


## REQUEST FOR QUOTATION

	<b>BHARAT HEAVY ELECTRICALS LIMITED</b> Electronics Division PB No. 2606, Mysore Road Bangalore - 560026 INDIA	RFQ NUMBER: HD0000419  RFQ DATE: 13 AUG 2015	Due Date  <b>Time: 13:00 HRS</b>  VENUE NEW ENGG. BLDG
MMLPU RE 003			

### PURCHASE FILE

( for all correspondence )  
 Purchase Executive - CHANDRAIAH HD  
 Phone 26998674  
 Fax 00918026989217  
 E-mail chandraiah@bheltdn.co.in

Please submit your lowest quotation subject to our terms and conditions attached for the material mentioned below. The quotation must be enclosed in a sealed envelope / Fax superscribed with RFQ no. and due date, should reach us on or before the due date by 13.00 hours IST and will be opened on the same day at 13.30 hours at the venue mentioned above. **PLEASE DROP THE OFFER IN THE BOX PROVIDED AT RECEPTION.**

Sl No	Description	Qty	Unit	Delivery qty	Delivery Date
1	PR0900007500 CCTV system for yeramanus U# 1&2 CCTV Network Components – Fiber, Power cable network switches and Components Test Certificate	1	ST	1	10.12.2015
2	PR0900007519 CCTV system for bellary U#3 CCTV SYSTEMS – camera , accessories, servers/storage and installation & demonstration. Test Certificate	1	ST	1	10.12.2015

Total Number of Items - 2

Please note that the tender will be opened in the presence of the bidders or his authorised representatives (maximum two per organisation) who choose to be present with authorisation letters. Refer annexure for the terms and conditions.

Preference will be given to vendors who accepts our standard payment terms i.e 100% payment - 30 days after receipt of material at our works subject to acceptance.


Please specify Terms of delivery, Excise duty, sales tax, Ex-BHEL, Ex-works surcharge, Insurance, P&F, Freight and other taxes very clearly.

For evaluation, exchange rate/TT selling rate of SBI as on scheduled date of tender opening (Part-I bid in case of two part bid) shall be considered.

The offers of the bidders who are on the banned list as also the offer of the bidders, who engage the services of the banned firms, shall be rejected. The list of banned firms is available on BHEL web site [www.bhel.com](http://www.bhel.com)

- i). This is only RFQ not an order.
- ii). In all correspondence quote RFQ No. & due date. iii). In Quotation BHEL material code / RFQ Sl. No. should be mentioned clearly.
- iv). Quotation Envelope / Fax not superscribed with RFQ No. and due date is liable for rejection.
- v). Quotation should remain valid for a minimum period of 90 days from due date.
- vi). In case of non-receipt of Quotation or regret letter for 3 consecutive RFQs you are liable to be removed from our vendors list.
- vii). All Prices should be written in words and numbers.
- viii). Excise Chapter Heading should be mentioned for all items where VAT is applicable.

For and On behalf of BHEL

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	REVISION: 00	REVIEWED		
		BNSHARMA / D PRAKASH		
		PREPARED	ISSUED	DATE
		Tanvir Singh	CE / ENGG (HMI) - 404	15.05.2015



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**REVISION HISTORY SHEET**

REV No.	DATE	NATURE OF CHANGE	REASON	PREPARED BY	REVIEWED BY
00	15.05.2015	FIRST ISSUE	---	TVS	BNS/DP
01	02.08.2015	SECOND ISSUE	Typo error correction	TVS	BNS/DP

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## 2.0 Power Supply Arrangement

Scope of supply includes a Networking Panel housing all the Switches required for interfacing of the IP Cameras and a power distribution panel to cater to IP Surveillance requirements. The Networking Panel and Power distribution panels for Surveillance equipment will be located in Control room. Redundant feeders of UPS system (240V±10% AC, 1 phase, 50 Hz) will be used in Control Room area to Power Distribution Panel of supplier. For all other areas standalone UPS system (if UPS supply not available) based on the rating of the hardware will be supplied..

A power distribution panel and power distribution equipment to cater to various Video Surveillance system components located in the control room and as well as for cameras and accessories located in the main plant area and all other Surveillance requirements. The Power Distribution Panel is to be located in the Control Room Annexure.

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**3.0 Design and Technical Requirements**

- a) The IP Surveillance system will cater to 3 logical areas – a) Unit 3 Cameras, b) Unit Common Area cameras and c) Plant Common Area cameras

CCTV system envisaged will have a Primary Server(Video Management) along with Network attached storage /iSCSI storage devices/NVR, for Unit and common area. . The prime application program will reside at Primary Digital Video Server and will interface Secondary Digital Video Server/iSCSI storage devices & Cameras for video and audio switching and control of the system. The primary server will have the capability to add future secondary servers or iSCSI storage devices to support future expansion.

- b) An Optical fiber network for the proposed Video Surveillance system has been envisaged.

c) The Surveillance system will have User based authorization to view and control cameras from any station. Surveillance System will store alarm and event activated recording. Features will be provided only to capture most needed videos. It will also have pre-recording feature so that videos prior to the event occurring can also be stored. Respective unit area camera monitoring and control will be carried out from respective unit and for the common area monitoring & control will be possible from stations of either unit.

- d) The system will have following minimum controlling capability:

- PTZ control with Iris level control, pre-positioning control for at least 50 cameras.
- System will be able to simultaneously record and play back.
- Both manual and automatic
- It will be possible to view live video from anywhere on the CCTV network, including over wide area network connections, through firewalls & routers. The live output from cameras will be viewed through a series of displays. All requisite client's software to view and control cameras.
- The Video Server / Recorder will have sufficient disk space for online video storage

- e) The system will have the following minimum features:

- Video recording with features like Operator Activated Recordings, Alarm and Event Activated Recordings, Scheduled Recordings (including 24hr recording), Video Motion Detection & Recordings and Exporting of a Recorded video into Native format file.
- Video features like Single camera viewing, Quad viewing, Sequence viewing.
- It will be possible to take back up of recorded video on any media CD/DVD.
- Tools for Searching Records
- Pass word protected Security levels for the monitoring and control of cameras to authorized users.
- Antivirus software to be installed on server/workstations supplied along with this package.
- Vendor to provide suitable Network monitoring facility to monitor the CCTV system.

- f) **List / location of Cameras for Project:**

Requirements for camera units with protection class and their tentative locations.

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Video Surveillance system will be PTZ camera mechanism, integrated to a Digital Video Management Server for video switching, control and recording functions.

**3.1 List of Cameras with Type and tentative Locations.**

**3.1.1 List of cameras to be provided at Main Plant Unit 3 and Common Areas:**

Sl.No	Type Of Camera & protection Class	Location	No of Cameras	Distance Of cameras-DCS -CCR meters.
1	High resolution CCD Camera with IP65	TG Hall Elevation 17.0 meter	1	50
2	High resolution CCD Camera with IP65	TG Hall Elevation 8.5 meter	1	100
3	High resolution CCD Camera with IP65	TG Hall Elevation 0 meter	1	150
4	High resolution CCD Camera with IP65	MOT Room	1	150
5	High resolution CCD Camera with IP65	Raw Coal Feeder	3	300
6	High resolution CCD Camera with IP65	Air Heater	1	250
7	High resolution CCD Camera with IP65	ESP/VFD Field Area	1	500
8	High resolution CCD Camera with IP65	CER	1	30
9	High resolution CCD Camera with IP65	Control Room	1	50
10	High resolution CCD Camera with IP65	Cable Gallery at 3.5 meter	2	150
11	High resolution CCD Camera with IP65	Cable Gallery at 8.5 meter	2	100
12	High resolution CCD Camera with IP65	Cable Gallery at 13.5 meter	2	100
13	High resolution CCD Camera with IP65	Switch Gear Room	3	100
14	<b>High resolution CCD Camera with IP65*</b>	<b>Transformer Bay</b>	<b>1</b>	500
15	<b>High resolution CCD Camera with IP65*</b>	<b>Boiler Firing Floor</b>	<b>1</b>	250
16	High resolution CCD Camera with IP65	Control Room Entry	1	50
		Total for unit and Common Areas	<b>23</b>	

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**II. BALANCE OF PLANT AREAS (EACH UNIT UNDER UNIT AREA ZONE)**

Sl.No	Type Of Camera & protection Class	Location	No of Cameras	Distance Of cameras-DCS -CCR meters.
1	High resolution CCD Camera with IP65	Ash Water pump House	2	1000
2	High resolution CCD Camera with IP65	CW Pump House	2	1200
3	High resolution CCD Camera with IP65	PT Plant	2	1000
4	High resolution CCD Camera with IP65	Transport Air Compressor (AHP)	2	1000
		<b>Total</b>	<b>8</b>	
List of Locations in COMMON PLANT AREA				
1	<b>High resolution CCD Camera with IP65*</b>	FOPH	1	1000
2	High resolution CCD Camera with IP65	Main Entry Gate	1	2000
3	High resolution CCD Camera with IP65	DM Plant	1	1000
4	High resolution CCD Camera with IP65	Switch Yard	1	600
5	High resolution CCD Camera with IP65	CHP Control Room	1	2000
6	High resolution CCD Camera with IP65	Effluent Treatment Plant	1	700
7	High resolution CCD Camera with IP65	Train Entry & Exit	1	3000
8	<b>High resolution CCD Camera with IP65 *</b>	Oil Decanting	1	2000
9	High resolution CCD Camera with IP65	Wagon Tripler	3	2500
10	High resolution CCD Camera with IP65	Coal Handling Plant Area	2	2000
11	High resolution CCD Camera with IP65	Technical Building Entry	1	<b>500</b>
12	High resolution CCD Camera with IP65	Stores	2	<b>1000</b>
13	High resolution CCD Camera with IP65	Workshop	1	<b>500</b>
14	High resolution CCD Camera with IP65	DG Building	1	<b>700</b>
15	High resolution CCD Camera with IP65	Ozonization Plant	1	<b>500</b>
		<b>Total</b>	<b>19</b>	
		<b>Grand Total</b>	<b>50</b>	

- Camera with explosion proof accessories.

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	<p><b>4.1 Cameras</b></p> <p>Requirement calls for PTZ cameras.</p> <ul style="list-style-type: none"> <li>i) Type 1- Integrated CCD IP camera with ¼ inch image format PTZ Speed Dome indoor/Outdoor Cameras, (IP65 or better) and</li> <li>ii) Type 2- Fixed camera C/CS Mount with 5-50mm Auto iris , vari focal lens and ex proof housing</li> </ul> <p>These cameras will be with integrated housing and PTZ features. They will have high resolution and high sensitivity for operation in a power plant, both in natural and artificial sighted areas. Following minimum features will be provided.</p> <ul style="list-style-type: none"> <li>• Day – Night Camera (suitable for night-time surveillance).</li> <li>• Manual or Automatic color/ infra red switching.</li> <li>• Automatic picture enhancement to give a balanced picture where there is too little / too much light.</li> <li>• Remote camera setup, with on screen menu display.</li> <li>• Backlight composition.</li> <li>• Automatic white balance, with mode selection options.</li> <li>• 26x or better optical zoom for Type-1 cameras.</li> </ul> <p><b><u>Makes: BOSCH / Honeywell / Schneider-PELCO /dvtel */Axis */DLink*</u></b></p> <p style="text-align: center;"><b>Note: * Make subject to customer approval</b></p>



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**4.1.1 Type 1 Camera: IP PTZ Speed Dome indoor/Outdoor Cameras-With all accessories**

Sensor type	1/4" HAD CCD
Zoom – optical	26 x or better
DIGITAL ZOOM	YES
Lens	3.6 to 91 mm
Light sensitivity	0.2 lux /F1.65 , 0.001 lux/DSS , 0.1 lux/ICR Or 0.07lx (1/3 sec); /0.01lx: ICR-ON-Mode
Signal-to-noise ratio	More than 50 dB
Auto Gain Control	Required
Wide Dynamic range	YES
Compression	H.264
Max. resolution PAL / NTSC	4CIF,704x576
Max. frame rate	25 fps AT 4CIF
Presets	32(min)
Pan Range	360 deg continuous
Tilt Range	180deg with Auto Flip
Network interface	Ethernet 10/100 Mbps
Operating temperature	0–50deg
Operating Relative humidity	20%-80% relative humidity
Environment	Indoor / Outdoor (IP65) with inbuilt heater/blower
Mounting options	Wall mount/Pole mount/Ceiling mount
Certification	CE, FCC /UL
Surge suppression	Yes, inbuilt or external
Onvif conformance	Yes

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**4.1.2 Type 2 Fixed camera C/CS Mount with 5-50mm Auto iris , vari focal lens and ex proof housing.**

Sensor type	1/3" Exview HAD CCD/ Super HAD CCD
Lens	5-50mm vari focal lens, auto iris
Signal-to-noise ratio	48dB or better
Auto Gain Control	Required
Compression	H.264 compression through encoder
Max. resolution PAL	4CIF,704x576
Max. frame rate	25 fps AT 4CIF
Network interface for encoder	Ethernet 10/100 Mbps
Operating temperature	-10 degC to + 55 deg C
Operating Relative humidity	20-80% relative humidity, non condensing
Sensitivity	0.15Lux Color, 0.05Lux Mono
Camera Certification	CE/UL
Housing Construction	Aluminum, with Sunshield
Mounting	Wall/Pole Mounting
EXPLOSION PROOF Housing Certification	UL/ ATEX,CCOE, EEx d IIB, IP 66

**\*Explosion Proof Housing should be UL/ATEX,EEx d IIB,IP66 certified / from the same manufacturer of camera with explosion proof compliance.**

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	<b>4.3 Option-1 : Primary server with Secondary storage server-NVRs</b>  <b>4.3.1 Primary Digital Server for the CCTV System</b> The Primary Server will be the central component within the plant wide Video Surveillance Management system and it will be the primary interfacing unit between the video streamers / cameras. The main functions of the Primary Server will be as follows: <ul style="list-style-type: none"> <li>• Transmit previously stored video recordings to monitor stations when requested.</li> <li>• Record video and alarm upon request.</li> <li>• Record video upon alarm trigger.</li> <li>• Schedule recordings and video motion detection</li> <li>• Provide search engines for recordings</li> <li>• Configuration of CCTV management system and networking.</li> <li>• Execution of the Video Motion Detection Algorithm</li> <li>• Recording of frames per second will be 0-25 regardless of the number of streams.</li> <li>• Time synchronization with the plant GPS/Server.</li> </ul>
	<b>4.3.2 Secondary Digital Video NVRs / Storage Servers</b> <ul style="list-style-type: none"> <li>• Secondary Digital Video will be provided for geographically distributed areas of the plant.</li> <li>• System will have the facility for moving the stored data from HDD to DVD disks through client application.</li> <li>• System will have the facility to playback the data either from the HDD or from the DVD disk through client application.</li> <li>• Each NVR/Storage server will be designed to store video from 128 number of cameras(min) at CIF &amp; 25fps for 15 days</li> </ul>
	<b>4.4 Option-2: Management server and recording server with iSCSI storage</b>  <b>4.4.1 Video Management System</b> The management server software will provide management, monitoring, and control of the entire system. The management server software will typically be installed on a server-class computer, but may be installed, with all the other video management software modules on one workstation. The management server will also maintain data stream management, alarm management, priority management, central logbook, central configuration and user management.  Software updates to the operator client and configuration client will be automatically deployed from the management server.



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**4.4.2 Recording Manager System**

The RECORDING MANAGER will be an optional package of the installation program of the VMS. The video management system will be capable of managing multiple RECORDING Managers. The RECORDING MANAGER will be configured from the VMS configuration client. It will be possible to assign encoders and IP cameras to it. The recording parameters will be configured in the recording tables of the VMS configuration program. These settings will be replicated into the devices from the management server. The RECORDING MANAGER will manage exclusively the encoders, IP-Cameras, Streaming Gateways, and the supported iSCSI storage systems. It will offer system wide recording monitoring and management of iSCSI storage, video servers and cameras. The RECORDING MANAGER will support the encoders and cameras to directly stream the data to the iSCSI storage. The RECORDING MANAGER will provide Load balancing for storage part. The RECORDING MANAGER will provide flexible retrieval of recordings. It will be able to determine on which iSCSI disk array data from each camera or encoder has been stored. It will be possible to secure the access to the RECORDING MANAGER software with a password. This will be done in the configuration client.

The RECORDING MANAGER software will provide status monitoring information as a web interface. The following information will be provided:

- Uptime of the RECORDING MANAGER software
- Bit rate information for the recorded data
- Retention times per camera
- Status on recording and storage

The video management system will allow configuring if playback of recordings is streamed through the RECORDING MANAGER or is streamed directly from the iSCSI storage.

The video management system will support to retrieve the playback information, i.e. from which iSCSI storages to retrieve the video, audio and meta-data, either from the Video Recording Manager or directly from the IP encoder or camera. Playback information directly from the IP encoder or camera is limited in time and will be used while the RECORDING MANAGER is not available to increase the reliability of the video management system.

**4.4.3 IP Video Storage System - iSCSI Storage Box**

The IP Video Storage System will be an embedded, all-in-one IP Video Storage subsystem that provides “plug-and-play” iSCSI-based recording and management. The IP Video Storage Array will be a pre-configured and pre-installed iSCSI disk array. The Storage array will be provided recording for 15days. The IP Video Storage Array will be a 2 U rack-mount chassis with eight (8) hot swappable, 3 Gbps SATA-II hard disk drives with RAID-5 protection. The IP Video Storage Array will be configured with 8 x 2 TB , 24 x 7 hard disk drives in RAID-5 configuration and two (2) redundant 1 Gb network interfaces.

**4.5 Central archival System for CCTV**

Central archival system will sit on the same LAN as the CCTV Servers and store recorded data. This will have at least 15 days storage for all (60) cameras at CIF and 12 fps resolution. The archival mechanism is to have 15 days video backup. Starting date will be 30 days back till 15 days back from the current date. Backup can be taken on any other media.

**4.5.1 Minimum Requirements for Central archival System :** Specification will be same as NVR / iSCSI being offered. However storage requirement to meet the above.

**Camera Management software and licenses to handle system upto 150 cameras with 20% spare are to be supplied and from same Camera Manufacturer-OEM or Corporate edition license from Genetec/Milestone/Nice.**



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**5.0 Minimum Hardware & Software Requirements for the Primary /Secondary-Storage Servers**

– For Option1

Sl.	FEATURE	PRIMARY SERVER	SECONDARY SERVERS /NVR
1.	Make	HP / IBM-Lenovo / DELL / Camera OEM	HP / IBM-Lenovo / DELL / Camera OEM
2.	Operating system	Windows 2008 (or latest version) / Linux / applicable Server standard	Windows 2008 (or latest version) / Linux / applicable Server standard
3.	Processor	Quad-Core Intel E5-2403 Series Processors	Intel dual-core processor 3.1 GHz or better
4.	L2 cache	1X10MB (min)	4MB(min)
5.	RAM	8 GB ,1333 MHz	4 GB ,1333 MHz
6.	Hard disk	RAID 5 implementation, 72Gb 10K SFF SAS Hot swappable (Minimum of 3 disks) or better	To be as per the storage requirement(minimum) to store video as per spec
7.	Monitor	24" TFT LCD (minimum)	
8.	Input voltage	240 V AC 50 Hz	
9.	Mounting	Rack Mount	
10.	Ethernet Card	Two (2) Giga Byte Ethernet with RJ45 Ports.	
11.	USB Port	Minimum of two(4) USB port	
12.	Keyboard & Mouse	USB or PS/2	
13.	System management	Server will have the system management software feature which can monitors the health of the server and gives a periodical report	

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**6.0 Minimum Hardware & Software Requirements for the Management server and Recording server  
( for Option 2)**

Sl.	FEATURE	Management Server	Recording server
1.	Make	HP / IBM-Lenovo / DELL / Camera OEM	HP / IBM-Lenovo / DELL / Camera OEM
2.	Operating system	Windows 2008 (or latest version) / Linux / applicable Server standard	Windows 2008 (or latest version) / Linux / applicable Server standard
3.	Processor	Intel dual-core processor 3.1 GHz or better	Intel Quad-Core Intel Xeon Processor E5430 (2.66 GHz, 1,333 FSB) or better
4.	RAM	8 GB ,1333 MHz(min)	8 GB ,1333 MHz(min)
5.	Hard disk	3*300GB 10K RPM, SAS 2.5 " Hot Plug Hard Drive - RAID 5 or better and free disk space 50GB min.	3*300GB 10K RPM, SAS 2.5 " Hot Plug Hard Drive - RAID 5 or better and free disk space 50GB min
6.	Monitor	24" TFT LCD (minimum)	
7.	Input voltage	240 V AC 50 Hz	
8.	Mounting	Rack Mount	
9.	Ethernet Card	Two (2) Giga Byte Ethernet with RJ45 Ports.	
10	USB Port	Minimum of two(4) USB port	
11	Keyboard & Mouse	USB or PS/2	
12	System management	Server will have the system management software feature which can monitors the health of the server and gives a periodical report	

**6.1 iSCSI Storage device along with Option-2 configuration**

Sl.	FEATURE	iSCSI Storage device with RAID-5 configuration
1		Secondary Digital Video will be provided for geographically distributed areas of the plant.
1	Make	HP / IBM-Lenovo / DELL /CAMERA OEM/Net App
3	Hard disk	Minimum storage will be designed to store video from 128 number of cameras(min) at CIF & 25fps for 15 days

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**7.0 Monitor Unit:**

The monitor unit will be used to control the camera unit viewing location as well as selecting image of interest from different camera unit or monitors. The system elements will be able to communicate on Ethernet network. Six numbers of 24" TFT monitoring stations will be used in plant areas.

