

Clarification No-1_to Commercial Issues of the bidding documents for Replacement/Upgradation of SCADA/EMS System at Southern Region Load Despatch Centre (SRLDC) of GRID-INDIA and State Load Despatch Centres (SLDCs) of Kerala, Tamil Nadu, Telangana, Andhra Pradesh and Puducherry; Specification No: CC/C&M/SR/SCADA/2023

S. No	Clause	Provision of Bidding Documents	Bidder's Query	GRID-INDIA's Reply
1		Implementation Schedule	Bidder requests POSOCO to provide 24 months duration for Project Implementation	Provisions of Bidding Document remain unchanged.
2			Bidder request for an AMC escalation of 6% annually.	Provisions of Bidding Document remain unchanged.
3			Bidder request to confirm if the manpower during the AMC period should be on Bidder / OEM payroll ?	Kindly Refer Amendment -1
4		Price Variation during AMC phase	Price variation on account of labor index is a standard accepted practice within POWERGRID including for existing maintenance contract and was also a part of previous ULDC schemes. Hence We request to please include this clause to support bidder with managing inflation. We are sharing a similar scope contract document for your reference which includes PV clause.	Such provision already exist in the tender document
5		Payment Authorities	<p>We are keen to participate in the subject tenders. However, the way the tender is structured we find that there are challenges for us which are mentioned below:</p> <p>a. High Complexity and Multiple customers/ payment authorities – Large scope in a single tender lead to execution complexity. In addition to this for example in case of WRLDC we have seven payment authorities Grid India, MSETCL, MPPTCL, GETCO, CSPTCL, GED, DNH-DD. We therefore request you to split the subject package into</p>	Refer Clause 2.0 of Section-I: Invitation of Bids.

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		AMC Cost	<p>smaller packages and have a single Customer/ Payment authority in each of the smaller packages. This will help us in bidding, execution and closing the projects in an efficient manner.</p> <p>b. AMC portion will be 30% of bid value- This restriction will make the cash flow negative for us. Hence kindly either remove this restriction or remove the AMC from Scope and take an offer for AMC once the main project is completed.</p>	Provisions of Bidding Document remain unchanged
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S. No.	Volume / Clause	Provision of Bidding Documents	Bidder's Query	GRID-INDIA Reply
1	Technical Specification, Volume II Part-A Section-1 General Requirements of the Project clause1.7 Intent of the Project	Importing historical data from existing system to the proposed (new) system.	Bidder requests POSOCO to confirm the present structures of Historical data at each LDC and other Control Centres.	Kindly Refer Amendment -1
2	Technical Specification, Volume II Part-A Section-1 General Requirements of the Project clause1.9 Scope of Work	d) Integration of Main and back up control centers of SLDC with existing/new main and backup control centers of RLDCs (Regional Load Dispatch Center).	It is understood that the integration of new SLDC and RLDC will be part of the bidder's scope, since existing control centers of SLDCs are already connected with existing control centers of RLDCs and the existing system will be dismantled in future. There is no need to integrate the new SCADA/EMS with old systems.	The provisions of Bidding documents remain unchanged. There may be requirement of integrating old and new system during integration and parallel operation.
3	Technical Specification, Volume II Part-A Section-1 General Requirements of the Project clause1.9 Scope of Work	f) Integration of Main and Back up Control Centers on ICCP protocol with Distribution Companies.	It is the employer's responsibility to perform any changes to the existing distribution system on the distribution company's side.	Provisions of Bidding documents remain unchanged. The bidder scope of work is limited to control center end and supplied system under this project.
4	Technical Specification, Volume II Part-A Section-1 General Requirements of the Project Clause no. aa	Integration with Market, offline and other Applications: SCADA/EMS System being supplied shall have the provision to exchange data with other applications (existing or to be procured) such as Open Access Application, WBES, Metering Applications etc.	Bidder requests POSOCO to provide more details about WBES, i.e. regarding integration with other applications.	Refer Volume II Part-B Section-8 Clause 8.1.3 Integration with Scheduling Application (WBES). Bidders to comply Technical Specification.

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S. No.	Volume / Clause	Provision of Bidding Documents	Bidder's Query	GRID-INDIA Reply
		SCADA/EMS System shall exchange data with these applications in standard API (Application Program Interface)/formats like ODBC, OPC, XML, SOAP and REST etc.		
5	Technical Specification, Volume II Part-A Section-1 General Requirements of the Project clause1.9 Scope of Work	ff) During entire contract period (including extension of contract, if any), if OEM discontinues/ ends support to any item supplied (software/hardware/security solution) under the contract, contractor has to replace such hardware, software (or both, depending on software or hardware dependency) without any additional cost to Owner. Replacement shall be of either same or higher configuration and from same OEMs.	Please modify this point as follows: the bidder is required to support the supplied items until the end of the AMC period or until the bidder declares them nonfunctional.	Provisions of Bidding documents remain unchanged.
6	Technical Specification, Volume II Part-A Section-1 General Requirements of the Project clause1.9.1 General Requirements	The contractor has to ensure during the entire contract period, if any supplied item (software and hardware including third party solutions/services) under the contract is discontinued / ends support/ is end-of-life,	Please modify this point as follows: the bidder is required to support the supplied items until the end of the AMC period or until the bidder declares them nonfunctional.	Provisions of Bidding documents remain unchanged.

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S. No.	Volume / Clause	Provision of Bidding Documents	Bidder's Query	GRID-INDIA Reply
		for all such items the contractor has to replace and provide the software/hardware/solution/service as per scope of technical specification without any additional cost to Employer/Owner.		
7	Technical Specification, Volume II, Part-A Section-4 Maintenance & Support Services clause4.1 Maintenance support	The Employer/Owner at their own discretion may extend the duration of maintenance period for up to 2 years based on the same rates, same terms and conditions of the contract.	Extensions of the maintenance period should be discussed and agreed upon in terms of scope and rates.	Provisions of Bidding documents remain unchanged. However, can be discussed during stage-I.
8	Technical Specification, Volume II, Part-A Section-4 Maintenance & Support Services clause4.1 Maintenance support	For any addition (e.g., integration of new RTUs or new control centre) during the maintenance period, bidder shall provide services for maintenance of those systems also without any additional cost.	The employer is requested to add an additional line item to the price schedule for RTU Integration work. We understand that bidders' scope includes only control center end integration.	The bidder scope of work is limited to control center end and supplied system under the project. Kindly refer Amendment-1.
9	Technical Specification, Volume II, Part-A Section-4 Maintenance & Support Services clause4.1 Maintenance support	For all third-party equipment (Hardware & Software) Contractor shall have back-to[1]back support & warranty along with supply of spare with appropriate response time from OEM.	We work with designated OEM's partners. We request that this clause be amended accordingly.	Provisions of Bidding documents remain unchanged.

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S. No.	Volume / Clause	Provision of Bidding Documents	Bidder's Query	GRID-INDIA Reply
10	Technical Specification, Volume II, Part-A Section-4 Maintenance & Support Services clause4.1 Maintenance support	iv. If the battery capacity is less than 80% of its design value in any of the cases, the battery shall have to be replaced by contractor during entire period of contract (including extension of contract, if any) without any cost implications to owner. If number of cells replaced(cumulative) in battery bank exceeds more than 25% of total battery bank in any of the cases during entire period of contract (including extension of contract, if any), then contractor shall replace that entire battery bank without any additional cost to the Owner.	We request that batteries be treated as consumables and that the customer manage and maintain them.	Provisions of Bidding documents remain unchanged.
11	Technical Specification, Volume II, Part-A Section-4 Maintenance & Support Services clause4.3.1 Hours of Cover	The support personnel so deployed shall be qualified personnel having at least 2 years of experience in the SCADA/EMS system including one-year experience in the delivered SCADA/EMS system. The person deputed shall be a permanent	The bidder should be allowed to depute resources with suitable experience from their subcontractor organisation.	Provisions of Bidding documents remain unchanged.

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		employee on the direct pay roll of the contractor.		
12	Technical Specification, Volume II, Part- B, Section 2: Ems System Functions clause2.2 Power System Analysis	The PSA shall include the following functions: J: Power Flow based on SE solution (Real time Power flow solution and State Estimation solution both should be available simultaneously with the associated element and their values to be exchanged with the SCADA measurements)	Understanding: Real time Power flow solution > SE data fetch into power flow and run power flow.	Provisions of Bidding documents remain unchanged. However, can be discussed during stage-I.
13	Technical Specification, Volume II, Part- B, Section 2: EMS SYSTEM FUNCTIONS clause2.2.1 Data Entry, Manipulation and Verification	In addition, application shall have single-line diagram (SLD) and station diagram (SD) features, which allow the user to create such diagrams by using a few straightforward techniques.	Kindly share typical station diagram (SD)	Provisions of Bidding documents remain unchanged. However, can be discussed during stage-I.
14	Technical Specification, Volume II, Part- B, Section 2: Ems System Functions clause2.2.5.5 HVDC Model Application	j) RVO mode operation.	Kindly elaborate Reduced Voltage Operation (RVO) mode	In the Reduced Voltage Operation mode is the operating mode HVDC in which HVDC Pole reference voltage reduced keeping current varying and limited to its current rating. Reduction in HVDC Pole voltage will lead to reduction of HVDC power

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				<p>flow capacity.</p> <p>However, Bidders are requested to provide their detail solution which will be discussed during Stage-I.</p>
15	Technical Specification, Volume II, Part- B, Section 2: Ems System Functions clause2.2.7 Network Reduction Methodology,	c) An example of truncation is given below –While truncating the network at 400kV and above level, all the switching devices at 220kV and below level are opened in Network database and Modelled Loads are connected at the secondary side of 400/220kV ICTs. These modelled loads shall take the Real-time data on associated ICTs as its load measurements. A sample illustration for same is shown in Appendix M (1-A).	Bidder requests POSOCO to confirm "whether the modelled load should take the real time measurements automatically during truncation?"	<p>Yes truncation of network is dependent on the selection of boundary nodes by user and general selection of boundary node based on voltage level, area, region station wise etc.</p> <p>Provisions of Bidding documents remain unchanged. However, can be discussed during stage-I.</p>
16	Technical Specification, Volume II, Part- B, Section 2: Ems System Functions clause2.2.8 State Estimation	e) Pseudo measurements for unobservable regulated bus voltages shall be based on either a function of the load of the Region where the bus is located, or a function of time of day. Provision shall be made for a linear function of	<p>The points (e) and (g) are conflicting with each other.</p> <p>Bidder request POSOCO to confirm how the different methods of calculating the pseudo measurements for bus voltages will be chosen.</p>	Provisions of Bidding documents remain unchanged. However, can be discussed during stage-I.

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S. No.	Volume / Clause	Provision of Bidding Documents	Bidder's Query	GRID-INDIA Reply
		up to three segments of voltage versus load at each regulated bus. g) When needed, pseudo measurements for regulated bus voltages shall be calculated as the mid-point between the high and low bus voltage limits from Limit Monitoring.		
17	Technical Specification, Volume II, Part- B, Section 2: Ems System Functions clause2.2.8.2 State Estimation Characteristics	f) It shall be possible for the programmer to disable and enable the setting of the quality code in the real-time data base on a global basis.....	If quality code is disabled in real-time, then what quality code should be considered in SE?	Provisions of Bidding documents remain unchanged. However, can be discussed during stage-I.
18	Technical Specification, Volume II, Part- B, Section 2: Ems System Functions clause2.2.9 Bus Load Forecast	Change the filter parameters used by the smoothing process	What would be the filter parameters in the smoothing process?	Provisions of Bidding documents remain unchanged. However, can be discussed during stage-I.
19	Technical Specification, Volume II, Part- B, Section 2: Ems System Functions clause2.2.12.1 Contingency Cases	c) The user shall be able to enable or inhibit the modelling of closed-loop control of transformer (voltage and phase-shifter) tap changers, reactor/capacitor switching and generating unit reactive power limiting.	Explain closed-loop Scenario in transformer tap changers ?	Provisions of Bidding documents remain unchanged. However, can be discussed during stage-I.

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S. No.	Volume / Clause	Provision of Bidding Documents	Bidder's Query	GRID-INDIA Reply
20	Technical Specification, Volume II, Part- B, Section 2: Ems System Functions clause	d) In the event of generating unit outages or outages that cause a loss of load the change in generation/load shall be assigned to all remaining generating units/loads in proportion to its maximum capacity in the affected electrical island.	Understanding: Generation will be assigned to other units, but load cannot be assigned to other loads.	Provisions of Bidding documents remain unchanged. However, can be discussed during stage-I.
21	Technical Specification, Volume II, Part- B, Section 2: Ems System Functions clause 2.2.13.1 General Characteristics	a) The user shall be able to select standard Objective Functions with Control Functions as follows- MVAR Loss Minimization.....	What type control to be move to minimize MVAR loss	Provisions of Bidding documents remain unchanged. However, can be discussed during stage-I.
22	Technical Specification, Volume II, Part- B, Section 2: Ems System Functions clause 2.2.13.1 General Characteristics	d) Viable islands i.e., the islands in which the generation-load mismatch is less than a programmer-defined amount, must be solved even if other nonviable islands fail to converge.	Bidder requests POSOCO to confirm "whether the condition for viable island should include a minimum no. of buses in the island or not?"	Provisions of Bidding documents remain unchanged. However, can be discussed during stage-I.

