

SCADA & ELECTRO MECHANICAL WORKS
IRRIGATION DEPARTMENT, GOVERNMENT OF PUNJAB



BIDDING DOCUMENT
For
Upgradation of Cyber Security of SCADA System at Jinnah
Barrage, Mianwali
(Technical Proposal)

(Note: Procurement is done by SCADA & Electro Mechanical Works,
Irrigation Department in line with PPRA Rules 2014)

Tender # SCADA/2017-18/02

Date of Submission / opening of technical proposals:

Receipt of Tenders: 24/04/2018 till 12:00 PM

Opening of Tenders: 24/04/2018 at 12:30 PM at
Conference Room, PMO for Punjab Barrages,
Irrigation Department, Government of the Punjab,
Canal Bank, Mustafa'abad, Lahore.



Sign & Stamp of bidder

Table of Contents

TERMS & CONDITIONS	3
1. General.....	3
2. Time Period.....	4
3. Extension of Delivery period	4
4. Cancellation / Penalty of Delay	4
5. Payment to the Contractors.....	4
6. Bid Security	4
7. Deduction of Taxes	5
8. Dispute	5
9. Technical Evaluation Criteria	5
10. Financial Evaluation Criteria	5
11. Bid / Tender opening procedure	5
12. One Person One Bid.....	6
Technical Evaluation Check List (Annex-A)	7
TECHNICAL SPECIFICATIONS (Annex-B)	8
FINANCIAL Bid (Annex-C).....	14



Sign & Stamp of bidder

TERMS & CONDITIONS

SCADA & Electro Mechanical Works unit, Punjab Irrigation Department, Government of Punjab (*hereinafter referred to as "SCADA PID"*) invites sealed bids from eligible and experienced firms/companies/authorized dealers (*hereinafter referred to as "Bidder"*) for the specified items as per Annex-A (*hereinafter referred to as "works"*) for its SCADA system located at Jinnah Barrage, District Mianwali.

1. General:

- 1.1 Any offer not received as per terms & conditions of the tender documents will not be considered. No offer shall be considered if:
 - a) received without bid security.
 - b) It is received after the prescribed submission date and time.
 - c) not signed & stamped by authorized person on each page of tender document
 - d) the offer is ambiguous
 - e) the offer is received by fax or e-mail
 - f) the offer is from a black listed firm
 - g) offer received within shorter validity than required
 - h) the offer is not conforming to specifications in the tender documents
 - i) any additional terms & conditions added by the bidder
 - j) any conditional offer
 - k) any un-authorized dealer/dealerships/firms/companies
 - l) bid is quoted other than the financial proposal format attached at **Annex-C.**
- 1.2 Only authorized firms/companies/dealers as mentioned in **Annex-A** are eligible to participate in the tender.
- 1.3 Bids will remain valid for a period of 90 days from the date of the opening of tender and should only be in Pak Rupees.
- 1.4 The cover envelop must indicate particulars of tender and date of opening. The envelope must be properly sealed.
- 1.5 Purchase order(s) will be issued to technically and financially responsive lowest evaluated bidder as per details in **Annex-A, Annex-B and Annex-C.**
- 1.6 The bidder must indicate their National Income Tax No. / Sales Tax No.
- 1.7 Offered rates will be on the basis of complete delivery, installation, commissioning and integration (as per details in Annex-A and Annex-B) in the Control Room of SCADA System of Jinnah Barrage, Mianwali.
- 1.8 SCADA PID will issue purchase order after the approval of Competent Authority.
- 1.9 SCADA PID reserves the right to cancel the procurement process without assigning any reason.



Sign & Stamp of bidder

2. Time Period:

Successful bidder will have to complete the work within two (02) weeks from the date of issuance of purchase order(s).

3. Extension of Delivery period:

3.1 In special circumstances, request for extension of delivery period may be considered by the Competent Authority on the written request of the firm before the target date of supply, who will be authorized to either accept or reject the request of bidder without assigning any reason.