The system will be able to permit online selection of :

- Camera units , Monitors , No. of views on one monitor, Pan-tilt control, Focus and zoom operating for each camera unit.
- All required hardware and software to integrate the CCTV with LVS(Large Video Screen)

S.No	Feature	Requirement
<b>PC</b>		
1.	Operating system	Windows® 7 Professional 64-bit (WOW64mode) OR Windows® 7 Professional 32-bit
2.	Processor	Intel ® i5 750 2.66 GHz or better
3.	System memory	4GB 1333MHz SDRAM memory
4.	Hard disk	2 x 160 GB
5.	Combo drive	Latest DVD +/- RW
6.	Graphic Adapter	NVIDIA 1GB Independent Graphic Card
7.	Input voltage	240 V AC 50 Hz
8.	keyboard	Standard qwerty keyboard

<b>Monitor</b>		
1.	24" TFT Monitor	MAX RESOLUTION - 1920 x 1080 PIXELS, CONTRAST RATIO - 1000:1 INTERFACE - VGA & DVI-D

**8.0 Video Management Software (VMS)**

Specification for the VMS is as below

At the core of the IP video solution, the VMS server software will have the following characteristics:
The host server(s) will be stand-alone or integrated products from a recognized IT industry leader
Storage of captured video will be on industry-standard storage devices, iSCSI/eSATA/NetApp or other. Aggregate storage will scale independently and without limit to meet extensive video application requirements.
The VMS Software will be compatible with a Windows®2008 Server operating system.
The VMS will offer integration with leading facility access control and security automation systems.
<b>8.1 Networking features of VMS</b>
The VMS host server(s) will connect to an enterprise LAN or WAN network via a Gigabit Ethernet connection.
The client viewing and configuration applications will operate on workstations connected (locally or remotely) to the LAN/WAN, and will communicate with the VMS across this network. The VMS host server(s) and client applications will communicate using the TCP/IP protocol.
The VMS host server(s) will operate using static IP addressing
The VMS will offer bandwidth limiting such that video data traffic on this network will not exceed a preset maximum when distributing live video or delivering recorded video. Administrators will have the ability to program this bandwidth limit as part of the customizable user privileges offered by the VMS software

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**8.2 System Security and Reliability**

The VMS will provide the following system-wide IT defenses and security capabilities:

Each VMS host server will be capable of being deployed 'behind' a standard and likely existing LAN/WAN security firewall.

The VMS will support multiple levels of user and administrator password authentication and privileges management to control access to the system. A fully configurable matrix of user accounts, user groups and user privileges will be supported.

Each VMS will keep a running log of all user access. These logs will be retrievable by authorized administrators, but no user will be able to remove entries from a log.

**8.3 General System features and functions**

The VMS will provide a comprehensive set of video management features and capabilities. Capabilities not noted to this point will include but not be limited to the following:

**8.4 Alarm Notification**

The VMS will distribute notification of alarms to clients who have requested notification. All video associated with the alarm will be displayed automatically on receipt of an alarm. Audible and visual alarm cues will be configurable. System will be able to trigger videos on e map during alarm condition.

**8.5 Playing Back Video**

Retrieved video will be displayed automatically in a window. It will be possible to display the playback window beside the live video window. A date/time stamp will be shown with the video and updated for each frame that is displayed.

It will be possible to playback multiple cameras simultaneously for all cameras at D1/4CIF resolution.

**8.6 Playback Controls**

1. When a playback window is selected, the following controls will be made available to control the playback of the video:

Play – forward and reverse.

Pause.

Single frame – forward and reverse.

Move to beginning to ending of video segment.

The speed of playback will be variable, including or 1/2x, 1/4x, 2x, and 4x normal speed. The recorded video will also be capable of being navigated quickly using a shuttle search (slide bar). Video frames will be displayed while the slide bar is being moved to assist in finding the frame of interest.



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**8.7 PTZ control**

2. The VMS will allow for connection to IP as well as analog PTZ cameras. Control of these cameras will be through a physical desktop PC connection to a PTZ controller (keypad/joystick) or through on-screen software controls. On-screen software controls will include direction of camera movement, zoom, focus and configuration of camera preset locations.

**Recorded Information**

The information recorded on a VMS server will consist of the following:

Compressed video.

Compressed audio.

Time stamp consisting of date and time with resolution in seconds.

Associated event information.

**Recording Continuously**

The VMS will be capable of recording continuously on each video and audio input.

**8.8 Recording On-Event**

1. The VMS will be able to record any video input (and associated audio if desired) in response to an external alarm. The duration of recording on each alarm will be from 1 to 900 seconds. There will be no hard association of alarm to camera or audio source. Any alarm can trigger recording on any or all cameras and audio inputs.

2. Optionally, any camera will be programmable to record at up to the maximum capture rate (FPS) available from the system in response to an alarm.

3. Events that trigger recording will include:

Any external closed current loop device connected to an IP camera or Encoder (e.g., door sensor, motion sensor, etc.)

Motion in the video image (in the image overall, or in individual and configurable 'masked' areas of the image, with configurable sensitivity settings)

Video motion detection will be tunable using full screen sensitivity setting to simplify configuration or using a user definable grid for area of interest. Detection of video motion will be capable of being enabled during specific periods of the day according to a pre-determined schedule.

**8.9 Recording on Schedules**

1. The VMS will be capable of executing **10 number** of internal recording schedules defined by the administrator. Schedules will be remotely configurable and control the following actions:

Amount of allocated storage (any combination of cameras for any duration from 1 hour to 90 days)

Monitoring of physical alarms (during specified periods)

Monitoring of motion alarms (during specified periods)

The system will be able to support Variable Bit Rate (VBR) for optimum band width utilization.


Moving of a PTZ unit to a predefined position

**8.10 Search and Retrieval of Recordings**

1. The search function will allow multiple VMS locations and cameras to be specified and searched simultaneously.

2. Recorded video will be searchable by entering a range of times and selecting the camera of interest or recording sector or both. The user will be able to further refine this range by a simple "click-and-drag" operation, and not have to re-enter any search parameters.

3. The search function will allow any duration of video to be retrieved.

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		<p><b>8.11 Security Sealing Video Evidence</b></p> <p>A video clip from a live or playback video window will be capable of being saved to the local PC or other network storage location in an industry-standard file format <b>by exporting</b>. The captured information will include the video clip itself, any audio data if recorded, and associated location, camera, time, date and event details.</p>
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		<p><b>8.14 Video Loss Detection</b></p> <p>The VMS will constantly monitor all video inputs for a synchronization signal and, if enabled, notify the administrator if a signal loss is detected.</p>



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**8.15 Client (User) Software-**

**8.15.1 General**

Cameras, VMS, VMS client in this solution will be developed and maintained by a single manufacturer.

The primary client software will be Windows/linux based®

The primary client application will be a graphical, full-featured software interface with customizable user privileges to various section/tasks of the system.

The software will support up to 4 or more monitors per VMS host server and up to 16 camera views or windows per monitor, in flexible grid arrangements.

The primary VMS client application will provide a comprehensive set of features for searching, retrieving and reviewing stored video, regardless of where on the network the video is stored.

**8.15.2 Handling Alarms**

The primary VMS client application will provide a comprehensive set of features for handling security alarms generated during the surveillance process. These features will include but not be limited to the following:

**8.15.3 Additionally, the activities that can be triggered automatically in response to alarms will include:**

Pop-up of live incident video on defined workstations or video wall monitors.

Orientation of PTZ cameras to specified preset positions.

Initiation of preset camera and map (see following Section) viewing sequences.

Each alarm will also cause an automatic record of all operator response actions to be logged in an interactive folder system that contains links to the specific audio (if applicable) and video record of the incident. Clicking on an alarm will cause that data to be rendered on screen automatically. The log will also include a record of all operator screen activity for post-alarm analysis, personnel reviews or training.

**8.15.4 Integration of Site Maps**

The software will be capable of importing images of floor plans, building or campus layouts or other facility or site geometries.

A series of interactive icons will be provided to deploy on top of these imported map images and enable the following functions:

These icons will be used to indicate the location of each physical camera and its approximate field of view, and of alarm inputs and other security equipment deployed within that map area.

These icons will be implemented by an administrator using simple drag-and-drop movements their mouse.

Once in place, the camera icons will provide a point-and-click interface to launch on demand a live video window from the selected fixed or PTZ camera.



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**9.0 Bill of Material for complete Package**

**9.1 Tentative Bill of Material (BOM) for Camera & Accessories:**

Sl.No	Surveillance components	U#3	Unit Common	Main Plant Common	Mand. Spare	Total Qty	Unit
1	Type 1 Camera: IP PTZ 26 x Speed Dome indoor/outdoor Cameras-With all accessories	21	8	17	1	47	Nos
2	Type 2 Fixed camera C/CS Mount with 5-50mm Auto iris , vari focal lens and ex proof housing / accessories	2	0	2	1	5	Nos
3	Mounting Mechanisms viz., 6Mtr Pole with Mounts / Wall Mounts / Ceiling Mounts, etc., as per requirement <u>with Junction Box</u>	23	8	19	0	50	Set
4	Power supply units	23	8	19	2	52	Set

**9.2 Tentative Bill of Material (BOM) for Panel & Accessories:**

Sl.No	Panels for mounting CCTV electronics : Make as per technical specification	Make	U#3	Unit Common	Main common
1.	Network Panel	BHEL approved makes	1	0	0
2.	Chassis based Layer-3, Redundant Power supply, Ethernet Network solution with 20 * 100BaseTx + 40 * 100BaseFx, Single IP management(to be mounted in network panel a. above)	3COM /Dlink/ Cisco /Digisol / Brocade	1	0	0
3.	24 port fully loaded LIU with splice tray for switch side termination (to be mounted in network panel a. above)	Molex/Digilink/Amp / ADCKrone	3	0	0
4.	Power Distribution Panel	BHEL approved makes	1	0	0

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**9.3 Tentative Bill of Material (BOM) for Server Hardware & Licenses(Common for U#3 & Common):**

<b>9.3.1 OPTION-1 with NVR solution</b>			
1	Primary Digital Video Server for the CCTV System with Video management & licenses for all cameras	Set	One
2	Secondary Digital Video Server for the CCTV System with NVRs for Storage along with recording software & licenses for all cameras, clients as required.	Set	One (min) or As per storage calculation
3	Central Archival system with software.	No	One (min) or As per storage calculation
<b>9.3.2 OPTION-2 with iSCSI solution</b>			
1	Management server for CCTV system.	Set	One
2	Recording server for the CCTV System/iSCSI storage device	Set	One(min)
3	iSCSI storage device.	Set	One(min) or As per storage calculation.
4	Central Archival system	No	One (min) or As per storage calculation
5	Video management & recording software with channel licenses for the cameras, clients, archiving and keyboards as required.	Set	One
<b>9.3.3 Monitor Unit</b>			
1	24" TFT Monitor (Make : HP,DELL,IBM-Lenovo)	Nos	6
2	PC (Make : HP, Dell, IBM-Lenovo)	Nos	6
3	Keyboard & Joystik	Set	1

**9.4 Erection, Laying & Termination**

1	Laying of cables to complete the total activity	NA	Lump sum
2	Fusion splicing of OFC cables / termination of other cables to complete the total activity	NA	Lump sum
3	Supply of junction boxes, earth wire and other accessories like standard brackets, nut-bolts, glands, lugs, conduit sleeves, etc.,	NA	Lump sum
4	Erection of hardware and accessories. Accessories shall mean and include all hardware required to complete the project.	NA	Lump sum

**9.5 Installation & Testing:**

Sl. No.	Brief Description of the Item	Detailed description	Total Qty
1	Installation and commissioning of complete CCTV system	Estimate is 120 man days (for CCTV specialist) and number of site visits shall be as per site conditions. Overall responsibility for project completion shall be with Supplier.	Lump sum
2	Demonstration & performance testing of complete CCTV system	Estimate is 20 man days (for CCTV specialist) and number of site visits shall be as per site conditions. Overall responsibility for project completion shall be with Supplier.	Lump sum

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**9.6 Tentative Bill of Material (BOM) for Network & Accessories (NOT IN THIS SCOPE OF SUPPLY \*):**

	Description/Item	Make	U#3	Unit Comm on	Main Comm on	Mand. Spare	Total Qty	Unit
1*	Ethernet Switch 1*100BaseFX-MMF, 12 * 100BaseT (Industrial Grade)	BHEL approved makes	2	1	1	1	4	Nos
2*	Ethernet Switch 1*100BaseFX-MMF, 4 * 100BaseT (Industrial Grade)	BHEL approved makes	20	4	12	4	36	Nos
3*	Single Mode Media converters (Industrial Grade)	BHEL approved makes	5	5	5	5	20	Nos
4*	Multimode Media converters (Industrial Grade)	BHEL approved makes	0	0	0	0	0	Nos
5*	On-line UPS for Camera (at far away locations), 230VAC, 1 KVA with 1/2 hour backup	BHEL approved makes	0	5	15	0	20	Nos
6*	Industrial Grade Network Enclosure	BHEL approved makes	20	5	15	0	40	Nos

**9.7 Tentative Cable and accessories (Common for U#3 & Common) (NOT IN THIS SCOPE OF SUPPLY \*):**

1*	Power cable 3X1.5sqmm Armoured	BHEL approved makes	10kms
2*	4 fiber 50/125 microns Multi-Mode armoured OFC cable	BHEL approved makes	0 kms
3*	4 fiber 9/125 microns Single-Mode armoured OFC cable	BHEL approved makes	28 kms
4*	6 Port fully loaded LIU with splice tray for Field side termination	BHEL approved makes	40
5*	UTP cable (CAT – 6)	BHEL approved makes	10 rolls(3000mtrs)
6*	STP cable(from junction box to camera)	BHEL approved makes	300mtrs
7*	Single Mode SC/ST Patch Cable	BHEL approved makes	100
8*	Multi Mode SC/ST Patch Cable	BHEL approved makes	0

**9.8 Hardware Supply & Erection scope (NOT IN THIS SCOPE OF SUPPLY \*):**

Sl. No.	Brief Description of the Item	Make / Model	Detailed description	Total Qty in Mtrs
1*	Supply of hardware and accessories.	Reputed brand with ISI Quality	1. GI Pipe 1½" with accessories. 2. Flexible GI pipe 1" with accessories. 3. GI solid Cable Tray 100mm (W) * 25mm (H) with closing cover and accessories.	2000 1000 600

Note:

1. The erection activity shall be in line with the IP protection class requirements as per descriptions / camera allocation as mentioned in section 3.1



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**12.0 DOCUMENTS TO BE FURNISHED**

**12.1 Along with the Offer (in one set)**

1. Single line diagram for CCTV system based on function.
2. GA drawings
3. Technical write-up.
4. Complete Bill of Material with Make & Model
5. Data sheet of complete system / subsystem
6. Wiring diagram / interconnecting arrangement details

**12.2 After placement of Purchase Order:**

(for BHEL / CUSTOMER approval - in 6 sets)

1. Single line diagram for CCTV system based on function.
2. GA drawings
3. Technical write-up.
4. Complete Bill of Material with Make & Model
5. Mandatory spares & commissioning spares list
6. Data sheet of complete system / subsystem
7. Wiring diagram/interconnecting arrangement details
8. Clause-wise compliance / deviation list
9. Quality Plan (format will be given by BHEL)

**12.3 Before Dispatch: (4 sets for review/acceptance)**

1. Test Certificates as per specification / approved QP
2. Preliminary Instruction / O&M Manual


**12.4 Final approved drawings / documents (4 sets) (At the time of Dispatch)**

1. Instruction / O&M Manual
2. Bill of Material
3. Data Sheets
4. Drawings GA / layout / wiring / interconnection / schematic, etc.
5. Technical literatures / Catalogs

These documents shall be in final as-built / approved status. Apart from above one (01) set of Instruction / O&M Manual shall also be sent directly to site along each system under each project.

One (01) set soft copy of offer as well as Final document shall also be provided to BHEL. The soft copy shall be in Floppy or CD-ROM media and shall be compatible with Microsoft Windows format with drawing / documents in AutoCad-14 / MS-Word / MS-Excel / Acrobat / HTML formats.

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		<p><b>13.0 NOTES:</b></p> <ol style="list-style-type: none"> <li>1. Material has to be directly sent to site and service shall be provided at site.</li> <li>2. Project details and address will be intimated at the time of Enquiry / PO.</li> <li>3. Suppliers should please note that the charges for services will be paid to supplier on pro-rata basis upon submission of certificate by BHEL-Site office / BHEL-Engg.</li> <li>4. Advance intimation of one week will be given for deputing personnel to site.</li> <li>5. <b>Vendor must furnish, all documents, in line with specification along with offer. Offer with deviations / incomplete offers (without documents / not relevant documents) will be rejected without any notice.</b></li> <li>6. Even if BHEL places split orders, the total overall responsibility of system integration at site for satisfactory operation lies with system integrator only.</li> <li>7. Pre-Despatch Inspection will be done by BHEL / Customer at supplier works for local scope of supply. Supplier should make all the necessary arrangements.</li> <li>8. Supplier shall warrant that the system will be free from defect in design, material and workmanship for a period of 24 months commencing upon the completion of commissioning (includes laying, termination and testing) of the cable (segment-wise) or 36 months from the date of dispatch whichever is earlier. The liability will be limited to replacement of defective parts arising solely from faulty design, materials and /or workmanship. The above warranty should cover for UPS &amp; Batteries.</li> </ol>
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**15.0 List of Documents/drawings submitted along with BID.**

The bidder shall list the documents/drawings submitted along with the bid in line with requirements.

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Sl No	Document	Vendor compliance
1	Data sheet of Camera & Accessories	
2	Data sheet of Server / storage Hardware & Licenses	
3	Data sheet of Network components	
4	Data sheet of UPS	
5	Data sheet Monitor Unit	
6	Data sheet of cables (Fiber & power)	
7	Data sheet/GA of Panel & Accessories	



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		REVISION: 00	REVIEWED		
			BNSHARMA / D PRAKASH		
			PREPARED	ISSUED	DATE
			Tanvir Singh	CE / ENGG (HMI) - 404	15.05.2015



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REV No.	DATE	NATURE OF CHANGE	REASON	PREPARED BY	REVIEWED BY
00	15.05.2015	FIRST ISSUE	---	TVS	BNS/DP
01	02.08.2015	SECOND ISSUE	Minor correction for clarity	TVS	BNS/DP

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## 2.0 Power Supply Arrangement

Scope of supply includes a Networking Panel housing all the Switches required for interfacing of the IP Cameras and a power distribution panel to cater to IP Surveillance requirements. The Networking Panel and Power distribution panels for Surveillance equipment will be located in Control room. Redundant feeders of UPS system (240V±10% AC, 1 phase, 50 Hz) will be used in Control Room area to Power Distribution Panel of supplier. For all other areas standalone UPS system (if UPS supply not available) based on the rating of the hardware will be supplied..

A power distribution panel and power distribution equipment to cater to various Video Surveillance system components located in the control room and as well as for cameras and accessories located in the main plant area and all other Surveillance requirements. The Power Distribution Panel is to be located in the Control Room Annexure.

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**3.0 Design and Technical Requirements**

a) The IP Surveillance system will cater to 3 logical areas – a) Unit 1 & 2 Cameras, b) Unit Common Area cameras and c) Plant Common Area cameras

CCTV system envisaged will have a Primary Server(Video Management) along with Network attached storage /iSCSI storage devices/NVR, for Unit and common area. . The prime application program will reside at Primary Digital Video Server and will interface Secondary Digital Video Server/iSCSI storage devices & Cameras for video and audio switching and control of the system. The primary server will have the capability to add future secondary servers or iSCSI storage devices to support future expansion.

b) An Optical fiber network for the proposed Video Surveillance system has been envisaged.

c) The Surveillance system will have User based authorization to view and control cameras from any station. Surveillance System will store alarm and event activated recording. Features will be provided only to capture most needed videos. It will also have pre-recording feature so that videos prior to the event occurring can also be stored. Respective unit area camera monitoring and control will be carried out from respective unit and for the common area monitoring & control will be possible from stations of either unit.

d) The system will have following minimum controlling capability:

- PTZ control with Iris level control, pre-positioning control for at least 50 cameras.
- System will be able to simultaneously record and play back.
- Both manual and automatic
- It will be possible to view live video from anywhere on the CCTV network, including over wide area network connections, through firewalls & routers. The live output from cameras will be viewed through a series of displays. All requisite client's software to view and control cameras.
- The Video Server / Recorder will have sufficient disk space for online video storage

e) The system will have the following minimum features:

- Video recording with features like Operator Activated Recordings, Alarm and Event Activated Recordings, Scheduled Recordings (including 24hr recording), Video Motion Detection & Recordings and Exporting of a Recorded video into Native format file.
- Video features like Single camera viewing, Quad viewing, Sequence viewing.
- It will be possible to take back up of recorded video on any media CD/DVD.
- Tools for Searching Records
- Pass word protected Security levels for the monitoring and control of cameras to authorized users.
- Antivirus software to be installed on server/workstations supplied along with this package.
- Vendor to provide suitable Network monitoring facility to monitor the CCTV system.

f) **List / location of Cameras for Project:**

Requirements for camera units with protection class and their tentative locations.