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S. No.	Volume / Clause	Provision of Bidding Documents	Bidder's Query	GRID-INDIA Reply
23	Technical Specification, Volume II, Part- B, Section 2: Ems System Functions clause2.4 Automatic Generation Control (AGC)	Employer/Owner intends to implement Automatic Generation Control (AGC). Pan India AGC with all 5 regions and constituents within it could be considered as one control area with user flexibility to spilt/merge control areas. Each regional/state/constituents entity power station within its jurisdiction is a control area by itself. Split/Merging of control area should be user dependent without any limitation on creation of number of new control areas.	Understanding: 1. The unit cannot control from multiple operating area while it can be access from multiple operating area. 2. Split/Merging of control area can be done at a time database modelling	Provisions of Bidding documents remain unchanged. However, can be discussed during stage-I.
24	Technical Specification, Volume II, Part- B, Section 2: Ems System Functions clause2.4.1.1 Operations Monitor	a) Actual Generation MW: (1) Total for all India (2) Total for each control area	Understanding: All India parameters will be updated at RLDC from NLDC through ICCP. Please confirm	Provisions of Bidding documents remain unchanged. However, can be discussed during stage-I.
25	Technical Specification, Volume II, Part- B, Section 2: Ems System Functions clause2.4.1.1 Operations Monitor	<p>Up Reserves - $Up_Reserve = \text{Min of} \{ (In_effect_Regulating_limit_{high} - Actual_{plant/unit}), Ramp_Rate \}$</p> <p>Down Reserves - $Down_Reserve = \text{Min of} \{ (Actual_{plan/unit} - In_effect_Regulating_limit_{Low}), Ramp_Rate \}$</p>	Please revalidate formula. Ramp_Rate = MW/Min while Regulating Limit is in MW. How both values will be compared? Please clarify	Provisions of Bidding documents remain unchanged. However, can be discussed during stage-I.

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S. No.	Volume / Clause	Provision of Bidding Documents	Bidder's Query	GRID-INDIA Reply
26	Technical Specification, Volume II, Part- B, Section 2: Ems System Functions clause2.4.1.1 Operations Monitor	(6) Cold Reserve Calculation $\text{Cold_Reserve} = \text{Installed_Capacity}_{\text{without_considering_CB}} - \text{Installed_Capacity}_{\text{with_considering_CB}}$	Will only the online unit be considered, or will both (online and offline) units be considered in the calculation? How will the installed capacity of the unit change when CB is considered versus when CB is not considered?	Provisions of Bidding documents remain unchanged. However, can be discussed during stage-I.
27	Technical Specification, Volume II, Part- B, Section 2: Ems System Functions clause2.4.1.1 Operations Monitor	(d) Net Interchange MW (actual, scheduled, and deviation from schedule): Net Interchange definitions and calculations shall be user definable: (1) Net for all India and breakdown per region and control area.	Understanding: All India parameters will be updated at RLDC from NLDC through ICCP. Please confirm	Yes, However, Bidders are requested to provide their detail solution which will be discussed during Stage-I.
28	Technical Specification, Volume II, Part- B, Section 2: Ems System Functions clause2.4.1.1 Operations Monitor	(e) Actual Drawl MW (including transmission losses): (1) Total for all India	Understanding: All India parameters will be updated at RLDC from NLDC through ICCP. Please confirm	Yes, However, Bidders are requested to provide their detail solution which will be discussed during Stage-I.
29	Technical Specification, Volume II, Part- B, Section 2: Ems System Functions clause2.4.1.1 Operations Monitor	Area Control Error (ACE): ACE for operating (5-Five Regions and constituents within each Regions) and processed ACE values shall be calculated based on actual frequency, actual net interchange (regional/state and constituents), scheduled	Since other regions' data will not be available at NRLDC. How will ACE calculate for another region?	Provisions of Bidding documents remain unchanged. However, can be discussed during stage-I.

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		frequency, and scheduled net interchange.		
30	Technical Specification, Volume II, Part- B, Section 2: Ems System Functions clause(a) Tie-Line Bias Control, where ACE is calculated from the following formula: $ACE = (I_a - I_s) - 10 B_f (f_a - f_s) + \text{Offset}$	Please revalidate formula.	Provisions of Bidding documents remain unchanged. However, can be discussed during stage-I.
31	Technical Specification, Volume II, Part- B, Section 2: Ems System Functions clause 2.4.2.3 Generating Unit Limits	6. Declared Energy for the day in million units (MU) 7. Schedule Energy in MU (Cumulative for the day) 8. Water gross head (m)	Bidder requests POSOCO to provide details on use-case for the mentioned inputs that will be used in AGC for Hydro units.	Provisions of Bidding documents remain unchanged. However, can be discussed during stage-I.
32	Technical Specification, Volume II, Part- B, Section 2: Ems System Functions clause 2.4.2.3 Generating Unit Limits	Additional inputs for Gas power plants 1. Reference exhaust gas temperature 2. Actual exhaust gas temperature	Bidder requests POSOCO to provide details on use-case for the mentioned inputs that will be used in AGC for Gas Power Plants	Provisions of Bidding documents remain unchanged. However, can be discussed during stage-I.

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S. No.	Volume / Clause	Provision of Bidding Documents	Bidder's Query	GRID-INDIA Reply
33	Technical Specification, Volume II, Part- B, Section 2: Ems System Functions clause2.4.2.7 Schedule Start-Stop methodology for AGC	Start-stop button shall be made available for user which start reducing delta P of all units to zero (0) by following their respective ramp rates.	Bidder requests POSOCO to provide more details regarding use- case of start-up button. In addition, bidder requests POSOCO to explain what delta P.	<p>This functionality is used to gradually reduce the Delta P to zero honoring the ramp rate of units prior to aborting AGC operation to avoid sudden change in Delta P of operating units.</p> <p>Bidders are requested to provide their detail solution for discussion during Stage-I.</p>
34	Technical Specification, Volume II, Part- B, Section 2: Ems System Functions clause2.4.2.8 AGC Performance Monitor	Control performance shall be monitored against the defined Performance Criteria. These standards are based on the combination of the ACE and the frequency deviation averages over the past twelve months. The AGC software shall have a Performance Monitor function and displays the results. It shall be possible to generate periodic reports of the performance parameters. It shall be possible to generate input vs output scatter plots and Correlation numbers. configurable for Daily, Weekly, Monthly, Annual assessments. Statistics shall be	Bidder requests POSOCO to provide details on the AGC performance monitoring standards/criteria that is required.	Provisions of Bidding documents remain unchanged. However, can be discussed during stage-I.

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		maintained as required to complete the defined Performance Criteria. These statistics shall be maintained for presentation on displays and output to a printer. All measurements of secondary control signals from the LDCs to the plant/generator and actual response of plant/generator using SCADA data. Performance of the plant/generator shall be measured by the AGC software by comparing the actual response measured against the control signals for Regulation-Up and Down sent every 4 seconds/1 min/5 min to the LDC. Daily/Weekly/Monthly/Annual report for the plants performance evaluation shall made available.		
35	Technical Specification, Volume II, Part- B, Section 4: System Software Requirements clause4.4	CIM (Common Information Model- 61970) compliant Data Modelling Import & Export Tool.	Bidder requests POSOCO to confirm the version of CIMXML to be supported.	Kindly refer Volume II Part-B Section-4 Clause 4.4 Bidders shall comply Technical Specification.

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S. No.	Volume / Clause	Provision of Bidding Documents	Bidder's Query	GRID-INDIA Reply
36	Technical Specification, Volume II, Part- B, Section 4: System Software Requirements clause4.8.1 Backup System	The utility shall also take image backup daily automatically on backup appliance. It shall keep minimum two (02) set of image backup of all servers and one image backup of all the workstations on backup appliance (along with other backup details mentioned in Appendix-H, PART-B) and another Two (02) copies shall be maintained, out of which one shall be maintained by Contractor on SAN/NAS and other with Owner on external hard disk.	The bidder assumes that 2 image backups would be taken for each server and 1 image backup would be taken for each workstation. The total number of backups for a server and workstation combined would be 3. Kindly confirm.	Provisions of Bidding documents remain unchanged. However, can be discussed during stage-I.
37	Technical Specification, Volume II, Part- B, Section 5: Hardware Requirements clause5.5.6 Workstation Consoles	Integrated Remote Consoles (All-in-One): The Integrated remote console shall be provided wherein the workstation is part of monitor structure/ frame	Kindly elaborate on the Integrated Remote Consoles that are requested in the RFP and provide a use case. Kindly provide the count of integrated remote consoles requested in the RFP.	Kindly Refer Amendment -1
38	Technical Specification, Volume II, Part- B, Section 5: Hardware Requirements clause5.11 Furniture	5.11 Furniture a) Workstation Desk: Motorised	Please clarify whether we can consider the same specification for the tabletop and front edge as specified in the clause "b) Workstation Desk: Normal / U-Type".	Provisions of Bidding documents remain unchanged. However, can be discussed during stage-I.
39	Technical Specification, Volume II, Part- B, Section 5:	5.11 Furniture a) Workstation Desk:	To avoid generic compliances at the cost of project quality it is recommended to mention below description:	Provisions of Bidding documents remain

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S. No.	Volume / Clause	Provision of Bidding Documents	Bidder's Query	GRID-INDIA Reply
	Hardware Requirements clause 5.11 Furniture	Motorised • To ensure hassle free ergonomic operations/adjustments and durability of the product, the console shall have UL/Intertek audit certified feature on all mechanisms of console.	Desktop Automation: - Hassle free ergonomic operations/adjustments and durability of the product, the console shall have UL/Intertek audit certified feature on all mechanisms of console. The mechanisms shall be tested & certified for at least 1000 time synchronous up-down movement of worktop, tilt adjustments, up-down and front-back movement of monitor base w.r.t. worktop and all these mechanisms shall be operated by using single touch screen.	unchanged. However, can be discussed during stage-I.
40	Technical Specification, Volume II, Part- B, Section 5: Hardware Requirements clause 5.11 Furniture	5.11 Furniture b) Workstation Desk: Normal / U-Type	In addition to the defined set of requirement, it is requested to add below points: 1. The proposed control desk shall be ANSI/BIFMA e3-2019 certified/ tested at least for level 3 from UL/Intertek as per Furniture Sustainability Standard to identify the sustainability level of the furniture with respect to the environmental, health & wellness, and social impacts applicable to product(s). 2. The proposed Control Desk shall be UL Listed	Provisions of Bidding documents remain unchanged. However, can be discussed during stage-I.

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S. No.	Volume / Clause	Provision of Bidding Documents	Bidder's Query	GRID-INDIA Reply
41	Technical Specification, Volume II, Part- B, Section 5: Hardware Requirements clause5.11 Furniture	To ensure hassle free ergonomic operations/adjustments and durability of the product, the console shall have UL/Intertek audit certified feature on all mechanisms of console.	Proprietary certificate, To the Best of our knowledge M/s. Pyrotech Workspace Pvt Ltd is the only Indian company that has "UL Audit Certificate". "UL Audit Certificate" is nothing but an activity where the manufacturer invites UL to come to there premises & physically witness this activity (This does not include any quantifiable Test or does not prove any deliverable capability), request you to delete it or confirm Indian Lab from where we can get it done.	Kindly Refer Amendment -1
42	Technical Specification, Volume II, Part- B, Section 5: Hardware Requirements clause5.11 Furniture	The EPD (Environmental product declaration) of control room console shall be verified in accordance with ISO 14025 (from UL/Intertek) for Impacts on Environment by console.	To the Best of our knowledge M/s. Pyrotech Workspace Pvt Ltd is the only Indian company that has got EPD (Environmental Product Declaration) of Control Desk. We are not aware if any other Global / Indian Company complies to this specification / requirement EPD (Environmental Product Declaration) is similar to GreenGuard Certification so request you to allow Greenguard. (Products that have achieved GREENGUARD Certification are scientifically proven to meet some of the world's most rigorous third-party chemical emissions standards, helping to reduce indoor air pollution and the risk of chemical exposure.) Also why EPD (Environmental Product Declaration) required only for the control desk. If the same logic is to be extended then should not the other elements in the Control Room such as Desktops, CPUs, Servers, ACs, other	Kindly Refer Amendment -1

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S. No.	Volume / Clause	Provision of Bidding Documents	Bidder's Query	GRID-INDIA Reply
			Active Crucial Devices and also on passive components like Glass Partitions / Doors, Ceiling Light, Carpeting, Flooring, Paint, Wall Panelling, Ceiling Panelling & Luminaire's electrical etc. also be EPD complied. Request you to allow Greenguard certificate also or request you to delete it.	
43	Technical Specification, Volume II, Part- B, Section 5: Hardware Requirements clause 5.11 Furniture	UL audit certified design feature on front modular Polyurethane (PU) Edge. High density Poly Urethane Foam molded on industrial grade aluminum core to form minimum 50mm deep tapered edge to be installed on worktop.	Proprietary certificate, To the Best of our knowledge M/s. Pyrotech Workspace Pvt Ltd is the only Indian company that has "UL Audit Certificate". "UL Audit Certificate" is nothing but an activity where the manufacturer invites UL to come to there premises & physically witness this activity (This does not include any quantifiable Test or does not prove any deliverable capability), request you to delete it or confirm Indian Lab from where we can get it done.	Kindly Refer Amendment -1

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S. No.	Volume / Clause	Provision of Bidding Documents	Bidder's Query	GRID-INDIA Reply
44	Technical Specification, Volume II, Part- B, Section-9 Cyber Security Requirements clause9.1 Cyber Security System	The contractor has to carry out bi-annual Cyber Security Audit by Cert-IN certified Auditors till the completion of the contract	We understand that Cyber Audit will be taken care by Employer and bidder will support to mitigate all the issues observed during Audit.	Cyber security audit is in the scope of Bidder. Kindly refer Volume II Part-A Section-1 clause 1.10 and Volume II Part-A Section-4 clause 4.3.3.3. Provisions of Bidding documents remain unchanged.
45	Technical Specification, Volume II, Part- B, Section-9 Cyber Security Requirements clause9.1.1 Cyber Security Policy	Mechanism to detect unauthorized/unusual activity and attempts to compromise system security based on logs of SIEM, NMS and Application logs.	Bidder wants to make a note to POSOCO that "NMS software shall not perform security operations as system logs are transferred to SIEM applications."	Provisions of Bidding documents remain unchanged. However, can be discussed during stage-I.
46	Technical Specification, Volume II, Part- B, Section-9 Cyber Security Requirements clause9.1.1 Cyber Security Policy	Auditing by CERT-In certified third-party during FAT, SAT and bi-annually during AMC period. Minimum three no. of auditing agency need to be engaged for performing six-monthly cyber security auditing. Biannually consecutive cyber security audit shall be conducted from two different CERT-In certified auditing firms. Contractor shall implement the recommendation/remedial actions suggested by the	We understand that Cyber Audit will be taken care by Employer and bidder will support to mitigate all the issues observed during Audit.	Cyber security audit is in the scope of Bidder. Kindly refer Volume II Part-A Section-1 clause 1.10 and Volume II Part-A Section-4 clause 4.3.3.3. Provisions of Bidding documents remain unchanged.

