>Only manufacturers for goods and Service Providers for Services are eligible for exemption from EMD for MSE category bidders, traders are not exempted</i>).
Date & time of Starting of bid	26.04.2024
Pre-bid Meeting date & time	03.05.2024, 15.00 hrs (through Video Conference) VC Link: https://meet.google.com/fgj-amup-ybe
Date of closing of bid for submission of Bids	22.05.2024, 15.00 hrs
Date & time of opening of Cover 1	22.05.2024, 15.30 hrs
Date & time of opening of Financial Bid	Shall be informed separately to the eligible bidders
Declaration of Successful Bidder	To be decided
Completion period	120 days
Estimated Cost	Rs.56,40,000/-
Validity of tender	90 days from bid due date
SD/Performance security/PBG	5% of the contract value
Contact details of tender inviting authority	Shri S Acharjya, DGM – Technical (I/c REPM &Purchase) IREL (India) Limited Plot No. 1207, V.S.Marg, ECIL Building,Opp. Siddhi Vinayak Temple, Prabhadevi,Mumbai-400 028 Email: purchase-ho@irel.co.in ; cskreddy@irel.co.in Phone 022- 24211630 (Ext. No. 266)

DISCLAIMER

The information contained in this tender document (the “**TENDER**”) or subsequently provided to Bidder(s), whether verbally or in documentary or any other form, by or on behalf of IREL or any of its employees, is provided to Bidder(s) on the terms and conditions set out in this TENDER and such other terms and conditions subject to which such information is provided. The information provided is only for the information and reference of the Bidders.

This TENDER is not an agreement and is neither an offer by IREL to the prospective Bidder(s) or any other person. The purpose of this TENDER is to provide interested parties with information that may be useful to them in the formulation of their bid for participation in this TENDER. This TENDER includes statements, which reflect various assumptions and assessments arrived at by IREL in relation to the tender work. Such assumptions, assessments and statements do not purport to contain all the information that each Bidder may require. This TENDER may not be appropriate for all persons, and it is not possible for IREL, or its employees to consider the investment objectives, financial situation and particular needs of each party who reads or uses this TENDER. The assumptions, assessments, statements and information contained in this TENDER may not be complete, accurate, adequate or correct. Each Bidder should therefore, conduct its own investigations and analysis and should check the accuracy, adequacy, correctness, reliability and completeness of the assumptions, assessments, statements and information contained in this TENDER and obtain independent advice from appropriate sources.

Information provided in this TENDER to the Bidder(s) is on a wide range of matters, some of which may depend upon interpretation of law. The information given is not intended to be an exhaustive account of statutory requirements and should not be regarded as a complete or authoritative statement of law. IREL accepts no responsibility for the accuracy or otherwise for any interpretation or opinion on law expressed herein.

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The issue of this TENDER does not imply that IREL is bound to select and short-list qualified Bids for Price Bid stage or to appoint the Selected Bidder for the intended supply/work, and IREL reserves the right to reject all or any of the Bids without assigning any reasons whatsoever.

The Bidder shall bear all its costs associated with or relating to the preparation and submission of its Bid including but not limited to preparation, copying, postage, delivery fees, expenses associated with any demonstrations or presentations which may be required by IREL or any other costs incurred in connection with or relating to its Bid. All such costs and expenses will remain with the Bidder and IREL shall not be liable in any manner whatsoever for the same or for any other costs or other expenses incurred by a Bidder in preparation or submission of the Bid, regardless of the conduct or outcome of the Bidding Process.

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1. Request for Proposal

1.1 Introduction :

IREL (India) Limited (Formally Indian Rare Earths Limited) Rare Earth Permanent Magnet(REPM) Plant is a central PSU Category 1 organization deals in mining, mineral processing, production of minerals and RE and other value added products. The REPM facility is located at following address:-

BARC Campus, Atchutapuram, At/po : Maduthuru, Visakhapatnam -531011(Andhra Pradesh).

REPM is having 2 transformers of rating 11kV/0.415 KV, 2000 KVA, with present maximum power demand of about 1000kVA. In addition to this we have 750 KVA DG set as standby power supply unit. IREL, REPM invites RFP from capable and resourceful bidders for execution of 75 kWp grid connected roof solar power plant. The broad scope of work is indicated under technical specification.

1.2 Mode of Bidding

The tender bids duly filled in all aspects and uploaded at GEM Portal on or before the scheduled time and date as mentioned in the tender enquiry will be considered for evaluation.

The Tenderer, at the Tenderer's own responsibility shall visit and examine the Site of Works and its surroundings and obtain all information that may be necessary for preparing the Tender and entering into a contract for Execution of 75kwp grid connected rooftop solar PV power plant at REPM, Vishakhapatnam. The costs of visiting the site shall be at the Tenderer's own expense. The tenderer should inspect the site during working hours (i.e. 10.00Hrs to 17.00Hrs) on working days (i.e. Monday to Saturday) only. Bidder must visit the site before submission of the bid. Site visit report to be part of techno-commercial bid.

The Bids shall be prepared in two parts viz. PQ cum Technical Bid (Part 1) and Price Bid (Part 2).

Technical bid(Part 1) and Price Bid (Part 2)shall be submitted be through GEM Portal. Bids submitted GEM portal shall only be considered.

Technical Bid will be opened at the first instance and evaluated by IREL's concerned authority. In the second stage, financial bids of only the technically eligible offers will be opened for further evaluation and ranking before awarding the contract.

PQ cum Techno-commercial bid (Part 1)

It contains documents in support of eligibility criteria, self-attested tender document and any other document specifically specified in this tender document.

i.	The complete Qualifying Data as required in Prequalification Criteria (PQ)
ii.	Duly filled Tender documents, all Annexures & Undertaking
ii.	Any other technical details/documents etc. required to be submitted by the bidder as contained in the bid document

Part 2 shall contain Price Bid (to be submitted as per GeM price schedule).

This part shall contain only Schedule of prices duly filled in as per the Bid Proposal Schedules No physical copy of price bid is to be submitted along with the technical bid (Part I), otherwise bid will be considered void.

Method of selection:

Part I of the bid will be evaluated and bidders meeting the PQ criteria and other tender conditions will be qualified as eligible bidders for opening of the price bids. The price bids opened subsequently will be scrutinized for responsiveness and IREL shall consider placement of order on the qualified bidder, whose offer shall be overall lowest. However, IREL reserves the right to accept or reject all or any tender without assigning any reasons and does not bind itself to accept the lowest offer.

Note: To assist in the examination of documents submitted by the bidder in support of eligibility criteria (PQ), IREL may, at its discretion, ask the Bidder for clarification of its bid. The request for clarification and the response shall be in writing and no change in the price or substance of the bid shall be sought, offered or permitted.

2. PRE-QUALIFICATION (PQ) CRITERIA

Bidder should meet the PQ criteria as mentioned under for further consideration of their bid.

Bidder shall upload their PQ details and other details mentioned in the bid. Bidder shall fulfill the following to pre-qualify for the bid.

S.No.	PQ requirement	Documents required (As applicable)
1	<p>Technical Competency:</p> <p>The bidder must have executed supply, installation and commissioning of grid connected ground/roof solar power system of following capacity in last 7 years as on bid due date :</p> <p>a. one work of minimum 75 kWp capacity. OR b. two works of minimum 40kWp capacity each OR c. 3 works of minimum 25kWp capacity each</p> <p>Out of the above, at least one work should have been executed in Andhra Pradesh for a company/govt organization.</p>	<ul style="list-style-type: none">• Proof of copy of work order with satisfactory completion certificate or• The bidder along with copies of the Purchase Order(s) may submit certificate(s) from practicing chartered accountants (Annexure–VII) stating the payments received for completed work(s).
2	<p>Financial Capability:</p> <p>Minimum Average Annual Turnover for the last three years (2020-21, 2021-22 & 2022-23) should not be less than 40 Lakhs. In case of availability of financial figure for FY 2023-24, than average annual turnover of last 3 years ie FY21-22, 22-23 & 23-24 will be considered.</p>	<p>Copies of Balance sheet and Profit & Loss account duly certified by the Chartered Accountant should be enclosed.</p> <p>In case, the audited balance sheet and Profit & Loss account for latest financial year is not available, a certificate from the Chartered Accountant on their letter head certifying the financial turnover for the above said financial year may be submitted.</p>
3	<p>Bidder to submit Solvency certificate/Credit Facility of Rs.25 lakhs from any scheduled bank.</p>	<p>The Solvency certificate/Credit Facility should not more than 3 months old from the bid due date.</p>

4.	<p>Blacklisting: The Bidder should not have been blacklisted as on the bid submission date by any Public Sector Undertaking (PSU) / Central or State Government in India / Central or State Government undertaking.</p>	<p>A self-certified letter that the bidder has not been blacklisted by an Authorized Signatory on the company's original letter head with signature and seal as per Annexure-III.</p>
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NB: Pre-qualification shall be carried out based on the documents submitted by the bidders for past performance, technical and financial capability, and shall be subject to verification, if required.

3. SCOPE OF CONTRACT

- 3.1. The broad scope of the work (not limited to) includes Design, Obtaining No Objection Certificate (NOC)/Permission/Approval from Distribution Company (APEPDCL) for grid connectivity, Supply, Packing and forwarding, transportation all the materials up to project site, loading & unloading, storage in safe custody at site, Civil & structural works, Carrying out preliminary tests at site, Installation, Performance testing and commissioning of Grid Connected 75 kWp Solar PV System(mono crystalline), successful continuous operation of 75kWp SPV system with discom's grid. The SPV based Power Plants shall be equipped with current limiting devices and capacitors so as to maintain power factor as required by the DISCOM's Grid. Design & manufacture of Module mounting structure for SPV module(s) along with design of Module mounting structure foundation, erection, testing & commissioning of all the SPV module(s). Design, manufacturing, testing at works, transportation, supply, erection, testing at sites and commissioning of SPV based Power Plants' Internal electrical system. Grid interfacing, including transformer (if needed), panels, kiosks, protection equipment, metering equipment, LT lines for the evacuation point of the SPV based Power Plant. Energy meter(s) for the export of power to the Local grid substation and recording import of the power from the grid will be installed by the supplier. Laying of appropriate evacuation system (through proper conduits, cable tray as applicable best practices) for inter connection with the Local grid etc. Bidders are advised to visit the site before submitting the quote for carrying out Shadow Analysis and design string & array layout, considering the optimal utilization of space, material and labour.
- Site location : IREL(India) Limited,MRSS Building, REPM Plant, , Approx coordinate : Lat 17°32'45.9"N, Long 83°00'51.7"E,, Sy. No.: 349(P), 371(P), 374(P), BARC(V) At/Po Maduthuru, Atchutapuram,AP-531011, RCC roof area about 450m²**
- 3.1.2 Connection to net metering facility at our 11/0.440KV substation of REPM, BARC(Vizag) or the location identified by the Power Distribution Company (APEPDCL) for grid connectivity.
- 3.1.3 The successful contractor shall take all permits, approval, license, Insurance etc. as applicable from the concerned authorities as per the procedure Distribution Company (APEPDCL)/CEA/Chief electrical inspector etc as the case may be.
- 3.1.4 The successful bidder shall also carry out Maintenance of the system for 10 years, including supply of spares and consumables required (if any) during the period of 10 years after commissioning (i.e warranty period of 5 years, CAMC period of 5 years). The maintenance of Solar Photovoltaic Power Plant would include wear, tear, overhauling, machine breakdown, replacement of defective modules, invertors / Power Conditioning Unit (PCU), spares, consumables & other parts for a period of 10 years. SPV modules shall be surface cleaned once in 3 month without charging extra cost. During the period the bidder shall undertake scheduled maintenance as well as breakdown maintenance without fail.
- 3.1.5 The successful contractor shall undertake Comprehensive AMC (CAMC) for the 5 years (i.e after completing warranty period and from 6th year to 10th year) on chargeable basis.

- Spares for the maintenance work during the CAMC period shall be supplied by the bidder free of cost. During the period the contractor shall undertake scheduled maintenance as well as corrective maintenance without fail. Scheduled maintenance shall be carried once in three month, irrespective of the no. of breakdown maintenance.
- 3.1.6 Successful contractor shall submit single line diagram for the plant indicating all wiring details, connecting details, array layout drawings along with shadow analysis report to IREL, before commencement of installation work.
 - 3.1.7 The successful contractor shall, on behalf of IREL, take necessary action through IREL for obtaining the required feasibility report, approval/permissions for the installation of solar power plant and its registration including connectivity in NET metering APEPDCL/state electricity board as the case may be. The successful contractor should facilitate submission of all required applications on behalf of IREL and follow up and Liaisoning for obtaining NOC for Net metering, Grid connectivity, Energization etc. for the completion of the work.
The bidder should carry out Shadow Analysis at the site and accordingly design strings & arrays layout considering optimal usage of space, material and labor.
 - 3.1.8 On Grid Tied Rooftop Solar power plant consists of :-
 - 3.1.8.1. Based on the site condition and study of available area bidder has to optimally design the solar plant which can result in supplying the rated power. Bidder has to consider Mono Crystalline Solar Photo Voltaic (SPV) modules array, The power output of the module (s) under STC should be as given in section scope of work. Modules of minimum 500 Watts output each or above output should be used. Photo/ electrical conversion efficiency of SPV module shall be $\geq 20\%$ under STC.
 - 3.1.8.2. Module Mounting Structure, (Hot dipped galvanizing structure to withstand minimum wind speed of 180kph speed)
 - 3.1.8.3. Power Conditioning Unit (PCU) consisting of Maximum Power Point Tracker (MPPT), Inverter, and Controls, metering & Protections, interconnect cables, Junction boxes and switches.
 - 3.1.8.4. Earthing and lightening protections.
 - 3.1.8.5. IR/UV protected PVC Cables, pipes, Hardware and accessories, etc.
 - 3.1.8.6. All these hardware should conform to the BIS or IEC or international specifications.
 - 3.1.9 Grid tied Rooftop Solar power plant without battery and shall be designed with necessary features to supplement the grid power during day time.
 - 3.1.10. The contractor shall ensure installation of NET Meter/connectivity/Energization in coordination with Division/Sub Divisional offices of respective Govt. Departments/APEPDCL as the case may be. The testing and synchronization of Net Meter shall be ensured by the Bidder in coordination with APEPDCL/state electricity board before Commissioning of the system. Net-meter must be tested & approved by APEPDCL or other agencies as applicable.
 - 3.1.11. Any accessories/components/materials etc. including civil, structural and electrical work which have not been specifically mentioned in this Contract but which are necessary for the completeness of the project in all respect shall be provided by the contractor without any extra cost and within the time schedule and for efficient and smooth operation and maintenance of the SPV plant.
 - 3.1.12 Any modification/ substitution required during design stage, to meet the site condition/project objective/statutory requirement can be done by the bidder subject to suitable justification and concurrence of EIC without any additional cost.
- 3.2 SOLAR PHOTOVOLTAIC MODULES
- 3.2.1 The Modules convert the sunlight reaching the panel into DC Power. The amount of power they produce is roughly proportional to the intensity and the angle of the light reaching them. Contractor has to ensure the proper positioning of the Modules to take

- maximum advantage of available Sunlight within site constraints with the Sun's movements during the day.
- 3.2.2 The solar PV modules shall consist of required number of Mono crystalline PERC PV Modules (IREL reserves the right to have the modules tested in its presence prior to dispatch). The PV modules used must qualify to the latest edition of IEC PV module qualification test or equivalent BIS standards Crystalline Silicon Solar Cell Modules IEC 61215/IS14286. In addition, the modules must conform to IEC 61730 Part-2-requirements for construction & Part 2 – requirements for testing, for safety qualification or equivalent IS.
 - 3.2.3. Contractor shall follow the latest Engineering Practice; ensure long-term compatibility requirements and continuity of equipment supply and the Safety of the Operating Staff.
 - 3.2.4. Contractor is required to optimize generation of electricity in terms of kWh generated with available Solar Radiation at the site (may be obtained through use of efficient electronics components, lower cable losses, maximization of power transfer from PV Modules to Converter and the Grid etc).
 - 3.2.5 The Solar power plant Systems shall support Remote Monitoring of important Parameters. The system shall be designed such that personnel without any background knowledge in Microprocessor-based Technology are able to operate the System. The operator interface shall be such that operating personnel shall be able to operate the system easily after having received a basic training.
 - 3.2.6. The Manufacturer shall arrange Certification on Qualification of PV Modules.
 - 3.2.7. The SPV Cells shall be manufactured using unique highly efficient diffusion process or any other technology so as to ensure uniform diffusion profiler to achieve close spread and higher efficiency for each cell.
 - 3.2.8. Stabilized net output of the Solar PV Array for the Solar Power System should not be less than the Nominal design level for the System under Standard Test Condition.
 - 3.2.9. Each Solar PV Module shall be warranted for a period of 25 years from the date of supply with maximum 10% degradation in 10 years.
 - 3.2.10. The Contractor shall provide the sample Solar PV Module electrical characteristics including current-voltage (I-V) performance curves and temperature co-efficient of power, voltage and current. However, the tabulated document with all the relevant data like voltage, current, power output for all the modules also to be provided.
 - 3.2.11. The PV Modules shall be suitable for continuous outdoor use.
 - 3.2.12. The PV Module shall be made of high quality laminated in ultraviolet stabilized polymer material such as Ethyl Vinyl Accelerate (EVA), Tedler, and toughened glass. The size of single crystalline silicon PV Cells shall be so chosen so as to maximize energy density and align with economies of scale.
 - 3.2.13. PV Module shall be provided with frame of anodized channels for size and simplicity in installation offered as a single module or series parallel combination of modules. The PV Module shall be provided with screen-less frame with Solar Cable and Connector.
 - 3.2.14. Since the PV modules is erected in a corrosive atmosphere throughout their lifetime, they must qualify to IEC 61701/IS 61701. The PV modules shall also be capable of resisting heavy wind load of minimum 180 KM/Hr.
 - 3.2.15. The total solar PV array capacity should not be less than allocated capacity (kWp) and should comprise of solar crystalline modules of minimum 500 Wp and above wattage.
 - 3.2.16. Protective devices against surges at the PV module shall be provided. Low voltage drop bypass diodes shall be provided.
 - 3.2.17. PV modules must be with test certificate from the manufacturer and approval certificate from MNRE/IEC authorized test centers and the test certificate shall be provided along with the supply of PV module.
 - 3.2.18. The module frame shall be made of corrosion resistant materials, preferably having 4 dip anodized aluminum.

