



Himachal Pradesh Power Corporation Limited

(A State Government Undertaking)

Electrical Contracts Cell, Himfed Building, BCS, New Shimla, Shimla-171009.

Tel:+91 177 2671737, Email:dgm_elect@hppcl.in, Website:www.hppcl.in

HPPCL/IT&C/CCTV/SKHEP/2018/1089-1095

Dated:17-04-2018

M/s

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Subject: “Supply, Installation & Commissioning of Video Surveillance System at Sawra Kuddu HEP, HPPCL, Distt. Shimla(H.P.)”

Dear Sir(s),

Sealed quotations are invited (**Single Stage-Two Envelope**) for **“Supply, Installation & Commissioning of Video Surveillance System at Sawra Kuddu HEP, HPPCL, Distt. Shimla(H.P.)”** as mentioned in the Schedule of Quantity and Specifications attached, on the following Terms & Conditions on the prescribed priced format attached as **Annexure-A**. The Firms/Vendors shall submit the quotations in separate sealed envelope as per the prescribed price schedule. The bidder who shall qualify technically will be eligible for financial bid evaluation.

LAST DATE: The quotations must reach this office on or before 09-05-2018 up to 03:00 PM and shall be opened on 10-05-2018 at 11:00AM in the presence of the suppliers/vendors or their authorized representatives who may wish to be present.
If the date of opening happens to be the holiday the same shall be opened on next working day.

EXPERIENCE: The Firm/Vendor must have past experience of successful execution/completion of at least one project of similar nature, of minimum value five (05) lakh or two projects of similar nature, of minimum value three (03) lakh each. The firms/vendors shall submit the completion certificate of the work executed from the client.

The Bidder shall submit the OEM authorization certificate with his quotations.

EMD: The Firm/Vendor will have to deposit EMD amounting to Rs. 50,000/- (fifty thousand) in the form of Demand Draft in f/o HPPCL. The same amount will be returned back after the award of work.

BANK GUARANTEE: The bidder shall also submit the irrevocable Bank Guarantee of 10% of the total value of supply cum work order alongwith acceptance of the contract within 15 days.

MODE OF- QUOTATION: The quotation must be sent in sealed cover (**Single Stage Two Envelope**), duly inscribed: **“Supply, Installation & Commissioning of Video Surveillance System at Sawra Kuddu HEP, HPPCL, Distt. Shimla(H.P.)”** due on dated 09-05-2018 and addressed to :- **The Dy. General Manager (EC), HPPCL, Himfed Building, BCS, New Shimla, Shimla (H.P.)-171009**; Failure to which the quotation shall be out rightly rejected.

The signed and sealed quotation may be sent by Registered Post or by hand in the office of the undersigned.

PAYMENT :

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1. 75% payment of the total amount shall be released on the receipt of the material(s) received in full and good condition at site; after duly verification by the Consignee/Officer-in-Charge of Sawra- Kuddu HEP.
2. 15% payment of the total amount shall be released after successful installation and commissioning of video Surveillance System on production of the completion & acceptance certificate issued jointly by Dy. General Manager (Electrical), Sawra Kuddu HEP and Sr. Manager (IT), HPPCL, Shimla.
3. 10% payment of the total amount shall be released after submission of performance security of equivalent amount in the form of irrevocable Bank Guarantee/ FDR/DD for one (01) year from the date of commissioning of said system.

F.O.R: The rates should be F.O.R. Dy. General Manager (Electrical), Sawra Kuddu HEP, HPPCL, Hatkoti, Distt. Shimla (H.P.)-171206.

TAXES& DUTIES: The applicable taxes and duties (if any) should be quoted and specified separately, however, taxes shall be paid as applicable from time to time.

RIGHT TO: The undersigned reserves the right to reject any or all quotations without assigning any reason thereof.

VALIDITY: The quotation should be valid for a minimum period of 60 days from the date of opening of the quotations.

SPECIFICATIONS: The Schedule of Quantity and Specifications are attached as **Annexure-A & Annexure-B.**

RATES: Should be firm and final

DELIVERY & COMPLETION PERIOD: Within 60 days after the receipt and acceptance of supply cum work order.

WARRANTY: One (1). Year from the date of the successful installation of surveillance System in full. During warranty period, the vendor/supplier will provide free replacement & installation of faulty equipment/part and technical support.