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Clarification No-1 to Technical Specifications of the bidding documents for Replacement/Upgradation of SCADA/EMS System at Southern Region Load Despatch Centre (SRLDC) of GRID-INDIA and State Load Despatch Centres (SLDCs) of Kerala, Tamil Nadu, Telangana, Andhra Pradesh and Puducherry; Specification No: CC/C&M/SR/SCADA/2023

S. No.	Volume / Clause	Provision of Bidding Documents	Bidder's Query	GRID-INDIA Reply
		auditor after audit for any upgrade (Patches) in existing system. Note: For RLDC/SLDCs, Officers from CSIRT-Power will also be participating in the Cyber Security Audits (during FAT, SAT and bi-annually during AMC period)		
47	Technical Specification, Volume II, Part- B, Section-9 Cyber Security Requirements clause9.1.6 Application Whitelisting tool	Tool shall be able to whitelist application builds (groups) and updates the whitelist automatically based on the discovered applications' compliance with organization's selected policies like trusted vendors/product name/folder path.	Bidder wants to make a note to POSOCO that "Application whitelisting software will not be able to automatically update the application."	Provisions of Bidding documents remain unchanged. However, can be discussed during stage-I.
48	Technical Specification, Volume II, Part- B, Section-9 Cyber Security Requirements clause9.1.3.1 Firewall	Firewall should be able to integrate on premise sandboxing and different OEMs Anti APT solution	Firewall should be able to integrate on premise sandboxing and different OEMs Anti APT solution through SOAR integration Direct integration is not applicable between different OEM supplied anti APT devices, Kindly modify accordingly	Provisions of Bidding documents remain unchanged. However, can be discussed during stage-I.

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Clarification No-1 to Technical Specifications of the bidding documents for Replacement/Upgradation of SCADA/EMS System at Southern Region Load Despatch Centre (SRLDC) of GRID-INDIA and State Load Despatch Centres (SLDCs) of Kerala, Tamil Nadu, Telangana, Andhra Pradesh and Puducherry; Specification No: CC/C&M/SR/SCADA/2023

S. No.	Volume / Clause	Provision of Bidding Documents	Bidder's Query	GRID-INDIA Reply
49	Technical Specification, Volume II, Part- B, Section-9 Cyber Security Requirements clause 9.1.3.1 Firewall	<ul style="list-style-type: none"> Firewall solution shall be purpose-built appliance and should not have wireless access and Bluetooth component within its hardware and software to facilitate direct connectivity (wirelessly) with firewall. Firewall solution shall provide IPv4 and IPv6 dual stack support from day one and Firewall OEM should be IPv6 Ready logo approved. 	<ul style="list-style-type: none"> Firewall solution shall be purpose-built appliance and should not have wireless access and Bluetooth component within its hardware and software to facilitate direct connectivity (wirelessly) with firewall. Firewall solution shall provide IPv4 and IPv6 dual stack support from day one and Firewall OEM should be IPv6 Ready logo approved/ USGv6 certified. No IPv6 Ready logo is basically provided to router and Switch manufacturing companies. Kindly add USGv6 certification to ensure that your network security platform can be safely deployed in environments where IPv6 is in use. 	Provisions of Bidding documents remain unchanged. However, can be discussed during stage-I.
50	Technical Specification, Volume II Part B, Appendix E: Questionnaire clause	134. Describe the features and functioning of (a) Application whitelisting tool (b) End point security (c) Intrusion detection and prevention system (d) SIEM (e) Patch management tool (f) Asset management tool (g) VAPT tool	We understand that all 3rd party software solutions are independent for their respective sites , no dependencies for any other control centre	As per BoQ and scope specified under tender document.
51	Technical Specification, Volume II Part B, Appendix - G - BOQ clause A Software	(k) Centralised Management and Log Analyser of all FWs	Clarification:- Please clarify whether Logging, Reporting functionality required as separate virtual appliance? Or integrated appliance of management , logger and reporting can be provided by bidder? This is required to finalize the BOQ.	Kindly Refer DRS (Volume II Part B, Appendix-H: Hardware Specifications) and Amendment-1

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Clarification No-1 to Technical Specifications of the bidding documents for Replacement/Upgradation of SCADA/EMS System at Southern Region Load Despatch Centre (SRLDC) of GRID-INDIA and State Load Despatch Centres (SLDCs) of Kerala, Tamil Nadu, Telangana, Andhra Pradesh and Puducherry; Specification No: CC/C&M/SR/SCADA/2023

S. No.	Volume / Clause	Provision of Bidding Documents	Bidder's Query	GRID-INDIA Reply
52	<p>Technical Specification, Volume II Part B, Appendix - G - BOQ</p> <p>Appendix - G - BOQ</p> <p>Bill of Quantity for SCADA/EMS System of SRLDC</p> <p>2.16 Cyber Security Appliances</p>	(c) External Firewall with NIPS for ICCP and RTU and Centralized management	<p>Clarification:- The Specifications require clarity w.r.t number of Management appliances? Based on understanding from Tender document, External Firewalls (DMZ & ICCP/RTU) at each location required to be managed from single Management console/appliance. Similarly, Internal firewalls at each location to be managed with different management console? Please confirm if Management appliances are also needed in HA?</p>	As per BoQ, DRS (Volume II Part B, Appendix-H: Hardware Specifications) and scope specified under tender document along-with Amendment-1
53	<p>Technical Specification, Volume II Part B, Appendix - G - BOQ</p> <p>Appendix - G - BOQ</p> <p>Bill of Quantity for SCADA/EMS System of Andhra Pradesh SLDC</p> <p>A Software</p>	(k) Centralised Management and Log Analyser of all FWs	<p>Clarification:- Please clarify whether Logging, Reporting functionality required as sperate virtual appliance? Or integrated appliance of management , logger and reporting can be provided by bidder? This is required to finalize the BOQ.</p>	Kindly Refer DRS (Volume II Part B, Appendix-H: Hardware Specifications) and Amendment-1

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Clarification No-1 to Technical Specifications of the bidding documents for Replacement/Upgradation of SCADA/EMS System at Southern Region Load Despatch Centre (SRLDC) of GRID-INDIA and State Load Despatch Centres (SLDCs) of Kerala, Tamil Nadu, Telangana, Andhra Pradesh and Puducherry; Specification No: CC/C&M/SR/SCADA/2023

S. No.	Volume / Clause	Provision of Bidding Documents	Bidder's Query	GRID-INDIA Reply
54	<p>Technical Specification, Volume II Part B, Appendix - G - BOQ</p> <p>Appendix - G - BOQ</p> <p>Bill of Quantity for SCADA/EMS System of Andhra Pradesh SLDC</p> <p>2.16 Cyber Security Appliances</p>	(c) External Firewall with NIPS for ICCP and RTU and centralized management	<p>Clarification:- The Specifications require clarity w.r.t number of Management appliances? Based on understanding from Tender document, External Firewalls (DMZ & ICCP/RTU) at each location required to be managed from single Management console/appliance. Similarly, Internal firewalls at each location to be managed with different management console? Please confirm if Management appliances are also needed in HA?</p>	As per BoQ, DRS (Volume II Part B, Appendix-H: Hardware Specifications) and scope specified under tender document along-with Amendment-1
55	<p>Technical Specification, Volume II Part B, Appendix - G - BOQ</p> <p>Appendix - G - BOQ</p> <p>Bill of Quantity for SCADA/EMS System of Kerala SLDC</p> <p>A Software</p>	(k) Centralised Management and Log Analyser of all FWs	<p>Clarification:- Please clarify whether Logging, Reporting functionality required as sperate virtual appliance? Or integrated appliance of management , logger and reporting can be provided by bidder? This is required to finalize the BOQ.</p>	Kindly Refer DRS (Volume II Part B, Appendix-H: Hardware Specifications) and Amendment-1

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Clarification No-1 to Technical Specifications of the bidding documents for Replacement/Upgradation of SCADA/EMS System at Southern Region Load Despatch Centre (SRLDC) of GRID-INDIA and State Load Despatch Centres (SLDCs) of Kerala, Tamil Nadu, Telangana, Andhra Pradesh and Puducherry; Specification No: CC/C&M/SR/SCADA/2023

S. No.	Volume / Clause	Provision of Bidding Documents	Bidder's Query	GRID-INDIA Reply
56	<p>Technical Specification, Volume II Part B, Appendix - G - BOQ</p> <p>Appendix - G - BOQ</p> <p>Bill of Quantity for SCADA/EMS System of Kerala SLDC</p> <p>2.16 Cyber Security Appliances</p>	(c) External Firewall with NIPS for ICCP and RTU and centralized management	<p>Clarification:- The Specifications require clarity w.r.t number of Management appliances? Based on understanding from Tender document, External Firewalls (DMZ & ICCP/RTU) at each location required to be managed from single Management console/appliance. Similarly, Internal firewalls at each location to be managed with different management console? Please confirm if Management appliances are also needed in HA?</p>	As per BoQ, DRS (Volume II Part B, Appendix-H: Hardware Specifications) and scope specified under tender document along-with Amendment-1
57	<p>Technical Specification, Volume II Part B, Appendix - G - BOQ</p> <p>Appendix - G - BOQ</p> <p>Bill of Quantity for SCADA/EMS System of Puducherry SLDC</p> <p>A Software</p>	(k) Centralised Management and Log Analyser of all FWs	<p>Clarification:- Please clarify whether Logging, Reporting functionality required as sperate virtual appliance? Or integrated appliance of management , logger and reporting can be provided by bidder? This is required to finalize the BOQ.</p>	Kindly Refer DRS (Volume II Part B, Appendix-H: Hardware Specifications) and Amendment-1

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Clarification No-1 to Technical Specifications of the bidding documents for Replacement/Upgradation of SCADA/EMS System at Southern Region Load Despatch Centre (SRLDC) of GRID-INDIA and State Load Despatch Centres (SLDCs) of Kerala, Tamil Nadu, Telangana, Andhra Pradesh and Puducherry; Specification No: CC/C&M/SR/SCADA/2023

S. No.	Volume / Clause	Provision of Bidding Documents	Bidder's Query	GRID-INDIA Reply
58	<p>Technical Specification, Volume II Part B, Appendix - G - BOQ</p> <p>Appendix - G - BOQ</p> <p>Bill of Quantity for SCADA/EMS System of Puducherry SLDC</p> <p>2.16 Cyber Security Appliances</p>	(c) External Firewall with NIPS for ICCP and RTU and centralized management	<p>Clarification:- The Specifications require clarity w.r.t number of Management appliances? Based on understanding from Tender document, External Firewalls (DMZ & ICCP/RTU) at each location required to be managed from single Management console/appliance. Similarly, Internal firewalls at each location to be managed with different management console? Please confirm if Management appliances are also needed in HA?</p>	As per BoQ, DRS (Volume II Part B, Appendix-H: Hardware Specifications) and scope specified under tender document along-with Amendment-1
59	<p>Technical Specification, Volume II Part B, Appendix - G - BOQ</p> <p>Appendix - G - BOQ</p> <p>Bill of Quantity for SCADA/EMS System of Tamil Nadu SLDC</p> <p>A Software</p>	(k) Centralised Management and Log Analyser of all FWs	<p>Clarification:- Please clarify whether Logging, Reporting functionality required as sperate virtual appliance? Or integrated appliance of management , logger and reporting can be provided by bidder? This is required to finalize the BOQ.</p>	Kindly Refer DRS (Volume II Part B, Appendix-H: Hardware Specifications) and Amendment-1

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Clarification No-1 to Technical Specifications of the bidding documents for Replacement/Upgradation of SCADA/EMS System at Southern Region Load Despatch Centre (SRLDC) of GRID-INDIA and State Load Despatch Centres (SLDCs) of Kerala, Tamil Nadu, Telangana, Andhra Pradesh and Puducherry; Specification No: CC/C&M/SR/SCADA/2023

S. No.	Volume / Clause	Provision of Bidding Documents	Bidder's Query	GRID-INDIA Reply
60	<p>Technical Specification, Volume II Part B, Appendix - G - BOQ</p> <p>Appendix - G - BOQ</p> <p>Bill of Quantity for SCADA/EMS System of Tamil Nadu SLDC</p> <p>2.16 Cyber Security Appliances</p>	(c) External Firewall with NIPS for ICCP and RTU and centralized management	<p>Clarification:- The Specifications require clarity w.r.t number of Management appliances? Based on understanding from Tender document, External Firewalls (DMZ & ICCP/RTU) at each location required to be managed from single Management console/appliance. Similarly, Internal firewalls at each location to be managed with different management console? Please confirm if Management appliances are also needed in HA?</p>	As per BoQ, DRS (Volume II Part B, Appendix-H: Hardware Specifications) and scope specified under tender document along-with Amendment-1
61	<p>Technical Specification, Volume II Part B, Appendix - G - BOQ</p> <p>Appendix - G - BOQ</p> <p>Bill of Quantity for SCADA/EMS System of Telangana SLDC</p> <p>2.16 Cyber Security Appliances</p>	(c) External Firewall with NIPS for ICCP and RTU and centralized management	<p>Clarification:- The Specifications require clarity w.r.t number of Management appliances? Based on understanding from Tender document, External Firewalls (DMZ & ICCP/RTU) at each location required to be managed from single Management console/appliance. Similarly, Internal firewalls at each location to be managed with different management console? Please confirm if Management appliances are also needed in HA?</p>	Kindly Refer DRS (Volume II Part B, Appendix-H: Hardware Specifications) and Amendment-1

