NOTICE INVITING TENDER FOR DESIGN, SUPPLY, ERECTION AND COMMISSIONING OF CCTV SYSTEM IN THE PREMISES OF BHEL/EPD,

11-5-2010

Bharat Heavy Electricals Ltd, Electro Porcelains Division, (a Government of India Enterprises) intends to establish "CCTV SYSTEM" for strengthening the security measures in the premises located at IISC post, Bangalore.

Sealed bids are invited under two part bid system from the interested suppliers with sound technical and financial capabilities fulfilling the requirements stated in the bid document.

Interested and eligible suppliers may study the tender document carefully and offer their bids in the form of Part A i.e.Techno commercial bid without giving any indication of price (copy of the price bid without mentioning the price must accompany the technical bid) along with EMD of Rs 1,50,000 and Part B i.e. Price bid mentioning the price only for a) supply portion, b) installation and commissioning at EPD/Bangalore. The offer should be submitted in sealed covers super scribing tender number & due date addressed to

AGM/MM
Bharat Heavy Electricals Ltd
Electro Porcelains Division
PB No: 1245, Science Institute Post
Bangalore – 560 012

1. Tender number: MM/10-11/ 50001010/CCTV/11-5-2010
2. Earnest money to accompany tender: Rs 1,50,000/=
   In the form of a crossed demand draft
   Favouring BHEL-EPD,Bangalore12
3. Last date of receipt of Tender: Before 14.00 hrs on 1-6-2010 at EPD, Bangalore
4. Tender will be opened on: 1-6-2010 at 15.00 hrs at EPD,Bangalore.

Please go through the contents carefully and the offer with other details as mentioned in this NIT (Notice inviting tender) needs to be dropped within the due date in to the Tender box earmarked which is kept at the reception

Techno commercial bid i.e. Part A will be opened on 1-6-2010 at 2.30 PM in the presence of tenderers who represent at the time of opening

DGM/MM

NOTICE INVITING TENDER FOR DESIGN, SUPPLY, ERECTION AND COMMISSIONING OF CCTV SYSTEM IN THE PREMISES OF BHEL/EPD,

Take care of the following before submitting your offers..

1) The lay out map of the premises indicating the boundary is provided along with the type of cameras identified for various locations in the enclosed drawing. The prospective bidders are instructed to visit the plant premises for detailed study of the technical requirements of installing the CCTV system before submission of their bids.

2) The specification provided in the annexures shall be considered as base specification and is indicative only. The parameters specified for each of the item shall be considered as base specification and bidders are requested to offer similar or better items for enhancing the overall performance of the CCTV system. The CCTV system shall b designed such that scope exists for future upgradation and compatibility with other security and access control measures.

Qualification criterion:

BHEL will have the option to either consider the sealed bids or to go for the REVERSE AUCTION amongst those bidders who are Techno Commercially qualified. The criteria of selection are as follows.

i. The vendor / supplier must be either the original manufacturer or the channel partner of the OEM engaged in the business of providing CCTV surveillance system.
ii. The components / system shall be certified for CE and UL marking, and the certification to this effect must be submitted along with the techno-commercial bids.
iii. The vendor / supplier must have supplied and installed 3 numbers of CCTV systems of similar type in a large undertakings like Defence establishments / Govt. of India institutions / public utilities viz., airport, railway stations etc., in India and working satisfactorily for a minimum period of 3 years. Reference list of supplies along with contact details and satisfactory performance certificates shall be submitted along with techno-commercial bids.
iv. The vendor / supplier must have executed at least one single order for CCTV system of value more than Rs.30 Lakhs in an industrial / institutional environment in India.
v. The vendor / supplier shall have necessary statutory licenses / authorizations for carrying out the work in our premises viz., ESI, PF, CL (R&A) etc.,
vi. The vendor / supplier shall have sound financial strength and the necessary backup documents viz., bankers' certificate, last 3 years balance sheet to be submitted along with techno-commercial bids.
vii. The Vendor / supplier shall have valid registration under CST / VAT, Excise / Service Tax acts. The corresponding documentary proof to be furnished.
viii. The vendor / supplier should have adequate qualified manpower to undertake erection & commissioning of the system, the manpower details shall be furnished in the techno-commercial bid.

NOTICE INVITING TENDER FOR DESIGN, SUPPLY, ERECTION AND COMMISSIONING OF CCTV SYSTEM IN THE PREMISES OF BHEL/EPD,

Brief description of work to be carried out by the supplier:

The scope of supply and work under this CCTV system shall include design, supply, installation, testing, training and handing over of all the materials, equipment, software, accessories and documentation.

Format for Techno Commercial Bid Part A

TENDER REFERENCE: MM/10-11/ 50001010/CCTV/11-5-2010
DATE OF ISSUE: 11-5-2010
LAST DATE AND TIME FOR RECEIPT OF TENDER: 1-6-2010 within 2.00PM
DATE & TIME OF TENDER OPENING (Techno commercial bid): 2.30PM on 1-6-2010
DETAILS OF THE VENDOR:
NAME AND ADDRESS OF THE TENDERING FIRM
PART A, PRE QUALIFICATION BID

a) Technical

PRE QUALIFICATION TECHNO COMMERCIAL BID SHOULD COVER ALL TECHNICAL QUALIFICATION DETAILS, EXPERIENCE DETAILS, AND CONTRACTUAL TERMS EXCLUDING PRICE.

b) Commercial

SL NO	DESRIPTION	BHEL REQUIREMENT	VENDORS' OFFER
1	DELIVERY	FOR BHEL-EPD	
	Taxes and duties		
2	EXCISE DUTY/SERVICE TAX	%	
3	E. CESS	%	
4	CST/VAT	%	
5	E. CESS	%	
	OTHER TERMS		
6	PAYMENT TERMS INDIGENOUS	A) 70 % OF PO VALUE +100% TAXES AND DUTIES ON RECEIPT OF MATERIALS IN EPD STORES THROUGH NEFT B) 20% OF PO VALUE ALONG WITH90% OF E&C CHARGES WILL BE PAID AFTER COMPLETION OF ERECTION AND COMMISSIONING. C) BALANCE 10% OF PO VALUE AND E&C AGAINST PBG FOR -ONE YEAR AFTER E&C	
7	LEAD TIME	COMMISSIONING TO BE COMPLETED WITHIN 90 DAYS FROM THE DATE OF RELEASE OF FIRM PURCHAE ORDER	
8	LD CLAUSE	0.5% PER WEEK UP TO A MAXIMUM OF 10% OF THE TOTAL VALUE FOR DELAYED DELIVERY	
9	RISK PURCHASE CLAUSE	AS PER BHEL NORMS	
10	ANY OTHER CLAUSE	STATUTORY REQUIREMENT VIZ: ESI, PF COVERAGE FOR THE WORKMEN ENGAGED FOR E&C	
11	CE and UL marking certification	To submit	
12	Supply and installation of 3 CCTV systems	Performance certificate to be submitted	
13	Banker's certificate and balance sheet for 3 years	Copies to be submitted	
14	License under CL(RA) act, PF code, ESI code	To indicate	
15	ELEMENT OF CVD AND SAD	IN CASE OF ANY IMPORT, CVD AND SAD CREDIT TO BE PASSED ON TO BHEL	

NOTICE INVITING TENDER FOR DESIGN, SUPPLY, ERECTION AND COMMISSIONING OF CCTV SYSTEM IN THE PREMISES OF BHEL/EPD,

Format for Price bid - Part B

Sl No	Description	Unit	Quantity	Rate/unit(In Figures)	Rate/unit(In words)
1.0 Camera components					
1.1	Pan,Tilt,Motorized Zoom IP Camera as per sepcification in Annexure - I	Nos	1		
1.2	Pan,Tilt,Motorized Zoom IP Camera as per sepcification in Annexure - II	Nos	11		
1.3	Dome Housing with superior optical clarity, designed for camera Including clear and smoked bubble, heater with fan, power supply for network cameras. 100-240 VAC input Make: Same as that of camera	Nos	12		
1.4	Wall bracket for Mounting the Dome Housing Make: Same as that of Camera	Nos	2		
1.5	Pole bracket for mounting the Dome Housing Make: Same as that of Camera	Nos	10		
1.6	Client Server Camera Management Software with 20 camera licenses	Set	1		
1.7	Fixed IP camera as per specification in Annexure - III	Nos	8		
1.8	Housing for fixed camera, all weather proof aluminum die cast type. Make: Same as that of the Camera	Nos	8		
1.9	Wall bracket for Mounting the fixed camera housing. Make: Same as that of Camera	Nos	2		
1.10	Pole bracket for mounting the fixed camera housing. Make: Same as that of Camera	Nos	6		
2.0 Racks and accessories					
2.1	IP 65 weather proof Junction box at camera location for termination of fiber cores and house and distribute the UPS power for camera and media converter. It shall support mounting of media converter, fibre LIU, switch and power adapter and have an exhaust fa	Nos	20		
2.2	27 U Floor Mount Rack with 5 Amp *5 Power Strip and the Cable managers Make: APW/HCL/NET RACK	Nos	1		
2.3	Supply of 9 mtr height 150mm GI round type pole to mount of PTZ & fixed camera	Nos	16		
3.0 Network and components					
3.1	100 Mbps Media converter Make: Allied Telesyn / RC-LINK / D-Link / Cisco / 3Com	Nos	20		
3.2	Layer 3 Core Switch - 24 Port & 4 SFP Port as per Annexure - IV A	Nos	1		