- 3.2.19. The Contractor shall carefully design & accommodate requisite numbers of the modules to achieve the rated power in his bid.
- 3.2.20. Other general requirement for the PV modules and subsystems shall be the Following:
 - 3.2.20.1. The rated output power of any supplied module shall have tolerance of +/-3% max
 - 3.2.20.2. The peak-power point voltage and the peak-power point current of any supplied module and/or any module string (series connected modules) shall not vary by more than 2% from the respective arithmetic means for all modules and/or for all module strings, as the case may be.
 - 3.2.20.3. The module shall be provided with a junction box with either provision of external screw terminal connection or sealed type and with arrangement for provision of by-pass diode. The box shall be weather proof having hinged, lid with captive screws and cable gland entry points or may be of sealed type and IP-65 rated.
- 3.2.21. Modules deployed 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).
 - 3.2.21.1. Name of the manufacturer of the PV module
 - 3.2.21.2. Name of the manufacturer of Solar Cells.
 - 3.2.21.3. Month & year of the manufacture (separate for solar cells and modules)
 - 3.2.21.4. Country of origin (separately for solar cells and module)
 - 3.2.21.5. I-V curve for the module Wattage, I_m , V_m and FF for the module
 - 3.2.21.6. Unique Serial No and Model No of the module
 - 3.2.21.7. Date and year of obtaining IEC PV module qualification certificate.
 - 3.2.21.8. Name of the test lab issuing IEC certificate.
- 3.2.22. The positioning or tilting of solar panels shall be according to the shade analysis to movement of sun above the region.

3.3.0 ARRAY/MODULE MOUNTING STRUCTURE

Module mounting structures shall meet the following specification:

- 3.3.1 Hot dip galvanized (86 microns and above) GI mounting structures to be used for mounting the modules/ panels/arrays. (Test certificate for the 86 Micron thickness shall be provided by the party at the time of supply of structural materials for the clearing the payment part.)
- 3.3.2 The mounting structure steel shall be as per latest IS 2062: 1992 and galvanization of the mounting structure shall be in compliance of latest IS 4759.
- 3.3.3 Structural material shall be corrosion resistant and electrolytically compatible with the materials used in the module frame, its fasteners, and nuts & bolts (SS Fasteners). Necessary protection towards rusting need to be provided either by coating or anodization. The structural materials shall be painted with 2 coat corrosion resistant paint.
- 3.3.4 Structures also can be used which can withstand the wind speed of min 180km/ hour.
- 3.3.5 Special care should be taken while designing all structures for modules to cater to heavy rainfall.
- 3.3.6 Each structure should have angle of inclination as per the site conditions to take maximum duration for the fall of sun light. However to accommodate more capacity the angle inclination may be reduced until the plant meets the specified performance ratio requirements.
- 3.3.7 PV modules shall be secured to support structure using screw fasteners and/or metal clamps. Screw fasteners shall use existing mounting holes provided by module manufacturer. No additional holes shall be drilled on module frames
- 3.3.8 Adequate spacing shall be provided between any two modules secured on PV array for improved wind resistance.

- 3.3.9 The fasteners used should be made up of stainless steel. The structures shall be designed to allow easy replacement of any module. The array structure shall be so designed that it will occupy minimum space without sacrificing the output from the SPV panels
- 3.3.10 Regarding civil structures the bidder need to take care of the load bearing capacity of the roof and need arrange suitable structures based on the quality of roof.
- 3.3.11 The structures should be laid on the rooftop and proper drainage of rain water over terrace through the installation area should be maintained. Necessary access to roof , if required also to be provided.
- 3.3.12 The structures (lugs) should be suitably loaded with reinforced concrete blocks of appropriate size 300mm x 300mm x 300mm cubical shape with M25 concrete mixture. Waterproofing shall be provided (if required) in the areas where RCC blocks are placed on the terrace
- 3.3.13 The minimum clearance of the structure from the roof level should be sufficient to allow ventilation for cooling, also ease of cleaning and maintenance of panels as well as cleaning of terrace.
- 3.3.14 PV array shall be installed in the terrace space free from any obstruction and/or shadow. PV array shall be installed utilizing optimum terrace space to minimize effects of shadows due to adjacent PV panel rows.
- 3.3.15 Adequate spacing shall be provided between two panel frames and rows of panels to facilitate personnel protection, ease of installation, replacement, cleaning of panels and electrical maintenance etc.
- 3.3.16 Each array may be provided with two bird repellents spikes at a level higher than the upper edge of the array. The location of the spike should be selected for minimum shadow effect.
- 3.4.0 ARRAY/ MAIN JUNCTION BOXES (JBs)
- 3.4.1 The Junction Boxes (JBs) made of GRP/FRP/with full dust, water & vermin proof arrangement shall be provided. All wires/cables shall be terminated through Copper cable lugs. The JB's shall be such that input & output termination can be made through suitable cable glands.
- 3.4.2 Copper bus bars/terminal blocks housed in the junction box with suitable termination threads Conforming to IP65 standard and IEC 62208. Hinged door with EPDM rubber gasket to prevent water entry. Single/double compression cable glands for the cables..
- 3.4.3 MCB protection shall provided for each string for +ve cables.
- 3.4.4 Each Junction Box shall have High quality Suitable capacity Metal Oxide Varistors (MOVs)/SPDs, suitable Reverse Blocking Diodes. The Junction Boxes shall have suitable arrangement monitoring and disconnection for each of the groups.
- 3.4.5 Suitable markings shall provided on the bus bar for easy identification and suitable cable glands with ferrules must be fitted at the cable termination points for identification.
- 3.4.6 Array Junction Box shall IP 65(for outdoor& indoor) as per IEC 60529 and shall be provided with fuses and Isolators of suitable ratings.
- 3.4.7 ACDB shall have surge protection device of class 2 as per IEC 60947/60364-5-53, to protect inverters from surges in the AC line.
- 3.4.8 AJBs/MJB may be kept below the modules. In case of need this can be installed on wall or rooftop. ACDB shall put at safe distance from DCDB/AJBs/MJBs to avoid Eddy current interference.
- 3.5.0 DC DISTRIBUTION BOARD
- 3.5.1 Dust & vermin proof Enclosures of Polycarbonate/GRP/FRP/Powder coated Aluminium/ Cast Aluminium Alloy and shall have IP 65(outdoor &indoor) compliant to IEC 60529.

- 3.5.2 The bus bars are made of copper of desired size. Suitable capacity MCBs/MCCB shall provided for controlling the DC power output to the PCU along with necessary surge arrestors.
- 3.5.3 Suitable cable entry points with cable glands and ferrules shall be provided.
- 3.5.4 DC SPD of type 2 compliant to IEC 60947 with fuse shall be provided.
- 3.5.5 Design ambient temperature shall be 0-60 deg. C.
- 3.6.0 AC DISTRIBUTION PANEL BOARD
- 3.6.1 AC Distribution Panel Board (DPB) shall control the AC power from PCU/ inverter, and shall have necessary over current & surge protection.
- 3.6.2 All switches and the circuit breakers, connectors shall conform to IEC 60947, part I, II and III/ IS60947 part I, II and III.
- 3.6.3 All the Panel's shall be metal clad, totally enclosed, rigid, floor mounted, air - insulated, cubical type suitable for operation on three phase/single phase, 415/230 volts, 50 Hz.
- 3.6.4 The changeover switches, cabling work shall undertaken by the bidder as part of the project.
- 3.6.5 Suitable cable entry points with cable glands and ferrules shall provided.
- 3.6.6 DC SPD of type 2 compliant to IEC 60947 with fuse shall provide.
- 3.6.7 Design ambient temperature should be 0-60°C. 95 percent humidity and dusty weather.
- 3.6.8 All panel boards shall be of IP 65 protections.
- 3.6.9 All panels shall confirm to Indian Electricity Act & rules (till last amendment)
- 3.6.10 All the 415 V or 240 V devices/ equipment like bus support insulators, circuit breakers, SPDs, VTs, etc. mounted inside the switchgear shall be suitable for continuous operation and satisfactory performance under the following supply conditions
 - 3.6.10.1 Variation in Supply Voltage +/- 5% max
 - 3.6.10.2 Variation in Supply frequency +/- 2 Hz max
- 3.6.11. All DC and AC switch gears shall be of the make L&T/Siemens/ Schneider/Eton
- 3.7.0 GRID TIED POWER CONDITIONING UNIT/INVERTER
- 3.7.1 The DC power produced is fed to String Inverter for conversion into AC. In a grid interactive system, AC power shall be fed to the grid at three phase 415/400VAC bus. Power generated from the solar system during the day time is utilized fully by powering to the grid as long as grid is available.
- 3.7.2 The output of the inverter must synchronize automatically it's AC output to the exact AC voltage and frequency of the grid.
- 3.7.3 Inverter shall continuously monitor the condition of the grid and in the event of grid failure, the inverter automatically switches to off-grid supply within a cycle. The solar system is resynchronized with the grid within two minutes after the restoration of grid or DG set.
- 3.7.4 Grid voltage shall also be continuously monitored and in the event of voltage going below a preset value and above a preset value, the solar system shall be disconnected from the grid within these time.
- 3.7.5 Metal Oxide Varistors (MOVs)/SPDs shall also be provided on DC and AC side of the inverter.
- 3.7.6 The inverter control unit shall be so designed so as to operate the PV system near its Maximum Power Point (MPP), the operating point where the combined values of the current and voltage of the solar modules result in a maximum power output. Since the design is under party's scope any technically superior model/item or modification can be supplied/carried out by the party to meet the objective of the tender with due concurrence of Engineer in Charge.
- 3.7.7 The inverter shall be at pure sine wave inverter for grid interactive PV system.

- 3.7.8 Following shall also be displayed Protective function limits (AC over voltage, AC under voltage, Over frequency, under frequency, ground fault, PV starting voltage, PV stopping voltage, over voltage delay, under voltage delay over frequency, ground fault delay, PV starting delay, PV stopping delay.)
- 3.7.9 The inverter enclosure shall have to be adequately protected taking into consideration the atmosphere and weather prevailing in the area.
- 3.7.10 All doors, covers, panels and cable exit shall be provide with gasket or otherwise designed to limit the entry of dust and moisture. All doors shall be equipped with locks.
- 3.7.11 The system should automatically „WAKEUP“ during day time and “SLEEP” during night.
- 3.7.12 An energy meter shall be installed in between the solar grid inverter and the building distribution board to measure gross solar AC energy production (“the solar generation meter”)
- 3.7.13 Operation Mode:
 - 3.7.13.1 Night or Sleep Mode: where the Inverter is almost completely turned off, but control system and time shall be still in operation, losses shall be less than 2 W per 5kW.
 - 3.7.13.2 Standby Mode: Where the control system continuously monitors the output of the solar generator until pre-set value is exceeded (typically10W).
 - 3.7.13.3 MPP tracking mode: The control system continuously adjust the voltage of the generator to optimize the power available. The power conditioner shall automatically re-enter standby mode as input power reduces below the standby mode threshold. Front panel shall provide display of status of the inverter.
- 3.7.14 The Power-Conditioning Unit (PCU) should contain a Maximum Power Point Tracker (MPPT), Grid side Converter and Grid side Filter.
- 3.7.15 The PCU must automatically synchronize with the grid and shall shutdown in case off and very low power generation, and wake-up automatically from shutdown. The power conditioning unit/inverter shall also be DG set interactive. Inverter output should be compatible with the grid frequency.
- 3.7.16 Typical technical features of the String inverter shall be as follows(any modification to achieve the rated output and plant capacity (75kWp) and APEPDCL requirment can be done with suitable justification and due concurrence of EIC:
 - 3.7.16.1 Switching devices: IGBT/MOSFET
 - 3.7.16.2 Control: Microprocessor type (DSP)
 - 3.7.16.3 Nominal AC output voltage and frequency:: 415V, 3 Phase, 50 Hz
 - 3.7.16.4 Grid Frequency Synchronization range: +/- 2 Hz
 - 3.7.16.5 Ambient temperature considered: 0°C to 60 °C
 - 3.7.16.6 Humidity: 95% non-condensing
 - 3.7.16.7 Protection of enclosure IP 20(Min) for indoor & IP 65 for Outdoor.
 - 3.7.16.8 Grid frequency tolerance range: within +/- 3Hz
 - 3.7.16.9 Grid voltage tolerance: -20 %, +15%
 - 3.7.16.10 No load losses: less than 1% of rated power
 - 3.7.16.11 Inverter efficiency: 98% or above
 - 3.7.16.12 MPPT efficiency: 98 or above
 - 3.7.16.13 THD: < 3%
 - 3.7.16.14 PF: >0.98 at normal power
- 3.7.17 PCU/inverter shall be capable of complete automatic operation including wake-up, synchronization & shutdown.
- 3.7.18 The output of power factor of PCU inverter is suitable for all voltage ranges or sink of reactive power. Inverter shall have internal protection arrangement against any sustainable fault in feeder line and against the lightning on feeder.
- 3.7.19 Built-in meter and data logger to monitor plant performance through external computer shall be provided.

- 3.7.20 The power conditioning units/inverters shall comply with applicable IEC/equivalent BIS standard for efficiency measurements and environmental tests as per standard codes IEC 61683/IS 61683 and IEC 60068-2(1, 2, 14, 30) /Equivalent BIS Std.
- 3.7.21 The charge controller (if any)/MPPT units environmental testing should qualify IEC 60068-2(1, 2, 14, 30)/Equivalent BIS standard. The junction boxes/enclosures should be IP 65(for outdoor & indoor) and as per IEC 529 specifications.

3.8.0 INTEGRATION OF PV POWER WITH GRID

The output power from SPV shall 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 (or to suit the site condition) with respect to the grid/ DG power connection need to be provided

3.9.0 PROTECTION

- 3.9.1 The SPV power plant should be provided with Lightning and over voltage protection, connected with proper earth pits. The main aim of over voltage protection is to reduce the over voltage to a tolerable level before it reaches the PV or other sub-system components. The source of over voltage can be lightning or other atmospheric disturbance.

3.9.1.1 LIGHTNING PROTECTION

- 3.9.1.1.1 The lightning arrestor shall be made of minimum 20 mm diameter x 1000 mm long x 100micron, Nickel sealed copper bonded rod with copper spike as per provisions of IS 2309-1969. Necessary concrete/structural foundation for holding the lightning arrestor in position shall be made after giving due consideration to maximum wind speed. The lightning arrestor shall be earthed through 25 mm X 3 mm thick copper flat to earth pits/earth bus with proper Insulation. Height of Lightning arrestors from Array Structure should be minimum 4 metres.
- 3.9.1.1.2 Most areas of the State being prone to lightning, Type-II SPDs shall be included as a mandatory requirement.
- 3.9.1.1.3 Similarly Type I+II SPD shall also be provided on the grid side in ACDB or PCU to protect the PCU from damage.

3.9.1.2 EARTHING PROTECTION

- 3.9.1.2.1. Each array structure of the PV yard shall be grounded/ earthed properly as per IS:3043-1987. In addition the lightning arrester, solar power plant/masts shall also be earthed inside the array field. Earth Resistance shall be tested in presence of IREL as and when required after earthing by calibrated earth tester. PCU, ACDB, DCDB, lightning arrestors should also be double earthed separately as per the guide lines of CEA/APEPDCL.
- 3.9.1.2.2. Earth resistance shall not be more than 1 Ohm. It shall be ensured that all the earthing points are bonded together to make them at the same potential.
- 3.9.1.2.3. Earthing rod 16 mm diameter x 1200 mm long x 250microns with tinned & pressed terminals.

3.9.1.3 SURGE PROTECTION

- 3.9.1.3.1 Internal surge protection shall consist of surge-arrestors connected from +ve and –ve terminals to earth (via Y arrangement)
- 3.9.1.3.2 Surge protection device should be provided on both the DC side and the AC side of the solar PV system. It should have protection voltage of 2.5 kV & Nominal Discharge current of 5 kA (8/20) μ sec.
- 3.9.1.3.3 The DC surge protection devices (SPDs) should be installed in the DC distribution box adjacent to the solar inverter.
- 3.9.1.3.4 The AC SPDs shall be installed in the AC distribution box adjacent to the solar inverter.
- 3.9.1.3.5 The SPD's earthing terminal should be connected to earth through the abovementioned dedicated earthing system.
- 3.9.1.3.6. SPDs shall be of the make Mersen/Elton/ Schneider/Seimens

3.9.1.4 GRID ISLANDING:

- 3.9.1.4.1 In the event of a power failure on the electric grid, it is required that any independent power-producing inverters attached to the grid turn off in a short period of time. This prevents the DC-to-AC inverters from continuing to feed power into small sections of the grid, known as "islands." Powered islands present a risk to workers who may expect the area to be unpowered, and they may also damage grid-tied equipment. The Rooftop PV system shall be equipped with islanding protection. In addition to disconnection from the grid (due to islanding protection) disconnection due to under and over voltage conditions shall also be provided.
- 3.9.1.4.2 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 personnel to carry out any maintenance. This switch shall be locked by the utility personnel.

3.9.1.5 REVERSE POWER RELAY:

Reserve Power Relay (RPR) shall be provided in the solar line to protect the standby energy source from the flow of energy in the reverse direction. RPR shall be installed in the solar meter panel for automatic isolation of the isolator switch installed in the metering panels during flow on energy in the reverse direction.