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Clarification No-1 to Technical Specifications of the bidding documents for Replacement/Upgradation of SCADA/EMS System at Southern Region Load Despatch Centre (SRLDC) of GRID-INDIA and State Load Despatch Centres (SLDCs) of Kerala, Tamil Nadu, Telangana, Andhra Pradesh and Puducherry; Specification No: CC/C&M/SR/SCADA/2023

S. No.	Volume / Clause	Provision of Bidding Documents	Bidder's Query	GRID-INDIA Reply
62	Technical Specification, Volume II Part B, Appendix - G - BOQ Appendix - G - BOQ Bill of Quantity for SCADA/EMS System of Telengana SLDC A Software	(k) Centralised Management and Log Analyser of all FWs	Clarification:- Please clarify whether Logging, Reporting functionality required as sperate virtual appliance? Or integrated appliance of management , logger and reporting can be provided by bidder? This is required to finalize the BOQ.	As per BoQ, DRS (Volume II Part B, Appendix-H: Hardware Specifications) and scope specified under tender document along-with Amendment-1
63	Technical Specification, Volume II Part B, Appendix - G - BOQ Hardware/Software BOQ,	Software Part 1.11 Commercial Off-The-Shelf (COTS) Softwares Main Backup (b) Document Management System Lot 1 0 Hardware Part 2.9 Servers for Applications in Internal DMZ No. 2 2 (d) Document Management System	Here according to the Hardware BOQ, you have asked for 2-2 virtual machines for DMS application in Main/Backup control centre but according to Software BOQ you have asked for DMS application only in Main control centre as backup shows "0". Please clarify whether you DMS in backup also or not. And same is the issues in SLDC level.	Can be discussed during stage-I.
64	Technical Specification, Volume II Part B, Appendix - H Hardware DRS	As per the base runtime requirements of SPEC CPU 2017 Benchmarking Standards.	Any specific number or the CPU and product should have listing in Spec.org	Provisions of Bidding documents remain unchanged. However, can be discussed during stage-I.

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S. No.	Volume / Clause	Provision of Bidding Documents	Bidder's Query	GRID-INDIA Reply
	Server 1 - Point 4			
65	Technical Specification, Volume II Part B, Appendix - H Hardware DRS 1. Server a. SCADA, EMS, AGC Applications b. ICCP Application c. CFE and OPC Applications d. Historian System along-with GUI, Reporting Application	Processor Min 2x16 core, x86 64-bit latest processor (with latest chipset) with 3.0 GHz or more base frequency and 35 MB or more L3 cache.	Min 2x16 core, x86 64-bit processor (with Compatible chipset) with 3.0 GHz or more base frequency Now all the Processor OEM are having various Series and the Latest need to be removed to give the asked specifications.	Kindly refer Amendment-1
66	Technical Specification, Volume II Part B, Appendix - H Hardware DRS Server 1 - Point 5	Min 2x16 core, x86 64-bit latest processor (with latest chipset) with 3.0 GHz or more base frequency	Processor Skeu suggested is 3rd generation or latest Request GRID INDIA to change this to : Min 2x16 core, x86 64-bit latest processor (with 3rd generation or latest chipset) with 3.0 GHz or more base frequency Since both intel and AMD have recently launched 4th generation processor with 3rd generation still being latest .. We request GRID INDIA to change this to 3rd generation or latest to get best available system.	Kindly refer Amendment-1

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S. No.	Volume / Clause	Provision of Bidding Documents	Bidder's Query	GRID-INDIA Reply
67	Technical Specification, Volume II Part B, Appendix - H Hardware DRS Server 1 - Point 10	Optical Drive - DVD RW	We request this to be removed or made internal or external. This clause is removed or changed to internal / External DVD RW to be provided. Since most servers support browser based graphical remote console along with Virtual Power button, remote boot using USB/CD/DVD Driver , DVD RW is not suggested and even from the perspective of data security it is not suggested	Kindly refer Amendment-1
68	Technical Specification, Volume II Part B, Appendix - H Hardware DRS 1. Server a. SCADA, EMS, AGC Applications b. ICCP Application c. CFE and OPC Applications d. Historian System along-with GUI, Reporting Application	Configuration & Management Virtual IO management / stateless computing	Pls do remove this. As this is not for the Switching feature used in the Blade Chassis switches. Asked feature is not for the Rack Server.	Kindly refer Amendment-1
69	Technical Specification, Volume II Part B, Appendix - H Hardware DRS Server 2 - Point 4	As per the base runtime requirements of SPEC CPU 2017 Benchmarking Standards.	Any specific number or the CPU and product should have listing in Spec.org	Provisions of Bidding documents remain unchanged. However, can be discussed during stage-I.

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Clarification No-1 to Technical Specifications of the bidding documents for Replacement/Upgradation of SCADA/EMS System at Southern Region Load Despatch Centre (SRLDC) of GRID-INDIA and State Load Despatch Centres (SLDCs) of Kerala, Tamil Nadu, Telangana, Andhra Pradesh and Puducherry; Specification No: CC/C&M/SR/SCADA/2023

S. No.	Volume / Clause	Provision of Bidding Documents	Bidder's Query	GRID-INDIA Reply
70	Technical Specification, Volume II Part B, Appendix - H Hardware DRS 2. Server: DSA Application	Processor Min 2x18 core, x86 64-bit latest processor (with latest chipset) with 3.0 GHz or more base frequency and 35 MB or more L3 cache.	Min 2x18 core, x86 64-bit processor (with Compatible chipset) with 3.0 GHz or more base frequency and 35 MB or more L3 cache. Now all the Processor OEM are having various Series and the Latest need to be removed to give the asked specifications.	Kindly refer Amendment-1
71	Technical Specification, Volume II Part B, Appendix - H Hardware DRS Server 2 - Point 5	Min 2x18 core, x86 64-bit latest processor (with latest chipset) with 3.0 GHz or more base frequency	Processor Skeu suggested is 3rd generation or latest and clock speed suggested as 2.8Ghz. Request GRID INDIA to change this to : Min 2x18 core, x86 64-bit latest processor (with 3rd generation or latest chipset) with 2.8 GHz or more base frequency Since both intel and AMD have recently launched 4th generation processor with 3rd generation still being latest .. We request GRID INDIA to change this to 3rd generation or latest to get best available system.	Kindly refer Amendment-1
72	Technical Specification, Volume II Part B, Appendix - H Hardware DRS clause2. Server: DSA Application	Processor: Min 2x18 core, x86 64-bit latest processor (with latest chipset) with 3.0 GHz or more base frequency	Processor: Min 2 x 24 core, x86 64-bit latest processor (with latest chipset) with 3.0 GHz or more base frequency Although AMD 16 Core of processor provide 1.07x Better for SPEC rate 2017_fp_base and 1.01x Better for SPEC rate 2017-int_base. We do understand that application may require quite higher compute. Compute difference in 16 core and 18 core is negligible. Hence, we request you to modify it for 24 Core of processor.	Kindly refer Amendment-1

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Clarification No-1 to Technical Specifications of the bidding documents for Replacement/Upgradation of SCADA/EMS System at Southern Region Load Despatch Centre (SRLDC) of GRID-INDIA and State Load Despatch Centres (SLDCs) of Kerala, Tamil Nadu, Telangana, Andhra Pradesh and Puducherry; Specification No: CC/C&M/SR/SCADA/2023

S. No.	Volume / Clause	Provision of Bidding Documents	Bidder's Query	GRID-INDIA Reply
73	Technical Specification, Volume II Part B, Appendix - H Hardware DRS Server 2 - Point 10	Optical Drive - DVD RW	This clause is removed or internal / External DVD RW to be provided. Since most servers support browser based graphical remote console along with Virtual Power button, remote boot using USB/CD/DVD Driver , DVD RW is not suggested and even from the perspective of data security it is not suggested.	Kindly refer Amendment-1
74	Technical Specification, Volume II Part B, Appendix - H Hardware DRS 2. Server: DSA Application	Configuration & Management Virtual IO management / stateless computing	Pls do remove this. As this is not for the Switching feature used in the Blade Chassis switches. Asked feature is not for the Rack Server.	Kindly refer Amendment-1
75	Technical Specification, Volume II Part B, Appendix - H Hardware DRS 2. Server: DSA Application	Internal Auxiliary memory 4 TB SSD delivered after RAID 1	3.84 TB SSD delivered after RAID 1 The Industry standard capacity comes in 3.84TB, then 7.68TB, pls do change the 4TB to 3.84TB to make it Industry standard.	Kindly refer Amendment-1
76	Technical Specification, Volume II Part B, Appendix - H Hardware DRS Server 3- Point 4	As per the base runtime requirements of SPEC CPU 2017 Benchmarking Standards.	Any specific number or the CPU and product should have listing in Spec.org	Provisions of Bidding documents remain unchanged. However, can be discussed during stage-I.

5/30/2023

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Signed by: ABHINEET KUMAR

Clarification No-1 to Technical Specifications of the bidding documents for Replacement/Upgradation of SCADA/EMS System at Southern Region Load Despatch Centre (SRLDC) of GRID-INDIA and State Load Despatch Centres (SLDCs) of Kerala, Tamil Nadu, Telangana, Andhra Pradesh and Puducherry; Specification No: CC/C&M/SR/SCADA/2023

S. No.	Volume / Clause	Provision of Bidding Documents	Bidder's Query	GRID-INDIA Reply
77	Technical Specification, Volume II Part B, Appendix - H Hardware DRS 3. Server: a. DTS Applications b. PDS Applications	Processor Min 2x16 core, x86 64-bit latest processor (with latest chipset) with 3.0 GHz or more base frequency and 35 MB or more L3 cache.	Min 2x16 core, x86 64-bit processor (with Compatible chipset) with 3.0 GHz or more base frequency and 35 MB or more L3 cache. Now all the Processor OEM are having various Series and the Latest need to be removed to give the asked specifications.	Kindly refer Amendment-1
78	Technical Specification, Volume II Part B, Appendix - H Hardware DRS Server 3 - Point 5	Min 2x16 core, x86 64-bit latest processor (with latest chipset) with 3.0 GHz or more base frequency	Processor Skeu suggested is 3rd generation or latest Request GRID INDIA to change this to : Min 2x16 core, x86 64-bit latest processor (with 3rd generation or latest chipset) with 3.0 GHz or more base frequency Since both intel and AMD have recently launched 4th generation processor with 3rd generation still being latest .. We request GRID INDIA to change this to 3rd generation or latest to get best available system.	Kindly refer Amendment-1
79	Technical Specification, Volume II Part B, Appendix - H Hardware DRS Server 3 - Point 10	Optical Drive - DVD RW	We request this to be removed or made internal or external. This clause is removed or internal / External DVD RW to be provided.	Kindly refer Amendment-1

5/30/2023

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S. No.	Volume / Clause	Provision of Bidding Documents	Bidder's Query	GRID-INDIA Reply
80	Technical Specification, Volume II Part Appendix -H Hardware DRS 3. Server: a. DTS Applications b. PDS Applications	Configuration & Management Virtual IO management / stateless computing	Pls do remove this. As this is not for the Switching feature used in the Blade Chassis switches. Asked feature is not for the Rack Server.	Kindly refer Amendment-1
81	Technical Specification, Volume II Part Appendix -H Hardware DRS Server 4- Point 4	As per the base runtime requirements of SPEC CPU 2017 Benchmarking Standards.	Any specific number or the CPU and product should have listing in Spec.org	Provisions of Bidding documents remain unchanged. However, can be discussed during stage-I.
82	Technical Specification, Volume II Part Appendix -H Hardware DRS 4. Server: a. Server for Third Party Applications b. Servers for Management Applications c. Servers for Applications in Internal DMZ d. Servers for Applications in External DMZ	Processor Min 2x16 core, x86 64-bit latest processor (with latest chipset) with 3.0 GHz or more base frequency and 35 MB or more L3 cache.	Min 2x16 core, x86 64-bit processor (with Compatible chipset) with 3.0 GHz or more base frequency Now all the Processor OEM are having various Series and the Latest need to be removed to give the asked specifications.	Kindly refer Amendment-1

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S. No.	Volume / Clause	Provision of Bidding Documents	Bidder's Query	GRID-INDIA Reply
83	Technical Specification, Volume II Part Appendix -H Hardware DRS Server 4 - Point 5	Min 2x16 core, x86 64-bit latest processor (with latest chipset) with 3.0 GHz or more base frequency	Processor Skeu suggested is 3rd generation or latest Request GRID INDIA to change this to : Min 2x16 core, x86 64-bit latest processor (with 3rd generation or latest chipset) with 3.0 GHz or more base frequency	Kindly refer Amendment-1
84	Technical Specification, Volume II Part Appendix -H Hardware DRS Server 4 - Point 10	Optical Drive - DVD RW	This clause is removed or internal / External DVD RW to be provided. Since most servers support browser based graphical remote console along with Virtual Power button, remote boot using USB/CD/DVD Driver , DVD RW is not suggested and even from the perspective of data security it is not suggested.	Kindly refer Amendment-1
85	Technical Specification, Volume II Part Appendix -H Hardware DRS 4. Server: a. Server for Third Party Applications b. Servers for Management Applications c. Servers for Applications in Internal DMZ d. Servers for Applications in External DMZ	Configuration & Management Virtual IO management / stateless computing	Pls do remove this. As this is not for the Switching feature used in the Blade Chassis switches. Asked feature is not for the Rack Server.	Kindly refer Amendment-1

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S. No.	Volume / Clause	Provision of Bidding Documents	Bidder's Query	GRID-INDIA Reply
86	Technical Specification, Volume II Part Appendix -H Hardware DRS 4. Server: a. Server for Third Party Applications b. Servers for Management Applications c. Servers for Applications in Internal DMZ d. Servers for Applications in External DMZ	RAM 156 GB delivered	the asked RAM is not balanced configuration, pls do change this to 128GB or 192GB RAM to make the RAM in balanced configuration.	Kindly refer Amendment-1
87	Technical Specification, Volume II Part Appendix -H Hardware DRS 4. Server: a. Server for Third Party Applications b. Servers for Management Applications c. Servers for Applications in Internal DMZ d. Servers for Applications in External DMZ	Internal Auxiliary memory 2 TB SSD delivered after RAID 1	1.92TB SSD delivered in RAID 1 The industry Standard capacity is 1.92TB , 2TB do not come as industry standard, next capacity is 3.84TB.	Kindly refer Amendment-1
88	Technical Specification, Volume II Part Appendix -H Hardware DRS	Power supply Redundant Hot plug Power Supplies with redundant fans.	Redundant Hot plug Power Supplies and redundant Hot Plug fans in the Server. The asked FAN are of Server , so need to be mentioned accordingly.	Provisions of Bidding documents remain unchanged. However, can be discussed during stage-I.