NOTICE INVITING TENDER FOR DESIGN, SUPPLY, ERECTION AND COMMISSIONING OF CCTV SYSTEM IN THE PREMISES OF BHEL/EPD,

3.3	Layer 2 Switch - 24 Port & 4 SFP Port as per Annexure - IV B	Nos	5		
3.4	6/12 Core Outdoor Single mode Fiber Optic Cable. As per specification Annexure - V Make: Krone/Tyco / ADC	Mtrs	4000		
3.5	24 Port Fiber Patch Panel loaded Make: Krone/Tyco / ADC	Nos	2		
3.6	1.5 Mtrs Single Mode Pigtails with SC Connectores Make: Krone/Tyco/Clipsal	Nos	100		
3.7	SC SC Single Mode Duplex Patch Cord Make: ADC / Krone/Tyco	Nos	40		
3.8	Cat 6 UTP Patch Cords 2 Mtrs Make: ADC Krone/Tyco	Nos	40		
3.9	IP 65 JB Mount Fiber Patch Panel	Nos	14		
3.10	Information outlets / RJ 45 plugs	Nos	40		
3.11	1" HDPE Pipe	Mtrs	3000		
3.12	Cat6 4 pair UTP cable (roll = 305 Mtrs)	Roll	4		
4.0 Monitoring system and software					
4.1	Central Server - Quad Core System as per Specification as per specification Annexure - VI	Nos	1		
4.2	Operating systems Microsoft® Server 2008 Latest version	Nos	1		
4.3	VMS - Video Management Software as per annexure - VII	Nos	1		
4.4	46" LCD Display Mke: Samsung/Sony/LG/Viewsonic	Nos	1		
4.5	42" LCD Display Mke: Samsung/Sony/LG/Viewsonic	Nos	1		
4.6	UPS for the control room	Nos	1		
4.7	UPS for the camera and accessories	Nos	20		
4.8	UPS for the Ethernet switch and accessories	Nos	2		
4.9	Client Desktop computers as per Annexure -VIII	Nos	2		
5.0 Professional services					
5.1	Installation of Camera on Wall / Pole Mounting	Nos	20		
5.2	Installation of Junction Box with all necessary Accessories in camera Location	Nos	20		
5.3	Installation of Server hardware and Software with VMS software	Set	1		
5.4	Erection and commissioning of 9 Meter Pole	Nos	16		
5.5	Laying of Armoured 6 core fiber cable	Mtrs	4000		
5.6	Laying of HDPE Pipe	Mtrs	3000		
5.7	Digging of Soft Soil	Mtrs	1000		

NOTICE INVITING TENDER FOR DESIGN, SUPPLY, ERECTION AND COMMISSIONING OF CCTV SYSTEM IN THE PREMISES OF BHEL/EPD,

5.8	Laying Of Cat 6 UTP cables (if required	Mtrs	1000		
5.9	Digging of hard Soil / Road Cutting	Mtrs	500		
5.10	Fiber core termination (Pigtails and Straight)	Mtrs	100		
5.11	Installation and configuration of Switches	Set	1		
5.12	Installation of 27U Communication Rack	Set	1		
5.13	Installation of Fiber Patch Panel	Nos	16		
5.14	Testing of network and camera,server recording,Project Management and Documentation.	Lots	1		
5.15	Training	Set	1		

Note:

1) In case any import is envisaged in any of the items in the above package, the same should be clearly indicated and the element of CVD and SAD should be clearly mentioned in the price bid.

2) Whether the vendor will be able to pass on the CVD and SAD to BHEL for availing credit should be stated.

3) BHEL will have the option to either consider the sealed bids or to go for the REVERSE AUCTION amongst those bidders who are techno commercially qualified.

NOTICE INVITING TENDER FOR DESIGN, SUPPLY, ERECTION AND COMMISSIONING OF CCTV SYSTEM IN THE PREMISES OF BHEL/EPD,

GENERAL TERMS AND CONDITIONS

THE OFFER SHOULD BE SUBMITTED IN A SEALED COVER SUPER SCRIBING TENDER NUMBER & DUE DATE ADDRESSED TO:

ADDL GENERAL MANAGER / MM
BHARAT HEAVY ELECTRICALS LTD
ELECTRO PORCELAINS DIVISION
PROF,. C N R RAO CIRCLE
PB NO: 1245, SCIENCE INSTITUTE POST
BANGALORE – 560 012

SO AS TO REACH HERE WITHIN 2P.M. ON THE DUE DATE AND THE TENDERS WILL BE OPENED AT 2-30P.M. ON THE SAME DATE IN THE PRESENCE OF THOSE VENDORS OR THEIR AUTHORISED REPRESENTATIVES WHO WISH TO BE PRESENT. THE DUE DATE MAY BE ALTERED IN CASE OF INSUFFICIENT RESPONSE FROM VENDORS OR URGENCY OR ANY OTHER REASONS DEEMED VALID. RE-FLOATING ALSO MAY BE RESORTED TO WITH OR WITHOUT OPENING THE RECEIVED RESPONSES UNDER THE AFORESAID CIRCUMSTANCES.

Instructions to Tenderer

I.1 Tender is a two part bid system. The tender documents consist of part 'A' and part 'B' as described below.

Part 'A' Techno commercial Bid (To be sent in a sealed cover enabling us to open on the due date.

Part 'B' Price Bid to be quoted as per tender conditions.

I.2 Part 'A' must be duly completed and sealed (copy of the price bid without mentioning the price must accompany the technical bid) along with the earnest money deposit (EMD) of Rs 1,50,000/= in a separate envelope super scribed "**Part A -Techno Commercial bid-Tender number MM/10-11/ 50001010/CCTV/11-5-2010 due on 1-6-2010.** The tenderer shall not indicate the price or rate in the Techno- commercial bid. The tender shall express and accept all the terms and conditions of the tender. The tender, which does not comply with BHEL's terms and conditions is liable to be rejected.

I.3 Part 'B' must be duly completed with reference to the tender conditions and put in a separate sealed envelope super scribed **"Part B- Price bid-**

NOTICE INVITING TENDER FOR DESIGN, SUPPLY, ERECTION AND COMMISSIONING OF CCTV SYSTEM IN THE PREMISES OF BHEL/EPD,

Tender number, MM/10-11/ 50001010/CCTV/11-5-2010 due on 1-6-2010

II.0 **Earnest Money deposit (EMD**)

II.1.1 The quotation must be submitted along with Earnest Money (EMD) in form of Demand draft/ Pay order for Rs 1,50,000/= payable in favour of BHEL,EPD, Bangalore. Tenders without Earnest Money Deposit are liable to be rejected/will not be considered.

II.1.2 The Tenderer is not entitled for any interest on the Earnest Money Deposit nor any right for award of the contract. The EMD amount will be forfeited if the tenderer after submitting his tender , realises from his offer or modifies the terms and conditions thereof or fails to take up the work within two weeks of awarding the contract. EMD given by all unsuccessful tenderers shall be refunded within 15 days of acceptance of award of work by successful tenderer, after taking a decision on the tender. In the case of successful tenderers the EMD will be retained as part of the security deposit.

II.2 **Security Deposit**

Successful tenderer will have to furnish a Security Deposit of Rs 5.00 Lakhs (Rupees five lakhs only) immediately after award of the purchase order. The Security deposit will be forfeited in the event of breach of contract conditions by the vendor.
Security deposit is accepted in any one of the following methods.

a) Cash (As permissible under Income tax Act)
b) Pay order, Demand draft in favour of BHEL, EPD
c) Local cheque of Scheduled Banks, subject to realisation.
d) Bank guarantee from Scheduled Banks/ Public Financial Institutions as defined in the company's Act The Bank guarantee format should have the approval of BHEL.
e) EMD of the successful tenderer shall be converted and adjusted against the security deposit.
f) The Security deposit shall not carry any interest.

NOTICE INVITING TENDER FOR DESIGN, SUPPLY, ERECTION AND COMMISSIONING OF CCTV SYSTEM IN THE PREMISES OF BHEL/EPD,

III. TECHNO-COMMERCIAL CONDITIONS SHALL INTERALIA CONTAIN THE FOLLOWING:-

III.1 COMPLETE TECHNICAL OFFER INCLUDING DETAILED SPECIFICATIONS, DRAWINGS, CATALOGUES AND TEST REPORTS ETC., AS REQUIRED TOGETHER WITH EXPERIENCE LIST TO BE FURNISED. IN ADDITION TO THIS THE SUPPLIER SHOULD ALSO COMPLETE TECHNICAL REQUIREMENT MENTIONED IN THE ATTACHED TABLE FOR EVALUATION,

PRICES SHALL NOT BE MENTIONED IN THIS OFFER. UNPRICED OFFER ONLY TO BE ATTACHED.

III.2. **COMMERCIAL ASPECTS COVERING:**

- SCOPE OF SUPPLY :
- SCOPE OF WORK IF E&C ARE INVOLVED :
- STATUTORY LEVIES :
- TERMS OF PAYMENT :
- MODE OF PAYMENT :
- DELIVERY TERMS :
- GUARANTEE / WARRANTY OF THE EQUIPMENT INCLUDING BOUGHT OUT ITEMS
- TERMS FOR ERECTION & COMMISSIONING, SUPERVISION, IF ANY :
- BHEL'S SCOPE OF WORK / SUPPLY :
- AFTER SALES SEVICE :
- PACKING& FORWARDING
- TRANSIT INSURANCE
- APPROX SIZE OF THE PACKED MATERIALS AND VOLUME
- LIST OF ALL BOUGHT ITEMS AND MAKES
- VALIDITY OF THE BID

III.3. COMPANY PROFILE:

PARTIES SHOULD BE REGISTERED WITH THE CONCERNED EXCISE & SALES TAX AUTHORITIES AND SHOULD QUOTE RELEVANT REGISTRATION NO. IN THE OFFER. RELEVANT REGISTRATION CERTIFICATE COPIES MUST BE ENCLOSED.

AUDITED FINANCIAL RESULTS OF PREVIOUS 2 FINANCIAL YEARS SHOULD BE FURNISHED.

NOTICE INVITING TENDER FOR DESIGN, SUPPLY, ERECTION AND COMMISSIONING OF CCTV SYSTEM IN THE PREMISES OF BHEL/EPD,

IV. DELIVERY:

THE COMMISSIONING OF THE CCTV SYSTEM IS TO BE COMPLETED WITHIN 90 DAYS AFTER PLACEMENT OF FIRM PURCHASE ORDER. THE VENDOR HAS TO QUOTE THE EARLIEST COMMISSIONING LEAD TIME FOR MATERIAL DELIVERY AND COMMISSIONING PERIOD. THE COMMISSIONING PERIOD IS TO RECKON FROM DATE OF HANDING OVER OF SITE TO VENDOR BY BHEL. THE ERECTION AND COMMISSIONING DATE BY THE VENDOR WILL BE RECKONED AS THE DELIVERY DATE.

