

# REQUEST FOR PROPOSAL (RFP)

Deleon, Howe and Bowen

## PROJECT OVERVIEW

Name: Indust Morganburgh Automation Retrofit  
Type: Automation Retrofit  
Location: Morganburgh, IL (Refinery Zone)  
Industry: Manufacturing  
Value: \$14,540,932  
Complexity: 3/5  
Date: April 09, 2025  
Disciplines: Electrical Engineering, Mechanical Engineering, Process Engineering  
Regulations: OSHA Regulations

## SCOPE OF WORK

### Scope of Work: Generic Automation Retrofit in a Refinery Zone

**Project Goal:** Retrofit existing manual control systems with automated systems in a designated refinery zone, improving safety, efficiency, and data acquisition.

#### 1. Electrical Engineering:

\* **Task 1: PLC System Design and Implementation:** Design and implement a Programmable Logic Controller (PLC) system using Allen-Bradley PLC-5000 series, incorporating redundant power supplies (2x 480VAC, 100A) and communication protocols (EtherNet/IP, Modbus TCP). This includes developing I/O schematics, PLC programming logic (Ladder Diagram), and HMI interface for operator control and monitoring, adhering to ISA-84.1 standards.

\* **Task 2: Hazardous Area Classification and Electrical Design:** Conduct a hazardous area classification survey of the zone (Class I, Div 2) and design explosion-proof electrical enclosures (NEMA 7, Type 4X) and cabling systems (Intrinsically Safe) per NEC and API RP 500 guidelines. Deliverables include updated electrical schematics, bill of materials, and hazardous area classification report.

\* **Task 3: Motor Control Center (MCC) Upgrade:** Upgrade existing MCC to incorporate variable frequency drives (VFDs) for improved motor control and energy efficiency, specifically targeting 10 existing 460VAC, 100HP induction motors. The upgrade includes selection of appropriate VFDs (e.g., ABB ACS880), wiring diagrams, and testing procedures in compliance with IEEE standards.

#### 2. Mechanical Engineering:

\* **Task 1: Actuator Replacement & Mounting:** Replace 15 existing pneumatic actuators with electric actuators (specify brand and model, e.g., Rotork IQ3), ensuring proper torque and speed for valve operation. This includes designing and fabricating mounting brackets, adhering to ASME B16.5 standards for flange dimensions, and generating detailed fabrication drawings.

\* **Task 2: Instrumentation Installation and Support:** Install new instrumentation, including pressure transmitters (Rosemount 3051) and level sensors (Vega level sensors), and design and fabricate supporting structures (stainless steel, 316L) for mounting these devices. This requires creating installation drawings, specifying material compatibility, and ensuring proper grounding and shielding.

#### 3. Process Engineering:

\* **Task 1: Process Control Strategy Development:** Develop a robust process control strategy for the automated system, focusing on safety interlocks, alarm systems, and cascade control loops. This includes detailed process and instrumentation diagrams (P&IDs), control narratives, and operational procedures for safe startup and shutdown.

\* **Task 2: HAZOP Study & Risk Assessment:** Perform a Hazard and Operability (HAZOP) study to identify and mitigate potential hazards associated with the automated system, documenting all identified hazards and recommended mitigations in a HAZOP report. The report will address potential scenarios involving equipment failure and human error, and be compliant with OSHA regulations and refinery specific safety guidelines.

#### Cross-Disciplinary Tasks:

\* **Task 1: System Integration and Testing:** Collaborate across disciplines to ensure seamless integration of electrical, mechanical, and process control systems. This includes joint testing and commissioning of the entire automated system, verifying functionality and safety interlocks according to a pre-defined test plan, and documenting all test results.

\* **Task 2: As-Built Documentation:** All three disciplines will collaborate to create comprehensive as-built documentation, including updated schematics, drawings, and operating procedures. This documentation will be compliant with refinery standards and will be reviewed and approved by the client.

**Complexity Impact:** The project's complexity level (3/5) reflects the need for integration across multiple disciplines and the requirements for hazardous area compliance.

REQUEST FOR QUOTATION

Request for Quotation: Indust Morganburgh Automation Retrofit

Project Name: Indust Morganburgh Automation Retrofit

Location: Refinery Zone, Morganburgh, IL

Industry: Manufacturing (Refinery)

Complexity: 3/5

Project Goal: Retrofit existing manual control systems with automated systems, improving safety, efficiency, and data acquisition. This includes PLC system implementation (Allen-Bradley PLC-5000 series), hazardous area compliance (Class I, Div 2), MCC upgrade with VFDs, actuator replacement, instrumentation installation, process control strategy development, and a HAZOP study. See detailed scope of work below.

Scope of Work Summary:

- \* **Electrical:** PLC system design & implementation (EtherNet/IP, Modbus TCP), hazardous area classification & electrical design (NEMA 7, Type 4X, Intrinsically Safe), MCC upgrade with VFDs (ABB ACS880, 10 x 460VAC, 100HP motors).
- \* **Mechanical:** Actuator replacement (15 pneumatic to electric, e.g., Rotork IQ3), instrumentation installation (Rosemount 3051, Vega level sensors), support structure fabrication (stainless steel 316L).
- \* **Process:** Process control strategy development (P&IDs, control narratives), HAZOP study & risk assessment (OSHA compliant).
- \* **Cross-Disciplinary:** System integration & testing, comprehensive as-built documentation.

Detailed Scope of Work: (Available upon request)

Required Qualifications: Minimum 3 years' experience in manufacturing automation projects, proven regulatory compliance (NEC, API RP 500, ISA-84.1, IEEE, ASME B16.5, OSHA).

Proposal Requirements:

- 1. **Technical design (1-2 pages) addressing all scope elements.**
- 2. **Detailed cost breakdown.**

Evaluation Criteria: Technical merit (50%), Cost (30%), Experience (20%).

Timeline:

- \* **RFQ Release:** April 09, 2025
- \* **Questions Due:** April 29, 2025
- \* **Proposals Due:** May 09, 2025
- \* **Project Start:** June 01, 2025
- \* **Project Duration:** 11 months
- \* **Contract Type:** Time & Materials

Submission: Please submit proposals electronically to [procurement@manufacturing.com](mailto:procurement@manufacturing.com).

CONTACT

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TIMELINE

Include key dates such as submission deadlines, inquiry deadlines, and project start dates.