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Video Surveillance system will be PTZ camera mechanism, integrated to a Digital Video Management Server for video switching, control and recording functions.

**3.1 List of Cameras with Type and tentative Locations.**

**3.1.1 List of cameras to be provided at Main Plant Unit 3 and Common Areas:**

Sl.No	Type Of Camera & protection Class	Location	No of Cameras	Distance Of cameras-DCS -CCR meters.
1	High resolution CCD Camera with IP65	TG Hall Elevation 17.0 meter	2	210
2	High resolution CCD Camera with IP65	TG Hall Elevation 8.5 meter	2	190
3	High resolution CCD Camera with IP65	TG Hall Elevation 0 meter	2	210
4	High resolution CCD Camera with IP65	MOT Room	2	145
5	High resolution CCD Camera with IP65	Raw Coal Feeder	4	2500
6	High resolution CCD Camera with IP65	Air Heater	2	280
7	High resolution CCD Camera with IP65	ESP/VFD Field Area	2	320
8	High resolution CCD Camera with IP65	CER	2	100
9	High resolution CCD Camera with IP65	Control Room	2	110
10	High resolution CCD Camera with IP65	Cable Gallery at 3.5 meter	2	125
11	High resolution CCD Camera with IP65	Cable Gallery at 8.5 meter	2	115
12	High resolution CCD Camera with IP65	Cable Gallery at 13.5 meter	2	105
13	High resolution CCD Camera with IP65	Switch Gear Room	4	150
14	<b>High resolution CCD Camera with IP65*</b>	<b>Transformer Bay</b>	<b>1</b>	210
15	<b>High resolution CCD Camera with IP65*</b>	<b>Boiler Firing Floor</b>	<b>1</b>	260
16	High resolution CCD Camera with IP65	Control Room Entry	2	90
		Total for unit and Common Areas	<b>34</b>	

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**II. BALANCE OF PLANT AREAS (UNDER UNIT AREA ZONE)**

Sl.No	Type Of Camera & protection Class	Location	No of Cameras	Distance Of cameras-DCS -CCR meters.
1	High resolution CCD Camera with IP65	Ash Water pump House	2	530
2	High resolution CCD Camera with IP65	CW Pump House	2	530
3	High resolution CCD Camera with IP65	PT Plant	2	780
4	High resolution CCD Camera with IP65	Transport Air Compressor (AHP)	2	520
		<b>Total</b>	<b>8</b>	
List of Locations in COMMON PLANT AREA				
1	<b>High resolution CCD Camera with IP65*</b>	FOPH	1	360
2	High resolution CCD Camera with IP65	Main Entry Gate	1	1400
3	High resolution CCD Camera with IP65	DM Plant	1	420
4	High resolution CCD Camera with IP65	Switch Yard	1	380
5	High resolution CCD Camera with IP65	CHP Control Room	1	1100
6	High resolution CCD Camera with IP65	Effluent Treatment Plant	1	800
7	High resolution CCD Camera with IP65	Train Entry & Exit	1	1040
8	<b>High resolution CCD Camera with IP65 *</b>	Oil Decanting	1	690
9	High resolution CCD Camera with IP65	Wagon Tripler	3	1150
10	High resolution CCD Camera with IP65	Coal Handling Plant Area	2	1050
11	High resolution CCD Camera with IP65	Technical Building Entry	1	<b>270</b>
12	High resolution CCD Camera with IP65	Stores	2	<b>2100</b>
13	High resolution CCD Camera with IP65	Workshop	1	<b>480</b>
14	High resolution CCD Camera with IP65	DG Building	1	<b>310</b>
		<b>Total</b>	<b>18</b>	
		<b>Grand Total</b>	<b>60</b>	

- Camera with explosion proof accessories.

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	 <p>बि. एच. ई. एल. A4-11</p>	<b>Purchase Specification For RPCL-Yeramarus – CCTV Package</b>	<b>PS/404/2599</b> <b>REV : 01</b> <b>Page 10 of 29</b>
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		<p><b>4.0 DETAILED DESCRIPTION OF THE SYSTEM COMPONENTS:</b>  The Video Surveillance system envisaged for the plant will be built upon industry-standard. The hardware components will be readily available in the market. Supplier will provide the following minimum items for completeness of the system.</p>
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**4.1.1 Type 1 Camera: IP PTZ Speed Dome indoor/Outdoor Cameras-With all accessories**

Sensor type	1/4" HAD CCD
Zoom – optical	26 x or better
DIGITAL ZOOM	YES
Lens	3.6 to 91 mm
Light sensitivity	0.2 lux /F1.65 , 0.001 lux/DSS , 0.1 lux/ICR Or 0.07lx (1/3 sec); /0.01lx: ICR-ON-Mode
Signal-to-noise ratio	More than 50 dB
Auto Gain Control	Required
Wide Dynamic range	YES
Compression	H.264
Max. resolution PAL / NTSC	4CIF,704x576
Max. frame rate	25 fps at 4CIF
Presets	32(min)
Pan Range	360 deg continuous
Tilt Range	180deg with Auto Flip
Network interface	Ethernet 10/100 Mbps
Operating temperature	0–50deg
Operating Relative humidity	20%-80% relative humidity
Environment	Indoor / Outdoor (IP65) with inbuilt heater/blower
Mounting options	Wall mount/Pole mount/Ceiling mount
Certification	CE, FCC /UL
Surge suppression	Yes, inbuilt or external
Onvif conformance	Yes

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**4.1.2 Type 2 Fixed camera C/CS Mount with 5-50mm Auto iris , vari focal lens and ex proof housing.**

Sensor type	1/3" Exview HAD CCD/ Super HAD CCD/CEMOS
Lens	5-50mm vari focal lens, auto iris
Signal-to-noise ratio	48dB or better
Auto Gain Control	Required
Compression	H.264 compression through encoder
Max. resolution PAL	4CIF,704x576
Max. frame rate	25 fps AT 4CIF
Network interface for encoder	Ethernet 10/100 Mbps
Operating temperature	-10 degC to + 55 deg C
Operating Relative humidity	20-80% relative humidity, non condensing
Sensitivity	0.15Lux Color, 0.05Lux Mono
Camera Certification	CE/ UL
Housing Construction	Aluminum, with Sunshield
Mounting	Wall/Pole Mounting
EXPLOSION PROOF Housing Certification*	UL/ ATEX, EEx d IIB, IP 66

**\*Explosion Proof Housing should be UL/ATEX,EEx d IIB,IP66 certified / from the same manufacturer of camera with explosion proof compliance.**

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**4.2 Camera Housing**

All Type-2 cameras and accessories will be housed in Explosion proof housing made of suitable material from camera OEM.

The Digital Video Management System envisaged for the plant will be built upon open industry-standard.

**4.3 Option-1 : Primary server with Secondary storage server-NVRs**

**4.3.1 Primary Digital Server for the CCTV System**

The Primary Server will be the central component within the plant wide Video Surveillance Management system and it will be the primary interfacing unit between the video streamers / cameras.

The main functions of the Primary Server will be as follows:

- Transmit previously stored video recordings to monitor stations when requested.
- Record video and alarm upon request.
- Record video upon alarm trigger.
- Schedule recordings and video motion detection
- Provide search engines for recordings
- Configuration of CCTV management system and networking.
- Execution of the Video Motion Detection Algorithm
- Recording of frames per second will be 0-25 regardless of the number of streams.
- Time synchronization with the plant GPS/Server.

**4.3.2 Secondary Digital Video NVRs / Storage Servers**

- Secondary Digital Video will be provided for geographically distributed areas of the plant.
- System will have the facility for moving the stored data from HDD to DVD disks through client application.
- System will have the facility to playback the data either from the HDD or from the DVD disk through client application.
- Each NVR/Storage server will be designed to store video from 128 number of cameras(min) at CIF & 25fps for 15 days

**4.4 Option-2: Management server and recording server with iSCSI storage**

**4.4.1 Video Management System**

The management server software will provide management, monitoring, and control of the entire system. The management server software will typically be installed on a server-class computer, but may be installed, with all the other video management software modules on one workstation. The management server will also maintain data stream management, alarm management, priority management, central logbook, central configuration and user management.

Software updates to the operator client and configuration client will be automatically deployed from the management server.

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**4.4.2 Recording Manager System**

The RECORDING MANAGER will be an optional package of the installation program of the VMS.  
 The video management system will be capable of managing multiple RECORDING Managers.  
 The RECORDING MANAGER will be configured from the VMS configuration client. It will be possible to assign encoders and IP cameras to it.  
 The recording parameters will be configured in the recording tables of the VMS configuration program. These settings will be replicated into the devices from the management server.  
 The RECORDING MANAGER will manage exclusively the encoders, IP-Cameras, Streaming Gateways, and the supported iSCSI storage systems. It will offer system wide recording monitoring and management of iSCSI storage, video servers and cameras.  
 The RECORDING MANAGER will support the encoders and cameras to directly stream the data to the iSCSI storage.  
 The RECORDING MANAGER will provide Load balancing for storage part.  
 The RECORDING MANAGER will provide flexible retrieval of recordings. It will be able to determine on which iSCSI disk array data from each camera or encoder has been stored.  
 It will be possible to secure the access to the RECORDING MANAGER software with a password. This will be done in the configuration client.

The RECORDING MANAGER software will provide status monitoring information as a web interface. The following information will be provided:

- Uptime of the RECORDING MANAGER software
- Bit rate information for the recorded data
- Retention times per camera
- Status on recording and storage

The video management system will allow configuring if playback of recordings is streamed through the RECORDING MANAGER or is streamed directly from the iSCSI storage.

The video management system will support to retrieve the playback information, i.e. from which iSCSI storages to retrieve the video, audio and meta-data, either from the Video Recording Manager or directly from the IP encoder or camera. Playback information directly from the IP encoder or camera is limited in time and will be used while the RECORDING MANAGER is not available to increase the reliability of the video management system.

**4.4.3 IP Video Storage System - iSCSI Storage Box**

The IP Video Storage System will be an embedded, all-in-one IP Video Storage subsystem that provides “plug-and-play” iSCSI-based recording and management. The IP Video Storage Array will be a pre-configured and pre-installed iSCSI disk array. The Storage array will be provided recording for 15days. The IP Video Storage Array will be a 2 U rack-mount chassis with eight (8) hot swappable, 3 Gbps SATA-II hard disk drives with RAID-5 protection. The IP Video Storage Array will be configured with 8 x 2 TB , 24 x 7 hard disk drives in RAID-5 configuration and two (2) redundant 1 Gb network interfaces.

**4.5 Central archival System for CCTV**

Central archival system will sit on the same LAN as the CCTV Servers and store recorded data. This will have at least 15 days storage for all (60) cameras at CIF and 12 fps resolution. The archival mechanism is to have 15 days video backup. Starting date will be 30 days back till 15 days back from the current date. Backup can be taken on any other media.

**4.5.1 Minimum Requirements for Central archival System :** Specification will be same as NVR / iSCSI being offered. However storage requirement to meet the above.

**Camera Management software and licenses to handle system upto 150 cameras with 20% spare are to be supplied and from same Camera Manufacturer-OEM or Corporate edition license from Genetec/Milestone/Nice.**



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**5.0 Minimum Hardware & Software Requirements for the Primary /Secondary-Storage Servers**

– For Option1

Sl.	FEATURE	PRIMARY SERVER	SECONDARY SERVERS /NVR
1.	Make	HP / IBM-Lenovo / DELL / Camera OEM	HP / IBM-Lenovo / DELL / Camera OEM
2.	Operating system	Windows 2008 (or latest version) / Linux / applicable Server standard	Windows 2008 (or latest version) / Linux / applicable Server standard
3.	Processor	Quad-Core Intel E5-2403 Series Processors	Intel dual-core processor 3.1 GHz or better
4.	L2 cache	1X10MB (min)	4MB(min)
5.	RAM	8 GB ,1333 MHz	4 GB ,1333 MHz
6.	Hard disk	RAID 5 implementation, 72Gb 10K SFF SAS Hot swappable (Minimum of 3 disks) or better	To be as per the storage requirement(minimum) to store video as per spec
7.	Monitor	24" TFT LCD (minimum)	
8.	Input voltage	240 V AC 50 Hz	
9.	Mounting	Rack Mount	
10.	Ethernet Card	Two (2) Giga Byte Ethernet with RJ45 Ports.	
11.	USB Port	Minimum of two(4) USB port	
12.	Keyboard & Mouse	USB or PS/2	
13.	System management	Server will have the system management software feature which can monitors the health of the server and gives a periodical report	

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**6.0 Minimum Hardware & Software Requirements for the Management server and Recording server  
( for Option 2)**

Sl.	FEATURE	Management Server	Recording server
1.	Make	HP / IBM-Lenovo / DELL / Camera OEM	HP / IBM-Lenovo / DELL / Camera OEM
2.	Operating system	Windows 2008 (or latest version) / Linux / applicable Server standard	Windows 2008 (or latest version) / Linux / applicable Server standard
3.	Processor	Intel dual-core processor 3.1 GHz or better	Intel Quad-Core Intel Xeon Processor E5430 (2.66 GHz, 1,333 FSB) or better
4.	RAM	8 GB ,1333 MHz(min)	8 GB ,1333 MHz(min)
5.	Hard disk	3*300GB 10K RPM, SAS 2.5 " Hot Plug Hard Drive - RAID 5 or better and free disk space 50GB min.	3*300GB 10K RPM, SAS 2.5 " Hot Plug Hard Drive - RAID 5 or better and free disk space 50GB min
6.	Monitor	24" TFT LCD (minimum)	
7.	Input voltage	240 V AC 50 Hz	
8.	Mounting	Rack Mount	
9.	Ethernet Card	Two (2) Giga Byte Ethernet with RJ45 Ports.	
10	USB Port	Minimum of two(4) USB port	
11	Keyboard & Mouse	USB or PS/2	
12	System management	Server will have the system management software feature which can monitors the health of the server and gives a periodical report	

**6.1 iSCSI Storage device along with Option-2 configuration**

Sl.	FEATURE	iSCSI Storage device with RAID-5 configuration
1		Secondary Digital Video will be provided for geographically distributed areas of the plant.
1	Make	HP / IBM-Lenovo / DELL /CAMERA OEM/Net App
3	Hard disk	Minimum storage will be designed to store video from 128 number of cameras(min) at CIF & 25fps for 15 days

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**7.0 Monitor Unit:**

The monitor unit will be used to control the camera unit viewing location as well as selecting image of interest from different camera unit or monitors. The system elements will be able to communicate on Ethernet network. Six numbers of 24" TFT monitoring stations will be used in plant areas.

The system will be able to permit online selection of :

- Camera units , Monitors , No. of views on one monitor, Pan-tilt control, Focus and zoom operating for each camera unit.
- All required hardware and software to integrate the CCTV with LVS(Large Video Screen)

S.No	Feature	Requirement
<b>PC</b>		
1.	Operating system	Windows® 7 Professional 64-bit (WOW64mode) OR Windows® 7 Professional 32-bit
2.	Processor	Intel ® i5 750 2.66 GHz or better
3.	System memory	4GB 1333MHz SDRAM memory
4.	Hard disk	2 x 160 GB
5.	Combo drive	Latest DVD +/- RW
6.	Graphic Adapter	NVIDIA 1GB Independent Graphic Card
7.	Input voltage	240 V AC 50 Hz
8.	keyboard	Standard qwerty keyboard

<b>Monitor</b>		
1.	24" TFT Monitor	MAX RESOLUTION - 1920 x 1080 PIXELS, CONTRAST RATIO - 1000:1 INTERFACE - VGA & DVI-D

**8.0 Video Management Software (VMS)**

Specification for the VMS is as below

At the core of the IP video solution, the VMS server software will have the following characteristics:
The host server(s) will be stand-alone or integrated products from a recognized IT industry leader
Storage of captured video will be on industry-standard storage devices, iSCSI/ eSATA/NetApp or other. Aggregate storage will scale independently and without limit to meet extensive video application requirements.
The VMS Software will be compatible with a Windows®2008 Server operating system.
The VMS will offer integration with leading facility access control and security automation systems.
<b>8.1 Networking features of VMS</b>
The VMS host server(s) will connect to an enterprise LAN or WAN network via a Gigabit Ethernet connection.
The client viewing and configuration applications will operate on workstations connected (locally or remotely) to the LAN/WAN, and will communicate with the VMS across this network. The VMS host server(s) and client applications will communicate using the TCP/IP protocol.
The VMS host server(s) will operate using static IP addressing
The VMS will offer bandwidth limiting such that video data traffic on this network will not exceed a preset maximum when distributing live video or delivering recorded video. Administrators will have the ability to program this bandwidth limit as part of the customizable user privileges offered by the VMS software

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**8.2 System Security and Reliability**

The VMS will provide the following system-wide IT defenses and security capabilities:

Each VMS host server will be capable of being deployed 'behind' a standard and likely existing LAN/WAN security firewall.

The VMS will support multiple levels of user and administrator password authentication and privileges management to control access to the system. A fully configurable matrix of user accounts, user groups and user privileges will be supported.

Each VMS will keep a running log of all user access. These logs will be retrievable by authorized administrators, but no user will be able to remove entries from a log.

**8.3 General System features and functions**

The VMS will provide a comprehensive set of video management features and capabilities. Capabilities not noted to this point will include but not be limited to the following:

**8.4 Alarm Notification**

The VMS will distribute notification of alarms to clients who have requested notification. All video associated with the alarm will be displayed automatically on receipt of an alarm. Audible and visual alarm cues will be configurable. System will be able to trigger videos on e map during alarm condition.

**8.5 Playing Back Video**

Retrieved video will be displayed automatically in a window. It will be possible to display the playback window beside the live video window. A date/time stamp will be shown with the video and updated for each frame that is displayed.

It will be possible to playback multiple cameras simultaneously for all cameras at D1/4CIF resolution.

**8.6 Playback Controls**

1. When a playback window is selected, the following controls will be made available to control the playback of the video:

Play – forward and reverse.

Pause.

Single frame – forward and reverse.

Move to beginning to ending of video segment.

The speed of playback will be variable, including or 1/2x, 1/4x, 2x, and 4x normal speed. The recorded video will also be capable of being navigated quickly using a shuttle search (slide bar). Video frames will be displayed while the slide bar is being moved to assist in finding the frame of interest.





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**8.7 PTZ control**

2. The VMS will allow for connection to IP as well as analog PTZ cameras. Control of these cameras will be through a physical desktop PC connection to a PTZ controller (keypad/joystick) or through on-screen software controls. On-screen software controls will include direction of camera movement, zoom, focus and configuration of camera preset locations.

**Recorded Information**

The information recorded on a VMS server will consist of the following:

Compressed video.

Compressed audio.

Time stamp consisting of date and time with resolution in seconds.

Associated event information.

**Recording Continuously**

The VMS will be capable of recording continuously on each video and audio input.

**8.8 Recording On-Event**

1. The VMS will be able to record any video input (and associated audio if desired) in response to an external alarm. The duration of recording on each alarm will be from 1 to 900 seconds. There will be no hard association of alarm to camera or audio source. Any alarm can trigger recording on any or all cameras and audio inputs.

2. Optionally, any camera will be programmable to record at up to the maximum capture rate (FPS) available from the system in response to an alarm.

3. Events that trigger recording will include:

Any external closed current loop device connected to an IP camera or Encoder (e.g., door sensor, motion sensor, etc.)

Motion in the video image (in the image overall, or in individual and configurable 'masked' areas of the image, with configurable sensitivity settings)

Video motion detection will be tunable using full screen sensitivity setting to simplify configuration or using a user definable grid for area of interest. Detection of video motion will be capable of being enabled during specific periods of the day according to a pre-determined schedule.

**8.9 Recording on Schedules**

1. The VMS will be capable of executing 10 number of internal recording schedules defined by the administrator. Schedules will be remotely configurable and control the following actions:

Amount of allocated storage (any combination of cameras for any duration from 1 hour to 90 days)

Monitoring of physical alarms (during specified periods)

Monitoring of motion alarms (during specified periods)

The system will be able to support Variable Bit Rate (VBR) for optimum band width utilization.

Moving of a PTZ unit to a predefined position

**8.10 Search and Retrieval of Recordings**

1. The search function will allow multiple VMS locations and cameras to be specified and searched simultaneously.

2. Recorded video will be searchable by entering a range of times and selecting the camera of interest or recording sector or both. The user will be able to further refine this range by a simple "click-and-drag" operation, and not have to re-enter any search parameters.

3. The search function will allow any duration of video to be retrieved.



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**8.11 Security Sealing Video Evidence**

A video clip from a live or playback video window will be capable of being saved to the local PC or other network storage location in an industry-standard file format **by exporting**. The captured information will include the video clip itself, any audio data if recorded, and associated location, camera, time, date and event details.

**8.12 Storage**

1. Video will be tagged as it is stored to optimize search efficiency based on date and time, event, motion etc.
2. The VMS server storage will be maximized to provide the longest retention period possible based on the disk configuration that has been selected. Configurable parameters for altering storage duration will include:
  - Video resolution (CIF, D1).
  - Video capture rate (FPS).
  - Video quality settings.
  - Video compression codec (H.264, MPEG-4, etc.)

**8.13 Time Synchronization**

1. The VMS will allow for clock synchronization to occur manually or from a central location through a network time protocol (NTP) server or enterprise management server. .
2. The VMS will allow the cameras to time sync with its clock.

**8.14 Video Loss Detection**

The VMS will constantly monitor all video inputs for a synchronization signal and, if enabled, notify the administrator if a signal loss is detected.