5/30/2023

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S. No.	Volume / Clause	Provision of Bidding Documents	Bidder's Query	GRID-INDIA Reply
	Server 1, 2, 3, 4			
89	Technical Specification, Volume II Part Appendix -H Hardware DRS	Warranty Support	Please clarify warranty support to be proposed.	As per the provision of tender documents
90	Technical Specification, Volume II Part Appendix -H Hardware DRS	Auxiliary memory in Server	Our understanding based on description is that this is Internal HDD. Please confirm the same.	Auxiliary memory is in SSD. To be discussed during Stage-I.
91	Technical Specification, Volume II Part Appendix -H Hardware DRS	Servers Expandability	server shall have provision for expansion of the processor. Changes : processor to be removed. Since 2 socket systems are being asked.. Processor expandability can be by replacing with higher core processor only and not by adding additional processor.	No such provision exists in the tender document.
92	Technical Specification, Volume II Part Appendix -H Hardware DRS 5. Back-up Solution, Page No-747, Volume-II Technical Specification PDF	The proposed appliance must be a converged, integrated appliance for long term data retention and disaster recovery	We understand that department is looking for purpose built back appliance. Kindly confirm.	Kindly refer Amendment-1

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S. No.	Volume / Clause	Provision of Bidding Documents	Bidder's Query	GRID-INDIA Reply
93	Technical Specification, Volume II Part Appendix -H Hardware DRS 5. Back-up Solution	The proposed appliance must be a converged, integrated appliance for long term data retention and disaster recovery	Need clarification on the backup appliance type The proposed appliance must be a purpose built backup appliance or converged, integrated appliance for long term data retention and disaster recovery. PGCL is looking for an appliance as a backup target and would like to include the purpose built backup appliance that delivers the requested outcomes for PGCL without any backup software vendor lock-in.	Kindly refer Amendment-1
94	Technical Specification, Volume II Part Appendix -H Hardware DRS 5. Back-up Solution	Proposed backup appliance should be able to interface with various industry leading server platforms, operating systems and Must support LAN/SAN based D2D backup via NFS v3, CIFS, OST protocols. Solution shall also support NDMP protocols.	OST is vendor specific protocol and many OEM offer equivalent offering. Also VTL is missing from the list. Request you to please modify clause as - "Proposed backup appliance should be able to interface with various industry leading server platforms, operating systems and Must support LAN/SAN based D2D backup via NFS v3, CIFS, VTL, OST / catalyst or equivalent protocols. Solution shall also support NDMP protocols."	Provisions of Bidding documents remain unchanged. However, can be discussed during stage-I.
95	Technical Specification, Volume II Part Appendix -H Hardware DRS 5. Back-up Solution	Proposed backup appliance should be offered with protocols like OST, CIFS, NFS. Solution shall also support NDMP protocols. The protocols should be available to use concurrently with global / optimized	OST is vendor specific protocol and many OEM offer equivalent offering. Also VTL is missing from the list. Request you to please modify clause as "Proposed backup appliance should be offered with protocols like OST / catalyst or equivalent, CIFS, NFS, VTL. Solution shall also support NDMP protocols. The protocols should be available to use	Provisions of Bidding documents remain unchanged. However, can be discussed during stage-I.

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S. No.	Volume / Clause	Provision of Bidding Documents	Bidder's Query	GRID-INDIA Reply
		deduplication for data ingested across all of them.	concurrently with global / optimized deduplication for data ingested across all of them."	
96	Technical Specification, Volume II Part Appendix -H Hardware DRS 5. Back-up Solution	Should have min 02 TB/hr. backup throughput.	Considering data Size of SAN and NAS Storage, it will take many hours to backup hence suggest to change the clause to "Backup Appliance should support min 24TB/hr. backup throughput."	Kindly refer Amendment-1
97	Technical Specification, Volume II Part Appendix -H Hardware DRS 5. Back-up Solution	Should have min 02 TB/hr. backup throughput.	What is the overall backup window the PGCL is expecting? The proposed backup appliance must deliver a minimum of 20 TB/hr of backup throughput.	Kindly refer Amendment-1
98	Technical Specification, Volume II Part Appendix -H Hardware DRS 5. Back-up Solution	The Proposed backup solutions should support online backup of IBM DB2, IBM Lotus Domino, Microsoft Exchange, Microsoft Office Share Point Server, Microsoft SQL Server, MySQL, Oracle Databases and NoSQL,	Please advise which all components out of listed ones asked would be deployed under this project. If not, request to remove this clause to have more cost optimized solution.	Kindly refer Amendment-1

5/30/2023

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S. No.	Volume / Clause	Provision of Bidding Documents	Bidder's Query	GRID-INDIA Reply
		without any additional licenses requirement		
99	Technical Specification, Volume II Part Appendix -H Hardware DRS 5. Back-up Solution	The Proposed backup solutions should support online backup of IBM DB2, IBM Lotus Domino, Microsoft Exchange, Microsoft Office Share Point Server,-Microsoft SQL Server, MySQL, Oracle Databases and NoSQL, without any additional licenses requirement	Need details of the software versions for currency and compatibility The Proposed backup solutions should support online backup of IBM DB2, IBM Lotus Domino, Microsoft Exchange, Microsoft Office Share Point Server, Microsoft SQL Server, Oracle Databases and MySQL without any additional licenses requirement Request details on the OEM supported versions of standard database environments	Kindly refer Amendment-1
100	Technical Specification, Volume II Part Appendix -H Hardware DRS 5. Back-up Solution	Should support encryption for the data stored / data-at-rest.	Need clarification on the security standard and conformance to any standard. The proposed backup appliance must support AES 256 bit encryption for data at rest as well as data in-flight (replication) Security standards if kept optional can be compromise the security posture for PGCL	Kindly refer Volume II Part B, Appendix-H: 5. Back-up Solution Sr. No. 24 Provisions of Bidding documents remain unchanged. However, can be discussed during stage-I.

5/30/2023

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S. No.	Volume / Clause	Provision of Bidding Documents	Bidder's Query	GRID-INDIA Reply
101	Technical Specification, Volume II Part Appendix -H Hardware DRS 5. Back-up Solution	Should have optimized de-duplication Algorithm. The deduplication Solution must provide an optimized de-duplication pool for multiple logical devices i.e. multiple devices created over disk through NAS, CIFS, OST etc. in order to significantly improve backup appliance storage utilization and help retain data longer.	Each vendor has its own implementation of optimized de-duplication algorithm. Request you to please delete this clause for wider participation	Kindly refer Amendment-1
102	Technical Specification, Volume II Part Appendix -H Hardware DRS 5. Back-up Solution	Should have optimized de-duplication Algorithm. The deduplication Solution must provide an optimized de-duplication pool for multiple logical devices i.e. multiple devices created over disk through NAS, CIFS, OST etc. in order to significantly improve backup appliance storage utilization n and help retain data longer.	Need additional clarity on the deduplication and data reduction expectation. The proposed backup appliance must support variable block length deduplication using 4K to 12K block size to provide most efficient data deduplication. The proposed appliance must use a single global deduplication pool for multiple logical devices that are created for CIFS, NFS, VTL and OST protocols to significantly reduce the backup storage capacity and help in retaining data for longer duration. Data duplication is widely used across multiple technologies but the efficiency is dependent on the underlying algorithm. Unless specified as a key specification, PGCL can end up procuring a sub-par solution that will warrant for frequent capacity addition over time.	Kindly refer Amendment-1

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S. No.	Volume / Clause	Provision of Bidding Documents	Bidder's Query	GRID-INDIA Reply
103	Technical Specification, Volume II Part Appendix -H Hardware DRS 5. Back-up Solution	Backup solution shall be configured in a manner that during backup performance of the systems is not impacted.	Clarification on the requirement The proposed backup solution should be configured in a highly resilient architecture to ensure the uninterrupted backup performance. With this change the requirement will be more prescriptive on the overall architecture.	Provisions of Bidding documents remain unchanged. However, can be discussed during stage-I.
104	Technical Specification, Volume II Part Appendix -H Hardware DRS 5. Back-up Solution	The backup solution must be offered with all types of required license (server, agent etc.) for the supplied capacity & it shall not limit the count of server, virtual machines, DB (exchange, Oracle, SQL etc. physical and virtual), FS etc. that can be included in backups.	The backup software must be offered as capacity or socket based licensing with no limitations on the count of server, virtual machines, DB and FS. All software licenses must be either perpetual or subscription based. This will help all bidders/OEM's to supply licenses in a consistent manner.	Provisions of Bidding documents remain unchanged. However, can be discussed during stage-I.
105	Technical Specification, Volume II Part Appendix -H Hardware DRS 5. Back-up Solution	Proposed backup appliance should be sized appropriately for the backup of 40 TB of (File System, source data, mix of Databases, VM etc.) and shall maintain following copies of data. a. Daily Incremental Backup – retained for 1 weeks b. Weekly Full Backup – retained for 15 days. c. Monthly Full Backups – retained for 1 Month. d. Yearly Full Backups –	Sizing guidance for the requirement Proposed backup appliance should be sized appropriately for the backup of 40 TB of (File System, source data, mix of Databases, VM etc.) and shall maintain following copies of data. a. Daily Incremental Backup – retained for 1 weeks b. Weekly Full Backup – retained for 15 days. c. Monthly Full Backups – retained for 1 Month. d. Yearly Full Backups - retained for 1 year. Bidder must size the solution and propose the capacity in conformance to the above retention	Provisions of Bidding documents remain unchanged. However, can be discussed during stage-I.

5/30/2023

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S. No.	Volume / Clause	Provision of Bidding Documents	Bidder's Query	GRID-INDIA Reply
		retained for 1 year. Bidder must consider usable capacity to retain the data as per the scope of work specified in technical specification.	policy. The bidder must provide the sizing considerations and capacity calculations on the letterhead and will bear the responsibility to any breach in capacity usage based that arises due to incorrect sizing. The revised specification will provide bidders additional clarity to design the solution with the accurate sizing. PGCL will also ensure that the bidder is accountable for the proposed appliance sizing.	
106	Technical Specification, Volume II Part Appendix -H Hardware DRS 5. Back-up Solution	The appliance should be offered with Min.4 x 10 Gbps SFP+. If Fiber Ethernet ports are provided then SFPs to be supplied for all ports.	FC SAN support The appliance should be offered with Min.4 x 10 Gbps SFP+. If Fiber Ethernet ports are provided, then SFPs to be supplied for all ports. The proposed appliance must also support minimum 4 x 16 or 2 x 32 gbps FC HBA. To support IP as well as FC SAN environments.	Kindly refer Amendment-1
107	Technical Specification, Volume II Part Appendix -H Hardware DRS 5. Back-up Solution	Spare Disk Global hot spare to be provided.	Each OEM has its own architecture of hot spare implementation. Request you to remove this clause for wider participation	Provisions of Bidding documents remain unchanged. However, can be discussed during stage-I.

5/30/2023

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S. No.	Volume / Clause	Provision of Bidding Documents	Bidder's Query	GRID-INDIA Reply
108	Technical Specification, Volume II Part Appendix -H Hardware DRS 5. Back-up Solution	Dual Controller	this clause is restrictive for many leading OEM. Request you to remove this clause.	Provisions of Bidding documents remain unchanged. However, can be discussed during stage-I.
109	Technical Specification, Volume II Part Appendix -H Hardware DRS 6. Storage System 6.1 Storage Area Network (SAN)	The Storage array should be able to support Block protocols since current use case is also for storing Databases via FC & iSCSI.	The Storage array should be able to support Block protocols since current use case is also for storing Databases via FC/ iSCSI.	Kindly refer Amendment-1
110	Technical Specification, Volume II Part Appendix -H Hardware DRS 6. Storage System 6.1 Storage Area Network (SAN)	Dual Controller The proposed array should be Active-Active dual controller architecture and NSPOF (No point of Single failure).		Provisions of Bidding documents remain unchanged. However, can be discussed during stage-I.
111	Technical Specification, Volume II Part Appendix -H Hardware DRS 6. Storage System 6.1 Storage Area Network (SAN)	Dual Controller Each controller shall have minimum 6 Core, x86 64-bit latest processor (with latest chipset) or more and 96 GB DDR4/DRAM Memory.	Each controller shall have minimum 6 Core, x86 64-bit latest processor (with latest chipset) or should have purpose built ASIC and 96 GB DDR4 /DRAM Cache Memory/Flash Cache.	Provisions of Bidding documents remain unchanged. However, can be discussed during stage-I.

