



# APPENDIX 10

Report on the

**Calpeak Power, LLC - El Cajon**

**Asset Valuation**

Prepared For



**San Diego Gas & Electric**



**Starwood Energy Group Global**

**Project Number 56418**

**May 2010**







May 21, 2010

Mr. Frank Thomas  
San Diego Gas & Electric  
8315 Century Park Ct.  
San Diego, CA 92123

Mr. Alex Daberko  
Starwood Energy Group Global  
591 West Putnam Avenue  
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Calpeak Power, LLC – El Cajon Asset Valuation  
Project No. 56418

Dear Mr. Thomas & Mr. Daberko:

San Diego Gas & Electric (SDGE) and Starwood Energy Group Global (Starwood Energy) retained Burns & McDonnell (BMcD) to conduct a fair market assessment and site retirement study for the Calpeak Power, LLC – El Cajon facility (El Cajon).

Starwood Energy owns El Cajon. As part of the land lease agreement with SDGE, SDGE has the option to purchase the facility at the end of the power purchase agreement term which expires December 31, 2011 at the fair market price of the combustion turbine-generator less the cost to retire the site to preexisting conditions (Purchase Price).

BMcD conducted a fair value market assessment for the combustion turbine-generator by surveying the secondary market for similar equipment. The research consisted of compiling recent market transactions, current listings, and information provided by used equipment vendors for similar aeroderivative combustion turbines.

BMcD also developed a screening level site retirement cost estimate to determine the approximate cost of returning the facility to its preexisting condition before development. The site retirement cost estimate accounted for the resale of usable equipment on the secondary market.

Based on our research, BMcD concludes the following:

- The combustion turbine-generator has a fair market value within the \$12 to \$14 million range.
- The cost to remove the equipment and return the site to preexisting condition is negative \$717,000 (i.e. -\$717,000). That is the market value of the equipment on



Mr. Thomas & Mr. Daberko  
May 21, 2010  
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the secondary market is higher than the cost to remove the equipment, producing a negative cost, or positive value.

- The Purchase Price (combustion turbine-generator less the site retirement costs) of the facility is approximately \$12.7 to \$14.7 million.

We appreciate the opportunity to complete this study and look forward to working with SDGE and Starwood Energy in the future. If you have any questions, please feel free to call or email me at (816) 822-3459 or [mborgstadt@burnsmcd.com](mailto:mborgstadt@burnsmcd.com).

Sincerely,

A handwritten signature in black ink, appearing to read "Mike Borgstadt".

Mike Borgstadt, P.E.  
Project Manager

Cc: Dave Vance, SDGE  
Brad Nordholm, Starwood Energy  
Bryan Hawthorne, BMCD

**Calpeak Power, LLC - El Cajon  
Asset Valuation**

prepared for

**San Diego Gas & Electric  
San Diego, California**

**Starwood Energy Group Global  
Greenwich, Connecticut**

**May 2010**

**Project No. 56418**

prepared by

**Burns & McDonnell Engineering Company, Inc.  
Kansas City, Missouri**

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**SECTION 1**  
**EXECUTIVE SUMMARY**

## **1.0 EXECUTIVE SUMMARY**

### **1.1 INTRODUCTION**

Burns & McDonnell Engineering Company, Inc. (BMcD) was retained by San Diego Gas & Electric (SDGE) and Starwood Energy Group Global (Starwood Energy) to conduct a valuation and site retirement study of Calpeak Power, LLC – El Cajon (Plant).

Calpeak Power, LLC (Calpeak) is a portfolio of five simple-cycle, natural gas-fired peaking projects, totaling 260 MW of capacity, located in California. Starwood Energy acquired the plants from United Technologies Corporation in May 2006.

El Cajon Generating Station is one of the five peaking projects within Calpeak. A provision of the lease agreement between SDGE and Calpeak Power LLC – El Cajon is a purchase option for which SDGE may purchase the Plant at the end of the term. This report summarizes the investigations BMcD conducted as part of the asset valuation of the combustion turbine-generator and the site retirement cost estimate that may be used to assist in the determination of the purchase price of the facility.

### **1.2 STUDY METHODOLOGY**

As outlined within the provision of the land lease agreement, SDGE has the option to purchase the Plant at a price determined by the fair market value of the combustion turbine-generator unit less the cost to retire and return the site to preexisting conditions (Purchase Price).

To determine the fair market value of the combustion turbine-generator unit, BMcD conducted market research by contacting numerous used equipment vendors with experience buying and selling power generation assets and conducting an online research of previous transactions and current market listings for similar equipment compared to the equipment installed at the Plant.

BMcD also developed a site retirement cost estimate. The estimate was based on a survey of the Plant and used detailed drawings as provided by Calpeak.

### **1.3 MARKET RESEARCH**

BMcD conducted market research by contacting used equipment vendors and conducting online searches for recent transactions and current listings. BMcD contacted several power generation equipment vendors



which specialize in used power generation equipment transactions. These vendors provided information regarding past and current market conditions, a list of current prices for similar combustion turbine-generator equipment, and information from previous transactions for similar combustion turbine-generator equipment.

The Plant equipment consists of the Pratt & Whitney SWIFTPAC aeroderivative combustion turbine-generator with a nominal output of 50 MW. Table 1.1 provides a summary of the information BMcD collected during the market research for similar aeroderivative combustion turbine-generators grouped by the equipment vendors or selling entity. A more detailed summary of the combustion turbines is provided in Table 1.4 at the end of this section.

**Table 1.1 Summary of Combustion Turbine-Generator Market Research**

| Manufacturer            |                               | Output Qty. | (MW) | Condition   | Price (\$)   | Price (\$/kW) | Manufacturer                             |                       | Output Qty. | (MW) | Condition  | Price (\$)   | Price (\$/kW) |
|-------------------------|-------------------------------|-------------|------|-------------|--------------|---------------|--|-----------------------|-------------|------|------------|--------------|---------------|
| <b>CFAS Enterprises</b> |                               |             |      |             |              |               | <b>Horizon Energy Systems</b>            |                       |             |      |            |              |               |
| RR                      | RB211-24C <sup>1</sup>        | 1           | 25   | Low hours   | \$10,500,000 | \$420         | GE                                       | LM6000 PA             | 1           | 40   | Used       | \$13,500,000 | \$338         |
| P&W                     | FT4A-11 Power Pac             | 1           | 23   | Refurbished | \$6,000,000  | \$261         | RR                                       | Trent 60 <sup>1</sup> | 4           | 58   | New        | \$20,000,000 | \$345         |
| P&W                     | FT4A-9 Power Pac <sup>1</sup> | 2           | 18   | Rebuilt     | \$4,832,000  | \$268         | P&W                                      | FT4 Twin Pac          | 2           | 45   | Used       | \$12,500,000 | \$278         |
| <b>RMA Global</b>       |                               |             |      |             |              |               | <b>San Francisco Public Utility</b>      |                       |             |      |            |              |               |
| P&W                     | FT4A                          | 1           | 22.5 | Used        | \$4,500,000  | \$200         | GE                                       | LM6000 PC Sprint      | 4           | 49   | New        | \$11,000,000 | \$224         |
| GE                      | LM6000 PC Sprint              | 2           | 48   | New         | \$17,850,000 | \$372         | <b>International Power Machinery Co.</b> |                       |             |      |            |              |               |
| GE                      | LM6000 PC Sprint <sup>1</sup> | 2           | 47   | New         | \$16,000,000 | \$340         | GE                                       | LM5000                | 2           | 35   | Used       | \$4,300,000  | \$123         |
| GE                      | LM2500 PE <sup>1</sup>        | 1           | 26   | New         | \$6,500,000  | \$250         | <b>Camelot Technologies Group, Inc</b>   |                       |             |      |            |              |               |
| GE                      | LM2500 PE-MDW                 | 1           | 22   | Low hours   | \$6,000,000  | \$273         | P&W                                      | FT4A-9                | 1           | 21   | Low hours  | \$3,250,000  | \$155         |
| GE                      | LM6000 PA <sup>1</sup>        | 2           | 40.7 | Used        | \$12,500,000 | \$307         | <b>Penn Energy</b>                       |                       |             |      |            |              |               |
| P&W                     | FT8 Twin Pac                  | 1           | 55.4 | New         | \$18,000,000 | \$325         | GE                                       | LM2500                | 1           | 25   | Overhauled | \$7,000,000  | \$280         |
| <b>CTEC</b>             |                               |             |      |             |              |               | GE                                       | LM2500                | 1           | 25   | Overhauled | \$8,500,000  | \$340         |
| P&W                     | FT8 Power Pac                 | 1           | 25   | Low hours   | \$5,500,000  | \$220         | P&W                                      | FT4CA-9               | 2           | 18   | Overhauled | \$5,200,000  | \$289         |
| P&W                     | FT8 Twin Pac                  | 1           | 50   | Low hours   | \$12,000,000 | \$240         | P&W                                      | FT4C-1D Twin Pac      | 2           | 48   | Overhauled | \$12,500,000 | \$260         |
|                         |                               |             |      |             |              |               | <b>MMC Energy, Inc</b>                   |                       |             |      |            |              |               |
|                         |                               |             |      |             |              |               | GE                                       | LM6000 PC Sprint      | 2           | 50   | New        | \$13,325,000 | \$267         |

Notes:

1. Combustion turbine was sold or is currently listed with additional equipment.

Table 1.2 presents the average listing price for the combustion turbine-generators identified during the market research. The turbines are grouped together by condition: used/refurbished or new/unused and broken out into units which have been sold or currently being offered for sale.

**Table 1.2 Average Listing Price**

| Combustion-Turbine Condition | No. of Units | Total Output (MW) | Total Aggregate Listing Price | Average Listing Price (\$/kW) |
|------------------------------|--------------|-------------------|-------------------------------|-------------------------------|
| <b>New/Unused</b>            |              |                   |                               |                               |
| Sold                         | 11           | 554               | \$157,150,000                 | \$284                         |
| For Sale                     | 5            | 245               | \$85,700,000                  | \$349                         |
| <b>Total</b>                 | <b>16</b>    | <b>799</b>        | <b>\$242,850,000</b>          | <b>\$304</b>                  |
| <b>Used/Refurbished</b>      |              |                   |                               |                               |
| Sold                         | 4            | 180               | \$50,500,000                  | \$281                         |
| For Sale                     | 18           | 508               | \$129,914,000                 | \$256                         |
| <b>Total</b>                 | <b>22</b>    | <b>688</b>        | <b>\$180,414,000</b>          | <b>\$262</b>                  |

Additionally, several of the used equipment vendors provided estimated market listing values of the combustion turbine-generator based on the description BMcD provided to them. The following provides a brief summary of their recommendations.

- Mr. Kurt Patterson from RMA provided a fair market value of \$9 to \$10 million.
- Mr. Steve Thompson from Horizon Energy Systems provided a fair market value of \$7 to \$9 million if liquidating the assets or \$11 to \$13 million if placing the assets on the market.
- Mr. Michael Weaver from Camelot Technologies provided a fair market value of \$13 to \$14 million.

BMcD reviewed the Axford Consulting report discussing the valuation of the combustion turbine-generator, generator step-up (GSU) transformer, and the selective catalytic reduction (SCR) system. BMcD concludes the values provided within the Axford report appear to be considerably higher than the value BMcD identified during its market research.<sup>1</sup>

As presented in Table 1.2, unused/new combustion turbine-generators that have never been installed are approximately \$40/kW higher in value compared to used or refurbished equipment. While the Units at Calpeak Power – El Cajon have low hours, BMcD would classify the Units as used/refurbished equipment, as did the used equipment vendors contacted during the market research. Applying the \$/kW list price for the used turbines to the nominal output of the Units (50 MW) would yield a fair market price of approximately \$13 million.

$$\text{Fair Market Price} = \frac{\$262}{\text{kW}} * 50,000 \text{ kW} = \$13,100,000$$

<sup>1</sup> Axford Consulting LP, “Appraisal of FT8 SwiftPac Genset – El Cajon, CA,” January 28, 2010.

Based on the market research BMcD has conducted, as well as conversations with used equipment vendors, BMcD recommends the fair market value of the combustion turbine-generator to be \$12 to \$14 million.

*Fair Market Price Range \$12,000,000 to \$14,000,000*

#### 1.4 SITE RETIREMENT COST ESTIMATE

In addition to determining the fair market value of the combustion turbine-generator, BMcD developed a cost estimate for removing all Plant equipment and returning the site to preexisting conditions, as outlined within the lease provisions. Since the Plant is only 10 years old, several pieces of equipment have significant value for resale in the secondary market, namely the SCR system, GSU transformer, and auxiliary transformers. The rest of the equipment is assumed to be scrapped for recycling. Selling these pieces of equipment will offset the cost of removing all of the equipment and returning the site to a parking lot. Based on the results of the Phase I Environmental Site Assessment conducted by BMcD and issued May 21, 2010, no remediation is required due to Calpeak Power's involvement with the site. Therefore, no additional remediation costs are included within the site retirement cost estimate.

Table 1.3 provides a summary of the site retirement cost estimate.

