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June 15th, 2022 (Rev 0)

Attn: Phillip A. Zavadil, City Manager
City of Saint Paul
PO Box 901 (950 Gorbach Street)
Saint Paul Island, Alaska 99660

Subject: Design-Build Services for Fuel System Replacement at the St. Paul Powerhouse

The fuel system at the City of Saint Paul Powerhouse is in need of total replacement. Multiple major equipment failures have severely reduced the operability, reliability and safety of the installed system. Work in this proposal includes total replacement of the fuel system from the bulk fuel facility to the generator connections with a new automated system.

Work under this contract will be limited to areas within the immediate vicinity of the powerhouse. Electrical distribution will be up to the medium voltage distribution switchgear directly outside the powerhouse. We anticipate that a planned fuel system replacement will precede construction of a future powerhouse retrofit, and design work under this scope will be intended to coordinate with other work-in-progress.

Electric Power Constructors (EPC) will subcontract sister companies Mechanical Builders, Inc (MBI), and Electric Power Systems (EPS) to fulfill mechanical construction and engineering services during execution of this contract.

Project Description and Scope

Electric Power Systems, Inc (EPS) provided a conceptual design to EPC that forms the basis of this cost estimate.

1. Approximately 500 feet of underground fuel line from the bulk tank truck rack to the powerhouse bulk fuel tanks will be replaced with a new OmegaFlex DoubleTrac pipe. This has a flexible stainless steel liner with a plastic secondary containment sleeve. It will be installed in one continuous length from the truck rack to the powerhouse tanks. The piping is rated for riser applications meaning that no vaults or underground transitions will be required. A 2" HDPE conduit will be installed in the same trench for a remote panel that will be placed at the truck rack.
2. Two 6000 gallon bulk fuel tanks, owned by the City, will be placed on precast foundation blocks outside the North East corner of the powerhouse and cleaned internally. These tanks will be configured with level controls and alarming. A remote alarming station will be placed at the truck rack with fill operations being initiated. A mechanical float-operated CLA-VAL high-level valve will be installed as a secondary means to prevent overfilling the bulk tanks. Manual valves will be installed for the operators to select the tank to be filled. Bulk fuel tank piping exterior to the powerhouse will be constructed using stainless steel and other non-corroding materials.

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3. A forwarding pump and filter skid will be placed inside the powerhouse for automated transfer of fuel from the bulk tanks. The pair of redundant pumps will be high-quality Viking internal gear pumps with carbon steel casings. A pair of redundant high-capacity Parker DVX coalescing filter vessels will provide primary filtration.
 4. A day tank room with a dry-type fire suppression system will be constructed inside the power house to allow containment of fuel volume in excess of the current limit of 660 gallons. The room will contain two 660 gallon UL 2085 (fire insulated double wall) day tanks that will be configured to serve current and future generator configurations. Mechanical and electronic overfill protection devices will be installed to allow safe automated filling with multiple means of overfill prevention.
 5. A protected floor-mounted fuel header system will supply fuel to each of the generators from either of the two day tanks.
 6. An automated control system will be installed to manage the day tanks and bulk fuel tanks. This system will be configured to integrate with future upgrades to the powerhouse SCADA system. A remote fuel control panel will be located at the truck rack where bulk tank fill operations are initiated.

Owner Furnished Material, Equipment, and Labor

EPC assumes the following scope items will be provided by the City. This list was created based on various in-person conversations and emails between EPS design staff and the city during development of the project scope.

- Recoat the exterior of the 6,000 gallon bulk fuel tanks
- Purchase the new day tanks from Greer tank in Seattle per EPS quote
- Purchase control valve package from AFTEC per EPS quote.
- Contract for construction of the day tank room. EPS will provide a design for the day tank room.
- Contract for installation of power plant fire alarming and suppression system. EPS will obtain quotes and coordinate technical requirements with the vendors.
- Precast or cast-in-place foundation blocks for the bulk fuel tanks.
- Supply equipment and operators for digging new fuel line trench, moving the 6000 gallon bulk fuel tanks, and installing the fuel tank foundations. MBI will provide on-the-ground installation labor for the fuel line and direct the operators.
- Manlifts, forklifts, and other equipment as required.
- Housing and transportation (vehicles) for crews on the island.
- Shipping costs - the EPC team will bill shipping from Anchorage and Seattle to the City's accounts.
- Excavation and backfill for the installation of the fuel line and conduit. MBI will provide on-the-ground installation labor for the fuel line and direct the operators.
- Management and disposal of contaminated soils if discovered.
- Fire Marshal permit fees.
- Trash disposal.

Deliverables

The final deliverable will be a complete, functional, and tested fuel system per the description and clarifications noted above. IFC As-built record drawings will be provided for the City's review. Our team

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prefers to work in close collaboration with our utility customers and we will welcome input and oversight from City management throughout the project.

Cost Estimate

No.	Item	Labor	Subcontract	Materials	Travel	Total
1	Mechanical Construction	\$369,700	\$0	\$291,874	\$55,376	\$716,950
2	Electrical Construction	\$85,064	\$0	\$29,572	\$22,726	\$137,362
3	Design	\$85,987	\$9,075	\$0	\$0	\$95,062
4	Commissioning	\$30,900	\$0	\$0	\$8,664	\$39,564
5	PM and Admin	\$96,324	\$0	\$0	\$2,378	\$98,701
Total:		\$667,975	\$9,075	\$321,446	\$89,143	\$1,087,639

Owner Furnished Material Estimates

These estimates are provided for planning and budgeting purposes and are not inclusive of all costs that will be incurred by the city. The ROM pricing provided is an engineer's estimate

No.	Item	Subcontract	Materials	Cost
1	Day Tanks		\$22,894	\$22,894
2	Control Valves		\$28,476	\$28,476
3	Filter Vessels		\$20,750	\$20,750
4	Fire Protection (ROM)	\$150,000		\$150,000
5	Carpentry (ROM)	\$100,000		\$100,000
Total:		\$250,000	\$72,120	\$322,120

This cost estimate is a firm-fixed price. We anticipate executing this work as a no-change order project providing that the project can be completed in 2022 and if we are able to maintain the anticipated level of collaboration from the City. If the project extends into 2023, it will cause cost escalation as material and labor costs increase.

Exclusions

- Items identified above as furnished by the City.

Please contact me directly if you have any questions at jrowland@epsinc.com or (907) 388-9554.



Jason Rowland, PE
Vice President

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Attachments:

- Owner Furnished Material Quotes (Draft - final review required before ordering)
- Bid Conceptual Drawings and Sketches

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