IV.1 DELIVERY TERM:

FOR BHEL-EPD STORES. UNLOADING TO BHEL

V. VALIDITY OF THE OFFER:

75 DAYS FROM DATE OF OPENING OF TECHNO-COMMERCIAL BID, EXTENDABLE TO A MUTUALLY AGREED PERIOD.

VI. PRICE IMPACT:

IN CASE, OUT COME OF TECHNO-COMMERCIAL DISCUSSION HAS ANY PRICE IMPLICATION, ONLY CORRESPONDING **PRICE IMPACT** IS TO BE SUBMITTED BY THE VENDOR IN A SEALED COVER WHICH WILL BE OPENED ALONGWITH THE ORIGINAL PRICE BID ON THE SPECIFIED DATE. IN THE EVENT OF VENDORS OPTING TO REVISE THE PRICE BID AND SUBMIT THE LATEST PRICE BID ONLY SUCH REVISED PRICE BID WILL BE OPENED ON THE SPECIFIED DATE.

VII Price Evaluation: PRICES SHALL BE CONSIDERED ON LANDED COST BASIS (COST TO BHEL). LANDED COST SHALL BE WORKED OUT ON PRICE QUOTED INCLUDING FREIGHT, EXCISE DUTY, AND SALES TAX AFTER TAKING OUT CENVAT AND VAT BENEFIT, AS APPLICABLE. THE COMPARATIVE STATEMENT SHALL BE WORKED OUT ON OVERALL LANDED COST BASIS FOR THE WHOLE PACKAGE.

a) The comparative statement of the prices prepared on the reference date shall remain firm throughout the execution period. Any change in duty & tax structure during execution of the contract will not be considered for re-ranking of vendors.

b) The lowest price received against BHEL tender need not be commercially lowest price (L1) and BHEL reserves the right to NEGOTIATE the same

c) BHEL reserves the right/option to REFLOAT the tender if L1 price is not the lowest acceptable price to BHEL.

VIII. PAYMENT TERMS:

ALL PAYMENTS WILL BE MADE BY ELECTRONICS TRANSFER OF FUNDS (EFT) SYSTEM. THE VENDOR SHOULD FURNISH THE EFT MANDATE.

- 70% OF MATERIAL VALUE PLUS FULL TAXES & DUTIES AGAINST DELIVERY OF MATERIALS. MODVAT GATE PASS SHOULD ACCOMPANY SUPPLIES.
- 20% OF MATERIAL VALUE ALONG WITH 90% OF ERECTION AND COMMISSIONING WILL BE PAID AFTER SUCCESSFUL ERECTION & COMMISSIONING.
- BALANCE 10% OF MATERIAL VALUE AND ERECTION AND COMMISSIONING WILL BE PAID ON SUBMISSION OF PERFORMANCE BANK GUARANTEE ISSUED BY SCHEDULED BANK FOR A VALUE OF 10% OF TOTAL ORDER VALUE. CORPORATE GUARANTEE IS NOT ACCEPTABLE.

IX. LOADING FACTOR:

IF THE OFFER IS NOT INLINE WITH THE TERMS & CONDITIONS SPECIFIED BY BHEL THE FOLLOWING LOADING CRITERIA WILL BE ADOPTED FOR EVALUATION.

IX.1. PAYMENT TERMS:

INTEREST AT LENDING RATE OF SBI+2% SHALL BE COMPUTED FOR THE DIFFERENTIAL PERIOD BETWEEN BHEL TERMS OF PAYMENT AND THAT OFFERED. NO UNSECURED ADVANCE PERMITTED.

IX.2. TRANSPORTATION CHARGE:

AS PER BHEL RATE CONTRACT PREVAILING ON THE DATE OF OPENING OF TENDER

IX.3. TRANSIT INSURANCE:

AS PER BHEL RATE PREVAILING ON THE DATE OF OPENING OF TENDER

IX.4. OTHERS:

ANY OTHER COST COMPONENT WHICH THE VENDOR HAS NOT QUOTED. EITHER A SEALED QUOTE FROM THE VENDOR WILL BE OBTAINED OR THE HIGHEST OFFER FOR THAT COMPONENT WILL BE LOADED

IX. 5. BHEL will have the option to defer the supplies of any purchase order with a notice period of 20 calendar days.

IX. 6. In case of unsatisfactory performance of quality / delivery, BHEL will have right to discontinue the contract in part or full.

X. DEVIATIONS:

A SEPARATE SHEET INDICATING DEVIATIONS IN TECHNICAL SPECIFICATION, COMMERCIAL TERMS AND CONDITIONS TO BE ENCLOSED IN PART A OF THE OFFER.

XI. LIQUIDATED DAMAGES:

IN CASE OF COMPOSITE CONTRACT, FOR ANY DELAY IN SUPPLY AND SUCCESSFUL COMMISSIONING OF THE EQUIPMENT AN AMOUNT OF 0.5 % PER WEEK UPTO A MAXIMUM OF 10% OF THE CORRESPONDING COMPONENT OF ORDER VALUE WILL BE DEDUCTED

XII.CLARIFICATIONS SOUGHT BY BHEL DURING TECHNICAL & COMMERCIAL EVALUATION

IN CASE BHEL ASKS FOR ANY CLARIFICATION THE VENDOR HAS TO SUBMIT THE SAME WITHIN THE SPECIFIED DATE OTHERWISE THE OFFER WILL BE EVALUATED CONSIDERING THE CLARIFICATIONS, IF ANY RECEIVED, AS ON THE SPECIFIED DATE. NO GRACE PERIOD OR LATE SUBMISSION IS ALLOWED

XIII. RISK PURCHASE CLAUSE:

BHEL, AT ITS OPTION, WILL BE ENTITLED TO PURCHASE ELSEWHERE AT THE COST AND RISK OF THE VENDOR, EITHER THE WHOLE OR PART OF THE GOODS WHICH THE VENDOR HAS FAILED TO DELIVER WITHIN THE STIPULATED TIME. THE VENDOR SHALL BE LIABLE FOR ANY LOSS THAT BHEL MAY SUSTAIN BY REASON OF SUCH RISK PURCHASES. BHEL RESERVES THE RIGHT TO CANCEL THE CONTRACT IN FULL OR PART, IF PERFORMANCE WITH RESPECT TO QUALITY AND DELIVERY IS UNSATISFACTORY; AND BHEL SHALL HAVE THE RIGHT TO ENTER INTO CONTRACT WITH OTHER VENDORS AGAINST SUCH CANCELLATION OF CONTRACT AGAINST RISK PURCHASE CLAUSE.

XIV. INSPECTION:

PRE DESPATCH INSPECTION OF THE MATERIALS WILL BE CONDUCTED BY BHEL AT VENDORS PLACE. FOR PRE DESPATCH INSPECTION ADEQUATE NOTICE HAS TO BE GIVEN BY THE VENDOR FOR DEPLOYMENT OF BHEL'S PERSONNEL. BHEL HAVE RIGHT TO REVIEW THE QUALITY PLAN OF THE MANUFACTURER AND ACCESS TO THE PROCESS DATA OF THE MANUFACTURER. ALL NECESSARY TEST & CALIBRATION CERTIFICATES SHOULD ACCOMPANY SUPPLY.

XV. MAINTENACE MANUAL:

THE VENDOR SHALL PROVIDE 3 SET OF OPEARTION AND MAINTENANCE MANUALS ALONWITH THE RELEVANT DRAWINGS. THIS WILL BE CONSIDERED AS PART OF COMMISSIONING.

XVI. ERECTION AND COMMISSIONING:

IN CASE OF E&C IN THE VENDOR'S SCOPE, THE PERSONNEL DEPLOYED FOR THE JOB SHOULD HAVE THE NECESSARY CLEARANCE FROM HR DEPT OF BHEL. THE VENDOR SHOULD BRING ALL EQUIPMENT AND MANPOWER REQUIRED FOR ERECTION AND COMMISSIONING AS DETAILED IN THE THEIR SCOPE OF SUPPLY/WORK.

XVII. TRAINING:

THE VENDOR SHALL TRAIN BHEL PERSONNEL ON OPEARATION AND MAINTENANCE OF THE EQUIPMENT.

NOTICE INVITING TENDER FOR DESIGN, SUPPLY, ERECTION AND COMMISSIONING OF CCTV SYSTEM IN THE PREMISES OF BHEL/EPD,

The IP based CCTV System shall comprise of the system components and services indicated in the Bill of Materials annexed herewith.

SPECIFICATION FOR CCTV SYSTEM

Bill of materials

SL.No.	Description	Unit	Qty	REMARKS
	I. Camera Components			
1	Pan,Tilt,Motorized Zoom IP Camera as per sepcification in Annexure - I	Nos	1	
2	Pan,Tilt,Motorized Zoom IP Camera as per sepcification in Annexure - II	Nos	11	
3	Dome Housing with superior optical clarity, designed for camera Including clear and smoked bubble, heater with fan, power supply for network cameras. 100-240 VAC input Make: Same as that of the Camera	Nos	12	
4	Wall bracket for Mounting the Dome Housing Make: Same as that of Camera	Nos	2	Shall be quoted if additional cost is involved.
5	Pole bracket for mounting the Dome Housing Make: Same as that of Camera	Nos	10	Shall be quoted if additional cost is involved.
6	Client Server Camera Management Software with 20 camera licenses	Set	1	Shall be quoted if additional cost is involved.
7	Fixed IP camera as per specification in Annexure - III	Nos	8	
8	Housing for fixed camera, all weather proof aluminum die cast type. Make: Same as that of the Camera	Nos	8	Shall be quoted if additional cost is involved.
9	Wall bracket for Mounting the fixed camera housing. Make: Same as that of Camera	Nos	2	Shall be quoted if additional cost is involved.
10	Pole bracket for mounting the fixed camera housing. Make: Same as that of Camera	Nos	6	Shall be quoted if additional cost is involved.