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**8.15 Client (User) Software-**

**8.15.1 General**

Cameras, VMS, VMS client in this solution will be developed and maintained by a single manufacturer.

The primary client software will be Windows/linux based®

The primary client application will be a graphical, full-featured software interface with customizable user privileges to various section/tasks of the system.

The software will support up to 4 or more monitors per VMS host server and up to 16 camera views or windows per monitor, in flexible grid arrangements.

The primary VMS client application will provide a comprehensive set of features for searching, retrieving and reviewing stored video, regardless of where on the network the video is stored.

**8.15.2 Handling Alarms**

The primary VMS client application will provide a comprehensive set of features for handling security alarms generated during the surveillance process. These features will include but not be limited to the following:

**8.15.3 Additionally, the activities that can be triggered automatically in response to alarms will include:**

Pop-up of live incident video on defined workstations or video wall monitors.

Orientation of PTZ cameras to specified preset positions.

Initiation of preset camera and map (see following Section) viewing sequences.

Each alarm will also cause an automatic record of all operator response actions to be logged in an interactive folder system that contains links to the specific audio (if applicable) and video record of the incident. Clicking on an alarm will cause that data to be rendered on screen automatically. The log will also include a record of all operator screen activity for post-alarm analysis, personnel reviews or training.

**8.15.4 Integration of Site Maps**

The software will be capable of importing images of floor plans, building or campus layouts or other facility or site geometries.

A series of interactive icons will be provided to deploy on top of these imported map images and enable the following functions:

These icons will be used to indicate the location of each physical camera and its approximate field of view, and of alarm inputs and other security equipment deployed within that map area.

These icons will be implemented by an administrator using simple drag-and-drop movements their mouse.

Once in place, the camera icons will provide a point-and-click interface to launch on demand a live video window from the selected fixed or PTZ camera.



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**9.0 Bill of Material for complete Package**

**9.1 Tentative Bill of Material (BOM) for Camera & Accessories:**

Sl.No	Surveillance components	U#1/2	Unit Common	Main Plant Common	Mand. Spare	Total Qty	Unit
1	Type 1 Camera: IP PTZ 26 x Speed Dome indoor/outdoor Cameras-With all accessories	32	8	16	1	57	Nos
2	Type 2 Fixed camera C/CS Mount with 5-50mm Auto iris , vari focal lens and ex proof housing / accessories	2	0	2	1	5	Nos
3	Mounting Mechanisms viz., 6Mtr Pole with Mounts / Wall Mounts / Ceiling Mounts, etc., as per requirement <u>with Junction Box</u>	34	8	18	0	60	Set
4	Power supply units	34	8	18	2	62	Set

**9.2 Tentative Bill of Material (BOM) for Panel & Accessories:**

Sl.No	Panels for mounting CCTV electronics : Make as per technical specification	Make	U#1/2	Unit Common	Main common	Mand. Spare	Total Qty	Unit
1.	Network Panel	BHEL approved makes	1	0	0	0	1	Nos
2.	Chassis based Layer-3, Redundant Power supply, Ethernet Network solution with 20 * 100BaseTx + 40 * 100BaseFx, Single IP management(to be mounted in network panel a. above)	3COM /Dlink/ Cisco /Digisol / Brocade	1	0	0	0	1	No
3.	24 port fully loaded LIU with splice tray for switch side termination (to be mounted in network panel a. above)	Molex/Digilink/Amp/ ADCKrone	3	0	0	0	4	Nos
4.	Power Distribution Panel	BHEL approved makes	1	0	0	0	1	No

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**9.3 Tentative Bill of Material (BOM) for Server Hardware & Licenses(Common for U#3 & Common):**

<b>9.3.1 OPTION-1 with NVR solution</b>			
1	Primary Digital Video Server for the CCTV System with Video management & licenses for all cameras	Set	One
2	Secondary Digital Video Server for the CCTV System with NVRs for Storage along with recording software & licenses for all cameras, clients as required.	Set	One (min) or As per storage calculation
3	Central Archival system with software.	No	One (min) or As per storage calculation
<b>9.3.2 OPTION-2 with iSCSI solution</b>			
1	Management server for CCTV system.	Set	One
2	Recording server for the CCTV System/iSCSI storage device	Set	One(min)
3	iSCSI storage device.	Set	One(min) or As per storage calculation.
4	Central Archival system	No	One (min) or As per storage calculation
5	Video management & recording software with channel licenses for the cameras, clients, archiving and keyboards as required.	Set	One
<b>9.3.3 Monitor Unit</b>			
1	24" TFT Monitor (Make : HP,DELL,IBM-Lenovo)	Nos	10
2	PC (Make : HP, Dell, IBM-Lenovo)	Nos	10
3	Keyboard & Joystick	Set	1

**9.4 Erection, Laying & Termination**

1	Laying of cables to complete the total activity	NA	Lump sum
2	Fusion splicing of OFC cables / termination of other cables to complete the total activity	NA	Lump sum
3	Supply of junction boxes, earth wire and other accessories like standard brackets, nut-bolts, glands, lugs, conduit sleeves, etc.,	NA	Lump sum
4	Erection of hardware and accessories. Accessories shall mean and include all hardware required to complete the project.	NA	Lump sum

**9.5 Installation & Testing:**

Sl. No.	Brief Description of the Item	Detailed description	Total Qty
1	Installation and commissioning of complete CCTV system	Estimate is 120 man days (for CCTV specialist) and number of site visits shall be as per site conditions. Overall responsibility for project completion shall be with Supplier.	Lump sum
2	Demonstration & performance testing of complete CCTV system	Estimate is 20 man days (for CCTV specialist) and number of site visits shall be as per site conditions. Overall responsibility for project completion shall be with Supplier.	Lump sum

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**9.6 Tentative Bill of Material (BOM) for Network & Accessories (NOT IN THIS SCOPE OF SUPPLY \*):**

	Description/Item	Make	U#1/2	Unit Comm on	Main Comm on	Mand. Spare	Total Qty	Unit
1*	Ethernet Switch 1*100BaseFX-MMF, 12 * 100BaseT (Industrial Grade)	BHEL approved makes	2	1	1	1	5	Nos
2*	Ethernet Switch 1*100BaseFX-MMF, 4 * 100BaseT (Industrial Grade)	BHEL approved makes	24	4	12	4	44	Nos
3*	Single Mode Media converters (Industrial Grade)	BHEL approved makes	10	5	5	5	25	Nos
4*	Multimode Media converters (Industrial Grade)	BHEL approved makes	0	0	0	0	0	Nos
5*	On-line UPS for Camera (at far away locations), 230VAC, 1 KVA with 1/2 hour backup	BHEL approved makes	0	5	15	0	20	Nos
6*	Industrial Grade Network Enclosure	BHEL approved makes	25	5	15	0	45	Nos

**9.7 Tentative Cable and accessories (Common for U#3 & Common) (NOT IN THIS SCOPE OF SUPPLY \*):**

1*	Power cable 3X1.5sqmm Armoured	BHEL approved makes	12kms
2*	4 fiber 50/125 microns Multi-Mode armoured OFC cable	BHEL approved makes	0 kms
3*	4 fiber 9/125 microns Single-Mode armoured OFC cable	BHEL approved makes	30 kms
4*	6 Port fully loaded LIU with splice tray for Field side termination	BHEL approved makes	45
5*	UTP cable (CAT – 6)	BHEL approved makes	14 rolls(3600mtrs)
6*	STP cable(from junction box to camera)	BHEL approved makes	300mtrs
7*	Single Mode SC/ST Patch Cable	BHEL approved makes	120
8*	Multi Mode SC/ST Patch Cable	BHEL approved makes	0

**9.8 Hardware Supply & Erection scope (NOT IN THIS SCOPE OF SUPPLY \*):**

Sl. No.	Brief Description of the Item	Make / Model	Detailed description	Total Qty in Mtrs
1*	Supply of hardware and accessories.	Reputed brand with ISI Quality	1. GI Pipe 1½" with accessories. 2. Flexible GI pipe 1" with accessories. 3. GI solid Cable Tray 100mm (W) * 25mm (H) with closing cover and accessories.	2500 1500 1000

Note:

1. The erection activity shall be in line with the IP protection class requirements as per descriptions / camera allocation as mentioned in section 3.1



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**12.0 DOCUMENTS TO BE FURNISHED**

**12.1 Along with the Offer (in one set)**

1. Single line diagram for CCTV system based on function.
2. GA drawings
3. Technical write-up.
4. Complete Bill of Material with Make & Model
5. Data sheet of complete system / subsystem
6. Wiring diagram / interconnecting arrangement details

**12.2 After placement of Purchase Order:**

(for BHEL / CUSTOMER approval - in 6 sets)

1. Single line diagram for CCTV system based on function.
2. GA drawings
3. Technical write-up.
4. Complete Bill of Material with Make & Model
5. Mandatory spares & commissioning spares list
6. Data sheet of complete system / subsystem
7. Wiring diagram/interconnecting arrangement details
8. Clause-wise compliance / deviation list
9. Quality Plan (format will be given by BHEL)

**12.3 Before Dispatch: (4 sets for review/acceptance)**

1. Test Certificates as per specification / approved QP
2. Preliminary Instruction / O&M Manual


**12.4 Final approved drawings / documents (4 sets) (At the time of Dispatch)**

1. Instruction / O&M Manual
2. Bill of Material
3. Data Sheets
4. Drawings GA / layout / wiring / interconnection / schematic, etc.
5. Technical literatures / Catalogs

These documents shall be in final as-built / approved status. Apart from above one (01) set of Instruction / O&M Manual shall also be sent directly to site along each system under each project.

One (01) set soft copy of offer as well as Final document shall also be provided to BHEL. The soft copy shall be in Floppy or CD-ROM media and shall be compatible with Microsoft Windows format with drawing / documents in AutoCad-14 / MS-Word / MS-Excel / Acrobat / HTML formats.

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	 <p>बि एच ई एल A4-11</p>	<b>Purchase Specification For RPCL-Yeramarus – CCTV Package</b>	<b>PS/404/2599</b> <b>REV : 01</b> <b>Page 26 of 29</b>
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		<p><b>13.0 NOTES:</b></p> <ol style="list-style-type: none"> <li>1. Material has to be directly sent to site and service shall be provided at site.</li> <li>2. Project details and address will be intimated at the time of Enquiry / PO.</li> <li>3. Suppliers should please note that the charges for services will be paid to supplier on pro-rata basis upon submission of certificate by BHEL-Site office / BHEL-Engg.</li> <li>4. Advance intimation of one week will be given for deputing personnel to site.</li> <li>5. <b>Vendor must furnish, all documents, in line with specification along with offer. Offer with deviations / incomplete offers (without documents / not relevant documents) will be rejected without any notice.</b></li> <li>6. Even if BHEL places split orders, the total overall responsibility of system integration at site for satisfactory operation lies with system integrator only.</li> <li>7. Pre-Despatch Inspection will be done by BHEL / Customer at supplier works for local scope of supply. Supplier should make all the necessary arrangements.</li> <li>8. Supplier shall warrant that the system will be free from defect in design, material and workmanship for a period of 24 months commencing upon the completion of commissioning (includes laying, termination and testing) of the cable (segment-wise) or 36 months from the date of dispatch whichever is earlier. The liability will be limited to replacement of defective parts arising solely from faulty design, materials and /or workmanship. The above warranty should cover for UPS &amp; Batteries.</li> </ol> <p><b>14.0 Pre Qualifying Criteria</b></p> <p>Ref Section-B-PQR of Bidder for CCTV system Integration.</p>
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**15.0 List of Documents/drawings submitted along with BID.**

The bidder shall list the documents/drawings submitted along with the bid in line with requirements.

Sl No	Document	Vendor compliance
1	Data sheet of Camera & Accessories	
2	Data sheet of Server / storage Hardware & Licenses	
3	Data sheet of Network components	
4	Data sheet of UPS	
5	Data sheet Monitor Unit	
6	Data sheet of cables (Fiber & power)	
7	Data sheet/GA of Panel & Accessories	

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**16.0 Compliance sheet: Bidder to comply to each section referring to page give below:**

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<a href="#">1.0 General Requirements</a>	<a href="#">4</a>	
<a href="#">2.0 Power Supply Arrangement</a>	<a href="#">5</a>	
<a href="#">3.0 Design and Technical Requirements</a>	<a href="#">6</a>	
<a href="#">3.1 List of Cameras with Type and tentative Locations:</a>	<a href="#">7</a>	
<a href="#">3.1.1 List of cameras to be provided at Main Plant</a>	<a href="#">7</a>	
<a href="#">3.1.2 List of cameras to be provided at common Plant area:</a>	<a href="#">8</a>	
<a href="#">3.1.3 List of cameras to be provided at Coal Handling Plant:</a>	<a href="#">9</a>	
<a href="#">4.0 DETAILED DESCRIPTION OF THE SYSTEM COMPONENTS:</a>	<a href="#">10</a>	
<a href="#">4.1 Cameras</a>	<a href="#">10</a>	
<a href="#">4.1.1 Type 1 Camera: IP PTZ Speed Dome indoor/Outdoor Cameras-With all accessories</a>	<a href="#">11</a>	
<a href="#">4.1.2 Type 2 PTZ Outdoor Camera with wiper and accessories</a>	<a href="#">12</a>	
<a href="#">4.2 Camera Housing</a>	<a href="#">13</a>	
<a href="#">4.3 Option-1 : Primary server with Secondary storage server-NVRs</a>	<a href="#">13</a>	
<a href="#">4.3.1 Primary Digital Server for the CCTV System</a>	<a href="#">13</a>	
<a href="#">4.3.2 Secondary Digital Video NVRs / Storage Servers</a>	<a href="#">13</a>	
<a href="#">4.4 Option-2: Management server and recording server with iSCSI storage</a>	<a href="#">13</a>	
<a href="#">4.4.1 Video Management System</a>	<a href="#">13</a>	
<a href="#">4.4.2 Recording Manager System</a>	<a href="#">14</a>	
<a href="#">4.4.3 IP Video Storage System - iSCSI Storage Box</a>	<a href="#">14</a>	
<a href="#">4.5 Central archival System for CCTV</a>	<a href="#">14</a>	
<a href="#">5.0 Minimum Hardware &amp; Software Requirements for the Primary /Secondary-Storage Servers(for Option 1)</a>	<a href="#">15</a>	
<a href="#">6.0 Minimum Hardware &amp; Software Requirements for the Management server and Recording server ( for Option 2)</a>	<a href="#">16</a>	
<a href="#">6.1 iSCSI Storage device along with Option-2 configuration</a>	<a href="#">16</a>	
<a href="#">7.0 Monitor Unit:</a>	<a href="#">17</a>	
<a href="#">8.0 Video Management Software (VMS)</a>	<a href="#">17</a>	
<a href="#">8.1 Networking features of VMS</a>	<a href="#">17</a>	
<a href="#">8.2 System Security and Reliability</a>	<a href="#">18</a>	
<a href="#">8.3 General System features and functions</a>	<a href="#">18</a>	
<a href="#">8.4 Alarm Notification</a>	<a href="#">18</a>	
<a href="#">8.5 Playing Back Video</a>	<a href="#">18</a>	
<a href="#">8.6 Playback Controls</a>	<a href="#">18</a>	
<a href="#">8.7 PTZ control</a>	<a href="#">19</a>	
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## SECTION- B

### **AA. Pre-Qualification Requirements ( PQR ) of Bidders for CCTV System Integration, as a part of Offer:**

1.0 The vendor shall be an Original Equipment Manufacturer (OEM) or their authorized dealers in India along with an authorization letter to be submitted. An authorized Representative/Dealer in India cannot quote for the same equipment from more than one OEM.

2.0 The offer shall be only for Standard Catalog Items from the manufacturer and not custom-made. All the specifications shall be supported by Standard Catalogs and Datasheets of the manufacturer in line with specification.

3.0 Offer shall be for new equipment and not for any refurbished / used equipment. All the parts used shall also be new and not used / refurbished. A declaration to the above effect to be furnished.

4.0 Foreign OEM shall have Authorized India dealer(s) / representative(s) for after sales service and support. The authorization letter for the dealer/representative shall be provided.

5.0 The vendor or their authorized service representatives shall have trained engineers in India for commissioning and service for the offered equipment and shall be in a position to provide prompt after sales services and spares support for our installations.

6.0 The vendor shall be in a position to undertake AMC or provide service support for the equipment supplied, after the expiry of the warranty / guarantee period either directly or through a service representative.

7.0 The vendor shall furnish a comprehensive onsite warranty for at least 24 months from the date of commissioning.

8.0 The vendor shall have experience of CCTV integration for any major project(**Industry-Power/Process**) in last 3 years ending 31<sup>st</sup> March 2015 in India. The minimum any one of the order value criteria is as follows:

- a) **Three** similar completed supplies costing not less than the amount equal to 40% of the total quoted price by the vendor.
- b) **Two** similar completed supplies costing not less than the amount equal to 50% of the total quoted price by the vendor.
- c) **One** similar completed supplies costing not less than the amount equal to 80% of the total quoted price by the vendor.

Submit reference list of Projects wherein offered system is supplied & commissioned, along with details and Year of Commissioning of the CCTV system. Also copies of purchase order and dispatch documents should be mandatorily furnished for proof of the above

Vendors who are not registered in BHEL EDN for IP based CCTV system Integration shall submit duly-filled Source Request Form ( SRF ), which shall be downloaded by Bidder from our website "www.bhel.com. SRF along with credentials to be furnished separately by the Bidder.

Before submission of offer for Technical/commercial clarification, please contact/discuss with BHEL-Engg(080-26998281)/MM(080-26998674) Department for clarification.

**Important note : In case Bidder does not submit details mentioned in above clauses or meet the requirements of Pre-qualification requirements, Offers will be summarily rejected and Bidder's Technical offers/proposals will not be Evaluated. Please read carefully the General instructions in Section A of this specifications.**



ಭಾರತ್ ಹೆವಿ ಎಲೆಕ್ಟ್ರಿಕಲ್ಸ್ ಲಿಮಿಟೆಡ್  
भारत हेवी इलेक्ट्रिकल्स लिमिटेड

Bharat Heavy Electricals Ltd.,  
(A Government of India undertaking )  
7Electronics Division

PB 2606 , Mysore Road Bangalore , 560026 INDIA

CE: PR: 003- Rev 00

**SPECIAL COMMERCIAL CONDITIONS OF CONTRACT**

Reference is brought to BHEL's Instructions to Bidders (Document Ref: CE: PR: 001- Rev 00) and General Commercial Conditions for Contract (Document Ref: CE: PR: 002- Rev 00). These documents along with required annexures are available in our website: \_\_\_\_\_ . These two documents along with Special Conditions of Contract annexed to this RFQ will form an integral part of the contract as and when the RFQ culminates into a Purchase Order / Contract.

RFQNo: **HDC0000419**

RFQ Date: **09.09.2015**

DueDate: **05.10.2015** .Project: **KPCL-BELLARY UNIT3 and RPCL-YERAMARUS UNIT1&2**

ItemDescription: **CCTV SYTEMS S**

**Purchase Executives:** In cases where tender documents are bulky, or due to some reasons tender documents are required to be submitted by hand, the offers are to be handed over to either of the following Purchase Officers:

Mr CHANDRAIAH H.D

**E-mail IDs:** In case offers are sent through E-mail, please send the offers to both of the following email IDs:

\_\_\_\_\_chandraiah@bheledn.co.in

**E-tendering:** Applicable / **NOT APPLICABLE**.

**Type of Bid :** Three part bid ( Refer ITB for details )

**Reverse Auction:** Will be intimated during commercial clarifications to technically acceptable vendors.

In case BHEL does not resort to Reverse Auction, the price bids and price impacts (if any) shall be opened as per BHEL's standard practice.

**Splitting of tendered quantity to MSE vendors:** The tendered quantity will /will not be split to MSE vendors subject to submission of relevant documents by vendors. **Refer clause H of Instructions to Bidders for conditions applicable and for information on documents to be submitted.**

**Destination:** Items are to be directly dispatched to BHEL's Site Office or Stores/Customer's Stores located at/near

**KUDANTHINI BELLARY & KARNATAKA RAICHUR in STATE** District/City in State. (Items to be delivered to bellary & yeramarus site)

State. Road Permit, if applicable, will be issued by BHEL along with Despatch Clearance.

