



# 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/2018/7812-18

Dated: 04/07/2018

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 24-07-2018 up to 03:00 PM and shall be opened on 25-07-2018 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 seven (07) lakh or two projects of similar nature, of minimum value four (04) 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 only in f/o HPPCL. No

other form of EMD shall be accepted. 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 28 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 24-07-2018 and addressed to :-**The Dy. General Manager (EC), HPPCL, Himfed Building, BCS, New Shimla, Shimla (H.P.)-171009**; The bidder must submit technical and financial bids in separate sealed envelope inscribing “Technical Bid” and “Financial Bid” respectively. The both the sealed envelope should be placed inside the large envelope, 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 :

- i)
1. 60% 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. 30% 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 90 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) (**Annexure-A**). 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.
13. The queries with respect to this NIQ shall be entertained till 15<sup>th</sup> July, 2018. No queries shall be entertained after 15<sup>th</sup> July, 2018.

14. The bidder must quote only a single brand from the list of brands mentioned in the NIQ.

-sd-  
Dy. General Manager (EC)

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 should not be blacklisted from any of the Govt./ Semi-Govt Organisations/PSU's.  | The bidder must submit undertaking in this regard   |
| 3.     | The bidder/firm must have past experience of successful execution/completion of at least one project of similar nature, of minimum value seven (07) lakh or two projects of similar nature, of minimum value four (04) 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 <b>signed with the seal</b> of the company.                            |

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

### **The Technical proposal shall include the following documents:**

1. All the supporting documents with respect to Pre-Qualification Criteria
2. Demand Draft of EMD
3. Technical compliance sheet (As per the **Annexure-“D”**)

**Annexure-A**

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

| Sr No     | Item Description                                | Qty. | Unit | Unit Rate (INR)<br>(Without taxes) | Amount (INR)<br>(Without taxes) | Taxes & Duties<br>(INR) | Total Amount (INR)<br>(With Taxes) |
|-----------|---|------|------|------------------------------------|---------------------------------|-------------------------|------------------------------------|
| (1)       | (2)   | (3)  | (4)  | (5)                                | (6)=(3)*(5)                     | (7)                     | (8)=(6)+(7)                        |
| <b>A.</b> |   |      |      |                                    |                                 |                         |                                    |
| 1         | Fixed IP Camera(Indoor)                         | 16   | No.  |                                    |                                 |                         |                                    |
| 2         | Fixed IP Camera (Outdoor)                       | 40   | No.  |                                    |                                 |                         |                                    |
| 3         | Cables-CAT 6 (Shielded)                         | 2700 | Mtrs |                                    |                                 |                         |                                    |
| 4         | Fiber Optics ( 3 Pair, 6 core)                  | 2500 | Mtrs |                                    |                                 |                         |                                    |
| 5         | Media Convertor for Fiber optics<br>(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<br>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.    |                          |  |  |  |
|   |   |          |        | <b>Total (A)</b>         |  |  |  |
| <b>B. Installation and Cable Laying Charges</b> |   |          |        |                          |  |  |  |
| 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 |        |                          |  |  |  |
|   |   |          |        | <b>Total (B)</b>         |  |  |  |
|   |   |          |        | <b>GRAND TOTAL (A+B)</b> |  |  |  |

In Words.....

Signature.....

Name.....

Company/Firm.....



