Noida Metro Rail Corporation

Substation, Cabling and other accessories to be installed, its Integration with Existing NMRC SCADA at NMRC stations KP-II, Pari Chowk. Open Tender Ref: Design, engineering, manufacture, supply, Installation, testing and commissioning of, 630KVA, 33KV/415V Compact

Date: 18.03.2024

E-tender No. NMRC/PD/CSS/309/2024

Pre-bid Meeting: March 11, 2024 at the NMRC conference room Noida Metro Rail COrpoartionLtd. Ganga Shopping Complex, Sec-29, Noida-201301

| Bidder-1 M/S Siem 6. Section 6: Codes & standards TECHNICAL SPECIFICATION OF 630KVA, 33kV/415V Compact Substation 12.1.1 General Requirements: 12.1.3 Training | SN Clause No. RFP |
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| mens & | Clarification Requested |
| B shall be 1. Intent of specification sed Scope This specification is intended to specification is intended to engineering, manufacture, support commissioning of Fully Type tesses, if standard, Outdoor, Plinth Mour of 33KV/415 Volts, equipped with Resin Trans-former 3 way 33 KV of 3 Nos. 33 KV SF6 Insulated Value of 33KVA CSS. HT Metering in trans- | Existing Provision Within RFP |
| Please follow RFP conditions viewer Design, Please follow RFP conditions ly, installation ,testing & ted as per relevant tred, Compact Substation the dry type 630 KVA Cast Ring Main Unit consisting cuum Circuit Breaker for insformer feeder (CT,PT & | Clarification/Amended by NMRC |

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| | 11. Statutory approval, inspection & tests 11.2 Test certificates | ¬ н ds | 8. Transformer and specifications | 6.5.1 Locking Arrangement: | components: |
| | | Currently we don't have 33kv CSS type test, however we are using OEM product which shall have OEM type test of equal or higher rating (ie 33 RMU Siemens & LV component level type test), we are not considering any fresh type test of component or CSS. | YPe transformer with Off Load Tap 3 range +5% to -5% @2.5% with OTI & Winding CU, Dyn11, IS: 11171 amp/Siemens approved make. dard design. | Traformer compartment shall have Bolted Covers. Padlocking arrangement shall be provided, however the Lock shall be in scope of customer. | AN Type Transformer - TMC/Voltamp/Siemens approved vendor LV Switchgear - Siemens/L&T/C&S/Eq. (ACB/MCCB) All other Product - from Siemens approved vendor. |
| It includes Design, Engineering, supply, installation, testing & Commissioning of Cable Differen-tial Relay, Clean agent based Gas flooding system, Auxiliary AC/DC supply, Compact substa-tion Protection grading with existing NMRC ring network, Castel Key arrangement & any other component or material required to make the installation complete & operable. | standard, Outdoor, Plinth Mount-ed, Compact Substation of 33KV/415 Volts, equipped with dry type 630 KVA Cast Resin Trans-former 3 way 33 KV Ring Main Unit consisting of 3 Nos. 33 KV SF6 Insulated Vacuum Circuit Breaker for 630KVA CSS, HT Metering in transformer feeder (CT,PT & Energy Meter as per PVVNL specifications),RTU/RIO & with LT Air Circuit Breaker, MCCB ,LT metering arrangement, as secondary side complete as per standard & technical data sheet. | 1. Intent of specification This specification is intended to cover Design, engineering, manufacture, supply, installation, testing & commissioning of Fully Type tested as par relevant. | 33/0.415 kV AN CRT dry type transformer with Off Load Tap Changer link with tapping range +5% to -5% @2.5%. with WTI, Insulation - Class F, Winding AL, Dyn11, IS: 11171, Make of Trafo: Raychem/Siemens/Schnieder/ABB/L&T/Crompton/Asefa/ Voltamp/ Alstom/Powerstar/ NMRC vendors or eq. | or eq. Traformer compartment shall have Bolted Covers. Padlocking arrangement shall be provided by the | wake iemens/Schnieder/ABB/L&T/Asefa/Alstom/NMRC irs or eq. ormer:Raychem/Siemens/Schnieder/ABB/L&T/Cro i/Asefa/Voltamp/ Alstom/Powerstar/ NMRC irs or eq. LV igear:L&T/ABB/Siemens/Schnieder/ NMRC vendors |
| · · | rd & 8 | As per RFP, 1. Intent of specification Page No36, BOQ-Page No-103 | As per RFP, BOQ-page No.103 and RFP clause No8.2 Distribution transformer data sheet: S.No.11,28, 29c & d, | Please follow RFP conditions | Please follow RFP conditions |