4. Cancellation / Penalty of Delay:

4.1 In case, bidder fails to execute the contract in accordance with the terms & conditions laid down in the tender document, bid security will be forfeited/encashed and penalty@2% of total cost per week will be imposed up to a maximum of 10% of purchase order / work order value. The successful bidder should furnish the performance guarantee in the form of cheque at the rate of 5% of bid. Performance guarantee shall be retained for one year from the date of installation.

4.2 The work will be inspected by SCADA PID through authorized personnel and will be rejected, if not found according to the given specifications as mentioned at Annex – B. SCADA PID will not be responsible for any costs or expenses incurred by the bidders in connection with the execution of work.

5. Payment to the Contractors:

5.1 Payment will be made through crossed cheque to the bidder against invoice after 100% completion of satisfactory supply, installation, commissioning and integration of executed work. No payment will be made in advance.

5.2 Payment against partial execution of work will not be made.

6. Bid Security:

6.1 Bid security for the goods mentioned below will be 2% of the total bid amount. The bid security will have to be attached **only** with the Financial Proposal and should be in the form of Pay Order / Bank Draft / CDR from a scheduled bank in favor of **Director Barrages (E&M), Irrigation Department, Government of the Punjab, Lahore.**

6.2 Bid security of unsuccessful bidders shall be returned on the expiry of the grievance period or the decision of the complaint, if any, filed by the non-responsive bidder, whichever is later; If the disqualified or non-responsive bidder submits an affidavit, through an authorized representative, to the effect that he is satisfied with the proceedings of the procuring agency, whereas the bid security of successful bidder shall be returned on the completion and successful delivery of Purchase Order (PO). Performance

Sign & Stamp of bidder



guarantee shall be retained for one year from the date of installation.

6.3 The bid security shall be forfeited if:

- a. The offer is withdrawn, amended or revised.
- b. Does not provide execute work within stipulated time.

6.4 The performance guarantee shall be forfeited if:

- a. The bidder fails to execute the contract strictly in accordance with terms and condition of tender document.

7. Deduction of Taxes:

Any taxes (if applicable) will be deducted while making payment as per Government Rules / Instructions/ Notifications. Bidder will be responsible for the payment of duties, levies and clearance from customs authorities etc.

8. Dispute:

In case of any dispute before or after the execution of contract, matter will be resolved as per PPRA Rules 2014.

9. Technical Evaluation Criteria:

The detailed technical evaluation criteria (PASS/FAIL criteria) is given at **Annex-A**

10. Financial Evaluation Criteria:

- 10.1 The Financial Bids of technically responsive bidders will be opened in presence of bidder(s) / representative(s).
- 10.2 The Least Cost Method will be adopted for financial evaluation
- 10.3 Financial Bids of technically dis-qualified/non-responsive bidder(s) shall be returned un-opened.

11. Bid / Tender opening procedure:

As per PPRA Rules 2014, single stage two envelopes bidding procedure shall be adopted. The bid shall comprise a single package containing two separate envelopes. Each envelope shall contain separately the financial proposal and the technical proposal;

- 11.1 The envelopes shall be marked as "FINANCIAL PROPOSAL" and "TECHNICAL PROPOSAL" in bold and legible letters;
- 11.2 Initially, only the envelope marked "TECHNICAL PROPOSAL" shall be opened;
- 11.3 The envelope marked as "FINANCIAL PROPOSAL" shall be retained in the custody of the procuring agency without being opened;
- 11.4 The technical proposal shall be evaluated in a manner prescribed in **Annex-A and Annex B**, without reference to the price and any proposal may be

Sign & Stamp of bidder



- rejected which does not conform to the specified requirements / specifications;
- 11.5 During the technical evaluation no amendments in the technical proposal shall be permitted;
- 11.6 The financial proposals of bidders meeting the technical specifications shall be opened publicly at a time, date and venue announced and communicated to the firms/bidders in advance.

12. One person one bid:

- 12.1 In any procurement, one person may submit one bid and if one person submits more than one bid, the procuring agency shall reject all such bids.
- 12.2 If a consortium of persons has submitted a bid in any procurement, it shall be construed that each member of the consortium submitted the bid.