**Table 1.3 Site Retirement Cost Estimate**

| Description                               | Total Retirement Cost | Scrap or Resale Value <sup>1</sup> | Total Net Cost     |
|---|-----------------------|------------------------------------|--------------------|
| Concrete Demolition                       | \$279,000             |                                    | \$279,000          |
| Perimeter Screen Walls                    | \$32,000              | (\$2,000)                          | \$30,000           |
| Miscellaneous Structural Steel Demolition | \$15,000              | (\$3,000)                          | \$12,000           |
| Major Equipment Removal                   | \$314,000             | (\$1,555,000)                      | (\$1,241,000)      |
| Above Grade Piping Demolition             | \$14,000              | (\$5,000)                          | \$9,000            |
| Miscellaneous Site Demolition             | \$25,000              |                                    | \$25,000           |
| Site Improvements                         | \$169,000             |                                    | \$169,000          |
| <b>Total</b>                              | <b>\$848,000</b>      | <b>(\$1,565,000)</b>               | <b>(\$717,000)</b> |

1. Note:

|                                     |  |
|-------------------------------------|--|
| SCR System Resale Value             | \$1,250,000                            |
| GSU Transformer Resale Value        | \$250,000                              |
| Auxiliary Transformers Resale Value | \$25,000 each (two transformers)       |
| Scrap Steel Value                   | \$100 per ton (approximately 155 tons) |



As presented in Table 1.3, the resale of the existing equipment and materials more than offsets the cost to remove the equipment and repave the site to match the surrounding parking. Resale of equipment and materials actually produces a positive asset value for Calpeak to retire the Plant.

## 1.5 CONCLUSIONS

Based on the results of the evaluation conducted for the valuation of the combustion turbine-generator and site retirement assessment, BMcD concludes the following:

- The fair market value range for the combustion-turbine generator and associated turbine control equipment is \$12 to \$14 million.
- The total demolition costs to retire the facility are approximately \$848,000.
- The scrap and salvage value of the balance of plant equipment is approximately \$1,565,000.
- The net site retirement cost is negative \$717,000, that is the scrap and salvage value of the balance of plant equipment is greater than the cost to remove the equipment and combustion turbine-generator, leading to a positive asset value for Calpeak.
- The Purchase Price of Calpeak Power – El Cajon is the fair market value of the combustion-turbine generator less the site retirement cost (which is actually a credit), would equate to approximately \$12.7 to \$14.7 million.

*Purchase Price Range \$12,700,000 to \$14,700,000*

## 1.6 STATEMENT OF LIMITATIONS

In preparation of this evaluation, BMcD has relied upon information provided by SDGE and Starwood Energy. While BMcD has no reason to believe that the information provided, and upon which BMcD has relied, is inaccurate or incomplete in any material respect, BMcD has not independently verified such information and cannot guarantee its accuracy or completeness.

The estimates and projections of fair market value for equipment and site retirement costs are based on experience, qualifications, and judgment of BMcD. Since BMcD has no control over weather, cost and availability of labor, material and equipment, labor productivity, contractors' procedures and methods, market conditions, and other factors, BMcD does not guarantee the accuracy of its estimates and projections.

Table 1.4 Summary of Combustion Turbine-Generator Market Research

| Manufacturer            | Model             | Status   | Qty. | Output (MW) | Condition   | Price (\$)   | Price (\$/kW) | Additional Comments  | Reference          |
|-------------------------|-------------------|----------|------|-------------|-------------|--------------|---------------|--|--------------------|
| <b>RMA Global</b>       |                   |          |      |             |             |              |               |  |                    |
| Pratt & Whitney         | FT4A              | For Sale | 1    | 22.5        | Used        | \$4,500,000  | \$200         | #2 Diesel only, built in 1969  | RMA Online Listing |
| General Electric        | LM6000 PC Sprint  | For Sale | 2    | 48          | New         | \$17,850,000 | \$372         | Includes warranty  | Data Sheet No. 2   |
| General Electric        | LM6000 PC Sprint  | For Sale | 2    | 47          | New         | \$16,000,000 | \$340         | Includes anti-icing system, SCR (\$2.5M) and GSU (\$800k) available    | Data Sheet No. 1   |
| General Electric        | LM2500 PE         | Sold     | 1    | 26          | New         | \$6,500,000  | \$250         | Sold in 2008, dual fuel, new turbine rebuilt generator, stack included | Data Sheet No. 5   |
| General Electric        | LM2500 PE-MDW     | For Sale | 1    | 22          | Low hours   | \$6,000,000  | \$273         | Trailer mounted, built in 1993, not operated                           | RMA Online Listing |
| General Electric        | LM6000 PA         | For Sale | 2    | 40.7        | Used        | \$12,500,000 | \$307         | Includes auxiliary and GSU transformers and chilled water system       | Data Sheet No. 3   |
| Pratt & Whitney         | FT8 Twin Pac      | For Sale | 1    | 55.4        | New         | \$18,000,000 | \$325         |  | Data Sheet No. 4   |
| <b>CFAS Enterprises</b> |                   |          |      |             |             |              |               |  |                    |
| Rolls Royce             | RB211-24C         | For Sale | 1    | 25          | Low hours   | \$10,500,000 | \$420         | 462 hours, includes numerous BOP equipment                             | Data Sheet No. 6   |
| Pratt & Whitney         | FT4A-11 Power Pac | For Sale | 1    | 23          | Refurbished | \$6,000,000  | \$261         |  | Data Sheet No. 7   |
| Pratt & Whitney         | FT4A-9 Power Pac  | For Sale | 2    | 18          | Rebuilt     | \$4,832,000  | \$268         | Includes anti-icing system   | Data Sheet No. 8   |
| <b>CTEC</b>             |                   |          |      |             |             |              |               |  |                    |
| Pratt & Whitney         | FT8 Power Pac     | For Sale | 1    | 25          | Low hours   | \$5,500,000  | \$220         |  | Via Email          |
| Pratt & Whitney         | FT8 Twin Pac      | Sold     | 1    | 50          | Low hours   | \$12,000,000 | \$240         | Sold, \$12M listing prior to sale                                      | Via Email          |

Table 1.4 Summary of Combustion Turbine-Generator Market Research (Cont.)

| Manufacturer                             | Model            | Status   | Qty. | Output (MW) | Condition  | Price (\$)   | Price (\$/kW) | Additional Comments                                       | Reference         |
|--|------------------|----------|------|-------------|------------|--------------|---------------|---|-------------------|
| <b>Horizon Energy Systems</b>            |                  |          |      |             |            |              |               |   |                   |
| General Electric                         | LM6000 PA        | Sold     | 1    | 40          | Used       | \$13,500,000 | \$338         | Cogen, in storage, very good condition, sold to Venezuela | Via Email         |
| Rolls Royce                              | Trent 60         | Sold     | 4    | 58          | New        | \$20,000,000 | \$345         | Full warranty, stacks, SCR, dual fuel, sold to Venezuela  | Via Email         |
| Pratt & Whitney                          | FT4 Twin Pac     | Sold     | 2    | 45          | Used       | \$12,500,000 | \$278         | Overhauled, sold to Venezuela                             | Via Email         |
| <b>San Francisco Public Utility</b>      |                  |          |      |             |            |              |               |   |                   |
| General Electric                         | LM6000 PC Sprint | Sold     | 4    | 49          | New        | \$11,000,000 | \$224         | Sold to Venezuela, never installed                        | Data Sheet No. 9  |
| <b>International Power Machinery Co.</b> |                  |          |      |             |            |              |               |   |                   |
| General Electric                         | LM5000           | For Sale | 2    | 35          | Used       | \$4,300,000  | \$123         | Used, high hours (50,000+), refurbished                   | Via Email         |
| <b>Camelot Technologies Group, Inc</b>   |                  |          |      |             |            |              |               |   |                   |
| Pratt & Whitney                          | FT4A-9           | For Sale | 1    | 21          | Low hours  | \$3,250,000  | \$155         | Diesel fuel, refurbished                                  | Data Sheet No. 10 |
| <b>Penn Energy</b>                       |                  |          |      |             |            |              |               |   |                   |
| General Electric                         | LM2500           | For Sale | 1    | 25          | Overhauled | \$7,000,000  | \$280         | Land based, overhauled                                    | Data Sheet No. 12 |
| General Electric                         | LM2500           | For Sale | 1    | 25          | Overhauled | \$8,500,000  | \$340         | Trailer mounted, overhauled                               | Data Sheet No. 12 |
| Pratt & Whitney                          | FT4CA-9          | For Sale | 2    | 18          | Overhauled | \$5,200,000  | \$289         | Overhauled  | Data Sheet No. 11 |
| Pratt & Whitney                          | FT4C-1D Twin Pac | For Sale | 2    | 48          | Overhauled | \$12,500,000 | \$260         | Overhauled  | Data Sheet No. 11 |
| <b>MMC Energy, Inc</b>                   |                  |          |      |             |            |              |               |   |                   |
| General Electric                         | LM6000 PC Sprint | Sold     | 2    | 50          | New        | \$13,325,000 | \$267         | Sold as liquidation to subsidiary                         | Data Sheet No. 13 |

\* \* \* \* \*

**SECTION 2**  
**PROJECT DESCRIPTION**



## 2.0 PROJECT DESCRIPTION

### 2.1 CALPEAK POWER, LLC OVERVIEW

Calpeak Power, LLC is a portfolio of five simple-cycle, natural gas-fired peaking projects, totaling 260 MW of capacity, located in California. The plants are fully contracted to Pacific Gas & Electric and San Diego Gas & Electric via back-to-back agreements with the California Department of Water Resources. Starwood Energy acquired the plants from United Technologies Corporation in May 2006.

Calpeak Power, LLC – El Cajon is one of the gas-fired peaking projects within the portfolio.

### 2.2 EL CAJON PLANT DESCRIPTION

#### 2.2.1 Site

The Plant sits on an approximately one-half acre parcel located at 200 N. Johnson Avenue in El Cajon, California. Appendix A contains a vicinity map and aerial photograph of the Plant location area. Photographs of the Plant site taken during the site visit are included in Appendix B.

The Plant includes two combustion turbines (Units), each of which are housed in an enclosure and are connected axially to each end of a common generator, which is also in an enclosure. The exhaust from the Units is combined and routed to a common selective catalytic reduction system. The SCR exhausts to a single plant stack. The Units include inlet air foggers for inlet air conditioning. The Plant includes on-site controls in a single control enclosure. A plant substation, fuel gas compressor skid, aqueous ammonia storage tank, raw water tank, and demineralized water tank are also included on-site.

#### 2.2.2 Combustion turbine-generator Units

The FT8 SWIFTPAC utilizes two gas turbines coupled to each end of an electric generator. The gas turbines were manufactured by Pratt & Whitney Power Systems, Inc. and operate in simple cycle mode. The generator has a nominal power output of 50 MW. The Units are equipped with filters, inlet air foggers, and inlet air silencers. Power augmentation can be achieved during high temperature ambient conditions through the inlet air foggers. The electrical generator provided with the turbines is an air cooled Brush generator. The generator is driven from both sides in the SWIFTPAC installation.



The Units have been in service since 2002, operating as peaking units, with essentially no operation other than peak service except for testing. Based on observations during the site visit, the Plant maintenance and operating staff appear to be maintaining the Units in good condition.

### **2.2.3 Fuel System**

Natural gas is supplied to the Plant through an interconnection with SDGE gas transmission system. SDGE delivers natural gas through a lateral pipeline to the Plant site. After the gas enters the fenced boundary area of the Plant, the gas enters a primary filter/separator which removes moisture from the gas. If necessary, the gas is then routed to gas compressors to raise the pressure to approximately 600 psig prior to being delivered to the Units. Each gas turbine has a final filter just prior to entering the fuel gas module. The piping system is carbon steel upstream to this final filter and stainless steel downstream. This is in accordance with accepted engineering practices for this service.

### **2.2.4 Plant High Voltage Power System & Interconnection**

The 13.8-kV electrical power produced by the electric generator is transformed to 69-kV with a single three-winding GCU transformer in the plant substation. The plant substation includes a single breaker and three switches. The 69-kV power from the plant substation is delivered to the adjacent SDGE owned and operated 69-kV switchyard to access the 69-kV transmission system.

### **2.2.5 Plant Auxiliary Power System**

The Plant has one 13.8/4.16-kV auxiliary transformer and one 13.8-kV/480-V auxiliary transformer for supplying the accessory loads and lighting requirements of the Plant. The 4.16-kV transformer is used to operate the fuel gas compressors. The 480-V transformer is used to power the operating systems in the primary and secondary control rooms.

The Plant also has a uninterruptible power supply (UPS) system to provide a reliable source of power for critical control and equipment loads during emergency operating conditions. The 480-V transformer is used to supply the UPS system.

### **2.2.6 Water Supply and Treatment Systems**

The water supplied to the Plant is provided by the local municipality. The Plant requires water for turbine wash water and for the inlet air foggers. A 47,000 gallon raw water tank provides storage for raw water supplies. Demineralized water is provided by a third party via portable trailer-mounted demineralizers.

The plant includes a 47,000 gallon demineralized water tank. Demineralized water is used for both the inlet air foggers and turbine wash-down water.