QUALITY ASURANCE & INSPECTION AUTHORITY: Sr. Manager (IT), HPPCL or their representative (s).

CONSIGNEE: Dy. General Manager (Electrical), Sawra Kuddu, HEP HPPCL, Hatkoti, Distt. Shimla(H.P.)-171206.

GENERAL TERMS & CONDITIONS:

1. The Representative(s) of the firms/vendors are required to bring the authorization on the letter head of their company/firm for the participation in the quotation opening. Representative(s) without the authorization letter shall not be allowed to attend the quotation opening.
2. HPPCL will examine the quotation to determine the completeness, proper signing of the all pages of the quotation. The incomplete & unsigned quotation shall be rejected.
3. The firms/vendors are expected to examine all instructions, forms, terms and specification in the quotation. Failure to furnish all information required by the quotation in every respect will be at the firm/vendor's risk and may result in the rejection of its quotation.
4. The rate(s) shall be quoted by the firms/vendors, strictly as per price schedule(s). No other rate(s) shall be acceptable. In case there is any discrepancy/conflict in the prices mentioned in words and figures, then the prices mentioned in words shall be considered.

5. The Supply Order shall be awarded to the firms/vendors, whose offer is found to be technically & commercially acceptable, and evaluated lowest as per the aggregate of the Price Schedule
6. The installation Location of CCTV Cameras is attached as **Annexure “C”**. However the exact location of installation of CCTV camera/ other material(s) shall be decided in consultation with consignee, HPPCL during the execution of work.
7. The bidder should not be blacklisted from any of the Govt./ Semi-Govt Organisations/PSU’s.
8. The Bidder shall submit the OEM authorization certificate with his quotations.
9. The list mentioned at **Annexure-A** is not exhaustive the vendor should specify or quote for the all other accessories required for installation and commissioning of CCTV surveillance work.
10. The Network Video Recorder (NVR) are provisioned for each Zone /area at appropriate Location and same shall be accessed at Powerhouse control room through Central Management System. The NVR must have provision for spare ports to meet out any further requirements
11. Power supply is also required for NVRs, intermediate switches and other accessories. The supply shall be extended from the available ELDBs/NLP by the Vendor for installation of required power points along with cables.
12. The vendor may inspect the proposed location(s) at their own cost before submission of the commercial offer.

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Dy. General Manager (EC)
HPPCL, Shimla, (H.P.)

Copy of the above is forwarded to following for information and necessary action please.

1. The Sr. Manager (IT), HPPCL, Himfed Building, BCS, New Shimla, Shimla (H.P.)-171009 for information and further hosting the Notice Inviting Quotation on HPPCL official website.
2. Notice Board.

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Dy. General Manager (EC)

Pre-Qualification Criteria

Sr. No	Pre-Qualification Criteria	Supporting Documents
1.	The bidder/firm must be a legal entity	The copy of valid GST registration and PAN must be attached.
2.	The bidder/firm should not be blacklisted from any of the Govt. / Semi-Govt Organisations/PSU's.	The bidder must submit undertaking in this regard
3.	The Firms/Vendor must have past experience of successful execution/completion of at least one project of similar nature, of minimum value five (05) lakh or two projects of similar nature, of minimum value three (03) lakh each.	The bidder shall submit the copy of work order/contract agreement and completion certificate from the client.
4.	The bidder/firm shall submit the OEM authorization	The authorized certificate from OEM must be enclosed.
5.	The quotation must be sealed and signed	Every document submitted, must be duly signed with the seal of the company.

The Financial Bids of the bidder who shall qualify the above criteria shall be considered for evaluation.