SL.No.	Description	Unit	Qty	REMARKS
	II. Racks & Accessories			
1	IP 65 weather proof Junction box at camera location for termination of fiber cores and house and distribute the UPS power for camera and media converter. It shall support mounting of media converter, fibre LIU, switch and power adapter and have an exhaust fan	Nos	20	
2	27 U Floor Mount Rack with 5 Amp *5 Power Strip and the Cable managers Make: APW/HCL/NET RACK	Nos	1	
3	Supply of 9 mtr height 150mm GI round type pole to mount of PTZ & fixed camera	Nos	16	

NOTICE INVITING TENDER FOR DESIGN, SUPPLY, ERECTION AND COMMISSIONING OF CCTV SYSTEM IN THE PREMISES OF BHEL/EPD,

SL.No.	Description	Unit	Qty	REMARKS
	III. Network Components			
1	100 Mbps Media converter Make: Allied Telesyn / RC-LINK / D-Link / Cisco / 3Com	Nos	20	
2	Layer 3 Core Switch - 24 Port & 4 SFP Port as per Annexure - IV A	Nos	1	
3	Layer 2 Switch - 24 Port & 4 SFP Port as per Annexure - IV B	Nos	5	
4	6/12 Core Outdoor Single mode Fiber Optic Cable. As per specification Annexure - V Make: Krone/Tyco / ADC	Mtrs	4000	
5	24 Port Fiber Patch Panel loaded Make: Krone/Tyco / ADC	Nos	2	
6	1.5 Mtrs Single Mode Pigtails with SC Connectores Make: Krone/Tyco/Clipsal	Nos	100	
7	SC SC Single Mode Duplex Patch Cord Make: ADC / Krone/Tyco	Nos	40	
8	Cat 6 UTP Patch Cords 2 Mtrs Make: ADC Krone/Tyco/	Nos	40	
9	IP 65 JB Mount Fiber Patch Panel	Nos	14	
10	Information outlets / RJ 45 plugs	Nos	40	
11	1" HDPE Pipe	Mtrs	3000	
12	Cat6 4 pair UTP cable (roll = 305 Mtrs)	rolls	4	

	IV Monitoring System and software			
Sl.No.	**Description**	**Unit**	**Qty**	**REMARKS**
1	Central Server - Quad Core System as per Specification as per specification Annexure - VI	Nos	1	
2	Operating systems Microsoft® Server 2008 Latest version.	Nos	1	
3	VMS - Video Management Software as per annexure - VII	Nos	1	
4	46" LCD Display Mke: Samsung/Sony/LG/Viewsonic	Nos	1	For Control Room
5	42" LCD Display Mke: Samsung/Sony/LG/Viewsonic	Nos	1	For Client
6	UPS for the control room	Nos	1	Bidders to specify the rating
7	UPS for the camera and accessories	Nos	20	Bidders to specify the rating
8	UPS for the Ethernet switch and accessories	Nos	2	Bidders to specify the rating
9	Client Desktop computers as per Annexure -VIII	Nos	2	

	IV. Professional Services			
SL.No.	**Description of Services**	**Unit**	**Qty**	**REMARKS**
1	Installation of Camera on Wall / Pole Mounting	Nos	20	
2	Installation of Junction Box with all necessary Accessories in camera Location	Nos	20	
3	Installation of Server hardware and Software with VMS software	Set	1	
4	Erection and commissioning of 9 Meter Pole	Nos	16	

5	Laying of Armoured 6 core fiber cable	Mtrs	4000	Cable trays & supports will be provided by BHEL
6	Laying of HDPE Pipe	Mtrs	3000	Cable trays & supports will be provided by BHEL
7	Digging of Soft Soil	Mtrs	1000	
8	Laying Of Cat 6 UTP cables (if required)	Mtrs	1000	
9	Digging of hard Soil / Road Cutting	Mtrs	500	
10	Fiber core termination (Pigtails and Straight)	Mtrs	100	
11	Installation and configuration of Switches	Set	1	
12	Installation of 27U Communication Rack	Set	1	
13	Installation of Fiber Patch Panel	Nos	16	
14	Testing of network and camera,server recording,Project Management and Documentation.	Lots	1	
15	Training	Set	1	

NOTICE INVITING TENDER FOR DESIGN, SUPPLY, ERECTION AND COMMISSIONING OF CCTV SYSTEM IN THE PREMISES OF BHEL/EPD,

ANNEXURE - I

PTZ high-speed Camera:

The camera shall meet the following **MINIMUM** technical requirements.

1	Pick-up device	¼" format CCD
2	Resolution	4 CIF
3	Signal to noise ratio	>50dB
4	Magnification	Min 35X optical and 12X digital
5	Gain Control	Automatic/Manual
6	Backlight compensation	Required
7	White balance	Required
8	Pan angle	360 degree
9	Pan speed	0.5 ~ 260 Deg/Sec configurable
10	Tilt angle	0 to 90 degree
11	Tilt speed	0.5 ~ 120 Deg / Sec configurable
12	Motion detection	In conjunction with VMS
13	Unattended object detection	In conjunction with VMS
14	Compression	MPEG-4, JPEG, H.264 (with dual streaming)
15	Interface	10Base-T/100Base-Tx (RJ-45)
16	Operating temperature	0 to 50° Celsius
17	Lens type	Auto focus zoom lens
18	Focal length	f=3.4 to 122.4 mm, F-1.6 ~ 3.8
19	Horizontal viewing angle	1.7◦ to 57.8◦
20	Protocols	TCP/IP, HTTP, ARP, ICMP, FTP, SMTP, DHCP, DNS, NTP, SNMP (MIB-2), RTP/RTCP
21	Number of simultaneous clients	20
22	Minimum Illumination (at F1.6, AGC ON and 50 IRE)	Color: 1.4 lux and for B/W: 0.15 lux
23	Serial Interface	RS-232C (Transparency function or VISCA protocol)
24	Presets	Minimum 64 presets and 16 guard tour
25	Approvals	UL, CE & FCC
26	OSD Control	Zoom, focus, iris, AWB, AGC, position, CGain, APC Gain.
27	Image setting	De Interlace (4CIF resolution) De Noise Text, time & date overlay
28	Video output	1.0 V P-P / 75 Ohms (BNC Connector)
29	Approved Makes	Sony, Pelco, GE, Bosch, Axis, Siemens, Honeywell

NOTICE INVITING TENDER FOR DESIGN, SUPPLY, ERECTION AND COMMISSIONING OF CCTV SYSTEM IN THE PREMISES OF BHEL/EPD,

ANNEXURE - II

PTZ high-speed Camera:

The camera shall meet the following **MINIMUM** technical requirements.

1	Pick-up device	¼" format CCD
2	Resolution	4 CIF
3	Signal to noise ratio	>50dB
4	Magnification	Min 25X optical and 12X digital
5	Gain Control	Automatic/Manual
6	Backlight compensation	Required
7	White balance	Required
8	Pan angle	360 degree
9	Pan speed	0.5 ~ 260 Deg/Sec configurable
10	Tilt angle	0 to 90 degree
11	Tilt speed	0.5 ~ 120 Deg / Sec configurable
12	Motion detection	In conjunction with VMS
13	Unattended object detection	In conjunction with VMS
14	Compression	MPEG-4, JPEG, H.264 (with dual streaming)
15	Interface	10Base-T/100Base-Tx (RJ-45)
16	Operating temperature	0 to 50° Celsius
17	Lens type	Auto focus zoom lens
18	Focal length	f=3.4 to 122.4 mm, F-1.6 ~ 3.8
19	Horizontal viewing angle	1.7◦ to 57.8◦
20	Protocols	TCP/IP, HTTP, ARP, ICMP, FTP, SMTP, DHCP, DNS, NTP, SNMP (MIB-2), RTP/RTCP
21	Number of simultaneous clients	20
22	Minimum Illumination (at F1.6, AGC ON and 50 IRE)	Color: 1.4 lux and for B/W: 0.15 lux
23	Serial Interface	RS-232C (Transparency function or VISCA protocol)
24	Presets	Minimum 64 presets and 16 guard tour
25	Approvals	UL, CE & FCC
26	OSD Control	Zoom, focus, iris, AWB, AGC, position, CGain, APC Gain.
27	Image setting	De Interlace (4CIF resolution) De Noise Text, time & date overlay
28	Video output	1.0 V P-P / 75 Ohms (BNC Connector)
29	Approved Makes	Sony, Pelco, GE, Bosch, Axis, Siemens, Honeywell

NOTICE INVITING TENDER FOR DESIGN, SUPPLY, ERECTION AND COMMISSIONING OF CCTV SYSTEM IN THE PREMISES OF BHEL/EPD,

ANNEXURE - III

Fixed Camera:

The camera shall meet the following **MINIMUM** technical requirements.

1	Pick-up device	1/3 ” format CCD
2	Resolution	4 CIF
3	Signal to noise ratio	>50dB
4	Gain Control	Automatic/Manual
5	Backlight compensation	Required
6	Gamma Setting	Required
7	White balance	Required
8	Motion detection	In conjunction with VMS
9	Unattended object detection	In conjunction with VMS
10	Active tempering alarm	Required
11	Compression	MPEG-4, JPEG, H.264 (with dual streaming) with a compression frame rate of 25 fps
12	Interface	10Base-T/100Base-Tx (RJ-45)
13	Operating temperature	0 to 50° Celsius
14	Lens type	Auto focus zoom lens
15	Focal length	f=3.4 to 122.4 mm, F-1.6 ~ 3.8
16	Horizontal viewing angle	94◦ to 35◦
17	Protocols	TCP/IP, HTTP, ARP, ICMP, FTP, SMTP, DHCP, DNS, NTP, SNMP (MIB-2), RTP/RTCP
18	Number of simultaneous clients	10
19	Minimum Illumination (at F1.6, AGC ON and 50 IRE)	Color: 1.4 lux and for B/W: 0.2 lux
20	Serial Interface	RS-232C (Transparency function or VISCA protocol)
21	Input and Output	2 Nos sensor inputs and 2 Nos alarm relay output
22	Approvals	UL, CE & FCC
23	OSD Control	Zoom, focus, iris, AWB, AGC, position, CGain, APC Gain.
24	Image setting	De Interlace (4CIF resolution) De Noise Text, time & date overlay
25	Video output	1.0 V P-P / 75 Ohms (BNC Connector)
26	Approved Makes	Sony, Pelco, GE, Bosch, Axis, Siemens, Honeywell

NOTICE INVITING TENDER FOR DESIGN, SUPPLY, ERECTION AND COMMISSIONING OF CCTV SYSTEM IN THE PREMISES OF BHEL/EPD,

ANNEXURE – IV - (a)