**For import portion part of discharge will be Bangalore Airport**

**Project Benefits:**

- **Indigenous scope of supply:**
  - a) Project is Mega Power Project or Ultra Mega Power Project: Eligible for "NIL" Excise Duty. Necessary documents for availing Excise Duty exemption by suppliers will be furnished by BHEL.
  - b) Physical Export project: Eligible for complete exemption of Excise Duty & Sales Tax. Necessary documents for availing such benefits will be furnished by BHEL to suppliers.
- **Imported scope of supply:**
  - a) Project is Mega Power Project or Ultra Mega Power Project: Eligible for "NIL" Customs Duty.
  - b) Physical Export project: Eligible for complete exemption of Customs Duty.
  - c) **Merit customs duty applicable for KPCL-Bellary unit 3**
  - d) **Concessional customs duty applicable for RPCL-Yeramaras project.**

**Terms of Delivery:**

Indicate station of despatch: \_\_\_\_\_

Indicate place of manufacturing (wherever applicable): \_\_\_\_\_ □

**Indigenous scope of supply:** Ex-works (including Packing & Forwarding charges but excluding Taxes & Duties): \_\_\_\_\_

- **Imported scope of supply:** F.C.A. (for air consignments) /F.O.B. (for sea consignments)  
(including Packing, Forwarding, Handling, Ancillary charges like processing of Sight Draft/ Letter of Credit, negotiation of bank documents, Export declaration, Country of Origin etc): \_\_\_\_\_

S NO.	TERMS	BHEL ACCEPTABLE TERM	BIDDER'S CONFIRMATION	DEVIATION IF ANY
01	<b>Validity</b>	The offer will be valid for a period of date of 120 days from the technical bid opening.	<b>AGREE</b>	
02	<b>Excise Duty &amp; Cess</b>	<p>If applicable, indicate current rate of Excise Duty and maximum rate of Excise Duty (against proof of Excise Invoice).</p> <p>However, for calculation purpose and arriving at "Total Cost to BHEL" maximum rate of Excise Duty will be considered. In case Excise Duty remains firm throughout the contract, the same shall be specifically indicated. Otherwise, maximum Excise Duty will be considered for arriving at lowest bidder.</p> <p>However, reimbursement of Excise Duty shall be at actuals against proof of Excise Invoice only. (Within contractual delivery).</p> <p>Physical export contract eligible for complete exemption of Excise duty against submission of necessary documents by BHEL like ARE-1/CT-1 form.</p> <p><b>NOTE: EXCISE DUTY OF MAIN BTG package is Reimbursable by BHEL Customer for RPCL-YERMARAS project.</b></p>	<p><b>APPLICABLE / NOT APPLICABLE</b></p> <p>Present rate of Excise Duty with CESS .....%</p> <p>Maximum rate of Excise Duty with CESS .....%</p>	
03	<b>Central Sales Tax (CST)</b>	<p>If applicable, indicate current rate of sales tax against form "C".</p> <p>For issue of original form "C", vendor has to furnish "E1/E2" form. To enable vendor give E1/E2 form, photocopy of C form will be issued by BHEL.</p> <p>Please confirm submission of "E1/E2 Sale form".</p> <p>For physical export project, Sales Tax is exempted against necessary documents furnished by BHEL.</p>	<p><b>APPLICABLE / NOT APPLICABLE</b></p> <p>Present Sales Tax rate against form "C" ..... %</p> <p><b>CONFIRMED</b></p>	
04	<b>Value Added Tax (VAT)</b>	<p>If applicable, indicate current rate of VAT.</p> <p>When VAT is applicable, BHEL ROD's/ Nodal Agency's Name, TIN No. and address to be indicated in invoice. (Note that two original invoice and one tax invoice should be submitted to BHEL).</p> <p><b>NOTE: In case of despatches within Karnataka state , Differential VAT at 10.5% is Reimbrsable by BHEL Customer for RPCL-YERMARAS PROJECT</b></p>	<p><b>APPLICABLE / NOT APPLICABLE</b></p> <p>VAT rate at present ..... . %</p> <p><b>NOTE D</b></p>	
05	<b>Octroi</b>	If applicable, indicate current rate of octroi.	<p><b>AGREE</b></p> <p>Present Octroi rate .....%</p>	

06	<b>Freight Charges (for indigenous scope of supply)</b>	<p>Freight charges shall be to vendor's account.</p> <p>Quote lumpsum reasonable Freight charges separately in priced offer, plus service tax if any.</p> <p>Vendor's offer will be evaluated on "Total cost basis" including freight charges.</p> <p>Vendor shall book the consignment through their approved Road carriers on "Freight pre-paid" and door delivery consignee copy attached basis. Freight charges to be claimed from BHEL along with POD (Proof of Delivery) on original L/R.</p>	<p><b>AGREED</b> and quoted as lumpsum amount in price bid.</p> <p>Service Tax _____% (extra /inclusive in freight charges)</p>	
07	<b>Service Tax on E&amp;C and Training Charges</b>	<p>If applicable, indicate current rate of Service Tax _____%</p> <p>Service Tax Regn. No. _____</p> <p>Confirmation that Service Tax register is maintained.</p>	<p><b>APPLICABLE / NOT APPLICABLE</b></p> <p><b>CONFIRMED</b></p>	
08	<b>Parting of license for imported raw materials</b>	<p>In case of Mega project, Ultra-Mega project and Physical Export project where Custom Duty and Excise Duty are</p> <p>NIL and vendor is importing any raw materials / components for the enquired item, same are eligible for Zero Customs duty. As per EXIM policy, BHEL will part the import licence with the vendors to obtain import licence by themselves and custom clear the raw materials/ components by availing zero customs duty. Hence, please furnish list of raw materials / components to be imported by you with Quantity and CIF value (for which BHEL has to share import licence). The benefit due to the above shall be passed on to BHEL and confirmed in the quotation.</p> <p>If there are no imported raw materials/components, same shall be confirmed in the offer.</p>	<p><b>AGREE</b></p> <p>CIF value .....</p> <p><b>Yes, benefit passed-on to BHEL in the priced quotation.</b></p> <p><b>We confirm that there are no imported components.</b></p>	
09	<b>Delivery Period</b>	<p>Within 08 weeks from the date of issue of approved documents or manufacturing clearance by BHEL, whichever is later.</p> <p>Note</p>		
10	<b>Guarantee/Warranty</b>	<p>36 months from the date of dispatch or 24 months from the date of commissioning of this supplied equipment whichever is earlier</p>		
11	<b>Inspection agency</b>	<p>Materials will be inspected by :</p> <ul style="list-style-type: none"> <li>• BHEL</li> <li>• Customer/Consultant/BHEL nominated Third Party Inspection Agency (TPIA)</li> </ul>	<b>AGREE</b>	

12	<b>Terms of Payment at the time of material supply</b>	<p>Refer Clause "F" of Instructions to Bidder for BHEL standard Payment terms and loading factors applicable for non-compliance against payment terms:</p> <p><b>Indigenous Scope:</b> a)Supply with E&amp;C</p> <p>b)Supply with Supervision of E&amp;C c) Supply only</p> <p><b>Imported Scope:</b> a)Supply with E&amp;C</p> <p>b)Supply with Supervision of E&amp;C c) Supply only</p> <p>Note: Kindly indicate if High Sea Sales will be operated. If yes, confirm submission of relevant documents as per Annexure V.</p>	<p><b>AGREE</b></p> <p><b>YES / NO</b></p> <p><b>CONFIRMED</b></p>	
13	<b>Performance Bank Guarantee (PBG)</b>	<p>PBG will be applicable for a period of 36 months + claim period of 6 months for a value equal to 10% of the basic value of the purchase order.</p> <p>Refer Clause "G" of Instructions to Bidders-</p>	<b>AGREE</b>	
14	<b>Terms of Payment not related to material supply</b>	<p><b>For Training:</b> 100% will be paid in 45 days from the date of completion of Training or 15 days from the date of submission of complete set of documentation, whichever is later. Separate invoice shall be submitted for Training charges along with documentary evidence. <b>For Engineering &amp; Documentation Charges:</b> 100% will be paid in 45 days from the date of approval of final documents or 15 days from the date of submission of invoice, whichever is later. Separate invoice to be submitted for Engineering &amp; documentation charges.</p>	<b>AGREE</b>	
15	<b>Mode of despatch</b>	<p><b>Indigenous Scope:</b> By Road on Door Delivery Consignee Copy attached basis through your approved transporter (unless otherwise indicated in Despatch Instructions), only on receipt of Despatch Clearance from BHEL.</p> <p><b>Imported Scope:</b> By Air/Sea through BHEL approved Consolidator/Freight Forwarder, only on receipt of Despatch Clearance from BHEL.</p>	<b>AGREE</b>	



16	<b>Despatch Documents</b>	<p>Complete set of despatch documents (original + 1 photocopy set) as per Purchase Order shall be forwarded to BHEL directly.</p> <p>Depending upon the project/customer demands, despatch documents may include one or more documents from the following: Commercial Invoice, Excise Invoice (if ED is applicable), Lorry Receipt (L/R), Packing List, Air Way Bill (AWB), Country of origin certificate, Warranty Certificate, Insurance Intimation letter, NIL Short Shipment Certificate, Original Performance Bank Guarantee (directly from issuing bank to BHEL), POD (Proof of Delivery) on original L/R, Disclaimer Certificate (as per BHEL format attached as Annexure XI) along with ER-1 form &amp; attested excise invoice (as per project demands like Nuclear Power plant) etc.</p> <p><b>The precise list of despatch documents needed for a particular project will be specified in the Purchase Order.</b></p> <p>One set of Invoice, Packing List and L/R or AWB shall be e-mailed/faxed immediately to BHEL-EDN after despatch.</p>	<b>AGREE</b>	
17	<b>O &amp; M Manuals</b>	<p>As built Drawings, O &amp; M Manuals and other approved documents shall be furnished in required no. of sets as per Specification/Purchase Order.</p> <p>Note: Supply of above documents (O&amp;M) in required no. of sets along with material shall be indicated in packing list. If not mentioned BHEL may insist for submission in required sets once again.</p>	<b>AGREE</b>	
18	<b>Quantity Tolerance</b>	<p>If applicable, indicate Quantity tolerance for each of the line item.</p> <p>For Impulse/seamless/ GI pipes one random length applicable for each variety of pipes.</p>	<b>CONFIRMED</b>	Quantity Tolerance ..... % Per Variety
19	<b>Evaluation criteria for tendered item</b>	<p><del>Itemwise evaluation of tendered item.</del> <del>Splitting of tendered quantity to MSE vendors (if any) is applicable.</del></p> <p>OR</p> <p><b>Items will not be split on itemwise lowest offer. Items to be evaluated and procured as a package.</b></p>	<b>AGREE</b>	
20	<b>Integrity Commitment</b>	Integrity commitment will be applicable in the tender process and execution of contracts as mentioned in clause "I" of Instructions to Bidders.	<b>AGREE</b>	

***With this, it is inferred that vendor has understood and accepts all terms & conditions as indicated in Instructions to Bidders (Document Ref: CE: PR: 001- Rev 00) & General Commercial Conditions for Contract (Document Ref: CE: PR: 002- Rev 00).***

**VENDOR'S SIGNATURE WITH SEAL**

***NOTE: The above filled-in and signed-sealed document (in original) shall be furnished as part of Part-I Bid without fail. If no deviations are brought, it will be treated as if all terms and conditions of this enquiry are accepted by vendor without any deviation.***



ಭಾರತ್ ಹೆವಿ ಎಲೆಕ್ಟ್ರಿಕಲ್ಸ್ ಲಿಮಿಟೆಡ್  
 भारत हेवी इलेक्ट्रिकल्स लिमिटेड

Bharat Heavy Electricals Ltd.,  
 (A Government of India undertaking )

Electronics Division

PB 2606 , Mysore Road Bangalore , 560026 INDIA

CE: PR: 001- Rev 00

## **INSTRUCTIONS TO BIDDERS (Common for all RFQs)**

Bidder is requested to read the instructions carefully and submit their quotation covering all the points:

### **A. GENERAL INSTRUCTIONS:**

1. Any Purchase Order resulting from this enquiry shall be governed by the Instructions to Bidders (document reference: CE: PR: 001 – Rev 00), General Conditions of Contract (document reference: CE: PR: 002 - Rev 00) and Special Conditions of Contract, if any, of the enquiry.
2. Any deviations from or additions to the “General Conditions of Contract” or “Special Conditions of Contract” require BHEL’s express written consent. The general terms of business or sale of the bidder shall not apply to this tender.
3. Bidders (also includes the term suppliers / contractors wherever used in this document) are instructed to quote their most competitive price and best delivery, etc. in the offer. Prices should be indicated in both figures & words. **(Please also refer clause 11 under section B)**
4. Regret letter (either through post or by mail) indicating reasons for not quoting must be submitted without fail, in case of non-participation in this tender. If a bidder fails to respond against 3 consecutive tenders for the same item, he will be liable for removal as a registered vendor of BHEL.
5. Procurement directly from the manufacturers shall be preferred. However, if the OEM / Principal insist on engaging the services of an agent, such agent shall not be allowed to represent more than one manufacturer / supplier in the same tender. Moreover, either the agent could bid on behalf of the manufacturer / supplier or the manufacturer / supplier could bid directly but not both. In case bids are received from the manufacturer / supplier and his agent, bid received from the agent shall be ignored.
6. Consultant / firm (and any of its affiliates) shall not be eligible to participate in the tender/s for the related goods for the same project if they were engaged for consultancy services for the same project.
7. If an Indian representative / associate / liaison office quotes on behalf of a foreign based bidder, such representative shall furnish compulsorily the following documents:
  - a. Authorization letter to quote and negotiate on behalf of such foreign-based bidder.
  - b. Undertaking from such foreign based bidder that such contract will be honored and executed according to agreed scope of supply and commercial terms and conditions.
  - c. Undertaking shall be furnished by the Indian representative stating that the co-ordination and smooth execution of the contract and settlement of shortages / damages / replacement / repair of imported scope till system is commissioned and handed over to customer will be the sole responsibility of the Indian representative / associates / agent / liaison office.
  - d. Refer **Annexure X** on “Guidelines for Indian Agents”.

8. In case of imported scope of supply, customs clearance & customs duty payment will be to BHEL account after the consignment is received at Indian Airport / Seaport. Bidders must provide all original documents required for completing the customs clearance along with the shipment. Warehousing charges due to incomplete or missing documentation will be recovered from the supplier's bill. All offers for imported scope of supply must be made from any of the gateway ports (within the country) indicated. **(Refer Annexure I)**
9. The offers of the bidders who are on the banned list and also the offers of the bidders, who engage the services of the banned firms, shall be rejected. The list of the banned firms is available on BHEL website: **www.bhel.com**
10. Business dealings with bidders will be suspended if they are found to have indulged in any malpractices / misconduct which are contrary to business ethics like bribery, corruption, fraud, pilferage, cartel formation, submission of fake/false/forged documents, certificates, information to BHEL or if they tamper with tendering procedure affecting the ordering process or fail to execute a contract, or rejection of 3 consecutive supplies or if their firms / works are under strike / lockout for a long period.

## **B. GUIDELINES FOR PREPARATION OF OFFER:**

1. Quotation shall be submitted in Single Part Bid, Two Part Bid or Three Part Bid, as called for in the tender:
  - ~~**SINGLE PART BID:** Technical and Commercial Bid with prices along with price summary & filled in BHEL Standard Commercial terms and conditions in a single sealed envelope.~~
  - ~~**TWO PART BID:** Unpriced offer i.e. "Techno-commercial Bid" with filled in BHEL Standard Commercial terms and conditions in a sealed envelope **along with the copy of the "Price Bid" without the prices** should be enclosed in one cover and the cover must be super scribed "**Technocommercial offer**) and Priced offer i.e. "Price Bid" containing price summary in a separate sealed envelope and must be super scribed "**Price Bid**". Both these envelopes shall be enclosed in a single sealed envelope super scribed with enquiry number due date of tender and any other details as called for in the tender document.~~
  - **THREE PART BID:** Pre-qualification Bid (Part-I), Techno Commercial Bid with filled in BHEL Standard Commercial terms and conditions (Part-II), and Price Bid (Part-III). All three envelopes shall be enclosed in a single sealed envelope super scribed with enquiry number due date of tender and any other details as called for in the tender document.

If any of the offers (Part I, Part II or Part III) are not submitted before the due date and time of submission or if any part of the offer is incomplete the entire offer of the bidder is liable for rejection.

2. Supplier shall ensure to super scribe each envelope with RFQ number, RFQ Date, RFQ Due date and time, Item Description and Project clearly & boldly. Also mention on the envelope whether it is "Techno Commercial Bid" or "Price Bid" or "Pre-Qualification Bid". Please ensure complete address, department name and purchase executive name is mentioned on the envelope (before dropping in the tender box or handing over) so that the tender is available in time for bid opening.
3. BHEL standard Commercial Terms and Conditions (duly filled, signed & stamped) must accompany TechnoCommercial offer without fail and should be submitted in original only. Xerox copy will not be accepted.
4. Any of the terms and conditions not acceptable to supplier, shall be explicitly mentioned in the TechnoCommercial Bid. If no deviations are brought out in the offer it will be treated as if all terms and conditions of this enquiry are accepted by the supplier without deviation.

5. Deviation to this specification / item description, if any, shall be brought out clearly indicating "DEVIATION TO BHEL SPECIFICATION" without fail, as a part of Techno-Commercial Bid. If no deviations are brought out in the offer it will be treated as if the entire specification of this enquiry is accepted without deviation.
6. Suppliers shall submit one set of original catalogue, datasheets, bill of materials, dimensional drawings, mounting details and / or any other relevant documents called in purchase specification as part of Technical Bid.
7. "Price Bid" shall be complete in all respects containing price break-up of all components along with all applicable taxes and duties, packing & forwarding charges (if applicable), freight charges (if applicable) etc. Once submitted no modification / addition / deletion will be allowed in the "Price Bid." Bidders are advised to thoroughly check the unit price, total price to avoid any discrepancy.
8. In addition, bidder shall also quote for erection & commissioning charges (E&C charges), documentation charges, service charges, testing Charges (type & routine), training charges, service tax, etc. wherever applicable. The price summary must indicate all the elements clearly.
9. Vendors should indicate "lump sum" charges (including To & Fro Fare, Boarding, Lodging, Local Conveyance etc.) for Supervision of Erection, Commissioning and handing over to customer. The quotation shall clearly indicate scope of work, likely duration of commissioning, pre-commissioning checklist and service tax (if any).
10. Wherever bidders require PAC (Project Authority Certificate) for import of raw materials, components required for Mega Power Projects, Export Projects or other similar projects wherein supplies are eligible for customs duty benefits, lists and quantities of such items and their values (CIF) has to be mentioned in the offer. Prices must be quoted taking into account of such benefits.
11. All quotations shall be free from corrections /overwriting. Corrections if any should be authenticated with signature and seal. Any typographical error, totaling mistakes, currency mistake, multiplication mistake, summing mistakes etc. observed in the price bids will be evaluated as per **Annexure II** "Guidelines for dealing with Discrepancy in Words & Figures – quoted in price bid". BHEL decision will be final.

### **C. GUIDELINES FOR OFFER SUBMISSION:**

1. Offers / Quotations must be dropped in tender box before 13.00 Hrs. on or before due date mentioned in RFQ. The offers are to be dropped in the proper slot of the Tender Box kept in our reception area with caption "CE, SC&PV, DEFENCE." Tenders are opened on 3 days in a week (Monday/Wednesday/Friday). Tender must be deposited in the slot corresponding to the day (Monday - Box no.4/Wednesday - Box no. 6 /Friday - Box no.8) while depositing the offer. **(This clause will not be applicable for e-tenders)**
2. E-Mail / Internet / EDI offers received in time shall be considered only when such offers are complete in all respects. In case of offers received through E-mail, please send the offer to the email ID specified in the SCC of the tender. (Refer to SCC document of tender)
3. In cases where tender documents are bulky, or due to some reasons tender documents are required to be submitted by hand or through posts/couriers, the offers are to be handed over either of the two officers whose names are mentioned in the RFQ. (Refer to SCC document of tender)
4. Tenders will be opened on due date, time and venue as indicated in the RFQ in the presence of bidders at the venue indicated in the RFQ. In case of e-procurement, bidders can see tender results till seven days after due date and time.
5. Vendor will be solely responsible:
  - a. For submission of offers before due date and time. Offers submitted after due date and time will be treated as "Late offers" and will be rejected.

- b. For submission of offers in the correct compartment of the tender box based on the day of due date (Monday/Wednesday/Friday). Please check before dropping your offer in the correct tender box.
- c. For depositing offers in proper sealed condition in the tender box. If the bidder drops the tender in the wrong tender box or if the tender document is handed over to the wrong person BHEL will not be responsible for any such delays.
- d. For offers received through email etc., suppliers are fully responsible for lack of secrecy on information and ensuring timely receipt of such offers in the tender box before due date & time.
- e. In case of e-tender, all required documents should be uploaded before due date and time. Availability of power, internet connections, etc. will be the sole responsibility of the vendor. Wherever assistance is needed for submission of e-tenders, help line numbers and executives of service provider of BHEL may be contacted.

Service provider: M-junction

Website address: <https://bheleps.buyjunction.in/>

Helpline no.: 033-66106426/6217/6013/6046/6176 (9:30 am to 5:30 pm)

9163348283/9163348284/9163348285/9163348286/8584008116 (5:30 pm to 8:30 pm)

**Purchase Executive / BHEL will not be responsible for any of the activities relating to submission of offer.**

#### **D. PROCESSING OFFERS RECEIVED:**

1. Any discount / revised offer submitted by the supplier on its own shall be accepted provided it is received on or before the due date and time of offer submission (i.e. Part-I bid). The discount shall be applied on pro-rata basis to all items unless specified otherwise by the bidder.
2. Changes in offers or Revised offers given after Part-I bid opening shall not be considered as a part of the original offer unless such changes / revisions are requested by BHEL.
3. In case there is no change in the technical scope and / or specifications and / or commercial terms & conditions, the supplier will not be allowed to change any of their bids after Technical bids are opened (after the due date and time of tender opening).
4. In case of changes in scope and/ or technical specifications and/ or commercial terms & conditions by BHEL and it accounts for price implications from vendors, all techno-commercially acceptable bidders shall be asked by BHEL (after freezing the scope, technical specifications and commercial terms & conditions) to submit the impact of such changes on their price bid. Impact price will be applicable only for changes in technical specification / commercial conditions by BHEL. The impact price must be submitted on or before the cut-off date specified by BHEL and the original price bid and the price impact bid will be opened together at the time of price bid opening.
5. BHEL EDN reserves the right to adopt Reverse Auction or standard Price Bid Opening procedure for price evaluation, at its discretion. This will be decided after completion of technical evaluation of tender. **(Refer Annexure III for Guidelines for Reverse Auction).**
6. Un-opened bids (including price bids) will be returned to the respective bidders after release of PO and receipt of order acknowledgement from the successful bidder.
7. After receipt of Purchase Order, supplier should submit required documents like drawings, bill of materials, datasheets, catalogues, quality plan, test procedure, type test report , O & M Manuals and / or any other relevant documents as per Specification / Purchase Order, as and when required by BHEL / Customer.