Annexure-A

Price Schedule: SUPPLY, INSTALLATION & COMMISSIONING OF VIDEO SURVEILLANCE SYSTEM

Sr No	Item Description	Qty.	Unit	Unit Rate (INR) (Without taxes)	Amount (INR) (Without taxes)	Taxes & Duties (INR)	Total Amount (INR) (With Taxes)
(1)	(2)	(3)	(4)	(5)	(6)=(3)*(5)	(7)	(8)=(6)+(7)
A.							
1	Fixed IP Camera(Indoor)	16	No.				
2	Fixed IP Camera (Outdoor)	40	No.				
3	Cables-CAT 6	2700	Mtrs				
4	Fiber Optics (3 Pair, 6 core)	2500	Mtrs				
5	Media Convector for Fiber optics (Each Pair)	11	Pair				
6	NVR -32 Port with 8TB HDD	2	No.				
7	NVR -16 Port with 8TB HDD	2	No.				
8	NVR-8 port with 8TB HDD	1	No.				
9	4 TB External Hard Disk	1	No.				
10	TV Screen Display (43 ")	2	No.				
11	TV Screen Display (32")	3	No.				
12	Switches (POE)-8port	15	No.				
13	Smart Switch at Control Room-24 Port	1	No.				
14	Enterprise Router	1	No.				

15	Giga Bit Switch (8 Port)	8	No.				
16	Rack 9 U Depth with accessories	5	No.				
17	Junction boxes for mounting LAN/PoE switch	15	No.				
18	Desktop Computer (i7, 8GB RAM, 1TB HDD , 2GB Graphics Card , 22 " Monitor)	1	No.				
19	3KVA Online UPS	1	No.				
20	1KVA Online UPS	1	No.				
				Total (A)			
B. Installation and Cable Laying Charges							
1	Cat-6 Cable Laying Charges on Conduit Alkathene Pipe (Providing/Fixing)	2700	Mtrs				
2	OFC Laying Charges	2500	Mtrs				
3	Electric Point Installation including Cable laying charges	70	Points				
4	Installation of UPS and Wiring	Lump sum					
				Total (B)			
				GRAND TOTAL (A+B)			

In Words.....

Signature.....

Name.....

Company/Firm.....

IP-NETWORK FIXED CAMERA (Honeywell/AXIS/SAMSUNG/BOSCH/PANASONIC/SONY)

SPECIFICATIONS		
Fixed Day and Night Color IP Camera		
Image Sensor	1/3" 4 megapixel progressive scan CMOS	
Effective Pixels	2688 (H) × 1520 (V)	
Electronic Shutter Speed	Auto/Manual, 1/3–1/100000 s	
Min. Illumination	0.08Lux/F2.0(Color,1/3s,30IRE) 0.3Lux/F2.0(Color,1/30s,30IRE) 0Lux/F2.0(IR on)	
S/N Ratio	>= 50 dB	
Camera Features		
IR Distance	Up to 100 ft (30 m), depending on scene reflectance	
Day/Night	Auto (ICR)/Color/BW	
Backlight Compensation	BLC/HLC/DWDR	
White Balance	Auto/Natural/Street Lamp/Outdoor/Manual	
Gain Control	Auto/Manual	
Noise Reduction	3D	
Privacy Masking	Up to 4 areas	
Motion Detection	Up to 4 Zone	
Region of Interest	Up to 4 Zone	
Lens		
Focal Length	2.8 mm	
Max. Aperture	F2.0	
Horizontal Angle of View	87°	
Lens Type	Fixed	
Video		
Compression	H.265+/H.265/H.264+/H.264/ H.264 (Main/High/Baseline Profile)/MJPEG	
Resolution	4M(2688x1520/2560x1440)/3M(2304x1296)/1080P(1920x1080)/720P(1280x720) D1(704x576/704x480)/ CIF(352x288/352x240)	
Frame Rate	Main	4MP(1-20fps)/3MP (1-25/30fps)
	SubStream	D1, CIF (1–25/30 fps)
Bit Rate	H.265: 12K-8448Kbps, H.264: 32K-10240Kbps	
Corridor Mode	Support	
Network		
Ethernet	RJ-45 (10/100Base-T)	
Protocol	IPv4/IPv6, HTTP, HTTPS, TCP/IP, UDP, UPnP, ICMP, IGMP, RTSP, RTP, SMTP, NTP, DHCP, DNS, PPPoE, DDNS, FTP, IP Filter, QoS	
Compatibility	ONVIF Profile S, CGI	
Max. User Access	15-20 users	
Mobile App	iPhone, iPad, Android and Tablet	
Edge Storage	NAS Local PC for instant recording	
General		
Power Supply	PoE (802.3af), 12 V DC	
Power Consumption	<5.8 W max. (IR LEDs on)	
Working Environment	–22°F to 140°F (–30°C to 60°C); 10% to 100% RH, condensing	
Ingress Protection	IP66 or higher	
Regulatory	CE, FCC, RoHS	