3.10.0 CABLES & WIRINGS

- 3.10.1 The Cable & Wires shall comply to IEC60227 or IS694 & IEC60502 or IS1554 BSEL50618 (for DC cables for PV systems).
- 3.10.2 All copper flexible cables shall comply to IS651 and make should be Lapp, Polycab.
- 3.10.3 Colour code shall be followed for over all wiring i.e, red for positive, black for negative, green for earth.
- 3.10.4 All cable shall run in suitable PVC Conduits. No cable shall be directly exposed to sunlight.
- 3.10.5 Cable Sizes should be as per the given Current and Voltage ratings.
- 3.10.6 Sizes of cables between array interconnections, array to junction boxes, junction boxes to Inverter etc. shall be so selected to keep the voltage drop (power loss) of the entire solar system to the minimum. The cables (as per IS) shall be insulated with a special grade PVC compound formulated for outdoor use.
- 3.10.7 Cable Routing/ Marking: All cable/wires shall be routed in a GI/PVC/FRP cable tray and suitably tagged and marked with proper manner by good quality ferule or by other means so that the cable easily identified.
- 3.10.8 The size of each type of DC cable selected shall be based on minimum voltage drop however; the maximum drop shall be limited to 1%.

- 3.10.9 The size of each type of AC cable selected shall be based on minimum voltage drop however; the maximum drop shall be limited to 2 %.
- 3.11.0 REMOTE MONITORING SYSTEM
- 3.11.1 Data Acquisition System shall be provided for the solar PV plant.
- 3.11.2 Data Logging Provision for system parameters, plant control, monitoring time of operation, energy generation Co2 saved, performance ration etc shall be provided.
- 3.11.3 Solar Irradiance: An integrating Pyranometer / Solar cell based irradiation sensor (along with calibration certificate) provided, with the sensor mounted in the plane of the array. Readout integrated with data logging system.
- 3.11.4 Temperature: Temperature probes for recording the Solar panel temperature and/or ambient temperature to be provided complete with readouts integrated with the data logging system
- 3.11.5 The following parameters are accessible via the operating interface display in real time separately for solar power plant:
- 3.11.6 Protective function limits (Viz-AC Over voltage, AC Under voltage, Over frequency, Under frequency ground fault, PV starting voltage, PV stopping voltage.
- 3.11.7 All major parameters available on the digital bus and logging facility for energy auditing through the internal microprocessor and read on the digital front panel at any time) and logging facility (the current values previous values for up to a month and the average values) shall be made available for energy auditing through the internal microprocessor and shall be read on the digital front panel.
- 3.11.8 PV array energy production: Digital Energy Meters to log the actual value of AC/ DC voltage, Current & Energy generated by the PV system provided. Energy meter along with CT/PT should be of 0.5 accuracy class.
- 3.11.9 Computerized DC String/Array monitoring and AC output monitoring shall be provided as part of the inverter and/or string/array combiner box or separately.
- 3.11.10 String and array DC Voltage, Current and Power, Inverter AC output voltage and current (All 3 phases and lines), AC power (Active, Reactive and Apparent), Power Factor and AC energy (All 3 phases and cumulative) and frequency shall be monitored.
- 3.11.11 Computerized AC energy monitoring shall be in addition to the digital AC energy meter.
- 3.11.12 The data shall be recorded in a common work sheet chronologically date wise. The data file shall be MS Excel compatible. The data shall be represented in both tabular and graphical form.
- 3.11.13 All instantaneous data shall be shown on the computer screen.
- 3.11.14 Software shall be provided for USB download and analysis of DC and AC parametric data for plant.
- 3.11.15 Provision for Internet monitoring and download of data shall be also incorporated.
- 3.11.16 Remote Server and Software for centralized Internet monitoring system shall be also provided for download and analysis of cumulative data of all the plants and the data of the solar radiation and temperature monitoring system.
- 3.11.17 Ambient / Solar PV module back surface temperature shall be also monitored on continuous basis.
- 3.11.18 Simultaneous monitoring of DC and AC electrical voltage, current, power, energy and other data of the plant for correlation with solar and environment data shall be provided.
- 3.11.19 Remote Monitoring and data acquisition through Remote Monitoring System software at IREL with latest software/hardware configuration and service connectivity for online / real time data monitoring/control complete to be supplied and operation and maintenance/control to be ensured by the supplier.

3.12.0 NET METER

- 3.12.1 Supply and Connectivity of NET meter for the 75kWp solar power plant , with the approval of APEPDCL or Andhra state electricity Board, will be under the scope of the bidder.
- 3.12.3 The Contractor must take approval/NOC from the Concerned Andhra State Electricity Board/APEPDCL for the connectivity, technical feasibility, and synchronization of SPV plant with distribution network and submit the same to IREL before commissioning of SPV plant.
- 3.12.4 Reverse power relay shall be provided by contractor (if necessary), as per the APEPDCL requirements. The On-grid solar power plant will be connected to the grid through a net meter as per the single line diagram indicated in this document. The indicative specification of the Net-meter is as follows:

3.13.0 GENERATION METER

As suggested by the APEPDCL, Three Phase ISI marked Direct current operated Energy Meter, DLMS Cat C having calibration LED, AMR compliance & front sealing facility to be used as generation meter with required accuracy including GPRS/GSM Modem with connecting cable & antenna for running smoothly up to 10 year. Any other requirement specified by APEPDCL will be part of the scope of bidder without any additional cost.

3.14.0 DISPLAY BOARD

- 3.14.1 Display board of size 3 ft x 3 ft that gives detailed circuit diagram of the system with its description should be provided.
- 3.14.2 Danger boards should be provided as and where necessary as per IE Act. /IE rules as amended up to date. Text of the signage may be finalized in consultation with IREL.

3.15.0 SPARES LIST

A list of requisite spares, tools and tackles for PCU/inverter comprising of a set of control logic cards, IGBT driver cards etc. Junction Boxes. Fuses, MOVs / arrestors, MCCBs etc. along with spare set of PV modules to be supplied as mandatory spares along with the initial supply and during maintenance period to be provided.

3.16.0 DRAWINGS & MANUALS

- 3.16.1 Two sets of Engineering, electrical drawings and Installation and O&M manuals are to be provided to IREL, REPM
- 3.16.2 Bidders shall provide technical data sheets for each equipment giving details of the specifications along with make/makes in their bid along with basic design of the power plant and power calculations, synchronization along with protection equipment.
- 3.16.3 Approved ISI and reputed makes for equipment be used.
- 3.16.4 For complete electro-mechanical works, bidders shall supply complete design, details and drawings to be submitted to IREL
- 3.16.5 The following shall be submitted to EIC along with the final bill for the certification and recommendation of bill submitted.
 - 3.16.5.1 Single Line Diagram for the plant indicating all wiring details, connecting details.
 - 3.16.5.2 Array layout drawings along with shadow analysis report.
 - 3.16.5.3 Commissioning report
 - 3.16.5.4 Catalogues of critical components
 - 3.16.5.5 JCC
 - 3.16.5.6 Warranty certificate/Warrantee certificates issued for major components by OEMs
 - 3.16.5.7 I-V Curves of Solar modules

- 3.16.5.8 Operation manual
- 3.16.5.9 Dos & Don'ts in the form of a booklet
- 3.16.6. Following drawings shall be submitted by contractor after placement of LOA/work order.
 - 3.16.6.1. General Arrangement of System (GAD)
 - 3.16.6.2. Part drawing of structures
 - 3.16.6.3. Complete Electric drawing of system (detailed SLD)
 - 3.16.6.4. Weight analysis of system
 - 3.16.6.5. Civil foundation drawings , Structural design of structures to withstand minimum wind speed of 180km/h to be duly vetted/certified by chartered engineers/Govt agencies/Govt engineering college
 - 3.16.6.6. Agree to undertake Maintenance for a period of 10 years after commissioning and grid connectivity.

3.17.0 STANDARDS / CERTIFICATES

- 3.17.1. The goods supplied and works executed under this contract shall confirm to the standards mentioned in the technical specification and where no applicable standard is mentioned, the latest version of Indian Standard Institution or Bureau of Indian Specification shall be applicable.
- 3.17.2. The Bidder shall submit all the valid test certificates and reports of the system components following the latest MNRE Guidelines and the same components shall be supplied for which the test reports/ certificates are submitted.
- 3.17.3. The work shall be carried out in the best workman like manner in conformity with this specification, the relevant specifications/codes of practice of Indian Standard Institution, approved drawings and instructions of the Engineer-in-Charge or his authorized representative issued from time to time. In case of any conflict between the standards, the instructions of Engineer-in-Charge of IREL, REPM shall be binding.
- 3.17.4. Quality certification and standards for grid-connected solar Roof – Top Net Metering PV systems are essential for the successful mass-scale implementation of this technology. It is also imperative to put in place an efficient and rigorous monitoring mechanism, adherence to these standards. Hence, all components of grid-connected solar Ground Mounted Net Metering PV systems/ plant must conform to the relevant standards with latest revisions and certifications given below:

Solar PV Modules/Panels	
IEC 61215/ IS 14286	Design Qualification and Type Approval for Crystalline Silicon Terrestrial Photovoltaic (PV) Modules.
IEC61701	Salt Mist Corrosion Testing of Photovoltaic (PV) Modules
IEC 61853- Part 1 /IS 16170: Part 1	Photovoltaic (PV) module performance testing and energy rating–: Irradiance and temperature performance measurements, and power rating.
IEC62716	Photovoltaic (PV) Modules – Ammonia (NH3) Corrosion Testing (As per the site condition like dairies, toilets).
IEC61730-1,2	Photovoltaic (PV) Module Safety Qualification – Part 1: Requirements for Construction, Part 2: Requirements for Testing.
Solar PV Inverters	
IEC62109-1, IEC62109-2	Safety of power converters for use in photovoltaic power systems – Part 1: General requirements, and Safety of power converters for use in photovoltaic power systems Part 2: Particular requirements for inverters. Safety compliance (Protection degree IP 65 for outdoor mounting, IP 54 for indoor mounting).

IEC/IS 61683 (as applicable)	Photovoltaic Systems – Power conditioners: Procedure for Measuring Efficiency (10%, 25%, 50%, 75% & 90-100% Loading)
IEC 62116/UL1741/IEEE1547(as applicable)	Utility-interconnected Photovoltaic Inverters-Test Procedure of Islanding Prevention Measures
IEC60255-27	Measuring relays and protection equipment – Part 27: Product safety requirements.
IEC60068-2 /IEC 62093 (as applicable)	Environmental Testing of PV System–Power Conditioners and Inverters
Fuses	
IS/IEC 60947(Part 1, 2 &3),EN50521	General safety requirements for connectors, switches, circuit breakers(AC/DC): a) Low-voltage Switchgear and Control-gear, Part1: General rules b) Low-Voltage Switchgear and Control-gear, Part2:CircuitBreakers c) Low-voltage switchgear and Control-gear,Part3:Switches, dis-connectors, switch-dis-connectors and fuse-combination units d) EN 50521: Connectors for photovoltaic systems – Safety.
IEC 60269-6	Low voltage fuses, part 6:Supplementary requirements for fuse-links for the protection of solar photovoltaic energy systems.
Surge Arrestors	
BFC17-102:2011	Lightening Protection Standard
IEC 60364-5- 53/ IS15086-5	Electrical installations of buildings-Part5-53: Selection and erection of electrical equipment-Isolation, switching and control.
IEC61643-11:2011	Low-voltage surge protective devices-Part11:Surge protective devices connected to low-voltage power systems-Requirements.
Cables	
IEC 60227/IS694, IEC60502/IS1554 (Part1 &2)/IEC69947 (as applicable)	General test and measuring method for PVC(Polyvinylchloride)insulated cables (for working voltages up to and including 1100V, and UV resistant for outdoor installation)
BSEN50618	Electric cables for photovoltaic systems (BT(DE/NOT)258), mainly for DC Cables.
Earthing / Lightning	
EC 62561 Series (Chemical earthing) (as applicable)	IEC 62561-1 Lightning protection system components(LPSC)-Part1: Requirements for connection components IEC62561-2 Lightning protection system components (LPSC) - Part 2: Requirements for conductors and earth electrodes IEC62561-7 Lightning protection system components (LPSC) - Part 7: Requirements for earthing enhancing compounds.
Junction Boxes	
IEC 60529	Junction boxes and solar panel terminal boxes shall be of the thermo-plastic type with IP 65 protection for outdoor use, and IP 54 protection for indoor use.
Energy Meter	

IS 16444 or as specified by the DISCOMs	A.C. Static direct connected watt-hour Smart Meter Class 1 and 2 — Specification (with Import & Export/Net energy measurements).
Solar PV Roof Mounting Structure	
IS 2062/ IS 4759	Material for the structure mounting.

Note- Equivalent/updated standards may be used for different system components of the plants

3.18.0 WARRANTY

The complete 75kWp solar power plant shall be under warranty for 5 years for its trouble free operation to the desired output, from the date of Commissioning and Acceptance of the solar power plant. It should covered all the Manufacturing defects, Spare Parts, Worn out Parts, Electrical & Electronic Equipments/Components and Service charges, etc. during the warranty period, apart from the specific unit warranty.

3.18.1 The 75Kwp solar power plant shall be under warranty as under :-

- | | |
|--|----------------------------------|
| 3.18.1.1 Solar panels | : 25 years (from date of supply) |
| 3.18.1.2 PCU and electronic components/systems | : 5 years |
| 3.18.1.3 Electrical components/systems | : 5 Year |

3.19.0 PLANT PERFORMANCE EVALUATION

As per MNRE standards, solar power plant shall generate 4kWh/KWp/Day under standard operating conditions. The successful bidder shall be required to meet minimum guaranteed generation with Performance Ratio (PR) at the time of commissioning and related Capacity Utilization Factor (CUF) as per the GHI levels of the location during the O&M period. PR should be shown minimum of 75% at the time of inspection for initial commissioning & acceptance. Minimum CUF of 15% should be maintained for a period of 10 years. The bidder should submit the periodic(Qtrly) plant output details installed on the building to IREL for ensuring the CUF individually. The PR will be measured at Inverter output level during peak radiation conditions.

3.20 BILL OF QUANTITIES (BOQ)

Supply part (PART – A)			
Sl. No.	Description	Qty	unit
A 1	Supply 75Kwp Solar PV modules(mono crystalline of minimum 500Wp) and required capacity Solar string Inverter as specified in the technical specification.	1	Lot
Installation & Commissioning part with 5 year warranty (PART – B)			
B 1	Erection, installation and commissioning of item no 1	1	Lot
B 2	Supply including installation GI structural materials (Tata steel/Apollo/SAIL/VSPL) and SS fasteners. Including misc civil and structural work.	1	Lot
B 3	Supply including installation of DCDB with type1+2 DC SPD, DC Breaker, suitable capacity copper conductor cable, DC string disconnecter fuse etc., ACDB with type2 AC SPD, MCCB, Isolators, RPR, MFM, Phase Indicators, suitable	1	Lot/Set

	capacity copper conductor cable etc. (as per CEA/APEPDCL specifications).		
B 4	Supply, Testing/calibration & installation of HT or LT Net meter (3 Phase Bidirectional TOD Meter, as per Electrical Inspectorate requirement) and Solar Energy meter (3 phase unidirectional TOD meter) as per APEPDCL specifications)	1	Lot/Set
B 5	Supply including installation of Earthing system and Lightning Arrestors (LAs). (Separate earthing shall be provided for DC system, AC system and LAs as per relevant IS /CEA/APEPDCL norms).	1	Lumpsum
B 6	Supply including installation of interconnecting panels to Grid as per site conditions.	1	Number
B 7	Supply including installation of data monitoring system, SCADA for data acquisition and transferring facility.	1	Lumpsum
B 8	Supply, laying, dressing, glanding and termination of 150Sq. mm, 3.5 core(other requisite size), Al conductor, armoured cable, connection cable. For road crossing if required, necessary cable trench shall be provided.	1	Lot/Set
B 9	Charges for scheme drawing preparation, coordination and scheme approval, Inspection, Testing & Energizing approval etc from CEA/APEPDCL	1	Lumpsum
Comprehensive-AMC Charges (PART – C)			
C 1	Comprehensive-AMC Charges (6th year).	01	Lumpsum
C 2	Comprehensive-AMC Charges (7th year).	01	Lumpsum
C 3	Comprehensive-AMC Charges (8th year).	01	Lumpsum
C 4	Comprehensive-AMC Charges (9th year).	01	Lumpsum
C 5	Comprehensive-AMC Charges (10th year).	01	Lumpsum
	Total value(A+B+C) in Rs		

Note

The fee payable to CEA & APEPDCL towards security deposit charges (if any) will be reimbursed by IREL against production of original receipts. Hence the same will not be form part of installation and commissioning.

The evaluation will be carried out based on the over all lowest offer for PartA,B &C.

4 SPECIAL TERMS AND CONDITIONS

4.1. For any technical queries, **site visit**, contact details of site officials are as under:

- Mr. C.S.K Reddy, Chief Manager-Technical, Email: cskreddy@irel.co.in;
Ph No. 08924-282900 & Mobile No. 9249472762
- Engineer In Charge (EIC): Eswar Rao, Manager (Electrical), Email: eswar.rao@irel.co.in, Ph No. 9550824050

4.2. Plant Address: IREL (India) Limited, REPM Project, BARC Facilities, AT/PO: Maduthuru, Atchutapuram, Dist: Anakapalli, Andhra Pradesh, Pin Code: 531011
GST No: 23AAACI2799F1ZM

4.3. COMMENCEMENT AND COMPLETION PERIOD

4.3.1 The work shall be carried out without effecting the normal functioning of the company.

Qualified supervisor shall be present throughout the installation period of the solar power plant. Supervisor shall take necessary safety permit from the safety department and follows the safety norms of the company.

4.3.2 Work shall be commenced within 14 days from the acceptance of the order , and the order to be accepted within 7 days of issuance of order.

4.3.2 **The entire as specified in the work order shall be completed within 120 days from the date of acceptance of order.**

In case any stoppage of work due to the reason by IREL,REPM or CEA/ APEPDCL procedural delay after commencement of the work, the number of days stopped shall be extended for the completion of the work and for the same no LD will be imposed.

