



**SECTION – 1**  
**GENERAL TECHNICAL SPECIFICATION**



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## **1.0.0 INTENT OF SPECIFICATION**

- 1.1.0 This specification is intended to cover the requirements of engineering, manufacture, assembly, testing at manufacturer's works, proper packing for transportation, loading at shop, transportation to site, erection, testing, Integration and commissioning along with defect liability of complete CCTV Surveillance System and performance guarantee test of same, complete with all accessories and services for efficient, safe and trouble free operation for 2375 MW Capacity Solar-Wind-Hybrid Renewable Energy Park.
- 1.2.0 This specification also includes the non-comprehensive Annual Maintenance for the CCTV Surveillance System under the scope of this specification.
- 1.3.0 Supplies and services shall be rendered in conformity with proven design principles, taking into account the current technology. The requirements of the contract must be fulfilled in its entirety. The supplies and services shall be rendered inclusive of all appliances and interconnecting arrangements with other supplies, necessary for installation of all accessories, needed for proper and reliable continuous operation and for satisfactory maintenance and repair. It is not the intent to completely specify all the details of design, construction and installation herein. Nevertheless, the equipment and installation shall confirm to a high standard of engineering, design and workmanship in all respect and shall be capable of performing continuous satisfactory operation.
- 1.4.0 The work to be carried out shall be all in accordance with the requirements, conditions, appendices etc. given in Technical Specifications together with those stated in other Parts/ Sub-Parts/tender drawings of Bid Documents which shall be considered as a part of this volume as completely as if bound herewith.
- 1.5.0 Bidders are requested to visit site and carefully examine and understand the specifications and seek clarifications, if required, to ensure that they have understood the site requirement, GIPCL different standalone CCTV system of PSS-1, PSS-2, 600 MW Solar, 500 MW Solar, Admin & Canteen Building and Desalination Plant, Blind spot, location, specifications, soil condition, weather condition, etc. before bidding. Such clarifications should be sought within a specific time period. Bidder's offer should not carry any parts like clarifications, interpretations and/or assumptions. However, if the bidder feels that, in his opinion, certain features brought out in his offer are superior to what has been specified, these may be highlighted separately.
- 1.6.0 Any deviation or variation from the scope, requirement and/or intent of this specification shall be clearly brought out irrespective of the fact that such deviations/ variations may be standard practice or a possible interpretation of the specification by the Bidder. Except for those deviations/ variations which are accepted by the Owner before the award of the Contract, it shall be the responsibility of the bidder to fully meet the intent and the requirements of the specification within the quoted price. No deviation whatsoever from this specification, shall not be considered. The interpretation of the Owner in respect of the scope, details and services to be performed by the Bidder shall be binding unless specifically clarified otherwise by the Owner in writing before the Award of the Contract.
- 1.7.0 It is mandatory for the bidder to furnish along with the bid, the deviations if any, whether major or minor in the 'Schedule of Deviations' only. In the absence of the deviations listed in the 'Schedule of Deviations', the offer shall be deemed to be in full conformity with the specification notwithstanding anything else stated elsewhere in the offer, data sheet, etc. The hidden deviations or stated / implied deviations in the offer shall not be acceptable OR binding on the Owner.
- 1.8.0 In case of any conflicts / contradiction among various clauses / Parts / Appendix / Annexure/chapters / appendices / tender drawings of bid documents, the most stringent requirement shall govern; decision of the Owner shall always be final & binding on the Bidder/Successful bidder. No extra claims shall be allowed on this account.



- 1.9.0 The scope of the bidder includes complete design and engineering, technical co-ordination (including participation and arranging technical co-ordination meetings), finalization of drawings/ documents, submission of engineering drawing / documents and processing of their approvals by the Owner.
- 1.10.0 Further, the scope shall also include submission, in proper shape & format, of all types of manuals, handbooks & documents in requisite numbers to the Owner at different phases of the project as per the requirement of Owner.
- 1.11.0 Bidder shall furnish all relevant data required by the Owner, at interface points within schedule as agreed to prior to award of contract.
- 1.12.0 The bidder shall be responsible for providing all materials, equipment and services, specified or otherwise which are required to fulfil the intent of ensuring operability, maintainability, and reliability of the total work covered under this specification within his quoted price. This work shall be consistent with modern practice and shall be in compliance with all applicable codes, standards, guides, statutory regulations and safety requirements in force on the date of award of this contract.
- 1.13.0 The Bidder shall furnish as per Data Requirements Schedules and other applicable sections full details regarding all equipment and systems including complete Bill of Materials, Design basis reports (DBR), drawings, data, information, technical literature and other details required to fully establish the capability and performance of the equipment and systems offered by him. Any bid not containing sufficient details to fully describe the equipment and systems offered or sufficient details regarding past experience for meeting the qualifying requirements may be treated as non-responsive and hence rejected.
- 1.14.0 The drawings enclosed with the specification are indicating the minimum requirement and all bidders shall comply with it. Any further improvement required during detailed engineering and execution shall also be implemented by bidder. Bidder shall confirm that the type, make, model of all bought out items supplied by the bidder under the specification shall be subject to the approval of the Owner during detailed engineering stage.