IP-NETWORK FIXED CAMERA (Honeywell/AXIS/SAMSUNG/BOSCH/PANASONIC/SONY)

SPECIFICATIONS			
Fixed Day and Night Color IP Camera (Bullet)			
Image Sensor	1/3" 4 megapixel progressive scan CMOS		
Effective Pixels	2688 (H) × 1520 (V)		
Electronic Shutter Speed	Auto/Manual, 1/3–1/100000 s		
Min. Illumination	0.08Lux/F2.0(Color, 1/3s, 30IRE) 0.3Lux/F2.0(Color, 1/30s, 30IRE) 0Lux/F2.0(IR)		
S/N Ratio	≥ 50 dB		
Camera Features			
IR Distance	Up to 133 ft (40 m), depending on scene reflectance		
Day/Night	Auto (ICR)/Color/BW		
Backlight Compensation	BLC/HLC/DWDR		
White Balance	Auto/Natural/Street Lamp/Outdoor/Manual		
Gain Control	Auto/Manual		
Noise Reduction	3D		
Privacy Masking	Up to 4 areas		
Lens			
Focal Length	3.6 mm		
Max. Aperture	F2.0		
Focus Control	Fixed		
Horizontal Angle of View	>87°		
Lens Type	Fixed		
Video			
Compression	H.265+/H.265/H.264+/H.264/ H.264 (Main/High/Baseline Profile)/MJPEG		
Resolution	4M(2688×1520/2560×1440)/3M(2304×1296)/1080P(1920×1080)/720P(1280×720)/D1(704×576/704×480)/ CIF(352×288/352×240)		
Frame Rate	4MP(1-D1, CIF (1-	4MP(1-20fps)/3MP (1-D1, CIF (1–25/30 fps)	3 MP (1–20 fps), 1080p (1–25/30 fps)
Bit Rate	H.265: 12K-8448Kbps, H.264: 32K-10240Kbps		
Corridor Mode	Support		
Network			
Ethernet	RJ-45 (10/100Base-T)		
Protocol	IPv4/IPv6, HTTP, HTTPS, TCP/IP, UDP, UPnP, ICMP, IGMP, RTSP, RTP, SMTP, NTP, DHCP, DNS, PPPoE, DDNS, FTP, IP Filter, QoS		
Compatibility	ONVIF Profile S, CGI		
Max. User Access	15-20 users		
Mobile App	iPhone, iPad, Android and Tablet		
Edge Storage	NAS Local PC for instant recording		
General			
Power Supply	PoE (802.3af), 12 V DC		
Power Consumption	<6 W max. (IR LEDs on)		
Working Environment	–22°F to 140°F (–30°C to 60°C); 10% to 100% RH, condensing		
Ingress Protection	IP66 or higher		
Regulatory	CE, FCC, RoHS		

8-Channel High Resolution Network Video Recorder (Honeywell/AXIS/SAMSUNG/BOSCH/PANASONIC/SONY)

SPECIFICATIONS		
System	Main Processor	Dual-core embedded processor
	Operating System	Embedded LINUX
	System Resources	Simultaneous multi-channel live view, real-time recording, playback, network operation, remote access, USB backup
Interface	User Interface	Support 16-bit true color graphical menu interface and mouse
	Preview Screen	1 / 4 / 9 Windows
Video	IP Video Input	8 channels
	Video Compression	H.264/H.265 High profile
	Display Quality	01 VGA & 01HDMI (support 3840×2160, 1920×1080, 1280×1024, 1280×720, 1024×768)
	Play Quality	8MP/6MP/5MP/4MP/3MP/1080P/ 720P/ D1&etc.
	Video Access	8MP/6MP/5MP/4MP/3MP/1080P/ 720P/ D1&etc.
	Motion Detection	Support
Audio	Audio Compression	G.711A or higher
	Bidirectional Talk	1 Channel Input, 1 Channel Output, RCA
	Record Mode	Manual, Schedule(Regular(Continuous), MD, Stop
Record & Playback	Local Playback	8MP/6MP/5MP/4MP/3MP/1080P/ 720P/ D1&etc.
	Record Rate	80Mbps
	Search Mode	Time / Date / Motion Detection / Exact Search (search by second)
	HDD Redundancy	Support redundancy and partition
	Record Storage	HDD, network
	Backup Mode	Network backup, USB HDD, USB writer, SATA writer
	Audio Output	1 channel RCA
	Net Interface	RJ45 10M / 100M self-adaptive Ethernet interface
	PTZ Control	RS485, support 18 kinds of PTZ protocols
	USB Port	2 USB 2.0 port for mouse, backup, burning and upgrading
	HDD Interface	2 SATA, max. 6TB each
	General	Power Supply
Power Consumption		Max. 15W
Operating Temperature		-10°C +55°C
Operating Humidity		10%-90%
ONVIF		ONVIF 2.4
Mobile View APP		iPhone, iPad, Android
Certification		CE, FCC, RoHS