Activities	Time period
Issuance of order	To
Acceptance of order (effective date)	T0+7 (T1)
Site activities and submission of SD, implementation schedule	T1+14
Site survey, shadow analysis, design finalization, deliberations with APEPDCL for grid connection, feasibility study, submission of report etc	T1+28
Completion of supply,GA and other drawing submission	T1+75
Erection and commissioning, application to APEPDCL for grid connection	T1+100
Obtaining permission for Grid connection, charging, synchronization with grid, Acceptance and handing over the system to IREL	T1+120 (T2)
Warranty period	T2+5 years (T3)
CAMC period	T3+5 years

The time for intermediate activities are tentative and bidder has to complete the project within scheduled time period of 120 days.

4.4. Compliances required to be done as under GST regime of the Andhra Pradesh State/ Central or as applicable

4.5. **Earnest Money Deposit**

Tenders shall remit EMD (Rs. 1,13,000/-) through NEFT/RTGS in favour of M/s IREL (India) Limited as mentioned in the schedule of tender or alternatively, EMD can be remitted by way of 'demand draft' or 'BG' in favour of IREL. BG should be from Indian scheduled Banks excluding co-operative banks. Details of payment shall be uploaded in the portal as a separate PDF document. In case of payment through DD/BG, the original should be submitted offline within 3 days of opening of bid date. However, if the details of the payment of EMD through DD/BG are not uploaded in the bid, the bid will be summarily rejected.

EMD if any is liable to be forfeited if:

- The tenderer changes the terms and conditions or prices or withdraw his quotation subsequent to the date of opening.
- The tenderer fails to accept the order when placed or fails to commence supplies/works/services after accepting the order.
- In case bidder submits false/fabricated documents.

4.6. SECURITY DEPOSIT/Performance security

The successful tenderer (referred as successful bidder) is required to furnish Demand draft/ NEFT/RTGS or Bank Guarantee (Format of BG is attached), in favour of IREL (India) Limited, Mumbai for an amount equivalent to five (5) per cent of the contract value (excluding CAMC charges for the period 6th to 10th year) towards Security Deposit/Performance security) towards the satisfactory performance of the contract, within 2 weeks of the placement of order. The same is to be forwarded to DGM -T (I/c Purchase), Plot No. 1207, V.S. Marg, Prabhadevi, Mumbai – 400028. The SD/Performance security/Performance BG(PBG) should be valid for 5 years and 5 months with an additional claim period of 3 months from the date of placement of order/issuance.

Subsequent to 5 year warranty period, party needs to submit 5% of Annual Maintenance cost through NEFT/RTGS/BG [SD2]in lieu of the existing SD/PBG in favour of M/s IREL (India) Limited so as to claim/get the return of the security deposit towards solar plant.

The SD shall not bear any interest and is liable to be forfeited for unsatisfactory completion or on abandonment of the supply/ work order. Additional amount of SD due to enhancement in scope of work is to be submitted by the successful tenderer.

SD/PS schedule :

Sl no	SD/PS details	Amount	Validity
1	For performance of Contract (SD1)	5% of the contract value (excluding CAMC charge)	5year 5 months from the date of placement of order.(to be returned only after receipt of SD at 2)
2	SD/PS for CAMC period (SD2)	5% of the total CAMC cost	5 years after completion of warranty period.

For the purpose of Security Deposit, the contract value will be considered without including GST.

REFUND OF SD

- (i) Before releasing SD in respect of supplies, a “No Due Certificate” shall be issued by EIC duly countersigned by head of the department after ensuring that no amounts are recoverable from the supplier. EIC should ensure that SD2 is received from the successful bidder towards 5 years CAMC.
- (ii) EIC/OIC shall recommend release of SD.
- (iii) On receipt of “no dues certificate” from EIC, SD shall be refunded at the earliest, if supplier is not liable to pay any money to IREL under any other contract.

FORFEITURE OF SD

The SD shall stand forfeited in favour of IREL, without any further notice to the Supplier in the following circumstances:

- (i) In case of any failure whatsoever on the part of the Supplier at any time during performance of his part of the contract including the extended periods of contract, where notice is given and time for rectification allowed.
- (ii) If the Supplier indulges at any time in any subletting/ sub-contracting of any portion of the supplies without approval of IREL.
- (iii) If the Supplier abandons the supply /order.
- (iv) If the supplier not fulfills the guarantee condition during warranty period/CAMC period.

4.7. TERMS OF PAYMENT

- 4.7.1 70% payment for the supply parts (PART-A of BOQ) shall be released after supply of materials and acceptance by the EIC. Billing schedule for supply portion to be submitted by the successful bidder. The supply part bills can be raised in maximum 2 running account bills and the first running account bill value should not be less than for Rs20 lakhs.
- 4.7.2 20% of payment of the supply parts and 90% payment for the Installation & commissioning part (PART-B of BOQ) for the completed portion shall be released, after successful completion of installation and commissioning of solar plant as per BOQ/price schedule and acceptance of EIC.
- 4.7.3 Balance 10% of supply part and installation and commissioning part shall be released after successful charging of solar power system and streamline the plant with grid connectivity.
(The SD/Performance Security submitted by the bidder will be released after completion of 5years warranty period subject to submission of SD/Performance security 5% of the CAMC cost(5 years) through NEFT/RTGS/BG in favour of M/s IREL (India) Limited valid for further period of 5 years(6th to 10th year). The CAMC security deposit will be returned to the successful bidder after completion of the 5years CAMC period (10th year) based on certification of EIC)
- 4.7.6 CAMC (PART-C of BOQ) charges for each year shall be released on quarterly basis, on submission of service report and tax invoice after completion of each quarter servicing from sixth year onwards.
- 4.7.7 The TDS/ statutory deductions at the source will be deducted as per the Govt. rule and regulations. IREL will issue necessary certificates of TDS deduction.

4.8. MODE OF PAYMENT:

The payment shall be released as per aforesaid clause no 4.7 within 30 days of clean and clear bill/invoice after deducting the following:

- (a) Compensation recoverable if any.
- (b) LD recoverable, if any.
- (c) Recoveries on account of contractee's facilities and services, if any.
- (d) Deduction, if any, towards re-couplement of any amounts forfeited, adjusted, deducted out of security deposit.
- (e) All Statutory deduction, if any, as per rules.
- (f) Deduction as per IT Act, 1961, if any.
- (g) Any other deduction related to this contract.

4.9. Effect and validity of bid:

- (i) The submission of any bid connected with these documents and specifications shall constitute an agreement that the bidder shall have no cause of action or claim against IREL for rejection of his bid.
- (ii) The bid shall be valid for a period of 90 days from bid due date.

- 4.10. **EMD Exemption:** The bidder seeking EMD exemption, must submit the valid supporting document for the relevant category as per GeM GTC with the bid. Under MSE category, only manufacturers for Goods and Service Providers for Services are eligible for exemption from EMD. Traders and Medium Enterprises category are excluded from the purview of this Policy.

4.11 OTHER TERMS

- 4.11.1 The distance between the proposed site and the substation for interconnection of solar plant is approximately 100m. Bidders are requested to visit the site and verify the site details prior to the submission of bids.
- 4.11.2. The generation meter has to be installed at the electrical substation.
- 4.11.3. The bidder has to comply all necessary regulations of CEA/ APEPDCL wherever required.
- 4.11.4. Necessary statutory procedures related to APEPDCL HT consumer has to be followed and complied.
- 4.11.5. This NIT is a turnkey project, as such any specific item is not described in the NIT but required to be carried for the successful execution of the contract is deemed to the part of the quoted rate.

4.12 SITE VISIT (Mandatory)

- 4.12.1 The bidders are advised to inspect the site before submitting their quotation. Interested bidders shall visit the site & carryout the survey on any working days at our specified visiting hours. Bidder shall upload the site visit certificate duly signed by the IREL, REPM officials indicating that the survey is carried out by the bidder. The tender submitted without site visit certificate (Annexure V) will be rejected out rightly.
- 4.12.2 The bidders also advised to study the labour supply / availability, trade union practices and labour rates prevailing at REPM, BARC, Vizag.

4.13. DPE instructions

IREL (India) Limited is onboard with TReDS platform of M/s RXIL for facilitating Bill Discounting for MSME's.

As per DPE/7(4)/2007-Fin dt 21/08/2020 , it is mandatory to get all the MSME vendors registered on the platform.

Vendors can get themselves registered at: <https://onboarding.rxil.in/customerapp/home>. The registration fees of MSMEs on TReDS Platform is Free of Cost as per the new guidelines provided by SIDBI.

For any registration queries, vendors may please contact,

RXIL Relationship manager Mr.Satyajeet Jathar : +91 99201 00784 / +91 90041 00784
email: satyajeet.jathar@rxil.in

RXIL Relationship manager Mr Kirti musale: +91 90048 17501 email: kirti.musale@rxil.in

5 GENERAL CONDITIONS OF THE CONTRACT

1. **Definitions** In this document, General Conditions of Contract (GCC-Goods), the following terms shall have the following respective meanings:
- 1.0 **BIDDER** : Designates the individual or legal entity which has made a proposal, a tender or a bid with the aim of concluding a Contract with the PURCHASER.
- 1.1 **CONSULTANT** *[if engaged]* shall mean M/s.having its registered office at..... The term consultant includes successors, assigns of M/s.
- 1.2 **CONTRACT** shall mean Purchase Order/ Service Contracts and all attached exhibits and documents referred to therein and all terms and conditions thereof together with any subsequent modifications thereto.
- 1.3 **CONTRACT PRICE** shall mean the price payable to the Seller under the Contract for the full and proper performance of his contractual obligations.
- 1.4 **COMPLETION DATE** shall mean the date on which the goods are successfully supplied/ commissioned by the Seller and handed over to the PURCHASER.
- 1.5 **COMMERCIAL OPERATION** shall mean the condition of the operation in which the complete equipment covered under the Contract is officially declared by the PURCHASER to be available for continuous operation at different loads up to and including rated capacity.
- 1.6 **DELIVERY** terms shall be interpreted as per INCO TERMS 2000 in case of Contract with a foreign Bidder and as the Goods-in-ward date in the case of a contract with an Indian Bidder.
- 1.7 **DRAWINGS** shall mean and include Engineering drawings, sketches showing plans, sections and elevations in relation to the Contract together with modifications and/or revisions thereto.
- 1.8 **OFFICER-IN-CHARGE(OIC)/ENGINEER-IN-CHARGE(EIC):**
OFFICER-IN-CHARGE(OIC)/ Engineer-in-Charge of the Project SITE shall mean the person designated from time to time by PURCHASER/CONSULTANT at SITE and shall include those who are expressly authorized by him/her to act for and on his/her behalf for operation of this CONTRACT.

The Officer/ Engineer-in-charge shall have authority for

- General supervision, Follow up of supply and direction of the work
- direction to stop the work whenever such stoppage may be necessary to ensure the proper execution of the Contract
- to reject all works and materials which do not conform to the contract

The OIC/EIC shall have neither any authority to relieve the contractor of any of his duties / obligations under the contract nor ordering any work involving delay or any extra payment by IREL or making any variation of or in the work except otherwise expressly provided here-in-under or elsewhere in the contract.

- 1.9 FINAL ACCEPTANCE shall mean the PURCHASER's written acceptance of the Works performed under the Contract after successful completion of performance and guarantee test.
- 1.10 GOODS shall mean articles, materials, equipment, design and drawings, data and other property to be supplied by Seller to complete the contract.
- 1.11 INSPECTOR shall mean any person or outside Agency nominated by PURCHASER/CONSULTANT through CONSULTANT to inspect equipment, stagewise as well as final, before dispatch, at SELLER's works and on receipt at SITE as per terms of the CONTRACT.
- 1.12 INITIAL OPERATION shall mean the first integral operation of the complete equipment covered under the Contract with sub-systems and supporting equipment in service or available for service.
- 1.13 PURCHASER shall mean IREL (India) Limited (IREL) having its registered office at Plot No. 1207, Veer Savarkar Marg, Near Siddhi Vinayak Temple, Prabhadevi, Mumbai -400028. The term PURCHASER includes successors, assigns of IREL.
- 1.14 PERFORMANCE AND GUARANTEE TESTS shall mean all operational checks and tests required to determine and demonstrate capacity, efficiency and operating characteristics as specified in the Contract documents.
- 1.15 PROJECT designates the aggregate of the Goods and/or Services to be provided by one or more Contractors.
- 1.16 Quantities – Bills of quantities designate the quantity calculations to be taken into account when these calculations are made from detailed or construction drawings, or from work actually performed, and presented according to a jointly agreed breakdown of the Goods and/or Services.
- 1.17 SELLER shall mean the person, firm or company with whom PURCHASE ORDER/ SERVICE CONTRACT is placed/ entered into by PURCHASER for supply of equipment, materials and services. The term Seller includes its successors and assigns.
- 1.18 SERVICE shall mean erection, installation, testing, commissioning, provision of technical assistance, training and other such obligations of the Seller covered under the Contract.

- 1.19 SITE designates the land and/or any other premises on, under, in or across which the Goods and/or Services have to be supplied, erected, assembled, adjusted, arranged and/or commissioned.
- 1.20 SPECIFICATIONS shall mean and include schedules, details, description, statement of technical data, performance characteristics, standards (Indian as well as International) as applicable and specified in the Contract.
- 1.21 SUB-CONTRACT shall mean order placed by the Seller, for any portion of the contracted work, after necessary consent and approval of PURCHASER.
- 1.22 SUB-CONTRACTOR shall mean the person named in the CONTRACT for any part of the work or any person to whom any part of the CONTRACT has been sub-let by the SELLER with the consent in writing of the CONSULTANT/PURCHASER and will include the legal representatives, successors, and permitted assigns of such person.
- 1.23 START-UP shall mean the time period required to bring the equipments covered under the Contract from an inactive condition, when construction is essentially complete to the state of readiness for trial operation. The start-up period shall include preliminary inspection and check out of equipment and supporting subsystems, initial operation of the complete equipments covered under the Contract to obtain necessary pre-trial operation data, perform calibration and corrective action, shutdown inspection and adjustment prior to the trial operation period.
- 1.24 TESTS shall mean such process or processes to be carried out by the Seller as are prescribed in the Contract or considered necessary by PURCHASER or his representative in order to ascertain quality, workmanship, performance and efficiency of equipment or part thereof.
- 1.25 TESTS ON COMPLETION shall mean such tests as prescribed in the Contract to be performed by the Seller before the Works are taken over by the PURCHASER.
- 2.0 **SELLER TO INFORM:**
- The Seller shall be deemed to have carefully examined all contract documents to his entire satisfaction. Any lack of information shall not in any way relieve the Seller of his responsibility to fulfil his obligation under the Contract.
- 3.0 **CONFLICT AND INTERPRETATION OF DOCUMENTS:**
- 3.1 Words imparting the singular only also include the plural and vice versa where the context requires so; words imparting persons include firms or corporations and vice versa where the context requires.
- 3.2 Word imparting masculine gender includes the feminine gender and vice versa where the context requires so.
- 3.3 The several documents forming the contract are to be taken as mutually explanatory of one another.

- 3.4 In case conflicting statements or directives occur among the contract documents, it shall be the responsibility of the successful bidder to notify IREL, with a copy sent concurrently to the OIC/EIC, immediately in writing and obtain instructions from IREL to eliminate the conflict.
- 3.5 The successful bidder shall notify IREL, with a copy sent concurrently to the EIC/OIC, promptly of any discrepancies, omissions or doubts it may have, regarding drawings, specifications or other documents. Noted or calculated dimensions shall always be followed
- 3.6 In the event of conflict between various documents forming the contract, the relevant terms and conditions of the purchase order shall prevail over those of all such other documents forming the contract and binding on the contractor and IREL.
- 3.7 In case of any conflict between the General Conditions of contract and the Special Conditions of the contract, the Special Conditions of contract shall prevail.
- 4.0 Country of Origin:**
- For purposes of this Clause "Origin" means the place where the Goods were produced, or from which the services are supplied. Goods are produced when, through manufacturing, processing or substantial and major assembling of components, a commercially recognized new product results that is substantially different in basic characteristics or in purpose or utility from its components.
- 5.0 SCOPE OF CONTRACT:**
- 5.1 Scope of the CONTRACT shall be as defined in the PURCHASE ORDER/CONTRACT specifications, drawings and Annexure thereto.
- 5.2 Completeness of the EQUIPMENT shall be the responsibility of the SELLER. Any equipment, fittings and accessories which may not be specifically mentioned in the specifications or drawings, but which are usual or necessary for the satisfactory functioning of the equipment (successful operation and functioning of the EQUIPMENT being SELLER's responsibility) shall be provided by SELLER without any extra cost.
- 5.3 The SELLER shall follow the best modern practices in the manufacture of high grade EQUIPMENT notwithstanding any omission in the specifications. The true intent and meaning of these documents is that SELLER shall in all respects, design, engineer, manufacture and supply the equipment in a thorough workmanlike manner and supply the same in prescribed time to the entire satisfaction of PURCHASER.
- 5.4 The SELLER shall furnish minimum three (03) copies in English language of Technical documents, final drawings, preservation instructions, operation and maintenance manuals, test certificates, spare parts catalogues for all equipment to the PURCHASER.
- 5.5 The documents once submitted by the SELLER shall be firm and final and not subject to subsequent changes. The SELLER shall be responsible for any loss to the PURCHASER/CONSULTANT consequent to furnishing of incorrect data/drawings.
- 5.6 All dimensions and weight should be in metric system.