Note: Bidders must fill-up checklist / tables in **Annexure-A, Annexure-B and Annexure-C** and attach copies of required documents along with tender document.



Sign & Stamp of bidder

TECHNICAL EVALUATION CHECKLIST CRITERIA

The provision of this check list is essential pre-requisite along with submission of technical bid. The Firm must fill & sign this check list and accordingly attach the mentioned documents to assess the eligibility to accept the technical bid.

Sr. No.	Item Name	Yes/No	Page#
1.	2% bid security in shape of CDR (Original with Financial Proposal)		
2.	Technical proposal/specifications/annexure filled as per tender documents duly signed & stamped by the bidder.		
3.	Acceptance of terms & conditions/ tender documents duly signed and stamped by the firm/company/authorized dealer/representative.		
4.	Technical brochures indicating products specifications/ features attached.		
5.	Affidavit on judicial paper of Rs. 100/- regarding non- involvement in any arbitration/litigation with any government agency/department stating the firm/company/authorized dealer/representative is not black listed.		
6.	Securities & Exchange Commission of Pakistan (SECP) registration certificate / Registrar of Companies/Firms Certificate (in case of firms & Companies)		
7.	After sale services availability certificate on firm/company/authorized dealer/representative letter pad.		
8.	Certificate for free replacement/repair during one year warranty period of firm's letter pad.		
9.	Copy of valid Income Tax Registration & valid National & Sales Tax Number certificate.		
10.	Valid Registration with Pakistan Engineering Council Certificate		

Sign & Stamp of bidder



TECHNICAL SPECIFICATIONS

UPGRADATION OF CYBER SECURITY OF SCADA SYSTEM AT JINNAH BARRAGE.

The SCADA System of Jinnah Barrage Project is an intelligent distributed supervisory control and data acquisition/remote control system; it is developed base on the Windows 2008 server software and Windows 7 operating system.

SCADA consists of PLC (12 sets), the sensors (gate position sensor 70 sets), water level sensor (24sets), one data server, which has historian and archival function, workstations (SCADA1 and SCADA2), communication server (WEB server), engineer PC and software (General Electric, GE IFIX 5.5). The PLC consists of General Electric PAC8000 controller & serial modules, power supply unit, It is responsible for acquiring sensor signal, the implementation of the gate remote operation command. Sensor is responsible for supervising of gate status and water level etc. Servers and workstations are the center of the system, which operates, and control the whole system by software, the software is GE IFIX 5.5. The relevant superior department at other places may monitor the remote automatic monitoring systems at any time and complete all the operations as desired. The buttons and menu information is shown on the graphic window, which is created by software GE IFIX, gates operation can be conveniently and easily realize through mouse clicking these buttons and menu by operator. GE IFIX contains multiple functions such as automatic data acquisition and remote control, manual recording, off-line analysis, safety management, network system management, database include historically and real time data management, remote assistant monitor and redundant control for workstation. The System can be supported by the UPS power supply for 8 hours without AC 400V power.

SCADA is divided into two levels, Level1 and Level2.

Level 1's duty is acquire and monitor the status of the hoist, gates position, water level, power supply, and the SCADA data management, and control the operation of hoist. It has 13 nodes totally, consists of twelve PLC and one workstation. It is the main part of the SCADA, including data acquisition and control the hoists by PLC, information supervise and data storing and processing, HMI by the server and the workstation. The water level information of JHPP shall be transmitted to the PLC. The communication network transmit data and commands base on Ethernet protocol, it consist of a dual ring (mono optical fiber), CAT 5 cable and switch.

Level 2's duty is output documents, office applications and remote data transmitting. The Printers, engineer computers, VPN routers and communication servers are main devices of the Level2. Remote Client access to the communication server via Internet-VPN, Remote Client software is a HMI, which is similar with the Jinnah Barrage control room, but it cannot change the alarm settings and control the hoists.



Sign & Stamp of bidder

Abbreviations:

DATA Server: DATA Server is named as DATA. It is used to save and query the historical data and history of SCADA software.

SCADA Server 1: SCADA Server 1 is named as JN1. It is used to provide real-time data acquisition and data processing services for the SCADA system.