Layer 3 Core Switch - 24 Port & 4 SFP Port

Sl. No.	Description
General Features	
1	32-Gbps switching fabric , Stack-forwarding rate of 38.7 Mpps for 64-byte packets
2	Forwarding rate: 38.7 Mpps
3	1000 VLANs or More
4	4K VLAN Ids ,1000 switched virtual interfaces (SVIs)
5	450 routed ports per stack or more ,9218 byte jumbo frames or more
6	24 port 10/100/1000 UTP and 4 SFP based gigabit ethernet
7	**The Switch should be equipped with 4 x 1000 Base LX Interfaces (Single Mode) MODULES**
Primary Features and Benefits	
1	Stacking Capability at a through put of 32GBPS
2	Dynamic Host Configuration Protocol (DHCP) autoconfiguration of multiple switches through a boot server,(AutoQoS)
3	Master configuration management Automatic software version checking and updating
4	Autonegotiation on all ports automatically selects half- or full-duplex transmission mode to optimize bandwidth.
5	Dynamic Trunking Protocol (DTP),Port Aggregation Protocol (PAgP),Unidirectional Link Detection Protocol (UDLD) and Aggressive UDLD,Link Aggregation Control Protocol (LACP)
High Availability	
1	Cross-Stack EtherChannel
2	Support link redundancy with convergence time less than 100 ms.
3	IEEE 802.1s/w Rapid Spanning Tree Protocol (RSTP) and Multiple Spanning Tree Protocol (MSTP)
4	Per-VLAN Rapid Spanning Tree (PVRST+)
5	Support failsafe routing topologies like HSRP
High-Performance IP Routing	
	Support Basic IP unicast routing protocols (Static, Routing Information Protocol Version 1 [RIPv1], and RIPv2)
	Hardware should Support Advanced IP unicast routing protocols (OSPF, EIGRP, and BGPv4)
	Hardware should Support IPv6 routing (RIPng, OSPFv3)
	Support Equal-cost routing facilitates, Layer 3 load balancing and redundancy across the stack
Quality of Service	
1	Cross-stack QoS allowing QoS to be configured across the entire stack
2	802.1p class of service (CoS) and differentiated services code point (DSCP) ,Four egress queues per port
3	Shaped Round Robin (SRR) ,Weighted Tail Drop (WTD),Strict priority queuing
4	Rate limiting based on source and destination IP address, source and destination MAC address, Layer 4 TCP/UDP information, or any combination of these fields, using QoS ACLs (IP ACLs or MAC ACLs), class maps, and policy maps
5	64 aggregate or individual policers to be available per Fast Ethernet or Gigabit Ethernet port

NOTICE INVITING TENDER FOR DESIGN, SUPPLY, ERECTION AND COMMISSIONING OF CCTV SYSTEM IN THE PREMISES OF BHEL/EPD,

Advanced Security	
1	The switch should support the Network Admission Control (NAC) security framework
2	Dynamic ARP Inspection (DAI) ,DHCP Snooping ,IP source guard ,Private VLANs
3	IEEE 802.1x allowing dynamic, port-based security, providing user authentication
4	IEEE 802.1x with VLAN assignment for dynamic VLAN assignment for a specific user regardless of where the user is connected
5	IEEE 802.1x with voice VLAN to permit an IP phone to access the voice VLAN irrespective of the authorized or unauthorized state of the port
6	IEEE 802.1x with guest VLAN allowing guests without 802.1x clients to have limited network access on the guest VLAN
7	MAC Auth Bypass (MAB) for voice allowing third-party IP phones without an 802.1x supplicant to get authenticated using the MAC address
8	Port-based ACLs for Layer 2 interfaces
9	Secure Shell (SSH) Protocol, Kerberos, and Simple Network Management Protocol Version 3 (SNMPv3)
10	TACACS+ and RADIUS support , Multilevel security on console access ,Spanning Tree Root Guard (STRG) , IGMP filtering , Dynamic VLAN assignment
Standards	
1	IEEE 802.1s,IEEE 802.1w,IEEE 802.1x,IEEE 802.3ad,IEEE 802.3af
2	IEEE 802.3x full duplex on 10BASE-T,100BASE-TX , and 1000BASE-T ports
3	IEEE 802.1D STP,IEEE 802.1p CoS Prioritization,IEEE 802.1Q VLAN
4	IEEE 802.3 10BASE-T specification,IEEE 802.3u 100BASE-TX specification,IEEE 802.3ab 1000BASE-T specification,IEEE 802.3z 1000BASE-X specification
5	100BASE-FX,1000BASE-T,1000BASE-SX,1000BASE-LX/LH,1000BASE-BX10-U,1000BASE-BX10-D,1000BASE-ZX,
6	1000BASE-CWDM SFP 1470 nm,1490 nm,1510nm,1530nm,1570nm,1590nm,1610nm
7	10GBASE-SR , 10G Base -LR,10G Base -ER
8	**RMON I and II standards**
9	SNMPv1, SNMPv2c, and SNMPv3

NOTICE INVITING TENDER FOR DESIGN, SUPPLY, ERECTION AND COMMISSIONING OF CCTV SYSTEM IN THE PREMISES OF BHEL/EPD,

ANNEXURE – IV – (b)

Layer 2 Switch - 24 Port & 4 SFP Port

Sl.No.	Parameter / Feature	Detailed Specifications
1	Make	**CISCO / 3COM / Allied Tellsys (equivalent Cisco – Catalyst 2960G-24TC-L)**
2	Ports	The offered switch should have following ports:
		24 Nos. of 10/100Mbps Ethernet ports , 1 Console port
		4 Nos. of SFP based 1000Base LX Ports **(with the respective Gigabit interface Modules single mode)**
3	Forwarding Bandwidth	24 Gbps or more
4	Throughput	35Mbps or More for 64 Bytes Packets
5	Standards & Protocol Support	The switch should support following standards & protocols: 1) 802.1Q VLAN 2) 802.1p Priority & DSCP 3) 802.1D Spanning Tree Protocol 4)802.1w (Rapid Spanning Tree Protocol) 5) 802.1s (Multiple Spanning Tree protocol) 6) 802.3x Flow Control 7) 802.1x Authentication 8) VLAN Trunking Protocol 9) Dynamic Trunking Protocol (DTP) 10) RADIUS 11) Link Aggregation Control Protocol (LACP),UDLD 12) DHCP Server & DHCP Relay 13) Network Time Protocol (NTP) 14)SPAN & RSPAN 15) SSH 16)SNMP v1, SNMP v2c & SNMP v3 17) Telnet & TFTP 18)IPv6 19)SRR Scheduling, WTD, Nicest Mac filtering
6	Security & Performance Features Required	Port Security, Portfast, BPDU Guard, Root Guard
7	Software	The offered switch should have the latest operating system supporting all the above features, standards & protocols.
8	**Rack**	**A wall mount 15U double section rack of MS Steel with glass front door, adjustable 19" rails in the front and rear, Top and bottom cable entry facility, front section with glass door and lock, 2 lightweight MS shelves, 1 No. of AC Power Distribution Box with 5 Nos of 5A sockets**
9	Manageability	Should be manageable through a standard web browser & Command Line Interface.

NOTICE INVITING TENDER FOR DESIGN, SUPPLY, ERECTION AND COMMISSIONING OF CCTV SYSTEM IN THE PREMISES OF BHEL/EPD,

ANNEXURE - V

Optic Fibre Cable:

The Optic Fibre Cable ()FC) shall meet the following **MINIMUM** technical requirements.

1	Gel filled 6 fiber corrugated steel tape armoured direct burial cable for outdoor installation	
2	The fibre type is a matched cladding single mode	
3	Fiber dual coated with acrylate coating with gel filled	
4	The fiber is optimized for operation at 1310nm and 1550 nm	
5	Should fulfill the requirements of ITU-T recommendation G.652 D Low water peak	
6	Geometrical properties :	
	a. Nominal mode field diameter : 9 nm	
	b. Mode field diameter tolerance : ± 10%	
	c. Cladding diameter : 125 nm	
	d. Cladding diameter tolerance : ± 1 nm	
	e. Mode field concentricity error : Max 0.8 nm	
	f. Cladding non-circularity : < 1%	
	g. Diameter of outer coating layer : 245 nm	
	h. Tolerance of coating layer diameter : ± 10 nm	
	i. Coating concentricity error : max 12 nm	
7	Materials :	
	a. Core : Germanium doped core with no phosphorous ie., reduced tendency for hydrogen degradation	
	b. Coating : UV – Curable dual layer acrylate coating which ensures excellent micro bending and abrasion resistance.	
	c. Coating strip force : 0.3 – 2.0 lbf	
8	Optical Properties :	
	a. Attentuation at 1310 nm : < 0.3 db/km	
	b. Attentuation at 1550 nm : <= 0.22 db / km	
	c. Cut-off wave length : <= 1260 nm	

NOTICE INVITING TENDER FOR DESIGN, SUPPLY, ERECTION AND COMMISSIONING OF CCTV SYSTEM IN THE PREMISES OF BHEL/EPD,

MAIN SERVIER **ANNEXURE – VI**

S.No.	Parameter / Feature	Detailed Specifcations
1	Mounting	Rack Models
2	Processor	Quad Core Intel Xeon 3.0 GHz or higher
3	No. of Processors	Two (2)
4	Chip Set	Intel E 5000 family chipset or better
5	CPU Cache	8MB L2 Cache
6	FSB	1333 MHz or higher
7	RAM	16 GB ECC DDR2 667 MHz SDRAM expandable to 32GB.
8	Extension slots	3 or more PCI-X / PCI-Express slots
9	HDD	6 x 146 GB or higher SFF hot Pluggable SAS 15K rpm
10	Internal HDD bays	6 or more hot plug drive bays
11	DVDROM	8x or higher DVD-CDRW Combo Drive
12	Raid Controller	2 Nos. of 3G SAS RAID Controller, each with 256 MB battery backed cache
13	LAN Card	2 Nos. of separate 10/100/1000 Ethernet Cards, each with dual ports
14	DAS	External Hot swappable Direct Attached Storage with multiple raid selection , Raid of level 0,1,5,6 with a minimum capacity of 5 TB at raid level 0,connectivity through 2 ultra 320 SCSI Channels,16 x 320GB SATA II with 8MB Cache and 3Gb/s transfer rate, Redundant Power Supply, with rack mount rails, Raid Controller of 16 Port U320 SCSI to SATA II , 3Gb/s RAID controller (with the rack mount kit)
14	Power Supply	Should come with Hot Pluggable & Redundant Power Supply
15	Fans	Hot pluggable redundant fans
16	Accessories	Monitor 17 " TFT (support 1024x768 Resolution), Keyboard :104 keys, Mouse : Optical mouse , 3 USB Port , 1 Serial Port,
17	Management Software	Management software having following features provided with each server: 1)OS independent remote management capabilities. 2)Provide proactive notification of actual or impending component failure alerts. 3)Inventory management (H/W & S/W) 4)Remote software deployment 5)Remote patch deployment
18	Certifications	Red Hat Linux Advanced Server 5.0 or higher and MS Windows 2003 / 2008 Enterprise Edition Server or higher.
		For OEM : ISO 9001:2000 (CERTIFICATE TO BE ENCLOSED)
		IEC-60950-1: 2001 / IS 13252:1992 / UL

NOTICE INVITING TENDER FOR DESIGN, SUPPLY, ERECTION AND COMMISSIONING OF CCTV SYSTEM IN THE PREMISES OF BHEL/EPD,

ANNEXURE - VII

Video Management Server Software (VMS):

The IP network-based video management system (called "system" as described below) shall be a Windows-based application software, capable of recording JPEG or MPEG-4 video, or dual JPEG/MPEG-4 streams from a camera. The system shall also be capable of decoding and displaying in multi-screen or single screen the decoded video streams, and have software based I/O terminal interfaces to accept alarm triggers.