- 5.7 All equipment to be supplied and work to be carried out under the CONTRACT shall conform to and comply with the provisions of relevant regulations/Acts(State Government or Central Government) as may be applicable to the type of equipment/work carried out and necessary certificates shall be furnished.
- 5.8 The Seller shall provide cross sectional drawings, wherever applicable, to identify the spare part numbers and their location. The size of bearings, their make and number shall be furnished by the SELLER.
- 5.9 Specifications, design and drawings issued to the SELLER along with NIT/Rfq and CONTRACT are not sold or given but loaned. These remain property of PURCHASER/CONSULTANT or its assigns and are subject to recall by PURCHASER/CONSULTANT. The SELLER and his employees shall not make use of the drawings, specifications and technical information for any purpose at any time except for manufacture against the CONTRACT and shall not disclose the same to any person, firm or corporate body, without written permission of PURCHASER/CONSULTANT. All such details shall be kept confidential.
- 5.10 SELLER shall pack, protect, mark and arrange for despatch of EQUIPMENT as per instructions given in the CONTRACT.

6.0 STANDARDS

The GOODS supplied under the CONTRACT shall conform to the standards mentioned in the Technical Specifications, or such other standards which ensure equal or higher quality, and when no applicable standard is mentioned, to the authoritative standard appropriate to the GOODS' country of origin and such standards shall be the latest issued by the concerned institution.

7.0 Instructions, Direction & Correspondence

- 7.1 The materials described in the CONTRACT are to be supplied according to the standards, data sheets, tables, specifications and drawings attached thereto and/or enclosed with the CONTRACT, itself and according to all conditions, both general and specific enclosed with the contract, unless any or all of them have been modified or cancelled in writing as a whole or in part.
- All instructions and orders to SELLER shall, excepting what is herein provided, be given by PURCHASER/CONSULTANT.
 - All the work shall be carried out under the direction of and to the satisfaction of PURCHASER/CONSULTANT.
 - All communications including technical/commercial clarifications and/or comments shall be addressed to CONSULTANT in quintuplicate with a copy to PURCHASER and shall always bear reference to the CONTRACT.
 - Invoices for payment against CONTRACT shall be addressed to PURCHASER. The CONTRACT number shall be shown on all invoices, communications, packing lists, containers and bills of lading, etc.
 - Invoice must contain seller's GST Registration number, PAN, Bank detail of supplier, GST Registration number of IREL Factory/ Office, HSN Code for products being supplied. Supplier must submit e-way bill, e-invoice from GSTM Portal.

- 7.2 **Contract Obligations:**
- 7.2.1 If after award of the contract, the Seller does not acknowledge the receipt of award or fails to furnish the performance guarantee within the prescribed time limit, the PURCHASER reserves the right to cancel the contract and apply all remedies available to him under the terms and conditions of this contract.
- 7.2.2 Once a contract is confirmed and signed, the terms and conditions contained therein shall take precedence over the Seller's bid and all previous correspondence.
- 8.0 **Modification in Contract:**
- 8.1 All modifications leading to changes in the CONTRACT with respect to technical and/or commercial aspects including terms of delivery, shall be considered valid only when accepted in writing by PURCHASER/CONSULTANT by issuing amendment to the CONTRACT. Issuance of acceptance or otherwise in such cases shall not be any ground for extension of agreed delivery date and also shall not affect the performance of contract in any manner except to the extent mutually agreed through a modification of contract.
- 8.2 PURCHASER/CONSULTANT shall not be bound by any printed conditions or provisions in the SELLER's Bid Forms or acknowledgment of CONTRACT, invoices, packing list and other documents which purport to impose any conditions at variance with or be supplemental to CONTRACT.
- 9.0 **Patent Rights, Liability & Compliance of Regulations:**
- 9.1 SELLER hereby warrants that the use or sale of the materials delivered hereunder will not infringe claims of any patent covering such material and SELLER agrees to be responsible for and to defend at his sole expense all suits and proceedings against PURCHASER based on any such alleged patent infringement and to pay all costs, expenses and damages which PURCHASER and/or CONSULTANT may have to pay or incur by reason of any such suit or proceedings.
- 9.2 The SELLER shall indemnify the PURCHASER against all third party claims of infringement of patent, trade mark or industrial design rights arising from use of the GOODS or any part thereof in the PURCHASER's country.
- 9.3 SELLER shall also protect and fully indemnify the PURCHASER from any claims from SELLER'S workmen/employees or their heirs, dependants, representatives, etc. or from any other person/persons or bodies/companies etc. for any acts of commissions or omission while executing the CONTRACT.
- 9.4 SELLER shall be responsible for compliance with all requirements under the laws and shall protect and indemnify completely the PURCHASER from any claims/penalties arising out of any infringements.
- 9.5 PURCHASER will promptly notify the SELLER in writing of any such claim, suit, action or proceeding coming to its attention, giving authority and all available information and assistance for the SELLER's defence of the same. If at any time the installation of the plant or any part thereof, or the use thereof in India for the purpose for which it is

furnished or the sale of products produced therewith, is prevented or enjoyed because of patent infringement or claimed infringement, the SELLER shall promptly at his own expense, either procure for PURCHASER the rights to use and continue to use such plant or replace the same at his own expense with equally efficient non-infringing plant satisfactory under all requirements of the contract, so that the operation of PURCHASER's plant will not be unduly delayed or interrupted. If shipment of the plant, or any part thereof is prevented by attachment, injunction or otherwise, or in the course of transit from the SELLER's factory or other point of origin to the site of PURCHASER, as a result of any claim of patent infringement the SELLER shall, at his own cost and expense, promptly furnish and post the necessary bond or take such other steps as may be necessary to enable shipment to be made without delay. PURCHASER will have the right to retain counsel of its own choice to collaborate in the defence of any such claim, suit action or proceeding.

10.0 Inspection, Testing & Expediting

- 10.1 The PURCHASER or its representative shall have the right to inspect and/or to test the GOODS to confirm their conformity to the CONTRACT specifications. The special conditions of CONTRACT and/or the Technical Specifications shall specify what inspections and tests the PURCHASER requires and where they are to be conducted. The PURCHASER shall notify the SELLER in writing the identity of any representative(s) retained for these purposes.
- 10.2 The inspections and tests may be conducted on the premises of the SELLER or his sub-contractor(s), at point of DELIVERY and/or at the GOODS' final destination, When conducted on the premises of the SELLER or his sub-contractor (s), all reasonable facilities and assistance including access to the drawings and production data shall be furnished to the inspectors at no charge to the PURCHASER.
- 10.3 Should any inspected or tested GOODS fail to conform to the specifications, the PURCHASER may reject them and the SELLER shall either replace the rejected GOODS or make all alterations necessary to meet Specifications' requirements, free of cost to the PURCHASER.
- 10.4 The PURCHASER's right to inspect, test and where necessary reject the GOODS after the GOODS' arrival in the PURCHASER's country shall in no way be limited or waived by reason of the GOODS having previously been inspected, tested and passed by the PURCHASER, or their representative prior to the GOODS shipment from the country of origin.
- 10.5 The INSPECTOR shall follow the progress of the manufacture of the GOODS under the CONTRACT to ensure that the requirements outlined in the CONTRACT are not being deviated with respect to schedule and quality.
- 10.6 SELLER shall allow the INSPECTOR to visit, during working hours, the workshops relevant for execution of the CONTRACT during the entire period of CONTRACT validity.
- 10.7 In order to enable PURCHASER's representatives to carryout the inspection in time, SELLER shall notify PURCHASER 15 days before assembly, testing and packing of main EQUIPMENT. If requested, SELLER shall assist PURCHASER's representatives in getting visas in the shortest possible time (applicable only in case of foreign order).

- 10.8 SELLER shall place at the disposal of the INSPECTOR, free of charge, all tools, instruments, and other apparatus necessary for the inspection and/or testing of the GOODS. The INSPECTOR is entitled to prohibit the use and dispatch of GOODS and/or materials which have failed to comply with the characteristics required for the GOODS during tests and inspections.
- 10.9 SELLER shall advise in writing of any delay in the inspection program at the earliest, describing in detail the reasons for delay and the proposed corrective action.
- 10.10 ALL TESTS and trials in general, including those to be carried out for materials not manufactured by SELLER shall be witnessed by the INSPECTOR. Therefore, SELLER shall confirm to PURCHASER by fax or e-mail about the exact date of inspection with at least 30 days notice. SELLER shall specify the GOODS and quantities ready for testing and indicate whether a preliminary or final test is to be carried out.
- 10.11 If on receipt of this notice, should PURCHASER waive the right to witness the test, timely information will be given accordingly.
- 10.12 Any and all expenses incurred in connection with tests, preparation of reports and analysis made by qualified laboratories, necessary technical documents, testing documents and drawings shall be at SELLER's cost. The technical documents shall include the reference and numbers of the standards used in the construction and, wherever deemed practical by the INSPECTOR, copy of such standards.
- 10.13 Nothing in Article-10 shall in any way release the SELLER from any warranty or other obligations under this CONTRACT.
- 10.14 Arrangements for all inspections required by Indian Statutory Authorities and as specified in technical specifications shall be made by SELLER.
- 10.15 **Inspection & Rejection of Materials by consignees:**
When materials are rejected by the consignee, the supplier shall be intimated with the details of such rejected materials, as well as the reasons for their rejection, also giving location where such materials are lying at the risk and cost of the supplier. The supplier will be called upon either to remove the materials or to give instructions as to their disposal within 14 days and in the case of dangerous, infected and perishable materials within 48 hours, failing which the consignee will either return the materials to the SELLER freight to pay or otherwise dispose them off at the SELLER's risk and cost. The PURCHASER shall also be entitled to recover handling and storage charges for the period, during which the rejected materials are not removed @ 5% of the value of materials for each month or part of a month till the rejected materials are finally disposed off.
- 11.0 Time Schedule & Progress Reporting**
- 11.1 Together with the Contract confirmation, SELLER shall submit to PURCHASER, his time schedule regarding the documentation, manufacture, testing, supply, erection and commissioning of the GOODS.
- 11.2 PURCHASER's/CONSULTANT's representatives shall have the right to inspect SELLER's premises with a view to evaluating the actual progress of work on the basis of SELLER's time schedule documentation.

- 11.3 Irrespective of such inspection, SELLER shall advise PURCHASER at the earliest possible date of any anticipated delay in the progress.
- 11.4 Notwithstanding the above, in case progress on the execution of contract at various stages is not as per phased time schedule and is not satisfactory in the opinion of the PURCHASER/CONSULTANT which shall be conclusive or SELLER shall neglect to execute the CONTRACT with due diligence and expedition or shall contravene the provisions of the CONTRACT, PURCHASER/CONSULTANT may give notice of the same in writing to the SELLER calling upon him to make good the failure, neglect or contravention complained of. Should SELLER fail to comply with such notice within the period considered reasonable by PURCHASER/CONSULTANT, the PURCHASER/CONSULTANT shall have the option and be at liberty to take the CONTRACT wholly or in part out of the SELLER's hand and make alternative arrangements to obtain the requirements and completion of CONTRACT at the SELLER's risk and cost and recover from the SELLER, all extra cost incurred by the PURCHASER on this account. In such event, PURCHASER/CONSULTANT shall not be responsible for any loss that the SELLER may incur, and SELLER shall not be entitled to any gain. PURCHASER/CONSULTANT shall, in addition, have the right to encash Performance Guarantee in full or part.
- 12.0 Delivery & Documents:**
- 12.1 Delivery of the GOODS shall be made by the SELLER in accordance with terms specified in the CONTRACT, and the goods shall remain at the risk of the SELLER until delivery has been completed.
- 12.2 Delivery shall be deemed to have been made :
- a) In the case of FOB, CFR & CIF Contracts, when the Goods have been put on board the ship, at the specified port of loading and a clean Bill of Lading is obtained. The date of Bill of Lading shall be considered as the delivery date.
- b) In case of FOT despatch point contract (For Indian bidder), on evidence that the goods have been loaded on the carrier and a negotiable copy of the GOODS receipt obtained, the date of LR/GR shall be considered as the date of delivery.
- c) In case of FOT site/ FOR Destination (for Indian bidders), on receipt of goods by PURCHASER/Consultant at the designated site(s).
- 12.3 The delivery terms are binding and essential and consequently, no delay is allowed without the written approval of PURCHASER/CONSULTANT. Any request concerning delay will be void unless accepted by PURCHASER/CONSULTANT through a modification to the CONTRACT.
- 12.4 Delivery time shall include time for submission of drawings for approval, incorporation of comments, if any, and final approval of drawings by PURCHASER/CONSULTANT
- 12.5 In the event of delay in delivery, Liquidated Damages as stipulated in Article – 22.1 shall apply.
- 12.6 The documentation, in English Language, shall be delivered in due time, in proper form and in the required number of copies as specified in the contract.
- 12.7 The additional copies of final drawings and instructions will be included in the package of goods, properly enveloped and protected.

- 12.8 The SELLER should comply with the Packing, Marking and Shipping Documentation Specifications enclosed.

13.0 INSURANCE:

13.1 GENERAL:

CONTRACTOR shall at his own expense arrange, secure and maintain insurance with reputed insurance companies to the satisfaction of the EMPLOYER as follows:

CONTRACTOR at his cost shall arrange, secure and maintain insurance as may be necessary and to its full value for all such amounts to protect the WORKS in progress from time to time and the interest of EMPLOYER against all risks as detailed herein. The form and the limit of such insurance, as defined here in together with the under works thereof in each case should be as acceptable to the EMPLOYER. However, irrespective of work acceptance the responsibility to maintain adequate insurance coverage at all times during the period of CONTRACT shall be that of CONTRACTOR alone. CONTRACTOR's failure in this regard shall not relieve him of any of his responsibilities and obligations under CONTRACT.

Any loss or damage to the equipment, during ocean transportation, port/custom clearance, inland and port handling, inland transportation, storage, erection and commissioning till such time the WORK is taken over by EMPLOYER, shall be to the account of CONTRACTOR.

CONTRACTOR shall be responsible for preferring of all claims and make good for the damage or loss by way of repairs and/or replacement of the parts of the Work damaged or lost. CONTRACTOR shall provide the EMPLOYER with a copy of all insurance policies and documents taken out by him in pursuance of the CONTRACT. Such copies of document shall be submitted to the EMPLOYER immediately upon the CONTRACTOR having taken such insurance coverage. CONTRACTOR shall also inform the EMPLOYER at least 60(Sixty) days in advance regarding the expiry, cancellation and/or changes in any of such documents and ensure revalidation/renewal etc., as may be necessary well in time.

Statutory clearances, if any, in respect of foreign supply required for the purpose of replacement of equipment lost in transit and/or during erection, shall be made available by the EMPLOYER. CONTRACTOR shall, however, be responsible for obtaining requisite licences, port clearances and other formalities relating to such import. The risks that are to be covered under the insurance shall include, but not be limited to the loss or damage in handling, transit, theft, pilferage, riot, civil commotion, weather conditions, accidents of all kinds, fire, war risk (during ocean transportation only) etc. The scope of such insurance shall cover the entire value of supplies of equipments, plants and materials to be imported from time to time.

All costs on account of insurance liabilities covered under CONTRACT will be to CONTRACTOR's account and will be included in VALUE OF CONTRACT. However, the EMPLOYER may from time to time, during the currency of the CONTRACT, ask the CONTRACTOR in writing to limit the insurance coverage risk and in such a case, the parties to the CONTRACT will agree for a mutual settlement, for reduction in VALUE OF CONTRACT to the extent of reduced premium amounts.

- 13.2 CONTRACTOR as far as possible shall cover insurance with Indian Insurance Companies, including marine Insurance during ocean transportation.

i) EMPLOYEES' STATE INSURANCE ACT:

The CONTRACTOR agrees to and does hereby accept full and exclusive liability for the compliance with all obligations imposed by the Employees' State Insurance Act 1948 and the CONTRACTOR further agrees to defend, indemnify and hold EMPLOYER harmless for any liability or penalty which may be imposed by the Central, State or Local authority by reason of any asserted violation by CONTRACTOR or SUB-CONTRACTOR of the Employees' State Insurance Act, 1948, and also from all claims, suits or proceeding that may be brought against the EMPLOYER arising under, growing out of or by reasons of the work provided for by this CONTRACTOR, by third parties or by Central or State Government authority or any political sub- division thereof.

The CONTRACTOR agrees to fill in with the Employee's State Insurance Corporation, the Declaration Forms, and all forms which may be required in respect of the CONTRACTOR's or SUB- CONTRACTOR's employees, who are employed in the WORK provided for or those covered by ESI from time to time under the Contract. The CONTRACTOR shall deduct and secure the agreement of the SUB- CONTRACTOR to deduct the employee's contribution as per the first schedule of the Employee's State Insurance Act from wages and affix the Employees Contribution Card at wages payment intervals. The CONTRACTOR shall remit and secure the agreement of SUB- CONTRACTOR to remit to the State Bank of India, Employee's State Insurance Corporation Account, the Employee's contribution as required by the Act. The CONTRACTOR agrees to maintain all cards and Records as required under the Act in respect of employees and payments and the CONTRACTOR shall secure the agreement of the SUB- CONTRACTOR to maintain such records. Any expenses incurred for the contributions, making contributions or maintaining records shall be to the CONTRACTOR's or SUB-CONTRACTOR's account.

The EMPLOYER shall retain such sum as may be necessary from the total VALUE OF CONTRACT until the CONTRACTOR shall furnish satisfactory proof that all contributions as required by the Employees' State Insurance Act, 1948, have been paid. This will be pending on the CONTRACTOR when the ESI Act is extended to the place of work.

- ii) WORKMEN COMPENSATION AND EMPLOYER'S LIABILITY INSURANCE: Insurance shall be effected for all the CONTRACTOR's employees engaged in the performance of this CONTRACT. If any of the work is sublet, the CONTRACTOR shall require the SUB-CONTRACTOR to provide workman's compensation and employer's liability insurance for the latter's employees if such employees are not covered under the CONTRACTOR's Insurance.
- iii) TRANSIT INSURANCE:
In respect of all items to be transported by the CONTRACTOR to the SITE of WORK, the cost of transit insurance should be borne by the CONTRACTOR and the quoted price shall be inclusive of this cost.
- iv) COMPREHENSIVE AUTOMOBILE INSURANCE:
This insurance shall be in such a form as to protect the Contractor against all claims for injuries, disability, disease and death to members of public including EMPLOYER's men and damage to the property of others arising from the use of motor vehicles during on or off the 'site' operations, irrespective of the Employership of such vehicles.
- v) COMPREHENSIVE GENERAL LIABILITY INSURANCE:
 - a) This insurance shall protect the Contractor against all claims arising from injuries, disabilities, disease or death of member of public or damage to property of others due to any act or omission on the part of the Contractor, his agents, his employees, his representatives and Sub-Contractor's or from riots, strikes and civil commotion.

