



Business Item 2024-169

Metropolitan Water Resource Recovery Facility (WRRF)
Steam Turbine Generator Sole Source Contract 24P199



Environment Committee: July 23, 2024

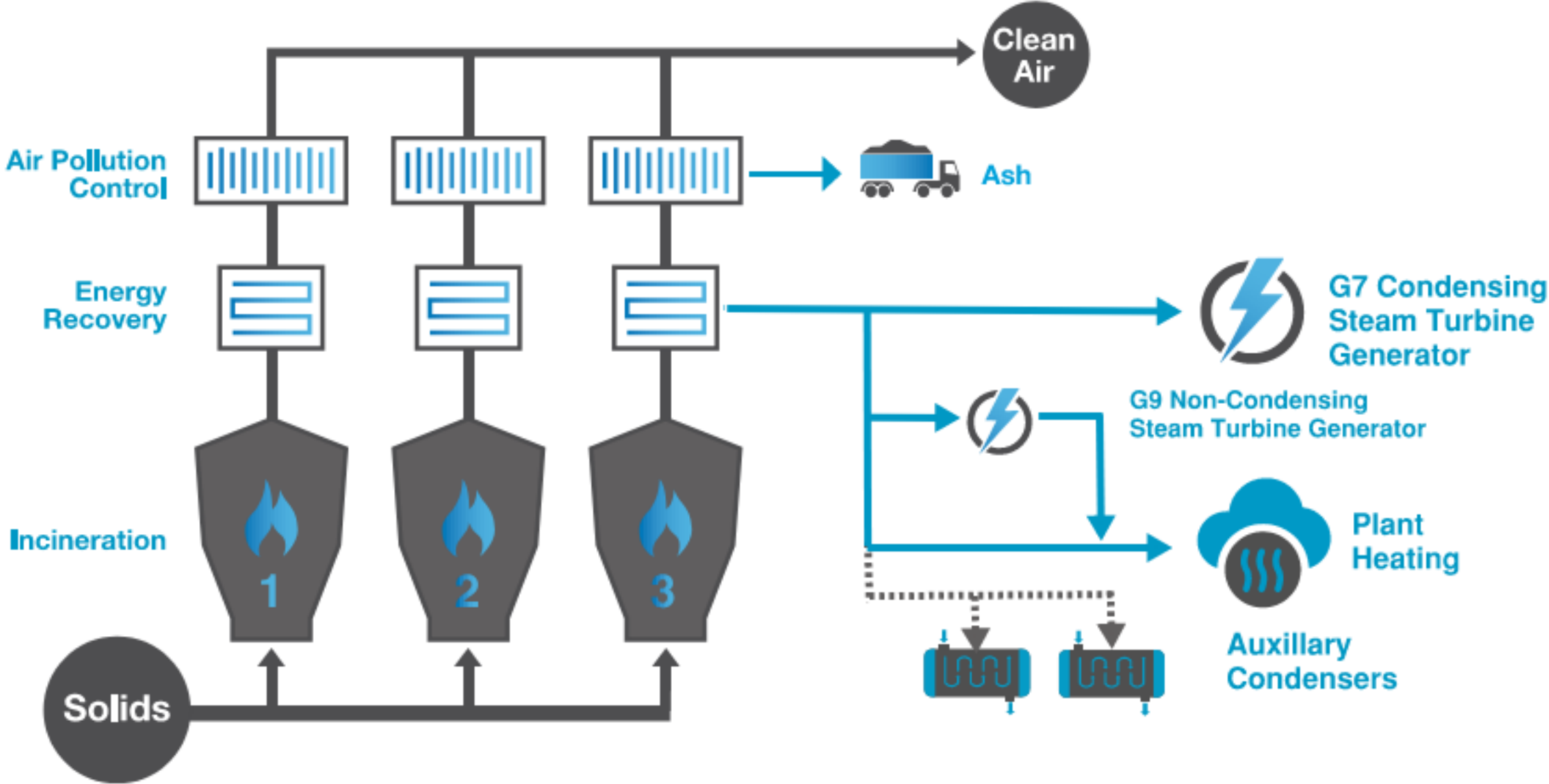
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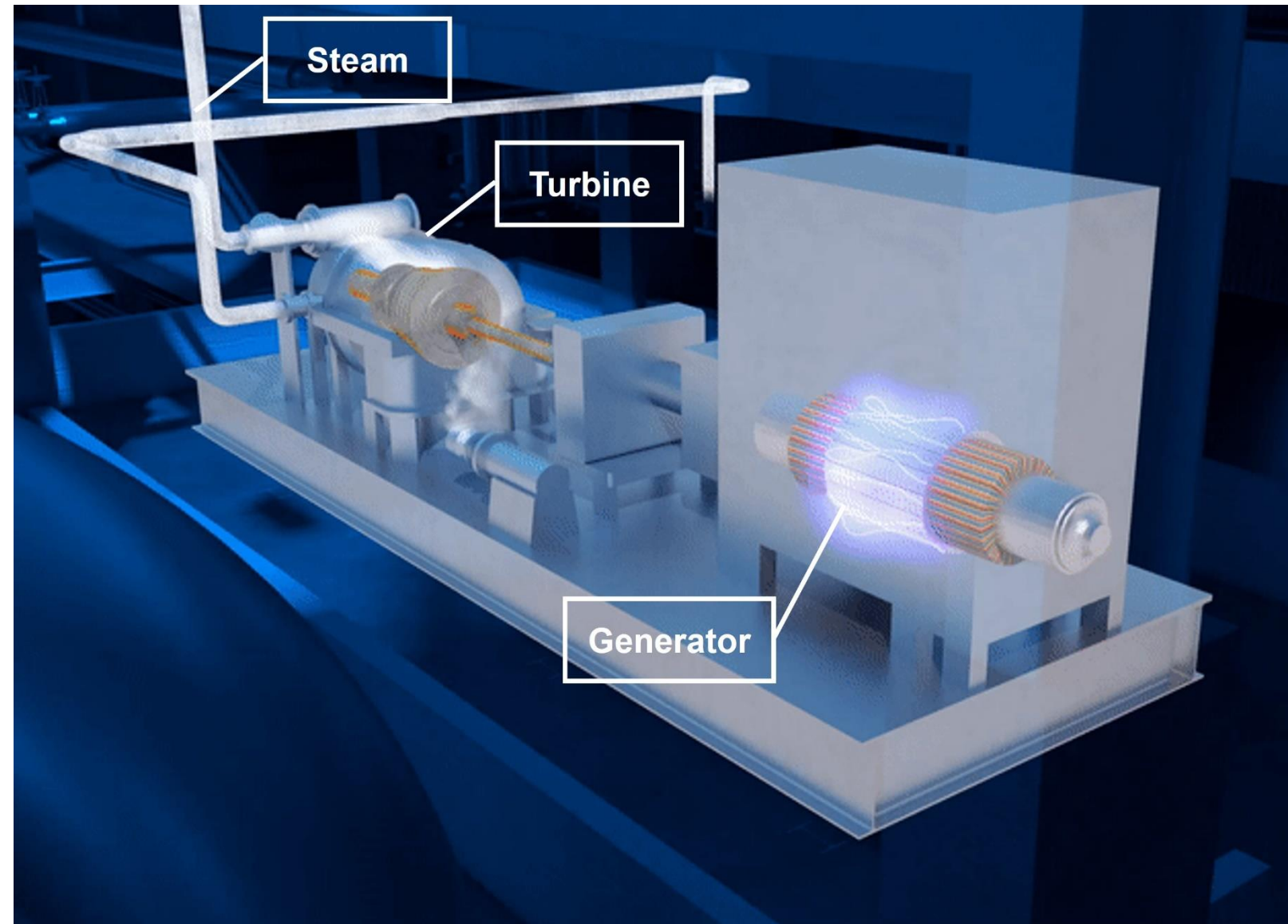
System Background