The system shall have flexible license management which provides licensing for 64 – 128 cameras based on bit rate in single gateway. IP gateway should be virtually unlimited. Camera licenses can be combined in each server to suit the number of cameras in the system, subject to the limitations on the performance capability of the server.

The system shall have the ability to display, record, and playback video from cameras located at remote multiple locations over an IP network

The system shall support the following recording modes: manual, schedule based, alarm, and event (or activity). Additionally, the system shall support rule or filter based triggered recording when used with Camera cameras that support intelligent motion detection or object detection.

The system shall have a "Camera Auto Registration" function. This function shall allow the user to automatically set the following:

a) Detect all IP cameras installed on the same network segment automatically.

b) Assign IP address to cameras.

c) Register the cameras to the system.

d) Generate appropriate monitoring layout based on number of registered cameras.

The system shall also have a quick recording configuration capability with a simple wizard. The function shall help automatically set the following:

a) Allow the user to select either schedule recording or alarm recording.

b) If schedule recording is selected, user inputs the total number of days to store recorded video (up to 365 days), and the system shall automatically begin recording video with the most appropriate frame rate with a minimum of 25 fps.

c) Frame rate shall be calculated based on available storage, number of cameras, 24/7 recording, min 4 CIF resolution on IP cameras, MPEG-4 / H.264 compression.

d) If alarm recording is selected, the system shall automatically begin recording video using the most appropriate parameters for alarm recording. When using the automatic alarm schedule, the maximum number of cameras that can be automatically configured shall be more than 64 cameras.

e) Parameters settings shall be based on 4 CIF resolution or better on IP cameras, MPEG-4 / H.264 compression, and 25 fps at 100% picture quality.

f) Alarms shall be based on VMD (camera) as default and if the camera does not have motion detection capability, then VMD of the system shall be used.

Parameters that were set with the alarm schedule shall be capable of being changed manually.

The operator with proper rights shall be able to manually record video by clicking the REC button on the GUI or configure record settings manually without using the alarm schedule.

Pre- and Post-alarm duration shall be configurable for all event or alarm based recording.

The system shall be capable of simultaneous local and remote viewing, playing back, recording, and exporting video.

The system shall support Video export. Video files shall be in Camera MPEG4 / H.264 file format. The Media File Player application (like VLC media player or equivalent) can be exported with the video so that video can be played back from a Windows® PC without installing any application software.

The system shall have the capability to use any of the following as a trigger to perform a given action:

a) Sensor Input trigger to the camera
b) Camera based Video Motion Detection (VMD) trigger
c) Recorder (system) based VMD
d) Video Motion Filters (VMF): Appearance, Disappearance, Existing, Capacity, Passing, and Unattended/Removed. VMF shall work in conjunction with the camera's motion and object detection capabilities as an additional feature.
e) System Alerts
f) Logical Sensor Input (Requires HTTP API available upon request)

Using any of the above triggers or manually via the GUI, the following actions shall be capable of being initiated:

a) Camera Action

- Preset - Change camera's preset position
- Tour - Start camera's tour
- Output - Change camera's output state

b) I/O Device Action
- Output - Change logical output

c) System Action
- E-mail - Send an E-mail with/without an image to a registered SMTP client address
- Change Layout - Change layout on vide pane
- Beep – activate alarm in the control room

d) Client Action
- Change Layout - Change layout on a client
- Beep – activate alarm in the client environment.

The system shall have the capability to schedule any of the actions on item above.
The system shall be capable of recording and storing images at frame rates between 1 to 25 frames per second on a per camera basis.

The system shall have three types of searches on the main GUI:

- Date/Time – This can be performed on a selected camera or all monitored cameras.
- Quick Playback – Playback start point is user configurable with the default setting being 5 seconds.
- Alarm history – A list of alarm events is displayed at the bottom of the GUI. When an alarm event is clicked, it is played back in the active window.

The playback control pane shall be active when any of the following search methods, date/time, quick playback, alarm history based, is selected to allow the operator to fast forward, rewind, pause, use a slider to scroll through the clip, or jump to the next or previous alarm.

The system shall also have a detailed search capability providing the operator with a 'Search' GUI that allows two separate types of searches, Normal and Object:

Normal search allows multiple cameras to be searched simultaneously. Search images of on multiple cameras can be displayed in the playback pane.

Object search allows only a single camera to be searched and the searched images are displayed in the playback pane.

The system shall support simultaneous search and playback on multiple cameras for normal search operations. For 'Normal' searches the system shall allow the operator to enter a date/time range, select multiple cameras, and select any combination of the recording type (Schedule, Manual, Alarm, and/or Event). The search results will be displayed in the pane at the bottom of the GUI in a timeline. The timeline view can be changed to a list view. Cameras that

are on the timeline or events that are listed in the list view can be selected and the images associated with the search results shall be displayed in the playback pane.

For 'Normal' searches the system shall provide playback controls of the searched video by using the playback control pane. When using the timeline, the vertical bar representing the displayed image can be dragged to the left or right to scroll through the video.

For 'Object' searches, the system shall allow the operator to enter a date/time range, select a single camera, and select a type of Post VMF or Post VMD search.

To export video, the system shall allow the operator to select an IN point and OUT point on the timeline and click the Export button on the playback control pane. Video within the specified range will be exported. Exporting video from multiple cameras within the selected range is possible. The system shall also provide the ability to export multiple events from the list view.

The system shall support Pan/Tilt/Zoom controls over TCP/IP.

The system, via mouse and keyboard, shall be able to auto center any on-screen PTZ stream or drag-and- zoom on a specific area. The system shall also support joystick with TCP / IP connectivity.

The system shall allow the operator to register pan/tilt/zoom (PTZ) camera/encoder presets and the ability to recall such presets. Presets shall be stored on the camera/encoder. The system shall support the maximum number of presets that the camera allows.

The system shall have the capability to provide camera tours on a demand basis from the main GUI or by using an alarm trigger. The system shall have multiviewer window where live video from upto 100 cameras can be viewed.

The system shall have a capability to create multi-camera viewing layouts by defining number of rows and columns.

The system shall support the import and export of site layout images in BITMAP and JPEG file formats.

The system mapping layouts shall be capable of being freely configured by the administrator or users with configuration privileges. This function shall allow customizations and modifications to both new and old layouts to incorporate added icons or links.

The system shall support multi-level layout mapping in the GUI, with each layer capable of linking an icon or action button to another layer or camera image, or to a specific monitor window.

The system shall have the ability to perform a layout tour, which means it can switch layouts sequentially based on presets.

The system shall be configurable for centralized server management in a master/slave configuration.

The system shall be capable of locking the monitoring window to prevent changes.

The system shall have VMD (recorder) capabilities with all the functions as described below. The operator/administrator shall have the ability to set any of the following functions, on a per camera basis.

- Pre- & Post-alarm recording: Start recording images up to 60 seconds before motion is detected in the camera's field of view and continue recording for up to 3600 seconds after the motion has stopped in the cameras' field of view.
- Motion Detection Threshold: Adjust motion sensitivity level in 1% increments from 0% - 100%
- Automatically change record frame rate to a predefined value when motion or alarm is detected.

The system shall incorporate Distributed Enhanced Processing Architecture, in which a series of IP cameras send pre-processed video related metadata.

The system shall support both the Intelligent Motion Detection (IMD) and intelligent Object Detection (IOD) functions of the camera. The IMD function shall be capable of triggering an alarm by using an advanced Camera algorithm, which shall minimize false alarms caused by noise and repetitive motion patterns. The IOD function shall be capable of detecting an object which has been taken away or left behind. These functions shall be mutually exclusive for each camera.

The system shall have the following video analytics feature:

a. Shall adapt to changing lighting and environmental conditions
b. Shall have built in image stabilization.
c. Shall have built in tamper monitoring that detects camera hooding or masking, blinding, defocusing and repositioning.
d. Shall support far infra red thermal cameras.
e. Shall be configurable for sensitive areas to monitor areas of interest with advanced tracking capability and alarm management.
f. Shall be capable of detecting behavior of objects, tracks and analyzes moving objects while suppressing false alarms viz.,
    a. Detect entering, leaving or moving / loitering within specified area
    b. Detect idle and removed objects
    c. Detect speed of objects
    d. Detect single or multiple line crossings for perimeter intrusion detection
    e. Detect changes in object properties.
    f. Detect direction of moving objects
    g. Combination of all the above
g. Shall provide optional forensic search capability of recorded video.

The system shall receive and store the metadata for intelligent post video motion filter search and intelligent live video motion filter alarm.

The system shall be capable of applying up to three filters in parallel such that violation on any one filter shall cause an alarm.

The system shall be capable of applying up to three filters on a scene in a sequence or cascade fashion, whereby an alarm will only be triggered based upon events that violate the rules or filters one at a time in predefined order.

The system shall be capable of setting the minimum and maximum object size for detection.

The system shall be capable of setting the minimum object speed or the maximum object speed for detection.

The system shall have the ability to apply temporary filters to recorded images that have been recorded in conjunction with metadata, to limit searches to stored video based on these parameters.

The system shall be capable of saving configuration data of cameras, I/O boxes, and remote servers as backup.

The system shall be capable of restoring configuration data of cameras, I/O boxes, and remote servers as backup.

The system shall be capable of storing log files of user login, alarm event, and other system errors.

The Media File Player application software shall be bundled with the software or be downloaded free of charge, to allow playback of MPEG4 / H.264 files on a Windows-based PC.

The system shall support data overwriting and a clean-up function to keep enough capacity for recording.

The system shall have flexibility for integration with third-party software applications.

