Northern Maine Community College
Process Control Trainer (PCT) Upgrade Project
Request for Proposals

Northern Maine Community College is currently seeking proposals from qualified firms to assist in the upgrade of the existing Process Control Trainer (PCT).

The existing Process Control Trainer is an industrial control system consisting of process equipment and instrumentation connected to a Programmable Logic Controller (PLC) and monitored by a Supervisory Control and Data Acquisition (SCADA) system. The PCT is used to train operators about the control systems used to operate water/wastewater collection, treatment and distribution facilities. The proposed upgrade will update the PCT equipment, programs and documentation to be more consistent to current control system technologies.

The current PCT uses an Allen Bradley PLC-5 processor for control and is programmed using RSLogix5 programming software. The existing PLC program is fairly well annotated and is available for review (See Attachment B). The main PLC rack is located on a wall in the EC&M lab on the other side of the PCT room. This rack contains the processor and the communication interface modules. The processor communicates using a Remote I/O network to another control panel located in the WPT lab which contains the Input/Output (IO) modules. The PLC-5 processor communicates using Allen Bradley DH+ protocol with a KPTX card installed in the main SCADA workstation. There are two other PLCs on the DH+ network which are used to demonstrate a multiple concurrent network structure typically found in industrial facilities.

The existing SCADA workstation uses Allen Bradley RSView32 software version 7.50.00 to monitor and control the functions of the PLCs. This workstation also communicates using an Ethernet network with eight other Windows 7 view nodes workstations running Allen Bradley FactoryTalk View SE application.

The existing documentation provides accurate system information. However, since it was developed by a variety of individuals experiment with various drawing styles it does not have a consistent look and feel. It also does not present the information in a format similar to what is found in the current water/wastewater industry. In 2014, the drawing files were converted from the old TurboCAD .dxf files to the AutoCAD version 2014 dwg format. Both sets of drawings will be available electronically.

Scope of Services

Work to be included:
1. Convert the existing PLC-5 program to a Control Logix program using Studio5000.

- o Develop a tag naming convention and convert existing tags to descriptive tags with input and approval from NMCC.
- o Map existing remote I/O connections to appropriate tags and establish communications with existing remote IO adaptors and IO racks.
- o Structure the PLC program code organized by Tasks, Programs and Routines with input and approval by NMCC.

2. Programming will consist of ladder logic only.
3. Configure Ethernet and RIO communications adapters and communication routing and fully test communications.
4. Convert the existing RSView 32 SCADA application to the newest version of FactoryTalk View SE.
   - o The conversion will include the SCADA software, database, graphics, drivers and historian.
   - o The existing SCADA graphics and functionality will be used as a basis for the conversion.
   - o The SCADA software on the existing SCADA workstation and eight (8) view nodes will be updated.
5. Use the SCADA application to develop screens for the Panelview Plus OIT.
6. Fully test all monitoring and control function in the PLC, SCADA and OIT with the assistance of NMCC.
7. Develop control system documentation:
   - o Develop S5.1 or equivalent point to point terminal drawings showing the connection of each IO to the field devices including but not limited to terminals, wiring numbers, wire color, intermediate junction boxes.
   - o Develop Control Panel Drawings of the Main Control Panel and the Remote IO Control Panel including panels internal and external layout drawings, IO rack layout and internal wiring schematics.
   - o Control system documentation will be developed in AUTOCAD 2018 or newer version using the existing Autocad 2014 files as a basis.
8. Provide up to five (5) additional days of PLC, OIT and SCADA programming to be used to provide enhanced control functionality not currently available in the existing PLC and SCADA programs. Enhanced control functionality will be determined in a meeting between NMCC and the successful bidder. This work will be provided after the existing control system has been converted and fully tested. NMCC may choose to use none, some or all the identified days of additional programming. Cost of unused days will be subtracted from the Total Project Cost. Enhanced control functionality may include additional:
   - o Historical Trends
   - o Historian Data Export
   - o PID Faceplate
   - o Security

- o Updated SCADA Graphics
- o Remote Access
- o Improved Alarm Management

The following work will be performed by NMCC:

- Provide all hardware and electrical work.
- Replace the existing PLC-5 with a new Allen Bradley Control Logix 1756-L71 processor, 1756-DH/RIO bridge and Ethernet communications module. All hardware, physical equipment mounting, and electrical connections will be completed by NMCC.
- Furnish and install a new 10" Allen Bradley PanelView Plus touch screen Operator Interface Terminal mounted onto the existing Remote I/O panel door.
- Modify the cabling of the existing industrial networks.
- Furnish all current programs and for the existing PLCs, SCADA workstation and drawing files.
- Make available licensed versions of Studio 5000 and Factory Talk SE for programing the new PLC OIT and SCADA Workstation.
- Provide drivers required for communication.
- Assist with testing each PLC, OIT and SCADA control function.

Additional Information:

- The Work will not include updating the PLC programming in the two remaining PLCs.
- The DH+ network will be discontinued and the SCADA Workstation, view nodes, the OIT and PLC will be connected using Ethernet.

Project Schedule

The work will begin on or after February 1, 2020 and must be completed by April 1, 2020.