The energy recovered from the steam turbine generators reduces purchased electricity and offsets carbon emissions from fossil-fuel-based electricity.

G7 Background

- Tuthill Energy Systems furnished the original G7 steam turbine generator system (turbine, generator, and controls) and was competitively procured in 2000.
- Tuthill Energy Systems was bought by Dresser Rand in 2005, and Siemens Energy in 2015.
- Siemens-Energy is the current original equipment manufacturer (OEM).



G7 Steam Turbine Generator Schematic

G7 Turbine Background

Problem

- Preventative maintenance inspection found internal corrosion / erosion, and bowed rotor shaft.

Recommendation

- Replacement of rotor was recommended based on business case evaluation.

Previous Approved Business Item

- Business Item 2023-83 Metro Plant Steam Turbine Sole Source Contract 23P036 with Siemens-Energy to provide replacement parts, repair, installation, and commissioning services for steam turbine in an amount not to exceed \$2,000,000 was approved by the Council on April 26, 2023.



G7 Turbine Rotor

Sole Source Scope of Services

- **Furnish, Install, and Commission**
 - **G7 Generator Replacement**
 - **G7 Controls Replacement**
- **Five Year Service Contract (G7 and G9)**

A future capital project will incorporate the turbine rehabilitation, generator replacement, controls replacement, and steam system improvements.

G7 Generator Replacement

Problem

- A third-party inspection found a damaged rotor pole.

Recommendation

- Inspection Company and Engineering Consultant both recommend replacement of generator due to:
 - High cost of repair
 - Risk of future failure
 - Compatibility with the Metropolitan WRRF's electrical load requirements



G7 Controls Replacement

Problem

- The current G7 controls are roughly 20 years old and near the end of service life.
- Current Allen Bradley SLC programmable logic controller (PLC) is unsupported, and no spare parts are available.

Recommendation

- Replace current G7 steam turbine generator system controls.