VIDEO REQUIREMENTS:

The system shall support video streams that are encoded in MPEG-4 / H.264

Recorded image streams in either JPEG or MPEG-4 shall be in Camera's MPEG4 / H.264 format.

The system shall be capable of accepting multiple simultaneous video streams from IP cameras using TCP/IP protocol.

The system shall be capable of up to x25 digital zoom when playing back recorded video.

The system shall be capable of setting a hot-spot monitor in the custom layout.

Each monitor window shall be capable of indicating, but not necessarily be limited to, the following items:

a. Camera name
b. Status (recording type, playback status and speed)
c. Time (current date and time of live images or the recording date and time of play back images)
d. Display Image per Second
e. Bandwidth used for transferring images via network connection
f. Frame Rate
g. VMD (recorder) object frames ON/OFF
h. Video Motion Filter (VMF) windows or objects detected for cameras that support this function.
i. Object Frame
j. Alarm Object Frame
k. Filter Frame
e) Inactive Area Frame
f) Object ID
g) Object Duration
h) Filtered Count

The system shall provide a sequence mode for displaying multiple monitor layouts in sequence during a specified time period, which shall allow for monitoring a number of cameras in desired sequences and layout patterns.

The system shall have the ability to independently set record rates for each camera, not to exceed the global frame rate described above.

The system shall have default layouts such as 2x2, 3x3, 4x4 and pre-customized layouts.
The system shall be capable of displaying live images and playing back images in any monitor window of a selected monitoring layout. Playback of any camera in a particular window in a multi-camera display configuration shall not stop live viewing of cameras in the other windows.

The system shall have the capability of supporting servers with two (2) video outputs for monitors. Monitor 1 shall be the main monitor window. Monitor 2 shall be capable of showing the same view as the Monitor 1 output, or used as a Hot-Spot monitor. On the second monitor, selected images or images from cameras triggered via sensor input or motion detection shall be displayed in the monitor window sequentially. The user or integrator shall be responsible to provide the necessary computer hardware to support this function.

The system shall be capable of taking a still image snapshot in JPEG format. This still image is automatically saved in a pre-defined folder.

The system shall have a masking capability, which masks sensitive areas from both live display and recording. User shall have the option of changing the shape and type of masking such as, Gaussian blur, Mosaic (average), Random Noise, or solid colors at a minimum.

The system shall have pre-alarm and post-alarm recordings upon detection of events such as sensor input, VMD and VMF. Pre and Post alarm durations shall be user configurable.

The system shall be capable of exporting recorded MPEG 4 / H.264 files, JPEG still images, configuration data, and log files. The user or integrator shall be responsible to provide the necessary computer hardware to support this function.

The system shall be capable of restoring configuration data, importing BMP and JPEG images for site layouts and icons. The user or integrator shall be responsible to provide the necessary computer hardware to support this function.

The system shall support simultaneous Video export. Video files shall be in Camera MPEG4 / H.264 file format. The Media File Player application can be exported with the video so that video can be played back from a PC without installing any application software.

NETWORK REQUIREMENTS:

- The system shall provide video surveillance over TCP/IP.
- The system shall be capable of accessing a proxy server to connect cameras located outside the network. The IP address and port number of the proxy server shall be configurable.
- The system shall provide email notification when the system finds any video loss caused by a network interruption.

REMOTE CLIENT REQUIREMENTS:

1. The system shall include support for Remote Configuration and Management Software, called “client software” as described below) to allow a user to remotely configure the server system, view live images, play back and search the desired recorded images.

2. The client software shall be capable of the following items similar to the server system:

    a. Live video monitoring from selected cameras
    b. Recording configuration (manual / schedule / alarm / event-based)
    c. Playback video
    d. Easy search of recorded images

e. Search by Time and Date, Camera, REC Type (Schedule, Manual, Alarm, Event), Video Motion Filter (VMF) and post Video Motion Detection (VMD)
f. Camera pan / tilt / zoom control
g. Camera tour operation
h. Two-way audio support
i. Flexible customizable layout and mapping editor up to 100 layouts
j. Layout tour (monitor sequence mode)
k. Hotspot monitor
l. Set a number of triggers to perform actions including, triggering alarms, layout changes, camera tours, e-mail notifications, and more. Up to 100 actions can be scheduled.
m. Search by alarm type
n. Privacy masking
o. Define and provide system user profiles and user permissions for use of specified functions
p. Display alarm log
q. Video/Audio export
r. Set camera 'Global Camera ID' in multi-server systems.

The software (VMS) should be used to configure Users, Roles, Devices; other Digital Video Management System components (Digital Video Management System Clients) which should be able to get this information from the Server and access devices by Devices configuration and get through alarms/events/status and control devices authenticated. Digital Video Management System should provide strong stability for surveillance system, 2 kind of backup functions will be provided by Digital Video Management System hot backup and the disaster backup.

Application Software Functions:

1. Data Sync Management:
Digital Video Management System should provide functions to data synchronization between Management Server and Management Server, and also real time synchronization between Management Servers and Clients.

2. Devices Organization:
Devices should be organized by Digital Video Management System. A main display should be provided with information and controls

3. Device Management:
Device should be managed in Digital Video Management System. A main display should be provided with information and controls. While adding a new device, a display with following information and controls as minimum should be provided: Device type, ID, Name, tag, location, description, IP, port, Current date time,

4. Live Video

a. Video Display Window
Digital Video Management System Video Client should provide 7 different kinds of video window layout as minimum while viewing: 1, 4, 9, 16, 6, 7, and 8 windows. A display should be provided to control camera video parameters from any Client.

b. Live video sequence
Digital Video Management System Video Client should provide live video sequencing function to view different group of live videos regularly.

c. Live video favorite
Live video should be configured as user's favorite in Digital Video Management System Video Client. A favorite tree list should be provided by Digital Video Management System Video Client. A button to save current layout should be provided. A dialog to decide to overlap or save as new favorite should be provided.

d. Camera status display
Camera status should be displayed in Digital Video Management System Video Client, following status as minimum should be displayed: Online, Disconnected, Alarm, Dome or fixed camera, recording

5. Video Device Configuration
Video device configuration functions should be provided by Digital Video Management System Video Client.

6. Virtual Matrix
Virtual Matrix should have function to switch camera to TV wall

7. Recording
The following methods of recording live video will be supported:

- User activated
- Event activated
- Scheduled
- Record live video viewing

a. User activated:
The user shall be able to configure the following parameters for each camera:

b. Event activated:
The following settings shall be individually configurable for each alarm and each camera:

c. Scheduled:
The system shall support the ability to schedule recordings for each individual camera for times in the future. For each scheduled recording the user shall be able to configure:

d. Record live video viewing:

- Set the view window as recording window
- Record live video while viewing

e. The user shall be able to configure the following parameters for each camera:

- Pre-Record Duration
- Record Duration: User activated recordings shall terminate after this period. Shall be selectable from a list of value between 0 seconds and 5 minutes
- Server Location
- Retention Period:

8. Snapshot

The Digital Video Management System must provide every operator with the ability to record the current frame of video.

This snapshot of video should be stored as a bitmap file. The file name should be automatically generated by the Digital Video Management System software and include the camera name, date and time of recording (to millisecond precision). An audible sound should be produced by the Client computer, to ensure that the operator should have feedback when the snapshot should be taken.

9. Recorded Video Search

The Digital Video Management System must provide search for all video recorded. The user should be able to choose to filter the search based on the following criteria. The user can select the time indicator which shows a calendar and time line.

The user selects the required search period.

- Camera name or number
- Camera location
- Alarm or event type for alarm/event activated recordings
- Recording type (schedule, event, operator, live video viewing, all)
- Duration
- Operator name

The recorded video shall be available to all users, which have adequate security. Each user shall only be able to view recordings from cameras they have security access to view. A display shall be provided to view recordings from any Client. From this display, the operator can select the recording he/she wishes to view, which shall be immediately shown in an embedded video player.

10. Storage

On-line Storage
The system should hold a configurable amount of video in online storage. The amount of video stored online should limited to the Server's disk capacity. For Server a limit on available storage space for online video should be configurable and the scheduled job of pushing the data to the DAS storage. The system should support RAID 0+1, 1, 3, 5 for video recordings (clips).

Off-line Storage
The Server should be able to manage several off-line media devices for archiving and restoring video. The Server must use a standard archiving method such as Microsoft Remote Storage Services to handle offline media. At least one of the following off-line devices should be supported:

- DVD-RW
- DAS

11. Capturing Alarm & Event

Client should receive alarm & event from different places which have adequate security.

The alarm & event information should be available to all users, which have adequate security.
Each user should only be able to view live video/recordings from cameras related to the alarm & event they have security access to view.

A list should be displayed. The list should be divided to four parts: Alarm, Event, Status and Tasks. Alarm information should be displayed in alarm list, event information should be displayed in event list, status information should be displayed in status list, management of alarm & event information should be displayed in Tasks list. The following information as a minimum should be displayed in the list for Alarm & Event:

- Location
- Date/time
- Type
- Detailed information
- Guidance information

A display should be provided to view video from any Client. From this display, the operator can select the live video/recordings related to the alarm & event, which should be immediately shown in an embedded video player.
Live video display should have following information:

- Information about the chosen live camera. The following information as a minimum should be displayed with the chosen recordings:
- Live camera location
- Alarm & event information

Recording display should have following controls and information:
An embedded video player with controls (buttons). The information displayed on the video player and the controls provided should include:

- The time and date of the frame being displayed
- A slider control which should be used to move backwards and forwards through the Recording
- Play, pause and stop buttons
- Step forward and step backward buttons, to move through the recording frame by Frame
- Fast forward and rewind buttons, to play the recording at speeds of x2, x4, and x8.
- A snapshot button, to allow for the frame being displayed to be stored as a bitmap file (in a similar way to the snapshot button for live video)

The following information as a minimum should be displayed with the chosen recordings:

- The type of recordings (operator activated, alarm/event activated, scheduled or live video viewing)
- The Operator or user that activated the recordings (for operator activated recordings)
- The sub-priority of recordings (for alarm/event activated recordings)
- The frame rate that the recording was recorded at
- The resolution of the recording
- The compression used
- The recording start time and date (including pre-record)
- The recording end time and date
- The date and time that the recording will be deleted by default (which can be changed as required)
- Operator comments and notes about the recording (made by scheduled recording configuration automatically or by the operator)

12. Alarm & Event Management
Alarm & event Mgmt should provide 4 modes, Handling, Handled Alarm & event should be searched by following conditions:

- Date/Time
- Operators
- Devices type
- Alarm & event type

Alarm & event records should be exports to xml and excel file format; alarm & event records should be generated to spread sheet by following catalogs:

- Time catalog
- Device type catalog

Alarm & event records should be printed by different spread sheets.

