



Working Together for a  
Better Tomorrow. Today.

## **SPECIFICATION PACKAGE**

for

## **CONTROL PERFORMANCE SOFTWARE AND SERVICES**

**Bid Opening Date/Time**

Thursday, January 16, 2014 @ 2:00 p.m. (local time)  
City of Grand Island, City Hall  
100 East 1<sup>st</sup> Street, P.O. Box 1968  
Grand Island, NE 68802-1968

**Contact**

City of Grand Island – Utilities Department  
Platte Generating Station  
Lynn Mayhew, Assistant Utilities Director  
308/385-5496

Date issued: January 3, 2014

**ADVERTISEMENT TO BIDDERS  
FOR  
CONTROL PERFORMANCE SOFTWARE AND SERVICES  
FOR  
CITY OF GRAND ISLAND, NEBRASKA**

**Sealed bids will be received at the office of the City Clerk, 100 E. First Street, P.O. Box 1968, Grand Island, Nebraska 68802, until Thursday, January 16, 2014 at 2:00 p.m. local time for Control Performance Software and Services, FOB the City of Grand Island, freight prepaid. Bids will be publicly opened at this time in the Grand Island City Hall Council Conference Room #1 located on 1<sup>st</sup> floor of City Hall. Submit an original and three copies. Bid proposal package and any Addendas are also available on-line at [www.grand-island.com](http://www.grand-island.com) under Business-Bid Calendars. Bids received after the specified time will be returned unopened to sender.**

The successful bidder will be required to comply with fair labor standards as required by Nebraska R.R.S.73-102 and comply with Nebraska R.R.S. 48-657 pertaining to contributions to the Unemployment Compensation Fund of the State of Nebraska. Successful bidder shall maintain a drug free workplace policy. Every public contractor and his, her or its subcontractors who are awarded a contract by the City for the physical performance of services within the State of Nebraska shall register with and use a federal immigration verification system to determine the work eligibility status of new employees physically performing services within the State of Nebraska.

Each bidder shall submit with the bid a certified check, a cashiers check, or bid bond payable to the City Treasurer in an amount no less than five percent (5%) of the bid price which shall guarantee good faith on the part of the bidder and the entering into a contract within fifteen (15) days at the bid price if accepted by the City. **Your certified check, cashier's check or bid bond must be submitted in a separate envelope attached to the outside of the envelope containing the bid. Each envelope must be clearly marked indicating its contents. Failure to submit the necessary qualifying information and correct number of copies in clearly marked and separate envelopes will result in your bid not being opened or considered.** Only surety companies authorized to do business in the State of Nebraska may issue bid bonds.

Bids will be evaluated by the Purchaser based on price, schedule, quality, adherence to schedule, plan and specifications, economy and efficiency of operation, experience and reputation of the bidder, ability, capacity, and skill of the bidder to perform contract required and adaptability of the particular items to the specific use intended.

The Purchaser reserves the right to reject any or all bids, to waive irregularities therein, and to accept whichever bid that may be in the best interest of the City, at its sole discretion.

No bidder may withdraw his/her bid for a period of thirty (30) days after date of bid opening.

RaNae Edwards, City Clerk

Advertised  
Grand Island Independent

**CHECKLIST FOR BID SUBMISSION**

**FOR**

**CONTROL PERFORMANCE SOFTWARE AND SERVICES**

**Bids must be received by the City Clerk before 2:00 p.m. on Thursday, January 16, 2014.**

The following items must be completed for your bid to be considered.

- A signed original and three (3) copies of the bidding documents. Failure to submit the correct number of copies will result in your bid not being considered.
- A reference list of at least three projects installed on power generation facilities in the United States.
- A summary of the experience of the service supervisor proposed for this project.
- Firm lump sum pricing; firm unit pricing in case adjustments are necessary, and breakout of sales tax pricing.
- A proposed construction/test schedule.
- A description of the system proposed, including equipment and hardware requirements.
- A software support agreement, listing the annual support cost, and the cost to provide loop tuning support following the first year.
- Selection of Nebraska Sales Tax Option.
- Acknowledgment of Addenda Number(s) \_\_\_\_\_.
- Bidders must complete and sign the Bid Data Form provided in these Documents. All blank spaces must be filled in. Bidders shall acknowledge receipt of any Addenda information on the Bid Data Form.
- A certified check, cashiers check or bid bond in a separate envelope attached to the **outside of the envelope containing the bid**. Each envelope must be clearly marked indicating its contents. Failure to submit the necessary qualifying information in clearly marked and separate envelopes will result in your bid not being opened.