## **2.0.0 SCOPE OF SUPPLY AND SERVICES**

- 2.1.0 The scope of work shall include supply, testing, Integration with CCTV system of PSS-1, PSS-2, 600 MW Solar, 500 MW Solar, Admin & Canteen Building and Desalination Plant and commissioning of the CCTV Surveillance System for 2375 MW Capacity Solar-Wind-Hybrid Renewable Energy Park where computer systems & peripherals are connected to form a network based on LAN that enables the information sharing between two or more computers and a computer network or data network. The physical connection between networked computing devices shall be established using LAN cables. The physical connection between the main distribution frame in PSS-1 building and junction boxes of CCTV System of various buildings shall be established using Fiber optic cables.
- 2.2.0 The scope of supply shall also include the following:
- LAN switches,
  - Firewalls/Gateways,
  - LAN cables, cable accessories such as cable trays, conduits, supports etc. as required for interfacing requirements,
  - RJ45 face plates
  - PC based operator console with communication headset including PC.
  - Power cables
  - Fiber optic cables
  - Fiber optic cable adaptor
  - Fiber optic patch card (Bidder is requested to Maintain similar type of connector)



- j) FODPs and LIUs
- k) CAT6
- l) Solar Powered CCTV with dedicated Battery backup of 60 hours
- m) Distribution frames and junction boxes to be located at various buildings and poles
- n) Necessary System software for programming through PC and equipped / wired for full capacity. Full capacity means CCTV supplied under this tender and Integration with CCTV system of PSS-1, PSS-2, 600 MW Solar, 500 MW Solar, Admin & Canteen Building and Desalination Plant.
- o) Programming console instrument
- p) All necessary software
- q) Other network accessories & components etc. to make the system complete
- r) Mandatory spares, Special tools & tackles, commissioning spares & consumables
- s) Furniture required for the Security Guard Complex and the PSS-1 Control Room CCTV Monitoring Station shall be provided as per the operational requirements.

2.3.0 The scope of work covers design, engineering, supply of all materials, construction, fabrication / assembly and testing at works, packing / dispatch / loading / unloading and transportation (including internal transportation and material handling at site) to site (including transit insurance) and erection of the following Civil and Structural

- a) CCTV pole and Fixture arrangements
- b) Structural works / Cable supports
- c) Buried / RCC Cable trenches / Ballast with cable clamp
- d) Foundation of poles
- e) Any other civil and structural works, which is not specifically mentioned in this document but required to complete the CCTV surveillance system as EPC is also included in the scope of work.

The site location is in the highest corrosive environment. In view of that, all equipment supplied and installed by the bidder which includes but is not limited to the pole structures, outdoor cameras, Battery, all structures, foundation and reinforcement shall be categorized for minimum C5 environment.

2.4.0 The scope of CCTV surveillance system shall include provision of the following:

- Perimeter Intruder Detection & CCTV monitoring System with voice capturing feature, Motion tracking Video, ANPR and FRS Feature.
- Eleven cameras (referenced in section 2.12.0) shall be equipped with simulation data capabilities and support connectivity via LAN cable, fiber optic cable, SIM card, and local memory card storage.

2.5.0 The scope of supply shall also include the following:

Sl.no	Description	Bidder	Owner/ GIPCL	Remarks
	<b>Scope of Supply</b>			
	Bidder shall follow the minimum requirements of the Owner as per the enclosed specification. However, any other system which is not mentioned in the specification but required for completeness of the system and which is Standard engineering practice of the Industries shall also to be supplied by the bidder.			
1.	Perimeter Intrusion detection cameras	√		
2.	CCTV Cameras with Voice	√		ANPR and FRS facility



Sl.no	Description	Bidder	Owner/ GIPCL	Remarks
	capturing, Motion tracking, ANPR and FRS facility.			required at main entry gate
3.	Joystick controller	√		
4.	Remote terminal Units	√		
5.	Network controllers and accessories	√		
6.	DVRMS Server(Redundant), Camera Servers	√		
7.	Operator workstations	√		
8.	Fibre optic cables, Co-axial cables, control cables, Data cables, power cables, Cat 6 cables, Fiber Patch cards & any other cables with cable accessories such as cable trays conduits, supports etc as require for interfacing requirements	√		Fiber patch cords with same connectors
9.	Junction boxes, LIUs & FODPs	√		
10.	Galvanised poles for cameras, SS304 type camara mount and the junction box.	√		
11.	Furniture for Security room consisting of CCTV surveillance system	√		
<b>C</b>	<b>OTHERS</b>			
1	Required civil works for Security Control Room for establishment of CCTV system	√	√	Purchaser shall provide Vacant space in the Gate security complex building. Room furnishing shall be in the scope of bidder
2	<ul style="list-style-type: none"><li>• Foundation for camera poles</li><li>• Foundation &amp; Support structures for power supply panels.</li><li>• Buried cable trench / Ballast with clamp for above ground cables.</li></ul>	√		
3	Mandatory spares	√		As per specification Annexure C
4	Special tools & tackles	√		1 set as required. List to be furnished by the bidder in their bid proposal.
5	Commissioning spares and consumables	√		List to be furnished by the bidder in their bid proposal.
6	Recommended spare parts for a period of 5 years	√		List to be furnished by the bidder along with unit price in their bid proposal.
7	Shop test and inspection	√		Under Owner's Witness
8	Packing & Transportation to site	√		
9	Unloading and storage site	√		
10	Factory Acceptance Test (FAT), Site Acceptance Test (SAT)	√		Under Owner's Witness
11	Colour, paints and painting of Panels.	√		Exterior - RAL 7035 Interior - RAL 7035 However the same is subjected to Owner



