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Bhutan Power Corporation Limited

(An ISO 9001:2015, ISO 14001:2015 & OHSAS 18001:2007 Certified Company)

Registered Office, Thimphu

Bhutan Power System Operator

Thimphu: Bhutan

BPC/BPSO/Tech-1/2020/ 68

September 14, 2020

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Subject: **AMENDMENT NO.1**
Reference: **BPC/BPSO/Tech-1/2020/   dated July 31, 2020**

Dear Sir(s),

This is with reference to above mentioned tender whereby BPSO, BPC would like to issue the following amendment no.1

As per this amendment no.1. There is changes in the drawing and specifications of Video Wall as enclosed herewith. You are requested to refer this specification.

Also the tender submission date is postponed to October 6, 2020 at 1:00 PM and it will be publicly open on the same day at 3:00PM.
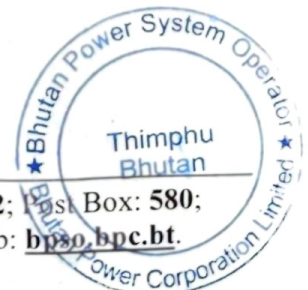
Inconvenience caused is highly regretted.

Thanking you,

Yours sincerely,

(Sherub)
General Manager
General Manager
Bhutan Power System Operator
Bhutan Power Corporation Ltd.
Thimphu

Part 2 – Supply Requirements

Section V. Schedule of Supply

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1. Delivery and Completion Schedule

The completion period shall commence from the date of signing contract.

Lot No	Description of Goods and related Services	Required Delivery and Completion of Related Services
Lot 1	The supply & delivery, installation, and commissioning of Video Wall	120 days from the signing of contract.

Location of Installation: BPSO Control Center, Bhutan Power Corporation Ltd., Thimphu.

2.   Technical Specifications

2.1   Background

Bhutan Power System Operator (BPSO) under BPC is mandated to monitor and control the entire Power transmission network of Bhutan 24x7. To effectively dispatch the duties, Video Wall System is one of the main requirements. However, due to malfunctioning of the existing system, BPSO intends to replace with the new system.

This section defines the scope of work and technical requirements of the Video Wall System.

2.2   Existing System

The existing old video projection system (VPS) at BPSO's control room is of "Planar" make. The detail configuration and dimension of the system are given below:
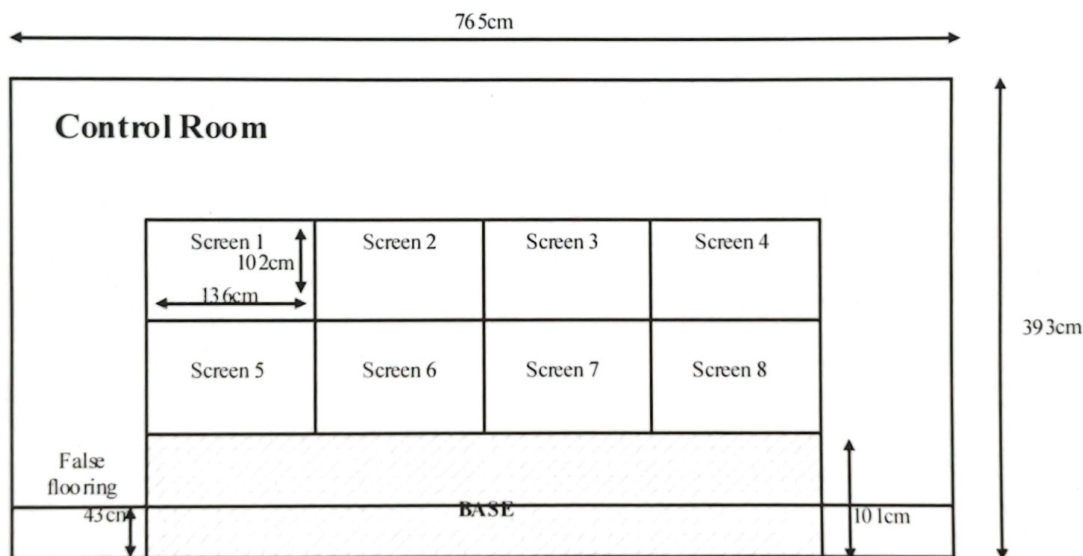
If the interested bidders want to make a site visit, the bidder must intimate to the employer in writing before the submission of the bid.

2.3   Scope of work

The successful bidder would be required to dismantle the existing VPS alongside its accessories and mandated to transport to the designated place. The final location for disposal would be decided by the employer and confirm on the date of Contract signing.