- b) Contractor shall take suitable Group Personal Accident Insurance Cover for taking care of injury, damage or any other risks in respect of his Engineers and other Supervisory staff who are not covered under Employees' State Insurance Act.
 - c) The policy shall cover third party liability. The third party liability shall cover the loss/ disablement of human life (person not belonging to the Contractor) and also cover the risk of damage to others materials/ equipment/ properties during construction, erection and commissioning at site. The value of third party liability for compensation for loss of human life or partial/full disablement shall be of required statutory value but not less than Rs. 2 lakhs per death, Rs. 1.5 lakhs per full disablement and Rs. 1 lakh per partial disablement and shall nevertheless cover such compensation as may be awarded by Court by Law in India and cover for damage to others' equipment/ property as approved by the Purchaser. However, third party risk shall be maximum to Rs. 10 (ten) lakhs to death.
 - d) The Contractor shall also arrange suitable insurance to cover damage, loss, accidents, risks etc., in respect of all his plant, equipments and machinery, erection tools & tackles and all other temporary attachments brought by him at site to execute the work.
 - e) The Contractor shall take out insurance policy in the joint name of EMPLOYER and Contractor from one or more nationalised insurance company from any branch office at Project site.
 - f) Any such insurance requirements as are hereby established as the minimum policies and coverages which Contractor must secure and keep in force must be complied with, Contractor shall at all times be free to obtain additional or increased coverages at Contractor's sole expenses.
- vi) ANY OTHER INSURANCE REQUIRED UNDER LAW OR REGULATIONS OR BY EMPLOYER:
CONTRACTOR shall also carry and maintain any and all other insurance(s) which he may be required under any law or regulation from time to time without any extra cost to EMPLOYER. He shall also carry and maintain any other insurance which may be required by the EMPLOYER.

14.0 Transportation

- 14.1 Where the SELLER is required under the CONTRACT to deliver the GOODS FOB, transport of the GOODS until delivery, that is, upto and including the point of putting the GOODS on board the export conveyance at the specified port of loading, shall be arranged and paid for by the SELLER and the cost thereof shall be included in the Contract price.
- 14.2 Where the SELLER is required under the CONTRACT to deliver the GOODS CFR or CIF, transport of the Goods to the port of discharge or such other point in the country of destination as shall be specified in the CONTRACT shall be arranged and paid for by the SELLER and the cost thereof shall be included in the Contract price.

15.0 Incidental Services:

- 15.1 The Seller may be required to provide any or all of the following services:
- 15.1.1 Performance or supervision of onsite assembly and/or start-up of the supplied Goods:
 - 15.1.2 Furnishing tools required for assembly and/or maintenance of the supplied Goods:
 - 15.1.3 Performance or supervision or maintenance and/or repair of the supplied Goods, for a period of time agreed by the parties, provided that this service shall not relieve the Seller of any warranty/ guarantee obligations under the Contract.

- 15.1.4 Training of the Purchaser's personnel at the Seller's plant and/or at Site, in assembly, start-up operation, maintenance and/or repair of the supplied Goods at no extra cost. However, Purchaser will bear boarding, lodging & personal expenses of Trainees.
- 15.2 Prices charged by the Seller for the preceding incidental services, shall not exceed the prevailing rates charged to other parties by the Seller for similar services.
- 15.3 When required, Seller shall depute necessary personnel for supervision and/or erection of the Equipment at site for duration to be specified by Purchaser on mutually agreed terms. Seller's personnel shall be available at Site within seven days for emergency action and twenty one days for medium and long-term assistance, from the date of notice given by Purchaser.
- 15.4 The cost of incidental services shall not be included in the quoted prices. The cost of applicable incidental services should be shown separately in the price schedules whenever asked for in the tender.
- 16.0 Spare Parts, Maintenance Tools, Lubricants**
- 16.1 Seller may be required to provide any or all of the following materials and notification pertaining to spare parts manufactured or distributed by the Seller.
- 16.1.1 Such spare parts as the Purchaser may opt to purchase from the Seller, provided that his option shall not relieve the Seller of any warranty obligations under the Contract, and
- 16.1.2 In the event of termination of production of the spare parts:
 - i) Advance notification to the Purchaser of the pending termination, in sufficient time to permit the Purchaser to procure needed requirements, and
 - ii) Following such termination, furnishing at no cost to the Purchaser, the blueprints, drawings and specifications of the spare parts, if any when, requested.
- 16.2 Seller shall supply item wise list with value of each item of spare parts and maintenance tools requirements, along with full details of manufacturers/vendors for such spares/maintenance tools for :
 - 16.2.1 The construction, execution and commissioning.
 - 16.2.2 Two years operation and maintenance.
- 16.3 Spare parts shall be new and of first-class quality as per engineering standards/ codes, free of any defects (even concealed), deficiency in design, materials and workmanship and also shall be completely interchangeable with the corresponding parts.
- 16.4 Type and sizes of bearings shall be clearly indicated.
- 16.5 Spare parts shall be packed for long storage under tropical climatic conditions in suitable cases, clearly marked as to intended purpose.
- 16.6 A list of special tools and gauges required for normal maintenance and special handling and lifting appliances, if any, for the Goods shall be submitted to Purchaser.
- 16.7 Bidders should note that if they do not comply with Clause 16.2 above, their quotation may be rejected.

16.8 Lubricants

- 16.8.1 Whenever lubricants are required, Seller shall indicate the quantity of lubricants required for the first filling, the frequency of changing, the quantity of lubricants required for the one year's continuous operation and the types of recommended lubricants indicating the commercial name (trade-mark), quality and grade.
- 16.8.2 If Seller is unable to recommend specific oil, basic recommended characteristics of the lubricants shall be given.
- 16.8.3 Seller shall indicate various equivalent lubricants available in India.

17.0 Guarantee

- 17.1 All Goods or Materials shall be supplied strictly in accordance with the specifications, drawings, data sheets, other attachments and conditions stated in the Contract. No deviation from such specifications or alterations or of these conditions shall be made without PURCHASER'S /CONSULTANT'S agreement in writing which must be obtained before any work against the order is commenced. All materials supplied by the SELLER pursuant to the Contract (irrespective of whether engineering, design data or other information has been furnished, reviewed or approved by PURCHASER) are guaranteed to be of the best quality of their respective kinds (unless otherwise specifically authorised in writing by PURCHASER) and shall be free from faulty design, workmanship and materials, and to be of sufficient size and capacity and of proper materials so as to fulfil in all respects all operating conditions, if any, specified in the Contract.

If any trouble or defect, originating with the design, material, workmanship or operating characteristics of any materials, arises at any time prior to twelve(12) months from the date of the first commercial operation of the Plant for which the materials supplied under the Contract form a part thereof, or Fifteen (15) months from the date of last shipment whichever period shall first expire, and the SELLER is notified thereof, SELLER shall, at his own expense and as promptly as possible, make such alterations, repairs and replacements as may be necessary to permit the materials to function in accordance with the specifications and to fulfil the foregoing guarantees. PURCHASER may, at his option, remove such defective materials, at SELLER'S expense in which event SELLER shall, without cost to PURCHASER and as promptly as possible, furnish and install proper materials. Repaired or replaced materials shall be similarly guaranteed by the SELLER for a period of no less than twelve (12) months from the date of replacement/repair.

In the event that the materials supplied do not meet the specifications and/or not in accordance with the drawings, data sheets or the terms of the Contract and rectification is required at site, PURCHASER shall notify the SELLER giving full details of differences. The SELLER shall attend the site within seven (7) days of receipt of such notice to meet and agree with representatives of PURCHASER, for taking the action required to correct the deficiency. Should the SELLER fail to attend meeting at Site within the time specified above, PURCHASER shall immediately rectify the work/ materials and SELLER shall reimburse PURCHASER all costs and expenses incurred in connection with such trouble or defect.

17.2 PERFORMANCE GUARANTEE OF EQUIPMENT

- 17.2.1 SELLER shall guarantee that the performance of the EQUIPMENT supplied under the CONTRACT shall be strictly in conformity with the specifications and shall perform the functions specified under the CONTRACT.

- 17.2.2 If the SELLER fails to prove the guaranteed performance of the EQUIPMENT set forth in the specification, the SELLER shall investigate the causes and carry out necessary rectifications/modifications to achieve the guaranteed performance. In case the SELLER fails to do so within a reasonable period, the SELLER shall replace the EQUIPMENT and prove guaranteed performance of the new equipment without any extra cost to PURCHASER.
- 17.2.3 If the SELLER fails to prove the guarantee within a reasonable period, PURCHASER/CONSULTANT shall have the option to take over the EQUIPMENT and rectify, if possible, the EQUIPMENT to fulfil the guarantees and/or to make necessary additions to make up the deficiency at Seller's risk and cost. All expenditure incurred by the PURCHASER/ CONSULTANT in this regard shall be to SELLER's account.
- 18.0 Prices:**
Prices charged by the SELLER for Goods delivered and services performed under the CONTRACT shall not, with the exception of any price adjustments authorized by the Contract vary from the prices quoted by the SELLER in his bid. The price indicated in the Purchase Order is firm and not subject to alteration on any account unless specified otherwise in the terms and conditions of Purchase Order. However, in case of delayed delivery, price reduction clause shall apply.
- 19.0 Subletting and Assignment:**
The SELLER shall not without previous consent in writing of the PURCHASER, sublet, transfer or assign the contract or any part thereof or interest therein or benefit or advantage thereof in any manner whatsoever. Provided, nevertheless, that any such consent shall not relieve the SELLER from any obligation, duty or responsibility under the contract.
- 20.0 Time as Essence of Contract:**
The time and date of delivery/completion of the GOODS/SERVICES as stipulated in the Contract shall be deemed to be the essence of the Contract.
- 21.0 Delays in The Seller's Performance:**
If the specified delivery schedule is not adhered to or the progress of manufacture or supply of the items is not satisfactory or is not in accordance with the progress schedule, the PURCHASER has the right to:
- i) hire for period of delay from elsewhere goods which in PURCHASER's opinion will meet the same purpose as the goods which are delayed and SELLER shall be liable without limitation for the hire charges; or
 - ii) cancel the CONTRACT in whole or in part without liability for cancellation charges. In that event, PURCHASER may procure from elsewhere goods which PURCHASER's opinion would meet the same purpose as the goods for which CONTRACT is cancelled and SELLER shall be liable without limitations for the difference between the cost of such substitution and the price set forth in the CONTRACT for the goods involved; or
 - iii) hire the substitute goods vide (I) above and if the ordered goods continue to remain undelivered thereafter, cancel the order in part or in full vide (ii) above.
- 21.1 Any un-excusable delay by the SELLER or his subcontractor shall render the SELLER liable, without prejudice to any other terms of the Contract, to any or all of the following

sanctions: forfeiture of Contract performance guarantee, imposition of Liquidated Damages for delay in delivery , termination of the contract for default and purchase from another source at the risk and cost of the SELLER.

22.1 Liquidated Damages Schedule for Delayed Delivery

Subject to Article -25, if the SELLER fails to deliver any or all of the GOODS or performance the services within the time period (s) specified in the CONTRACT, the PURCHASER shall, without prejudice to his other remedies under the CONTRACT, deduct from the CONTRACT PRICE, a sum calculated on the basis of the CONTRACT PRICE, including subsequent modifications.

22.1.1 Deductions shall apply as per following formula: A sum equivalent to 0.5 (Half) per cent of the prices of any portion of stores delivered late, for each week or part thereof of delay. The total damages shall not exceed 10 (Ten) per cent of the value of delayed goods. The LD cannot exceed the amount stipulated in the contract.

22.2 In case of delay in delivery on the part of SELLER, the invoice/document value shall be reduced proportionately for the delay and payment shall be released accordingly.

22.3 In the event the invoice value is not reduced proportionately for the delay, the PURCHASER may deduct the amount so payable by SELLER, from any amount falling due to the SELLER or by recovery against the Performance Guarantee. Both seller and PURCHASER agree that the above percentages of price reduction are genuine pre-estimates of the loss/damage which the PURCHASER would have suffered on account of delay/breach on the part of the SELLER and the said amount will be payable on demand without there being any proof of the actual loss/or damage caused by such breach/delay. A decision of the PURCHASER in the matter of applicability of price reduction shall be final and binding.

23.0 Rejections, Removal of Rejected Equipment & Replacement

23.1 Preliminary inspection at SELLER's works by INSPECTOR shall not prejudice PURCHASER's/ CONSULTANT's claim for rejection of the EQUIPMENT on final inspection at SITE or claims under warranty provisions.

23.2 If the EQUIPMENTS are not of specification or fail to perform specified functions or are otherwise not satisfactory the PURCHASER/CONSULTANT shall be entitled to reject the EQUIPMENT/MATERIAL or part thereof and ask free replacement within reasonable time failing which obtain his requirements from elsewhere at SELLER's cost and risk.

23.3 Nothing in this clause shall be deemed to deprive the PURCHASER AND/OR AFFECT ANY rights under the Contract which it may otherwise have in respect of such defects or deficiencies or in any way relieve the SELLER of his obligations under the Contract.

23.4 EQUIPMENT rejected by the PURCHASER/ CONSULTANT shall be removed by the Seller at his cost within 14 days of notice after repaying the amounts received against the SUPPLY. The PURCHASER shall in no way be responsible for any deterioration or damage to the EQUIPMENT under any circumstances whatsoever.

23.5 In case of rejection of EQUIPMENT, PURCHASER shall have the right to recover the amounts, if any, from any of CONTRACTOR'S invoices pending with PURCHASER or by alternative method(s).

24.1 Termination for Default

24.1.1 In the event that the SELLER commits a breach of the provisions of this CONTRACT and/or fails to perform any of its obligations under this CONTRACT including but not limited to failing to deliver any or all of the GOODS within the time period (s) specified in the CONTRACT, the SELLER shall be said to have committed a default of the provisions of this CONTRACT. In the event that such default is not cured by the SELLER within 30 days of a notice issued by the PURCHASER of such default, the PURCHASER shall be entitled to terminate this CONTRACT forthwith. The PURCHASER may, at its sole discretion, extend the time for curing the default by the SELLER beyond 30 days.

The PURCHASER may, without prejudice to any other remedy for breach of CONTRACT, by written notice of default sent to the SELLER, terminate the CONTRACT in whole or in part:

- A) If the SELLER fails to deliver any or all of the GOODS within the time period(s) specified in the CONTRACT; or
- B) If the SELLER fails to perform any other obligation(s) under the CONTRACT, and
- C) If the SELLER, in either of the above circumstances, does not cure his failure within a period of 30 days (or such longer period as the PURCHASER may authorize in writing) after receipt of the default notice from the PURCHASER.

24.1.2 In the event the PURCHASER terminates the CONTRACT in whole or in part, pursuant to Article 24.1.1, the PURCHASER may procure, upon such terms and in such manner as it deems appropriate, goods similar to those undelivered and the SELLER shall be liable to the PURCHASER for any excess costs for such similar GOODS. However, the SELLER shall continue performance of the CONTRACT to the extent not terminated.

24.1.3 In case of termination of CONTRACT herein set forth (under clause 24) except under conditions of Force Majeure and termination after expiry of contract, the VENDOR shall be blacklisted/ Debarred as per prevailing guidelines.

24.2 Termination for Insolvency

24.2.1 The PURCHASER, may at any time, terminate the CONTRACT by giving written notice to the SELLER, without compensation to the SELLER, if the SELLER becomes bankrupt or otherwise insolvent, provided that such termination will not prejudice or affect any right of action or remedy which has accrued or will accrue thereafter to the PURCHASER.

25.0 Force Majeure

25.1 Force majeure is an event beyond the control of SELLER and not involving the SELLER's fault or negligence and which is not foreseeable, which prevents the SELLER from fulfilling its obligations under the CONTRACT.

Force Majeure shall mean and be limited to the following:

- a) War/hostilities
- b) Riot or Civil commotion
- c) Earthquake, flood, tempest, lightening or other natural physical disaster.
- d) Restrictions imposed by the Government or other Statutory bodies which prevent or delay the execution of the Contract by the SELLER.

The decision as to whether an event constitutes force majeure shall rest with PURCHASER which shall be final and binding.

- 25.2 If there is delay in performance or other failures by the SELLER to perform obligations under the contract due to event of a Force Majeure, the SELLER shall not be held responsible for such delays/failures.
- 25.3 If a Force Majeure situation arises, the SELLER shall promptly notify the purchaser in writing of such conditions and the cause thereof within fifteen days of occurrence of such event. Unless otherwise directed by the Purchaser in writing, the SELLER shall continue to perform its obligations under the contract as far as reasonable/practical and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event.
- 25.4 If the performance in whole or in part or any obligation under this contract is prevented or delayed by any reason of Force Majeure for a period of exceeding 120 days, PURCHASER may at its option terminate the contract without any financial repercussion on either side.
- 26.0 Resolution of Disputes/ Arbitration:**
- 26.1 The PURCHASER and the SELLER shall make every effort to resolve amicably by direct informal, good faith negotiations any disagreement or dispute arising between them under or in connection with the contract.
- 26.2 If, after thirty days from the commencement of such informal negotiations, the PURCHASER and the SELLER have been unable to resolve the disagreement or dispute, the same be referred for resolution to the formal mechanism as specified hereunder.
- 26.3 **Legal Construction:** The Contract shall in all respects be construed and operated as an Indian Contract and in accordance with Indian Laws as in force for the time being.
- 26.4 Arbitration:**
- a) All disputes and differences of any kind whatsoever arising out of or in connection with the contract or carrying out of the works (whether during the course of works or after their completion and whether before or after termination, abandonment or breach of contract) shall be referred to and settled by the person authorized and notified in writing by PURCHASER who shall state his decision in writing. Such a decision may be in the form of a final certificate or otherwise and shall be made within a period of 30 days from the date of receipt of such reference to them.
- b) If the SELLER is dissatisfied with the decision of such authorized person, then he may within 30 days of receipt of such decision send a written appeal to PURCHASER, represented by the Chairman and Managing Director at the registered office, Mumbai for the same to be referred to Arbitration by a Sole Arbitrator to be appointed by mutual consent and after due approval of CMD, IREL. The Arbitration proceedings shall be conducted as per the provisions of the Arbitration and Conciliation Act, 1996. It is made clear that this Arbitration Clause shall be applicable to any and all disputes and differences between the Parties arising out of and/or relating to this CONTRACT and the Parties shall be bound to refer the same to arbitration in accordance with the procedure contemplated herein.