Sl.no	Description	Bidder	Owner/ GIPCL	Remarks
				approval.
12	Erection	√		
13	Erection, testing, Integration and commissioning	√		
14	Panels/cabinets, DB's, base frame, bolts, nuts and gaskets etc. for installation	√		As required for CCTV surveillance system. Main rack panel at PSS-1 should be below specification a) size 800 x800 mm b) color RAL 7035 c) Front door working only no door at rear
15	Guaranty/Warranty for equipment	√		
16	Training for the O&M staff and Project Staff at site for 5 man-days	√		
17	Training of I&C Engineers for 5 man-days	√		
18	Approval from Statutory bodies such as STQC, MEITY, MOEF, State PCB / CPCB and other regulatory required.	√		

2.6.0 Installation and laying of CCTV cables and wiring along with the supply of raceways/conduits at PSS and other buildings is in bidder's scope. Other Package vendors (PSS Package / Solar Project Package / and Buildings Package) shall only provide space to cater for the same.

2.7.0 Bidder shall coordinate with other Package vendors to ensure

- Adequate space provision is available where required
- Power Supply requirements are met. Equipment is sized taking into account the requirement of CCTV Surveillance systems.
- Proposed cable routing in existing trench.
- Coordination and follow up with different standalone CCTV system for integration of CCTV.

2.8.0 Bidder shall ensure the parameters of CCTV Surveillance Equipment (such as server cabinets, consoles, etc) provided shall be capable of integration with the future south block CCTV cameras. The equipment (Cabinets, Panels, I/O Ports, Servers, Storage Devices, etc) provided shall be sized to accommodate future addition of CCTVs in south block.

2.9.0 Any other equipment / items not specifically mentioned in the specification, but which are required for successful erection, testing, commissioning and satisfactory operation of the CCTV system in all respects consistent with the best engineering practices are deemed to be included in the scope.

2.10.0 Detailed bill of quantity (BOQ) is listed in **Annexure – B**. The items and respective quantities indicated therein are only indicative. Bidder shall include other items not specially indicated in the BOQ but are required for the execution of the contract in the Price Schedules. Wherever the quantities of items / works are not indicated, the bidder is required to estimate the quantity required for entire execution and completion of works and incorporate their price in the respective price schedule. The contract price shall remain firm and no escalation is allowed till the end of the contract period.

2.11.0 The scope of services shall include the following:



- Transportation, Loading, Unloading, Material Handling and storage of all components and materials at site
- Erection, testing, Integration and commissioning.
- Preparation and submission of drawings / documents in soft and hard form as per drawing / documentation submission schedule.
- Preparation of progress reports on daily basis.
- Participation in project review / technical co-ordination meetings
- Overall co-ordination with internal / external agencies
- Handing over of installation for commercial operations
- Construction power and water facilities shall be bidder's responsibility
- Operation and Maintenance during the Defect Liability Period

2.12.0 The scope of services shall also include non-comprehensive Annual Maintenance of the CCTV Surveillance system after successful completion of Defect Liability Period .

2.13.0 Supply and installation of the cameras and accessories as per the below table. supplied items should be installed by the bidder after the owner's request.

S. No	Camera Location	Type of Camera and camera accessories.	Qty	Supply only /Installation and commissioning
	PSS-1	Bullet camera with perimeter intrusion	18	Installation and commissioning
2	T-Point Road on Type-V D Peripheral Road (All cameras shall have FO and Sim card-based communication supported including local memory card storage facility)	360 Degree Dome Camera at LMA Tower	2	Installation and commissioning
		Bullet camera with perimeter intrusion at LMA tower	4	Installation and commissioning
		Bullet camera with perimeter intrusion	4	Installation and commissioning
		PTZ Bullet Camera	1	Installation and commissioning
3	Admin Building	360 Degree Dome Camera at Observation tower	1	Installation and commissioning
4	SGC (Security guard Complex)	PTZ Bullet Camera	2	Installation and commissioning
		Bullet Camera with ANPR and FRS	2	Installation and commissioning
5	T-Point Road on type-I Peripheral Road and Type-II-B Road	PTZ Bullet Camera	1	Installation and commissioning
		Bullet camera with perimeter intrusion	1	Installation and commissioning

For all the locations mentioned as supply only shall include all necessary materials for installation including but shall not limited to poles, accessories with required power and communication cables.

2.14.0 The CCTV system shall be robust and expandable in nature. Entire system shall be designed in such a way even at peak traffic, the transfer shall be smooth. The existing CCTV systems - PSS-1, PSS-2, 600 MW Solar, 500 MW solar, Admin & Canteen Building and Desalination Plant shall be integrated with this system. Also, system shall be capable to accommodate the future cameras (**minimum 50 numbers**) without any hardware and software changes.

2.15.0 The integrated system shall work seamlessly with entire control and operation from any point. The system shall be provided with a user security for accessing the system with a log-on and password entry procedure. The user levels shall be defined as a Master User and other users for the modification of system, update, and entry of parameters or manual operation.



2.16.0 System shall be able to generate the all the logs related to system fault, system access, event, and any changes in system setting etc.