**IP-NETWORK FIXED CAMERA (AXIS/SAMSUNG/BOSCH/HIKVISION/SONY/CP PLUS)**

| <b>SPECIFICATIONS</b>                      |  |                               |
|--|--|-------------------------------|
| <b>Fixed Day and Night Color IP Camera</b> |  |                               |
| Image Sensor                               | 1/3" 4 megapixel progressive scan CMOS   |                               |
| Effective Pixels                           | 2592 (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   |                               |
| <b>Camera Features</b>                     |  |                               |
| IR Distance                                | Up to 100 ft (30 m), depending on scene reflectance  |                               |
| Day/Night                                  | Auto (ICR)/Color/BW  |                               |
| Backlight Compensation                     | BLC/HLC/DWDR, Defog  |                               |
| 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   |                               |
| <b>Lens</b>                                |  |                               |
| Focal Length                               | 2.8 mm   |                               |
| Max. Aperture                              | F2.0   |                               |
| Horizontal Angle of View                   | 87°  |                               |
| Lens Type                                  | Fixed  |                               |
| <b>Video</b>                               |  |                               |
| 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 Stream  | 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  |                               |
| <b>Network</b>                             |  |                               |
| 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   |                               |
| <b>General</b>                             |  |                               |
| Power Supply                               | PoE (802.3af), 12V 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/Vandal Resistant        | IP66 or higher/IK10  |                               |
| Regulatory                                 | CE, FCC, RoHS  |                               |

**IP-NETWORK FIXED CAMERA (AXIS/SAMSUNG/BOSCH/HIKVISION/SONY/CP PLUS)**

| <b>SPECIFICATIONS</b>                               |  |   |
|---|--|---|
| <b>Fixed Day and Night Color IP Camera (Bullet)</b> |  |   |
| Image Sensor  | 1/3" 4 megapixel progressive scan CMOS   |   |
| Effective Pixels                                    | 2592 (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   |   |
| <b>Camera Features</b>                              |  |   |
| IR Distance   | Up to 133 ft (40 m), depending on scene reflectance  |   |
| Day/Night   | Auto (ICR)/Color/BW  |   |
| Backlight Compensation                              | BLC/HLC/DWDR, Defog  |   |
| White Balance                                       | Auto/Natural/Street Lamp/Outdoor/Manual  |   |
| Gain Control  | Auto/Manual  |   |
| Noise Reduction                                     | 3D   |   |
| Privacy Masking                                     | Up to 4 areas  |   |
| <b>Lens</b>   |  |   |
| Focal Length  | 3.6 mm   |   |
| Max. Aperture                                       | F2.0   |   |
| Focus Control                                       | Fixed  |   |
| Horizontal Angle of View                            | >87°   |   |
| Lens Type   | Fixed  |   |
| <b>Video</b>  |  |   |
| 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(1-20fps)/3MP (1-25/30fps)  | 4MP(1-20fps)/3MP (1-25/30fps)      3 MP (1–20 fps), 1080p (1–25/30 fps) |
| Bit Rate  | H.265: 12K-8448Kbps, H.264: 32K-10240Kbps  |   |
| Corridor Mode                                       | Support  |   |
| <b>Network</b>                                      |  |   |
| 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   |   |
| <b>General</b>                                      |  |   |
| 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 (AXIS/SAMSUNG/BOSCH/HIKVISION/SONY/CP PLUS)

| 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 operation  |
|                   | 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<br>(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           | 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 or higher each   |
| General           | Power Supply          | Single, DC12V/2A  |
|                   | 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 (AXIS/SAMSUNG/BOSCH/HIKVISION/SONY/CP PLUS)

| 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 & 01HDMI<br>(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 | 180Mbps or Higher, 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 or higher each   |
| General           | Power Supply             | Single, AC100V-240V, 50-60 Hz   |
|                   | Power Consumption        | Max. 25W  |
|                   | Operating Temperature    | -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 (AXIS/SAMSUNG/BOSCH/HIKVISION/SONY/CP PLUS)

| 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 & 01HDMI or Higher<br>(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, iSCSI, 01-RS232, 01-RS485 |
|                   | HDD Interface              | 4 SATA, max. 8TB or higher each  |
| General           | Power Supply               | Single, AC 100-240V, 50-60 Hz  |
|                   | Power Consumption          | Max. 25W   |
|                   | Operating Temperature      | 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” – 02 no. Make: LG /Samsung/Sony/Panasonic**

| <b>S.No.</b> | <b>Particulars</b>                                |
|--------------|---|
| 1.           | <b>General Specification</b>                      |
| 2.           | General 43 inches LED, Resolution 1920 X 1080     |
| 3.           | <b>Search Feature</b>                             |
| 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.          | <b>Audio Type</b>                                 |
| 15.          | Stereo  |
| 16.          | Built in speakers                                 |
| 17.          | <b>Power</b>                                      |
| 18.          | 230 VAC, 50 Hz                                    |
| 19.          | <b>Cables</b>                                     |
| 20.          | Power Cord, USB 2.0, HDMI, RGB Cable, VGA         |
| 21.          | <b>Other Accessories</b>                          |
| 22.          | Remote Controller, Batteries, VESA Wall Mount kit |