*Please check off each item as completed.*

\_\_\_\_\_  
Company

\_\_\_\_\_  
Signature

Telephone No. \_\_\_\_\_

Fax No. \_\_\_\_\_

**CONTROL PERFORMANCE SOFTWARE AND SERVICES**  
**BID DATA FORM**

CITY OF GRAND ISLAND  
GRAND ISLAND, NE

The undersigned Bidder, having examined all specifications and other bidding documents, and all addenda thereto, and being acquainted with and fully understanding all conditions relative to the specified materials and equipment, hereby proposes to provide such equipment FOB the City of Grand Island, freight prepaid, at the following price:

<u>ITEM DESCRIPTION</u>	<u>EXTENDED COST</u>
Base Bid:	
Material	\$ _____
Labor (Installation and three weeks of service/training)	_____
Applicable Sales tax*	_____
<b>Total Base Bid</b>	<b>\$ _____</b>
Software Annual Support Cost	\$ _____
Loop Tuning Support	\$ _____ /week

**\* If bidder fails to include sales tax in their bid price or takes exception to including sales tax in their bid price, the City will add a 7.0% figure to the bid price for evaluation purposes; however, the City will only pay actual sales tax due.**

- By checking this box, Bidder acknowledges that Addenda Number(s) \_\_\_\_\_ were received and considered in Bid preparation.
- By checking this box, Bidder acknowledges the specified completion date of the project is **March 31, 2014**.

According to Nebraska Sales and Use Tax Requirements, Section 1-017, Contractors, check which option you have selected to file with the Nebraska Department of Revenue:

*Nebraska law provides a sales and use tax exemption on contractor labor charges for the construction, repair, or annexation of any structure used for the generation, transmission, or distribution of electricity. Separately stated contractor labor would be exempt, all materials are taxable according to the contractor's option.*

Option 1 (Section 1-017.05)\_\_\_\_\_ Option 2 (Section 1-017.06)\_\_\_\_\_ Option 3 (Section 1-017.07)\_\_\_\_\_

*If the Nebraska sales and use tax election is not filed or noted above, the contractor will be treated as a retailer under Option 1 for sales and use tax purposes.*

\_\_\_\_\_  
Bidder Company Name Date

\_\_\_\_\_  
Company Address City State Zip

\_\_\_\_\_  
Print Name of Person Completing Bid Signature

Telephone No. \_\_\_\_\_ Fax No. \_\_\_\_\_

By checking this box, Bidder acknowledges there are Exceptions noted to the bid.  
**NOTE: Any exceptions to specifications must be fully explained on a separate sheet attached to bid.**

## INSTRUCTIONS TO BIDDERS

### 1. GENERAL INFORMATION.

The following instructions outline the procedure for preparing and submitting Bids. Bidders must fulfill all requirements as specified in these Documents.

### 2. TYPE OF BID.

Bidders shall be required to submit prices for all items listed in the Bid Data Form.

### 3. PREPARATION OF BIDS.

Bidders shall use only the Bid Data Form provided in these Documents. All blank spaces in the Bid Data Form must be filled in, preferably in BLACK ink, in both words and figures where required. No changes to the wording or content of the forms is permitted. Written amounts shall govern in case of discrepancy between the amounts stated in writing and the amounts stated in figures.

Prices stated shall be f.o.b. with freight and full insurance paid by Bidder, to the job site located in Grand Island, Nebraska.

The Bidder shall acknowledge receipt of all Addenda in the Bid Data Form. Bids received without acknowledgement or without the Addendum enclosed will be considered informal.

### 4. SUBMISSION OF BIDS.

All Bids must be submitted intact with the correct number of copies no later than the time prescribed, at the place, and in the manner set forth in the ADVERTISEMENT FOR BIDS. Bids must be made on the Bid Data Form provided herein. Each Bid must be submitted intact in a sealed envelope, so marked as to indicate its contents without being opened, and delivered in person or addressed and mailed in conformance with the instructions in the ADVERTISEMENT FOR BIDS.

### 5. BID SECURITY.

Bids must be accompanied by cash, a certified check, or cashier's check drawn on a bank which is insured by the Federal Deposit Insurance Corporation, or a bid bond issued by a Surety authorized to issue such bonds in the state where the Work is located, in the amount of 5 percent of the bid amount payable to OWNER. This bid security shall be given as a guarantee that the Bidder will not withdraw their Bid for a period of **thirty (30) days after** bid opening, and that if awarded the Contract, the successful Bidder will execute the attached Contract and furnish a properly executed Performance Bond and Payment Bond, each in the full amount of the Contract price, within the time specified.