### **3.0.0 SPARES, TOOLS & TACKLES**

#### **3.1.0 Spares**

1. The Bidder shall include in his scope:
  - a) Commissioning spares as necessary.
  - b) Mandatory Spares
  - c) Recommended Spares
2. Bidder shall also state for each item of spares both mandatory and recommended, the normal expected service life.
3. The spares shall be delivered at the site well in time as per the schedule agreed during the award of contract well before the start up and commissioning of the system.
4. All spares supplied under this contract shall be strictly interchangeable with the parts for which they are intended to replace. The spares shall be treated and packed for long storage under the climatic conditions prevailing at site.
5. Each spare part shall be clearly marked or labelled on outside of the packing with the description as indicated elsewhere in the specification.
6. In all cases, containers or other packages are liable to be opened for examination as may be considered necessary by the Owner.
7. Spares shall be compatible for future upgradation aspects and to be same make and model.

#### **3.2.0 Commissioning Spares**

Start-up spares (also termed as 'commissioning spares') are those spares which will be required during the start-up and commissioning of the equipment/ systems and until performance testing. It is the responsibility of the Bidder to supply all necessary spares as required until the equipment / systems are handed over to the Owner. The price of the start-up spares should be included in the price of the respective equipment/ systems. An adequate stock of start-up spares shall be made available at the site such that the start-up/ commissioning of the equipment/ systems, performance testing and handing over the equipment/ systems to the Owner can be carried out without hindrance and delays. Bidder shall furnish the list of Start-up and Commissioning Spares to be brought by them to ensure smooth commissioning of the system.

#### **3.3.0 Mandatory Spares**

Refer **Annexure C** of GTS.

#### **3.4.0 Recommended Spares**

In addition to the spares mentioned above, Bidder shall also furnish in the Schedule of Recommended Spares a detailed list of recommended spare parts for five (5) years normal operation with unit prices. The Owner reserves the right to buy any of the recommended spare parts as considered necessary by them.

#### **3.5.0 Special Tools & Tackles**



Bidder must offer general tools and tackles and special calibration instruments required for integration and commissioning of CCTV surveillance system. A set of special tools and tackle which are necessary or convenient for erection, commissioning and putting into satisfactory operation and maintenance of the equipment shall be supplied. The price of such special tools and tackles should be included in the price of the respective equipment/ system.

The tools shall be brought in separate containers, clearly marked with the name of the equipment for which they are intended.

Bidder shall also note that the Owner, if required, shall approach directly the individual equipment manufacturers/ suppliers for procuring recommended spare parts. The Owner shall not necessarily procure these spare parts through the Bidder. All tools and appliances not listed in the respective lists and found to be necessary for maintenance of the Works shall be deemed to be included in the Contract Price. The tools shall be new and unused. These tools shall be a supplement to the tools available with the workshop and shall be supplied in accordance with the Bidder's specific design and his experience.

#### **4.0.0 EXCLUSIONS**

- Supply of UPS and its Battery system is not in scope of bidder.
- Supply of FO Cable Between PSS-II to PSS-I not in scope of bidder.

#### **5.0.0 TERMINAL POINTS**

- Termination of FO cable from PSS-1 to PSS-2 end is in scope of bidder.
- Cabling from network panels to individual workplace/rooms/buildings is in the scope of the bidder.
- Cabling from the individual CCTV camera to server and to individual workplace/rooms/buildings is in the scope of the bidder.
- The integration of all new CCTV and PSS-1, PSS-2, 600 MW Solar, 500 MW Solar, Admin & Canteen Building and Desalination Plant with PSS-1 CCTV main server.

#### **Power Supply: -**

- CCTV and its associated equipment located in PSS-1, PSS-2, Comon facility area, Peripheral roads and Security Gate complex shall utilize the UPS DB and the battery in the PSS 1& 2 Building. Bidder shall coordinate with respective PSS Package contractor for the same.
- The power supply for the PSS-I, Security Gate Complex, Admin building observation tower camera and Type-II B road cameras shall be sourced from the PSS-1 UPS system.
- The power supply for the Type-V-D road and the LMA tower cameras shall be sourced from the PSS-II UPS system. CCTVs at Type-V-D road and the LMA towers shall have provision of self-charging as alternate power supply.

Further looping shall be done by the bidder as required. Further suitable arrangements as required for the supplied system shall be made by the bidder.

#### **6.0.0 GENERAL REQUIREMENTS**

6.1.0 Project information is given in **Annexure – A**.

6.2.0 The Bidder shall fully familiarize himself with the site conditions. The Bidders are advised to visit the site and acquaint themselves with location of the camara, blind sport and CCTV system location. The successful bidder (Bidder) shall be fully responsible for providing all



equipment, materials, system and services which are required to complete the installation and successful commissioning, operational & Maintenance of CCTV system in all respects.