13. Interlock operation

Interlock data should be placed in Server, all the site users will use the same interlock logic. Interlock UI should be place in Configuration Client; it should be possible to configure the following parameters for this purpose.

- Source device/device channel
- Source event/alarm
- Target device/device channel
- Target command
- < 255 interlock items collection

Interlock sharing: All Digital Video Management System Clients should share interlock of same EC Server.

14. Status Management

All the components' status of Digital Video Management System should be displayed:

15. Third Party Interface

Digital Video Management System should provide a unified device interface to devices, including kinds of third party devices. Digital Video Management System should provide following communication type as minimize:

- UDP
- TCP
- Serial

16. Clock Sync

Digital Video Management System should provide functions to synchronize all the Digital Video Management System components; for devices, Digital Video Management System can synchronize their time if interface should be provided.

17. Control to Devices

Digital Video Management System should provide functions to control devices. Different UI should be displayed by different types of devices.

18. Control to Intrusion devices

Digital Video Management System should control intrusion devices as minimum for commands can use virtual intrusion keyboard – like actual physical keyboard). Digital Video Management System should control AC devices as minimum for commands of opening and closing doors.

Digital Video Management System should control Video devices as minimum for commands:

- PTZ
- Dial
- OSD
- Video Quality
- Switch
- Preset
- Tour

Digital Video Management System should control relay devices as minimum for commands of opening and closing relays.

19. Log Management

Digital Video Management System should provide functions to record log of devices and Digital Video Management System components alarm/events/status and display to manage and export these logs. Log file should be exported to Excel format.

20. Backup

Digital Video Management System should provide backup functions for Digital Video Management System components, including backup for Digital Video Management System servers while disaster happening or hot backup for center database server.

Annexure - VIII

Desktop Computer Client

CPU : Intel Quad Core
Chipset : Intel Q35 or better on OEM motherboard
Bus Architecture : Integrated Graphics , 2PCI, 1 PCI Express X 1 and PCI Express x 16
Memory : 4 GB 667 MHz DDR2 Ram Expandable to 8 GB
Hard Disk Drive : 250 GB 7200 rpm SATA HDD
Keyboard : 104 keys Mouse : Optical
Bays : 4 Nos (2nos of 5.25 Inches for optical media and 2 nos of 3.5 inches of Hard Disk Drives)
Ports : 6 USB ports (2 in the front), audio ports for microphone and head phone in the front
DVD : R/W combo drive 8x or better
Networking : 10/100/1000 on board integrated network port with remote booting facility remote system installation remote system wake up
Operating system : Windows 7 with latest support and version package(preloaded with media and documentation and Certificate of Authenticity
OS certifications

NOTICE INVITING TENDER FOR DESIGN, SUPPLY, ERECTION AND COMMISSIONING OF CCTV SYSTEM IN THE PREMISES OF BHEL/EPD,

FORM NO. E – 5 Appendix -I

ELECTRONIC CLEARING SERVICE (CREDIT CLEARING)

MODEL MANDATE FORM

INVESTOR/CUSTOMER'S OPTION TO RECEIVE PAYMENTS THROUGH CREDIT CLEARING MECHANISM

SCHEME NAME AND THE PERIODICITY OF PAYMENT

1. INVESTOR/CUSTOMER'S NAME:
2. PARTICULARS OF BANK ACCOUNT
   A. BANK NAME:
   B. BRANCH NAME:

      ADDRESS:

      TELEPHONE NO:
   C. 9- DIGIT CODE NUMBER OF THE BANK & BRANCH APPEARING ON THE MICR CHEQUE ISSUED BY THE BANK:
   D. ACCOUNT TYPE (S.B ACCOUNT/CURRENT OR CASH CREDIT) WITH CODE 10/11/13:
   E. I F S C NO.
   F. ACCOUNT NUMBER (AS APPEARIG ON THE CHEQUE BOOK):
   G. E MAIL ID: ADDRESS

(In lieu of the bank certificate to be obtained as under, please attach a blank cancelled cheque, or photocopy of a cheque or front page of your savings bank passbook issued by your bank for verification of the above particulars)

NOTICE INVITING TENDER FOR DESIGN, SUPPLY, ERECTION AND COMMISSIONING OF CCTV SYSTEM IN THE PREMISES OF BHEL/EPD,

3. DATE OF EFFECT:

I hereby, that the particulars given above are correct and complete. It the transaction is delayed or not effected at all for reasons of incomplete or incorrect information, I would not hold the user institution responsible. I have read the option invitation letter and agree to discharge the responsibility expected of me as a participant under the scheme.

(----------)

Date: Signature of the Investor/ Customer

Certificate that the particulars furnished above are correct as per our records.

COMPANY STAMP (----------)

Date: SIGNATURE OF THE AUTHORIZED/ OFFICIAL
From the Bank

NOTICE INVITING TENDER FOR DESIGN, SUPPLY, ERECTION AND COMMISSIONING OF CCTV SYSTEM IN THE PREMISES OF BHEL/EPD,

APPENDIX II

BANK GUARANTEE FOR PERFORMANCE

To:
Bharat Heavy Electricals Limited,
Electroprocelains Division
Prof C N R Rao Circle
Opp. IISC, Malleswaram
BANGALORE 560012.

Bank Guarantee No	:
Date of Issue	:
Amount of Guarantee	:
Guarantee cover from	:
Last Date of Lodgement of Claim	**:**

1. In consideration of Bharat Heavy Electricals Limited, having its Registered Office at Bangalore, India (hereinafter called "The Purchaser", which expression shall unless repugnant to the subject or context include its administrators, successors and assigns) having entered into a contract vide Purchase Order No**……..…** Dated**……. .** With M/s**……**having its registered Office at **----------** (hereinafter referred to as "The Supplier" which expression shall unless repugnant to the administrators, executors and permitted assigns) for the supply of "xxxxxxxxxxxxxxxxxxxxx" (which contract is hereinafter referred to as the "The Contract") and the supplier, having agreed to provide a Guarantee for Performance of the Contract in the Form of Bank Guarantee, we The**……..** (hereinafter called to as "The Bank" which expression shall unless repugnant to the context or meaning thereof include its successors, administrators, executors and assigns) do hereby unconditionally and irrevocably guarantee and undertake to indemnify and keep indemnified the purchaser to extent of Rs**……. (**) at any time against any loss, damage, costs, charges and expenses including due to faulty design, faulty materials and bad workmanship caused to or suffered by or that may be caused to or suffered by "the purchaser" on its mere written demand and without any demur, reservations, recourse, contest or protest and without any reference to "the supplier" to the extent aforesaid.

2. we "the said bank", further agree that "the purchaser" shall be the sole judge of and as to whether "the said supplier" has committed any breach or breaches of any of the terms and conditions of the contract and the extent of loss, damage, costs and expenses caused to or suffered by "the purchaser " on account thereof and the decision of the purchaser that the said supplier has committed such

breach or breaches and as to the amount or amounts of loss, damages, costs, charges and expenses including due to faulty design, faulty materials and bad workmanship caused to or suffered by or that may be caused to or suffered by "the purchaser" from to time shall be final and binding on us notwithstanding any difference between the PURCHASER and the SUPPLIER or any dispute pending before any court, tribunal application or any other authority to form.

3. We "the said bank" further agree that this guarantee shall come into force upon the. Effective Date as defined in bank performance guarantee clause of contract and shall remain in force for a period of 12 months from the date of commissioning or 18 months from the date of last dispatch whichever is earlier unless a notice or claim under this guarantee has been served on "the said Bank" before the expiry of said period of validity i.e**……** inclusive of claim period in which case this guarantee shall be enforceable against "the said Bank".

4. "The purchaser" shall have the fullest liberty without affecting in any way the liability of "the said Bank" under this guarantee from time to time to vary any of the terms and conditions of the said contract or to extend time for Performance thereof by "the said supplier" or to postpone for any time and from time to time any of the powers exercisable by it against "the said supplier" and either to enforce or forbear from enforcing any of the terms and conditions governing "the said contract" or securities available to the purchaser and "the said bank" shall not be released from its liabilities under these presents by any exercise by "the purchaser" of the liberty with reference to the matter aforesaid or by reason of time being given to the said purchaser or any other forbearance act or omission on the part of the purchaser or any indulgence by the purchaser to "the said supplier" or of any other matters or thing whatsoever under the law relating the securities would but this provision have the effect of so releasing "the said Bank" from its liability hereunder.

5. Our obligation to pay hereunder is as principal debtor and not as surety and it shall not be necessary for "to proceed against "the said supplier "before proceeding against" the Bank and the guarantee herein contained shall be enforceable against "the Bank" notwithstanding any other security which "the purchaser" may have obtained or obtain from "the supplier" at the time when proceedings are taken against "the said Bank" in any manner whatsoever.

6. Unless extended, this guarantee shall remain in force till **……** provided however, that should it be necessary to extend we shall extend we shall extend forthwith the period of this guarantee on your request till such time as may be required by you.

NOTICE INVITING TENDER FOR DESIGN, SUPPLY, ERECTION AND COMMISSIONING OF CCTV SYSTEM IN THE PREMISES OF BHEL/EPD,

7. We "the said Bank" further undertake not revoke the guarantee during its currency except with the previous consent of "the purchaser" in writing and agree that any change in the constitution of "the said supplier" or the bank shall not discharge our liability hereunder in any manner whatsoever.

8**.** Our liability under this guarantee is limited to Rs**…….. (**Rupees)

9**.** We have power to issue this guarantee in your favour and the undersigned who are executing this guarantee have the necessary power to do so on behalf of the Bank under the **……**

10. This guarantee shall come into force immediately on release of payment of RS**……..** (Rupees) by the purchaser to the supplier.

"Notwithstanding anything contained herein:

a) Our liability under this Bank guarantee shall not exceed Rs**……**.(Rupees).

b) This bank guarantee shall be valid only up to **……** And

c) We are liable to pay the guarantee amount or any part thereof under this Bank guarantee only and only if you server us a written claim or demand on or before **……..**

Place:

Dated:

Constituted Attorney