The Attorney-in-Fact that executes this bond on behalf of the Surety must attach a notarized copy of his/her power of attorney as evidence of his/her authority to bind the Surety on the date of execution of the bond. Where State Statute requires, certification by a resident agent shall also be provided.

### 6. RETURN OF BID SECURITY.

Within fifteen (15) days after the award of the Contract, the OWNER will return the bid securities to all Bidders whose Bids are not to be further considered in awarding the Contract. All other retained bid securities will be held until the Contract has been finally executed, after which all bid securities, other than Bidders' bonds and guarantees which have been fortified, will be returned to the respective Bidders whose Bids they accompanied.

### 7. BASIS OF AWARD.

The award will be made by the OWNER on the basis of the Bid from the lowest responsive, responsible Bidder which, in the OWNER's sole and absolute judgment will best serve the interest of the OWNER. All Bids will be considered on the following basis:

Conformance with the terms of the Bid Documents.

Bid price.  
Cost of installation.

Suitability to project requirements.  
Delivery time.

Responsibility and qualification of Bidder.

The OWNER reserves the right to reject all Bids, or any Bid not in conformance with the intent of the Bid Documents, and to waive any informalities and irregularities in said Bids.

#### 8. EXECUTION OF CONTRACT.

The successful Bidder shall, within fifteen (15) days after receiving notice of award, sign and deliver to the OWNER the Contract hereto attached together with the acceptable bonds as required in these Bid Documents. Within fifteen (15) days after receiving the signed Contract with acceptable bond(s) from the successful Bidder, the OWNER's authorized agent will sign the Contract. Signature by both parties constitutes execution of the Contract.

#### 9. PERFORMANCE AND PAYMENT BONDS.

The successful Bidder shall file with the OWNER Performance and Payment Bonds in the full amount (100 percent) of the Contract price, as security for the faithful performance of the Contract and the payment of all persons supplying labor and materials for the Work under this Contract, and to cover all guarantees against defective workmanship or materials, or both, for a period of one (1) year after the date of final acceptance of the Work by the OWNER. The Surety furnishing these bonds shall have a record of service satisfactory to the OWNER, be authorized to do business in the State where the OWNER's project is located and shall be named on the current list of approved Surety Companies, acceptable on Federal bonds as published by the Audit Staff, Bureau of Accounts, U.S. Treasury Department.

The Attorney-in-Fact (Resident Agent) who executes these bonds on behalf of the Surety must attach a notarized copy of his/her power-of-attorney as evidence of his/her authority to bind the Surety on the date of execution of the bond.

#### 10. TIME OF COMPLETION.

The time of completion of the Work to be performed under this Contract is the essence of the Contract. The time allowed for the completion of the Work is stated in the Bid Data Form.

#### 11. GRATUITIES AND KICKBACKS.

City Code states that it is unethical for any person to offer, give, or agree to give any City employee or former City employee, or for any City employee or former City employee to solicit, demand, accept, or agree to accept from another person, a gratuity or an offer of employment in connection with any decision, approval, disapproval, recommendation, or preparation of any part of a program requirement or a purchase request, influencing the content of any specification or procurement standard, rendering of advice, investigation, auditing, or in any other advisory capacity in any proceeding or application, request for ruling, determination, claim or controversy, or other particular matter, pertaining to any program requirement or a contract or subcontract, or to any solicitation or proposal therefor. It shall be unethical for any payment, gratuity, or offer of employment to be made by or on behalf of a subcontractor under a contract to the prime contractor or higher tier subcontractor or any person associated therewith, as an inducement for the award of a subcontract or order.

#### 12. FISCAL YEAR.

The City of Grand Island, Nebraska operates on a fiscal year beginning October 1st and ending on the following September 30th. It is understood and agreed that any portion of this agreement which will be performed in a future fiscal year is contingent upon the City Council adopting budget statements and appropriations sufficient to fund such performance.

## CONTRACT AGREEMENT

THIS AGREEMENT made and entered into by and between **[SUCCESSFUL BIDDER]**, hereinafter called the Contractor, and the **CITY OF GRAND ISLAND, NEBRASKA**, hereinafter called the City.

WITNESSETH:

THAT, WHEREAS, in accordance with law, the City has caused contract documents to be prepared and an advertisement calling for bids to be published for *CONTROL PERFORMANCE SOFTWARE AND SERVICES*; and

WHEREAS, the City, in the manner prescribed by law, has publicly opened, examined, and canvassed the bids submitted, and has determined the aforesaid Contractor to be the lowest responsive and responsible bidder, and has duly awarded to said Contractor a contract therefore, for the sum or sums named in the Contractor's bid, a copy thereof being attached to and made a part of this Contract;

NOW, THEREFORE, in consideration of the compensation to be paid to the Contractor and of the mutual agreements herein contained, the parties have agreed and hereby agree, the City for itself and its successors, and the Contractor for itself, himself/herself, or themselves, and its, his/her, or their successors, as follows:

ARTICLE I. That the following documents shall comprise the Contract, and shall together be referred to as the "Agreement" or the "Contract Documents";

1. This Contract Agreement.
2. City of Grand Island's Specification for this project.
3. **[NAME OF SUCCESSFUL BIDDER]** bid signed and dated **[DATE OF BID]**.

