


City Council

**Item #5: Work at Gianera
Generating Station**

RTC 21-597

May 4, 2021

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Gianera



- Operational for almost 35 years
- 2 General Electric Frame 5 Gas Turbines
- 50 MW Peaker Power Plant
- Each Turbine runs 250-300 hours a year
- Deferred Maintenance

Benefits

- In town energy source – not affected by Transmission
- Up to \$32,000 a day in value to the City – Significant Resource Adequacy (RA)
- Local/Regional Operational Benefits
 - Provides needed peak power
 - In-City reliability – reduces possibility of blackouts
 - Supports the whole South Bay





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Recent Emergency Work

- Issues developed on Unit 2
- Council Actions on December 16, 2020 and January 12, 2021
- Unit 2 is now operational
- The total cost to date is \$1,837,621
 - Repair Unit 2 accessory gearbox
 - Replacement of failed bearing
 - Flush / replace Unit 2 lubricating oil
 - Generator rotor repairs

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Timeline – Significant Work Effort



Unit 2 Complete

- 10/13/2020 - Tripped on excessive vibrations after coming online
- 10/21/2020 - Emergency PO issued for troubleshooting
- 12/5/2020 - Started planned maintenance outage – inspection of Gearbox
- 12/14/2020 - Found generator blocking was loose and required removal of rotor
- 12/17/2020 - Emergency PO provided to EMC for rotor repairs
- 1/19/2021 - PO issued to APG for gearbox overhaul after findings from December
- 3/12/2021- Operational

Unit 1 – Today’s Council Discussion


- 2/14/2021 - Tripped on excessive vibrations during startup
- 2/23/2021 - Troubleshooting and performed a borescope inspection.
- Findings:
 - **Combustion gear unserviceable** and in need of replacement
 - Stage 1 **Shroud Blocks damaged** and in need of replacement
 - Several Stage 1 **Buckets (turbine blades) damaged**

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Unit 1 Emergency Issues


- Unit 1 can not run (unserviceable)
- Cracked blades in the compressor section that will require repair/replacement
- A failed oil seal on a bearing that requires replacement
- Severely cracked combustion liners that require replacement
- Turbine shroud blocks




Blade Impacts



Shroud Blocks Erosion





Shroud Blocks Cracking



Liners

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Proposed and Upcoming Agreements

- Gianera a priority for summer months – get back on-line ASAP
- Need to Complete Emergency Repairs (Approximately \$2.0 million)
- As part of new proactive maintenance program Unit 1 was scheduled for a Major Overhaul this October (Approximately \$5.0 million)
- Complete scheduled Major Overhaul now – does not make sense to remove Unit 1 again
- Goal to have Unit 1 operational by August 1

Future Agreements

- RFP for services was already in development
- Complete RFP, select vendors, develop master agreements
- Perform all required maintenance work in the future



Damaged Turbine Tip


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Recommendation

Adopt a Resolution authorizing the Action on 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 at the Gianera Generating Station increasing previous authorization to an Aggregate Amount Not-to-Exceed \$10,000,000 and directing staff to provide Council with a report on contracts awarded and work performed once the repairs have been completed.

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City Council

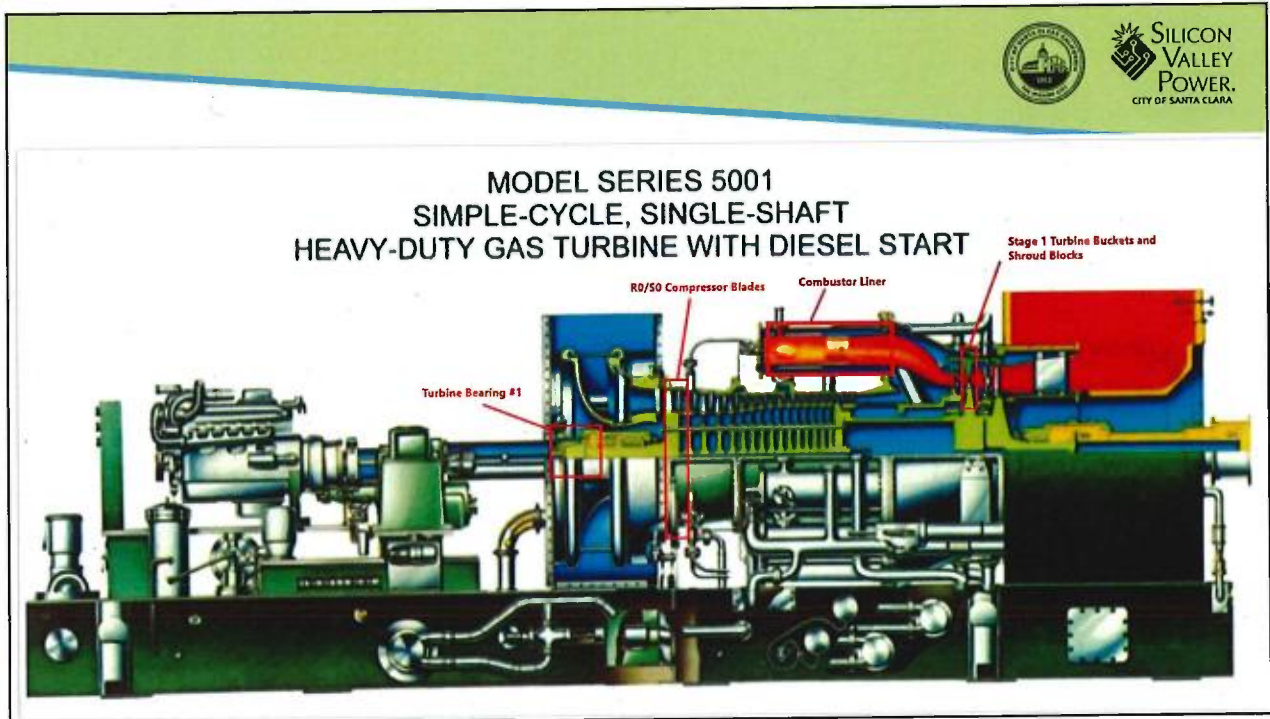
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The slide features a large circular seal on the left side, which is the official seal of the City of Santa Clara, California. The seal contains the text "CITY OF SANTA CLARA CALIFORNIA" at the top, "1852" in the center, and "THE MISSION CITY" at the bottom. The background of the slide is dark blue with a diagonal orange stripe.

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