Process wastewater from operations must be collected and disposed of properly. Water used in water wash operations and water collected in the drains of operating equipment enclosures is pumped to an on-site wastewater tank. A waste disposal company is contracted to remove the wastewater collected in the tank.

Portable toilets are utilized at the Facility and serviced by a third-party contractor; therefore, no sanitary wastewater is generated by the Facility.

### **2.2.7 Fire Protection System**

The fire protection system for the Plant consists of the following:

- Low pressure carbon dioxide for the gas turbine and accessory compartments
- Heat and smoke detection to a central alarm system in the central control room

There is a yard loop around the site with fire hydrants. The yard loop is fed from the municipal water system.

### **2.2.8 Continuous Emissions Monitoring**

The facility is equipped with a continuous emissions monitoring system to monitor nitrogen oxides (NO<sub>x</sub>), carbon monoxide (CO), and sulfur dioxide (SO<sub>2</sub>).

### **2.2.9 Air Pollution Control System**

The Plant is equipped with an SCR system for NO<sub>x</sub> control. The SCR utilizes aqueous ammonia for the reducing agent. Aqueous ammonia is transported to the facility by truck and pumped into a 12,000 gallon storage tank. The Hazardous Materials Business Plan lists the ammonia as being in a 19.5 percent solution. In addition to the NO<sub>x</sub> control system, the SCR contains a catalyst as well for reducing CO emissions.

### **2.2.10 Security and Access**

The Plant site is enclosed with a chain link security fence topped with barbed wire.

### **2.2.11 Storm Water Drainage**

Storm runoff water is collected in drain sumps at the primary enclosure stairwell, transformer pads, and ammonia pit. Water from these sumps is routed to an oil/water separator. The oil/water separator is used to separate oil from the storm drain water before discharging the water to local storm drainage. The oil is contained in the separator and is removed by a contracted waste disposal company.

### **2.2.12 Maintenance/Warehouse Facilities**

The Plant does not include any on-site maintenance or warehouse facilities.

The Plant includes several small portable storage skids with roll-up doors for on-site storage of chemicals and lubricants. This is the only storage provided at the Plant site.

### **2.2.13 Construction**

Plant construction began in the spring of 2002, and the Plant achieved commercial operation May 20, 2002. Generally, the Plant appears to be well laid out and constructed. The Facility layouts are generally standardized and appear to conform to generally accepted engineering practice.

## **2.3 HISTORICAL DISPATCH**

The Plant has been dispatched relatively infrequently since its construction in 2002. According to information provided by Starwood Energy, the Units have approximately 3,300 run hours and 853 starts, with an average annual capacity factor of approximately 3.5 percent.

## **2.4 LAND LEASE AGREEMENT**

The Plant sits on land owned by SDGE. Within the land lease agreement, a provision allows for SDGE to purchase the facility at the end of the term, which expires December 31, 2011.

According to the information received from SDGE and Starwood Energy, the lease language pertaining to the valuation method states:

“The Purchase Price for the Unit shall be (a) the Fair Market Value of the Pratt and Whitney 49-megawatt FT8 Swift Pac aero-derivative combustion turbine-generator consisting of the *gas turbine unit, the generator unit, and the electrical/control unit only* (emphasis added), less (b) the costs that would have been incurred by CalPeak to comply with section 19 of this Agreement. To the extent that CalPeak can remediate the Premises of hazardous materials caused by its activities



without materially impacting the operations of the Unit, CalPeak shall perform those activities and the Purchase Price shall be adjusted accordingly. "Fair Market Value" means an amount that would be obtained in an arms length transaction between an informed and willing buyer and an informed and willing seller, without regard to the existence of the Company's right to purchase, but taking into account that the equipment can no longer remain on the site.”

Appendix C has additional language regarding the key provisions of the lease agreement for which this assessment was based.

## **2.5 STUDY METHODOLOGY**

Using the provisions as outlined within the lease agreement as provided by SDGE and Starwood Energy, BMcD utilized the following methodology to develop a Purchase Price for the Plant.

### **2.5.1 Gas Turbine Market Research**

In order to determine the fair market value of the combustion turbine-generator, BMcD conducted market research by contacting used equipment vendors and conducting online searches for recent transactions and current listings. BMcD contacted several power generation equipment vendors which specialize in used equipment transactions. These vendors provided information regarding past and current market conditions, a list of current market prices for similar combustion turbine-generator equipment, and information for previous transactions for similar combustion turbine-generator equipment.

Using information collected from this research, BMcD develop its recommendation for a fair market price for the gas-fired combustion turbine-generator.

### **2.5.2 Site Retirement Cost Estimate**

BMcD developed a cost estimate to remove the remaining balance of plant equipment and return the site to its preexisting condition. BMcD assumed equipment with remaining life was sold on the used equipment market with the remaining equipment sold for scrap value to a metal recycler, reducing the overall site retirement costs.

**2.5.3 Purchase Price Determination**

In accordance with the lease agreement provisions, the Purchase Price was determined by using the fair market price for the combustion turbine-generator less the site retirement cost estimate.

\* \* \* \* \*

**SECTION 3**  
**GAS TURBINE MARKET RESEARCH**

### 3.0 GAS TURBINE MARKET RESEARCH

BMcD conducted market research by contacting used equipment vendors and conducting online searches for recent transactions and current listings. BMcD contacted several power generation equipment vendors which specialize in used equipment transactions. These vendors provided information regarding past and current market conditions, a list of current prices for similar combustion turbine-generator equipment, and information for previous transactions for similar combustion turbine-generator equipment.

The target asset for this transaction is the Pratt & Whitney 49-MW FT8 SWIFTPAC aero-derivative combustion turbine-generator consisting of the gas turbine units, the generator, and the electrical control unit. During the market research, BMcD only considered aero-derivative combustion turbine-generators operating at 60 Hz.

BMcD contacted representatives from several companies and/or researched online listings for similar combustion turbine-generator units. The following companies were found to have similar equipment listings for comparison:

1. Resource Management Associates, Inc.
2. CFAS Enterprises, Inc
3. CTEC Pty, Ltd
4. Horizon Energy Systems
5. International Power Machinery Co.
6. Camelot Technologies Group, Inc.
7. Penn Energy Equipment Exchange

Several other companies were researched or contacted, however, they did not to have similar equipment currently listed that was comparable to the Units. These companies included:

1. Belyea Power, Inc.
2. Wabash Power Equipment Co.
3. Western United Technologies
4. Electric Power Generation
5. BTEC Turbines, LP
6. Global Power Resources, Inc.

## 7. Global Power Supply

The following section provides a summary of the information gathered from each company. Information regarding specific listings and data sheets referenced within this section is presented in Appendix D.

### 3.1 RESOURCE MANAGEMENT ASSOCIATES, INC.

Resource Management Associates, Inc. (RMA) deals in electric power plants and power plant equipment.

BMcD researched the gas turbine generators listed for sale or sold on the RMA website

(<http://www.powerplantsonline.com/>). Additionally, BMcD contacted Mr. Kurt Patterson at RMA.

During the research, BMcD found seven combustion turbine-generators which appear to be fair representations to the Units.

Table 3.1 presents the turbines listed on the RMA website with information regarding the manufacturer, model, quantity available, output, condition as presented within the listing, and listing price. To present the price in dollars per kilowatt (\$/kW), BMcD divided the price by the output provided within the listing information.

**Table 3.1 RMA Comparable Listings**

| Manufacturer                  | Model            | Status   | Qty. | Output |           | Price (\$)   | Price (\$/kW) | Reference          |
|-------------------------------|------------------|----------|------|--------|-----------|--------------|---------------|--------------------|
|                               |                  |          |      | (MW)   | Condition |              |               |                    |
| <b>RMA Global</b>             |                  |          |      |        |           |              |               |                    |
| Pratt & Whitney               | FT4A             | For Sale | 1    | 22.5   | Used      | \$4,500,000  | \$200         | RMA Online Listing |
| General Electric              | LM6000 PC Sprint | For Sale | 2    | 48     | New       | \$17,850,000 | \$372         | Data Sheet No. 2   |
| General Electric <sup>1</sup> | LM6000 PC Sprint | For Sale | 2    | 47     | New       | \$16,000,000 | \$340         | Data Sheet No. 1   |
| General Electric <sup>2</sup> | LM2500 PE        | Sold     | 1    | 26     | New       | \$6,500,000  | \$250         | Data Sheet No. 5   |
| General Electric              | LM2500 PE-MDW    | For Sale | 1    | 22     | Low hours | \$6,000,000  | \$273         | RMA Online Listing |
| General Electric <sup>3</sup> | LM6000 PA        | For Sale | 2    | 40.7   | Used      | \$12,500,000 | \$307         | Data Sheet No. 3   |
| Pratt & Whitney               | FT8 Twin Pac     | For Sale | 1    | 55.4   | New       | \$18,000,000 | \$325         | Data Sheet No. 4   |

Notes:

1. Includes anti-icing system. SCR and GSU are available for additional cost.
2. Stack included
3. Includes auxiliary transformers, GSU transformer, and chilled water system.



Based on a description of the Units, Mr. Patterson stated that the combustion turbine-generator would be worth approximately \$9 to \$10 million.

### 3.2 CFAS ENTERPRISES, INC.

CFAS Enterprises, Inc. (CFAS) is an after-market utility grade power equipment brokerage company. BMcD researched the industrial gas turbine generators for sale on the CFAS website (<http://cfaspower.com/>). BMcD contacted Mr. Scott Condell at CFAS, however, Mr. Condell would not provide any additional information beyond the website listings without being formally engaged. BMcD found three combustion turbine-generators listed on the CFAS website which appear to be fair representations to the Units.

Table 3.2 presents the turbines listed on the CFAS website with information regarding the manufacturer, model, quantity available, output, condition as presented within the listing, and listing price.

**Table 3.2 CFAS Comparable Listings**

| Manufacturer             | Model             | Status   | Output |      |             | Price (\$)   | Price (\$/kW) | Reference        |
|--------------------------|-------------------|----------|--------|------|-------------|--------------|---------------|------------------|
|                          |                   |          | Qty.   | (MW) | Condition   |              |               |                  |
| Rolls Royce <sup>1</sup> | RB211-24C         | For Sale | 1      | 25   | Low hours   | \$10,500,000 | \$420         | Data Sheet No. 6 |
| Pratt & Whitney          | FT4A-11 Power Pac | For Sale | 1      | 23   | Refurbished | \$6,000,000  | \$261         | Data Sheet No. 7 |
| Pratt & Whitney          | FT4A-9 Power Pac  | For Sale | 2      | 18   | Rebuilt     | \$4,832,000  | \$268         | Data Sheet No. 8 |

Notes:

1. Includes numerous balance of plant equipment

### 3.3 CTEC PTY LTD

CTEC Pty Ltd (CTEC) provides engineering, construction, operations and maintenance solutions to energy and utilities sectors. CTEC Surplus is a division of CTEC dedicated to the sale and supply of new, rebuilt, and used surplus power generation equipment. BMcD researched the power generation equipment listings for sale on the CTEC website (<http://www.ctec.com.au/>) as well as contacting a sales representative. Mr. Thierry van Veen at CTEC provided information regarding two previous sales of Pratt & Whitney equipment.

Table 3.3 presents the turbines which Mr. van Veen provided information regarding the manufacturer, model, quantity available, output, condition as presented within the listing, and listing price.

**Table 3.3 CTEC Comparable Listings**

| Manufacturer    | Model         | Status   | Output |      |           | Price        |         |           |
|-----------------|---------------|----------|--------|------|-----------|--------------|---------|-----------|
|                 |               |          | Qty.   | (MW) | Condition | Price (\$)   | (\$/kW) | Reference |
| Pratt & Whitney | FT8 Power Pac | For Sale | 1      | 25   | Low hours | \$5,500,000  | \$220   | Via Email |
| Pratt & Whitney | FT8 Twin Pac  | Sold     | 1      | 50   | Low hours | \$12,000,000 | \$240   | Via Email |

### 3.4 HORIZON ENERGY SYSTEMS

Horizon Energy System (Horizon) assists clients with the sale or purchase of power generating equipment. BMcD researched the equipment listing on the Horizon website (<http://www.horizonenergysystems.com/>). Additionally, BMcD contacted Mr. Steve Thompson at Horizon. During the research, BMcD found three combustion turbine-generators which appear to be fair representations to the Units.

Table 3.4 presents the turbines listed on the website with information regarding the manufacturer, model, quantity available, output, condition as presented within the listing, and listing price.

**Table 3.4 Horizon Comparable Listings**

| Manufacturer             | Model        | Status | Output |      |           | Price        |         |           |
|--------------------------|--------------|--------|--------|------|-----------|--------------|---------|-----------|
|                          |              |        | Qty.   | (MW) | Condition | Price (\$)   | (\$/kW) | Reference |
| General Electric         | LM6000 PA    | Sold   | 1      | 40   | Used      | \$13,500,000 | \$338   | Via Email |
| Rolls Royce <sup>1</sup> | Trent 60     | Sold   | 4      | 58   | New       | \$20,000,000 | \$345   | Via Email |
| Pratt & Whitney          | FT4 Twin Pac | Sold   | 2      | 45   | Used      | \$12,500,000 | \$278   | Via Email |

Notes:

1. Includes numerous balance of plant equipment including stacks and SCR.

Mr. Thompson also provided some commentary on past and present market conditions. Mr. Thompson stated the surplus generation equipment market changes very rapidly due to demand, and last year within the U.S. there was little to no demand. However, the present market conditions are indicating a slight increase in demand, however, Mr. Thompson said the market would still be classified as a buyer's market.