In the event of any conflict between the terms of the Contract Documents, the provisions of the document first listed shall prevail.

ARTICLE II. That the Contractor shall (a) furnish all tools, equipment, superintendence, transportation, and other construction materials, services and facilities; (b) furnish, as agent for the City, all materials, supplies and equipment specified and required to be incorporated in and form a permanent part of the completed work; (c) provide and perform all necessary labor; and (d) in a good substantial and workmanlike manner and in accordance with the requirements, stipulations, provisions, and conditions of the Contract documents as listed in the attached General Specifications, said documents forming the Contract and being as fully a part thereof as if repeated verbatim herein, perform, execute, construct and complete all work included in and covered by the City's official award of this Contract to the said Contractor, such award being based on the acceptance by the City of the Contractor's bid;

ARTICLE III. That the City shall pay to the Contractor for the performance of the work embraced in this Contract and the Contractor will accept as full compensation therefore the sum (subject to adjustment as provided by the Contract) of **[DOLLAR AMOUNT] (\$00.00)** for all services, materials, and work covered by and included in the Contract award and designated in the foregoing Article II; payments thereof to be made in cash or its equivalent in the manner provided in the General Specifications.

The total cost of the Contract includes:

Base Bid:	\$ .00
Sales Tax on Materials/Equipment:	\$ .00
Sales Tax on Labor:	<u>\$ .00</u>
Total	\$ .00

The City of Grand Island, Nebraska operates on a fiscal year beginning October 1st and ending on the following September 30th. It is understood and agreed that any portion of this agreement which will be performed in a future fiscal year is contingent upon the City Council adopting budget statements and appropriations sufficient to fund such performance.

ARTICLE IV. The Contractor hereby agrees to act as agent for the City in purchasing materials and supplies for the City for this project. The City shall be obligated to the vendor of the materials and supplies for the purchase price, but the Contractor shall handle all payments hereunder on behalf of the City. The vendor shall make demand or claim for payment of the purchase price from the City by submitting an invoice to the Contractor. Title to all materials and supplies purchased hereunder shall vest in the City directly from the vendor. Regardless of the method of payment, title shall vest immediately in the City. The Contractor shall not acquire title to any materials and supplies incorporated into the project. All invoices shall bear the Contractor's name as agent for the City. This paragraph will apply only to these materials and supplies actually incorporated into and becoming a part of the finished product of the CONTROL PERFORMANCE SOFTWARE AND SERVICES.

ARTICLE V. That the Contractor shall start work as soon as possible after the Contract is signed and the required bonds and insurance are approved, and that the Contractor shall deliver the equipment, tools, supplies, and materials F.O.B. Platte Generating Station, and complete the work on or before **March 31, 2014**.

ARTICLE VI. The Contractor agrees to comply with all applicable State fair labor standards in the execution of this Contract as required by Section 73-102, R.R.S. 1943. The Contractor further agrees to comply with the provisions of Section 48-657, R.R.S. 1943, pertaining to contributions to the Unemployment Compensation Fund of the State of Nebraska. During the performance of this Contract, the Contractor and all subcontractors agree not to discriminate in hiring or any other employment practice on the basis, of race, color, religion, sex, national origin, age or disability. The Contractor agrees to comply with all applicable Local, State and Federal rules and regulations. The Contractor agrees to maintain a drug-free workplace policy and will provide a copy of the policy to the City upon request. Every public contractor and his, her or its subcontractors who are awarded a contract by the City for the physical performance of services within the State of Nebraska shall register with and use a federal immigration verification system to determine the work eligibility status of new employees physically performing services within the State of Nebraska.

ARTICLE VII. Gratuities and kickbacks: City Code states that it is unethical for any person to offer, give, or agree to give any City employee or former City employee, or for any City employee or former City employee to solicit, demand, accept, or agree to accept from another person, a gratuity or an offer of employment in connection with any decision, approval, disapproval, recommendation, or preparation of any part of a program requirement or a purchase request, influencing the content of any specification or procurement standard, rendering of advice, investigation, auditing, or in any other advisory capacity in any proceeding or application, request for ruling, determination, claim or controversy, or other particular matter, pertaining to any program requirement or a contract or subcontract, or to any solicitation or



proposal therefor. It shall be unethical for any payment, gratuity, or offer of employment to be made by or on behalf of a subcontractor under a contract to the prime contractor or higher tier subcontractor or any person associated therewith, as an inducement for the award of a subcontract or order.