16-Channel High Resolution Network Video Recorder (Honeywell/AXIS/SAMSUNG/BOSCH/PANASONIC/SONY)

SPECIFICATIONS		
System	Main Processor	Quad-core embedded processor
	Operating System	Embedded LINUX
	System Resources	Simultaneous multi-channel live view, real-time recording, playback, network operation, remote access, USB backup
Interface	User Interface	Support 16-bit true color graphical menu interface and mouse operation
	Preview Screen	1/4/8/9/16
Video	IP Video Input	16 channels
	Video Compression	H.264/H.265 High profile
	Display Quality	01 VGA & 01 HDMI (support 3840×2160, 1920×1080, 1280×1024, 1280×720, 1024×768)
	Play Quality	8MP/6MP/5MP/4MP/3MP/1080P/ 720P/ D1&etc.
	Video Access	8MP/6MP/5MP/4MP/3MP/1080P/ 720P/ D1&etc.
	Motion Detection	Support
Audio	Audio Compression	G.711A or higher
	Bidirectional Talk	1 Channel Input, 1 Channel Output, RCA
Record & Playback	Record Mode	Manual, Schedule(Regular(Continuous), MD, Stop
	Local Playback	8MP/6MP/5MP/4MP/3MP/1080P/ 720P/ D1&etc.
	Record Rate and Bit Rate	200Mbps, 16Kbps-20Mbps Per Channel
	Search Mode	Time / Date / Motion Detection / Exact Search (search by second),Smart Search
	HDD Redundancy	Support redundancy and partition
	Record Storage	HDD, network
	Backup Mode	Network backup, USB HDD, USB writer, SATA writer
	Audio Output	1 channel RCA
	Alarm Input	4 Channel, Low Level Effective,Green Terminal Interface
	Relay Output	2 Channel, NO/NC Programmable,Green Terminal Interface
	Net Interface	RJ45 10M /100M/1000M self-adaptive Ethernet interface and additional one dedicated Gigabit Ethernet port
	PTZ Control	RS485, support 18 kinds of PTZ protocols
	USB Port	2 USB 2.0 with one USB 2.0 and another USB 3.0 port for mouse, backup, burning and upgrading
	HDD Interface	2 SATA, max. 6TB each
General	Power Supply	Single, AC100V-240V, 50-60 Hz
	Power	Max. 25W
	Operating	-10°C +55°C
	Operating Humidity	10%-90%
ONVIF	ONVIF 2.4	
Mobile View APP	iPhone, iPad, Android	
Certification	CE, FCC,RoHS	

32-Channel High Resolution Network Video Recorder (Honeywell/AXIS/SAMSUNG/BOSCH/PANASONIC/SONY)