Furthermore, Mr. Thompson stated that over the last six months most of the transactions in the U.S for surplus generation equipment have gone to Venezuela or to 50 Hz locations, and if it was not for Venezuela, all of these machines would likely still be for sale with a significantly lower asking price than those presented in Table 3.4. Additionally, it appears that the Venezuelan market is beginning to weaken,

because Venezuela is slowing development as it takes further time to study its power supply requirements.

Mr. Thompson stated that in today's market, if Starwood Energy chooses to liquidate the FT8 SWIFTPAC, there are a few companies (either large turbine service and installation companies or brokers with large hedge fund support) that would make an offer in the \$7 to \$9 million range. If Starwood Energy was able to find an end user with a project ready to develop which did not require new equipment, the combustion turbine-generator might be valued around \$11 to \$13 million.

### 3.5 INTERNATIONAL POWER MACHINERY COMPANY

International Power Machinery Company (IPMC) buys and sells new and used power plant machinery and electric substation equipment. BMcD researched the gas turbine generator units listed on the IPMC website (<http://www.intlpwr.com/>). BMcD contacted Mr. Alan Kern with IPMC, who provided some additional information beyond the website listings. During the research, BMcD found one combustion turbine-generator listed on the IPMC website which appears to be a fair representation to the Units.

Table 3.5 presents the turbine listed on the website with information regarding the manufacturer, model, quantity available, output, condition as presented within the listing, and listing price.

**Table 3.5 IPMC Comparable Listings**

| Manufacturer     | Model  | Status   | Output |      |           | Price       |         | Reference |
|------------------|--------|----------|--------|------|-----------|-------------|---------|-----------|
|                  |        |          | Qty.   | (MW) | Condition | Price (\$)  | (\$/kW) |           |
| General Electric | LM5000 | For Sale | 2      | 35   | Used      | \$4,300,000 | \$123   | Via Email |

### 3.6 CAMELOT TECHNOLOGIES GROUP, INC.

Camelot Technologies group, Inc. (Camelot) is a global provider of new, used, and refurbished electrical power generation equipment. BMcD researched the equipment inventory for sale on the Camelot website (<http://camelottech.com/>). Additionally, BMcD contacted Mr. Michael Weaver at Camelot. During the research, BMcD found one combustion turbine-generator listed on the Camelot website which appears to be a fair representation to the Units.

Table 3.6 presents the turbine listed on the website with information regarding the manufacturer, model, quantity available, output, condition as presented within the listing, and listing price.



**Table 3.6 Camelot Comparable Listings**

| Manufacturer    | Model  | Status   | Output |      |           | Price       |         |                   |
|-----------------|--------|----------|--------|------|-----------|-------------|---------|-------------------|
|                 |        |          | Qty.   | (MW) | Condition | Price (\$)  | (\$/kW) | Reference         |
| Pratt & Whitney | FT4A-9 | For Sale | 1      | 21   | Low hours | \$3,250,000 | \$155   | Data Sheet No. 10 |

Mr. Weaver also provided some commentary on past and present market conditions. Mr. Weaver stated the surplus generation equipment market has been fairly soft the last year. As indicated by several secondary market vendors, most, if not all, of the used equipment market demand has been driven by South America.

Based on a description of the Units, Mr. Weaver said that the combustion turbine-generator would be worth approximately \$13 to \$14 million. The SCR would have a market value of approximately \$1 to \$1.5 million.

### 3.7 PENN ENERGY EQUIPMENT EXCHANGE

Penn Energy Equipment Exchange (Penn Energy) is a Web-based used and surplus equipment exchange serving the global energy industry. BMcD researched the gas turbine generators for sale on the Penn Energy website (<http://www.pennenergyequipment.com/>). During the research, BMcD found four combustion turbine-generators listed on the Penn Energy website which appear to be fair representations to the Units.

Table 3.7 presents the turbines listed on the website with information regarding the manufacturer, model, quantity available, output, condition as presented within the listing, and listing price.

**Table 3.7 Penn Energy Comparable Listings**

| Manufacturer     | Model            | Status   | Output |      |            | Price        |         |                   |
|------------------|------------------|----------|--------|------|------------|--------------|---------|-------------------|
|                  |                  |          | Qty.   | (MW) | Condition  | Price (\$)   | (\$/kW) | Reference         |
| General Electric | LM2500           | For Sale | 1      | 25   | Overhauled | \$7,000,000  | \$280   | Data Sheet No. 12 |
| General Electric | LM2500           | For Sale | 1      | 25   | Overhauled | \$8,500,000  | \$340   | Data Sheet No. 12 |
| Pratt & Whitney  | FT4CA-9          | For Sale | 2      | 18   | Overhauled | \$5,200,000  | \$289   | Data Sheet No. 11 |
| Pratt & Whitney  | FT4C-1D Twin Pac | For Sale | 2      | 48   | Overhauled | \$12,500,000 | \$260   | Data Sheet No. 11 |

### 3.8 SAN FRANCISCO PUBLIC UTILITIES COMMISSION

San Francisco Public Utilities Commission (SFPUC) provides water, wastewater, and electric utilities to the San Francisco, California area. In March 2010, SFPUC sold four new, or unused, General Electric LM6000 PC Sprint combustion turbine-generators at a public auction.

Table 3.8 presents the turbines sold during the auction with information regarding the manufacturer, model, quantity sold, output, condition as presented within the listing, and listing price.

**Table 3.8 San Francisco Public Utility Company Sale**

| Manufacturer     | Model            | Status | Output |      |           | Price (\$)   | Price (\$/kW) | Reference        |
|------------------|------------------|--------|--------|------|-----------|--------------|---------------|------------------|
|                  |                  |        | Qty.   | (MW) | Condition |              |               |                  |
| General Electric | LM6000 PC Sprint | Sold   | 4      | 49   | New       | \$11,000,000 | \$224         | Data Sheet No. 9 |

### 3.9 MMC ENERGY, INC.

MMC Energy, Inc. completed the sale of two General Electric LM6000 PC Sprint combustion turbine-generators to a subsidiary, Pro Energy, in 2009. According to a press release, the sale of the turbines was part of a process to liquidate the remaining assets of MMC Energy.

Table 3.9 presents the turbines sold with information regarding the manufacturer, model, quantity sold, output, condition as presented within the listing, and listing price.

**Table 3.9 MMC Energy, Inc. Sale**

| Manufacturer     | Model            | Status | Output |      |           | Price (\$)   | Price (\$/kW) | Reference         |
|------------------|------------------|--------|--------|------|-----------|--------------|---------------|-------------------|
|                  |                  |        | Qty.   | (MW) | Condition |              |               |                   |
| General Electric | LM6000 PC Sprint | Sold   | 2      | 50   | New       | \$13,325,000 | \$267         | Data Sheet No. 13 |

### 3.10 AXFORD CONSULTING REPORT

Starwood Energy retained Axford Consulting (Axford) in January 2010 to conduct an appraisal of the Units. BMcD reviewed letter memorandum from Axford for the "Appraisal of FT8 SwiftPac Genset – El Cajon, CA." BMcD provides the following comments regarding the memorandum prepared by Axford:

1. The Axford report states FOB factory pricing for new units to be:
  - a. GE LM6000 with an output of 50 MW is \$17 million (\$340/kW)
  - b. FT8 Swift Pac with an output of 62 MW is \$22 million (\$354/kW)

2. BMcD concludes the pricing Axford presented for new units is a fair representation of the market. BMcD has received recent price quotes for the same equipment to be:
  - a. GE LM6000 with an output of approximately 50 MW is \$19 million (\$380/kW)
  - b. FT8 SWIFTPAC with an output of approximately 60 MW is \$21 million (\$350/kW)
3. Based on conversations BMcD had with various gray market equipment vendors, the current market conditions regarding used equipment demands and the South American countries' market conditions as described by Axford appear to be accurate.
4. Axford's valuation range for the combustion turbine-generator is \$16 to \$20 million. Based on conversations with gray market equipment vendors, current market listings, and the price of new equipment, BMcD concludes that Axford's valuation range of \$16 to \$20 million for the FT8 combustion turbine-generator appears to be high.
5. BMcD concludes a valuation range of \$1 to \$2 million for the SCR and \$500,000 for the GSU transformer seem to be reasonable, however, the estimates appear to be on the upper limit of a fair market range. The actual price will be dependent on finding a suitable end user. According to recent price quotes BMcD has received for new SCR systems with NO<sub>x</sub> and CO catalyst, the cost of a new SCR system for an LM6000 or FT8 Twin Pac is approximately \$2.5 to \$3 million. Additionally, BMcD has received several bids for similarly sized, new GSU transformers ranging from \$500,000 to \$750,000. BMcD addresses the value of the SCR and transformers in Section 4 within the site retirement cost estimate.

### 3.11 MARKET VALUE CONCLUSIONS

Table 3.10 presents a summary of all of the comparable listings which BMcD identified during the market research. The listings are grouped by the used equipment vendor or selling entity.



Table 3.10 Summary of Comparable Listings

| Manufacturer            | Model             | Status   | Qty. | Output (MW) | Condition   | Price (\$)   | Price (\$/kW) | Additional Comments  | Reference          |
|-------------------------|-------------------|----------|------|-------------|-------------|--------------|---------------|--|--------------------|
| <b>RMA Global</b>       |                   |          |      |             |             |              |               |  |                    |
| Pratt & Whitney         | FT4A              | For Sale | 1    | 22.5        | Used        | \$4,500,000  | \$200         | #2 Diesel only, built in 1969  | RMA Online Listing |
| General Electric        | LM6000 PC Sprint  | For Sale | 2    | 48          | New         | \$17,850,000 | \$372         | Includes warranty  | Data Sheet No. 2   |
| General Electric        | LM6000 PC Sprint  | For Sale | 2    | 47          | New         | \$16,000,000 | \$340         | Includes anti-icing system, SCR (\$2.5M) and GSU (\$800k) available    | Data Sheet No. 1   |
| General Electric        | LM2500 PE         | Sold     | 1    | 26          | New         | \$6,500,000  | \$250         | Sold in 2008, dual fuel, new turbine rebuilt generator, stack included | Data Sheet No. 5   |
| General Electric        | LM2500 PE-MIDW    | For Sale | 1    | 22          | Low hours   | \$6,000,000  | \$273         | Trailer mounted, built in 1993, not operated                           | RMA Online Listing |
| General Electric        | LM6000 PA         | For Sale | 2    | 40.7        | Used        | \$12,500,000 | \$307         | Includes auxiliary and GSU transformers and chilled water system       | Data Sheet No. 3   |
| Pratt & Whitney         | FT8 Twin Pac      | For Sale | 1    | 55.4        | New         | \$18,000,000 | \$325         |  | Data Sheet No. 4   |
| <b>CFAS Enterprises</b> |                   |          |      |             |             |              |               |  |                    |
| Rolls Royce             | RB211-24C         | For Sale | 1    | 25          | Low hours   | \$10,500,000 | \$420         | 462 hours, includes numerous BOP equipment                             | Data Sheet No. 6   |
| Pratt & Whitney         | FT4A-11 Power Pac | For Sale | 1    | 23          | Refurbished | \$6,000,000  | \$261         |  | Data Sheet No. 7   |
| Pratt & Whitney         | FT4A-9 Power Pac  | For Sale | 2    | 18          | Rebuilt     | \$4,832,000  | \$268         | Includes anti-icing system   | Data Sheet No. 8   |
| <b>CTEC</b>             |                   |          |      |             |             |              |               |  |                    |
| Pratt & Whitney         | FT8 Power Pac     | For Sale | 1    | 25          | Low hours   | \$5,500,000  | \$220         |  | Via Email          |
| Pratt & Whitney         | FT8 Twin Pac      | Sold     | 1    | 50          | Low hours   | \$12,000,000 | \$240         | Sold, \$12M listing prior to sale                                      | Via Email          |