**[SUCCESSFUL BIDDER]**

By \_\_\_\_\_ Date \_\_\_\_\_

Title \_\_\_\_\_

**CITY OF GRAND ISLAND, NEBRASKA**

By \_\_\_\_\_ Date \_\_\_\_\_  
Mayor

Attest: \_\_\_\_\_  
City Clerk

The Contract is in due form according to law and hereby approved.

\_\_\_\_\_  
Attorney for the City Date \_\_\_\_\_

**DRAFT**

**REQUEST FOR BIDS - GENERAL SPECIFICATIONS**

The Bid shall be in accordance with the following and with all attached BID DATA and DETAILED SPECIFICATIONS.

All prices are to be furnished and installed FOB, Grand Island, Nebraska. **All prices shall be firm, and shall include all sales and use taxes as lawfully assessed under laws and regulations of the State of Nebraska.** \* If bidder fails to include sales tax in their bid price or takes exception to including sales tax in their bid price, the City will add a 7.0% figure to the bid price for evaluation purposes; however, the City will only pay actual sales tax due.

Bids shall include the following on the **outside** of the mailing envelope: "**Control Performance Software and Services**". All sealed bids are due no later than **Thursday, January 16, 2014 at 2:00 p.m. local time**. Submit **an original and three copies** of the bid to:

Mailing Address: City Clerk  
City Hall  
P. O. Box 1968  
Grand Island, NE 68802-1968

Street Address: City Clerk  
City Hall  
100 E. First Street  
Grand Island, NE 68801

Bids will be opened at this time in the City Hall Council Conference Room #1 located on 1<sup>st</sup> floor of City Hall. Any bid received after the specified date will not be considered. No verbal bid will be considered.

Bids will be evaluated by the Purchaser based on price, schedule, quality, adherence to schedule, plan and specifications, economy and efficiency of operation, experience and reputation of the bidder, ability, capacity, and skill of the bidder to perform contract required and adaptability of the particular items to the specific use intended.

The successful bidder will be required to comply with fair labor standards as required by Nebraska R.R.S.73-102 and comply with Nebraska R.R.S. 48-657 pertaining to contributions to the Unemployment Compensation Fund of the State of Nebraska. Contractor shall maintain a drug free workplace policy. Every public contractor and his, her or its subcontractors who are awarded a contract by the City for the physical performance of services within the State of Nebraska shall register with and use a federal immigration verification system to determine the work eligibility status of new employees physically performing services within the State of Nebraska.

The equipment and materials must be new, the latest make or model, unless otherwise specified. Prior to approving the invoice for payment, the City reserves the right to thoroughly inspect and test the equipment to confirm compliance with specifications. Any equipment or material which does not meet the City's requirements will be returned at vendor's expense for correction. The invoice will be paid after approval at the next regularly scheduled City Council meeting and occurring after departmental approval of invoice; the City Council typically meets the second and fourth Tuesday of each month. Invoices must be received well in advance of Council date to allow evaluation and processing time.

Each bidder shall submit with the bid a certified check, a cashiers check, or bid bond payable to the City Treasurer in an amount no less than five percent (5%) of the bid price which shall guarantee good faith on the part of the Bidder and the entering into a contract within fifteen (15) days at the bid price if accepted by the City. **Your certified check, cashier's check or bid bond must be submitted in a separate envelope attached to the outside of the envelope containing the bid.** Each envelope must be clearly marked indicating its contents. Failure to submit the necessary qualifying information and correct number of copies in clearly marked and separate envelopes will result in your bid not being opened or considered. Only surety companies authorized to do business in the State of Nebraska may issue bid bonds.

Successful bidder shall comply with the City's insurance requirements; performance and payment bonds are required for this project as outlined in the Detailed Specifications and Instructions to Bidders.

All bids shall be valid for at least thirty (30) working days after the bid deadline for evaluation purposes.

**All bids must be on the bid form and must be signed and dated to be accepted.** Please contact Lynn Mayhew at 308-385-5495, for questions concerning this specification.

# **Control Performance Software and Services Detailed Specifications**

## **SCOPE**

The purpose of this project is to supply process Control Performance Software and Services to the Platte Generating Station as described herein.

## **DESCRIPTION**

The Platte Generating Station is located at 1035 West Wildwood Drive in Grand Island, Nebraska.

