

**Amendment No. 02****Date: 05-11-2022****Sub:** Technical Amendment to the referred tender enquiry**Ref.:** HITES/PCD/AIIMS-IV/57/Rad-Onco/ 22-23 dated 27-09-2022 read with Amendment no 1 dated 25.10.2022.

The following changes are being incorporated in the above referred Tender Enquiry Document.

**SECTION VII****Technical Specifications**

<b>Item no 01. Advanced High Energy Linear Accelerator (Tender ID: 2022_HLL_130211_1)</b>		
<b>Tender Page &amp; Para</b>	<b>TENDER SPECIFICATION</b>	<b>AMENDED AS</b>
Page 46; Para II.2.i	Dose Rate Conventional dose rate mode: The variable dose rate range from 100 to 600 MU/min shall be available.	Dose Rate Conventional dose rate mode: The variable dose rate range from 100 to 600 MU/min <b>or more</b> shall be available.
Page 47; Para IV.1	Magnetron or Klystron The system must provide with either Magnetron or Klystron as the radiofrequency (RF) microwave power source. The warranty should be at least for 5years. (Pro-rata guarantee is not acceptable).	Magnetron or Klystron The system must provide with either Magnetron or Klystron as the radiofrequency (RF) microwave power source. <b>The entire system including Magnetron or Klystron is under warranty for 5 years and CMC for 5 years.</b>
Page 47; Para IV.2	Standing/Travelling wave Guide Standing or travelling type of wave-guide along with the bending magnet, target assembly, vacuum ion-pump should be offered a warranty of 5 years.	Standing/Travelling wave Guide Standing or travelling type of wave-guide along with the bending magnet, target assembly, vacuum ion-pump should be <b>covered under warranty for 5 years and CMC for 5 years.</b>
Page 48; Para IV.5	Electron Gun & Focal Spot Electron gun should have warranty of minimum 5 years and the beam focal spot should be within 3 mm diameter.	Electron Gun & Focal Spot The beam focal spot should be within 3 mm diameter. <b>The entire system including Electron Gun is under warranty for 5 years and CMC for 5 years.</b>

Page 50; Para VI.1.v	Specify the system active imaging area, spatial resolution, contrast resolution, image acquisition rate; lateral, longitudinal and <b>vertical travel range.</b>	Specify the system active imaging area, spatial resolution, contrast resolution, image acquisition rate; lateral <b>and longitudinal travel range.</b>
Page 53; Para XIII.1.i	Power conditioner shall be installed to provide precise voltage regulation and protection for the linear accelerator on offer and it should work on three phase 400-440 V / 50 Hz power.	<b>Deleted</b>
Page 54; Para XV.2	On-Site Training On-site application training shall be provided for minimum four weeks to all staff members in the department.	On-Site Training On-site application training shall be provided for minimum <b>two weeks</b> to all staff members in the department.
Page 55; Para XV.3	Linac Beam Data/ Clinical Commissioning support Vendor shall provide the Golden data or representative beam data of linear accelerator photon and electron central axis, profile dose curves, as well as flatness and symmetry profiles measured at manufacturer place to verify the measured data at the time of clinical commissioning. Vendor should also provide the application specialist support during machine commissioning for clinical start.	Linac Beam Data/ Clinical Commissioning support Vendor shall provide the <b>predefined Beam data</b> or representative beam data of linear accelerator photon and electron central axis, profile dose curves, as well as flatness and symmetry profiles measured at manufacturer place to verify the measured data at the time of clinical commissioning. Vendor should also provide the application specialist support during machine commissioning for clinical start.
Page 57; Para B.4	The system shall be integrated with physical connection having optical fibre cabling with CT-Simulator, MRI, PET and linear accelerators, oncology information system, dosimetry equipment and hospital PACS system.	The system shall be integrated with physical connection having optical fibre cabling with CT-Simulator, MRI, PET and linear accelerators, oncology information system, dosimetry equipment and hospital PACS system. <b>The bidders are strongly advised to visit the site prior to quoting.</b>
Page 57; Para B.6	Vendor shall provide the each unit price of both TPS and workstations offered.	<b>For the purpose of future additional requirements,</b> the vendor shall provide the each unit price of both <b>additional</b> TPS and workstations offered, <b>which should be valid for upto three years. The same will not be considered for price ranking.</b>
Page 57; Para C.1	The offered OIS shall be compatible with OIS, Linac and TPS in the radiation oncology department.	<b>Deleted</b>