An optional Pre Bid video conference meeting will be held at 1pm, Wednesday, December 4, 2019.

Proposals will be reviewed and one vendor will be made using the following criteria:

Factor	Weight
Qualifications and relevant experience of the individual(s) who will perform the work	15%
Bidder's understanding of the critical issues and needs associated with the upgrade	15%
Availability and capacity of the bidder to perform the services required	15%
References given for similar projects	5%
The cost of the services proposed	50%

The College reserves the right to negotiate with that vendor whose proposal is deemed to best meet the College's specifications and needs.

All proposals shall remain firm for sixty (60) calendar days after receipt of the proposals. The evaluation of proposals and determination of the award will be at the discretion of the NMCC.

Proposal Requirements

1. Qualifications:
   - The Proposer shall include a brief qualifications statement and resume for all pertinent team members as well as describing relevant experience. Provide a list of references for three similar programming projects related to water and wastewater treatment facilities located in New England.
2. Project Understanding:
   - Provide a summary of your understanding of the goals and scope of work for the project including identifying any key issues.
3. Cost
   - Total proposed cost shall be clearly marked, with a detailed breakdown of services/features of the proposed solution.
4. Proof of Insurance

Questions:
All questions related to this request for proposals should be directed by email to jeclark@nmcc.edu. The subject of the e-mail should clearly state "Questions: Process Control Trainers." Deadline for questions is 4:00 pm December 11, 2019. Questions and responses will be posted at our website: http://www.nmcc.edu/about-nmcc/news-info/rfps/. It is the College's intent to respond to all questions within 2 business days. It will be the vendors' responsibility to check this site for updates.

Project Time Table:

Date & Time	Event
November 25, 2019	RFP Online
December 4, 2019 at 1pm	Pre-Bid Meeting
December 11, 2019	Deadline for questions
December 17, 2019 at 2pm	**Bid Deadline**
January 3, 2020	Estimated Award Notification
February 1, 2020	Work begins
April 1, 2020	Completion Deadline

Bids are due back to the college no later than December 17, 2019 at 2:00pm, clearly marked "**Process Control Trainer RFP**". If you have any concerns regarding this RFP please direct them to Julie Edgecomb-Clark at (207) 768-2714. Bids can be e-mailed to jeclark@nmcc.edu, or sent to:

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Northern Maine Community College
Julie Edgecomb-Clark – **Process Control Trainer RFP**
33 Edgemont Drive
Presque Isle, ME 04769

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Attachments:

Attachment A:	MCCS Notice to Vendors and Bidders
Attachment B:	Existing PLC-5 Program
Attachment C:	Existing SCADA screenshots
Attachment D:	Existing Drawings:
	D.1 – Analog Loops
	D.2 – PLC Panel
	D.3 – Power Distribution Panel
	D.4 – System Drawings

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This RFP shall be referenced in, and considered part of, any final contract.
The college reserves the right to reject any or all bids.
Please see attached Notice to Bidders.

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The following standard contracting terms and conditions are incorporated and shall become a part of any final contract that will be awarded by any college or other operating unit of the Maine Community College System (collectively "MCCS"). These terms and conditions derive from the public nature and limited resources of the MCCS. MCCS DOES NOT AGREE TO:

1. Provide any defense, hold harmless or indemnity;
2. Waive any statutory or constitutional immunity;
3. Apply the law of a state other than Maine;
4. Procure types or amounts of insurance beyond those MCCS already maintains or waive any rights of subrogation;
5. Add any entity as an additional insured to MCCS policies of insurance;
6. Pay attorneys' fees, costs, expenses or liquidated damages;
7. Promise confidentiality in a manner contrary to Maine's Freedom of Access Act;
8. Permit an entity to change unilaterally any term or condition once the contract is signed; and
9. Automatic renewals for term(s) greater than month-to-month.

By submitting a response to a Request for Proposal, bid or other offer to do business with MCCS, YOUR ENTITY UNDERSTANDS AND AGREES THAT:

1. The above standard terms and conditions are thereby incorporated into any agreement entered into between MCCS and your entity; that such terms and condition shall control in the event of any conflict with such agreement; and that your entity will not propose or demand any contrary terms;
2. The above standard terms and conditions will govern the interpretation of such agreement notwithstanding the expression of any other term and/or condition to the contrary;
3. Your entity will not propose to any college or other operating unit of the MCCS any contractual documents of any kind that are not in at least 11-point font and completely contained in one Word or PDF document, and that any references to terms and conditions, privacy policies or any other conditions referenced outside of the contract will not apply; and
4. Your entity will identify at the time of submission which, if any, portion or your submitted materials are entitled to "trade secret" exemption from disclosure under Maine's Freedom of Access Act; that failure to so identify will authorize MCCS to conclude that no portions are so exempt; and that your entity will defend, indemnify and hold harmless MCCS in

any and all legal actions that seek to compel MCCS to disclose under Maine's Freedom of Access Act some or all of your submitted materials and/or contract, if any, executed between MCCS and your entity.

This RFP shall be referenced in, and considered part of, any final contract.