Platte Generating Station is a 100 MW coal fired steam-electric generating unit placed in service in 1982. The contractor shall provide software, engineering support, and training for plant processes performance services as described herein.

## **Functional Specification for Process Control Performance Services (PCPS)**

Real-time Process Control Performance Services (PCPS) package software & service support

Real-time control performance monitoring, assessment and problem diagnosis tool

The PCPS module can carry out real-time control performance monitoring, assessment, and problem diagnosis calculation for every loop. The PCPS module shall not require third-party software that must be purchased. All required software shall be included with the installation media. Software shall be able to retrieve live plant data via OPC to perform assessment & diagnosis in real-time, 24 hours a day, 7 days a week, 365 days a year.

## **Control Loop Performance**

The control loop performance tool shall have a web-based (Internet Explorer) GUI.

PCPS module shall carry out real-time control performance monitoring and assessments by calculating a minimum of 80 performance assessment values for every loop, and every assessment period.

The GUI shall include the following:

- Overall PID loop performance tree map / view based on plant and plant sections with drill down facility to pin point the individual loops
- List of biggest payback loops (top priority) based on severity of their impact on plant performance and, in turn, on MPC performance and plant economics.
- Summary of alerts for individual loops based on criticality of the loop.
- List of standard and customized performance and analysis reports.
- There shall be a treemap that determines the size and relative importance of each loop in a unit or section of a plant.
- The treemap shall be made available to the user through a web browser.
- Detailed loop analysis reports of a control loop shall be indicated using a color-coded visual indication in an interactive web-based GUI. Developed from a combination of user assigned weighing factors and internal calculations showing the biggest payback loops.

The following reports shall be available:

- Trend of Process Variable (PV), Set point (SP), and controller output (CO).
- Controller Output (CO) vs. PV, X-Y graph.
- Radar Chart of loop health analysis.
- Worst assessments bar graph.
- Cross correlation of PV and CO.
- Oscillation periods and strengths.
- Valve Performance Analysis.
- Process model (dynamic model between PV and CO).
- Context-sensitive drill-down facility to provide more detail in diagnosing the root cause.
- Ability to assign a 'degree of confidence' factor to each diagnosis.
- Comprehensive trending tool for various loops.
- Dashboard shall be easily modified by any user via the web browser interface.
- Each user shall be able to have their own customized dashboards based on role, function and need.

### **Real-Time Economic Impact Analysis**

The PCPS package shall indicate in real-time the economic impact of loop performance on the overall plant performance and plant operating economics. It shall also indicate, in real-time, the opportunity gap in economic terms that can be saved (achieved) if the remedial actions are taken to improve the loop performance. The PCPS package shall have the capability to incorporate calculated performance and KPIs and Economic KPIs in the software.

### **Process Interaction Mapping**

The GUI shall have a graphical representation able to segregate loops in different colors depending on the extent / severity of interaction i.e. strong interaction or weak interaction. This feature shall be focused at visualizing and analyzing interactive control loops and their interdependencies. Highlight interactions between various loops. Pinpoint cycling and show the period of the cycling. Show loops which are cycling or oscillating at same frequency. Provide drill down facility and trending loop data to analyze interactions and arrive at root cause of the problem with poor performance of the loop.

### **Data History, Trending & Retrieval**

The software shall have its own long term data history to support history trends. Minimum one (1) year history of all loop data and related operating data shall be stored in the PCPS server for analysis and reference.

The data history shall also historize the results of performance assessments, tuning parameters, reports, KPIs and other calculated parameters. The history data shall be easily accessible and retrievable in various formats such as MS Excel, Trend Tools, etc.

User shall be able to view the real-time and history data of each and every loop configured in the system.

### **Performance Diagnostics**

The software shall be able to perform various assessments and diagnosis for PID loops, including providing benchmarking data on loop performance based on established industry guidelines for reporting of control loop performance, thus allowing the users to compare control loop performance between plants.

Diagnostics to find:

- Opportunity Gap: able to identify and indicate the opportunity gap in the Process Value (PV) that can be adjusted to increase profits / benefits
- Valve Stiction & Maintenance: able to pinpoint the control valves that may require maintenance due to problems with stiction or hysteresis. It also able to estimate the extent of stiction in the valve.
- Oscillatory Loops Needing Tuning: able to pinpoint loops
- Sluggish Loops Needing Tuning: able to pinpoint sluggish loops which are not able to bring the process back into control after a disturbance in required time i.e. sluggish loops.
- It shall be able to suggest appropriate PV filtering to manage noise and shall also be able to diagnose whether a heavy filter is applied which may actually hide the control problem.
- Ability to compare the predictions of valve travel and valve reversals numerically and graphically in the presence of noise for both current and optimized values in so as to minimize valve wearing while still not sacrificing the control performance.