Table 3.10 Summary of Comparable Listings (Continued)

| Manufacturer                             | Model            | Status   | Qty. | Output (MW) | Condition  | Price (\$)   | Price (\$/kW) | Additional Comments                                       | Reference         |
|--|------------------|----------|------|-------------|------------|--------------|---------------|---|-------------------|
| <b>Horizon Energy Systems</b>            |                  |          |      |             |            |              |               |   |                   |
| General Electric                         | LM6000 PA        | Sold     | 1    | 40          | Used       | \$13,500,000 | \$338         | Cogen, in storage, very good condition, sold to Venezuela | Via Email         |
| Rolls Royce                              | Trent 60         | Sold     | 4    | 58          | New        | \$20,000,000 | \$345         | Full warranty, stacks, SCR, dual fuel, sold to Venezuela  | Via Email         |
| Pratt & Whitney                          | FT4 Twin Pac     | Sold     | 2    | 45          | Used       | \$12,500,000 | \$278         | Overhauled, sold to Venezuela                             | Via Email         |
| <b>San Francisco Public Utility</b>      |                  |          |      |             |            |              |               |   |                   |
| General Electric                         | LM6000 PC Sprint | Sold     | 4    | 49          | New        | \$11,000,000 | \$224         | Sold to Venezuela, never installed                        | Data Sheet No. 9  |
| <b>International Power Machinery Co.</b> |                  |          |      |             |            |              |               |   |                   |
| General Electric                         | LM5000           | For Sale | 2    | 35          | Used       | \$4,300,000  | \$123         | Used, high hours (50,000+), refurbished                   | Via Email         |
| <b>Camelot Technologies Group, Inc</b>   |                  |          |      |             |            |              |               |   |                   |
| Pratt & Whitney                          | FT4A-9           | For Sale | 1    | 21          | Low hours  | \$3,250,000  | \$155         | Diesel fuel, refurbished                                  | Data Sheet No. 10 |
| <b>Penn Energy</b>                       |                  |          |      |             |            |              |               |   |                   |
| General Electric                         | LM2500           | For Sale | 1    | 25          | Overhauled | \$7,000,000  | \$280         | Land based, overhauled                                    | Data Sheet No. 12 |
| General Electric                         | LM2500           | For Sale | 1    | 25          | Overhauled | \$8,500,000  | \$340         | Trailer mounted, overhauled                               | Data Sheet No. 12 |
| Pratt & Whitney                          | FT4CA-9          | For Sale | 2    | 18          | Overhauled | \$5,200,000  | \$289         | Overhauled  | Data Sheet No. 11 |
| Pratt & Whitney                          | FT4C-1D Twin Pac | For Sale | 2    | 48          | Overhauled | \$12,500,000 | \$260         | Overhauled  | Data Sheet No. 11 |
| <b>MMC Energy, Inc</b>                   |                  |          |      |             |            |              |               |   |                   |
| General Electric                         | LM6000 PC Sprint | Sold     | 2    | 50          | New        | \$13,325,000 | \$267         | Sold as liquidation to subsidiary                         | Data Sheet No. 13 |



BMcD evaluated the average price difference for new and used combustion turbine-generators. Table 3.11 presents the average listing price on a \$/kW basis for both new-secondary market turbines and used-refurbished combustion turbines. The information presented also provides a breakout for turbines that have been recently sold and turbines which are currently being offered for sale. The average listing price does not include pricing information for new combustion turbine-generators from the original equipment manufacturers, only unused equipment on the secondary market.

**Table 3.11 Average Listing Price**

| <b>Combustion-Turbine Condition</b> | <b>No. of Units</b> | <b>Total Output (MW)</b> | <b>Total Aggregate Listing Price</b> | <b>Average Listing Price (\$/kW)</b> |
|-------------------------------------|---------------------|--------------------------|--------------------------------------|--------------------------------------|
| <b>New/Unused</b>                   |                     |                          |                                      |                                      |
| Sold                                | 11                  | 554                      | \$157,150,000                        | \$284                                |
| For Sale                            | 5                   | 245                      | \$85,700,000                         | \$349                                |
| <b>Total</b>                        | <b>16</b>           | <b>799</b>               | <b>\$242,850,000</b>                 | <b>\$304</b>                         |
| <b>Used/Refurbished</b>             |                     |                          |                                      |                                      |
| Sold                                | 4                   | 180                      | \$50,500,000                         | \$281                                |
| For Sale                            | 18                  | 508                      | \$129,914,000                        | \$256                                |
| <b>Total</b>                        | <b>22</b>           | <b>688</b>               | <b>\$180,414,000</b>                 | <b>\$262</b>                         |

As presented in Table 3.11, new/unused combustion turbine-generators that have never been installed are approximately \$40/kW higher in value compared to used or refurbished equipment. While the Units at Calpeak Power – El Cajon have low hours, BMcD would classify the Units as used/refurbished equipment, as did the used equipment vendors contacted during the market research. There is a relatively small sample size of used, sold combustion turbines. Therefore, BMcD applied the \$/kW list price for the aggregate of the used turbines (both sold and for sale) to the output of the Units (50 MW). This would yield a fair market price of approximately \$13 million.

$$Fair\ Market\ Price = \frac{\$262}{kW} * 50,000\ kW = \$13,100,000$$

Based on the market research BMcD has conducted, as well as conversations with used equipment vendors, BMcD recommends the fair market value of the combustion turbine-generator to be \$12 to \$14 million.

$$Fair\ Market\ Price\ Range\ \$12,000,000\ to\ \$14,000,000$$

\* \* \* \* \*

**SECTION 4**  
**SITE RETIREMENT COST ESTIMATE**

## 4.0 SITE RETIREMENT COST ESTIMATE

### 4.1 LEASE AGREEMENT PROVISIONS

According to the lease agreement between SDGE and Calpeak Power, LLC – El Cajon:

“Subject to section 20, on or before the date ninety (90) days after the termination or expiration of this Agreement, CalPeak shall at, its sole cost and expense, remove from the Premises the Unit and all debris and waste material resulting from CalPeak’s activities, and restore the Premises as nearly as possible to the condition that existed prior to CalPeak’s entry upon the Premises. Such restoration shall include, but not be limited to remediation (or at Company’s discretion payment to the Company within thirty (30) days of receipt of an invoice for Company’s cost of remediation) of contamination, if any, of soil or ground water by hazardous substances, waste or materials resulting from CalPeak’s operations or activities on the Premises. In the event CalPeak fails to remove the Unit or fails to restore the Premises, the Company may elect to remove the Unit and perform such removal or restoration as necessary and CalPeak shall pay the Company for the costs and expenses incurred by the Company in connection with such removal and restoration, within thirty (30) days of receipt of an invoice from the Company. Company may dispose of any property it removes in its sole and absolute discretion.”

Based on the above provisions, BMcD prepared a site retirement cost estimate to remove all of the equipment from the site and return the site to a paved parking lot, which was the preexisting site condition prior to the construction of the Plant. The site retirement cost estimate is a screening level cost estimate to be used for the purposes of this study. The site retirement cost estimates is not a budgetary cost estimate for project execution and should not be used as such. Prior to retiring the site, BMcD would recommend conducting a detailed, budgetary cost estimate for retiring the site and selling the salvageable and scrap equipment.

### 4.2 SALVAGEABLE EQUIPMENT VALUATIONS

Since the Plant is only 10 years old, some of the above grade equipment will have value within the used equipment market above the simple scrap value. Other above grade equipment and steel structures are assumed to have scrap value to a salvage contractor to offset some of the removal costs.





material), subcontract costs (which represents work that would be conducted by a subcontractor to the general contractor), and equipment rental costs.

**Table 4.1 Retirement Cost Estimate Summary**

| Description                               | Labor            | Material        | Subcontract      | Equipment Rental | Total Retirement Cost |
|---|------------------|-----------------|------------------|------------------|-----------------------|
| Concrete Demolition                       | \$119,000        |                 | \$30,000         | \$130,000        | \$279,000             |
| Perimeter Screen Walls                    | \$17,000         |                 | \$4,000          | \$11,000         | \$32,000              |
| Miscellaneous Structural Steel Demolition | \$13,000         |                 |                  | \$2,000          | \$15,000              |
| Major Equipment Removal                   | \$142,000        |                 | \$1,000          | \$171,000        | \$314,000             |
| Above Grade Piping Demolition             | \$9,000          |                 | \$1,000          | \$4,000          | \$14,000              |
| Miscellaneous Site Demolition             | \$18,000         | \$1,000         |                  | \$6,000          | \$25,000              |
| Site Improvements                         | \$5,000          | \$28,000        | \$131,000        | \$5,000          | \$169,000             |
| <b>Total</b>                              | <b>\$323,000</b> | <b>\$29,000</b> | <b>\$167,000</b> | <b>\$329,000</b> | <b>\$848,000</b>      |

As previously indicated, several pieces of equipment will have secondary market value for reuse at other plants. Other balance of the plant materials will have scrap value. Based on quantities from the detailed design drawings, BMcD determined an approximate amount of steel that would be available for scrap to sell to a recycler. Table 4.2 presents the total retirement costs with a credit for equipment sales and scrap value.

**Table 4.2 Total Retirement Cost Estimate Summary with Equipment Sales**

| <b>Description</b>                        | <b>Total Retirement Cost</b> | <b>Scrap or Resale Value<sup>1</sup></b> | <b>Total Net Cost</b> |
|---|------------------------------|--|-----------------------|
| Concrete Demolition                       | \$279,000                    |  | \$279,000             |
| Perimeter Screen Walls                    | \$32,000                     | (\$2,000)                                | \$30,000              |
| Miscellaneous Structural Steel Demolition | \$15,000                     | (\$3,000)                                | \$12,000              |
| Major Equipment Removal                   | \$314,000                    | (\$1,555,000)                            | (\$1,241,000)         |
| Above Grade Piping Demolition             | \$14,000                     | (\$5,000)                                | \$9,000               |
| Miscellaneous Site Demolition             | \$25,000                     |  | \$25,000              |
| Site Improvements                         | \$169,000                    |  | \$169,000             |
| <b>Total</b>                              | <b>\$848,000</b>             | <b>(\$1,565,000)</b>                     | <b>(\$717,000)</b>    |

1. Note:

|                                     |  |
|-------------------------------------|--|
| SCR System Resale Value             | \$1,250,000                            |
| GSU Transformer Resale Value        | \$250,000                              |
| Auxiliary Transformers Resale Value | \$25,000 each (two transformers)       |
| Scrap Steel Value                   | \$100 per ton (approximately 155 tons) |

As presented in Table 4.2, the resale of the existing equipment more than offsets the cost to remove the equipment and repave the site to match the surrounding parking lot and produces a positive asset value for Calpeak to retire the Plant.

The following assumptions were made as the basis for the cost estimate:

1. Use of an offsite landfill for disposal of demolition waste.
  - a. Approximately 10 miles from site location
  - b. Material was assumed to be recycled at the landfill at no cost to Calpeak
2. No hazardous construction material abatement is required.
3. No environmental costs have been included to address site clean-up of contaminated soils, hazardous materials, or other conditions present on-site having a negative environmental impact.
4. Combustion turbine-generator and associated control building are assumed to be removed with the sale of the equipment at Calpeak's cost. Hauling of the equipment is at the buyer's cost.
5. Transformers and the SCR system are assumed to be removed with the sale of the equipment at Calpeak's cost. Hauling of equipment is at the buyer's cost.
6. Electrical equipment, cabling, pump skids, fuel gas compressors, air compressors, above ground piping, and equipment enclosures are sold and removed from the Plant site prior to initiation of site demolition activities.

7. Approximately 155 tons of material is assumed to be sold for scrap recycling.
8. Underground piping is removed completely.
9. Any below grade piling, foundations, and drilled shaft piers will be removed completely.
10. Labor costs include appropriate effort for disassembling the equipment for reuse and sale on the secondary market.
11. Site area will be graded to achieve suitable site drainage to natural drainage patterns and the site will be repaved to match the surrounding parking lot. BMcD assumed pavement section would include a 6-inch aggregate base with a 4-inch asphalt surface.
12. Scrap steel values were assumed to be \$100 per ton (\$0.05 per pound) based on the type of steel on-site and information from San Diego area metal recyclers.
13. The site retirement cost estimate does not include contingencies.
14. Market conditions may result in cost variations at the time of contract execution.