The contractor must provide a Video Wall System (VWS) based on modular Laser technology. All the screen modules of the system must be suitable to form combined high-resolution projection images. The VWS will be used to project displays of Supervisory Control and Data Acquisition/Energy Management System (SCADA/EMS) independently of workstation monitors. All the operations envisaged from workstation monitors must also be possible from VWS.

The Contractor must supply all necessary hardware and software, including modules, multi-screen drivers, adapters, memory, supporting structure, cabling, and as required to seamlessly integrate and run the system.

After having removed the existing system, the new supplied set as indicated in this section would be installed and commissioned at the same location. The necessary engineering (including site development/modification to fit the supplied system, if any), design, supply, testing and commissioning are part of the scope of work.

Design & installation of the systems must be coordinated with the Employer during project implementation. Only upon successful testing and commissioning, the employer will take over the site.
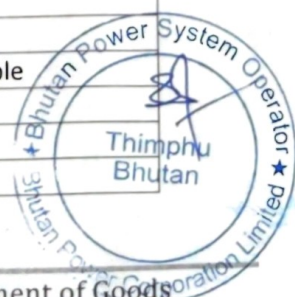
2.4 Technical specifications

The video wall and its controller must be capable of running 24 hours 7 days a week and maintenance free.

All the screen modules must be suitable to form combined high-resolution single image or multiple images depending on the System Operator's need.

The Guaranteed Technical Particulars (GTP) for Video Wall.

Sl. No.	Description of the Features	Minimum Quantity of the features required
1	Manufacturer	
2	Model No.	
3	Display technology (DLP)	Laser based rear projection
4	Video screen configuration	4x2
5	Each screen module size	Minimum 70 inches diagonal
6	Aspect ratio	16:9
7	Colours	16.7 million
8	Screen resolution	Minimum 1920x1080
9	Inter modular gap	< 0.5 mm
10	Screen border	0 mm (No border)
11	Horizontal & Vertical viewing angle	$\pm160^0$ (approx.)
12	Horizontal & Vertical Half gain angle	$\pm30^0$ with tolerance of $+5^0$
13	Overall brightness of each module	Minimum 2000 Lumens
14	Median Laser life	Minimum 80,000 Hours
15	Centre to corner uniform brightness	> 90%
16	Brightness adjustable through software	Yes
17	Contrast ratio	1800:1
18	Ambient temperature range	-10 to 40^0 C
19	Ambient Relative Humidity	10 to 80% non-condensing
20	Power Supply	Dual redundant hot swappable
Video Wall Controller Features:		
21	RAM	16 GB expandable to 64 GB
22	Internal Auxiliary Memory (SSD)	500 GB

23	Optical Drive	DVD+R
24	User Interface	Wireless keyboard and optical mouse capable of 15 meters range
25	Power supply	Dual redundant hot swappable
26	Interface ports	All necessary ports and connections with video wall and additional standard port USB 3.0, HDMI, Dual Giga LAN port.
27	Types of video signal to be supported by Video Wall Controller	PAL SECAM NTSC HDTV 720p, 1080i, 1080p (Component) RGB Analog up to 1920x1200 (up to 165 MHz pixel clock) DVI up to 1920x1200 (up to 165 MHz pixel clock), MPEG-x H26x
28	Time synchronisation	SNTP, NTP
29	Streaming video from video camera	Video client application software
30	Capability to display videos directly from video camera	Yes
31	Operating system	It should be compatible with E-terra browser version 2.5

2.5 Inspection and Testing

A factory testing must be conducted on all the offered equipment and the necessary documents must be submitted to the employer for providing the dispatch clearance to the contractor.

After the equipment has been installed in all respect, the contractor alongside employer will carry out the detail testing which will form the Site Acceptance Test (SAT). The contractor must submit the SAT format for employer's approval prior to conducting the test.

In addition, the contractor must provide two days hands on training – including both hardware and software – for operation and maintenance on the supplied system.

Only upon the satisfaction of the employer, the Taking Over Certificate will be issued to the contractor.

2.6   Guaranteed Technical Particulars (GTP) for Bidders to Fill up

Sl. No.	Description of the Features	Offered Specification
1	Manufacturer	
2	Model No.	
3	Display technology (DLP)	
4	Video screen configuration	
5	Each screen module size	
6	Aspect ratio	
7	Colours	
8	Screen resolution	
9	Inter modular gap	
10	Screen border	
11	Horizontal & Vertical viewing angle	
12	Horizontal & Vertical Half gain angle	
13	Overall brightness of each module	
14	Median Laser life	
15	Centre to corner uniform brightness	
16	Brightness adjustable through software	
17	Contrast ratio	
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Video Wall Controller Features:		
21	RAM	
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