SPECIFICATIONS		
System	Main Processor	Quad-core embedded processor
	Operating System	Embedded LINUX
	System Resources	Simultaneous multi-channel live view, real-time recording, playback, network operation, remote access, USB backup
Interface	User Interface	Support 16-bit true color graphical menu interface and mouse operation
	Preview Screen	1/4/8/9/16/32
Video	IP Video Input	32 channels
	Video Compression	H.265/H.264/MJPEG/MPEG4
	Display Quality	01 VGA & 02HDMI (support 3840×2160, 1920×1080, 1280×1024, 1280×720, 1024×768)
	Play Quality	12MP/8MP/6MP/5MP/4MP/3MP/1080P/ 720P/ D1&etc.
	Video Access	12MP/8MP/6MP/5MP/4MP/3MP/1080P/ 720P/ D1&etc.
	Motion Detection	Support
Audio	Audio Compression	G.711A or higher
	Bidirectional Talk	1 Channel Input, 1 Channel Output, RCA
Record & Playback	Record Mode	Manual, Schedule(Regular(Continuous), MD, Stop
	Local Playback	8MP/6MP/5MP/4MP/3MP/1080P/ 720P/ D1&etc.
	Record Rate and Bit Rate	320Mbps, 16Kbps-20Mbps Per Channel
	Search Mode	Time / Date / Motion Detection / Exact Search (search by second),Smart Search
	HDD Redundancy	Support redundancy and partition
	Record Storage	HDD, network
	Backup Mode	Network backup, USB HDD, USB writer, SATA writer
	Audio Output	1 channel RCA
	Alarm Input	16 Channel, Low Level Effective,Green Terminal Interface
	Relay Output	6 Channel, NO/NC Programmable,Green Terminal Interface
	Net Interface	02 port RJ45 10M /100M/1000M self-adaptive Ethernet interface and additional two dedicated Gigabit Ethernet port
	PTZ Control	RS485, support 18 kinds of PTZ protocols
	USB Port, eSATA, RS232/485	3 USB 2.0 with one USB 2.0 and 02 USB 3.0 port for mouse, backup, burning and upgrading, 01 eSATA, 01-RS232, 01-RS485
	HDD Interface	4 SATA, max. 8TB each
General	Power Supply	Single, AC 100-240V, 50-60 Hz
	Power	Max. 25W
	Operating	0°C - +55°C
	Operating Humidity	10%-90%
ONVIF	ONVIF 2.4	
Mobile View APP	iPhone, iPad, Android	
Certification	CE, FCC,RoHS	

LED color TV FULL HD 43” – 01 no. Make: LG /Samsung/Sony/Panasonic

S.No.	Particulars
1.	General Specification
2.	General 43 inches LED, Resolution 1920 X 1080
3.	Search Feature
4.	Automatic and semi-automatic search feature
5.	Fine Tuning Manual Fine Tuning
6.	Remote Control Full function Remote Control.
7.	On-screen display supported with multi-language.
8.	On/Off Timer built in, programmable.
9.	Auto Power off should be enabled.
10.	Sleep Timer Should be inbuilt.
11.	Aspect Ratio 16:9.
12.	Compatible TV PAL, PAL/SECAM, NTSC
13.	Side AV Input Should be enabled
14.	Audio Type
15.	Stereo
16.	Built in speakers
17.	Power
18.	230 VAC, 50 Hz
19.	Cables
20.	Power Cord, USB 2.0, HDMI, RGB Cable, VGA
21.	Other Accessories
22.	Remote Controller, Batteries, VESA Wall Mount kit

LED color TV FULL HD 32” – 03 no. Make: LG /Samsung/Sony/Panasonic

S.No.	Particulars
1.	General Specification
2.	General 32 inches LED, Resolution 1920 X 1080
3.	Search Feature
4.	Automatic and semi-automatic search feature
5.	Fine Tuning Manual Fine Tuning
6.	Remote Control Full function Remote Control.
7.	On-screen display supported with multi-language.
8.	On/Off Timer built in, programmable.
9.	Auto Power off should be enabled.
10.	Sleep Timer Should be inbuilt.
11.	Aspect Ratio 16:9.
12.	Compatible TV PAL, PAL/SECAM, NTSC
13.	Side AV Input Should be enabled
14.	Audio Type
15.	Stereo
16.	Built in speakers
17.	Power
18.	230 VAC, 50 Hz
19.	Cables
20.	Power Cord, USB 2.0, HDMI, RGB Cable, VGA
21.	Other Accessories
22.	Remote Controller, Batteries, VESA Wall Mount kit

