

City Council

Item #6: Gianera Generating Station

RTC 22-1041

Jan 11, 2022

Gianera Power Plant

- Constructed in 1986
- 49.5 MW Power Plant
- Two General Electric Frame 5 Gas Turbines
- Peaker Plant – Each turbine runs approximately 250-300 hours a year
- Very significant asset to SVP and the entire area – needed to meet electric load
- Local facility – not affected by transmission capacity
- Provides positive financial benefit
- Must be in place during the hot months to ensure system reliability



Unit 1 Rotor Installation



Background

Unit 2

- Issues with the generator and accessory gearbox – significant
- December 16, 2020 - Resolution authorizing emergency repairs not to exceed \$1.0 million
- January 12, 2021 - Increased emergency authorization to \$2.5 million after discovery of more critical issues
- Unit 2 returned to service March 12, 2021

Unit 1

- Several conditions were identified during routine maintenance
 - Cracked blades in the compressor section that required repair/replacement
 - A failed oil seal on a bearing that required replacement
 - Severely cracked combustion liners that required replacement
 - Disintegrating Turbine shroud blocks.
- May 4, 2021 - Resolution to increase authorization to \$10 million to complete major overhaul
- Unit 1 returned to service September 14, 2021



Compressor Rotor Exposed for Inspection



Planned Maintenance Outage

- Planned Maintenance Outage for Unit 2 (November 2021) identified significant damage rendering Unit unserviceable (unable to run)
- Major Overhaul for Unit 2 planned for spring 2022
- Identified repairs required to return to service:
 - Damaged combustion and turbine components
 - Damaged fuel nozzles and combustion liners
 - Eroded stage 1 shroud blocks, nozzles and turbine blades;
 - Loose and missing components used to secure rotating parts; and
 - Liberation of missing parts has impacted turbine blades downstream
- Separate from previous repairs
- Add \$2.0 million to previous authorization
- Complete major overhaul and consider purchase of spare rotor
- The spare rotor would be a significant benefit for reliability



Rotor As-Found. Forward Casing Removed



Long Term Maintenance Approach

- Staff is proceeding with proactive maintenance for SVP facilities
- Master Agreements are a significant part of the approach
 - Gas turbines at DVR
 - Scaffolding
 - HVAC
 - Commission testing and electrical maintenance
 - Mechanical contractor (boiler and pressure code and non-code welding)
 - Gas pipeline maintenance and repair
- Proceeding with RFP for Master Agreements for Gianera Turbines
 - Will be released in the next month

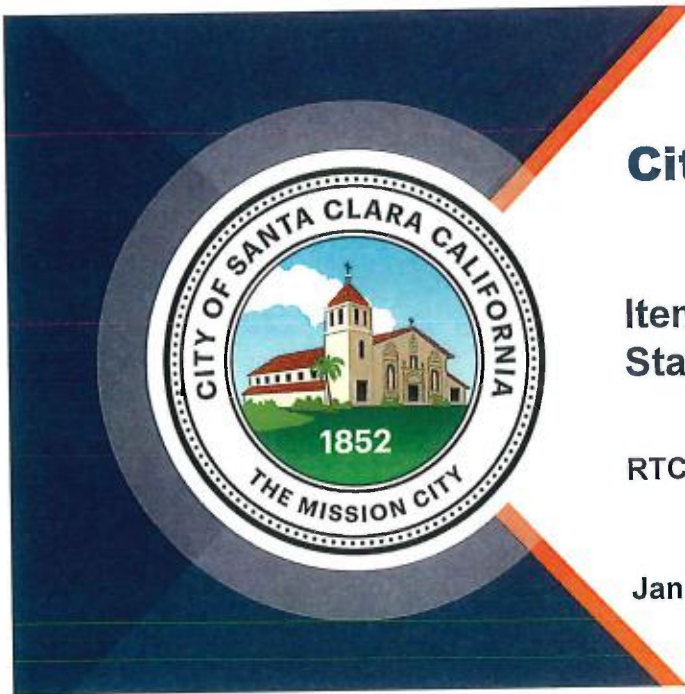


Compressor Inlet / Combustion Can Disassembly



Recommendation

1. Adopt a Resolution authorizing the City Manager to negotiate, award and execute agreements, amendments, purchase orders, and change orders with various vendors as required to complete emergency repairs, corrective and preventative maintenance including the purchase of a spare rotor at the Gianera Generating Station increasing previous authorization to an aggregate amount not-to-exceed \$12,000,000 and directing staff to provide Council with a report on contracts awarded and work performed once the repairs have been completed; and
2. Approve the following FY 2021/22 budget amendments:
 - A. In the Electric Utility Capital Fund, recognize a transfer of \$6,700,000 from the Electric Utility Operating Fund, and increase the Major Engine Overhaul and Repair capital project by \$6,700,000 (**five affirmative Council votes required to appropriate additional revenue**).
 - B. In the Electric Utility Operating Fund, increase the transfer to the Electric Utility Capital Fund by \$6,700,000 and reduce the unrestricted ending fund balance by \$6,700,000 (**five affirmative Council votes required for the use of unused balances**).



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