***Allow user defined customized assessments for loops such as:***

Positioner Feedback

Loop-by-loop Material Costs

Operator tracking

Diagnostic Information from Smart Instruments etc.

Custom assessments or "User Defined Assessments" are configured in the Engineering Interface. All User Defined Assessments are treated like any other assessment: they are archived and can be trended with baselines and thresholds set and be included in loop health if desired.

## **Control loop simulation and what-if analysis**

The PCPS software shall provide the following:

1. Advanced and automatic process modeling
2. Auto tuning of the loop
3. Optimization of loop performance
4. Automatic capture the high fidelity model of the process when a step change / process bump occurs or is made by the operator such as:
  - Open loop step
  - Closed loop step (controller in automatic)
  - Open loop pulse
  - Closed loop pulse (controller in automatic)
  - Pseudo random data
  - Open loop doublet pulse

The software shall also evaluate the data, develop the model and validate the prepared model over a period of time.

Dead time with gain

First order with dead time and gain

Second order with dead time and gain

Second order over-damped with dead time (Imaginary roots) and gain

Integrator with dead time

Double Integrator with dead time

Integrator with first order and dead time

Inverse response process or shrink-swell: Integrator with first order, lead time, and dead time

Historize all process models that are generated by automatic model capture so that a detailed history of process dynamics is available for:

- Tracking fouling
- Tracking equipment degradation
- Understanding the impact of equipment changes
- Quantifying the opportunity for improvement
- Highlighting process non-linearities
- Preparing APC functional design & step-testing plan

While dealing with noisy data for model preparation the software shall allow manual adjustment to the process model to get optimal PID Tuning, accurate simulated response to upsets, more accurate response to process noise, and better robustness analysis.

Control loop simulation to drag the model curve to match the actual response curve along the bump test data and in doing so the software shall be able to find a dynamic process model that gives the visually designed response.

## **Interface with Process Control Systems**

The software shall be able to interface through OPC and connect with Bailey Infi90, Allen-Bradley PLCs, and GE Mark V. Currently PI is connected through an OPC server to the Bailey Infi90.

## **Number of Loops**

The current Bailey INFI90 DCS has 75 loops and local PLCs containing loops that the total loop count shall be a minimum of 100 loops to be monitored. The unit will have a scrubber and baghouse installed in the fall of 2014 which will add an additional unknown number of loops not exceeding 200. The bid shall have the ability to monitor the current loops with the additional of future loops added at no additional charges.

## **Services**

Bid shall include for the installation of the software onto the server provided by the City of Grand Island and include three (3) weeks of service and training to help quickly identify the best opportunities for the facility to improve operations. The services analysis will include but not limited to:

1. Instrumentation Health
2. Valve Health
3. Control Loop Performance Baseline Study
4. Individual Control Loop Optimization
5. Root Cause

A software support agreement shall be included, listing the annual support cost as a separate line item on the bid, with the first year included in the bid. The software agreement shall include all updates/upgrades, and provide phone technical support.

For support following the first year, include in the bid as a separate line item, the cost to provide loop tuning support, to include the following for 5 days on year 2 and 5 days on year 3:

- Conducting Sustain analysis.
- Conduct a system review and Software upgrades as new releases become available.
- Discuss with customer engineers, technicians, and operators about any performance-related or non-performance-related system issues.

- Loop tuning analysis and recommendation to plant.
- Root Cause analysis and recommendation to provide solutions to plant.
- Other engineering tasks pertaining to tuning software as requested by the plant.

## **SCHEDULE**

### **Outage Dates**

An outage is scheduled for March 13-20, 2014, to allow for routine maintenance, and at that time there will be time for adjustments to the DCS. The software shall be installed at least four (4) weeks prior to March 13<sup>th</sup>, 2014, to identify loops needing tuning and valves to be identified for repair.

## **HARDWARE REQUIREMENTS**

Bidder shall list all hardware requirements which will be purchased separately by City of Grand Island.

## **BASIS FOR BID EVALUATION**

As with most bids, price will be used to help determine the final selection for this project. Significant weight when awarding the bid will be data provided, showing similar work and changes on comparable units, comparable units must be power generation facilities.

All exceptions to the specification shall be listed. **Only items in the written bid will be considered as part of scope. Information and ideas shared during presentations, prior or subsequent conversations will not be considered part of the bid.** No exceptions shall be allowed, unless approved by the Buyer in writing.

## **GENERAL INFORMATION**

### **Access**

Access to the City will be available at all times and the Contractor may determine working hours, however, the City staff will only be available during normal, daytime, weekday working hours.

