
Naval Medical Center San Diego Co-Generation Project

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Co-Generation Team



**Pit Stop:
Timely
Procurement
Topics**





Balboa Naval Medical Center Co-Generation



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- Public Works Requested Survey of Hospital
- Performed by LSW Engineers
 - Initially 20 Options
 - 5 Options Analyzed
- Result:
 - One 4.3 MW Solar Centaur 50
 - Two Caterpillar Emergency Gen Sets
- SDG&E Proposed UESC



Co-Gen Project Equipment



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MAJOR COMPONENTS

4.3 MW Solar Centaur 50



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Hawthorne Diesel Generator Sets



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Heat Recovery Steam Generator



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Exterior view of Hawthorne Switchgear



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Interior view of Hawthorne Switchgear



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■ Co-Gen Project Scope

- **Demo** of all of the existing equipment including turbines, heat recovery boilers, controls and switchgear.
- **Turbine had to be inside** – created unexpected exhaust challenges
- **Additional stack** constructed for diesel generators. Existing stack reused for gas turbine
- **New Steam header** and condensate system modifications to accommodate existing boilers
- **New Controls and switchgear** for the cogeneration equipment and emergency generation equipment.
- **New gas line to turbine.** Existing line could not be reused. Added a gas compressor for the long run length.
- **Diesel fuel purifier and filter system**, to re-circulate the fuel oil within the existing 150,000-gallon underground storage tank system.



Technical Issues



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CHALLENGES

First Turbine Removed



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Existing piping under central plant flooring



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New central plant flooring



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New tower infrastructure



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Heat Recovery Steam Generator Leak Repairs



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- **Basic Buy Down \$6,838,000.00**
 - **Payment Stream paid for in full**
 - **Government saved \$1,030,412.00 in finance charges.**



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- Total Contract Value of
 - \$16,069,895.00 decreased by \$1,195,062.00 to \$14,874,823.00
- Additional Buy Down of \$607,564.00
- Basic Financed Value
 - \$9,231,885.00 decreased by \$1,802,626.00 to \$7,429,259.00
- Interest Rate
 - 9.24% decreased by 3.8% to 5.44%



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- **Payments Changed**
 - \$131,776.63 a month for 120 months (\$15,813,195.00)
 - \$1,420,760.70 a year for 6 years (\$8,514,438.80)
- **Total Savings** \$1,578,563.00
- **Payback** 9.42 Years



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- Replaced
 - two existing medical air compressors
 - high efficient Ingersoll-Rand L60W oil free rotary screw type units
 - refrigerated air dryers.
 - cycling thermal mass dryers, saving energy by operating only at the power needed for the air flow at the time.
- Modification Cost \$394,689.24
- Savings \$41,222.00
- Pay Back 9.57 Years



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- Incorporated into contract
 - In accordance with FAR 52.232.23 (Assignment of Claims).
 - “Notice of Assignment”
 - “Instrument of Assignment”
- Signed by Contracting Officer



Mod 005 - Emission Reduction Credit (ERC)



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- ERC's generated by removal of Pollution and Emission Producing Equipment
 - (3) 800kW Solar Saturn Turbines
 - NOx 14.72 tons/year
 - CO 13.83 tons/year



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- Emission Reduction Credit language identifies SDG&E as the Governments agent to bank and sell the emission credits.
 - Language refers to the value of all ERCs as a component of the salvage value of the equipment being removed and replaced under the contract.
 - Did not set a firm value on the credits but set a shared savings formula for ERCs when sold.



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- ERC Fair Market Value (FMV) \$0 to \$1,500,000.00
 - SDG&E Share
 - 28% of the ERC FMV
 - Government Share
 - 72% of the ERC FMV