- c) If the period of 30 days under Clause (b) has expired at any stage, stipulated in the preceding paras without any response from the SELLER before such expiry, the SELLER is deemed to have communicated his satisfaction to the decision of PURCHASER at the relevant stage and all his rights of further appeal or as the case may be and adjudication are deemed to have been waived once and for all.
- d) The seat of arbitration will be at Mumbai and language thereof shall be English.
- e) Notwithstanding the invocation, commencement and/or pendency any dispute resolution proceedings under this Clause 26.0 including arbitration under Clause 26.4, the SELLER shall continue to be bound by the provisions of the CONTRACT, if not terminated by the EMPLOYER, and shall be obligated to discharge its obligations under the CONTRACT including continuation of the WORK under the CONTRACT.
- f) The Bidder shall not in any way delay or default or cause to delay or default the carrying out of the works by reason of the fact that any matter has been agreed to be referred for dispute resolution under Clause 26.0 including Arbitration under Clause 26.4.

26.5 Jurisdiction

The courts at Mumbai only shall, subject to Arbitration Clause, have exclusive jurisdiction to deal with and decide any matter arising out of this contract.

27. Taxes & Duties

- 27.1 A foreign Seller shall be entirely responsible for all taxes, stamp duties, licence fees, and other such levies imposed outside the PURCHASER's country.
- 27.2 A domestic Seller shall be entirely responsible for all taxes, duties, licence fees etc. incurred until the delivery of the contracted goods to the PURCHASER. However, GST on finished products shall be reimbursed by PURCHASER. Seller need to prepare E-Invoice under GST and submit monthly/ quarterly GST Return as per GST Rules. Failure to submit GST Return on time as per GST Rules may result into deduction of GST while processing suppliers' Bill.
- 27.3 Customs duty payable in India for imported goods ordered by PURCHASER on foreign Seller shall be borne and paid by PURCHASER.
- 27.4 Any income tax payable in respect of supervisory services rendered by foreign Seller under the Contract shall be as per the Indian Income Tax Act and shall be borne by SELLER. It is upto the bidder/seller to ascertain the amount of these taxes and to include them in his bid price.

28. Permits & Certificates

- 28.1 SELLER shall procure, at his expense, all necessary permits, certificates and licences required by virtue of all applicable laws, regulations, ordinances and other rules in effect at the place where any of the work is to be performed, and SELLER further agrees to hold PURCHASER and/or CONSULTANT harmless from liability or penalty which might be imposed by reason of any asserted or established violation of such laws, regulations, ordinances or other rules. PURCHASER will provide necessary permits for SELLER's personnel to undertake any work in India in connection with Contract.

29. Fall Clause

- 29.1 The price charged for the materials supplied under the order by the supplier shall in no event exceed the lowest price at which the supplier or his agent/principal/dealer, as the case may be, sells the materials of identical description to any Persons/Organizations

including the Purchaser or any Department of the Central Govt. or any Department of a State Govt. or any Statutory Undertaking of the Central or State Govt. as the case may be, during the currency of the order.

- 29.2 If at any time during the said period, the supplier or his agent/principal/dealer, as the case may be, reduces the sale price, sells or offers to sell such materials to any persons/organizations including the Purchaser or any Deptt. Of Central Govt. or State Govt. as the case may be, at a price lower than the price chargeable under the order, he shall forthwith notify such reduction or sale or offer of sale to the Purchase Authority who has issued this order and the price payable under the order for the materials supplied after the date of coming into force of such reduction or sale or offer of sale shall stand correspondingly reduced. The above stipulation will, however, not apply to: a) Exports by the Contractor/Supplier or b) Sale of goods as original equipment at prices lower than the prices charged for normal replacement c) Sale of goods such as drugs which have expiry dates.
- 29.3 The supplier shall furnish the following certificate to the concerned Paying Authority along with each bill for payment for supplies made against this order:- "I/We certify that there has been no reduction in sale price of the items/goods/materials of description identical to those supplied to the PURCHASER under the order herein and such items/goods/materials have not been offered/sold by me/us to any person/organizations including the Purchaser or any Deptt. of Central Govt. or any Deptt. of State Govt. or any Statutory Undertaking of the Central or State Govt. as the case may be upto the date of bill/during the currency of the order whichever is later, at a price lower than the price charged to the PURCHASER under the order". Such a certificate shall be obtained, except for quantity of items/goods/materials categories under sub-clause (a), (b) & (c) of sub-para 29.2 above, of which details shall be furnished by the supplier.

30.0 Limitation of Liability

Notwithstanding anything contrary contained herein, the aggregate total liability of Seller under the Agreement or otherwise shall be limited to 100% of Agreement / Order price. However, neither party shall be liable to the other party for any indirect and consequential damages, loss of profits or loss of production.

31.0 Method of blacklisting vendors

- 31.1 Any failure by the vendor (SELLER) to supply/execute the contract as per order may result in blacklisting of vendors by the PURCHASER through its competent authority. The blacklisted vendor shall not be considered for a minimum period of one year from the date of blacklisting.
- 31.2 Further the competent authority may blacklist the bidder, if the bidder changes bid (either techno-commercial and / or price) or withdraw his bid after receipt of the same and during the validity period of bid.
- 31.3 Further, the vendor (SELLER) shall be banned from doing any business with the PURCHASER, indefinitely or for such period as may be determined by the PURCHASER at its sole discretion, in case of :
- a. If security considerations including question of loyalty to the state so warrant.
 - b. If the proprietor, partner, Director's representative of the SELLER is convicted by a court of law following prosecution for any offences including offences relating to business or commercial dealings.

- c. If there is strong justification, as determined by the PURCHASER at its sole discretion, for believing that the proprietor or employee or representative of the SELLER has been guilty of malpractice such as bribery, corruption, fraud, substitution of tenders, interpolation, misrepresentation, evasion or habitual default in payment of any tax levied by law, etc.
- 31.4 An order for ban/ suspension passed for a certain specified period shall be deemed to have been automatically revoked on expiry of that specified period and it will not be necessary to issue a specific formal order of revocation, except that an order of suspension/ban passed on account of doubtful loyalty or security consideration shall continue to remain in force until it is specifically revoked in writing.
- 31.5 An order of ban on grounds of conviction by Court of Law may be revoked if, in respect of the same facts, the SELLER has been wholly acquitted by a court of law.
- 32.0 Secrecy**
The SELLER shall not at any time during the pendency of the contract or thereafter disclose any information furnished to them by PURCHASER or any drawings, designs, reports and other documents and information prepared by the Contractor for this contract, without the prior written approval of PURCHASER except in so far as such disclosure is necessary for the performance of the Contractor's work and service hereunder.
- 33. General**
 - 33.1 In the event that terms and conditions stipulated in the General Conditions of Contract should deviate from terms and conditions stipulated in the Contract, the latter shall prevail. Any specific Terms / Conditions mentioned in PO will supersede this GCC.
 - 33.2 **Losses due to non-compliance of Instructions:** Losses or damages occurring to the PURCHASER owing to the SELLER's failure to adhere to any of the instructions given by the PURCHASER/CONSULTANT in connection with the contract execution shall be recoverable from the SELLER.
 - 33.3 **Recovery of sums due :** All costs, damages or expenses which the PURCHASER/CONSULTANT may have paid, for which under the contract, SELLER is liable, may be recovered by the PURCHASER (he is hereby irrevocably authorized to do so) from any money due to or becoming due to the SELLER under this Contract or other Contracts and/or may be recovered by action at law or otherwise. If the same due to the SELLER be not sufficient to recover the recoverable amount, the SELLER shall pay to the PURCHASER, on demand, the balance amount.
 - 33.4 **Payments, etc. not to affect rights of the PURCHASER:** No sum paid on account by the PURCHASER nor any extension of the date for completion granted by the PURCHASER shall affect or prejudice the rights of the PURCHASER against the SELLER or relieve the SELLER of his obligation for the due fulfillment of the CONTRACT.
 - 33.5 **Cut-off Dates :** No claims or correspondence on this Contract shall be entertained by the PURCHASER/Consultant after 90 days after expiry of the performance guarantee (from the date of final extension, if any).
 - 33.6 **Paragraph heading:** The paragraph heading in these conditions shall not affect the construction thereof.
- 34. SAFETY CLAUSES:**

Before commencement of the work, the Contractor will give an undertaking in writing that they would abide by the safety Rules and Regulations laid down by the organisation rigorously and any deviation from this would make them liable for action.

(a) SAFETY CLEARANCE :

Along with contract document and job instructions from the contracting department, the Contractor will come to Safety & Training Deptt/EIC. where he will be further briefed and Contractor's Safety Management Policy will be explained. The Contractor will not be permitted to start the job without getting a written safety clearance from Safety & Training Deptt/EIC.

(b) SHUTDOWNS

The contracting department would take necessary shutdowns wherever there are hazards of gases, electricity, moving machinery, etc. The Contractor shall ensure that the shutdowns/ clearance are taken before sending workers in such locations.

(c) WORK AT HEIGHT

Whenever work at height is involved Contractor should obtain passes to work at height for these persons who will be required to work at height from Safety & Training Deptt.

(d) INJURY TO WORKMEN

The Contractor after preliminary examination at PHC may take his injured workmen to his own Doctor with a permission from the Doctor at PHC at his own risk giving an undertaking to that effect in writing to the Doctor. He will, however, have to keep S&T Deptt. informed about the nature of the injury and the period for which the injured person is off duty on account of injury.

(e) RESPONSIBILITY FOR ACCIDENTS

The Contractor shall be fully, responsible for accidents caused due to his or his agent's or workmen's negligence or carelessness in regard to the observance of the safety requirements and shall be liable to pay compensation for injuries and delay work due to these accidents.

(f) PRECAUTIONS & SUPERVISION:

The Contractor shall take all safety precautions and provide adequate supervision in order to do the job safely and without damage to equipment.

(g) SAFETY CODE

The Contractors shall strictly follow the IREL Safety Code and also the instructions issued by the Safety & Training Deptt/EIC. from time to time. Before starting the work, the Contractor shall meet the safety Officer and get himself familiar with the safety measures to be taken during the execution of the job. The contractor shall be personally responsible for the safety of his workmen and shall be liable for prosecution in case of any accident.

(h) OTHER ACTS RULES ETC.

Notwithstanding the above clauses, there is nothing in these conditions to exempt the Contractor from the operations of any other Act or Rule in force in the Republic of India.

(i) FAILURE TO OBSERVE SAFETY RULES:

Failure to observe the safety rules will make the Contractor liable to penalty by way of suspension of work, fine and termination of contract.

(j) SAFE USE OF VEHICLES:

It will be entirely the responsibility of the Contractor to ensure that the vehicles are not driven with so high speed or in so reckless or rash manner as to cause accident or prove to be potential threat to the safety of the traffic. Where the speed limits have been fixed, they will be strictly adhered to by the Contractor's drivers who will also adhere to slow and safe driving inside the Plant and Township Area. Failure to comply with the above may result in termination of the contract.

(k) THEFT ETC.

Similarly, if a driver or any staff of the Contractor is caught in theft case or in any unauthorised movement of materials or in the activity which is punishable under the law or not authorised by the Plant, the Contractor will bear the full responsibility for the loss and other consequences which may result to the Plant due to such illegal/ unauthorised acts besides the action to terminate the contract by the Plant.

(l) COMPENSATION :

In case of accident or injury or damages caused by the Contractor's vehicle or staff to any person or property, the financial responsibility to compensate be borne solely by the Contractor and this amount may, at the discretion of the competent authority of IREL, be recovered from the bills or Security or other deposits of the Contractor.

(m) PRECAUTIONS FOR VEHICULAR TRAFFIC:

Suitable safety precautions must be taken by the Contractor for his vehicular traffic at the level crossing/roads inside the Plant/ Township area. Contractors would be using those roads on their own risk and responsibility without any liability on the part of IREL Management.

**FORMAT FOR CORRESPONDENCE WITH BIDDERS ON
“ Ethics in tendering & other business dealings”**

Dear Sir,

IREL (India) Limited, a Government of India undertaking under the administrative control of Department of Atomic Energy is doing its business as per the rules and regulation of the Public Sector Undertaking and other statutory agencies. The business is done in an ethical, rational & impartial manner with good corporate governance.

In our endeavour to be more transparent in our dealings and to support our ideology all **Vendors, Customers and Business Partners** are requested not to provide any gift and / or inducement to any of our employees for securing / being granted favour in dealings with our Company. In assurance of your commitment to the aforesaid, it will be highly appreciated if you fill up, sign and abide by the attached undertakings.

Report of any gifts and / or inducements sought by any employee of the company should be immediately reported to any one of the following:

<p>Chairman & Managing Director IREL (India) Limited, 1207, V.S. Marg, Prabhadevi Mumbai 400 028. Ph: 022-24225778 Email:cmd@irel.co.in</p>	<p>Chief Vigilance Officer IREL (India) Limited, 1207, V.S. Marg, Prabhadevi Mumbai 400 028 Ph:022-24221068 Email:cvo@irel.co.in</p>
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We assure you that complaints if any made by you on the subject will be kept confidential and fair investigation will be conducted and appropriate action will be taken. Similarly, we except your commitment to the undertaking and its violation will have consequences as per prevailing rule of the Company.

Thanking you,

For IREL (India) Limited

Name -----

Designation -----

Date

FORMAT FOR UNDERTAKING TO BE SUBMITTED BY BIDDERS FOR ADOPTING ETHICAL PRACTICES

Date:

To,

M/s IREL (India) Limited,
1207, V.S. Marg, Prabhadevi
Mumbai 400 028.

I / We am / are a Vendor / Customer of IREL (India) Limited (now onwards to be referred as Company).

I / We agree and undertake:

Not to provide any gift and / or inducement to any employee of the Company in connection with securing / being granted favour (s) in my / our dealings with the Corporate office of the company and / or its any field units namely MK, Chavara, OSCOM, RED, IRERC & REPM.

To immediately report any gift and / or inducement sought by any employee of the Company granting favour(s) to me / us in my / our dealings with the Company and / or its field units.

Signature.....

Name.....

Title.....

Name of the Company and Address (with Seal).....

DECLARATION – NON-BLACKLISTING

(To be submitted by an Authorized Signatory on the company's original letter head with signature and seal)

To,

**DGM -Technical
IREL (India) Limited
Corporate Office Mumbai
PLOT NO. 1207, VEER SAVARKAR MARG
NEAR SIDDHIVINAYAK TEMPLE
PRABHADEVI
MUMBAI-400028**

Sir,

In response to the Bid Ref No.: _____ dated _____ 2024, I/We hereby declare that presently our agency has not been declared ineligible or black listed for corrupt & fraudulent practices either indefinitely or for a particular period of time by any State Govt./ Central Govt./PSU/Government of India Society on the date of bid submission.

If this declaration is found to be incorrect then without prejudice to any other action that may be taken, my/ our bid if any, to the extent accepted may be cancelled.

Thanking you,

Yours faithfully,

Name of the agency : -
Authorized Signatory: -
Seal of the Organization: -

Date:
Place:

Tender Acceptance Letter

(To be given on Company Letter Head)

Date:

To,

**DGM -Technical & I/c Purchase
IREL (India) Limited
Corporate Office Mumbai
PLOT NO. 1207, VEER SAVARKAR MARG
NEAR SIDDHIVINAYAK TEMPLE
PRABHADEVI
MUMBAI-400028**

Sub: Acceptance of Terms & Conditions of Tender.

Tender Reference No: _____

Name of Tender/Work: -

Dear Sir,

1. I/ We have downloaded / obtained the tender document(s) for the above mentioned 'Tender/Work' from the website(s) namely:

GeM Portal as per your advertisement, given in the above mentioned website(s).

2. I / We hereby certify that I / we have read the entire terms and conditions of the tender documents from Page No. ____ to ____ (including all documents like annexure(s), schedule(s), drawings etc.), which form part of the contract and I / we shall abide hereby by the terms / conditions / clauses contained therein.

3. The corrigendum(s) issued from time to time by your department/ organization too has also been taken in to consideration, while submitting this acceptance letter.

4. I / We hereby unconditionally accept the tender conditions of above mentioned tender document(s) /corrigendum(s) in its totality/ entirety and agreed to supply, installation & commissioning of 75 KW roof top grid connected solar power plant meeting the technical specification.

5. I/We do hereby declare that our Firm has not been blacklisted/debarred by any Govt. Department/Public sector undertaking.

6. I / We certify that all information furnished by the our Firm is true & correct and in the event that the information is found to be incorrect/untrue or found violated, then your department/ organization shall without giving any notice or reason therefore or summarily reject the bid or terminate the contract, without prejudice to any other rights or remedy.

Yours Faithfully,

(Signature of the Bidder, with Official Seal)

Declaration by the bidder for site visit

Dated:

To:

M/s. IREL (India) Limited.,
1207, V.S. Marg, Prabhadevi,
Mumbai 400 028

Subject: Declaration of site visit and sufficiency of tender in connection with Design, Supply, installation, integration with existing electrical system & commissioning of 75 KWp grid connected roof top solar PV power plant and maintenance of the plant for 10 years at REPM plant, Atchutapuram, BARC(Campus), AP.