- 6.3.0 The Bidder shall obtain and pay for all permits, licenses and statutory approvals from local authorities for completion of work. Original copies of these approvals shall be delivered to the Owner or his authorized representative and will become property of the Owner. It must be understood and agreed that such factors have properly been understood and considered while submitting the bid. No claim whatsoever will be entertained by the Owner. Neither any change in the time schedule of the Contract nor any financial adjustments arising thereof shall be permitted by the Owner.
- 6.4.0 All materials and equipment furnished for permanent installation shall be new, unused and undamaged. Asbestos containing materials are not allowed.
- 6.5.0 The Bidder shall adopt suitable numbering system to provide identification numbering. All Mechanical items, electrical devices, control and instrumentation equipment and other items of similar nature shall be permanently identified.
- 6.6.0 Similar equipment and components shall be of same make. Equipment of same type and rating shall be interchangeable.
- 6.7.0 The Bidder shall be responsible for safety of human, environment and equipment during working. It will be the responsibility of the Bidder to co-ordinate and obtain any statutory permission before commissioning. Any additional items, modifications and Upgradation due to observation of such statutory authorities shall be provided by the Bidder at no extra cost to the Owner.
- 6.8.0 Required **construction power and construction water shall be arranged by bidder only.**
- 6.9.0 The Bidder shall arrange stores for storing the equipment during erection. All equipment during storage shall be protected against damage due to acts of nature, accidents, incidents, theft or any other type of damages. The storage instructions of the equipment manufacturer / Owner shall be strictly followed by successful bidder.
- 6.10.0 Typical drawings are enclosed with the specification for reference in **Annexure – D**. The system shall be engineered further based on these drawings.
- 6.11.0 All drawings, schedules and annexure appended to this specification shall form part of the specification. These drawings are meant to give a general idea to the Bidder. No information / data shown / not shown in these drawings shall be construed to relieve the Bidder of his responsibility to carry out the work as per this specification and / or construction drawings released during detail engineering.
- 6.12.0 In case of any discrepancy between the drawings and text of specification, the stringent one shall prevail. Further, Bidder is advised to get these informed to the Owner.
- 6.13.0 All the equipment and accessories covered under this specification shall be designed, manufactured and tested in accordance with the latest revision of the standards mentioned under respective section. They shall also conform to the requirements of latest editions / amendments of the following:
- Indian Electricity Act and rules framed there-under



- Fire insurance regulations
- Regulations laid down by the office of the Chief Electrical Inspector to Government
- CEA cyber security guidelines / regulations
- Standardization Testing and Quality Certification Directorate
- Ministry of Electronics and Information Technology
- Any other regulations laid down by the local authorities

6.14.0 Camera and Mounting location Details provide at Overall CCTV layout (FCE-1721125-RE-DWG-LAY-4100-001).

6.15.0 PTZ camera shall be installed at top of 2 nos. of LMA tower (North Boundary) and 1 no. of 360-degree dome type camera placed at observation tower (Admin Building). At the bottom of each tower one SS304 Junction shall be installed with required number of terminals and accessories required for PTZ camera. Height of SS 304 Junction Box shall be 1 M height from ground and mounting structure.

6.16.0 The bidder shall provide a defect liability period of not less than two years for the CCTV system.

6.17.0 The bidder shall provide the KVM extender/Transmitter for remote control and monitoring of CCTV systems.

6.18.0 The bidder shall also provide annual maintenance for the CCTV Surveillance System for 3 years after the successful completion of defect liability period. Owner reserves the right, at its sole discretion, to award or not to award the AMC for the CCTV Surveillance System to the same bidder.

#### **7.0.0 PACKING**

7.1.0 All the equipment shall be suitably, protected, coated, covered or boxed and crated to prevent damage or deterioration during transit, handling and storage at site. The Bidder shall be responsible for any loss or damage during transportation, handling and storage due to improper packing.

7.2.0 The successful Bidder/vendor shall prepare detailed packing list of all packages & containers, bundles & loose materials forming each & every consignment dispatched to 'Site'

7.3.0 All coated surfaces shall be protected against abrasion, impact, discoloration and any other damage. Surfaces which are damaged shall be replaced.

7.4.0 All equipment, especially electrical and electronics equipment & CCTV cameras, controls and insulations shall be provided with adequate protection against Scratches, high temperature, moisture, water & Dust.

7.5.0 The successful bidder shall prepare detailed packing list of all packages, containers, bundles and loose materials forming each and every consignment dispatched to 'Site'.

#### **8.0.0 QUALITY ASSURANCE & INSPECTION**

Refer Annexure of this specification.

#### **9.0.0 TESTING AND COMMISSIONING**

Simulated Functional test to be conducted and will be witnessed by consultant & Owner or Owner's representative. Tests for CCTV & Surveillance system, server and all other equipment's shall be carried out.



### 9.1.0 **Factory Acceptance Tests (FAT)**

Vendor shall be ready for test and demonstration of integrity of the system hardware and software at vendor's site on demand. If demanded, no material or equipment shall be transported until all required tests are successfully completed and certified 'Ready for Shipment' by GIPCL deputed officials. Factory Acceptance Test shall be carried out in the presence of the GIPCL representatives. GIPCL can demand FAT procedure from vendor at least four weeks in advance for its acceptance. Vendor shall intimate exact date of FAT at least Four weeks in advance.

Following tests/checks shall be carried out as a minimum.