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| 6.1.6 Covers & Doors: | 6.1.5 Internal Fault: | substation part details 6.1.4 Outdoor enclosure: | 6. Section 6: Codes & standards TECHNICAL SPECIFICATION OF 630KVA, 33kV/415V Compact Substation 6. 1 Section 6: Package |
| Covers & doors shall be offered as per product standard design. | Currently we don't have 33kv CSS type test, however we are using OEM product which shall have OEM type test of equal or higher rating (ie 33 RMU Siemens & LV component level type test), we are not considering any fresh type test of component or CSS. Internal arc called for 20kA/1 sec is only applicable for RMU. In general STC & internal arc shall be in equal level, hence we are offering STC 20kA for 3 sec & Internal arc 20kA for 1 sec. We are not offering RMU STC 25kA for 3 sec. Kindly confirm. | 4000 | In case of reference and standards, we will only comply with the IEC codes. Other standards are not considered in our proposal. |
| Covers & Doors | 1. Intent of specification This specification is intended to cover Design, engineering, manufacture, supply, installation ,testing & commissioning of Fully Type tested as per relevant standard, Outdoor, Plinth Mount-ed, Compact Substation of 33KV/415 volts, equipped with dry type 630 KVA Cast Resin Trans-former 3 way 33 KV Ring Main Unit consisting of 3 Nos. 33 KV SF6 Insulated Vacuum Circuit Breaker for 630KVA CSS, HT Metering in transformer feeder (CT,PT & Energy Meter as per PVVNL specifications),RTU/RIO & with LT Air Circuit Breaker, MCCB ,LT metering arrangement, as secondary side complete as per standard & technical data sheet. It includes Design, Engineering, supply, installation, testing & Commissioning of Cable Differen-tial Relay, Clean agent based Gas flooding system, Auxiliary AC/DC supply, Compact substa-tion Protection grading with existing NMRC ring network, Castel Key arrangement & any other component or material required to make the installation complete & operable. | IN) Enclosure: Quantity: A No. The degree of protection for HT & LT switchgear compartment shall be IP 55 & degree of pro-tection of transformer compartment of the enclosure shall be minimum IP23. The protection degree of the Enclosure shall be IP55 for LT & HT switchgear compartment & IP23 for Transformer compartment. Proper / adequate ventilation aperture shall be provided for natural ventilation by way of Louvers etc.IP 55 for 33kV RMU. | |
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| Operation Lacinaca | ocks and Test | 6.6 Low voltage | | 1.7 Earthing: | | | | | 6.1 Section 6: Package substation part details | : | | 6.1.4 Outdoor enclosure: | | | 6.19 Cleaning & Painting: |
| Siemens/ roal/ roal refair) | Shall be provided as per OEM standard design (i.e. | Shall be provided as per Ceivi stallual a design (| or OEM standard design (i.e. | The arrangement towards internal lighting activated by associated door limit switch shall be provided only for LT & HT compartment. | cables , Cable termination shall not be in our scope. | *LV section- OG from LV feeder will be from bottom through | Interconnection between Transformer to LT switchgear shall be aluminium busbar. | Interconnection between RMU & Transformer shall be 1R per phase x 1C x 95Sq mm AL unarmoured XLPE cable | Provision for connecting maximum 1Rx3Cx300 sq mm XLPE Aluminium cable . Cable Termination shall not be in our scope | | | CSS Outdoor 2mm thick Galvanized sheet steel enclosure mounted on PU Painted ISMC channel base frame 100x50x4mm | Kindly confirm customer requirement. | For port application we used to give special additional painting thickness with 160 microns, +/- 20%. | We are offering standard painting thickness 100 microns, +/- 20 %, kindly confirm this thickness is adequate for site requirement. |
| | 6.8 ACB controlled & monitored and interpreta- | and interpretations and interpretations are also as a second and a second an | 13. Tentative Make of components: | d 6.1.7 Earthing: There shall be an arrangement for internal lighting activated by associated switch for HV, Trans- former 8.1 V compartments separately. | | | | 1CX1RX120 sq.mm per phase cable. | Interconnection between RMU and transformer shall be by using suitable Copper un-armoured 33KV (UE) | o de la company | The enclosure shall be made of 2.0mm thickness galvanized Sheet Steel tropicalized to local weather conditions including all partition sheets and doors. The outdoor enclosure wall of the CSS is designed in a corrugated wall type design for robust construction and heat dissipation. The base of enclosure shall be 4mm thick Hot dip Galvanized sheet steel. | | | ne paints shall be carefully selected to withstand sea shore conditions. The paint shall not scale off or crinkle or be removed by abrasion due to normal handling. | |
| | | Please follow RFP conditions | Please refer as per RFP sec-13 | - | A. I. DED populations | | | | FREDSE DUIDWIN IN FOUNDATIONS | Place follow REP conditions | | Please follow RFP conditions | | | Please follow RFP conditions |