Sir,

I/we have inspected the site of work and have made me/us fully acquainted with the local conditions in and around the site of work. I/we hereby declare that I/we have completely gone through the conditions laid down in the GeM bid No. _____ and understood and accepted the same and on the basis of the same I /we quoted/uploaded our rates as per the approved format of price bid.

Yours faithfully,

(Signature of the Authorized signatory)

(Name and designation of the of the Authorized signatory)

Name and seal of Bidder Firm

Date:

Place:

Name and signature of EIC/ Authorised representative of IREL

SOLVENCY CERTIFICATE* ON THE BANK'S LETTERHEAD #.

No.

Date:

To,
 M/s. IREL (India) Limited,
 1207, V.S. Marg, Prabhadevi,
 Mumbai 400 028

Subject: Request for proposal for Supply, installation & commissioning of 75 kWp grid connected roof top solar power plant and maintenance of the plant for 10 years at REPM Plant, Vishkapatnam

Dear Sir,

This is to certify that to the best of our knowledge and information M/s. _____ having address _____, a customer of our bank are/is respectable and can be considered solvent upto Rs. _____ (Rupees _____) /financially sound for any engagement upto Rs. _____ (Rupees _____). This certificate is issued without any guarantee or responsibility on the bank or any of the officers.

Place: (Signature of Bank Manager)

Date:

(Name, Personal Code No. of Signatory and Seal of Bank)

* The solvency certificate shall not more than 3 months old from the bid due date.

CERTIFICATE OF CREDIT FACILITY (ON BANK'S LETTER HEAD)

This is to certify that M/s _____, is a reputed firm / company with a good financial standing. The firm / company is enjoying a fund based credit facility of Rs. _____ to meet its working capital requirements.

Signature

Name,

Designation & Address of Bank

BANK'S SEAL

NOTE: The above certificate shall be from any Indian scheduled Bank excluding any co-operative banks. (shall not more than 3 months old from the bid due date)

**FORMAT FOR CERTIFICATE FROM PRACTICING CHARTERED ACCOUNTANT
FOR ELIGIBLE WORKS**

Certificate from the practicing chartered accountant

Based on its books of accounts and other published information authenticated by it, this is to certify that (name of the Bidder) was awarded by (title of company) for (name of supply/work).

The total fees received by the Bidder for the supply/work is

We further certify that the said supply/work was completed on (date).

Name of the audit firm:

Seal of the audit firm:

Date:

License/registration no:

UDIN NO.

(Signature, name, designation of the authorized signatory of the audit firm)

Signature of Authorised Signatory with seal

Particulars of the bidder

Sl.	Particulars	Details
1.	a) Name of Bidder b) Legal status (e.g. incorporated private company, unincorporated business, partnership etc.): c) Date of incorporation and/ or commencement of business d) Brief details about main line of business.	
2.	Bank details:- The payments to be released from IREL will be made through e-payments. The contractor has to provide the following details: <ul style="list-style-type: none"> • Beneficiary name: • Account Number: • Name of the bank: • IFSC: • Nature of Account (Savings/Current/CC/OD): Branch Code	
3.	Particulars of the Authorized Signatory of the Bidder <ul style="list-style-type: none"> a) Name b) Designation c) Company d) Address e) Telephone Number & mobile no : f) Email address 	
4.	GST and PAN no details:	

(Signature of Bidder)

Requirement details of tender documents

Note: The complete bid document submitted by the bidder as technical bid (Part 1) shall be duly numbered in each page. Based on the numbering done, the following table should be filled up by the bidder.

Sl.	Required Documents	Complied/submitted meeting the requirement(yes/no)	(Indicate page number of the bid document where related information is shown/available, so that it can be verified by IREL)
1.0	Complete documents as per the Pre-qualification criteria (clause no 2) a. Technical competency (PO and supply completion certificate or other relevant details) b. Financial capability-Average turnover c. Solvency certificate d. Declaration- Non-Blocklisting		
2.0	Site visit certificate (Annexure V)		
3.0	Particulars of the bidder		
4.0	Technical specification of Solar Power Plant to be installed in bidders letter head.		
5.0	Standards maintained for various components to be used in the project.		
6.0	Safety consideration for system protection		
7.0	Annexures I to XI		
8.0	Earnest Money Deposit (EMD)		

Bidder to submit all the details in compliance to RFP requirement.

(Signature of Bidder)

Techno-Commercial Terms for response by the participating bidders:

Sl. No.	Techno-Commercial Terms for response by the participating bidders: -	Response
1	Bidder has visited the site before quoting for the tender. Site visit is mandatory and other wise bid will be considered as non responsive.	AGREE
2	Bidder should carefully study the Technical Specifications and General terms and conditions before participating in the tender. All terms and Conditions of the NIT including Corrigendum if any, shall be applicable	AGREE
3	Bidder agrees to execute the work strictly as per the technical specifications and also to comply to the statutory requirements as required for execution of the work.	AGREE
4	Submitted technical proposal for the bid indicating brand of various items to be supplied for the solar power plant.	AGREE
5	Bidder agrees to upload the documents in proof of meeting the Pre-qualification criteria as called for in the tender.	AGREE
6	Bidder agrees to Special Conditions of Contract	AGREE
7	Bidder agrees to certify that they are not debarred/backlisted by any Govt. Dept. agency, PSUs/institution/agencies/autonomous organizations. The bidder shall upload self-certification by an authorized person duly notarized.	AGREE
8	Bidder agrees towards both supply installation and commissioning of the solar plant and carry out maintenance of the plant for a minimum period of 10 years as per the technical specifications.	AGREE
9	Bidder agrees that the price quoted by the bidder is inclusive of Design, Obtaining necessary approvals as required, supply, storage, civil works, installation, commissioning of 75kWp Solar PV System as per tender.	AGREE
10	Bidder agrees to submit the signed scanned copy of the Annexure-I to XI	AGREE
11	Price Bid (Part II)-online submission	
12	Price bid (summary and breakup as per format through online only) No hard copy submission is allowed.	AGREE

Note : Bidder to note that price bid is to be submitted through online on GeM portal only. Along with the price bid party has to submit the price break up statement (BoQ) as mentioned under-price bid. Summary price and break price should tally with each other. In case of any insistency/deviation in summary bid and price break up statement the bid will be liable for rejection.

EMD Declaration

I have furnished a sum of Rs. 1,13,000/- (Rupees one lakh and thirteen thousand only) towards EMD vide NEFT/RTGS/BG No..... dated.....

Place:

Signature of tenderer:

Full Address:

IREL Bank Details

Name of the Bank	HDFC Bank Limited, V S Marg, Opp. Siddhivinayak Temple, Prabhadevi, Mumbai – 400028
Account Type	Current Account
Account Number	00122320000135
IFSC Code	HDFC0000012

Details of payment to be uploaded to purchase-ho@irel.co.in

Email should contain the following details

- 1) Name of the company
- 2) Transaction ID with details Bank and Branch

PROFORMA FOR BANK GUARANTEE FOR EARNEST MONEY DEPOSIT

(To be issued by approved Scheduled Banks)

In accordance with Bid No. _____ Dated _____ for the work of _____ (herein after referred to as "the said Works") for Rs. _____ (Rupees _____ only), under _____ (Corporate Office) of M/s IREL (India) Limited, a company incorporated under Indian Companies Act, having its registered office at Plot No.1207, ECIL building, Opp. to Siddhivinayak Temple, Veer Savarkar Marg, Prabhadevi, Mumbai – 400028, India (herein after referred to as IREL), M/s _____ Address _____ [Herein after referred to as Contractor (s)] wish /wishes to participate in the said tender and a Bank Guarantee for the sum of Rs. _____ (in words) valid for a period of _____ days (in words) is required to be submitted by the Bidder towards the Bid Security.

We the _____ Bank (hereinafter called the said Bank) do hereby undertake to pay to IREL, the sum of Rs. _____ (Rupees _____ only) by reason of the said tenderer's failure to enter into an agreement of contract on intimation of acceptance of his tender and/or to commence the contract works and/or failure to deposit the security deposit within the stipulated period as per the terms and conditions relating to and/or governing the contract and/or specified in the Bid. We also agree that any such demand made on the Bank shall be conclusive as regards the amount due and payable by the Bank under this Guarantee. We also agree that notwithstanding any dispute or difference or any litigation in respect of or arising from the said contract and/or the acceptance of the tender of the tenderer afore stated by IREL including the question as to the tenability of the claim of the IREL for forfeiting the Earnest Money being the Bank Guarantee herein, we shall forthwith pay the said amount to IREL on demand being made as aforesaid.

We _____ Bank further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for entering into an Agreement of contract and that it shall continue to be enforceable till all the dues of the IREL under the terms and conditions of the Bid for the work have been fully paid and its claims satisfied or discharged or till IREL certifies, that the terms and conditions of the bid have been fully and properly carried out by the said tenderer and accordingly discharges the guarantee.

We _____ Bank further agree with the IREL that the IREL shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the Bid and/or terms and conditions governing the contract or to extend the time of validity of the offer from the said tenderer from time to time or to postpone for any time or from time to time any of the powers exercisable by the IREL against the said tenderer and to forbear or enforce any of the terms and conditions of the Bid and we shall not be relieved from our liability hereunder by reason of any such variation, or extension being granted to the said tenderer or for any forbearance, act or omission on the part of the IREL or any indulgence by the IREL to the said tenderer or by any such matter or thing whatsoever which under the law relating to surety/guarantee would but for this provision have effect of so relieving us.

We _____ Bank do hereby further agree that any change in the Constitution of the said tenderer or the Bank will not affect the validity of this guarantee.

We _____ Bank lastly undertake not to revoke this guarantee during its currency except with the previous consent of the IREL in writing.

Notwithstanding anything to the contrary contained herein before :

- (i) Our Liability under this Bank Guarantee shall not exceed and restricted to Rs (in words)
- (ii) This Bank Guarantee shall be valid upto, unless extended on demand.
- (iii) The bank is liable to pay the guaranteed amount or any part thereof under this bank Guarantee only if IREL serve a written claim or demand on or before
(Three months from the expiry of Guarantee period)

Dated the _____ day of _____ 20--
_____ Bank

(Signature with name in Block letters with designation,
Attorney as per power of Attorney No. _____ dt. _____)

Bank's Common seal

**PROFORMA FOR BANK GUARANTEE FOR SECURITY DEPOSIT/Performance
Security (to be issued from a scheduled bank)**

WHEREAS on or about the _____ day of _____ M/s _____ (Tenderer's name & address), having its registered office situated at _____ (Postal address) (herein after referred to as 'The Tenderer') entered into a contract bearing reference no. _____ dtd. _____ with _____ of M/s IREL (India) Limited, a company incorporated under Indian Companies Act having its registered office at Plot No.1207, ECIL building, Opp. to Siddhivinayak Temple, Veer Savarkar Marg, Prabhadevi, Mumbai – 400 028, India (herein after referred to as IREL), for _____ (details of order) (herein after referred to as 'The Contract').

AND WHEREAS under the terms and conditions of the contract the tenderer is required to keep with IREL a security deposit of Rs. _____ (Rupees _____ only) or submit a Bank Guarantee in lieu of cash deposit for the fulfillment of the terms and conditions of the contract, and whereas the supplier has chosen to submit a Bank Guarantee till completion of the guarantee period.

We _____ Bank do hereby undertake to pay the amounts due and payable under this Guarantee without any demur, merely on a demand from IREL stating that the amount claimed is due by way of loss or damage caused to or that would be caused to or suffered by IREL by reason of breach of any of the terms and conditions of the said contract. Any such demand made on the bank shall be conclusive as regards the amount due and payable by the Bank under this Guarantee. The payment will be released within three working days from the date of demand for payment.

We undertake to pay to IREL any money so demanded notwithstanding any dispute or disputes raised by the tenderer in any suit or proceeding pending before any court or tribunal relating thereto, our liability under these present being absolute and unequivocal.

The payment so made by us under this guarantees shall be valid discharge of our liability for payment thereunder and the tenderer shall have no claim against us for making such payment.

We _____ Bank further agree that the Guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said Agreement and that it shall continue to be enforceable till all the dues of IREL under or by virtue of the said Agreement have been fully paid and its claims satisfied or discharged or till IREL certifies that the terms and conditions of the said Agreement have been fully and properly carried out by the said tenderer and accordingly discharges this Guarantee. Our Guarantee shall remain in force until _____ and unless a demand or claim under this guarantee is made on us in writing within three months from the expiry of the Guarantee period, we shall be discharged from all liability under this Guarantee thereafter.

We _____ Bank, further agree that IREL shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said Agreement or to extent time of performance by the said tenderer from time to time or to postpone for any time or from time to time any of the powers exercisable by IREL against the said tenderer and to forbear or enforce any of the terms and conditions relating to the said Agreement and we shall not be relived from our liability by reason of any such variation, or extension being granted to the said contract or for any forbearance, act or

omission on the part of IREL or any indulgence by IREL to the said tenderer or by any such matter or thing whatsoever which under the law relating to sureties would but for this provision, have effect of so relieving us.

This guarantee will not be discharged due to the change in the constitution of the Bank or the Consultant.

We _____ Bank lastly undertakes not to revoke this guarantee during its currency except with the previous consent of IREL in writing.

Notwithstanding anything to the contrary contained herein before :

- (i) Our Liability under this Bank Guarantee shall not exceed and restricted to Rs (in words)
- (ii) This Bank Guarantee shall be valid upto, unless extended on demand.
- (iii) The bank is liable to pay the guaranteed amount or any part thereof under this bank Guarantee only if IREL serve a written claim or demand on or before (Three months from the expiry of Guarantee period)

Dated the _____ day of _____ 20__

_____ Bank

(Signature with name in Block letters with designation, Attorney as per power of attorney No. _____ dt _____)

Bank's Common seal

(BG from cooperative banks will not be accepted)

Price Schedule Format (as per GeM)

Lot No.	Item Description	Quantity	Unit	Total Amount in Rs. (all inclusive) Y
1.	Design, Supply, installation & commissioning of 75 kWp grid connected roof top solar power plant and maintenance of the plant for 10 years (5 years warranty and 5 years CAMC) at REPM Plant, Visakhapatnam	1	Lumpsum	***

- Total Amount Y shall be given in Indian Rupees and shall be all inclusive. In case, GST% is different for any of the Item descriptions above, it shall be clearly indicated in the “Price Break-up Schedule” excel sheet and also in the official stationery of the bidder, duly signed & seal-affixed and submitted along with the bid.
- ‘Y’ is the Total Amount and is arrived from the “Price Break-up Schedule” excel sheet to be submitted along with the bid.
- The value of ‘Y’ in the Price Schedule in GeM portal and Price Break-up Schedule excel sheet shall be same.

Evaluation criterion is ‘Overall L1’

Price Break-up Schedule to be filled by the bidder along with bid						
S.No.	Item Description	Quantity	Unit	Rate/Unit (excl. GST) in Rs.	GST %	Amount (incl GST) in Rs.
Supply part (PART-A)						
A 1	Supply 75Kwp Solar PV modules(mono crystalline of minimum 500Wp) and required capacity Solar string as specified in the technical specification.	1	Lot			0
	Sub total of part A					0
Installation & Commissioning part with 5 year warranty (PART – B),						
B 1	Erection, installtion and commissoing of item no 1	1	Lot			0
B2	Supply including installation GI structural materials (Tata steel/Apollo/SAIL/VSPL) and SS fasteners. Including misc civil and structural work.	1	Lot			0
B 3	Supply including installation of DCDB with type1+2 DC SPD, DC Breaker, suitable capacity copper conductor cable, DC string disconnecter fuse etc., ACDB with type2 AC SPD, MCCB, Isolators, RPR, MFM, Phase Indicators, suitable capacity copper conductor cable etc. (as per CEA/APEPDCL specifications).	1	Lot/Set			0
B 4	Supply, Testing/calibration & installation of HT or LT Net meter (3 Phase Bidirectional TOD Meter, as per Electrical Inspectorate requirement) and Solar Energy meter (3 phase unidirectional TOD meter) as per APEPDCL specifications)	1	Lot/Set			0
B 5	Supply including installation of Earthing system and Lightning Arrestors (LAs). (Separate earthing shall be provided for DC system, AC system and LAs as per relevant IS /CEA/APEPDCL norms).	1	Lumpsum			0
B 6	Supply including installation of interconnecting panels to Grid as per site conditions.	1	Number			0
B 7	Supply including installation of data monitoring system, SCADA for data acquisition and transferring facility.	1	Lumpsum			0
B 8	Supply, laying, dressing, glanding and termination of 150Sq. mm, 3.5core(other requisite size), Al conductor, armoured cable, connection cable. For road crossing if required, necessary cable trench shall be provided.	1	Lot/Set			0
B 9	Charges for scheme drawing preparation, coordination and scheme approval, Inspection, Testing & Energizing approval etc from CEA/APEPDCL	1	Lumpsum			0
	Sub total of Part B					0
AMC Charges (PART – C)						
C 1	Comprehensive -AMC Charges (6th year).	1	Lumpsum			0
C 2	Comprehensive-AMC Charges (7th year).	1	Lumpsum			0
C 3	Comprehensive-AMC Charges (8th year).	1	Lumpsum			0
C 4	Comprehensive-AMC Charges (9th year).	1	Lumpsum			0
C 5	Comprehensive-AMC Charges (10th year).	1	Lumpsum			0
	Sub total of PART C					0
Grand Total (Y)						0

Note:

- Blanks in both the shaded columns i.e. (Rate/Unit excl. GST) & (GST%) are to be entered by the bidder.
- Amount column values and the Grand Total(Y) will automatically get generated through formula.
- The Grand Total(Y) which is inclusive of all taxes shall be filled in the "Price Schedule"(Y) in the designated column during the submission of price bid in GeM.