5/30/2023

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Clarification No-1 to Technical Specifications of the bidding documents for Replacement/Upgradation of SCADA/EMS System at Southern Region Load Despatch Centre (SRLDC) of GRID-INDIA and State Load Despatch Centres (SLDCs) of Kerala, Tamil Nadu, Telangana, Andhra Pradesh and Puducherry; Specification No: CC/C&M/SR/SCADA/2023

S. No.	Volume / Clause	Provision of Bidding Documents	Bidder's Query	GRID-INDIA Reply
112	Technical Specification, Volume II Part Appendix -H Hardware DRS 6. Storage System 6.1 Storage Area Network (SAN)	10. Dual Controller- The proposed array should be Active-Active dual controller architecture and NSPOF (No point of Single failure).Each controller shall have minimum 6 Core, x86 64-bit latest processor (with latest chipset) or more and 96 GB DDR4/DRAM Memory.	Queries: - POSOCO need to confirm on the minimum DRAM Memory required at each controller. Modification:-The proposed array should be Active-Active dual controller architecture and NSPOF (No point of Single failure).Each controller shall have minimum 6 Core, x86 64-bit latest processor (with latest chipset) or more and 96 GB DDR4/DRAM Memory at each controller. Since, POSOCO has asked for active-active dual controller architecture and each controller will have minimum required number of cores and processor. We need clarity on total DRAM Memory required across storage.	As per TS, requirement specified is for each controller.
113	Technical Specification, Volume II Part Appendix -H Hardware DRS 6. Storage System 6.2 Network Attached Storage (NAS)	Processor Min 2x6 core, x86 64-bit latest processor (with latest chipset)	Min 2x6 core, x86 64-bit latest processor (with latest chipset) available on the proposed NAS Storage.	Provisions of Bidding documents remain unchanged. However, can be discussed during stage-I.

5/30/2023

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S. No.	Volume / Clause	Provision of Bidding Documents	Bidder's Query	GRID-INDIA Reply
114	Technical Specification, Volume II Part Appendix -H Hardware DRS	5. Processor -Min 2x6 core, x86 64-bit latest processor (with latest chipset)	<p>Since POSOCO has asked for dual processor of minimum 6 core each ,request you to modify this clause by mentioning minimum two controllers should be configured in active-active mode and each controller should have minimum 6 cores ,x86 64-bit latest processor</p> <p>Modification:-The proposed array should be Active-Active dual controller architecture .Each controller shall have minimum 6 Core, x86 64-bit latest processor (with latest chipset) or more.</p> <p>Since, POSOCO needs the storage for NAS data and for continuous data availability, minimum dual controller architecture is required.</p>	Provisions of Bidding documents remain unchanged. However, can be discussed during stage-I.
115	6. Storage System 6.2 Network Attached Storage (NAS)	Need to confirm type and number of Front-End ports required.	<p>Need to confirm type and number of Front-End ports required.</p> <p>Suggested change:</p> <p>Modification: The proposed array should be configured with minimum 8*10G BaseT/ 8*10G ISCSI ports across controllers.</p> <p>Reason for change:</p> <p>Since, PGCIL need this storage for NAS data, we need to have clarity on a number of ports required for front end connectivity for proper sizing. We suggest 4-8 10G Base ports.</p>	Kindly refer Amendment-1

5/30/2023

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S. No.	Volume / Clause	Provision of Bidding Documents	Bidder's Query	GRID-INDIA Reply
116	Technical Specification, Volume II Part B, Appendix - H Hardware DRS 7. Router cum Firewall: ICCP and RTU Communication	General b. Router should have minimum 4 GB of on-board/inbuilt DRAM/RAM for data plane + control plane processes and 8 GB Flash.	Request to modify the clause as " Router should have minimum 4 GB of on-board/inbuilt DRAM/SDRAM for data plane + control plane processes and 1 GB Flash." Reason: Since technology and architecture differs from OEM to OEM. In HPE proposed Router's firmware or OS as it is designed in such a way that it require very less space to store the firmware, multiple copies of configurations files, logs files etc.	Provisions of Bidding documents remain unchanged. However, can be discussed during stage-I.
117	Technical Specification, Volume II Part B, Appendix - H Hardware DRS 7. Router cum Firewall: ICCP and RTU Communication	General Router should be IPv6/USGv6 Certified/IPv6 logo ready	Request to modify the clause as " Router should be IPv6 ready/USGv6 Certified/IPv6 logo ready. Reason: HPE Proposed Router supports required IPv6 Features for IPv6 Readiness & Deployment. Router is IPv6 ready from day 1.	Kindly refer Amendment-1
118	Technical Specification, Volume II Part B, Appendix - H Hardware DRS 7. Router cum Firewall: ICCP and RTU Communication	Features to support QoS, MPLS, Security, Broadband, Multiservice, Voice, IP to IP Gateway	Request to modify the clause as " QoS, MPLS, Security, Multiservice, IP to IP Gateway." Reason: HPE Proposed Router supports support IP services from Interior gateway protocols i.e. RIP, OSPF, ISIS to WAN exterior gateway protocols like BGP, MPLS etc. over IPv4 and IPv6 platform. Router also support Copper, Fiber 1/10G (MM/SM), E1 and Enhance serial ports only. Router doesn't support broadband and other legacy services.	Kindly refer Amendment-1

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Clarification No-1 to Technical Specifications of the bidding documents for Replacement/Upgradation of SCADA/EMS System at Southern Region Load Despatch Centre (SRLDC) of GRID-INDIA and State Load Despatch Centres (SLDCs) of Kerala, Tamil Nadu, Telangana, Andhra Pradesh and Puducherry; Specification No: CC/C&M/SR/SCADA/2023

S. No.	Volume / Clause	Provision of Bidding Documents	Bidder's Query	GRID-INDIA Reply
119	Technical Specification, Volume II Part Appendix -H Hardware DRS 8. Router cum Firewall for PDS, Remote Console, External World Connectivity and others	General Router should have minimum 4 GB of on-board/inbuilt DRAM/RAM for data plane + control plane processes and 8 GB Flash.	Request to modify the clause as " Router should have minimum 4 GB of on-board/inbuilt DRAM/SDRAM for data plane + control plane processes and 1 GB Flash." Reason: Since technology and architecture differs from OEM to OEM. In HPE proposed Router's firmware or OS as it is designed in such a way that it require very less space to store the firmware, multiple copies of configurations files, logs files etc.	Provisions of Bidding documents remain unchanged. However, can be discussed during stage-I.
120	Technical Specification, Volume II Part Appendix -H Hardware DRS 8. Router cum Firewall for PDS, Remote Console, External World Connectivity and others	General e. Router should be IPv6/USGv6 Certified/IPv6 logo ready	Request to modify the clause as " Router should be IPv6 ready/USGv6 Certified/IPv6 logo ready." Reason: HPE Proposed Router supports required IPv6 Features for IPv6 Readiness & Deployment. Router is IPv6 ready from day 1.	Kindly refer Amendment-1
121	Technical Specification, Volume II Part Appendix -H Hardware DRS 8. Router cum Firewall for PDS, Remote Console, External World Connectivity and others	Features to support QoS, MPLS, Security, Broadband, Multiservice, Voice, IP to IP Gateway	Request to modify the clause as " QoS, MPLS, Security, Multiservice, IP to IP Gateway." Reason: HPE Proposed Router supports support IP services from Interior gateway protocols i.e. RIP, OSPF, ISIS to WAN exterior gateway protocols like BGP, MPLS etc. over IPv4 and IPv6 platform. Router also support Copper, Fiber 1/10G (MM/SM), E1 and Enhance serial ports only. Router doesn't support broadband and other legacy services.	Kindly refer Amendment-1

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Clarification No-1 to Technical Specifications of the bidding documents for Replacement/Upgradation of SCADA/EMS System at Southern Region Load Despatch Centre (SRLDC) of GRID-INDIA and State Load Despatch Centres (SLDCs) of Kerala, Tamil Nadu, Telangana, Andhra Pradesh and Puducherry; Specification No: CC/C&M/SR/SCADA/2023

S. No.	Volume / Clause	Provision of Bidding Documents	Bidder's Query	GRID-INDIA Reply
122	Technical Specification, Volume II Part Appendix -H Hardware DRS 9 , LAN Switches ,General	Switch should have minimum 2 GB RAM and 2 GB Flash/SSD Memory	Change to Flash/SSD to 1GB Memory Kindly modify the clause as Switch should have minimum 2 GB RAM and 1 GB Flash/SSD Memory Our Operating System Code requires lesser flash memory	Provisions of Bidding documents remain unchanged. However, can be discussed during stage-I.
123	Technical Specification, Volume II Part Appendix -H Hardware DRS 9 , LAN Switches ,General	Standard Switch should support IEEE Standards of Ethernet: IEEE 802.1D, 802.1s, 802.1w, 802.1x, 802.3ad, 802.3x, 802.1p, 802.1Q, 802.3, 802.3u, 802.3ab, 802.3z. should be supporting	Request to modify the clause as " Switch should support IEEE Standards of Ethernet: IEEE 802.1D, 802.1s, 802.1w, 802.1x or 802.3x, 802.3ad, 802.1p, 802.1Q, 802.3, 802.3u, 802.3ab, 802.3z. should be supporting." Reason: HPE Proposed switches are L3 switches and will be the part of server farm like EMS/Scada, reporting or DMZ etc. 802.1x is basically used for end user. Switch doesn't support 802.1X. As this is layer-3 switches and 802.1x provides an authentication framework that allows a user to be authenticated by a central authority. These switches support RADIUS/TACACS+ services.	Provisions of Bidding documents remain unchanged. However, can be discussed during stage-I.

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S. No.	Volume / Clause	Provision of Bidding Documents	Bidder's Query	GRID-INDIA Reply
124	Technical Specification, Volume II Part Appendix -H Hardware DRS 9 , LAN Switches ,General	L3 Features IS-IS for IPv4 and IPv6 (IS-ISv6)	Request to modify the clause IS-IS for IPv4 and IPv6 (IS-ISv6) or OSPF for IPv4 and IPv6 Reason: Since technology and architecture differs from OEM to OEM. HPE switches are L3 switches support RIPv2, RIPv6, OSPF, BGP dynamic routing protocol for both IPv4 and IPv6. ISIS protocol is not supported by HPE Switches.	Kindly refer Amendment-1

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S. No.	Volume / Clause	Provision of Bidding Documents	Bidder's Query	GRID-INDIA Reply
125	Technical Specification, Volume II Part Appendix -H Hardware DRS 9 , LAN Switches ,General	L3 Features IEEE 802.1X Port Based Network Access Control	<p>Request to modify the IEEE 802.1X Port Based Network Access Control or RADIUS/TACACS+ support.</p> <p>Reason: HPE switches are L3 switches and will be the part of server farm like EMS/Scada, reporting or DMZ etc. in this RFP solution. Switch support RADIUS and TACACS+. 802.1x is basically required at user end switches. Switch also support RadSec.</p> <p>Remote Authentication Dial-In User Service (RADIUS) Eases security access administration by using a password authentication server</p> <p>Terminal Access Controller Access-Control System (TACACS+) Delivers an authentication tool using TCP with encryption of the full authentication request, providing additional security</p> <p>RadSec Enable RADIUS authentication and accounting data to be passed safely and reliably across insecure networks such as the internet</p>	Provisions of Bidding documents remain unchanged. However, can be discussed during stage-I.
126	Technical Specification, Volume II Part Appendix -H Hardware DRS 9 , LAN Switches ,General	L3 Features Control i. DHCP Snooping support.	Request to modify the clause as DHCP Snooping support or ACL support. Reason: Since technology and architecture differs from OEM to OEM HPE switches are L3 switches and support DHCP relay for all the access users as can acts as L3 gateway switch.	Provisions of Bidding documents remain unchanged. However, can be discussed during stage-I.

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S. No.	Volume / Clause	Provision of Bidding Documents	Bidder's Query	GRID-INDIA Reply
			Switch doesn't support DHCP snooping. Switch support IPv4/IPv6/MAC based ACL to allow and deny the access for Data traffic as well as Switch control traffic.	
127	Technical Specification, Volume II Part Appendix -H Hardware DRS No 9 , LAN Switches , Interface Ports	a. 24/48 nos of port b. 5 nos 10 Gbps FO ports c. 12 nos 1Gbps Ethernet ports Balance 1/10 Gbps as per site requirement and switch type.	a. Kindly modify the clause as a. 24/48 nos of port. b. 4 nos 10 Gbps FO ports. c. 12 nos 1Gbps Ethernet ports. Balance 1/10 Gbps as per site requirement and switch type. Standard Configuration supported by all the Network OEMs	Provisions of Bidding documents remain unchanged. However, can be discussed during stage-I.
128	Technical Specification, Volume II Part Appendix -H Hardware DRS 10 LAN Switches ,General	Switch should have minimum 2 GB RAM and 2 GB Flash/SSD Memory	Change to Flash/SSD to 1GB Memory. Kindly modify the clause as "Switch should have minimum 2 GB RAM and 1 GB Flash/SSD Memory" Our Operating System Code requires lesser flash memory	Provisions of Bidding documents remain unchanged. However, can be discussed during stage-I.
129	Technical Specification, Volume II Part Appendix -H Hardware DRS 10. LAN Switch: a. 24 Port L3- LAN Switch for DCPC/Terminal Server LAN	L3 Features IS-IS for IPv4 and IPv6 (IS-ISv6)	Request to modify the clause IS-IS for IPv4 and IPv6 (IS-ISv6) or OSPF for IPv4 and IPv6 Reason: Since technology and architecture differs from OEM to OEM. HPE switches are L3 switches support RIPv2, RIPv6, OSPF, BGP dynamic routing protocol for both IPv4 and IPv6. ISIS protocol is not supported by HPE Switches.	Kindly refer Amendment-1