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| 16 | 6.7 Control switch for air circuit breakers: |
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| | Shall be as per manufacturer standard design. |
| This specification is intended to cover Design, engineering, manufacture, supply, installation , testing & commissioning of Fully Type tested as per relevant standard, Outdoor, Plinth Mount-ed, Compact Substation of 33KV/415 Volts, equipped with dry type 630 KVA Cast Resin Trans-former 3 way 33 KV Ring Main Unit consisting of 3 Nos. 33 KV SF6 Insulated Vacuum Circuit Breaker for 630KVA CSS, HT Metering in transformer feeder (CT,PT & Energy Meter as per PVVNL specifications),RTU/RIO & with LT Air Circuit Breaker, MCCB ,LT metering arrangement, as secondary side complete as per standard & technical data sheet. It includes Design, Engineering, supply, installation, testing & Commissioning of Cable Differen-tial Relay, Clean agent based Gas flooding system, Auxiliary AC/DC supply, Compact substa-tion Protection grading with existing NMRC ring network, Castel Key arrangement & any other component or material required to make the installation complete & operable. | 1. Intent of specification |
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| | 6.1 Section 6: Package substation part details |
| | We can offer two Nos LBS & one no. VCB instead of 3 nos. of VCB, 1. Intent of specification Kindly confirm. |
| engineering, manufacture, supply, installation, testing & commissioning of Fully Type tested as per relevant standard, Outdoor, Plinth Mount-ed, Compact Substation of 33KV/415 Volts, equipped with dry type 630 KVA Cast Resin Trans-former 3 way 33 KV Ring Main Unit consisting of 3 Nos. 33 KV SF6 Insulated Vacuum Circuit Breaker for 630KVA CSS, HT Metering in transformer feeder (CT,PT & Energy Meter as per PVVNL specifications),RTU/RIO & with LT Air Circuit Breaker, MCCB ,LT metering arrangement, as secondary side complete as per standard & technical data sheet. It includes Design, Engineering, supply, installation, testing & Commissioning of Cable Differen-tial Relay, Clean agent based Gas flooding system, Auxiliary AC/DC supply, Compact substa-tion Protection grading with existing NMRC ring network, Castel Key arrangement & any other component or material required to make the installation complete & operable. | 16 |
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| | 8.1 Fire protection We are not offering with our product. scheme & integration with SCADA/FACP | 1. Intent of spectrication MLEB NO.: TSL82-P1C689847 RATED INPUT AT 50Hz: CT SEC OF 1A AUX SUPPLY: 24V DC CONTACT COMBINATION: 118H-980 WITH RJ45 PORT SUITABLE FOR FLUSH MOUNTING PROT 8/L 18 | ⊥ ≶ |
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| Fire protection scheme & integration with SCADA/FACP | NOTE: Clean agent based gas flooding system will be provided in transformer compartment & LT Compartment and integration of gas flooding system to SCADA/FACP | ist ting or Type dard | 1. Intent of specification |
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| 12.1.1 General Requirements: | 11.1 Inspection & tests certificates 12.1.2 Pre-Dispatch Inspection: | 12. Drawings, manuals and General requirements | 6. Section 6: Codes & standards 1. Intent of specification | | 6. Section 6: Codes & standards 1. Intent of specification |
| We shall carry out Routine Test as per our Quality Assurance Plan (QAP). QAP shall furnished at the time of detailed engineering drawing. | Inspection, Dispatch of CSS shall take place from CSS Assembly Vendor location. Charges towards lodging, boarding and travelling for personnel appointed from Customer for Inspection shall not be borne by Siemens. | Shall be furnish after order confirmation | Not in our scope. | | Kindly give more details on this requirement to better understanding. |
| Routine lest | Pre-Dispatch Inspection: | Drawings, manuals and General requirements | Auxiliary ACIDO supply. | This specification is intended to cover Design, engineering, manufacture, supply, installation testing & commissioning of Fully Type tested as per relevant standard, Outdoor, Plinth Mount-ed, Compact Substation of 33KV/415 Volts, equipped with dry type 630 KVA Cast Resin Trans-former 3 way 33 KV Ring Main Unit consisting of 3 Nos. 33 KV SF6 Insulated Vacuum Circuit Breaker for 630KVA CSS, HT Metering in transformer feeder (CT,PT & Energy Meter as per PVVNL specifications),RTU/RIO & with LT Air Circuit Breaker, MCCB ,LT metering arrangement, as secondary side complete as per standard & technical data sheet. It includes Design, Engineering, supply, installation, testing & Commissioning of Cable Differen-tial Relay, Clean agent based Gas flooding system, Auxiliary AC/DC supply, Compact substa-tion Protection grading with existing NMRC ring network, Castel Key arrangement & any other component or material required to make the installation complete & operable. | 1. Intent of specification |
| Fledse follow M. F. Collognore | Please follow RFP conditions | Please follow RFP conditions | Please follow RFF conditions | | Please follow RFP conditions |