8. Any deviation to the terms and conditions not mentioned in the quotation by supplier in response to this enquiry will not be considered, if put forth subsequently or after issue of Purchase Order, unless clarification is sought for by BHEL EDN and agreed upon in the Purchase Order.
9. Evaluation shall be on the basis of delivered cost (i.e. "Total Cost to BHEL").  
"Total Cost to BHEL" shall include total basic cost, packing & forwarding charges, taxes and duties, freight charges, insurance, service tax for services, any other cost indicated by vendor for execution of the contract and loading factors (for non-compliance to BHEL Standard Commercial Terms & Conditions). Benefits arising out of Nil Import Duty on Mega Projects, Physical Imports or such 100% exemptions (statutory benefits), customer reimbursements of statutory duties (like Excise Duty, CST, VAT) will also be taken into account at the time of tender evaluation. (wherever applicable and as indicated in SCC document of tender)
10. For evaluation of offers in foreign currency, the exchange rate (TT selling rate of SBI) shall be taken as under:  
Single part bids: Date of tender opening  
Two/three part bids: Date of Part-I bid opening  
Reverse Auction: Date of Part-I bid opening  
In case of Performance Bank Guarantee (PBG) also, exchange rate will be considered as mentioned above for converting foreign currency to Indian currency and vice versa.  
  
If the relevant day happens to be a bank holiday, then the exchange rate as on the previous working day of the bank (SBI) shall be taken.
11. Ranking (L-1, L-2 etc.) shall be done only for the techno-commercially acceptable offers.

#### **INFORMATION ON PAYMENT TERMS:**

12. All payments will be through Electronic Fund transfer (EFT). Vendor has to furnish necessary details as per BHEL standard format (**Refer Annexure IV**) for receiving all payments through NEFT. (Applicable for Indian vendors only)
13. In case of High Sea Sales transaction, customs clearance of the consignment landed on Indian Sea / Air ports will be done by BHEL based on the original HSS documents provided by vendors. All warehousing charges due to delay in submission of complete and or correct HSS documents to BHEL will be to suppliers account only. Such recovery will be made out of any of the available bills. (**Refer Annexure V**).
14. Statutory deductions, if any, will be made and the deduction certificate shall be issued. In case vendor does not provide PAN details, the TDS deduction shall be at the maximum percentage stipulated as per the provisions of Income Tax Act. (Applicable for Indian vendors only).  
Foreign vendors shall submit relevant details of their bankers like Swift Code, Banker's Name & Address etc.
15. Vendors must submit bills & invoices along with required supporting documents in time. Incomplete documentation / delayed submission of invoice / documents will result in corresponding delay in payment.

#### **E. STANDARD PAYMENT TERMS OF BHEL-EDN**

#### **F. Purchase Orders for indigenous procurement**

#### **G. (a) SUPPLY WITH E&C:**

1. 85% of basic value (excluding E&C charges) + 100% of taxes, duties and freight charges will be paid in 45 days from the date of dispatch or 15 days from the date of submission of complete set of documentation whichever is later.

2. 15% of basic value (retention money), (excluding E&C charges) will be paid in 15 days from the date of submission of documents against supplementary invoice with proof of completion of E&C along with E & C charges (if any)

**(b) SUPPLY WITH SUPERVISION OF E&C:**

- 1) 90% basic value (excluding E&C charges) + 100% of taxes, duties and freight charges will be paid in 45 days from the date of dispatch or 15 days from the date of submission of complete set of documentation whichever is later.
- 2) 10% of basic value (retention money), (excluding E&C charges) will be paid in 15 days from the date of completion of erection and commissioning against supplementary invoice with proof of completion of E&C along with supervision charges (if any)

**3) (c) SUPPLY ONLY:**

- 1) 100% of PO value with taxes, duties and freight will be paid in 45 days from the date of dispatch or 15 days from the date of submission of complete set of documentation whichever is later.

Purchase orders for import procurement:

**(d) SUPPLY WITH E&C:**

- 1) 85% of the basic value (excluding E&C charges) will be paid in 45 days, against usance draft of 45 days, from the date of AWB/BOL on submission of complete set of documents.
- 2) 15% of basic value (retention money), (excluding E&C charges) will be paid in 15 days from the date of completion of E&C along with E & C charges against supplementary invoice with proof of completion of E&C (if any).

**(e) SUPPLY WITH SUPERVISION OF E&C:**

- 1) 90% of the value of the order will be paid on the 45th day, against usance draft of 45 days, from the date of AWB/BOL on submission of complete set of documents.
- 2) 10% of basic value (retention money) will be paid in 15 days from the date of completion of erection and commissioning against supplementary invoice with proof of completion of E&C along with supervision charges (if any).

**(f) SUPPLY ONLY:**

- 1) 100% of PO value will be paid against usance draft of 45 days from the date of dispatch or 15 days from the date of submission of complete set of documents whichever is later.

**LOADING FACTORS FOR PAYMENT TERMS:**

- 1) For offers received with requests for negotiation of documents through bank loading will be 15% of basic value (all bank charges to be borne by the seller).  
**(This loading factor is applicable only for purchase orders for indigenous supply).**
- 2) In all cases where credit period is 30 days but not in line with the above mentioned standard payment terms offered loading applicable will be 5% of basic value.  
**(This loading factor is applicable only for purchase orders for indigenous supply).**
- 3) For offers received with Letter of Credit payment term in place of sight draft payment term, loading applicable will be 5% of basic value. Additional loading of 5% will be applicable for payment terms as Letter of Credit with usance of less than 45 days.  
**(This loading factor is applicable only for purchase orders for imported supply).**

- 4) For offers received with Sight Draft payment terms with usance of less than 45 days, loading of 5% will be applicable.  
**(This loading factor is applicable only for purchase orders for imported supply).**
- 5) All payment terms with credit period of less than 30 days for indigenous supply and any other variation of payment terms are liable for rejection.
- 6) Standard payment terms indicated in para F (a), (b), (c), (d), (e) and (f) will not attract any loading.  
**Note 1:** Basic value of Purchase Order mentioned above will include all components of the purchase order and will exclude only taxes, duties, freight and E&C charges (wherever applicable).

Wherever the Purchase Order is split into import portion and indigenous portion of supply the retention money will be 15% or 10% (as applicable) of both purchase order values put together.

**Note 2: If the E&C could not be completed till the end of the Warranty period due to reasons not attributable to the supplier, BHEL may consider releasing the retention money to the supplier against Bank Guarantee for equivalent value valid for an initial period of one year.**

**G. Bank guarantee (BG) / Performance bank guarantee (PBG):**

1. Bank guarantee (BG) / Performance bank guarantee (PBG) will be applicable as called in the tender documents. Such PBG shall be valid for a period of 36 months + claim period of 6 months for a value equal to 10 % of the basic value of the purchase order. No deviation for the duration of PBG / BG will be permitted.
  - a. PBG shall be from any of the BHEL consortium of bankers (**refer Annexure VI**).
  - b. PBGs from nationalized banks are also acceptable.
  - c. PBG should be sent directly by the bank to the dealing executive mentioned in the purchase order located at the address mentioned in the purchase order. PBG should be in the format indicated. (**Refer annexures VII & VIII respectively**). No deviation to these formats will be allowed.
  - d. Confirmation from any of the BHEL consortium of banks or any of the Indian Public Sector Banks is essential for the acceptance of PBGs issued by foreign banks (located outside India).
  - e. Expired BGs / PBGs will be returned only after expiry of the claim period or on completion of the contractual obligation.
  - f. **Non acceptance for submission of PBG will attract loading as indicated below**
    - i. Loading will be equal to the percentage of value for which BG / PBG is not provided. (Ex: if PBG / BG is given for 3 % of the basic value against 10% specified, loading applicable will be 7% (10 – 3 = 7 %). This value will be added to the quoted price while evaluating the lowest offer.

**PROVISIONS APPLICABLE FOR MSE VENDORS (MICRO AND SMALL ENTERPRISES)**

Vendors who qualify as MSE vendors are requested to submit applicable certificates (as specified by the Ministry of Micro, Small and Medium Enterprises) at the time of vendor registration. Vendors have to submit any of the following documents along with the tender documents in the Part I / Technical bid cover to avail the applicable benefits. a. Valid NSIC certificate or

- b. Entrepreneur's Memorandum part II (EM II) certificate (deemed valid for 2 years). EM II certificate with CA certificate (**in the prescribed format given in Annexure IX**) applicable for the year certifying that the investment in plant and machinery of the vendor is within permissible limits as per the MSME Act 2006 for relevant status where the deemed validity is over.



- c. Documents submitted for establishing the credentials of MSE vendors must be valid as on the date of part I / technical bid opening for the vendors to be eligible for the benefits applicable for MSE vendors. Documents submitted after the Part I / Technical bid opening date will not be considered for this tender.

**PURCHASE PREFERENCE FOR MSE VENDORS:**

- d. MSE vendors quoting within a price band of L1 + 15% shall be allowed to supply up to 20% of the requirement against this tender provided
1. The MSE vendor matches the L1 price
  2. L1 price is from a non MSE vendor
  3. L1 price will be offered to the nearest vendor nearest to L1 in terms of price ranking (L2 - nearest to L1). In case of non-acceptance by the MSE vendor (L2) next ranking MSE vendor will be offered who is within the L1 + 15% band (if L3 is also within 15% band).
  4. 20% of the 20% (i.e. 4% of the total enquired quantity) will be earmarked for SC/ST owned MSE firms provided conditions as mentioned in (1) and (2) are fulfilled.
  5. In case no vendor under SC / ST category firms are meeting the conditions mentioned in (1) and (2) or have not participated in the tender, in such cases the 4% quantity will be distributed among the other eligible MSE vendors who have participated in the tender.
  6. Serial no. 1 to 5 will not be applicable wherever it is not possible to split the tendered quantity / items on account of customer contract requirement, or the items tendered are systems. Such information that tendered quantity will not be split will be indicated in the SCC.

**H. INTEGRITY COMMITMENT IN THE TENDER PROCESS, AND EXECUTION OF CONTRACTS:**

1. Commitment by BHEL:

BHEL commits to take all measures necessary to prevent corruption in connection with the Tender process and execution of the Contract. BHEL will, during the tender process, treat all bidder / suppliers in a transparent and fair manner, and with equity.

2. Commitment by Bidder(s)/ Contractor(s):

- a. The Bidder(s)/ Contractor(s) commit(s) to take all measures to prevent corruption and will not directly or indirectly try to influence any decision or benefit which he is not legally entitled to.
- b. The Bidder(s)/ Contractor(s) will not enter with other Bidder(s) into any undisclosed agreement or understanding or any actions to restrict competition.
- c. The Bidder(s)/ Contractor(s) will not commit any offence under the relevant Acts. The Bidder(s)/ Contractor(s) will not use improperly, for purposes of competition or personal gain or pass on to others, any information or document provided by BHEL as part of business relationship.
- d. The Bidder(s)/ Contractor(s) will, when presenting his bid, disclose any and all payments he has made, and is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract and shall adhere to the relevant guidelines issued from time to time by Government of India/ BHEL.

If the Bidder(s) / Contractor(s), before award or during execution of the Contract commit(s) a transgression of the above or in any other manner such as to put his reliability or credibility in question, BHEL is entitled to disqualify the Bidder(s) / Contractor (s) from the tender process or terminate the contract and/ or take suitable action as deemed fit.

**PURCHASE EXECUTIVE**



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 भारत हेवी इलेक्ट्रिकल्स लिमिटेड

Bharat Heavy Electricals Ltd.,  
 (A Government of India undertaking )  
 Electronics Division

PB 2606 , Mysore Road Bangalore , 560026 INDIA

CE: PR: 002- Rev 00

**GENERAL COMMERCIAL CONDITIONS FOR CONTRACT**

These 'General Commercial Conditions for Contract for Purchase' hereinafter referred to as GCC apply to all enquiries, tenders, requests for quotations, orders, contracts and agreements concerning the supply of goods and the rendering of related services (hereinafter referred to as "deliveries") to Bharat Heavy Electricals Limited and any of its units, regions or divisions (hereinafter referred to as "BHEL" or the Purchaser) or its projects / customers.

Any deviations from or additions to these GCC require BHEL's express written consent. The general terms of business or sale of the vendor shall not apply to BHEL. Acceptance, receipt of shipments or services or effecting payment shall not mean that the general terms of business or sale of the vendor have been accepted.

Orders, agreements and amendments thereto shall be binding if made or confirmed by BHEL in writing. Only the Purchasing department of BHEL is authorized to issue the Purchase Order or any amendment thereof.

Definitions: Throughout these conditions and in the specifications, the following terms shall have the meanings assigned to them, unless the subject matter or the context requires otherwise.

- 'The Purchaser' means Bharat Heavy Electricals Limited, Electronics division, Mysore road, Bangalore 560 026, a Unit of Bharat Heavy Electricals Limited (A Govt. of India Undertaking) incorporated under the Companies Act having its registered office at BHEL House, Siri Fort, New Delhi-110049, India and shall be deemed to include its successors and assigns. It may also be referred to as BHEL.
- 'The vendor' means the person, firm, company or organization on whom the Purchase Order is placed and shall be deemed to include the vendor's successors, representative heirs, executors and administrator as the case may be. It may also be referred to as Seller, Contractor or Supplier.
- 'Contract' shall mean and include the Purchase Order incorporating various agreements, viz. tender/ RFQ, offer, letter of intent / acceptance / award, the General Conditions of Contract and Special Conditions of Contract for Purchase, Specifications, Inspection / Quality Plan, Schedule of Prices and Quantities, Drawings, if any enclosed or to be provided by BHEL or his authorized nominee and the samples or patterns if any to be provided under the provisions of the contract.
- 'Parties to the Contract' shall mean the 'The Vendor' and the Purchaser as named in the main body of the Purchase Order.

Interpretation:

In the contract, except where the context requires otherwise:

- words indicating one gender include all genders;
- words indicating the singular also include the plural and words indicating the plural also include the singular;
- provisions including the word "agree", "agreed" or "agreement" require the agreement to be recorded in writing, and

- d) "Written" or "in writing" means hand-written, type-written, printed or electronically made, and resulting in a permanent record.

**Applicable Conditions:**

1. **Price Basis:** All prices shall be firm until the purchase order is executed / completed in all respects. No price variations / escalation shall be permitted unless otherwise such variations / escalations are provided for and agreed by BHEL in writing in the purchase order.
2. **Validity:** The offer will be valid for a period of 120 days from the date of technical bid opening date. Validity beyond 120 days, if required, will be specified in the SCC (special conditions of contract).
3. **Ordering and confirmation of Order:** Vendor shall send the order acceptance on their company letter head within two weeks from the date of Purchase Order or such other period as specified / agreed by BHEL. BHEL reserves the right to revoke the order placed if the order confirmation differs from the original order placed. The acceptance of goods/services/supplies by BHEL as well as payments made in this regard shall not imply acceptance of any deviations.

The purchase order will be deemed to have been accepted if no communication to the contrary is received within two weeks (or the time limit as specified / agreed by BHEL) from the date of the purchase order.

4. **Documentation:** After receipt of Purchase Order, vendor should submit required documents like drawings, bill of materials, datasheets, catalogues, quality plan, test procedure, type test report , O & M Manuals and/or any other relevant documents as per Specification/Purchase Order, as and when required by BHEL/Customer.

At any stage within the contract period, the vendor shall notify of any error, fault or other defect found in BHEL's documents /specifications or any other items for reference. If and to the extent that (taking account of cost and time) any vendor exercising due care would have discovered the error, fault or other defect when examining the documents/specifications before submitting the tender, the time for completion shall not be extended. However if errors, omissions, ambiguities, inconsistencies, inadequacies or other defects are found in the vendor's documents, they shall be corrected at his cost, notwithstanding any consent or approval.

5. **Penalty:**

**For delay in documentation:** In the event of delay in submission of complete set of documents ((like drawings, bill of materials, datasheets, catalogues, quality plan etc. as called in tender specifications including soft copies wherever applicable) in required sets beyond three weeks (or as agreed/indicated in the Purchase Order) from the date of Purchase Order, penalty at 0.5% (half percent) per week or part thereof, limited to a maximum of 5% (five percent) of the basic material value of the Purchase Order will be applicable.

**For delay in delivery:** In the event of delay in agreed contractual delivery as per Purchase Order, penalty @ 0.5% (half percent ) per week or part thereof but limited to a max of 10% (ten percent) value of undelivered portion (basic material cost) will be applicable. Delivery will commence from the date of document approval by customer / BHEL or date of issue of manufacturing clearance, whichever is later. The date for which Inspection call is issued by vendor along with test certificates / test reports / Certificate of Conformance / calibration reports, as proof of completion of manufacturing will be treated as date of deemed delivery for penalty calculation. In the absence of furnishing such document indicated above as proof of completion of manufacturing along with inspection call, actual date of inspection will be considered as date of deemed delivery and BHEL will not be responsible for delay in actual date of inspection.

Penalty for delayed documentation/delayed delivery, if applicable, shall be deducted at the time of first payment. If penalty is applicable for duration of less than a week, penalty @ 0.5% (half percent) of the basic material value will be deducted.

6. Contract variations (Increase or decrease in the scope of supply): BHEL may vary the contracted scope as per requirements at site. If vendor is of the opinion that the variation has an effect on the agreed price or delivery period, BHEL shall be informed of this immediately in writing along with technical details. Where unit rates are available in the Contract, the same shall be applied to such additional work. Vendor shall not perform additional work before BHEL has issued written instructions / amendment to the Purchase Order to that effect. The work which the vendor should have or could have anticipated in terms of delivering the service(s) and functionality (i.e.) as described in this agreement, or which is considered to be the result of an attributable error on the vendor's part, shall not be considered additional work.
7. Reverse Auction: BHEL reserves the right to follow REVERSE AUCTION PROCEDURE (ONLINE BIDDING ON NETWORK) before finalising the Purchase order on technically competent bidders, as per the guidelines given in Annexure III. In case BHEL does not resort to Reverse Auction, the price bids and price impacts (if any) already submitted and available with BHEL shall be opened as per BHEL's standard practice.
8. Inspection: Prior written notice of at least 10 days shall be given along with internal test certificates / COC and applicable test certificates. Materials will be inspected by BHEL-EDN-QS/CQS or BHEL nominated Third Party Inspection Agency (TPIA) or BHEL authorized Inspection Agency or Customer / Consultant or jointly by BHEL & Customer / consultant. All tests have to be conducted as applicable in line with approved Quality plan or QA Checklist or Purchase specification and original reports shall be furnished to BHEL-EDN, Bangalore for verification / acceptance for issue of dispatch clearance.  
All costs related to inspections & re-inspections shall be borne by vendor. Whether the Contract provides for tests on the premises of the vendor or any of his Sub-contractor/s, vendor shall be responsible to provide such assistance, labour, materials, electricity, fuels, stores, apparatus, instruments as may be required and as may be reasonably demanded to carry out such tests efficiently. Cost of any type test or such other special tests shall be borne by BHEL only if specifically agreed to in the purchase order.
9. Transit Insurance: Transit insurance coverage between vendor's works and project site shall be to the account of BHEL, unless specifically agreed otherwise. However, vendor shall send intimation directly to insurance agency (as mentioned in dispatch instructions issued by BHEL) through fax/courier/e-mail, immediately on dispatch of goods for covering insurance. A copy of such intimation sent by vendor to insurance agency shall be given to BHEL along with dispatch documents. Dispatch documents will be treated as incomplete without such intimation copy. BHEL shall not be responsible for sending intimations to insurance agency on behalf of the vendor.
10. High Sea Sales (HSS): Customs clearance of the consignment landed on Indian Sea / Air ports will be done by BHEL based on the original HSS documents provided by vendors.  
Any delay in submission of complete / correct HSS documents to BHEL may incur demurrage charges. All demurrage charges on account of incomplete / incorrect HSS documents submission by vendor will be to vendor's account and all such charges will be recovered from any of the available vendor bills with BHEL.
11. Packaging and dispatch: The Seller shall package the goods safely and carefully and pack them suitably in all respects considering the peculiarity of the material for normal safe transport by Sea / Air / Rail / Road to its destination suitably protected against loss, damage, corrosion in transit and the effect of tropical salt laden atmosphere. The packages shall be provided with fixtures / hooks and sling marks as may be required for easy and safe handling. If any consignment needs special handling instruction, the same shall be clearly marked with standard symbols / instructions. Hazardous material should be notified as such and their packing, transportation and other protection must conform to relevant regulations.

The packing, shipping, storage and processing of the goods must comply with the prevailing legislation and regulations concerning safety, the environment and working conditions. Any Imported/Physical Exports items packed with raw / solid wood packing material should be treated as per ISPM – 15 (fumigation) and accompanied by Phytosanitary / Fumigation certificate. If safety information sheets (MSDS – Material Safety Data Sheet) exist for an item or the packaging, vendor must provide this information without fail along with the consignment.