1. Physical dimensional checks and workmanship
2. Performance and each function testing of CCTV system, all hardware's and servers.
3. Review of all certificates and test reports.
4. Shop test
5. Cyber security tests
6. Type test
7. Bought out material test reports
8. In process test
9. Routine test
10. Row material test
11. Compatibility checks for spare items

### 9.2.0 **Site Acceptance Test (SAT)**

The following site acceptance will be carried out as a minimum:

1. System Architecture Performance and battery back-up check.
2. Functional test of all individual and integrated components of the CCTV & Surveillance system.
3. The detailed Site Acceptance procedure will be provided during the detailed engineering of the system.
4. All functional check

### 9.3.0 **Commissioning of CCTV System**

1. The Bidder shall take care to complete all pre-commissioning activities and simulation tests (if required any) after erection.
2. The pre-commissioning activities of the system shall be completed at least two (2) weeks in advance as per the schedule of commissioning of CCTV system. Bidder shall arrange the required tools and tackles, calibration kit with required software/PC in order to communicate with the CCTV and to do some minor modifications on the system during commissioning stages.

### 9.4.0 **Performance of CCTV System**

1. The performance test shall be carried out for the CCTV system offered and certificates to these effects shall be approved by the Owner.  
Before taking over of the CCTV system by the Owner, all the system shall run satisfactorily for at least twelve months without disturbing any adjustment. If any failure of equipment / change of any major configuration / maintenance of system / unavailability of data / any type of unintended error within the twelve months, the



bidder shall diagnose the system on his own cost without any time delay and re-run for another three months until successful satisfactory of the owner.

### 10.0.0 GUARANTEE

10.1.0 Bidder shall guarantee that system engineered, and equipment offered shall meet the requirements as stipulated in this specification and as confirmed by them in technical data sheets.

10.2.0 All manufacturers' guarantees for all bought out items / equipment etc. shall be made available to the Owner and shall be valid for the entire liability period (minimum two years). If such guarantees are not issued by manufacturer, the bidder shall guarantee the bought out items for the entire defects liability period along with his guarantee for the system as a whole.

In the event of failure of any particular equipment which fails more than three times during the guarantee period, the Bidder shall replace the entire equipment / Devices / system at his own cost without any time delay with another equivalent make as approved by Owner. Manufacturer's / Vendor's guarantee, as mentioned for such replaced equipment shall also be made available to the Owner and shall be kept valid at least for one year from the date of last replacement at site.

### 11.0.0 TIME SCHEDULE

The following shall be the schedule for completion of work for this package which shall be from the date of issue of order:

Work	Schedule
Design, engineering, manufacture, testing, transport, delivery and integration with different CCTV standalone system of PSS-1, PSS-2, 600 MW Solar, 500 MW Solar, Type-II-B Road, Type-V-D Road, and Admin and Canteen Building and Desalination plant at site, erection, testing and commissioning	3 months
Non-comprehensive Annual Maintenance of the CCTV Surveillance System	3 years

### 12.0.0 DRAWINGS, DATA AND MANUAL

12.1.0 **To Be Submitted Along with Bid in three hard copies and soft copy in pen drive:**

- Technical offer
- Technical schedules duly filled up and stamped and signed on all the sheets.
- Catalogs, drawings, leaflets for major items

12.2.0 **To Be Submitted After Award of Contract:**

Sr. No	Document title	Category
1.	Architecture diagram for Perimeter Intruder Detection & CCTV monitoring System	Approval
2.	Layout for Perimeter Intruder Detection & CCTV monitoring System	Approval
3.	Technical data sheet of all items covered under BOQ	Approval
4.	Bill of Material - Main Supplies	Approval
5.	Bill of Material - Mandatory Spares	Approval



6.	Power Distribution Diagram for the entire system	Approval
7.	GA drawing of all items covered in the BOQ	Approval
8.	Mounting Arrangement drawing of all items	Approval
9.	Cable routing layout & Cable Schedules	Approval
10.	Test procedures	Approval
11.	Functional, Operational Write up & surveillance philosophy	Approval
12.	Network wiring diagram & Panel wiring diagram	Approval
13.	GA of Panels and its Terminal details	Approval
14.	Foundation Plan & loading details	Approval
15.	Panel cutout details (including Mounting details)	Approval
16.	Manufacturing quality plan	Approval
17.	Field quality plan	Approval
18.	Factory Acceptance Test	Approval
19.	Site Acceptance Test	Approval
20.	Storage Calculation, Disk calculation, Heat dissipation calculation & Power consumption calculation	Approval
21.	Guaranty/Warranty certificates	Information
22.	As built drawings/CAD files (after successful commissioning of the system)	Information
23.	Test Certificates	Information
24.	O&M manual, User Manuals & Training PDF/PPT/Videos	Information
25.	Erection manual	Information

12.3.0 Drawing / documents distribution schedule will be firmed up during finalization of Contract.

12.4.0 For all technical tables and diagrams, calculation results, drawings, test data and scales adopted in the design, the Standard International unit system (SI) as per International Standardization Organization (ISO) shall be uniformly employed.

12.5.0 All engineering documents and drawings shall be of international "A" series sizes (A0, A1, A2, A3 and A4).

12.6.0 All engineering drawings shall be supplies as Hard copy, PDF & AutoCAD soft copies.

### **13.0.0 TRAINING**

Bidder will be responsible for providing training to Owner's personnel on offered systems at Bidder's Works / Site. It shall include training Engineers in the use of system, in operation and maintenance of the equipment to the extent that the Owner's personnel can make maintenance of the systems.

Training shall be offered for a period of 2 weeks for 2 engineers & O&M staffs separately for CCTV Surveillance System.