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| Bidder-2 M/S AE Telelink Systems Ltd. | 12.1.1 General Requirements: | 12.1.1 General Requirements: | 12.1.1 General Requirements: Delivery | 12.1.1 General Requirements: |
| elink Systems Ltd. | Civil work is not in the scope of Siemens and quoted prices are exclusive of civil work. | HT Cable Termination Kit (For incoming cable feeder) is not in our scope. However interconnection from VCB to Transformer is considered in our scope. (Applicable only for CSS) | Delivery – Client Inspection date shall be 9-10months from the date of drawing approval. Drawings shall be submitted within 5-6 weeks from the date of PO. Drawings shall be approved within 1 week from the date of submission. (our scope will be limited to submit our drawing, end customer approval is not considering our scope, however we can extend all possible support for technical clarification by remotely/on team call) Drawings shall be approved within 2 weeks from the date of submission. If any further delay on drawing approval will have suitable price implication (if any shall communicate accordingly). | We shall provide warranty of 12 months from the date of commissioning or 18 months from date the date of supply, item, the warranty for batteries being consumable & bought out as per battery manufacturer. [If applicable as per BOM]. In case commissioning is schedule beyond 3 months from receipt of materials at site, then freshening charge for batteries shall be given by customer to ensure that batteries do not go into permanent dry mode. [If applicable as per BOM] |
| | 12.1.1 General Requirements: Compact Sub-Station & RMU shall be outdoor plinth mounted type. However, Supervision of erection, testing and commissioning is in the scope of Bidder. Further, the Vendor shall furnish the foundation details & foundation bolts & accessories. | 12.1.1 General Requirements: Vendor shall supply suitable & required no. of HT & LT Cable termination kits along with CSS for HT & LT Cable terminations. | Delivery PI | Warranty |
| | Please follow RFP conditions | Please follow RFP conditions | Please follow RFP conditions | Please follow RFP conditions |

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SCC Clause 23: Payment | This tender calls for very high investment from beginning because | Payment Terms: Payment Instalments and ratio: a) payment terms as follows: a) 80% of cost against delivery of items | CSS. Most of the prospective bidders who will participate in the tender testing and commissioning: 20% of the charges may be ate site. b) 10% after Installation and testing. c) Balance 10% after | b) Three sets of completion drawings and one set drawing completion of the particular milestone. Therefore we request for released after a) Integrated Testing and Commissioning of are from MSME category and always have financial crunches, it is released after installation including earthing, electrical also worth mentioning here there is significant delay in payment | cabling & approvals. c) Final approval, Integrated Testing manufacturing timeline before delivery of the product at site. OEMs of CSS and SCADA GIS Panels don't work without any release from most of the Govt/PSU organization even after advance payment. Then there will be a considerable

final approval integrated testing and commissioning

electrical items on site on foundation. b) Installation and Scheme approval and delivery of supply of item: 60% of & commissioning: 20% remaining charges, may be the cost may be released after successful delivery of

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submitted by the contractor while handing over the on rubber sheet comprising the following shall be electrical equipments showing cable sizes, equipment Equipments layout drawing(s) giving complete details of installation/ before EIG inspection. the entire equipments. Electrical drawings for the entire c) No Objection Certificate from CHIEF ELECTRICAL INSPEC capacities, switch-gear's ratings, control components, e) At the time of final completion, the contractor shall $|\mathsf{d})$ Training of operation and maintenance staff of the TOR TO THE GOVERNMENT OF INDIA for the metro work. control wiring etc. NMRC to be pro-vided by contractor. arrange for in-spection and testing of the installation. Test not be accepted until it complies with the requirement of results obtained shall be recorded. The installation shall got inspected by the contractor from CHIEF Electrical these Specifications. The Sub Station instal-lation shall be deficiencies pointed out by the inspecting authorities shal energizing the Sub Station. All the observations/ Inspector for metro work and their clearance taken before be complied with by the contractor on priority. The department shall not render any help and shall not pay

any fee for NOC.