\* \* \* \* \*

**SECTION 5**  
**CONCLUSIONS**



## 5.0 CONCLUSIONS

### 5.1 CONCLUSIONS

Based on the results of the evaluation conducted for the valuation of the combustion turbine-generator and site retirement assessment, BMcD concludes the following:

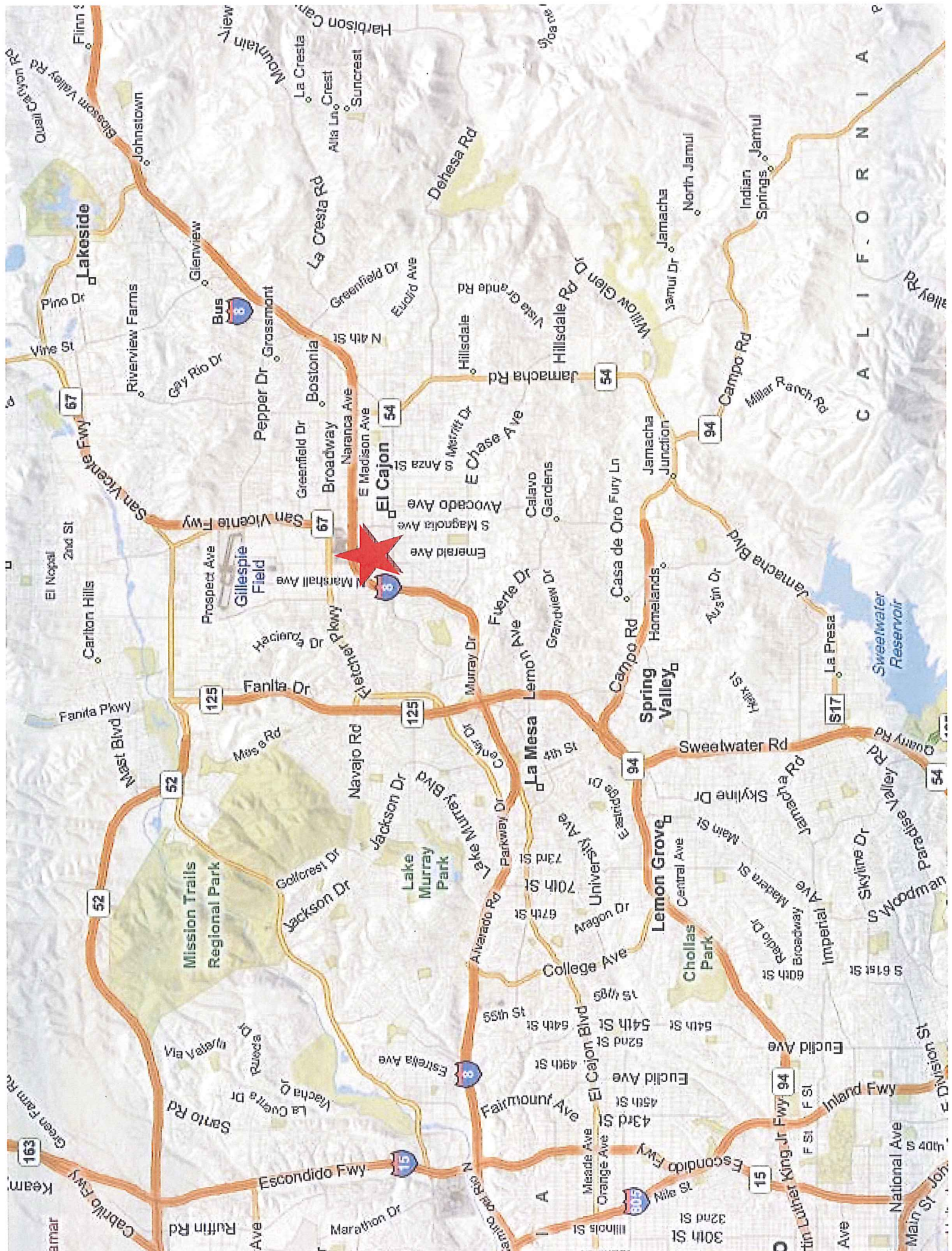
- The fair market value range for the combustion-turbine generator and associated turbine control equipment is \$12 to \$14 million.
- The total demolition costs to retire the facility are approximately \$848,000.
- The scrap and salvage value of the balance of plant equipment is approximately \$1,565,000.
- The net site retirement cost is negative \$717,000, that is the scrap and salvage value of the balance of plant equipment is greater than the cost to remove the equipment and combustion turbine-generator.
- The Purchase Price of Calpeak Power – El Cajon is the fair market value of the combustion-turbine generator less the site retirement cost (which is actually a credit), would equate to approximately \$12.7 to \$14.7 million.

*Purchase Price Range \$12,700,000 to \$14,700,000*

\* \* \* \* \*

**APPENDIX A**  
**SITE VICINITY MAP & AERIAL PHOTOGRAPH**





C A L I F O R N I A



El Cajon

Spring Valley

Lemon Grove

La Mesa

Mission Trails Regional Park

Lake Murray Park

Sweetwater Reservoir

Lakeside

Johnstown

Grossmont

Dehesa Rd

Jamacha

Indian Springs

Millar Ranch Rd

Carleton Hills

Gillespie Field

El Cajon

Spring Valley

Lemon Grove

La Mesa

Sweetwater Reservoir

La Presa

Sweetwater Reservoir

Sweetwater Reservoir

Sweetwater Reservoir

Fanita Pkwy

Navajo Rd

Murray Dr

Center Dr

Parkway Dr

College Ave

University Ave

Escondido Fwy

Imperial Ave

Woodrow Wilson Dr

Woodrow Wilson Dr

Woodrow Wilson Dr

San Vicente Fwy

San Vicente Fwy

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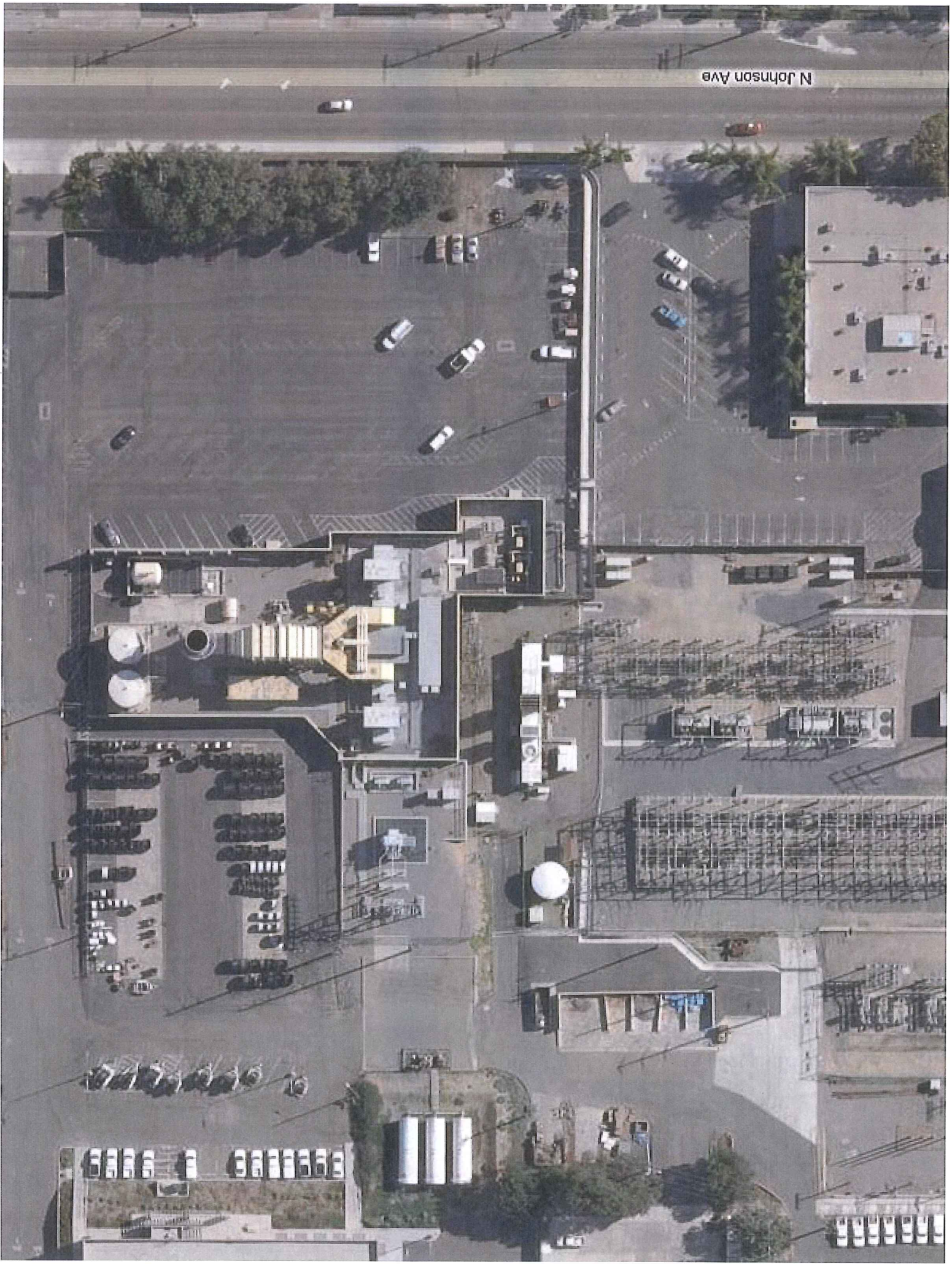
San Vicente Fwy

San Vicente Fwy

San Vicente Fwy



N Johnson Ave

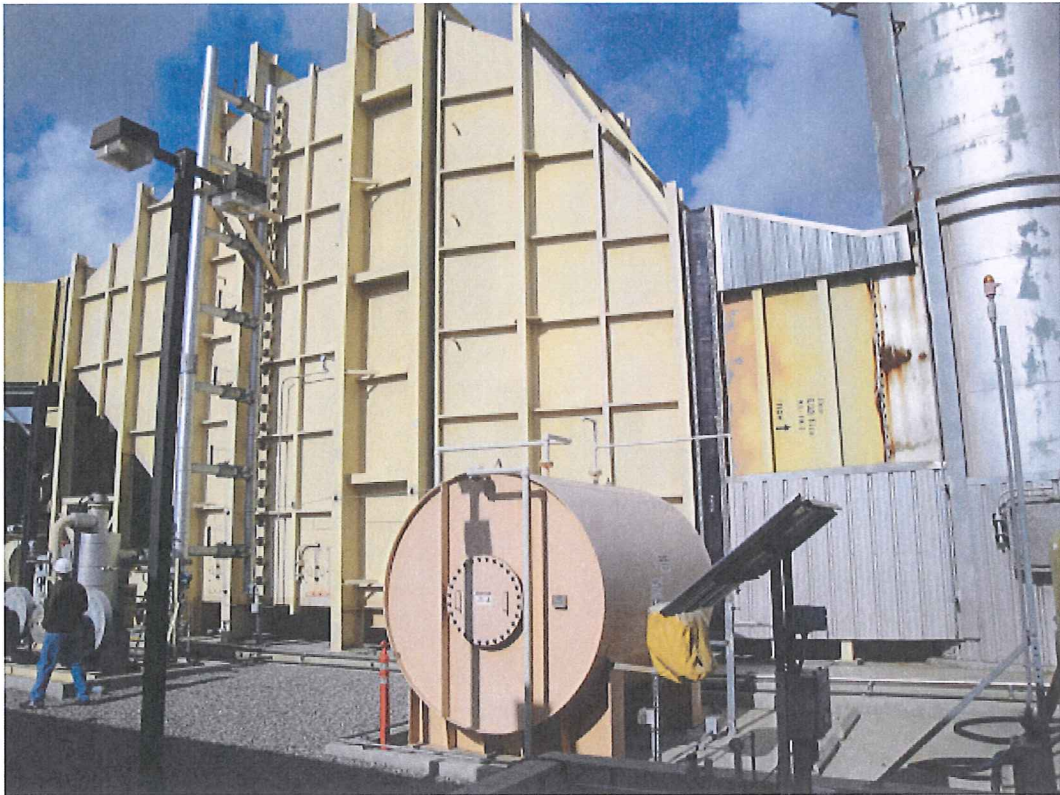




**APPENDIX B**  
**SITE VISIT PHOTOGRAPHS**



















**APPENDIX C**  
**LAND LEASE AGREEMENT PROVISIONS**



## Attachment 1: CalPeak El Cajon Key Lease Provisions

### **19. SURRENDER:**

Subject to section 20, on or before the date ninety (90) days after the termination or expiration of this Agreement, CalPeak shall at, its sole cost and expense, remove from the Premises the Unit and all debris and waste material resulting from CalPeak's activities, and restore the Premises as nearly as possible to the condition that existed prior to CalPeak's entry upon the Premises. Such restoration shall include, but not be limited to remediation (or at Company's discretion payment to the Company within thirty (30) days of receipt of an invoice for Company's cost of remediation) of contamination, if any, of soil or ground water by hazardous substances, waste or materials resulting from CalPeak's operations or activities on the Premises. In the event CalPeak fails to remove the Unit or fails to restore the Premises, the Company may elect to remove the Unit and perform such removal or restoration as necessary and CalPeak shall pay the Company for the costs and expenses incurred by the Company in connection with such removal and restoration, within thirty (30) days of receipt of an invoice from the Company. Company may dispose of any property it removes in its sole and absolute discretion.

To ensure CalPeak's duties and obligations under this section 19, CalPeak shall deliver to Company a guaranty executed by UT Finance Corporation in substantially the same form as Exhibit E, attached hereto and incorporated herein.

### **20. PURCHASE OPTION:**

#### **20.1 GENERALLY:**

The Company shall have the option to purchase the Unit on an "as is" basis, including all equipment, spare parts, permits, plans, emission credits or offset, records, unexpired warranties, and other assignable rights directly associated with the Unit. The Company shall have the option to purchase if CalPeak does not elect to extend the term. The Company shall always have the option to purchase at the end of the extension term. The Company shall deliver written notice of its election to purchase the Unit to CalPeak at least sixty (60) days prior to the end of the initial term, if CalPeak elects not to exercise its extension option, or at least sixty (60) days prior to the end of the extension term. The Company's notice shall include the Company's determination of the Purchase Price (as defined in Section 20.2) for the Unit. Within thirty (30) days after receipt of the Company's notice, CalPeak may deliver written objection to the Company's stated Purchase Price, in which event the Purchase Price shall be determined in accordance with section 12.2 and if no Purchase Price is agreed to pursuant to said section, in accordance with a mutually agreed appraisal process. The purchase date shall be a) the final day of the Term, if the purchase price is determined by CalPeak accepting the Company's initial offer or in accordance with section 12.2 hereof, or b) 30 days after the date on which the appraiser(s) renders a decision or the final day of the term, whichever is later, if the purchase price is determined pursuant to an agreed appraisal procedure (each a "Purchase Date"). If the final Purchase Price that results from the appraisal process is higher than the Company's original Purchase Price, the Company, at its sole option, may elect not to purchase the Unit.