### **14.0.0 ANNUAL MAINTENANCE CONTRACT (AMC)**

The bidder shall submit, along with the bid, a proposal for providing Non-Comprehensive Annual Maintenance of the CCTV system for a period of three (3) years. The scope shall cover labour, preventive maintenance, and fault rectification for the system and all associated systems/sub-systems included in this specification. Non-comprehensive Annual Maintenance Contract of the CCTV Surveillance system shall be started after successful completion of



Defect Liability Period. Owner reserves the right, at its sole discretion, to award or not to award the AMC for the CCTV Surveillance System to the same bidder.

The proposal shall include supply of tools and tackles as required, travel, boarding and lodging of the service engineer. The bidder shall provide price schedule for AMC on quarterly basis up to 3 years and the price validity shall be available for the entire period of contract.

The spares required for maintenance shall be in the scope of GIPCL. Any on-site/ off-site repairs and replacement shall be done only with approval and in coordination with GIPCL. Owner personnel will work on system day to day basis and wherever required, owner shall inform the type of failure of hardware/ software to bidder based on diagnostic available with the system. However, bidder shall be fully responsible to attend and rectify the root cause and the failure at the shortest possible time.

In the event of any malfunction of the system hardware/ system software, experienced service engineer shall be made available at site within 48 hours on the receipt of such information from owner. All maintenance activities shall be carried out in accordance with OEM recommendations and industry-standard practices. Bidder shall refer detailed specifications Clause 9 of Volume-II Section 2.0 for the Annual Maintenance Contract.



### ANNEXURE–A: PROJECT INFORMATION

1.0.0	Owner	:	Gujarat Industries Power Co.Ltd
1.1.0	Owner's Engineer	:	FICHTNER Consulting Engineers (I) Pvt Ltd
1.2.0	Project	:	2375 MW Hybrid RE Park
1.3.0	Site location	:	Khavda Village, Great Rann of Kutch, District Bhuj, Gujarat
1.4.0	Nearest airport and railway station	:	Bhuj
2.0.0	<b>Meteorological Information</b>		
2.1.0	Ambient temperature		
	Extreme high	:	46°C
	Extreme low	:	9°C
2.2.0	Design ambient temperature for electrical equipment	:	50°C
2.3.0	Relative humidity for design	:	95%
2.4.0	Basic wind speed and wind pressure	:	50 m/s
2.5.0	Seismic Zone	:	Seismic Zone – V Severe intensity as per IS 1893-2002
2.6.0	Corrosion Category	:	Minimum C5
3.0.0	<b>Electrical Details</b>		
3.1.0	Electrical voltage levels		
	a) Power frequency	:	50Hz (+)3% to (-)5%
	b) UPS supply	:	230V (±)10%, 1 phase



**ANNEXURE-B: BILL OF QUANTITY**

S.No	Description	Unit	Quantity
<b>A)</b>	<b>CCTV Surveillance System</b>		
1)	IP Fixed Day/Night Camera, Lens Auto-Iris, IR Illuminator, perimeter intrusion, voice recorder, IP67 & IK10	Nos	27
2)	IP Fixed Day/Night Camera, Lens Auto-Iris, IR Illuminator, PTZ, voice recorder, IP67 & IK10	Nos	4
3)	IP Fixed Day/Night Camera, Lens Auto-Iris, IR Illuminator, Automatic Number Plate Recognition, Face Recognition, voice recorder, IP67 & IK10	Nos	02
4)	IP 360° PTZ Day/Night Speed Dome Camera, Lens Auto-Iris, IR Illuminator, IP67 (located at Observation tower	Nos	03
5)	Network Video Recorder with Hard disk	Nos	As required
6)	Camera Servers including Voice recording facility (hot redundant)	Nos	As required
7)	Workstation with Joystick control and camera selection panel (Main Control Room and Security Control room at Gate Complex)	Set	01
8)	Software for CCTV & Surveillance System	Nos	As required
9)	Video Display Unit (VDU) for with 29 " Display Monitor (four in Security Control room at Gate complex and one laptop in PSS-I MCR)	Lot	1
10)	Junction Boxes for Cameras	Lot	1
11)	Power Cable	Lot	1
12)	Communication Cable /FO Patch Cord Cable	Lot	1
13)	Ethernet Cable	Lot	1
14)	Armoured 12 F Single Mode Fiber Optic Cable.	Lot	1
15)	HDPE Conduit for Laying of Fiber	Lot	1
16)	Power supply panel and 42 U rack	Lot	1
17)	Distribution Switch and smart switch for Security & Surveillance System	Lot	1
18)	Access switch	Lot	1
19)	LIU for Security & Surveillance System	Lot	1
20)	KVM extender /Transmitter	Lot	1
21)	6M high galvanized steel poles complete with base plate, supporting bracket, integral junction box, etc		
22)	Construction of buried cable trenches including excavation and back filling, river sand bedding, spreading of brick etc	Lot	1
23)	Galvanised steel pipes for cable protection at road crossings, etc.	Lot	1
24)	Supply, installation of earthing materials and system	Lot	1
25)	Foundation for camera poles	Lot	1
26)	Foundation & support for panels and other equipment	Lot	1
27)	Furniture		As required
28)	Overall CCTV System Integration for the RE park which includes PSS-1, PSS-2, 600 MW Solar Project, 500 MW Solar Project and Admin & canteen building and Desalination plant plus CCTV supplied I this tender.	Lot	1

Note: The BOQ indicated above is tentative.