Each package must be marked with Consignee name, Purchase order number, Package number, Gross weight and net weight, dimensions (L x B x H) and Seller's name. Packing list of goods inside each package with PO item number and quantity must also be fixed securely outside the box to indicate the contents of each box. Total number of packages in the consignment must also be indicated.

Separate packing & identification of items should be as follows.

1. Main Scope - All items must be tagged with part no. & item description.
2. Commissioning spares - All items must be tagged with part no. & item description.
3. Mandatory spares - All items must be tagged with part no. & item description.

12. Assignment of Rights & Obligations; Subcontracting: Vendor is not permitted to subcontract the delivery or any part thereof to third party or to assign the rights and obligations resulting from this agreement in whole or in part to third parties without prior written permission from BHEL. Any permission or approval given by the BHEL shall, however, not absolve the vendor of the responsibility of his obligations under the Contract.
13. Progress report: Vendor shall render such report as to the progress of work and in such form as may be called for by the concerned purchase officer from time to time. The submission and acceptance of such reports shall not prejudice the rights of BHEL in any manner.
14. Non-disclosure and Information Obligations: Vendor shall provide with all necessary information pertaining to the goods as it could be of importance to BHEL. Vendor shall not reveal confidential information that may be divulged by BHEL to Vendor's employees not involved with the tender/ contract & its execution and delivery or to third parties, unless BHEL has agreed to this in writing beforehand. Vendor shall not be entitled to use the BHEL name in advertisements and other commercial publications without prior written permission from BHEL.
15. Cancellation / Termination of contract: BHEL shall have the right to completely or partially terminate the agreement by means of written notice to that effect. Termination of the Contract, for whatever reason, shall be without prejudice to the rights of the parties accrued under the Contract up to the time of termination. BHEL shall have the right to cancel/foreclose the Order/ Contract, wholly or in part, in case it is constrained to do so, on account of any decline, diminution, curtailment or stoppage of the business.
16. Risk Purchase Clause: In case of failure of supplier, BHEL at its discretion may make purchase of the materials / services NOT supplied / rendered in time at the RISK & COST of the supplier. Under such situation, the supplier who fails to supply the goods in time shall be wholly liable to make good to BHEL any loss due to risk purchase.  
In case of items demanding services at site like erection and commissioning, vendor should send his servicemen /representatives within 7 days from the service call. In case a vendor fails to attend to the service call, BHEL at its discretion may also make arrangements to attend such service by other parties at the **RISK & COST** of the supplier. Under such situation the supplier who fails to attend the service shall be wholly liable to make good to BHEL any loss due to risk purchase / service including additional handling charges due to the change.
17. Shortages: In the event of shortage on receipt of goods and/or on opening of packages at site, all such shortages shall be made good within a reasonable time that BHEL may allow from such intimation and free of cost. In case BHEL raises an insurance claim, the cost of material limited to insurance settled amount less handling charges will have to be reimbursed by the Supplier.

Transit Damages: In the event of receipt of goods in damaged condition or having found them so upon opening of packages at site, Supplier shall make good of all such damages within a reasonable time from such intimation by BHEL. In case BHEL raises an insurance claim, the cost of material limited to insurance settled amount less handling charges will be reimbursed.

18. Remedial work: Notwithstanding any previous test or certification, BHEL may instruct the vendor to remove and replace materials/goods or remove and re-execute works/services which are not in accordance with the purchase order. Similarly BHEL may ask the vendor to supply materials or to execute any services which are urgently required for any safety reasons, whether arising out of or because of an accident, unforeseeable event or otherwise. In such an event, Vendor shall provide such services within a reasonable time as specified by BHEL.
19. Indemnity Clause: Vendor shall comply with all applicable safety regulations and take care for the safety of all persons involved. Vendor is fully responsible for the safety of its personnel or that of his subcontractor's men / property, during execution of the Purchase Order and related services. All statutory payments including PF, ESI or other related charges have to be borne by the vendor. Vendor is fully responsible for ensuring that all legal compliances are followed in course of such employment.
20. Product Information, Drawings and Documents: Drawings, technical documents or other technical information received by Vendor from BHEL or vice versa shall not, without the consent of the other party, be used for any other purpose than that for which they were provided. They may not, without the consent of the Disclosing party, otherwise be used or copied, reproduced, transmitted or communicated to third parties. All information and data contained in general product documentation, whether in electronic or any other form, are binding only to the extent that they are by reference expressly included in the contract.  
Vendor, as per agreed date/s but not later than the date of delivery, provide free of charge information and drawings which are necessary to permit and enable BHEL to erect, commission, operate and maintain the product. Such information and drawings shall be supplied in as many numbers of copies as may be agreed upon.  
All intellectual properties, including designs, drawings and product information etc. exchanged during the formation and execution of the Contract shall continue to be the property of the disclosing party.
21. Intellectual Property Rights, Licenses: If any Patent, design, Trade mark or any other intellectual property rights apply to the delivery (goods / related service) or accompanying documentation shall be the exclusive property of the Vendor and BHEL shall be entitled to the legal use thereof free of charge by means of a non-exclusive, worldwide, perpetual license. All intellectual property rights that arise during the execution of the Purchase Order/ contract for delivery by vendor and/or by its employees or third parties involved by the vendor for performance of the agreement shall belong to BHEL. Vendor shall perform everything necessary to obtain or establish the above mentioned rights. The Vendor guarantees that the delivery does not infringe on any of the intellectual property rights of third parties. The Vendor shall do everything necessary to obtain or establish the alternate acceptable arrangement pending resolution of any (alleged) claims by third parties. The Vendor shall indemnify BHEL against any (alleged) claims by third parties in this regard and shall reimburse BHEL for any damages suffered as a result thereof.
22. Force Majeure: Notwithstanding anything contained in the purchase order or any other document relevant thereto, neither party shall be liable for any failure or delay in performance to the extent said failures or delays are caused by the "Act of God" and occurring without its fault or negligence, provided that, force majeure will apply only if the failure to perform could not be avoided by the exercise of due care and vendor doing everything reasonably possible to resume its performance.  
A party affected by an event of force majeure which may include fire, tempest, floods, earthquake, riot, war, damage by aircraft etc., shall give the other party written notice, with full details as soon as possible and in any event not later than seven (7) calendar days of the occurrence of the cause relied upon. If force majeure applies, dates by which performance obligations are scheduled to be met will be extended for a period of time equal to the time lost due to any delay so caused.

Notwithstanding above provisions, in an event of Force Majeure, BHEL reserves for itself the right to cancel the order/ contract, wholly or partly, in order to meet the overall project schedule and make alternative arrangements for completion of deliveries and other schedules.

23. Guarantee / Warranty: Wherever required, and so provided in the specifications / Purchaser Order, the Seller shall guarantee that the stores supplied shall comply with the specifications laid down, for materials, workmanship and performance. Unless otherwise specified, guarantee / warranty period shall be 30 months after the date of delivery of goods or 24 months from the date of commissioning of goods whichever is earlier. The guarantee / warranty period as described above shall apply afresh to replaced, repaired or re-executed parts of a delivery. Unless otherwise specifically provided in the Purchase Order, Vendor's liability shall be co terminus with the expiration of the applicable guarantee / warranty period.
24. Limitation of Liability: Vendor's liability towards this contract is limited to a maximum of 100% of the contract value and consequential damages are excluded. However the limits of liability will have no effect in cases of criminal negligence or wilful misconduct.  
The total liability of Vendor for all claims arising out of or relating to the performance or breach of the Contract or use of any Products or Services or any order shall not exceed the total Contract price.
25. Liability during guarantee / warranty: Vendor shall arrange replacement / repair of all the defective materials / services under its obligation under the guarantee / warranty period. The rejected goods shall be taken away by vendor and replaced / repaired. In the event of the vendor's failure to comply, BHEL may take appropriate action including disposal of rejections and replenishment by any other sources at the cost and risk of the vendor.  
In case, defects attributable to vendor are detected during first time commissioning or use, vendor shall be responsible for replacement / repair of the goods as required by BHEL at vendor's cost. In all such cases expiry of guarantee / warranty will not be applicable.
26. Liability after guarantee / warranty period: At the end of the guarantee / warranty, the Vendor's liability ceases except for latent defects (latent defects are defects / performance issues notices after the guarantee / warranty has expired). The Contractor's liability for latent defects warranty for the plant and equipment including spares shall be limited to a period of six months from the end of the guarantee / warranty period of the respective plant and equipment including spares or first time commissioning whichever is later but not later than 3 (three) years from the date of shipment.
27. Compliance with Laws: Vendor shall, in performing the contract, comply with all applicable laws. The vendor shall make all remittances, give all notices, pay all taxes, duties and fees, and obtain all permits, licences and approvals, as required by the laws in relation to the execution and completion of the contract and for remedying of any defects; and the Contractor shall indemnify and hold BHEL harmless against and from the consequences of any failure to do so.
28. Settlement of Disputes: Except as otherwise specifically provided in the Purchase Order, decision of BHEL shall be binding on the vendor with respect to all questions relating to the interpretation or meaning of the terms and conditions and instructions herein before mentioned and as to the completion of supplies/work/services, other questions, claim, right, matter or things whatsoever in any way arising out of or relating to the contract, instructions, orders or these conditions or otherwise concerning the supply or the execution or failure to execute the order, whether arising during the schedule of supply/work or after the completion or abandonment thereof. Any disputes or differences among the parties shall to the extent possible be settled amicably between the parties thereto, failing which the disputed issues shall be settled through arbitration. Vendor shall continue to perform the contract, pending settlement of dispute(s).

29. Arbitration Clause: In case amicable settlement is not reached in the event of any dispute or difference arising out of the execution of the Contract or the respective rights and liabilities of the parties or in relation to interpretation of any provision in any manner touching upon the Contract, such dispute or difference shall (except as to any matters, the decision of which is specifically provided for therein) be referred by either party to the sole arbitration of an Arbitrator appointed by the Executive Director/ General Manager of the purchasing unit/ region/ division of BHEL. Vendor shall have no objection even if the Arbitrator so appointed is an employee of BHEL or has ever dealt/ had to deal with any matter relating to this Contract.

Subject as aforesaid the provisions of the Arbitration and Conciliation Act, 1996 of India or any statutory modification or re-enactment thereof and the rules made there under and for the time being in force shall apply to the arbitration proceedings under this clause. It is a term of contract that the party initiating arbitration shall specify the dispute or disputes to be referred to arbitration under this clause together with the amount or amounts claimed in respect of each such dispute. The venue for the arbitration shall be Bangalore, India. The award of the arbitrator shall be a speaking award and shall be final, conclusive and binding on all parties to this contract.

The cost of arbitration shall be borne equally by the parties. Notwithstanding the existence of any dispute or difference or any reference for the arbitration, the vendor shall proceed with and continue without hindrance the performance of the work under the contract with due diligence and expedition in a professional manner.

30. Applicable Laws and Jurisdiction of Courts: Prevailing Indian laws both substantive and procedural, including modifications thereto, shall govern the Contract. Subject to the conditions as aforesaid, the competent courts in BANGALORE alone shall have jurisdiction to consider over any matters touching upon this contract.

31. General Terms: That any non-exercise, forbearance or omission of any of the powers conferred on BHEL and /or any of its authorities will not in any manner constitute waiver of the conditions hereto contained in these presents.

That the headings used in this agreement are for convenience of reference only.

That all notices etc., to be given under the Purchase order shall be in writing, type script or printed and if sent by registered post or by courier service to the address given in this document shall be deemed to have been served on the date when in the ordinary course, they would have been delivered to the addressee.



**ANNEXURE - I**  
**LIST OF INTERNATIONAL GATEWAY AIRPORTS**

For airbased consignment, terms of delivery will be on FCA basis from following listed airports only. This list is valid from 01.03.2013 to 28.02.2015. Vendors are requested to verify this list for use after 28.02.2015.

SCHEDULE NO	COUNTRY	CURRENCY CODE	AIRPORT
D01	UK	GBP	LONDON (HEATHROW)
D02	UK	GBP	NEW CASTLE
D03	UK	GBP	OXFORD. CHETLAM
D04	UK	GBP	BRISTOL. WELLINGBOROUGH
D05	UK	GBP	BIRMINGHAM
D06	UK	GBP	EAST MIDLANDS
D07	UK	GBP	MANCHESTER
D08	UK	GBP	LEEDS
D09	UK	GBP	GLASGOW
D10	FRANCE	EURO	PARIS (ROISSY) & LYON
D11	SWEDEN	EURO	STOCKHOLM
D12	SWEDEN	EURO	GOTHENBERG & MALMO
D13	ITALY	EURO	ROMA, MILAN
D14	ITALY	EURO	TURIN, BOLOGNA, FLORENCE
D15	NETHERLANDS	EURO	AMSTERDAM, ROTTERDAM
D16	AUSTRIA	EURO	VIENNA, LINZ, GRAZ
D17	BELGIUM	EURO	ANTWERP, BRUSSELS
D18	DENMARK	DKK	COPENHAGEN
D19	JAPAN	JPY	TOKYO, OSAKA
D20	SINGAPORE	SGD	SINGAPORE
D21	CANADA	CAD	TORONTO
D22	CANADA	CAD	MONTREAL
D23	USA	USD	NEW YORK, BOSTON
D24	USA	USD	CHICAGO
D25	USA	USD	SAN FRANCISCO, LOS ANGELES
D26	USA	USD	ALANTA, HOUSTON
D27	GERMANY	EURO	MUNICH, KOLN, DUSSELDORF, HANNOVER, HAMBURG, STUTTGART, DAMSTADT, MANIHIEM, NURUMBERG
D28	GERMANY	EURO	FRANKFURT
D29	GERMANY	EURO	BERLIN
D30	SWITZERLAND	SFR	BASLE, ZURICH, GENEVA
D31	SPAIN	EURO	BARCELONA
D32	AUSTRALIA	AUD	SYDNEY
D33	AUSTRALIA	AUD	MELBOURNE
D34	AUSTRALIA	AUD	PERTH
D35	CZECH	EURO	PRAGUE
D36	HONG KONG	HKD	HONG KONG
D37	NEW ZELAND	NZD	AUCKLAND
D38	RUSSIA	USD	MOSCOW
D39	SOUTH KOREA	USD	KIMPO INTERNATIONAL, INCHEON
D40	FINLAND	EURO	HELSINKI
D41	ROMANIA	EURO	BUCHAREST
D42	NORWAY	EURO	OSLO
D43	IRELAND	EURO	DUBLIN
D44	ISRAEL	USD	TEL AVIV
D45	UAE	USD	DUBAI
D46	OMAN	USD	MUSCAT
D47	EGYPT	USD	CAIRO

D48	TAIWAN	USD	TAIPEI
D49	UKRAINE	USD	KIEV
D50	CHINA	USD	SHANGHAI, SHENZHEN
D51	PHILIPINES	USD	MANILA
D52	MALAYSIA	USD	KUALALUMPUR, PE NANG
D53	CYPRUS	USD	LARNACA
D54	SOUTH AFRICA	USD	JOHANNESBERG, DURBAN
D55	SLOVAKIA	EURO	BARTISLOVA
D56	SAUDI ARABIA	SAR	RIYADH
D57	TURKEY	EURO	ISTANBUL
D58	THAILAND	USD	BANGKOK
D59	BRAZIL	USD	SAO PAULO, RIO DE JANEIRO

**ANNEXURE – II**  
**DISCREPANCY IN WORDS & FIGURES – QUOTED IN PRICE BID**

Following guidelines will be followed in case of discrepancy in words & figures-quoted in price bid:

- (a) If, in the price structure quoted for the required goods/services/works, there is discrepancy between the unit price and the total price (which is obtained by multiplying the unit price by the quantity), the unit price shall prevail and the total price corrected accordingly, unless in the opinion of the purchaser there is an obvious misplacement of the decimal point in the unit price, in which case the total price as quoted shall govern and the unit price corrected accordingly.
- (b) If there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail and the total shall be corrected; and
- (c) If there is a discrepancy between words and figures, the amount in words shall prevail, unless the amount expressed in words is related to an arithmetic error, in which case the amount in figures shall prevail subject to (a) and (b) above.
- (d) If there is such discrepancy in an offer, the same shall be conveyed to the bidder with target date upto which the bidder has to send his acceptance on the above lines and if the bidder does not agree to the decision of the purchaser, the bid is liable to be ignored.

**ANNEXURE-III**  
**GUIDELINES FOR REVERSE AUCTION PROCEDURE**

Against this enquiry for the subject item/ system with detailed scope of supply as per enquiry specifications, BHEL may resort to "REVERSE AUCTION PROCEDURE" i.e., ON LINE BIDDING (THROUGH A SERVICE PROVIDER). The philosophy followed for reverse auction shall be English Reverse (No ties).

1. For the proposed reverse auction, technically and commercially acceptable bidders only shall be eligible to participate.
2. Those bidders who have given their acceptance for Reverse Auction (quoted against this tender enquiry) will have to necessarily submit "online sealed bid" in the Reverse Auction. Non-submission of "online sealed bid" by the bidder for any of the eligible items for which techno-commercially qualified, will be considered as tampering of the tender process and will invite action by BHEL as per extant guidelines in vogue.
3. BHEL will engage the services of a service provider who will provide all necessary training and assistance before commencement of on line bidding on internet.
4. In case of reverse auction, BHEL will inform the bidders the details of Service Provider to enable them to contact & get trained.

5. Business rules like event date, time, bid decrement, extension etc. also will be communicated through service provider for compliance.
6. Bidders have to fax the Compliance form before start of Reverse auction. Without this, the bidder will not be eligible to participate in the event.
7. In line with the NIT terms, BHEL will provide the calculation sheet (e.g., EXCEL sheet) which will help to arrive at "Total Cost to BHEL" like Packing & forwarding charges, Taxes and Duties, Freight charges, Insurance, Service Tax for Services and loading factors (for noncompliance to BHEL standard Commercial terms & conditions) for each of the bidder to enable them to fill-in the price and keep it ready for keying in during the Auction.
8. Reverse auction will be conducted on scheduled date & time.
9. At the end of Reverse Auction event, the lowest bidder value will be known on auction portal.
10. The lowest bidder has to fax/e-mail the duly signed and filled-in prescribed format for price breakup including that of line items, if required, as provided on case-to- case basis to Service provider within two working days of Auction without fail.
11. In case BHEL decides not to go for Reverse Auction procedure for this tender enquiry, the Price bids and price impacts, if any, already submitted and available with BHEL shall be opened as per BHEL's standard practice.
12. Bidders shall be required to read the "Terms and Conditions" section of the auctions site of Service provider, using the Login IDs and passwords given to them by the service provider before reverse auction event. Bidders should acquaint themselves of the "Business Rules of Reverse Auction", which will be communicated before the Reverse Auction.
13. If the Bidder or any of his representatives are found to be involved in Price manipulation/ cartel formation of any kind, directly or indirectly by communicating with other bidders, action as per extant BHEL guidelines, shall be initiated by BHEL and the results of the RA scrapped/ aborted.
14. The Bidder shall not divulge either his Bids or any other exclusive details of BHEL to any other party.
15. In case BHEL decides to go for reverse auction, the H1 bidder (whose quote is highest in online sealed bid) may not be allowed to participate in further RA process.

**ANNEXURE - IV**  
**Electronic Funds Transfer (EFT) OR**  
**Paylink Direct Credit Form**

Please Fill up the form in **CAPITAL LETTERS** only.

TYPE OF REQUEST(Tick one): \_\_\_\_\_ CREATE \_\_\_\_\_ CHANGE

City:	
BHEL Vendor / Supplier Code:	
Company Name :	
Permanent Account Number(PAN):	
Address	

PINCODE  STATE

Contact Person(s)	
Telephone No:	
Fax No:	
e-mail id:	

1 Bank Name:	
2 Bank Address:	

3 Bank Telephone No:	
4 Bank Account No:	

5 Account Type: Savings/Cash Credit

6 9 Digit Code Number of Bank and branch

appearing on MICR cheque issued by Bank

7 Bank IFSC Code(applicable for NEFT )

8 Bank IFSC code(applicable for RTGS)  (Indian Financial System Code)

- A I hereby certify that the particulars given above are true, correct and complete and that I, as a representative for the above named Company, hereby authorise BHEL, EDN, Bangalore to electronically deposit payments to the designated bank account.
- B If the transaction is delayed or not effected at all for reasons of incomplete or incorrect information, I would not hold BHEL / transferring Bank responsible.
- C This authority remains in full force until BHEL, EDN, Bangalore receives written notification requesting a change or cancellation.
- D I have read the contents of the covering letter and agree to discharge the responsibility expected of me as a participant under ECS / EFT.

Date:

Authorised Signatory:

Designation: Telephone No. with STD Code

Company Seal

**Bank Certificate**

We certify that \_\_\_\_\_ has an Account No \_\_\_\_\_ with us and we confirm that the bank details given above are correct as per our records.

Date: \_\_\_\_\_ ( ..... )  
 Place: \_\_\_\_\_ Signature

---

Please return completed form **along with a blank cancelled cheque or photocopy** thereof to:  
Bharath Heavy Electricals Ltd, Attn:  
Electronics Division, Mysore Road,  
BANGALORE - 560 026  
In case of any Querry, please call concerned purchase executive.