## **20.2 PRICE:**

The Purchase Price for the Unit shall be (a) the Fair Market Value of the Pratt and Whitney 49-megawatt FT8 Swift Pac aero-derivative combustion turbine-generator consisting of the *gas turbine unit, the generator unit, and the electrical/control unit only* (emphasis added), less (b) the costs that would have been incurred by CalPeak to comply with section 19 of this Agreement. To the extent that CalPeak can remediate the Premises of hazardous materials caused by its activities without materially impacting the operations of the Unit, CalPeak shall perform those activities and the Purchase Price shall be adjusted accordingly. "Fair Market Value" means an amount that would be obtained in an arms length transaction between an informed and willing buyer and an informed and willing seller, without regard to the existence of the Company's right to purchase, but taking into account that the equipment can no longer remain on the site. CalPeak shall make the Unit, including all documentation and other information related to it, reasonably available to the Company and the Company shall have the right to inspect the Unit at its expense to assess the condition of the Unit. Following any inspections, CalPeak shall operate and maintain the Unit consistent with its practices prior to the inspection.

## **EXHIBIT B**

### **IDENTIFICATION OF UNIT**

The Unit shall consist of the following:

One (1) Pratt and Whitney 49 megawatt (MW) FT8 Swift Pac aero-derivative combustion turbine-generator.

The FT8 Swift Pac consists of three (3) primary units, the natural gas turbine unit, the generator unit, and the electrical/control unit.

Turbine and Generator unit consist of two opposed gas turbines directly connected through a diaphragm coupling to a single double-ended electric generator.

The electrical/control unit includes 15kV switchgear and all of the controls and instruments necessary for operation.

Emissions control equipment and structures including:

SCR with related catalyst, control skid, pumps, tanks; CO catalyst; CEM/DAS; ducting, exhaust stack and silencer.

Fuel gas compressor skid

Electrical equipment including transformers and breakers

Other related and ancillary equipment including, but not limited to:



Evaporative cooling water equipment including skids, pumps and tanks.  
Fire protection equipment

## **EXHIBIT C**

### **ENVIRONMENTAL/SAFETY PERFORMANCE REQUIREMENTS**

CalPeak is responsible for its own environmental and safety management and is expected to manage independently in this regard. However, the Company expects CalPeak to meet similar high compliance standards as the Company holds for its own facilities.

The following are environmental and safety requirements with which the CalPeak shall comply. This list is not inclusive of all environmental and safety requirements and is not meant to be used as a substitute for Federal, State, or local laws, regulations, and ordinances.

#### **1. WASTE MANAGEMENT**

- A. CalPeak shall obtain its own hazardous waste generator EPA ID number for its operation and shall handle all aspects of waste management separate from the Company's operation.

#### **2. HAZARDOUS MATERIALS MANAGEMENT**

- A. CalPeak shall prepare and submit to the proper regulatory agencies its own Hazardous Materials Business Plan and Hazardous Materials Inventory pertaining to hazardous substances handled on the Premises of the operation covered under the Agreement.
- B. CalPeak shall prepare a Spill Prevention Control and Countermeasure Plan in accordance with applicable laws, regulations, or ordinances.
- C. CalPeak shall construct adequate berms and secondary containment in accordance with applicable laws, regulations, and ordinances to protect property from contact with hazardous substances in the event of a leak or spill.

#### **3. WATER QUALITY**

- A. CalPeak shall implement a means to control all water discharges, including storm water runoff, that is independent of any system Company maintains on and for the benefit of the property, so that discharges do not cause erosion or adverse environmental impact or commingle with Company stormwater runoff or discharges. To the extent CalPeak affects the existing water discharges, they shall control it to the sole satisfaction of the Company.
- B. CalPeak shall not initiate any well installation on the property without prior written approval from the Company.

- C. The Agreement does not grant access or use rights to any surface or subsurface minerals or resources including groundwater.

**4. BASELINE SITE CONDITIONS**

- A. CalPeak shall assume responsibility for identifying and addressing any endangered species and historic or cultural artifact issues associated with the site.



**APPENDIX D**  
**VENDOR LISTINGS & DATA SHEETS**

# DATA SHEET NO. 1

## Power Plants OnLine

Item #.....: 105696

Category of Equipment.....:

Short Description.....: 47 MW LM6000 PC Sprints Gas Turbine Generator

Full Description:

47 MW LM6000 PC Sprints Gas Turbine Generator sets new with SCR and step-up transformer. (2 sets available immediately) Winterized to -20F (Natural Gas Only) Inlet Spray Mist Evaporative Cooling / Anti Icing Systems (exhaust heat exchangers). 2 generator step-up transformer 13.8Kv to 138kV. 2 SCR's, NOx - 5ppmvd @ 15% O2, CO - 10ppmvd @15% O2, NH3 Slip - 10ppmvd at 15% O2 Price is \$16.0 Million each. SCR is \$2.5 Million. Transformer is \$800K

Picture/More Detail URL.....: (Not Available)

Quantity Available.....:

Price/ea. (\$US).....: \$19.3MM EA

Customer Reference Number.....: ctg-081601

Company Name.....: Power Plants OnLine

Location name.....: OFFICE

address.....: 482 SECOND STREET

.....:

city.....: LAKE OSWEGO

state.....: OR

Contact name.....: Milt Fyre

phone.....: 503-595-5418

fax.....: 503-635-0091

email.....: [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

# DATA SHEET NO. 2

## Power Plants OnLine

Item #.....: 105698

Category of Equipment.....:

Short Description.....: LM 6000 PC New, with Warranty!!

Full Description:

2 (two) LM 6000 PC New, with Warranty!! Available immediately.  
\$17.85 Million Each LM6000PC gas turbine engine Natural gas fuel,  
water injected combustion system, complete and self -contained on the  
unit, with connection on the baseplate for customers filtered,  
regulated fuel supply at 675 psig /- 20 psig. Generator, 13,800  
Volt, 60 Hz, 3600RPM, 71.176 MVA @ 0.85 pf, 59 Deg F cooling air. Low  
maintenance brushless excitation system suitable for Class I, Group  
D, Div 2 areas. Neutral and line cubicles with CTs, s

Picture/More Detail URL.....: [Click Here](#)

Quantity Available.....: 2.0

Price/ea. (\$US).....: \$17.85MM EA

Customer Reference Number.....: ctg-071801

Company Name.....: Power Plants OnLine

Location name.....: OFFICE

address.....: 482 SECOND STREET

city.....: LAKE OSWEGO

state.....: OR

Contact name.....: Milt Fyre

phone.....: 503-595-5418

fax.....: 503-635-0091

email.....: [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

# DATA SHEET NO. 3

## Power Plants OnLine

Item #: 105777

Category of Equipment:

Short Description: One (1) 40mw (nominal rating) General Electric LM6000 gas fired gas turbine gene  
Full Description:

One (1) 40mw (nominal rating) General Electric LM6000 gas fired gas turbine generator, a two-shaft machine, cold-end drive directly coupled to a Brush electric generator, geared to 3000 rpm, 50 Hz application Model 7LM6000 - PA -NG04. Year of installation-1995/96 Where is as is subject to inspection. We can provide a company for relocation and project financing with a 30% equity position by the buyers. We also can provide an O&M company and a site contractor.  
Price: USD\$13.75 million

Picture/More Detail URL: [Click Here](#)

Quantity Available: 1.0

Price/ea. (\$US): \$13.75MM

Customer Reference Number: pp-020501

Company Name: Power Plants OnLine

Location name: OFFICE

address: 482 SECOND STREET

city:

city: LAKE OSWEGO

state: OR

Contact name: Milt Fyre

phone: 503-595-5418

fax: 503-635-0091

email: [milt@rmaqlobal.com](mailto:milt@rmaqlobal.com)



**Two 45 MW GE LM6000 PA Gas Turbine Generator Sets for Sale (60Hz)  
Complete package with parts and labor warranty.  
\$12.5 Million Each Available Immediately**

For sale are two GE LM-6000 PA gas turbine generator set packages with a nominal ISO rating of 40.7MW each. These units are complete and enclosed with integrated turbine control panels, controls and indicators. Additionally, these units come with 1,000 ton chillers to cool the inlet temperature to allow for increased output to 48MW. Each generator set will come complete with a GE parts and labor warranty.

**List of equipment and additional information:**

**Average annual heat rate - 9,947 to 8,447 BTU/kWhr (LHV)**

**Natural gas fuel - (676 psig)**

**Main load gear - 3,637/3,090 rpm**

**Hydraulic starting motor**

**Brush Electric Machines Ltd. 13.8kVA, 61,375 mVA, .8 PF, 60Hz**

**Brushless exciter system**

**Electronic voltage regulator**

**GSU Transformer**

**Medium voltage aux. transformer**

**Low voltage aux. transformer**

**3,300 volt MCC**

**Chilled water system - includes chiller and air inlet manifold**

**Woodward Netcon 5000 Controller**

**Turbine exhaust system**

**Make-up water system**

**Inlet air management system**

**Noise reduction system**

**Duplex liquid fuel filter complete with fuel preheating capability.**

**One (1) lot of interconnecting power cables, control cables, interconnecting piping with expansion flanges, gaskets and hardware for each unit.**

**Water injection pump and filter skids including; one (1) duplex pump skid and two duplex filter skids for each unit.**

**Instrument air system for each unit.**

**Wonderware remote control module.**

**Contact Milt Fyre for more details.**

**Phone: 503-239-5157**

**Fax: 503-239-5136**

**[Email: rma@transport.com](mailto:rma@transport.com)**

# DATA SHEET NO. 4

## Power Plants OnLine

Item #.....: 105688

Category of Equipment.....:

Short Description.....: 55.4 MW FT8 Gas Turbine Generator 60 Hz. Twin Pac New

Full Description:

55.4 MW FT8 Gas Turbine Generator 60 Hz. Twin Pac New

Picture/More Detail URL.....: (Not Available)

Quantity Available.....: 1.0

Price/ea. (\$US).....: \$18MM EA

Customer Reference Number.....: ctg-111301

Company Name.....: Power Plants OnLine

Location name.....: OFFICE

address.....: 482 SECOND STREET

city.....: LAKE OSWEGO

state.....: OR

Contact name.....: Milt Fyre

phone.....: 503-595-5418

fax.....: 503-635-0091

email.....: [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

# DATA SHEET NO. 5

## Power Plants OnLine

Item #.....: 105689

Category of Equipment.....:

Short Description.....: LM 2500 Gas Turbine Generator Set. New Gas Turbine and Rebuilt Generator

Full Description:

LM2500 PE gas turbine engine (new and unused) equipped with inlet bellmouth and screen.GE Generator, 26471 KVA iso rated, 13,800 Volt, 60 Hz, 3600 RPM, air cooled with GE excitation system and voltage regulator. Neutral and line cubicles with CTs, surge protectors and lightning arrestors.GE Mark V Unit control panel for indoor mounting in a controlled environment, including microprocessor fuel management and sequencing system, generator metering, vibration monitoring, CRT annunciation of alarms and shutdowns, and E

Picture/More Detail URL.....: [Click Here](#)

Quantity Available.....: 1.0

Price/ea. (\$US).....: \$8.4MM EA

Customer Reference Number.....: ctg-103001

Company Name.....: Power Plants OnLine

Location name.....: OFFICE

address.....: 482 SECOND STREET

city.....: LAKE OSWEGO

state.....: OR

Contact name.....: Milt Fyre

phone.....: 503-595-5418

fax.....: 503-635-0091

email.....: [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

**26 MW LM2500 Gas Turbine Generator. New gas turbine.  
Good Operating Condition. As is, where is.  
\$6.5 Million (USD)**

[\(LM2500 Gas Turbine Generator Images: click here!\)](#)

**LM 2500 - SCOPE OF SUPPLY**

**A. LM2500 -BASIC SCOPE OF SUPPLY**

LM2500 PE gas turbine engine (new and unused) equipped with inlet bellmouth and screen.

Liquid fuel system, complete and self-contained on the unit, with connection on the baseplate for customer of filtered distillate fuel at 600psig

Natural Gas fuel system, with connection on the baseplate for customer's filtered, regulated fuel supply at 400 psig \* 20 psig. (requires field installation of gas metering and block valves, not Included.

GE Generator, 26471 KVA iso rated, 13,800 Volt, 60 Hz, 3600 RPM, air cooled with GE excitation system and voltage regulator. Neutral and line cubicles with CTs, surge protectors and lightning arrestors.

I-beam baseplates for turbine, generator and unit mounted accessories.

Acoustic enclosure for gas turbine and generator. Ventilation systems, and AC internal lighting .

Air inlet filtration system for both gas turbine and generator

Electro-hydraulic start system.

Separate oil systems for gas turbine and generator, including duplex filters, duplex water/oil coolers

GE Mark V Unit control panel for indoor mounting in a controlled environment, including microprocessor fuel management and sequencing system, generator metering, vibration monitoring, CRT annunciation of alarms and shutdowns, and Ethernet/Modbus interface to buyer's DCS.