Specifications for 3KVA Online UPS

Sl.No	Parameter	Technical Requirement
A	MAKE & MODEL NO	
1	Capacity	3kVA with inbuilt galvanic isolation transformer on input site
2	Topology	IGBT–Rectifier, True Online Double Conversion UPS
3	Generator Compatibility	Present
B	INPUT	
4	Voltage	230V,1Ph/1Ph
5	Voltage Range	160V – 300V AC
6	Power Factor	0.99
7	Current THD	<10%
C	OUTPUT	
8	Nominal Voltage	220VAC / 230VAC / 240VAC, ±1%, 1Ph Pure sine wave
9	Frequency	50Hz (±)1%
10	Frequency	47.5 to 52.5 Hz
11	Overall Efficiency(ACTOAC)	Min 90%
12	Overload capacity	105-110% for 10 mins and 111-130% for 1 min
13	Voltage THD	<3% Linear Load / <5% Non Linear Load
D	BATTERY	
14	Type	Sealed Maintenance Free Lead Acid Battery,12V each of uniform AH rating
15	Battery Charging	Constant current & constant voltage
16	VAH Required	4032 VAH or more
17	Back Up Time	50-60 mins on full load
18	Make	EXIDE or Quanta only
E	GENERAL	
19	Ingress Protection	IP 20
20	Display	LCD Display on front Panel
21	Safety	EN62040-1
22	Certification	CE
F	COMMUNICATION	
23	Intelligent slot	SNMP (Optional) / RS232 / USB com Port
24	Warranty	2years on UPS & 2 Years on batteries

Specifications for 1KVA Online UPS

Sl. No.	Parameter	Technical Requirement
A	MAKE&MODELNO	
1	Capacity	1kVA with inbuilt isolation transformer on input
2	Topology	IGBT-Based, True Online Double Conversion UPS
3	Generator Compatibility	Present
B	INPUT	
4	Voltage	230V,1Ph/1Ph, 4Wire,AC,(±)20%
5	Voltage Range	160V – 300V AC
6	Power Factor	0.99
7	Current THD	<10%
C	OUTPUT	
8	Nominal Voltage	220VAC / 230VAC / 240VAC, ±1%, 1Ph Pure sine wave
9	Frequency	50Hz (±)1%
10	Frequency	47.5 to 52.5 Hz
11	Overall Efficiency(ACTOAC)	Min 90%
12	Overload capacity	105-110% for 3 Mins and 111-130% for 30 sec
13	Voltage THD	<2% Linear Load / <5% Non Linear Load
D	BATTERY	
14	Type	Sealed Maintenance Free Lead Acid Battery,12V each of uniform AH rating
15	Nominal Voltage	36V DC
16	VAH Required	For 1kVA– 1512VAH
17	Back Up Time	60 Mins on 100% Load
18	Make	EXIDE or Quanta only
E	GENERAL	
19	Ingress Protection	IP 20
20	Display	LED + LCD Display on front Panel
21	Safety	EN62040-1
22	Certification	CE & BIS
F	COMMUNICATION	
23	Intelligent slot	SNMP Optional / RS232 / USB com Port
24	Warranty	2yesr on UPS & 2years on Batteries

Other Items and Details

Items	Specification/Description
Cables -CAT 6	The cables should be weatherproof, outdoor grade preferably Dlink, Finolex and some reputed make
Fiber Optics (3 Pair, 6 core)	OFC should be TEC approved and reputed make, Minimum Single Mode 6 (six) core Optical Fiber
Media Convertor for Fiber Optical (Each Pair)	Gigabit media converter should fulfill the conversion between 10/100/1000 BASE-T & 1000 BASE-FX or vice versa, Supporting half/full duplex mode communication with auto-negotiation function, Supporting VLAN data pockets transportation, Supports distances up to 20 km (12.4 miles), matching with the switch, which supports IEEE802.1Q protocol.
Toshiba/WD/Seagate	4 TB External Hard Disk (Windows® 7 or higher, or Mac OS® X 10.10 or higher operating system, SuperSpeed USB 3.0 port (required for USB 3.0 transfer speeds or backwards compatible with USB 2.0 ports at USB 2.0 transfer speeds)
Switches (POE) - 8port plus one port for uplink	10/100/1000Mbps RJ45 Ports
Smart Switch at Control Room- 24 Port (Layer-2)	10/100/1000Mbps RJ45 ports, Web-based user interface and management utility simplify configuration, Provides network monitoring, traffic prioritization and VLAN features
Giga Bit Switch (8 Port)	10/100/1000Mbps RJ45 Ports It should support minimum 8 LAN port Power supply of switch should be industrial grade with operating temperature of 50° C.
Enterprise Router	The Router shall support the NAT, Dynamic routing, hotspot, firewall, MPLS, VPN, advanced quality of service, load balancing and bonding, real-time configuration and monitoring. The router CPU shall have frequency 600 MHz, five Gigabit LAN ports and five Fast Ethernet LAN ports, RJ45 serial port, microUSB port and 128MB or more RAM and 128MB or more Storage. Supported input voltage 8 V - 30 V, Temperature -35C to +65C.
Rack 9 U with accessories	for Termination locations
Box/Rack	Outdoor weatherproof painted metal/High grade plastic box for mounting LAN/PoE switch
Desktop Computer	(i7 , 8GB RAM , 1TB HDD , 2GB Graphics Card , 22 " Monitor)
Conduit Alkathene	
Electric Point Installation including Cable laying charges	2 square mm 6A electric point of Havell's or reputed make