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

| <b>S.No.</b> | <b>Particulars</b>                                |
|--------------|---|
| 1.           | <b>General Specification</b>                      |
| 2.           | General 32 inches LED, Resolution 1920 X 1080     |
| 3.           | <b>Search Feature</b>                             |
| 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.          | <b>Audio Type</b>                                 |
| 15.          | Stereo  |
| 16.          | Built in speakers                                 |
| 17.          | <b>Power</b>                                      |
| 18.          | 230 VAC, 50 Hz                                    |
| 19.          | <b>Cables</b>                                     |
| 20.          | Power Cord, USB 2.0, HDMI, RGB Cable, VGA         |
| 21.          | <b>Other Accessories</b>                          |
| 22.          | Remote Controller, Batteries, VESA Wall Mount kit |

### Specifications for 3KVA Online UPS

| Sl.No    | Parameter                  | Technical Requirement  |
|----------|----------------------------|--|
| <b>A</b> | <b>MAKE &amp; MODEL NO</b> |  |
| 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>B</b> | <b>INPUT</b>               |  |
| 4        | Voltage                    | 230V, 1Ph/1Ph  |
| 5        | Voltage Range              | 160V – 300V AC   |
| 6        | Power Factor               | 0.99   |
| 7        | Current THD                | <10%   |
| <b>C</b> | <b>OUTPUT</b>              |  |
| 8        | Nominal Voltage            | 220VAC / 230VAC / 240VAC, $\pm 1\%$ , 1Ph Pure sine wave                 |
| 9        | Frequency                  | 50Hz ( $\pm 1\%$ )   |
| 10       | Frequency Synchronization  | 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                                    |
| <b>D</b> | <b>BATTERY</b>             |  |
| 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   |
| <b>E</b> | <b>GENERAL</b>             |  |
| 19       | Ingress Protection         | IP 20  |
| 20       | Display                    | LCD Display on front Panel   |
| 21       | Safety                     | EN62040-1  |
| 22       | Certification              | CE   |
| <b>F</b> | <b>COMMUNICATION</b>       |  |
| 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  |
|----------|----------------------------|--|
| <b>A</b> | <b>MAKE&amp;MODELNO</b>    |  |
| 1        | Capacity                   | 1kVA with inbuilt isolation transformer on input                         |
| 2        | Topology                   | IGBT-Based, True Online Double Conversion UPS                            |
| 3        | Generator Compatibility    | Present  |
| <b>B</b> | <b>INPUT</b>               |  |
| 4        | Voltage                    | 230V, 1Ph/1Ph, 4Wire, AC, (±)20%   |
| 5        | Voltage Range              | 160V – 300V AC   |
| 6        | Power Factor               | 0.99   |
| 7        | Current THD                | <10%   |
| <b>C</b> | <b>OUTPUT</b>              |  |
| 8        | Nominal Voltage            | 220VAC / 230VAC / 240VAC, ±1%, 1Ph Pure sine wave                        |
| 9        | Frequency                  | 50Hz (±)1%   |
| 10       | Frequency Synchronization  | 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                                    |
| <b>D</b> | <b>BATTERY</b>             |  |
| 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   |
| <b>E</b> | <b>GENERAL</b>             |  |
| 19       | Ingress Protection         | IP 20  |
| 20       | Display                    | LED + LCD Display on front Panel   |
| 21       | Safety                     | EN62040-1  |
| 22       | Certification              | CE & BIS   |
| <b>F</b> | <b>COMMUNICATION</b>       |  |
| 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 (Shielded)                                   | 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<br>It should support minimum 8 LAN port<br>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.<br>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 Ū 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<br>6A electric point of Havell's or reputed make  |