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S. No.	Volume / Clause	Provision of Bidding Documents	Bidder's Query	GRID-INDIA Reply
130	Technical Specification, Volume II Part Appendix -H Hardware DRS 12. Link Load Balancer (LLB)	The proposed appliance shall have capability to run in standalone as well as virtualized mode (in case.	In the specifications point no. 1 asked for LLB shall be appliance-based both points are contradictory. It is suggested to amend the clause as "The proposed appliance shall have capability to run in standalone as well as in HA Mode." We would like to request the honorable tendering committee to amend this clause for wider participation and to get the best techno-commercial solution available in the market.	Kindly refer Amendment-1
131	Technical Specification, Volume II Part Appendix -H Hardware DRS clause12. Link Load Balancer (LLB)	LLB shall be designed to run both IPv4 & IPv6 simultaneously (Dual Stack) from day one.	The IPv6 Ready Logo program is an international testing program to increase user confidence by its certification. So for ensure the proposed product has all required IPV6 features. It is suggested to amend the clause as "LLB shall be designed to run both IPv4 & IPv6 simultaneously (Dual Stack) from day one and Appliance should be IPV6 Ready logo certified from day one". We would like to request the honorable tendering committee to amend this clause for wider participation and to get the best techno-commercial solution available in the market.	Kindly refer Amendment-1

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S. No.	Volume / Clause	Provision of Bidding Documents	Bidder's Query	GRID-INDIA Reply
132	Technical Specification, Volume II Part Appendix -H Hardware DRS 13. External Network Firewall with NIPS (For DMZ and RTUICCP Connectivity):	Multicore CPU architecture with a hardened 64-bit operating system to support higher memory with min 6 physical CPU cores on device and minimum 16 GB RAM on device or higher.	Changes:- Multicore CPU architecture with a hardened 64-bit operating system to support higher memory with min 6 physical CPU cores on device and minimum 24 GB RAM on device or higher from day 1. Device must be scalable to support 32GB RAM in future Justification:- RAM is the important component of Firewalls and integrated packet processing functionality is dependent on the system memory. The requested security features require multi processing of the packets via different security engineers hence RAM must be requested on higher side as well as there must be provisioning of scale up the Memory in future to overcome from any performance issue of cater future requirements.	Provisions of Bidding documents remain unchanged. However, higher configuration can be proposed considering the requirement.
133	Technical Specification, Volume II Part Appendix -H Hardware DRS 13. External Network Firewall with NIPS (For DMZ and RTU-ICCP Connectivity):	f. Proposed solution should support minimum 6 Gbps or more IPS throughput	Kindly Delete this. Since TP throughput and Firewall throuput has been asked under point a.we would request this to be deleted as every oem doesn't publish IPS throughput separately.	Kindly refer Amendment-1

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S. No.	Volume / Clause	Provision of Bidding Documents	Bidder's Query	GRID-INDIA Reply
134	Technical Specification, Volume II Part Appendix -H Hardware DRS 13. External Network Firewall with NIPS (For DMZ and RTUICCP Connectivity): 4. Sizing Parameters:	c. Firewall should support at least 3000 new connections per second or more and shall support at-least 1 Million concurrent session/connection with all application control enabled.	Changes:- c. Firewall should support at least 3000 new connections per second or more and scalable to support 100k and shall support at-least 4 Million concurrent session/connection and scalable to support 8M. Justification:- The requested clause is restrictive and specific to single OEM. The number of concurrent connections are published on public datasheets without mentioning the number of features enabled by customers. The industry standard requirement is on based on number of concurrent connections and connections per second hence requesting you to please modify the clause to enable the participation of Leader OEM's.	Provisions of Bidding documents remain unchanged. However, higher configuration can be proposed considering the requirement.
135	Technical Specification, Volume II Part Appendix -H Hardware DRS 13. External Network Firewall with NIPS (For DMZ and RTU-ICCP Connectivity):	j. Support NAT, PAT & Policy based NAT/PAT, Mapped IP MIP), Virtual IP(VIP) & MIP/VIP grouping.	j. Support NAT, PAT & Policy based NAT/PAT/Forwarding, Mapped IP MIP), Virtual IP(VIP) & MIP/VIP grouping. Every OEM has their own technologies and mechanism to route the traffic. Pls include Policy based Forwarding as an option to allow us to participate.	Provisions of Bidding documents remain unchanged.

5/30/2023

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S. No.	Volume / Clause	Provision of Bidding Documents	Bidder's Query	GRID-INDIA Reply
136	Technical Specification, Volume II Part Appendix -H Hardware DRS 13. External Network Firewall with NIPS (For DMZ and RTU/ICCP Connectivity):	22. Interface Requirement: a. Minimum number of 1 Gbps LAN ports: 8 (DMZ) / 4(RTU& ICCP) b. Minimum number of 10 Gbps FO ports – 4 (DMZ) /8 (RTU & ICCP) c. Separate HA port All the SFP+ port should have compatible transceivers (short range transceiver) along-with required FO cables.	Changes:- 22. Interface Requirement: a. Minimum number of 1 Gbps LAN ports: 8 (DMZ) b. Minimum number of 1 Gbps LAN ports: 8 (RTU & ICCP) c. Minimum number of 10 Gbps FO ports – 4 (DMZ) d. Minimum number of 10 Gbps FO ports – 4 (RTU & ICCP) c. Separate HA port All the SFP+ port should have compatible transceivers (short range transceiver) along-with required FO cables. Justification:- Since, the specification and sizing parameters are mention common hence there are confusion w.r.t number of ports requirement with different type of external firewalls hence requesting you to please specify the requirements clearly also number of required 10 Gig ports on RTU and ICCP are on higher side and not even aligned with requested throughput.-	Provisions of Bidding documents remain unchanged. However, can be discussed during stage-I.

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S. No.	Volume / Clause	Provision of Bidding Documents	Bidder's Query	GRID-INDIA Reply
137	Technical Specification, Volume II Part Appendix -H Hardware DRS 13. External Network Firewall with NIPS (For DMZ and RTU-ICCP Connectivity):	b. Minimum number of 10 Gbps ports - 10	b. Minimum number of 1 Gbps SFP ports - 2, 10Gbps SFP+ Ports - 8, Adding two more ports would mean we need to supply bigger box. Kindly change it so that we get to bid with equal level of box.	Provisions of Bidding documents remain unchanged. However, can be discussed during stage-I.
138	Technical Specification, Volume II Part Appendix -H Hardware DRS 13. External Network Firewall with NIPS (For DMZ and RTUICCP Connectivity):	23. the Proposed solution shall s have VPN license for 20 Users for Firewall placed in DMZ only. The proposed Firewall should be able to perform URL filtering capability for remote user's as well, either using VPN or any similar technology (user accessing SCADA infrastructure through VPN shall bind with SCADA security policy and not able to use restricted activity during VPN connection). If any extra hardware/software is needed to achieve this, same shall be provided from day 1 without any additional cost. Multi-factor/OTP Authentication (Separate solution or bundled with firewall) for 20 users shall	Clarification: - Please clarify the use case of VPN? Is it SSL or IPsec VPN? Also bundled MFA solution clause is incline towards single OEM hence requesting to neutralize the specifications and allow only separate solution to be provided and must support integration with Proposed firewall.	Provisions of Bidding documents remain unchanged. However, can be discussed during stage-I.

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S. No.	Volume / Clause	Provision of Bidding Documents	Bidder's Query	GRID-INDIA Reply
		be provided from Day1. The proposed solution based on appliance/VM must be scalable and should support integration with Active Directory/LDAP. It must provide capability to users to resolve their own password issues, registration etc. to ensure improved user satisfaction.		
139	Technical Specification, Volume II Part Appendix -H Hardware DRS 14. Internal Network Firewall with NIPS:	b. Proposed appliance shall have minimum 200GB SSD drive, however size must be considered to meet other requirement specified under the specification.	Changes:- b. Proposed appliance shall have minimum 450 GB SSD drive; however, size must be considered to meet other requirement specified under the specification. Justifications:- Requested storage capacity is on lower end as storage is needed on Firewall appliances to run the Firewall OS as well as used to process the traffic and store the logs etc... hence lower capacity may create bottleneck to store the logs locally on the firewall appliance in case of management is not reachable or down and overutilization of system storage may impact the performance as well.	Provisions of Bidding documents remain unchanged. However, higher configuration can be proposed considering the requirement.

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Clarification No-1 to Technical Specifications of the bidding documents for Replacement/Upgradation of SCADA/EMS System at Southern Region Load Despatch Centre (SRLDC) of GRID-INDIA and State Load Despatch Centres (SLDCs) of Kerala, Tamil Nadu, Telangana, Andhra Pradesh and Puducherry; Specification No: CC/C&M/SR/SCADA/2023

S. No.	Volume / Clause	Provision of Bidding Documents	Bidder's Query	GRID-INDIA Reply
140	Technical Specification, Volume II Part Appendix -H Hardware DRS 14. Internal Network Firewall with NIPS:	c. Multicore CPU architecture with a hardened 64-bit operating system to support higher memory with min 6 physical CPU cores on device and minimum 16 GB RAM on device or higher.	Changes:- Multicore CPU architecture with a hardened 64-bit operating system to support higher memory with min 6 physical CPU cores on device and minimum 24 GB RAM on device or higher from day 1. Device must be scalable to support 32 GB RAM in future Justification:- RAM is the important component of Firewalls and integrated packet processing functionality is dependent on the system memory. The requested security features require multi processing of the packets via different security engineers hence RAM must be requested on higher side as well as there must be provisioning of scale up the Memory in future to overcome from any performance issue of cater future requirements.	Provisions of Bidding documents remain unchanged. However, higher configuration can be proposed considering the requirement.

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S. No.	Volume / Clause	Provision of Bidding Documents	Bidder's Query	GRID-INDIA Reply
141	Technical Specification, Volume II Part Appendix -H Hardware DRS 14. Internal Network Firewall with NIPS: Sizing Parameters:	a. Should have 6 Gbps or more of NGFW (FW and AVC) throughput in real-world / production environment/ Application Mix and Minimum NG Threat prevention throughput in real world/production environment (by enabling and measured with Application-ID/ AVC, NGIPS, Anti-Virus, Anti-Spyware, Anti Malware, Anti-Bot, Zero-day attacks and logging security threat prevention features enabled – 3 Gbps real world/production environment/ Application Mix.	Changes:- a. Should have 16 Gbps or more of NGFW (FW and AVC)throughput in real-world / production environment/ Application Mix and Minimum NG Threat prevention throughput in real world/production environment (by enabling and measured with Application-ID/ AVC, NGIPS, Anti-Virus, Anti-Spyware, Anti Malware, Anti-Bot, Zero-day attacks and logging security threat prevention features enabled – 7 Gbps real world/production environment/ Application Mix. Justification:- The internal firewalls must be minimum 200% of external firewalls due to east-west traffic filtering as well hence recommending you to reconsider the sizing of internal firewall and incorporate the requested changes.	Kindly refer Amendment-1

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S. No.	Volume / Clause	Provision of Bidding Documents	Bidder's Query	GRID-INDIA Reply
142	Technical Specification, Volume II Part Appendix -H Hardware DRS 14. Internal Network Firewall with NIPS: Sizing Parameters:	f. Proposed solution should support minimum 6 Gbps or more IPS throughput	Changes:- f. Proposed solution should support minimum 18 Gbps or more IPS throughput Justification:- Internal firewall is also 200% of external firewall w.r.t sizing due to east-west traffic and this is industry standard as well hence requesting to review the sizing Requested IPS throughout is lower side and not aligned with industry standard for NGTP an NGFW throughput. The minimum throughput must be increased to ensure that standalone feature of IPS must provide enough throughput to inspect the traffic.	Kindly refer Amendment-1
143	Technical Specification, Volume II Part Appendix -H Hardware DRS Internal Network Firewall with NIPS:	f. Proposed solution should support minimum 6 Gbps or more IPS throughput	Kindly Delete this. Since TP throughput and Firewall throughput has been asked under point a. we would request this to be deleted as every OEM doesn't publish IPS throughput separately.	Kindly refer Amendment-1
144	Technical Specification, Volume II Part Appendix -H Hardware DRS Internal Network Firewall with NIPS:	j. Support NAT, PAT & Policy based NAT/PAT, Mapped IP MIP), Virtual IP(VIP) & MIP/VIP grouping.	j. Support NAT, PAT & Policy based NAT/PAT/Forwarding, Mapped IP MIP), Virtual IP(VIP) & MIP/VIP grouping. Every OEM has their own technologies and mechanism to route the traffic. Pls include Policy based Forwarding as an option to allow us to participate.	Provisions of Bidding documents remain unchanged. However, can be discussed during stage-I.

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S. No.	Volume / Clause	Provision of Bidding Documents	Bidder's Query	GRID-INDIA Reply
145	Technical Specification, Volume II Part Appendix -H Hardware DRS 14. Internal Network Firewall with NIPS:	20. Interface Requirement: a. Minimum number of 1 Gbps LAN ports: 8 b. Minimum number of 10 Gbps ports - 10 c. Separate HA port All the SFP+ port should have compatible transceivers (Short Range Transceiver) along-with required FO cables.	Changes:- 20. Interface Requirement: a. Minimum number of 1 Gbps LAN ports: 8 b. Minimum number of 10 Gbps ports - 4 c. Separate HA port All the SFP+ port should have compatible transceivers (Short Range Transceiver) along-with required FO cables. Justifications:- The requested ports are on higher side and unnecessarily increasing the budget by sizing the bigger appliances however inline with the required NGTP and NGFW throughput, only 4 x10G ports must be required. Large number of ports requirement can also be reduced/mitigated by placing the switches in between Network segments and Firewall and utilize the Vlan trunking concepts.	Provisions of Bidding documents remain unchanged. However, can be discussed during stage-I.
146	Technical Specification, Volume II Part Appendix -H Hardware DRS Internal Network Firewall with NIPS:	b. Minimum number of 10 Gbps ports - 10	b. Minimum number of 1 Gbps SFP ports - 2, 10Gbps SFP+ Ports - 8, Adding two more ports would mean we need to supply bigger box. Kindly change it so that we get to bid with equal level of box.	Provisions of Bidding documents remain unchanged. However, can be discussed during stage-I.