There is no separate contractor entrance at the Platte Generating Station. There is one gate with a card access security system and the Contractor may request to use access cards rather than request entry and exit each trip. There is a \$25.00 charge for all access cards that are not returned when the job is completed.

### **Service Rates**

The Contractor shall include in the Bid, firm lump sum pricing.

The Platte Generating Station is NOT tax exempt and is subject to 7.0% sales tax. See the Nebraska Department of Revenue web site at [www.revenue.state.ne.us](http://www.revenue.state.ne.us) for contractor's tax information.

### **Insurance**

The Contractor shall comply with the attached Insurance Requirements.

### **Performance and Payment Bonds**

The successful Bidder shall file with the Owner Performance and Payment Bonds in the full amount (100 percent) of the Contract price, as security for the faithful performance of the Contract and the payment of all persons supplying labor and materials for the Work under this Contract, and to cover all guarantees against defective workmanship or materials, or both, for a period of 1 year after the date of final acceptance of the Work by the OWNER. The Surety furnishing these bonds shall have a record of

service satisfactory to the OWNER, be authorized to do business in the State where the OWNER's project is located and shall be named on the current list of approved Surety Companies, acceptable on Federal bonds as published by the Audit Staff, Bureau of Accounts, U.S. Treasury Department.

The Attorney-in-Fact (Resident Agent) who executes these bonds on behalf of the Surety must attach a notarized copy of his power-of-attorney as evidence of his authority to bind the Surety on the date of execution of the bond.



**MINIMUM INSURANCE REQUIREMENTS**  
**CITY OF GRAND ISLAND, NEBRASKA**

The successful bidder shall obtain insurance from companies authorized to do business in Nebraska of such types and in such amounts as may be necessary to protect the Bidder and the interests of the City against hazards or risks of loss as hereinafter specified. This insurance shall cover all aspects of the Bidder's operations and completed operations. Failure to maintain adequate coverage shall not relieve Bidder of any contractual responsibility or obligation. Minimum insurance coverage shall be the amounts stated herein or the amounts required by applicable law, whichever are greater.

**1. WORKERS COMPENSATION AND EMPLOYER'S LIABILITY**

This insurance shall protect the Bidder against all claims under applicable State workers compensation laws. This insurance shall provide coverage in every state in which work for this project might be conducted. The liability limits shall not be less than the following:

Workers Compensation	Statutory Limits
Employers Liability	\$100,000 each accident
	\$100,000 each employee
	\$500,000 policy limit

**2. BUSINESS AUTOMOBILE LIABILITY**

This insurance shall be written in comprehensive form and shall protect the Bidder, Bidder's employees, or subcontractors from claims due to the ownership, maintenance, or use of a motor vehicle. The liability limits shall not be less than the following:

Bodily Injury & Property Damage	\$ 500,000 Combined Single Limit
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**3. COMPREHENSIVE GENERAL LIABILITY**

The comprehensive general liability coverage shall contain no exclusion relative to explosion, collapse, or underground property. The liability limits shall not be less than the following:

Bodily Injury & Property Damage	\$ 500,000 each occurrence
	\$1,000,000 aggregate

**4. UMBRELLA LIABILITY INSURANCE**

This insurance shall protect the Bidder against claims in excess of the limits provided under employer's liability, comprehensive automobile liability, and commercial general liability policies. The umbrella policy shall follow the form of the primary insurance, including the application of the primary limits. The liability limits shall not be less than the following:

Bodily Injury & Property Damage	\$1,000,000 each occurrence
	\$1,000,000 general aggregate

**5. ADDITIONAL REQUIREMENTS**

The City may require insurance covering a Bidder or subcontractor more or less than the standard requirements set forth herein depending upon the character and extent of the work to be performed by such Bidder or subcontractor.

Insurance as herein required shall be maintained in force until the City releases the Bidder of all obligations under the Contract.

The Bidder shall provide and carry any additional insurance as may be required by special provisions of these specifications.

## **6. CERTIFICATE OF INSURANCE**

Satisfactory certificates of insurance shall be filed with the City prior to starting any work on this Contract. **The certificates shall show the City as an additional insured on all coverage except Workers Compensation. The certificate shall state that thirty (30) days written notice shall be given to the City before any policy is cancelled (strike the "endeavor to" wording often shown on certificate forms). If the Bidder cannot have the "endeavor to" language stricken, the Bidder may elect to provide a new certificate of insurance every thirty (30) days during the contract. Bidder shall immediately notify the City if there is any reduction of coverage because of revised limits or claims paid which affect the aggregate of any policy.**