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

| S. No.  | Areas                    | No. of Cameras | Location   | Remarks |
|---|--------------------------|----------------|--|---------|
| <b>Power House Area</b>                                 |                          |                |  |         |
| 1.  | MAT Entrance             | 2              | 01 No:- Inside MAT facing outside.<br>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.<br>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<br>01 No facing towards HVAC equipment's.   |         |
|   | <b>Total</b>             | <b>27</b>      |  |         |
| <b>Control Block &amp; Service Block</b>                |                          |                |  |         |
| 1.  | Control room             | 3              | 01 No towards the stairs entry at 1220.00 :- 01<br>02 No in control room   |         |
| 2.  | Service Block            | 6              |  |         |
|   | <b>Total</b>             | <b>09</b>      |  |         |
| <b>CAT portal, Pot Head Yard area and DG room.</b>      |                          |                |  |         |
| 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.   |         |
|   | <b>Total</b>             | <b>3</b>       |  |         |
| <b>BFV Area</b>   |                          |                |  |         |
| 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.   |         |
|   | <b>Total</b>             | <b>2</b>       |  |         |
| <b>Total number of cameras at Powerhouse Complex:41</b> |                          |                |  |         |
| <b>Barrage Complex</b>                                  |                          |                |  |         |
| 1.  | Barrage Control Room     | 2              | i) At top of Control room facing towards upstream of barrage site.<br>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.<br>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.<br>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).<br>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.<br>ii) At top of check post No.2 facing towards deck slab side.<br>iii) At top of gate post facing towards approach road on left bank side. |  |
| <b>Total number of cameras at Barrage Complex:15</b>  |                                       |    |  |  |
| <b>Total number of Cameras to be installed at Powerhouse Complex and Barrage Complex:56</b> |                                       |    |  |  |

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

**Annexure-D**

**Technical Compliance Sheet: supply, installation & commissioning of video surveillance system**

| Sr No | Item Description                             | Brand Quoted:(Make and Model No) | Complied (Yes/No)<br>As per the specification mentioned in Annexure-B |
|-------|--|----------------------------------|---|
| 1     | Fixed IP Camera(Indoor)                      |                                  |   |
| 2     | Fixed IP Camera (Outdoor)                    |                                  |   |
| 3     | Cables-CAT 6 (Shielded)                      |                                  |   |
| 4     | Fiber Optics ( 3 Pair, 6 core)               |                                  |   |
| 5     | Media Convertor for Fiber optics (Each Pair) |                                  |   |
| 6     | NVR -32 Port with 8TB HDD                    |                                  |   |
| 7     | NVR -16 Port with 8TB HDD                    |                                  |   |
| 8     | NVR-8 port with 8TB HDD                      |                                  |   |
| 9     | 4 TB External Hard Disk                      |                                  |   |
| 10    | TV Screen Display ( 43 ")                    |                                  |   |
| 11    | TV Screen Display ( 32")                     |                                  |   |
| 12    | Switches (POE)-8port                         |                                  |   |
| 13    | Smart Switch at Control Room-24 Port         |                                  |   |
| 14    | Enterprise Router                            |                                  |   |
| 15    | Giga Bit Switch (8 Port)                     |                                  |   |
| 16    | Rack 9 U Depth with accessories              |                                  |   |

|    |   |  |  |
|----|---|--|--|
| 17 | Junction boxes for mounting LAN/PoE switch                                  |  |  |
| 18 | Desktop Computer ( i7, 8GB RAM, 1TB HDD , 2GB Graphics Card , 22 " Monitor) |  |  |
| 19 | 3KVA Online UPS   |  |  |
| 20 | 1KVA Online UPS   |  |  |

Signature.....

Name.....

Company/Firm.....