Page 57; Para C.2	The system shall be integrated with physical networking having optical fibre cabling with CT-Simulator, MRI, PET and linear accelerators, treatment planning system, dosimetry equipment and hospital PACS.	The system shall be integrated with physical <b>connections and</b> networking having optical fibre cabling with <b>existing / upcoming</b> CT-Simulator, MRI, PET ( 1 no. each) and <b>all</b> linear accelerators, treatment planning system, dosimetry equipment and hospital PACS.
Page 58; Para 1.vii	Imaging and Image Registration Deformable image registration shall be capable of fusing CT and	Deformable image registration shall be capable of fusing CT and <b>CBCT images.</b>  <b>OPTIONAL : Deformable image registration shall be capable of fusing MR and PET images.</b>
Page 64 Para 1	Radiation Beam Data Acquisition System : 3D scanning water phantom of square/rectangular shape for linear accelerator beam commissioning dosimetry and annual QA. The system shall have automatic setup for beam center adjustment and auto field alignment capability. The system shall consist of 3D scanning water tank, lift table, water reservoir, electrometer/controller, beam data acquisition software with latest laptop computer, two approximately 0.125cm <sup>3</sup> or equivalent water proof ionization chambers and associated holders and cables. - 1 No	Radiation Beam Data Acquisition System : 3D scanning water phantom of square/rectangular/ <b>Cylindrical</b> shape for linear accelerator beam commissioning dosimetry and annual QA. The system shall have automatic setup for beam center adjustment and auto field alignment capability. The system shall consist of 3D scanning water tank, lift table, water reservoir, electrometer/controller, beam data acquisition software with latest laptop computer, two approximately 0.125cm <sup>3</sup> or equivalent water proof ionization chambers and associated holders and cables. - 1 No
Page 64 Para 1. a	3D water scanning square phantom	3D water scanning <b>square/Cylindrical</b> phantom
Page 64 Para 1. a. i	Water tank scanning square/rectangular phantom dimensions of at least to 480 x 480 x 400 mm <sup>3</sup>	Water tank scanning square/rectangular/ <b>cylindrical</b> phantom dimensions of at least to 480 x 480 x 400 mm <sup>3</sup>
Page 64 Para vii	A water reservoir with bi-directional water transport to and from the water tank and volume capacity more than 200 liters.	A water reservoir with bi-directional water transport to and from the water tank and volume capacity of 200 liters <b>or more.</b>