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S. No.	Volume / Clause	Provision of Bidding Documents	Bidder's Query	GRID-INDIA Reply
147	Technical Specification, Volume II Part Appendix -H Hardware DRS NIPS	NIPS shall have capability to detect various operating system of devices/servers running on the network and profile them for more visibility and protection (for impact assessment & vulnerability analysis)	Kindly delete this This is one OEM specific and should be removed.	Provisions of Bidding documents remain unchanged. However, can be discussed during stage-I.
148	Technical Specification, Volume II Part Appendix -H Hardware DRS 15. Centralized Management of Firewalls (Common for main and backup Control Centre)	8. The management platform must provide multiple report output types or formats, such as PDF, HTML, and CSV.	Changes: - 8. The management platform must provide multiple report output types or formats, such as PDF/HTML, and CSV. Justification:- HTML is not standard file type to deliver the reports and this is restricted clause as well hence requesting to change the language to enable the participation.	Kindly refer Amendment-1
149	Technical Specification, Volume II Part Appendix -H Hardware DRS 16. Anti-APT	18. Number of VM's/sandbox images should be more than 10 from day 1 and running simultaneously.	Changes: - 18. Number of VM's/sandbox images should be more than 8 from day 1 and running simultaneously. Justifications:- This clause is favoring one single OEM. Moreover, required throughput on number of file scanning is also on very lower end and even, 8 number of parallel VM can deliver more than 1000 file scanning per hour. Additionally, number of required VM's are impacting the overall budget without providing any performance enhancement and is also restricting the leader OEM to participate. Hence requesting you to incorporate the change to enable the competitive participation.	Provisions of Bidding documents remain unchanged. However, can be discussed during stage-I.

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Clarification No-1 to Technical Specifications of the bidding documents for Replacement/Upgradation of SCADA/EMS System at Southern Region Load Despatch Centre (SRLDC) of GRID-INDIA and State Load Despatch Centres (SLDCs) of Kerala, Tamil Nadu, Telangana, Andhra Pradesh and Puducherry; Specification No: CC/C&M/SR/SCADA/2023

S. No.	Volume / Clause	Provision of Bidding Documents	Bidder's Query	GRID-INDIA Reply
150	Technical Specification, Volume II Part Appendix -H Hardware DRS 16. Anti-APT	19. It should support Sandbox Analysis for files which can run on multiple operating systems like Win7, Win8, Win10, Window Server 2008, 2012, 2016, 2019 and future version shall also be supported. If any additional licenses are required, same may be considered by bidder.	Changes:- 19. It should support Sandbox Analysis for files which can run on multiple operating systems like Win7, Win8, Win10 and future version shall also be supported. If any additional licenses are required, same may be considered by bidder. Justification:- Restrictive clause for Leader OEM to participate. Servers are heavy operating systems and not meant for Sandboxing environment also Microsoft Windows kernel is same in desktop or server segment. Sandboxing solution provide the static and dynamic analysis and the analysis of file is independent of operating systems hence requesting to please incorporate the changes to enable the participations.	Provisions of Bidding documents remain unchanged. However, can be discussed during stage-I.
151	Technical Specification, Volume II Part Appendix -H Hardware DRS 16. Anti-APT	20. Sandbox effective Throughput shall be 50 Files/Hour if NGFW send unknown traffic for sandboxing	Changes: - 20. Sandbox effective Throughput shall be unique files 1200 per Hour Justification:- The requested throughput is on very lower end and completely outline to the requested specifications. Based on number of VM etc.. The files must be on higher side to be inspected .	Provisions of Bidding documents remain unchanged.

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S. No.	Volume / Clause	Provision of Bidding Documents	Bidder's Query	GRID-INDIA Reply
152	Technical Specification, Volume II Part Appendix -H Hardware DRS 18. Remote console (All-in-One):	S.No. 3 Processor Min 8 core latest processor (along with latest chipset), Clock Speed 3.0 GHz or more (minimum base frequency)	Intel 12th Gen processor comes with higher cores and cache but reduced base clock speed so please remove the base clock speed else change to Min 2.1 Ghz as per Intel 12th Gen processor i7 12700 please remove the base clock speed else change to Min 2.1 Ghz as per Intel 12th Gen processor i7 12700	Provisions of Bidding documents remain unchanged. However, can be discussed during stage-I.
153	Technical Specification, Volume II Part Appendix -H Hardware DRS 18. Remote console (All-in-One):	Processor: Min 8 core latest processor (along with latest chipset), Clock Speed 3.0 GHz or more (minimum base frequency)	Processor: Min 8 Multithreaded Cores, (along with latest chipset / SoC), Base Clock Speed 1.80 GHz or more. For 8-Core Segment, AMD Based All-in-one Platforms are available with 1.80GHz @15Watt TDP Base Frequency. Requesting the dept. to kindly amend it to enable our participation.	Provisions of Bidding documents remain unchanged. However, can be discussed during stage-I.
154	Technical Specification, Volume II Part Appendix -H Hardware DRS 18. Remote console (All-in-One):	RAM: 16 GB delivered, expandable up to 64 GB 2133Mhz Non-ECC/ECC DDR4 or Above	RAM: 16 GB delivered, expandable up to 32 GB 2133Mhz Non- ECC/ECC DDR4 or Above Commonly, AIOs are coming with 2DIMM Slots. Dept. has already asked for 16GB of RAM, so in future it can be expanded maximum up- to 32GB by putting an additional 16GB or RAM.	Provisions of Bidding documents remain unchanged.

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S. No.	Volume / Clause	Provision of Bidding Documents	Bidder's Query	GRID-INDIA Reply
155	Technical Specification, Volume II Part Appendix -H Hardware DRS 18. Remote console (All-in-One):	Dedicated Graphics Card: Min 4GB	Integrated HD Graphics Controller. AIOs are made for mainly office usages & it is not meant for Graphics Intensive Work, due to thermal limitations. Integrated Graphics are more than enough for standard applications in AIOs.	Provisions of Bidding documents remain unchanged.
156	Technical Specification, Volume II Part Appendix -H Hardware DRS 18. Remote console (All-in-One):	7. Optical Drive DVD-RW	Please remove DVD RW Please change to External DVD RW The Panels are becoming sleeker to host DVD RW in AIO hence request to go for an External DVD RW	Provisions of Bidding documents remain unchanged. However, can be discussed during stage-I.
157	Technical Specification, Volume II Part Appendix -H Hardware DRS 19. Laptops:	3 Processor Min 4 core, latest processor (along with latest chipset) with 3.0 GHz Clock Speed or more (minimum base frequency)	Please remove 3.0 Base clock speed Intel 12th gen Mobile Processor have lower base clock speed and Intel does not mention the base clock speed rather it mentions Turbo Frequency	Provisions of Bidding documents remain unchanged. However, can be discussed during stage-I.
158	Technical Specification, Volume II Part Appendix -H Hardware DRS 19. Laptops: a. For Maintenance b. For DTS c. For RTU Testing d. VAPT	Min 4 core, latest processor (along with latest chipset) with 3.0 GHz Clock Speed or more (minimum base frequency).	Processor: Min 4 Multithreaded Cores, (along with latest chipset / SoC), Base Clock Speed 2.70 GHz or more. For 4-Core Segment, AMD Based Laptop Platforms are available with 2.70GHz Base Frequency. Requesting the dept. to kindly amend it to enable our participation.	Provisions of Bidding documents remain unchanged. However, can be discussed during stage-I.

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S. No.	Volume / Clause	Provision of Bidding Documents	Bidder's Query	GRID-INDIA Reply
159	Technical Specification, Volume II Part Appendix -H Hardware DRS clause19. Laptops:	5. Dedicated Graphics Card Min 4 GB	Please remove 4 GB Graphic card Laptops normally comes with integrated graphic card so suggest if dedicated graphic card can be removed and asked for integrated graphic card	Provisions of Bidding documents remain unchanged.
160	Technical Specification, Volume II Part Appendix -H Hardware DRS 19. Laptops: a. For Maintenance b. For DTS c. For RTU Testing d. VAPT	Dedicated Graphics Card: Min 4GB	Integrated HD Graphics Controller. Laptop are also made for mainly office usages & it is not meant for Graphics Intensive Work, due to thermal limitations. Integrated Graphics are more than enough for standard applications in Laptops.	Provisions of Bidding documents remain unchanged.
161	Technical Specification, Volume II Part Appendix -H Hardware DRS 19. Laptops:	7. Optical Drive DVD-RW	Please remove DVD RW Laptop these days do not come with Integrated DVD RW so suggest to take an external one.	Provisions of Bidding documents remain unchanged.
162	Technical Specification, Volume II Part Appendix -H Hardware DRS 19. Laptops: a. For Maintenance b. For DTS c. For RTU Testing d. VAPT	Wi-Fi wireless LAN adapter: Dual Band Wireless-AC 7265 2x2 + Bluetooth 4.0	Wi-Fi wireless LAN adapter: Dual Band Wireless-2x2 + Bluetooth 4.0 AC 7265 indicates Intel LAN adapter only. Kindly remove the vendor's specific name.	Kindly refer Amendment-1

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S. No.	Volume / Clause	Provision of Bidding Documents	Bidder's Query	GRID-INDIA Reply
163	Technical Specification, Volume II Part Appendix -H Hardware DRS clause20. Video Projection System (VPS)	LASER based rear projection	Request you to mention RGB Laser without any Moving part like color wheel & Phosphor wheels If laser is only mentioned then outdated technology like color wheels based systems will be provided Which has moving parts & which are prone to failures .Hence request you to mention RGB Laser which does not have any moving parts	Provisions of Bidding documents remain unchanged. However, can be discussed during stage-I.
164	Technical Specification, Volume II Part Appendix -H Hardware DRS clause20. Video Projection System (VPS)	Minimum 80,000 Hours	Request you to mention Minimum 1,25,000 Hrs in Eco & Normal Mode As this is available with both the OEM request you to consider the same as this will allow you to get a product which can be supported up to 10 years lifetime	Provisions of Bidding documents remain unchanged. However, can be discussed during stage-I.
165	Technical Specification, Volume II Part Appendix -H Hardware DRS clause20. Video Projection System (VPS)	As per the base runtime requirements of SPEC CPU 2017 Benchmarking Standards	Request you to remove the same As these benchmarks are no more available request you to make it optional	Kindly refer Amendment-1
166	Technical Specification, Volume II Part Appendix -H Hardware DRS 20. Video Projection System (VPS)	Audio video signal input module with 2 video inputs, 2 audio inputs, 2 audio outputs for connecting speakers, 2 RGB inputs, 1 DVI input.	Please consider 2 HDMI & 2 DP Inputs As DVI & RGB Inputs are end of life request you to consider latest inputs which is HDMI & DP Which is better .	Provisions of Bidding documents remain unchanged. However, can be discussed during stage-I.

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S. No.	Volume / Clause	Provision of Bidding Documents	Bidder's Query	GRID-INDIA Reply
167	Technical Specification, Volume II Part Appendix -H Hardware DRS 20. Video Projection System (VPS)	1. RGB Analog up to 1920x1200 (up to 165 MHz pixel clock) 2. DVI up to 1920x1200 (up to 165 MHz pixel clock).	Please consider 2 HDMI & 2 DP Inputs As DVI & RGB Inputs are end of life request you to consider latest inputs which is HDMI & DP Which is better	Provisions of Bidding documents remain unchanged. However, can be discussed during stage-I.
168	Technical Specification, Volume II Part Appendix -H Hardware DRS 20. Video Projection System (VPS)	Minimum 5000:1	Request you to consider 1500:1 or better Static contrast ratio 5000: 1 Static contrast ratio is available in VA Panels which are end of life .As nowadays only IPS Panels are available they have maximum static contrast ratio 1500:1 or better	Provisions of Bidding documents remain unchanged. However, can be discussed during stage-I.
169	Technical Specification, Volume II Part Appendix -H Hardware DRS 20. Video Projection System (VPS)	Speakers Inbuilt	Request you to allow External Speakers also As inbuilt speakers are no more coming request you to consider external speakers option too	Provisions of Bidding documents remain unchanged. However, can be discussed during stage-I.
170	Technical Specification, Volume II Part Appendix -H Hardware DRS 20. Video Projection System (VPS)	Screen Gap Not mentioned	Request you to mention screen to screen gap less than 0.88 mm In case of 55" the minimum screen to screen gap is 0.88 mm request you to consider the same	Provisions of Bidding documents remain unchanged. However, can be discussed during stage-I.
171	Technical Specification, Volume II Part Appendix -H Hardware DRS 20. Video Projection System (VPS)	500 GB SSD in RAID-1 configuration	Request you to consider 480 GB SSD RAID 1 SAS HDD Comes in 480 & 960 GB SSD Only	Kindly refer Amendment-1

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S. No.	Volume / Clause	Provision of Bidding Documents	Bidder's Query	GRID-INDIA Reply
172	General clause	Data import	Bidder requests POSOCO to provide information on how many years of historian data to be imported from old system to new system for each state.	Kindly refer Vol-II, Part B section 1.8
173	General clause	Storage	Bidder assumes the historical data can be stored either on SAN/Cluster storage. Please confirm.	Provisions of Bidding documents remain unchanged. However, can be discussed during stage-I.
174	Additional clause	<p>We request employer to share the following:</p> <ul style="list-style-type: none"> a. Network Architecture for each location b. IDM setup / architecture c. Active directory setup / architecture d. SIEM architecture f. NMS Architecture g. White Listing Tool h. Backup solution count and philosophy of number of backups i. Number of devices for <ul style="list-style-type: none"> 1. NMS 2. SIEM 3. Backup with no. of copies 		Provisions of Bidding documents remain unchanged. However, can be discussed during stage-I.

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