Annexure C**Location of CCTV Cameras to be installed in various project components of Sawra
Kuddu HEP**

S. No.	Areas	No. of Cameras	Location	Remarks
Power House Area				
1.	MAT Entrance	2	01 No:- Inside MAT facing outside. 01 No. :- At MAT Entrance facing towards security room.	
2.	Transformer Hall	4	01 No. facing towards Generator transformer for each GT:- 03 No's.	
3.	Machine Hall	4	01 No facing towards service bay & outside control room. 01 No facing towards top of machine area for each unit :- 03 No's	
4.	Bus Ducts	3	1 No Facing towards transformers installed in each bus duct.:- 03 No's	
5.	Generator Floor	6	2 No's facing towards both entry of generator barrel for each unit :- 06 No's	
6.	Turbine Floor	3	01 No facing towards entry of turbine barrel for each unit :- 03 No's	
7.	MIV Floor	3	01 No facing towards each MIV :- 03 No's	
8.	GIS Hall	2	01 No facing towards GIS equipment's 01 No facing towards HVAC equipment's.	
	Total	27		
Control Block & Service Block				
1.	Control room	3	01 No towards the stairs entry at 1220.00 :- 01 02 No in control room	
2.	Service Block	6		
	Total	09		
CAT portal, Pot Head Yard area and DG room.				
1.	CAT	1	Inside CAT facing towards outside	
2.	Pot Head Yard	2	At wall of DG room & EAF room facing towards Pot head yard area.	
	Total	3		
BFV Area				
1.	DG Set cum BFV Portal	1	Facing from inside to outside to monitor Movement at Portal	
2.	BFV House	1	At BFV chamber to monitor BFV & other installed equipment's.	
	Total	2		
Total number of cameras at Powerhouse Complex:41				
Barrage Complex				
1.	Barrage Control Room	2	i) At top of Control room facing towards upstream of barrage site. ii) At top of Control room facing towards Downstream of barrage site	
2.	Right under sluice gates	01	At top of right under sluice gates facing	

			towards Downstream of barrage site.	
3.	Left under sluice gates	01	At top of left under sluice gates facing towards downstream of barrage site.	
4.	Deck slab (Right and Left side)	02	i) At top of railing in the center portion of deck slab facing upstream of barrage site. ii) At top of railing in the center portion of deck slab facing downstream of barrage site.	
5.	Power Intake Structure	02	i) At top of Power Intake Structure facing upstream of barrage site. ii) At top of Power Intake Structure facing downstream of barrage site.	
6.	Desanding Chamber area	01	Top of railing at start of transition portion, facing towards road/hill side on left bank (i.e. road from outfall structure to Chamshu village).	
7.	HRT Intake area	02	i) At top of HRT Intake gate at upstream corner facing towards collection gallery side (Hatkoti Temple). ii) At top of HRT Intake gate at downstream corner facing towards Silt flushing gate side.	
8.	Out fall structure area	01	At top of pole facing toward downstream of out fall structure.	
9.	Main entrance gate, gate-1 and gate-2	03	i) At top of check post No.1 facing towards Kharapather Rohru National highway side. ii) At top of check post No.2 facing towards deck slab side. iii) At top of gate post facing towards approach road on left bank side.	
Total number of cameras at Barrage Complex:15				
Total number of Cameras to be installed at Powerhouse Complex and Barrage Complex:56				

Note: The exact location of installation of CCTV Cameras/other material(s) shall be decided in consultation with consignee, HPPCL during the execution of work