<p>Page 66 Para 3</p>	<p>The vendor should provide three (3) sets of All-in-one solutions (AIO) of universal treatment base plate (AIO) /Separate Boards made of Carbon Fiber immobilization devices having a total solution to treat Pediatrics to Adult, Head and Head &amp; Neck Breast, Thorax, Abdomen, Pelvic with facility to make custom made supine and prone head rest for individual patients to maintain an accuracy of less than 2mm along with appropriate thermoplastics sheets of 500 numbers: 100 for head, 100 for Head &amp; Neck, 100 for breast, 100 for thorax and 100 for abdomen and pelvic.</p>	<p>The vendor should provide three (3) sets of All-in-one solutions (AIO) of universal treatment base plate (AIO) /Separate Boards made of Carbon Fiber/<b>Glass fiber</b> immobilization devices having a total solution to treat Pediatrics to Adult, Head and Head &amp; Neck Breast, Thorax, Abdomen, Pelvic with facility to make custom made supine and prone head rest for individual patients to maintain an accuracy of less than 2mm along with appropriate thermoplastics sheets of 500 numbers: 100 for head, 100 for Head &amp; Neck, 100 for breast, 100 for thorax and 100 for abdomen and pelvic.</p>
<p>Page 66 Para 4</p>	<p>General Requirements The vendor shall provide 4 set of carbon fiber based Head rest, prone Head rest universal, Pediatric Supine, Cushion for shoulder. Breast board Carbon fiber with all required Accessories.</p>	<p>General Requirements The vendor shall provide 4 set of carbon fiber based / <b>Low Density</b> Head rest, prone Head rest universal, Pediatric Supine, Cushion for shoulder. Breast board Carbon fiber / <b>Low Density material</b> with all required Accessories.</p>
<p>Page 68; Para A.2</p>	<p>Tenderers are advised to acquaint themselves with access to site, location of work, local labor problems and any other matter relating to availability and carriage of construction materials. <b>Adopting standard operation/ incorporating IG procedure for GRIHA requirement during construction/ post construction.</b></p>	<p>Tenderers are advised to acquaint themselves with access to site, location of work, local labor problems and any other matter relating to availability and carriage of construction materials.</p>
<p>Page 68; Para A.6</p>	<p>The bidder should inspect the site and submit the required structural and architectural drawings along with the bid.</p>	<p><b>Deleted</b></p>
<p>Page 75; Para J</p>	<p>Software and Hardware Five Years warranty of all software and hardware and networking and software service agreement till ten years. All software and hardware update should be free of cost for the purchased functions during warranty &amp; CMC period .There shall be PC hardware &amp; software upgrade done in 4th</p>	<p><b>Software and Hardware Five Years warranty of all software and hardware and networking and software service agreement till ten years. All software update should be free of cost for the purchased functions during warranty &amp; CMC period .</b></p>

	and 8th year respectively.	
<b>Item no 02. High Dose Rate Brachytherapy System (Tender ID: 2022_HLL_130211_2)</b>		
<b>Tender Page &amp; Para</b>	<b>TENDER SPECIFICATION</b>	<b>AMENDED AS</b>
Page 76 Para 2.1	Radioactive Source : The system should use radioactive Sources Iridium -192 / Cobalt-60 Added Para : The successful bidder in case if they have the Cobalt-60 based HDR Brachytherapy System, bunker modification and extra shielding for the bunker (if required) will be the responsibility of the supplier. (This is apart from already specified Scope of Work for Site Modification) The bunker modification cost and cost for extra shielding (if required) will also be considered for L1 calculation.	Radioactive Source : The system should use radioactive Sources Iridium -192 / Cobalt-60 The successful bidder in case if they have the Cobalt-60 based HDR Brachytherapy System, bunker modification and extra shielding for the bunker (if required) will be the responsibility of the supplier. (This is apart from already specified Scope of Work for Site Modification) The bunker modification cost and cost for extra shielding (if required) <b>should be included in the quoted turnkey price.</b>
Page 77 Para 4.13	Brachytherapy Treatment Planning System (TPS) : The vendor should provide advanced model-based dose calculation algorithm for in homogeneity correction in dose calculation as per the AAPM TG-186 / TG43 recommendations	Brachytherapy Treatment Planning System (TPS) : The vendor should provide advanced model-based dose calculation algorithm for in homogeneity correction in dose calculation as per the AAPM TG-186 / TG43 recommendations. <b>OPTIONAL : The vendor should also provide the Inverse Planning Module for Brachytherapy.</b>
Page 77 Para 5.6	Applicators for HDR Unit : Esophagus applicator – 2 sets (8 Fr & 6 Fr - 1 set each)	Applicators for HDR Unit : Esophagus applicator – <b>3 sets (6mm 18Fr, 8mm 24Fr and 12mm 30Fr)</b>