SCADA Server 2: SCADA Server 2 is named as JN2. It is also used to provide real-time data acquisition and data processing services for the SCADA system.

OP1: Operator station 1 is named as OP1. The operators can use it to operate the whole barrage, gate operation and data archiving operations.

OP2: Operator station 2 is named as OP2. The operators can also use it to operate the whole barrage, gate operation and data archiving operations.

WEB: Web Server is named as WEB. It is used to convert iFIX software functionality into IE WEB mode to provide data services for the users of three remote nodes.

PLC: Programmable Logic Controller

DAP: Data acquisition panel. The DAP panel named from DAP 1 to DAP11. There is a total of 11 DAP panels installed in the field.

CCP: Data acquisition panel installed in the control centre room.

LCP: Local control panel for gate installed in the field.

GPS: Gate position sensor.

WAN: Wide Area Network in computer networking.

LAN: A local area network (LAN) is a computer network that interconnects computers within a limited area.

WLS: Water level sensor.

HTR: Historical data record.

A. HARDWARE

Sr. No.	Description / Specification	Quantity
1.	Server Machine (Branded) Intel Xeon E3-1240v2, 3.4GHZ, 8 MB Cache, 16GB Ram, Hard Drive 4TB SATA 7.2K, DVD RW, Single Power Supply 305 W Or equivalent.	1

Sign & Stamp of bidder



B. SOFTWARE

Sr. No.	Description / Specification	Quantity
2.	Antivirus: Threat Protection System (Branded) 3 years license comprising of 1 server license and 11 clients licenses. The antivirus should contain following features. Threat Prevention Stops known and unknown malware using heuristics and on-access scanning techniques. Simplifies policies and deployments with protection. Boosts performance by avoiding scans on trusted processes and prioritizing those appearing suspicious. Integrated Firewall Protects users and productivity by enforcing user-designed policies. Guards' bandwidth by blocking inbound connections and controlling outbound requests. Equips' user by informing them of trusted networks and executable(s) and risky files or connections. Web Control Reduces risk and guards compliance by warning users before they visit malicious sites. Prevents threats and protects productivity by authorizing or blocking dangerous or inappropriate websites. Stops dangerous download(s) safely by blocking then before they can be downloaded. Data Loss Protection Blocking USB Block restricted Data transfer. Centralized Management Deploy Agent and endpoint protection from Server. Distribute update from server. Assign policies from Central Server.	1
3.	Operating System (OS)(Branded) WinSvrSTDCore 2016 SNGL OLP 2Lic NL CoreLic (x8) Part no : 9EM-00124 or equivalent.	1
C. DETAIL OF SERVICES TO BE PROVIDED		
Sr. No.	Description	Quantity
4.	Establishment of secure SCADA control room plan with detailing Virtual Local Area Network (VLAN) Demilitarized Zone (DMZ) Routing Data Loss Prevention (DLP) Firewalling	Job



Sign & Stamp of bidder

	End Point Threat Protection	
5.	Patch Management Defining risk-based patching policy & procedure. Application of the latest Microsoft security patches. Ensure coverage of all layers and assets (Operating System, Database etc.)	Job
6.	System Hardening Disable unnecessary ports, services, accounts & shares. Define secure configuration standards for all asset types. Restricting the use of untrusted USB media	Job
7.	Host-based protection: Installation of antivirus software on SCADA system PCs. Keeping antivirus definition up-to-date.	Job
8.	HMI/SCADA Configuration Deployment in a DMZ architecture configuration. Install application using least privileged account. Disable or remove default accounts. Configure applications to require user authentication. Limiting of access to functions at all levels -By role: only giving to the user's access to what they really need. -By server. -By runtime / development. -By asset / device.	Job
9.	Connectivity Configuration Establishment of multiple secure VPN tunnels using router. Network configuration using various technologies i.e. VLAN, VTP, Dot1Q and routing protocols. Segregation of SCADA Network from Control / Communication Network and DMZ.	Job
10.	Establishment of separate Antivirus server from the Web Server. NAT, Access Control List and Modular Policy Inspection.	Job
11.	Implementation of DHCP Snooping, IP Source Guard, Dynamic ARP Inspection, Root Guard and BPDU Guard.	Job