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| Section 6 Codes & Standar 1. Intent of specification | Cause 23 Sub clause 11.6 C & e (c) No Objection Certificate from CHIEF ELECTRICAL INSPECTOR TO THE GOVERNMENT OF INDIA for the metro work. |
| Section 6 Codes & Standard: Please be noted none of the OEM has Fully Type tested Compact Substation in 33 KV/415 Volt. In such scenario if an OEM which has fully type test certificate in 11 KV with same (630 KVA) or higher capacity with good amount of experience with prestigious clients does procurement authority allows such OEM with 11 KV certificate. Kindly clarify. | case Chief EIG is noted and shall be complied however in beyond the technical specification of the tender then it should be poid to successful contractor. Also there should not be any penalty in case recommendation of Chief EIG exceeds the completion period in case it's beyond the scope of tender technical specifications. Case it's beyond the scope of tender technical specifications. Shall not be accepted until it complies with the contractor for installation shall be recorded. The installation requirement of these Specifications. The Sub Station installation shall be got inspected by the contractor for clearance taken before energizing the Sub Station. All to observations/ deficiencies pointed out by the inspecting authorities shall not pay any fee for NOC. |
| 1. Intent of specification: This specification is intended to cover Design, engineering, manufacture, supply, installation, testing & commissioning of Fully Type tested as per relevant standard, Outdoor, Plinth Mounted, compact Substation of 33KV/415 Volts, equipped with dry type 630 KVA Cast Resin Transformer 3 way 33 KV Ring Main Unit consisting of 3 Nos. 33 KV SF6 Insulated Main Unit consisting of 630KVA CSS, HT Metering in Vacuum Circuit Breaker for 630KVA CSS, HT Metering in Vacuum Circuit Breaker (CT,PT & Energy Meter as per PVVNL transformer feeder (CT,PT & Energy Meter as per PVVNL specifications),RTU/RIO & with LT Air Circuit Breaker, MCCB, LT metering arrangement, as secondary side complete as per standard & technical data sheet. | he m |
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| | BOQ: Earthing Pit | 11 Statutory approval, inspection & tests: On Site Test | 10 Plan Submission and Schedule of Work |
| | No details of Earthing Pits are available. Kindly clarify | Kindly clarify the followings: 1. List of Test to be conducted for CSS as a composite system; Transformer, HT and other Cable, RMU, Indoor LT Panel and Outdoor LT panel. 2. Will there any test to be conducted on your existing GIS Panel, if yes, kindly list those. 3. Does the Timing of test to be performed is during non business hours for metro ie. typically 0000 Hours to 0430. Kindly clarify. | Kindly relook on the schedule of work and implementation plan. Factory testing program can not be in one month from LA same way other stages too has discrepancies. Practically every stage should start from QAP and Drawings approval date of CSS. Delivery of CSS should be 6 months from QAP & Drawing approval date. Then another two months for testing commissioning, EIG approval etc. RMU OEM takes about 16 weeks for manufacturing for any design on 33 KV. Then assemble in CSS takes place at CSS manufacturer premises. Local Civil work, Cable laying etc can not be initiated without approved Drawing. Defining Impractical timelines in tender often becomes bigger hassles to procurement authority itself and definitely to successful contractor during execution. |
| required. | Earthing Pit BOQ item No12 : Earthing with G.I. earth plate 600 mm X 600 mm X 6 mm thick including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe of 2.7 metre long etc. with charcoal/coke and salt as | 11. Statutory approval, inspection & tests : All necessary statutory approvals shall be taken by the contractor. The employer shall facilitate only. | 1 Factory Testing Programme With in one month of LOA 02 Site Testing and Commissioning programm With in one month of LOA 03 Procurement Manufacturing Delivery Plan With in one month of LOA 04 Construction and Installation Plan With in one month of LOA 05 Integrated Testing and commissioning Plan With in one month of LOA 06 DLP management Plan With in three months of LOA 07 Design Documents submission programme With in 15 days of LOA 08 AC Simulation study Report With in one month of LOA 8a. Preliminary AC Simulation study Report With in one month of LOA 8b. Final AC Simulation study Report With in three months of LOA 9 Contactor project Plan With in 15 days of LOA |
| | As per RFP, BOQ item No1 | Please follow RFP conditions | Please follow RFP conditions |

As per RFP, BOQ item No.-12: