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RETOURNER LES SOUMISSIONS À:

Bid Receiving Public Works and Government
Services Canada/Réception des soumissions Travaux
publics et Services gouvernementaux Canada
800 Burrard Street, Room 219
800, rue Burrard, pièce 219
Vancouver
British Columbia
V6Z 0B9
Bid Fax: (604) 775-9381

**SOLICITATION AMENDMENT
MODIFICATION DE L'INVITATION**

The referenced document is hereby revised; unless otherwise
indicated, all other terms and conditions of the Solicitation
remain the same.

Ce document est par la présente révisé; sauf indication contraire,
les modalités de l'invitation demeurent les mêmes.

Comments - Commentaires

Vendor/Firm Name and Address
Raison sociale et adresse du
fournisseur/de l'entrepreneur

Issuing Office - Bureau de distribution
Public Works and Government Services Canada - Pacific
Region
800 Burrard Street, Room 219
800, rue Burrard, pièce 219
Vancouver
British C
V6Z 0B9

Title - Sujet EGD East End Extension & Section 3	
Solicitation No. - N° de l'invitation EZ108-211059/A	Amendment No. - N° modif. 008
Client Reference No. - N° de référence du client	Date 2021-04-30
GETS Reference No. - N° de référence de SEAG PW-\$PWY-036-8938	
File No. - N° de dossier PWY-0-43153 (036)	CCC No./N° CCC - FMS No./N° VME
Solicitation Closes - L'invitation prend fin at - à 02:00 PM Pacific Daylight Saving Time PDT on - le 2021-05-06 Heure Avancée du Pacifique HAP	
F.O.B. - F.A.B. Plant-Usine: <input type="checkbox"/> Destination: <input checked="" type="checkbox"/> Other-Autre: <input type="checkbox"/>	
Address Enquiries to: - Adresser toutes questions à: Martin (PWY), Delia	Buyer Id - Id de l'acheteur pwy036
Telephone No. - N° de téléphone (778) 707-2139 ()	FAX No. - N° de FAX (604) 775-6633
Destination - of Goods, Services, and Construction: Destination - des biens, services et construction: PWGSC – Esquimalt Graving Dock – Victoria, BC	

Instructions: See Herein

Instructions: Voir aux présentes

Delivery Required - Livraison exigée	Delivery Offered - Livraison proposée
Vendor/Firm Name and Address Raison sociale et adresse du fournisseur/de l'entrepreneur	
Telephone No. - N° de téléphone Facsimile No. - N° de télécopieur	
Name and title of person authorized to sign on behalf of Vendor/Firm (type or print) Nom et titre de la personne autorisée à signer au nom du fournisseur/ de l'entrepreneur (taper ou écrire en caractères d'imprimerie)	
Signature	Date

Solicitation No. - N° de l'invitation
EZ108-211059

Amd. No. - N° de la modif.
008

Buyer ID - Id de l'acheteur
PWY036

Client Ref. No. - N° de réf. du client
R.096320.002

File No. - N° du dossier

CCC No./N° CCC - FMS No./N° VME

This Amendment #008 is raised to issue Addendum #6.

Please find Addendum #6 attached.

All other terms and conditions remain unchanged.

Addendum 6: The following changes/clarifications in the tender documents are effective immediately. This addendum will form part of the contract documents.

Revisions to Specifications

1. Specification Index:
Division 26, Add Section 26 29 23.02 – Power Systems SCADA (9 pages)

Appendix F – Reference Drawings, Add:
North Landing Wharf Substation Replacement, Drawing #6480 Security, Fire Alarm, Communications, and SCADA Details (1 Sheet).
2. Division 26:
Add Section 26 29 23.02 – Power Systems SCADA – Issued for Tender – Addendum 6 (attached).
3. Appendix:
Add the following drawing (attached):
North Landing Wharf Substation Replacement, Drawing #6480 Security, Fire Alarm, Communications, and SCADA Details

Revisions to Drawings

1. Revise drawing S108 items list note 8 Action to read **“REMOVE AND STORE FOR REINSTATEMENT”**
2. Revise drawing S400:
Detail 3/S400, delete 6mm fillet weld and replace with bolted connection.

Questions and Clarifications

Question 1:

On south side of existing dock, there is about 13m long trench drain to be replaced on Drawing # C004. Could you provide the type and size of trench drain?

Answer 1:

See Revisions to drawings item 1 above, this is a reinstatement of the existing trench drain.

Question 2:

I have been trying to get information in regards to the Addendum 3 question and answer # 4. I have had no response to this one from anyone at phone # given. Can you please provide another name and # for this question.

Answer 2:

See Revisions to Specifications item 2 above and Add Section 26 29 23.02 – Power Systems SCADA attached.

Question 3:

All bridge components are required to be galvanized. The bridge deck is larger and heavier than any galvanizing plant in Western Canada. Making the deck in smaller components will compromise the coating system. Is there an alternate system or will PWGS consider spray galvanizing? If spray galvanizing is acceptable, please provide coating thickness and if sealer is required.

Answer 3:

Bidders should allow for one (1) longitudinal and one (1) transverse bolted splice in the deck to facilitate galvanizing.

END OF ADDENDUM 6

Part 1 General

1.1 REFERENCES

- .1 Canadian Standards Association (CSA International).
 - .1 CSA C22.2 No.14-10, Industrial Control Equipment.
 - .2 CAN3-C17- latest edition, Alternating - Current Electricity Metering.
- .2 National Electrical Manufacturers Association (NEMA)
 - .1 NEMA ICS 1-2000(R2008), Industrial Control and Systems: General Requirements.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets and include product characteristics, performance criteria, physical size, finish and limitations.
- .3 Shop Drawings:
 - .1 System riser/block diagram including all hardware, communications links, gateways, converters and computers.
 - .2 Software packages, including license certificates/quantities. List all applications to be installed on all computers and servers.
 - .3 Samples of all HMI screens to be developed as well as those that are to be replicated.
 - .4 Proposed points list for software level integration to existing and proposed devices included in this contract.
 - .5 Proposed points list for alarming, trending and alerts.

1.3 QUALITY ASSURANCE

- .1 Conduct tests in accordance with Section 26 05 00 - Common Work Results for Electrical.

1.4 CLOSEOUT SUBMITTALS

- .1 Submit in accordance with Section 01 78 00 - Submittal Procedures.
- .2 Operation and Maintenance Data: submit operation and maintenance data for incorporation into manual.

1.5 DELIVERY, STORAGE AND HANDLING

- .1 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.

- .2 Storage and Handling Requirements:
 - .1 Store materials indoors and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Store and protect from nicks, scratches, and blemishes.
 - .3 Replace defective or damaged materials with new.

1.6 SCOPE OF WORK

- .1 The scope of work for this project includes new equipment and modifications to the existing SCADA system and includes but is not limited to the following:
 - .1 Installation, configuration, integration, and programming of all new devices indicated in these documents.
 - .2 Modifications to existing SCADA programming, HMI screens, control logic, trending and alarming to support to control schemes noted in these documents including but not limited to: load shed/restore, remote operations, trending, recording, automated usage summaries, etc.
 - .3 Removal, decommissioning and associated modifications to the SCADA system for devices noted to be removed in these documents.
- .2 This SCADA system is customized and one of a kind. Extensive custom programming, frameworks, logic and integration has been performed. Any assumptions regarding the level of integration, programming, or programming in place to support future implementation is at the risk of this contractor. Where modifications to existing logical functions are indicated (load shed/restore, for example) the contractor shall assume that they will be responsible for all programming of this function to the level of operations noted in these documents. Any claims for additional costs based on assumptions of the existing SCADA or metering programming will be dismissed.

1.7 QUALIFICATIONS

- .1 The SCADA programmer/integrator shall be fully versed in the programming, maintenance, deployment and operation of the Schneider Powerlogic SCADA system in operation at EGD. The existing system uses StruxureWare Power SCADA Expert and Power Monitoring Expert. **Only contractors/integrators who are accredited under the Schneider Electric system integrator program and registered under the "Power Solution EcoXpert Label" shall be permitted to work on this SCADA system.** No alternative arrangements will be accepted regarding this qualification.

Part 2 Products

2.1 GENERAL SYSTEM DESCRIPTION

- .1 The Power System SCADA (PSS) is a modification of the existing hardware and software of the system currently installed at the EGD Substations.
- .2 Provide new graphical interface screens to summarize system status, and detection for new connected devices.
- .3 Provide new graphical interface screens for each new control device, including a mimic of the front panel display, readout of all alarms, faults and real-time power data from the device. Operators will be able to remotely reset and control device from this screen.
- .4 The existing system has extensive custom programming currently in use for alarming, energy monitoring, revenue billing and trending. Refer also to drawings for layout of existing system components, including devices that are to remain in operation. It is the responsibility of the contractor to ensure that all existing functionality is brought forward and replicated with relocated or replaced devices.
- .5 Existing PSS System Arrangement
 - .1 The system consists of dual servers, complete with fully redundant RAID storage arrays. One of these servers is located at the PHS control room, the other at the SES control room. These servers are configured such that in the event of a server failure, complete control will be brought up on the second server. The database for all historical logging and operational logic will be synchronized at both locations.
 - .2 The digital power meters located in the field will not only monitor standard energy, power quality and breaker status functions, but will also have remote and automated control authority for opening and closing circuit breakers to which they are connected.
 - .3 Monitoring of electrically related parameters, including transformer winding temperature and electrical room temperatures will be input into digital meters for trending and alarming.
 - .4 The PSS provides automated functionality for control of circuit breakers for load control, power factor, priority loading, etc under certain conditions. These automated functions may not be enabled at the conclusion of this project but must be programmed and fully demonstrated in operation.
 - .5 The PSS is largely Ethernet based, using direct copper Cat 6 STP (shielded twisted pair) cabling to new devices. New and existing optical fiber cabling will be used to tie into existing equipment on the site, as well as linking in between SES and NS.
 - .6 The PSS includes direct connection to protection relays, motor protection and control devices, and other systems from which information will be read using Ethernet based protocols.

This data includes real-time power measurements, as well as alarm data, and general data that will be used for trending. All devices integrate tightly using native protocols and programming languages.

2.2 PSS – SOFTWARE

.1 General

- .1 The Software shall be a modification to the existing web-enabled monitoring system intended to monitor an entire electrical distribution infrastructure, from incoming utility feeds down to low voltage distribution points as well as interfacing with additional automation and control functions.
- .2 The software shall be a standard product based on a successful, proven software platform.

Key features shall include:

- .3 Data acquisition for metering devices, sensors, and other intelligent electronic devices.
 - .1 Power Quality analysis (including harmonics, and voltage and current sinusoids).
 - .2 Graphical displays of information.
 - .3 Reporting tools with standard reports.
 - .4 Automated (and manually activated) revenue metering reports for electrical energy and water.
 - .5 Interactive historical data analysis.
 - .6 Load monitoring and control.
 - .7 Third Party Device Integration through Modbus RTU and Modbus TCP protocols.
 - .8 Support real-time data display and control actions for multiple users for applications such as sub-metering, load monitoring / shedding, real-time pricing and generator control.
 - .9 Expansion of system through distributed IO servers.

.2 Performance

- .1 The PSS shall provide communications, view screen and event performance according to the specifications in this section.

.2 Real-Time

.1 Communications

Response Time

The response time of devices in the PSS will be less than or equal to the values below:

Ethernet Device: 0.5 seconds

Serial Device: 1 second

.2 Screens

Update Rate

The update rate of any screen in the system shall be less than or equal to the values below:

Update Rate: 5 seconds

Initial Load Time

The update rate of any screen in the system shall be less than or equal to the values below:

Load Time: 5 seconds

Alarming

Alarm Processing Time

The Alarm Processing Time system shall be less than or equal to the values below:

Load Time: 5 seconds

Alarm Notification Time

The Alarm Notification Time system shall be less than or equal to the values below:

Load Time: 10 seconds

.3 Effect of Off-Line Devices

.1 If any device on a serial loop goes off-line for any reason it shall not have any effect on the communications performance of any of the other devices on the same loop.

.4 Events

.1 Data Logs

.1 The Data Log Retrieval Time from any device shall be less than one minute.

.3 Software Components

.1 General

.1 Software shall expand on existing Powerlogic SCADA and datalogging software, including all required additional licensing and drivers required.

2.3

PSS SYSTEM – PROGRAM AND OPERATIONS

2.4

.1 General Description

.1 The PSS is a tightly integrated SCADA and automation system that collects information, provides alarming, trending and data analysis while also provide specific automatic and remote control of power system equipment.

.2 The PSS will integrate at a software level using ModBUS or similar protocols over Ethernet into PLC (Programmable Logic Controllers), RID (Remote Input Device) and all existing equipment noted in the drawings.

.3 Consistency of GUI between the existing system and the new PSS is important to ensure continuity of operations at the facility as the system is viewed or used by both electrical and non-electrical personnel.

- .4 The existing system has many custom programming elements providing revenue metering, custom alarms, and trending. These must not be impacted by modifications to the PSS.

Part 3 EXECUTION

3.1 INSTALLATION

- .1 Existing System
 - .1 Existing RS485 water meter data loop in the tunnel shall be intercepted and rerouted to existing media converters in North and South Side Substation SCADA cabinets.
 - .2 New contact alarms for both the temporary and permanent sump pump control panels located in the new North Tunnel access stairwell. Digital Contract to Modbus converter cards will be required in the North Substation that are compatible with the existing SCADA communication protocols.
 - .3 Existing SCADA HMI screen graphics will need to be updated to display the additional alarms and to accommodate revised RS485 I/O as the data loop as been modified.
 - .4 Review and thoroughly understand all existing programmed logic and installed hardware of the existing digital metering system, including inputs/outputs that are to be relocated to the automation system or that shall be read using software protocols.
 - .5 All existing functionality will remain in place after any modifications to the PSS. Any modifications to existing equipment, cabling or infrastructure to support the revised system architecture, communications or software requirements is the responsibility of the contractor.
 - .6 Upon successful demonstration of the modified PSS, all equipment made obsolete and noted for removal in these drawings shall be removed. All digital metering equipment shall be carefully removed and handed over to the Departmental Representative in the current operational state that it was in, prior to removal. Any equipment determined to be surplus, as decided by the Departmental Representative, shall be disposed of by this contractor.
- .2 New PSS
 - .1 Install, test and fully commission all communications cabling to appropriate EIA/TIA Category 6 STP standards prior to connecting to equipment. All communications equipment shall be fully tested and deemed acceptable by manufacturer's representative prior to connecting to PSS.
 - .2 All Digital Meters and other devices communicating via Ethernet or serial communications shall be configured to use a protocol or language native to both the field devices and the PSS software. Intermediate protocol or language convertors will not be accepted.
 - .3 All PSS communications equipment shall be grouped together and mounted in the Communications closet co-located at each substation.

This equipment shall be arranged to be as compact as possible while not reducing access for maintenance, inspections or additions. Connect to a dedicated UPS circuit.

- .4 All PSS server equipment will be located in the control room co-located at each substation. The server will be located free of exposure to physical, environmental or electrical damage. Connect to dedicated UPS circuit.

- .5 PSS vendor/integrator/contractor shall provide all required time as need to fully commission, program, test and demonstrate the complete PSS system to the satisfaction of the Departmental Representative. This work phase shall be undertaken early enough such that unexpected delays do not hinder or delay to completion of the project to the schedule provided. Deployment of additional forces by the aforementioned parties to complete this project in a timely fashion is expected.

3.2 FIELD QUALITY CONTROL

- .1 Perform tests in accordance with Section 26 05 00 - Common Work Results for Electrical.
- .2 Depending upon magnitude and complexity, divide control system into convenient sections, energize one section at time and check out operation of section.
- .3 Upon completion of sectional test, undertake group testing.
- .4 Check out complete system for operational sequencing.

3.3 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
 - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

3.4 DEMONSTRATION AND TRAINING

- .1 The vendor of the PSS software and integrator shall provide a complete and thorough demonstration of all functionality of the PSS, including simulated alarms, trending, viewing of data, fault finding, waveform capture, sequence of operations, remote equipment operation and navigation around the PSS software.
- .2 The **demonstration** will be conducted twice, with approximately six attendees in each session. Documentation and operational guides shall be provided to all attendees.
- .3 Four **training** sessions shall be provide for four attendees per group. This training would be performed on site, on the actual equipment being operated on, or in meeting room facilities at the site. These sessions, with a duration of approximately 1 hour, upon completion would provide training to give confidence in the operators with regards to the following tasks:
 - .1 Viewing of data.
 - .2 Viewing and acknowledging alarms.
 - .3 Output data/waveforms/alarms to hardcopy or pdf format for export.
 - .4 Navigation around all standard and custom GUI screens.
 - .5 Viewing data in protection devices, including fault information and waveform captures.

- .6 Basic data manipulation related to trend data (max, min, plotting graphs, etc.).
- .7 Use of manual and automatic revenue report generation.
- .8 Discussion of basic troubleshooting for normal issues or problems.
- .9 Overview of actual installed hardware and software systems, including specification communications topologies and unique operational arrangements.

END OF SECTION