Sign & Stamp of bidder

BIDDER INFORMATION

Name of Firm/Company

Complete Postal Address

Phone

Contact Person

Designation

Cell Number

E-Mail

Fax Number

National Tax Number

GST Number



Sign & Stamp of bidder

**SCADA & ELECTRO MECHANICAL WORKS
IRRIGATION DEPARTMENT, GOVERNMENT OF PUNJAB**



**BIDDING DOCUMENT
For
Upgradation of Cyber Security of SCADA System at Jinnah
Barrage, Mianwali
(Financial Bid)**

**(Note: Procurement is done by SCADA & Electro Mechanical Works,
Irrigation Department in line with PPRA Rules 2014)**

Tender # SCADA/2017-18/02

Date of Submission / opening of financial proposals:

Receipt of Tenders: 24/04/2018 till 12:00 PM

Opening of Tenders: The financial proposals of bidders meeting the technical specifications shall be opened publicly at a time, date and venue announced and communicated to the firms/bidders in advance at

Conference Room, PMO for Punjab Barrages,
Irrigation Department, Government of the Punjab,
Canal Bank, Mustafa'abad, Lahore.



Sign & Stamp of bidder

Financial Bid

FINANCIAL PROPOSAL PERFORMA* (ONLY FILL THIS PERFORMA)							
Sr.No	Item	Cost in PKR	GST	PST	Any other tax/ charge	Quantity	Total cost (PKR)
1.	Server Machine (Branded) Intel Xeon E3-1240v2, 3.4GHZ, 8 MB Cache, 16GB Ram, Hard Drive 4TB SATA 7.2K, DVD RW, Single Power Supply 305 W Or equivalent.					1	
2.	Antivirus: Threat Protection System (Branded) 3 years license comprising of 1 server license and 11 clients licenses.					1	
3.	Operating System (OS)(Branded) WinSvrSTDCore 2016 SNGL OLP 2Lic NL CoreLic (x8) Part no : 9EM-00124 or equivalent.					1	
4.	Establishment of secure SCADA control room plan with detailing Virtual Local Area Network (VLAN) Demilitarized Zone (DMZ) Routing Data Loss Prevention (DLP) Firewalling					Job	



Sign & Stamp of bidder

	End Point Threat Protection						
5.	Patch Management Defining risk-based patching policy & procedure. Application of the latest Microsoft security patches. Ensure coverage of all layers and assets (Operating System, Database etc.)					Job	
6.	System Hardening Disable unnecessary ports, services, accounts & shares. Define secure configuration standards for all asset types. Restricting the use of untrusted USB media					Job	
7.	Host-based protection Installation of antivirus software on SCADA system PCs. Keeping antivirus definition up-to-date.					Job	
8.	HMI/SCADA Configuration Deployment in a DMZ architecture configuration. Install application using least privileged account. Disable or remove default accounts. Configure applications to require user authentication. Limiting of access to functions at all levels -By role: only giving to the user's access to what					Job	



Sign & Stamp of bidder

	they really need. -By server. -By runtime / development. -By asset / device.						
9.	Connectivity Configuration Establishment of multiple secure VPN tunnels using router, Network configuration using various technologies i.e. VLAN, VTP, Dot1Q and routing protocols. Segregation of SCADA Network from Control / Communication Network and DMZ.					Job	
10.	Establishment of separate Antivirus server from the Web Server. NAT, Access Control List and Modular Policy Inspection.					Job	
11.	Implementation of DHCP Snooping, IP Source Guard, Dynamic ARP Inspection, Root Guard and BPDU Guard.					Job	

- i. *Financial bids should be all inclusive.
- ii. Financial bid will be **non-responsive** if:
 - a. Offer is ambiguous
 - b. Installation, Commissioning & Integration is not included.
 - c. Offer not according to the terms and conditions prescribed in tender document.
 - d. Quoted priced is other than Pakistan Rupees.



Sign & Stamp of bidder