Page 78 Para 5.10	Applicators for HDR Unit : All kinds of x-ray dummy markers (two sets) for the applicators supplied (wherever relevant). Interstitial implant plastic tubes – total 1000 numbers and Interstitial implant plastic needles- 50 numbers each (20 G & 12 G) or 2mm diameter - 100 nos and also vendor should provide interstitial implant stainless steel applicators-20 numbers.	Applicators for HDR Unit : All kinds of x-ray dummy markers (two sets) for the applicators supplied (wherever relevant). Interstitial implant plastic tubes – total 1000 numbers and Interstitial implant plastic needles- 50 numbers each (20 G & 12 G) or 2mm diameter - 100 nos and also vendor should provide interstitial implant <b>stainless steel applicators (small, medium &amp; large)-20 numbers each.</b>
Page 78 Para 5.12	Applicators for HDR Unit : The vendor has to supply total 3 sets of transfer tubes (one with main config and 2 sets extra) for both standard fletcher and also for CTMR fletcher	Applicators for HDR Unit : The vendor has to supply total 3 sets of transfer tubes (one with main config and 2 sets extra) for both standard fletcher and also for CTMR fletcher. <b>Added Para : The vendor should provide CTMR compatible applicators for cancer cervix : 2 sets.</b>
Page 78 Para 8.1	TRAINING OF STAFF Radiation Oncologist : 1 Medical Physicist : 1 Radiotherapy technologist : 1 for a two weeks in India, where such facility is available. Additional onsite training for 15 days	TRAINING OF STAFF Radiation Oncologist : 1 Medical Physicist : 1 Radiotherapy technologist : 1 for <b>one week</b> in India, where such facility is available. Additional onsite training for 15 days
Page 81 Para 2	Note: The supplier must deliver the sources at consignee site, as and when intimated by the client/ consignee, within 45 days of the intimation of requirement.	<b>Note:</b> <b>The supplier must specify the delivery time line of the radioactive sources at consignee site, after intimation from the institute.</b>
<b>Item no 03. CT Simulator System-16 Slice (Tender ID: 2022_HLL_130211_3)</b>		
<b>Tender Page &amp; Para</b>	<b>TENDER SPECIFICATION</b>	<b>AMENDED AS</b>
Page 82 Para 1.1	CT Scanner system : The system should be of latest slip-ring technology allowing acquisition of 16 slices or more per rotation with true isotropic volume acquisition and sub millimetre resolution <b>of an at least 0.4mm</b>	CT Scanner system : The system should be of latest slip-ring technology allowing acquisition of 16 slices or more per rotation with true isotropic volume acquisition and sub millimetre resolution.
Page 82 Para 3.5	X-ray Tube : The anode peak heat dissipation rate should be 700 KHU/min or more angular dose modulation.	X-ray Tube : The anode peak heat dissipation rate should be <b>1500 KHU/min or more</b> angular dose modulation.

Page 82 Para 6.1	CT scanning parameters : The slice thickness should be users selectable which range from 1 mm to 10 mm.	CT scanning parameters : The slice thickness should be users selectable which range from <b>0.625 mm to 10 mm.</b>
Page 83 Para 11.2	CT Control Console : Computer CPU systems should be running on a high-end workstation platform with UNIX/LINUX/ Window of latest configuration. RAM size must be at least 8GB or better.	CT Control Console : Computer CPU systems should be running on a high-end workstation platform with UNIX/LINUX/ Window of latest configuration. RAM size must be at least <b>16 GB or better.</b>
Page 83 Para 11.4	Image storage of 250 GB or more for at least 2, 50,000 or more images in 512 x 512 matrixes uncompressed or better (quote the latest configuration)	Image storage of <b>1 TB</b> or more for at least <b>5, 00,000 or more</b> images in 512 x 512 matrixes uncompressed or better (quote the latest configuration)
Page 83 Para 13.7	CT-Simulation/Virtual Simulation System : A client-server based advanced visualization solution with minimum 20,000 concurrent slices capacity and minimum 2.5 TB storage capacity provided on the server. One number of CT simulation workstation must be provided in addition to the CT workstation (Unit Price to be quoted separately)	CT-Simulation/Virtual Simulation System : A client-server based advanced visualization solution with minimum 20,000 concurrent slices capacity and minimum 2.5 TB storage capacity provided on the server.  <b>OPTIONAL:</b> One number of CT simulation workstation must be provided in addition to the CT workstation (Unit Price to be quoted separately)
NA	NA	<b>Added Para : The vendor should provide the Metal Artifact Reduction Software in the offered system.</b>

**All other contents of the Tender enquiry including terms & conditions remain unaltered.**  
**Note:**

- I. Prospective Bidders are also advised to check the website regularly prior to the closing date and time of online submission of bids**