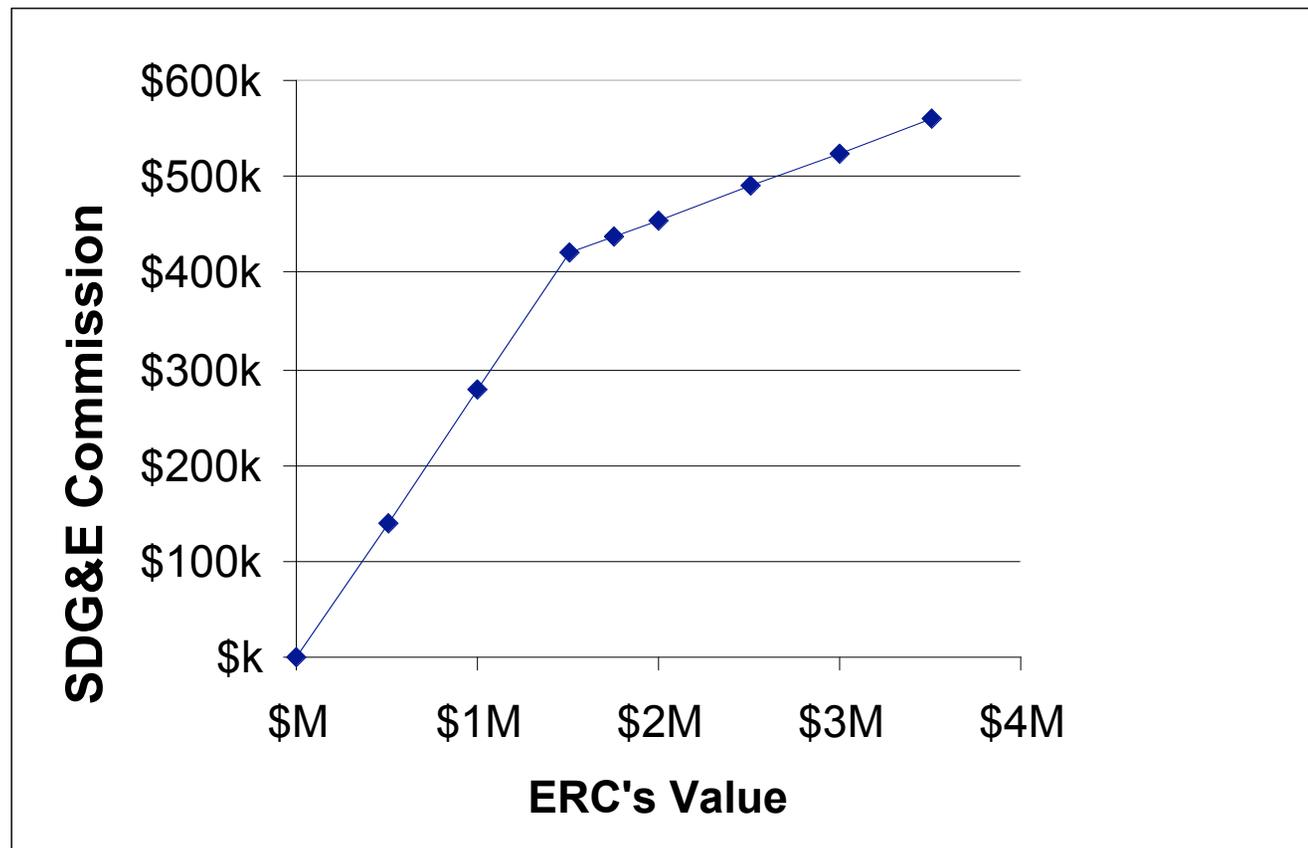


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- ERC Fair Market Value (FMV)
\$1,500,000.00 and Above
 - SDG&E Share
 - $0.07 \times \text{ERC FMV} + \$315,000.00$ Fixed Fee
 - Government Share
 - $\text{ERC FMV} - (0.07 \times \text{ERC FMV} + \$315,000.00 \text{ Fixed Fee})$



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- Diesel Generators Failed to Meet Contract Requirements
 - Units met current San Diego Air Pollution Control District (SDAPCD) requirements.
 - Incorporated an extended warranty and additional liabilities upon Hawthorne
 - Protect the Government if the SDAPCD invoked retroactive requirements on the emissions of the Gas Turbines.



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- 14.8 Million Cost
- 1.5 Million Savings
- Dec 01 – Apr 04
- Improved Infrastructure
- Improved Reliability



Questions & Answers



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- **Questions Free**
- **Answers.....Minor Fee**
- **Discussion.....Might even pay you**