**ANNEXURE - V**  
**PRESENT PROCEDURE FOR SALE IN TRANSIT (HIGH SEA SALES)**

In case of High Sea Sales, vendor should submit following documents:

**1. ORIGINAL HIGH SEA SALES AGREEMENT**

- Sale agreement (on Rs. 200/- non-judicial stamp paper & notarised with 2 witnesses with identity) has to be signed between BHEL and the Party importing material. The date of the sale documents should be in between the date of House Air Way Bill / Bill of Lading and before landing of the goods in Indian origin.
- The date of the stamp paper should be prior to the Air Way Bill / Bill of Lading date.
- Following shall be included in the High Sea Sales Agreement:  
“THE BUYER ALSO UNDERTAKE DISCHARGES, THE OBLIGATION AND FULFILLMENT OF CONDITIONS, IF ANY, ATTACHED TO THE IMPORTATION, ASSESSMENT AND CLEARANCE OF THE GOODS IN TERMS CUSTOMS TARIFF ACT 1975, THE CUSTOMS ACT 1962 & RULES & REGULATIONS MADE THERE UNDER AND OTHER RELEVANT ACTS, ORDERS, NOTIFICATIONS”.

**2. ORIGINAL INVOICES: INDIGENOUS RUPEE INVOICE & FOREIGN CURRENCY INVOICE**

- Prices should be C.I.F., designated airport/seaport basis.
  - I.E.C., C.S.T., K.S.T. Nos. to be mentioned.
  - Description of item (Nomenclature), Unit & Quantity in both the Foreign Currency & the Indigenous Invoice in Rupee shall be exactly as per Purchase Order Description of item, Quantity and Unit. The Indigenous Invoice value shall be exactly as per Purchase Order value.
  - Seller should give Foreign Currency Invoice from the original consignor. The Foreign Currency Invoice value should be at least 2% (two per cent) less than the Indigenous Rupee Invoice value in equivalent foreign currency.

**4. ORIGINAL HOUSE AIR WAY BILL/ BILL OF LADING**

- The sale agents should duly endorse House Air Way Bill (HAWB) for air shipments or original Bill of Lading (O.B.L.) for sea shipments and Foreign Currency Invoice in favour of BHEL-EDN.

**5. ORIGINAL CARGO ARRIVAL NOTICE FROM FORWARDER.**

**6. ORIGINAL DELIVERY ORDER ISSUED IN NAME OF BHEL-EDN.**

**7. ORIGINAL PACKING LIST.**

**8. A LETTER TO THE COMMISSIONER OF CUSTOMS FOR EFFECTING ABOVE SALE.**

**9. A LETTER TO THE DEPUTY ASSESSOR (OCTROI) FOR EFFECTING ABOVE SALE IN FAVOUR OF BHEL.**

**REMARKS:** In case vendor needs any clarifications on the above, the same may be sought in writing.



## Annexure-VI

### BHEL MEMBER BANKS (LIST OF CONSORTIUM BANKS)

**BANK GUARANTEE (BG) SHALL BE ISSUED FROM THE FOLLOWING BANKS ONLY:**

	<b>Nationalised Banks</b>		<b>Nationalised Banks</b>
1	Allahabad Bank	19	Vijaya Bank
2	Andhra Bank		<b>Public Sector Banks</b>
3	Bank of Baroda	20	IDBI
4	Canara Bank		<b>Foreign Banks</b>
5	Corporation Bank	21	CITI Bank N.A
6	Central Bank	22	Deutsche Bank AG
7	Indian Bank	23	The Hongkong and Shanghai Banking Corporation Ltd. (HSBC)
8	Indian Overseas Bank	24	Standard Chartered Bank
9	Oriental Bank of Commerce	25	The Royal Bank of Scotland N.V.
10	Punjab National Bank	26	J P Morgan
11	Punjab & Sindh Bank		<b>Private Banks</b>
12	State Bank of India	27	Axis Bank
13	State Bank of Hyderabad	28	The Federal Bank Limited
14	Syndicate Bank	29	HDFC Bank
15	State Bank of Travancore	30	Kotak Mahindra Bank Ltd
16	UCO Bank	31	ICICI Bank
17	Union Bank of India	32	IndusInd Bank
18	United Bank of India	33	Yes Bank

**Note:**

- All BGs must be issued from BHEL consortium banks listed above.
- BHEL may accept BG from other Nationalised Banks also which are not listed above.
- BG will not be accepted from Scheduled Banks and Co-operative Banks.

- In case BG is issued from a bank located outside Indian territory and is issued in foreign currency, the BG must be routed through and confirmed by any one of the above mentioned consortium banks or any of the Indian Public Sector Banks.
- This list is subject to changes. Hence vendors are requested to check this list every time before issuing BGs.

**ANNEXURE-VII**  
**PROFORMA OF PERFORMANCE BANK GUARANTEE**  
**(For Bank Guarantees issued in Indian Rupees by Banks in India)**

**Note:**

- To be executed in Rs. 100/- Non-Judicial stamp paper.
- To be submitted by issuing bank to Purchase Dept. directly. Please give BHEL address to banker.
- Do not enclose with Bank document.
- Modifications and additions/deletions to this BG format are not permitted.

**PERFORMANCE GUARANTEE (PROFORMA OF BANK GUARANTEE)**

Ref no: (BG No.) \_\_\_\_\_

THIS DEED OF GUARANTEE made and executed on the \_\_\_\_\_ day of \_\_\_\_\_ (month & year), by the \_\_\_\_\_ (Bank), registered under the Companies Act 1956/Nationalised Bank constituted under the Banking Companies (acquisition and transfer of undertakings) Act constituted under the State Bank of India Act / Subsidiary Banks Act, having its registered / head office at \_\_\_\_\_ represented herein by its Branch Manager / authorised representatives Sri. \_\_\_\_\_ & Sri. \_\_\_\_\_ (Hereinafter called 'guarantor' which term shall mean and include its successors and assigns)

**IN FAVOUR OF BHARAT HEAVY ELECTRICALS LIMITED**

\_\_\_\_\_ (Buyer's Name), a company registered under the companies Act, 1956 having its registered office at BHEL House at Siri Fort, New Delhi-110 049 and its Electronics Division at Mysore Road, Bangalore - 26 (hereinafter referred to as the 'Company' Which term shall include its successors and assigns):

Whereas the company has placed an order on \_\_\_\_\_ (State the name of the company / firm and its address) (hereinafter referred to as the 'Supplier' which term shall mean and include its liquidators, successors and assign) for the supply of system under order / Contract No \_\_\_\_\_ Dtd \_\_\_\_\_.

AND WHEREAS the supplier has agreed to supply the materials and carryout the works as detailed and in accordance with the terms set out in the said order / contract.

AND WHEREAS the company is not required to pay to the supplier a sum of Rupees \_\_\_\_\_ being the 10% of the value of the goods supplied / Works performed / Services rendered under the said order / contract between the supplier and the company, till the company is satisfied with the mechanical Warranties and the performance standards stipulated in the said order / contract between the company and the supplier has been duly fulfilled, except, against a Bank Guarantee for the said sum of Rs. \_\_\_\_\_ in favour of the company by reputed Bank, in which case the company has agreed to make payment to the supplier of the said sum of Rupees \_\_\_\_\_ being (10%) of the value of the goods supplied / Works performed / Services rendered under the agreement between the supplier and the company and the Guarantor has at the request of the supplier, agreed to furnish this Guarantee subject to the terms and conditions stated below :

NOW THIS DEED WITNESSES THAT IN pursuance of the above said agreement, the guarantor hereby agrees and covenants with company is as follows:

- 1) That during the period this contract of Guarantee remains effectual, the guarantor shall be liable in respect of the amount due and owing to the company in respect of the payments to the extent of Rs \_\_\_\_\_ (in words) \_\_\_\_\_ against any loss or damage caused to or suffered by the company by reasons of any breach of the terms of the said order / contract / Agreement by the supplier
- 2) The Guarantor hereby undertakes to pay the amounts and payable under this guarantee without any demur, merely on demand from the company intimating that the amount claimed is due by way of loss or damage caused to or suffered or would be caused or suffered by any terms contained in the said order/contract. Any such demand made on the guarantor shall be conclusive as regards the amount due and payable by the Guarantor irrespective of the fact whether the contractor/supplier admits or denies.
- 3) The Guarantor further agrees that the agreement herein contained shall remain in force and effect till all supplies to be made /works to be performed / services to be rendered under the said order /contract /agreement are completed to the entire satisfaction of the company or till company certifies that the terms and conditions of the said order / contract agreement have been fully and properly carried out by the said supplier and accordingly discharges the Guarantee. Unless a demand or claim under this guarantee is made on the guarantor in writing on or before the expiry of claim period indicated in clause 6 below, the guarantor shall be discharged from all the liability under this guarantee thereafter.

- 4) The guarantor further agrees with the company that the company shall have the fullest liberty without the consent of the guarantor and without effecting in any manner the obligations of the guarantor hereunder to vary any of the terms of the said order / contract / agreement or extend the time of performance by the said supplier from time to time or refrain from exercising the power exercisable by the company against the said supplier or to forebear or omit to enforce any of the terms and conditions relating to the said order / contract / agreement, and the guarantor shall not be relieved of its liability in whole or in part, by reason of any act, commission or forbearance on the part of the company or by reason of any such variation, or extension being granted to the said supplier or by reason of any such matter or thing whatsoever which under the law relating to sureties would but for this provision have effect of so relieving the guarantor.
- 5) The guarantor undertakes not to revoke this guarantee during its currency except with the previous consent of the company in writing.
- 6) Notwithstanding anything herein above obtained, the liability of the guarantor under these presents is restricted to Rs.\_\_\_\_\_. The guarantee shall be in force till its expiry on \_\_\_\_\_ unless a demand is made on the guarantor within SIX months from the date of expiry, all the liability of the guarantor under this guarantee shall stand fully discharged. The decision of the claimant in regard to breach of contract is final and binding on the Bank.

IN WITNESS whereof, the guarantor, acting through it authorised representative has executed this deed of Guarantee on the day, month and year first above written.

**(Seal of the Bank to be affixed)**  
**For & On behalf of \_\_\_\_\_ Bank**  
**Signature of authorized person with**  
**seal & designation**

**WITNESS:**

- 1.
- 2.

**ANNEXURE-VIII**  
**PROFORMA OF PERFORMANCE BANK GUARANTEE**  
**(For Bank Guarantees issued in Foreign Currency by Banks located outside India)**

**BANK NAME AND ADDRESS**

**Electronics Division**  
**Bharat Heavy Electrical Limited (B.H.E.L.),**  
**Mysore Road, P.B. No. 2606,**  
**Bangalore- 560 026 Dear**

Sir,

**Sub : CONTRACT PERFORMANCE GUARANTEE      Ref no. ....      Dtd.....**

WHEREAS you have entered into a contract reference No & PO NO. \_\_\_\_\_  
Date \_\_\_\_\_ with M/s \_\_\_\_\_ having its registered office at  
\_\_\_\_\_ for the supply of \_\_\_\_\_ as detailed in your purchase  
order No. \_\_\_\_\_ which is hereinafter referred to as "the said contract" and WHEREAS M/s  
\_\_\_\_\_ has undertaken to produce a Bank Guarantee for **10% (Ten Percent)**  
of the contract price amounting to \_\_\_\_\_  
( \_\_\_\_\_ ) to secure its obligations to Electronics Division, BHEL  
having its registered office at New Delhi for the performance of the contract including the warranty of the  
equipment supplied, We \_\_\_\_\_ Bank,  
\_\_\_\_\_ hereby expressly, irrevocably and unreservedly undertake and  
guarantee as principal obligors on behalf of M/s \_\_\_\_\_ that in the event Bharat  
Heavy Electricals Ltd. (B.H.E.L.) declares to us in writing that M/s \_\_\_\_\_  
has not fulfilled any obligors according to the contractual obligation of the said contract, to pay you on  
demand and without demur to Bharat Heavy Electricals Ltd., Electronics Division, Mysore Road, P.B.No. 2606,  
Bangalore - 560 026., India an amount of \_\_\_\_\_ (in  
words \_\_\_\_\_) subject to as  
may be determined below :

1. Notwithstanding any right M/s. \_\_\_\_\_ may have directly against or any disputes raised by M/s. \_\_\_\_\_, Your written demand shall be conclusive evidence to us that repayment is due under the terms of the said contract and shall be binding on us.
2. We shall not be discharged or released from this undertaking and Guarantee by any arrangements, variations made between you and M/s. \_\_\_\_\_ with or without our consent and knowledge or by any alteration in the obligations of M/s. \_\_\_\_\_ by any forbearance whether as to payment, time, performance or otherwise.
3. This guarantee shall remain valid until the end of six months after the close of the warranty period or until the same is reported by BHEL to us whichever is earlier.
4. We agree and undertake not to revoke this guarantee during its validity unless discharged in writing by you subject to the provision of clause (7) below :
5. This guarantee shall be a continuing guarantee subject to the foregoing and shall not be discharged by any change in the constitution of the Bank or M/s. \_\_\_\_\_ .
6. This guarantee shall be governed by and constructed in accordance with the Laws of India.
7. At any time \_\_\_\_\_ Bank may render this guarantee null and void by paying to Bharat Heavy Electricals Ltd. the full amount being \_\_\_\_\_ ( in words \_\_\_\_\_ )

**For and On behalf of Bank  
By its Authorised Signatory**

**Annexure - IX**  
**Certificate by Chartered Accountant on Letter Head**

This is to certify that M/s .....  
.....(Hereinafter referred to as `Company`)  
having its registered office at ..... is registered under MSMED Act 2006,  
(Entrepreneur Memorandum No (Part-II ..... dtd .....  
Category: ..... (Micro/Small). (Copy enclosed).

Further verified from the Books of Accounts that the investment of the company as on  
date..... **as per MSMED Act 2006 is as follows:**

- 1. For Manufacturing Enterprises:** Investment in plant and machinery ( i.e., original cost excluding land and building and the items specified by the Ministry of Small Industries vide its notification No.S.O.1722 (E) dated October 5, 2006:
  
- 2. For Service Enterprises:** Investment in equipment (original cost excluding land and building and furniture, fittings and other items not directly related to the service rendered or as may be notified under the MSMED Act, 2006: Rs.  
.....Lacs.

The above investment of Rs. .... Lacs in within permissible limit of  
Rs..... Lacs for.....Micro / Small (Strike off which is not  
applicable ) Category under MSMED Act 2006.

Date:

(Signature)

Name -

Membership Number -

Seal of Chartered Accountant

- Vendor to confirm whether any Indian agent is applicable to  
you. Vendor's reply: **YES/NO**

( Definition if Indian Agent can be found below )



- **Definition of Indian Agent:** An Indian Agent of foreign principal is an individual, a partnership, an association of persons, a private or public company, that carries out specific obligation(s) towards processing of BHEL tender or finalization or execution of BHEL's contract on behalf of the foreign supplier.

In case of yes, vendor to note the following and reply accordingly:

- BHEL shall deal directly with foreign vendors, wherever required, for procurement of goods. However, if the foreign principal desires to avail of the services of an Indian agent, then the foreign principal should ensure compliance to regulatory guidelines - which require mandatory submission of an Agency Agreement.
- It shall be incumbent on the Indian agent and the foreign principal to adhere to the relevant guidelines of Government of India, issued from time to time.
- The Agency Agreement should specify the precise relationship between the foreign OEM / foreign principal and their Indian agent and their mutual interest in the business. All services to be rendered by agent/ associate, whether of general nature or in relation to the particular contract, must be clearly stated by the foreign supplier/ Indian agent. Any payment, which the agent or associate receives in India or abroad from the OEM, whether as commission or as a general retainer fee should be brought on record in the Agreement and be made explicit in order to ensure compliance to laws of the country.
- Any agency commission to be paid by BHEL to the Indian agent shall be in Indian currency only.
- Tax deduction at source is applicable to the agency commission paid to the Indian agent as per the prevailing rules.
- In the absence of any agency agreement, BHEL shall not deal with any Indian agent (authorized representatives / associate / consultant, or by whatever name called) and shall deal directly with the foreign principal only for all correspondence and business purposes.
- The "Guidelines for Indian Agents of Foreign Suppliers" enclosed at annexure -'A' shall apply in all such cases.

VENDOR SIGNATURE WITH SEAL

- viii. The supply and execution of the Purchase Order (including indigenous supplies/ service) shall be in the scope of the OEM/ foreign principal. The OEM/ foreign principal should submit their offer inclusive of all indigenous supplies/ services and evaluation will be based on 'total cost to BHEL'. In case OEM/ foreign principal recommends placement of order(s) towards indigenous portion of supplies/ services on Indian supplier(s)/ agent on their behalf, the credentials/ capacity/ capability of the Indian supplier(s)/ agent to make the supplies/ services shall be checked by BHEL as per the extant guidelines of Supplier Evaluation, Approval & Review Procedure (SEARP), before opening of price bids. In this regard, details may be checked as per Annexure-B (copy enclosed). It will be the responsibility of the OEM/ foreign principal to get acquainted with the evaluation requirements of Indian supplier/ agent as per SEARP available on [www.bhel.com](http://www.bhel.com).

The responsibility for successful execution of the contract (including indigenous supplies/ services) lies with the OEM/ foreign principal. All bank guarantees to this effect shall be in the scope of the OEM/ foreign principal.

---X---

VENDOR SIGNATURE WITH  
SEAL

**Guidelines for Indian Agents of Foreign Suppliers**

- 1.0 There shall be compulsory registration of agents for all Global (Open) Tender and Limited Tender. An agent who is not registered with BHEL shall apply for registration in the registration form in line with SEARP.
- 1.1 Registered agents will file an authenticated Photostat copy duly attested by a Notary Public/Original certificate of the Principal confirming the agency agreement and giving the status being enjoyed by the agent and the commission/ remuneration/ salary/ retainership being paid by the principal to the agent before the placement of order by BHEL.
- 1.2 Wherever the Indian representatives have communicated on behalf of their principals and the foreign parties have stated that they are not paying any commission to the Indian agents, and the Indian representative is working on the basis of salary or as retainer, a written declaration to this effect should be submitted by the party (i.e. Principal) before finalizing the order.
- 2.0 **Disclosure of particulars of agents/ representatives in India, if any.**
- 2.1 Tenderers of Foreign nationality shall furnish the following details in their offers:
  - 2.1.1 The Bidder(s)/ Contractor(s) of foreign origin shall disclose the name and address of the agents/ representatives in India if any and the extent of authorization and authority given to commit the Principals. In case the agent/ representative be a foreign Company, it shall be confirmed whether it is existing Company and details of the same shall be furnished.
  - 2.1.2 The amount of commission/ remuneration included in the quoted price(s) for such agents/ representatives in India.
  - 2.1.3 Confirmation of the Tenderer that the commission/ remuneration, if any, payable to his agents/ representatives in India, may be paid by BHEL in Indian Rupees only.
- 2.2 Tenderers of Indian Nationality shall furnish the following details in their offers:
  - 2.2.1 The Bidder(s)/ Contractor(s) of Indian Nationality shall furnish the name and address of the foreign principals, if any, indicating their nationality as well as their status, i.e. whether manufacturer or agents of manufacturer holding the Letter of Authority of the Principal specifically authorizing the agent to make an offer in India in response to tender either directly or through the agents/ representatives.
  - 2.2.2 The amount of commission/ remuneration included in the price (s) quoted by the Tenderer for himself.
  - 2.2.3 Confirmation of the foreign principals of the Tenderer that the commission/ remuneration, if any, reserved for the Tenderer in the quoted price(s), may be paid by BHEL in India in equivalent Indian Rupees on satisfactory completion of the Project or supplies of Stores and Spares in case of operation items.
- 2.3 In either case, in the event of contract materializing, the terms of payment will provide for payment of the commission/ remuneration, if any payable to the agents/ representatives in India in Indian Rupees on expiry of 90 days after the discharge of the obligations under the contract.
- 2.4 Failure to furnish correct and detailed information as called for in paragraph 2.0 above will render the concerned tender liable to rejection or in the event of a contract materializing, the same liable to termination by BHEL. Besides this there would be a penalty of banning business dealings with BHEL or damage or payment of a named sum.

## **Disclaimer Certificate For Deemed Export Benefits**

I, (Name & Designation) .....on behalf of M/s. .... (Name and address of the supplier) hereby certify that we have supplied the following goods to M/s..... (Name and address of the recipient):

S.No.	Inv. No. & date	Description of goods	Unit	Qty.	Value

1. We are the manufacturer exporters/suppliers and are registered/not registered with Central Excise and have not availed and will not avail CENVAT facility in respect of the input/components used in aforesaid supplies. We have also not availed and will not avail rebate on the inputs/components used in aforesaid supplies.

OR

We are the suppliers and our supporting manufacturer(s) is/are registered/not registered with Central Excise and have not availed and will not avail CENVAT facility in respect of the inputs/components used in aforesaid supplies.

2. We also certify that we have not been issued any Advance Authorization/Duty Free Import Authorization in respect of the aforesaid supplied goods and have not availed any benefit thereon.

3. We further state that we have not drawn nor will draw any benefit for deemed export and we have no objection if M/s..... (Name and address of the recipient) draws the deemed export benefits on the supplies mentioned above. (Required to be given in case benefits are claimed by recipient of goods).

OR

We have not given disclaimer certificate to M/s..... (Name and address of the recipient) and will not give disclaimer certificate, in future, in respect of these supplies for claiming deemed export benefits (Required to be given in case benefits are claimed by DTA suppliers).