**ANNEXURE-C: MANDATORY SPARES**

<b>S. No</b>	<b>DESCRIPTION</b>	<b>Unit</b>	<b>Quantity</b>
1)	LAN Switch	Nos.	15% of each type [at least 1 no.]
2)	RJ45 face plates	Nos.	15% of each type [or at least 3 nos. of each type]
3)	Patch panel	Nos	15% of each type [at least 1 no.]
4)	FO adaptor	Nos	30% of each type <sup>3</sup>
5)	IP Fixed Day/Night Camera, Lens Auto-Iris, IR Illuminator, perimeter intrusion, voice recorder, IP67 & IK10	Nos	30% of each type [at least 4 no.]
6)	IP Fixed Day/Night Camera, Lens Auto-Iris, IR Illuminator, PTZ, voice recorder, IP67 & IK10	Nos	30% of each type [at least 3 no.]
7)	IP 360° PTZ Day/Night Speed Dome Camera, Lens Auto-Iris, IR Illuminator, IP67 (located at Observation tower)	Nos	40% of each type [at least 2 no.]
8)	IP Fixed Day/Night Camera, Lens Auto-Iris, IR Illuminator, Automatic Number Plate Recognition, Face Recognition, voice recorder, IP67 & IK10	Nos	40% of each type [at least 1 no.]
9)	All types of electronic modules, controllers, function modules, cards, terminal boards, relay boards, power supply cards etc for above mentioned system and other Control System/Sub-systems and any other type of PCB not covered above	Nos.	10% of each type [or at least 2 nos. of each type]
10)	Control logic power supply fuses/MCB/MCCB of each current rating in servers / panels supplied for each system	No.	100%
11)	SSD Compact Hard drives for project	Nos.	2 Nos
12)	Interface cables, FO Patch cords cable, Ethernet Patch cables	Set	15% of each type
13)	Switch / Remote Terminal Unit (RTU)	Nos.	10% of each type [at least 1 no.]
14)	PTZ Controller Unit	Nos.	10% of each type [at least 1 no.]
15)	Data highway cable with connectors	mts.	300 mts of data highway cable with adequate connectors of each type

**2.6 Erection Hardware**

12% of each type & size, rating and model number installed for all other hardware for system.

**2.7 Mandatory spares not covered above**



Bidder to supply 20% of each type of Instrument or minimum 1 number for any other electronic modules / cards

**ANNEXURE–D: LIST OF DRAWINGS**

<b>Sr. No</b>	<b>Description</b>	<b>Drawing Number</b>
1	ARCHITECTURE BLOCK DIAGRAM FOR CCTV SYSTEM	FCE-1721125-CI-DWG-CMS-4100-006
2	OVERALL CCTV LAYOUT	FCE-1721125-RE-DWG-LAY-4100-001
3	CCTV CABLE ROUTING LAYOUT AND CROSS SECTION DRAWING	FCE-1721125-RE-DWG-LAY-4100-002
4	CCTV POWER FLOW SCHEME	FCE-1721125-RE-DWG-SLD-4100-001
5	TYPICAL CCTV MOUNTING POLE	FCE-1721125-RE-DWG-LAY-4100-003
6	TYPICAL RCC PRECAST CABLE SUPPORT BLOCK	FCE-1721125-RE-DWG-LAY-4100-004

**ANNEXURE–E: VENDOR LIST**

<b>S.No.</b>	<b>Equipment</b>	<b>Vendor</b>
1)	<b>CCTV</b>	a) Bosch b) PELCO c) Honeywell d) Axis
2)	<b>Power Cable</b>	a) Universal b) CCI c) Polycab d) KEC e) KEI f) Ravin g) Finolex
3)	<b>CAT6A/twisted pair telephone cables</b>	a) Finolex b) Sterlite c) CMI d) D-Link e) KEI f) Belden
4)	<b>Fiber optic Telephone cable</b>	a) Finolex b) Sterlite c) CMI d) KEC e) KEI f) Apar g) Lapp h) Biral Cable
5)	<b>Rack Panel</b>	a) Fastball b) JET Technology c) Data Rack d) Rittal e) Elixir
6)	<b>Ethernet Switch</b>	a) Siemens Ruggedcom b) Advantech c) Hirschman d) Cisco
7)	<b>LIU</b>	a) D-Link b) Hikvision c) CP Plus d) Alpine e) Bestnet f) Iveonet g) Amphenol
8)	<b>FODP</b>	a) Opterna b) Legion Energy Products Private Limited c) Amphenol
9)	<b>Sever</b>	a) DELL b) HP c) Advantech d) Technics Infosol



S.No.	Equipment	Vendor
10)	Monitor Screens	a) Samsung b) LG c) HP d) DELL
11)	Laptop with bag	a) HP b) DELL c) Mac Book
12)	Furniture Desk	a) Godrej b) Pyrotech
13)	Chair	a) Godrej, b) Durain, c) Lexux, d) Zuari
14)	Fo Patch Cord	a) Finolex b) Amphenol c) AE Connect
15)	LAN Cable with RJ45 Connectors	d) Tyco e) Digisol f) DLINK g) Sterlite
16)	KVM Extender/ Transmitter	a) ATEN b) Adder c) Schneider APC