Five Year Service Contract (G7 and G9)

Planning & Scheduling

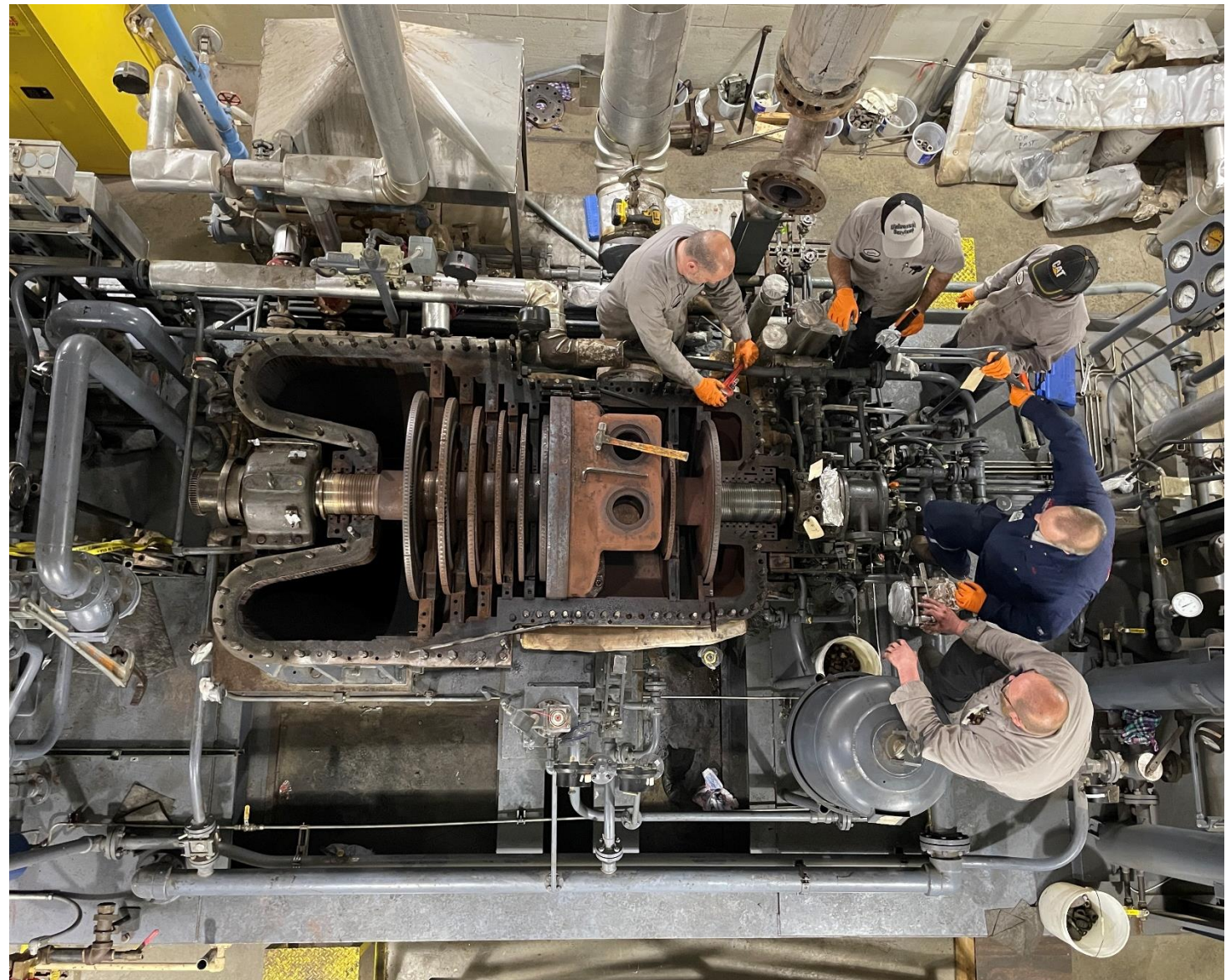
- Planning and coordination of inspections and outages.
- Tracking, ordering, and providing spare parts.

G7 Steam Turbine Generator

- Four annual steam turbine inspections
- Two generator inspections
- One major steam turbine overhaul

G9 Steam Turbine Generator

- Four annual steam turbine inspections
- One major steam turbine overhaul



Service on G7 Steam Turbine

Sole Source Justification

- Siemens-Energy is the OEM.
- Siemens-Energy is best suited to provide unit responsibility for the G7 steam turbine generator and controls.
- Using non-OEM components would require re-engineering and greater risk not meeting form, fit, and function of original components.
- Siemens-Energy is best suited to provide a service contract that maximizes run time.

Council construction specifications require unit responsibility where a single manufacturer is responsible for the turbine, generator, and controls as a complete and coordinated system.

Contract Price

Price of parts and services are comparable to typical industry costs and have been determined to be fair and reasonable.

Proposed Action

That the Metropolitan Council authorize the Regional Administrator to execute a sole source contract 24P199 with Siemens-Energy to provide goods and services for the Metropolitan WRRF steam turbine generator in an amount not to exceed \$3,500,000.



Questions

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