I/O cubicle mounted on gas turbine enclosure.

24V DC control system battery with dual battery chargers.

Fire and gas detection and extinguishing system for turbine compartments, complete with DC battery and charger.

"Soak wash" engine cleaning system.

Three sets of LM2500 gas turbine O&M manuals

LM2500 familiarization / basic operator training course at GE factory.

**B. LM2500 OPTIONAL EQUIPMENT AND SERVICES**

(I) included in base price (S) Quoted separately

- ( ) Option A - 50 Hz generator and associated unit AC devices
- ( ) Option B - Alternate voltage or power factor      KV @      pf
- ( ) Option C - Water cooled generator (TEWAC) for >85°F cooling water
- ( ) Option D - Fin-Fan oil coolers
- ( ) Option E - Alternate side location for piping connections and turbine removal
- ( ) Option F - Alternate side termination, lineside & neutral cubicles
- ( ) Option G -Synchronous Condenser Capability
- (I) Option H - Dual fuel system
- (I) Option I - Water injection metering system (NOx control with gaseous fuel system)
- ( ) Option J - Sprint (Spray Intercooling) Power Boost System



- ( ) Option K - Steam injection metering system (NOx control with gaseous fuel system only)
- ( ) Option L - Dry, Low Emissions (DLE) (NOx, CO and HC control without water or steam injection.....available for gaseous fuel only)
- ( I ) Option M - Evaporative cooling, MEE Fog design
- ( ) Option N - Inlet Air Anti-Ice System
- ( ) Option O - Inlet Air Chilling Coil
- ( I ) Option P - Exhaust Assembly includint GE flow enhancer to reduce back pressure turning elbow and 50 ft stack
- ( ) Option Q - Winterization Package
- ( ) Option R - Black Start System
- ( I ) Option S -Prewired 41 ft Modular Control Room, housing Unit control panel, generator breaker and Unit Motor Control centre
- ( I ) Option T - 15 KV generator breaker assembly, synchronization controls and generator protective relays
- ( I ) Option U - Unit Motor Control Center
- ( S ) Option V - Step up Transformer

#### EXCLUSIONS

The items listed below are excluded from our offering. Any other equipment or services not specifically listed in the scope of supply are also excluded.

- Fuel, fluids and chemicals
- Fuel storage tanks and forwarding equipment
- Water treatment and purification equipment
- Deaeration and chemical injection equipment
- Buildings, foundations and foundation embedments
- Filter house support structure other than standard
- High voltage switchgear and associated equipment
- Distributed plant control or remote control panels
- Balance of plant and energy optimization controls
- Cooling tower and circulating water system
- Interconnecting piping, conduit, and wiring between equipment modules
- Power plant calibration tools and ordinary hand tools
- Off loading of equipment at jobsite
- Yard light and fences
- Spare parts other than start-up spares
- Supervision or technical direction at jobsite for startup

**[\(LM2500 Gas Turbine Generator Images: click here!\)](#)**

**Contact Milt Fyre for more details.**

**[Email: milt@rmaglobal.com](mailto:milt@rmaglobal.com)**

**[Return to Main Index](#)**

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**[Email: sale@rmaglobal.com](mailto:sale@rmaglobal.com) Phone: (503) 595-5418 Fax: (503) 635-0091 Copyright 1995-2008: RMA Inc.**

# DATA SHEET NO. 6



## CFAS Enterprises Inc.

After Market Utility Power Equipment Brokerage

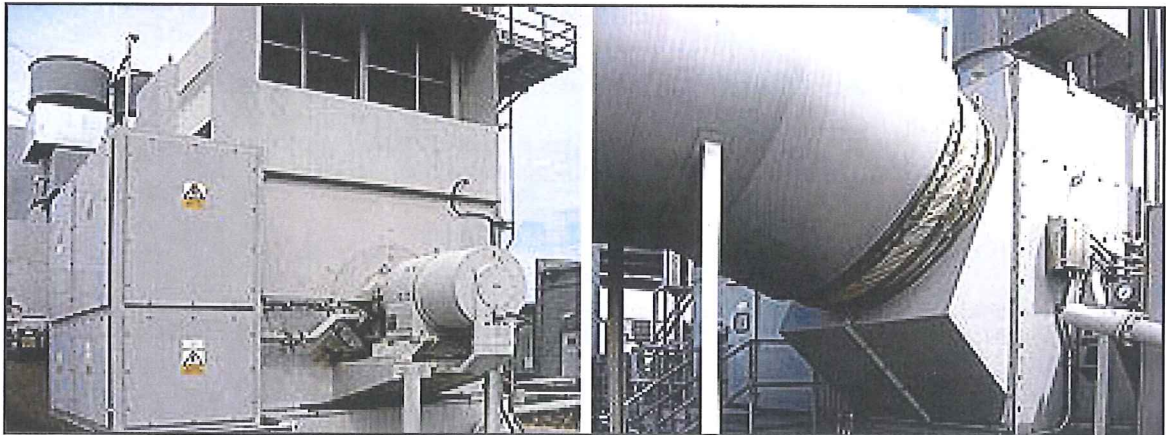
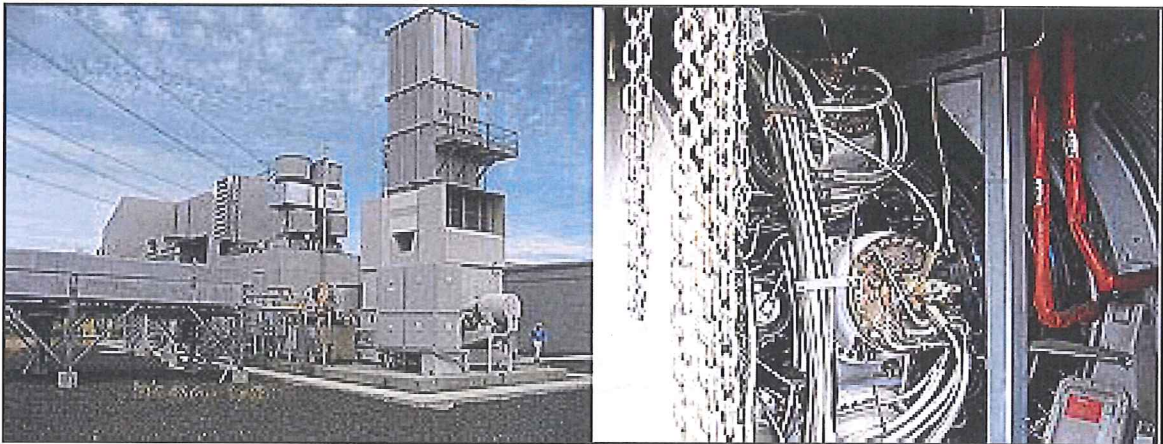
Mailto: [Staff@CFASPower.com](mailto:Staff@CFASPower.com)

Turbine URL: <http://CFASPower.com/Inventory.html>

Reciprocating URL: <http://CFASPower.com/Recips.html>

GTG\_1227SM\_RB211.doc

### 1 X 462 Hr RR RB211-24C 24000 KW Gas Turbine Generator 50Hz or 60Hz w/ BOP



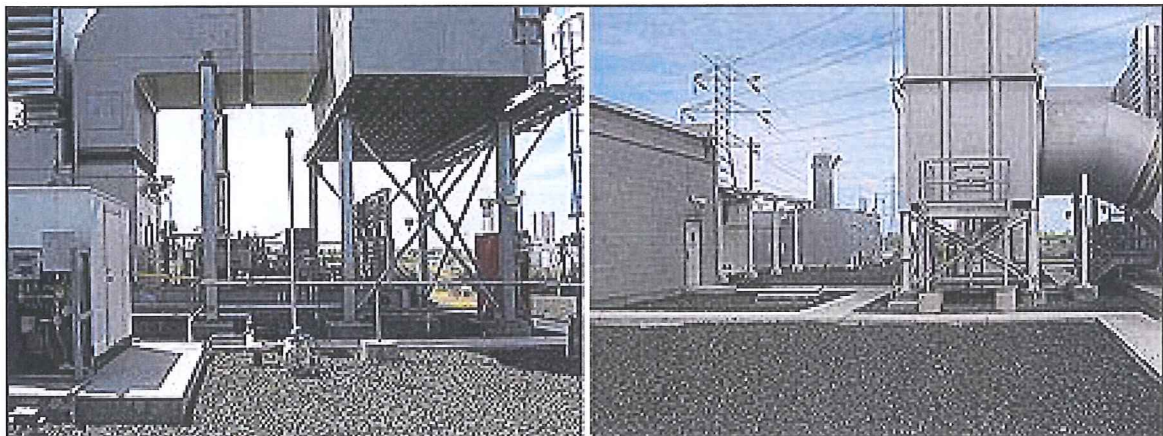
Asking Price: USD \$10.5MM  
Immediately Available

|                  |                  |
|------------------|------------------|
| Gas Turbine:     |                  |
| Manufacturer:    | Rolls Wood Group |
| Model:           | RB211-24C        |
| Turbine Rating:  | 25000 Kw         |
| Number Of Units: | 1                |
| Fuel:            | Natural Gas      |
| Hours:           | 462 Since New    |

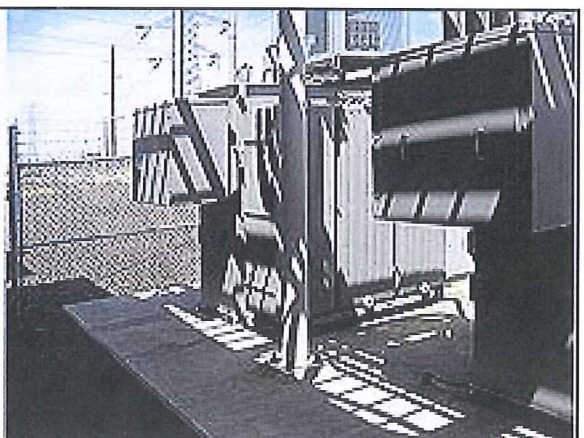
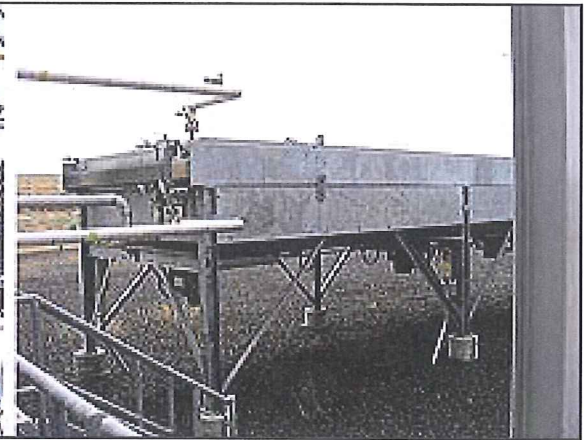
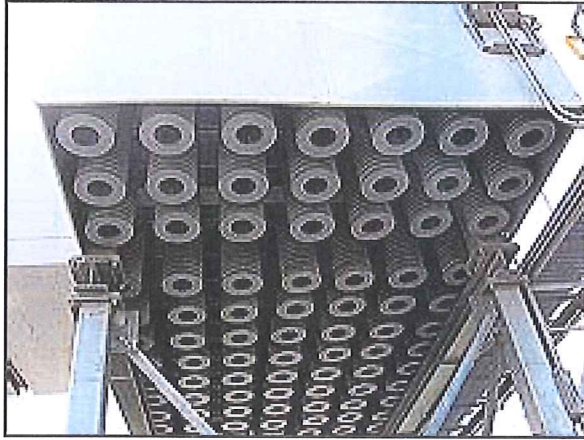
Heat Rate: 12,596 Btu/Kwh  
Exhaust Gas Temp: 1,342 Deg F  
Nox: 121.2 Ppmdv, 102.09 Lbs/Hr  
Co2: 31.5 Ppmdv, 16.17 Lbs/Hr

Generator:  
Manufacturer: Pebbles  
YP<" 2001  
Rating: 35000 Kva  
Frequency: 60Hz can operate at 50Hz  
Power Factor; 0.8  
Voltage: 13800 V/3 Phase, 60 Hz  
Amps; 1464 Amps  
Stator Weight; 30730 g  
Rotor: 2000 kg

- Air Cooled Fin-Fan Cooler
- Cardox System
- Air compressors
- Relays and controls
- Gas compressor
- Transformers
- Switchgear, etc.













# PEEBLES

**PEEBLES ELECTRICAL MACHINES LIMITED**  
ROSYTH, KY11 2EA, SCOTLAND

## BRUSHLESS EXCITATION GENERATOR

Made in U.K. **2001**

|  |                     |                        |                      |
|--|---------------------|------------------------|----------------------|
| Output kVA/kW  | <b>35000 kVA</b>    | Rev. Min.              | <b>1800</b>          |
| Volts (a.c.)   | <b>13800</b>        | Output Amp.            | <b>1464</b>          |
| Phases   | <b>3</b>            | Hz.                    | <b>60</b>            |
| Specification  | <b>BS 4999</b>      | Output Conn.           | <b>STAR</b>          |
| Rating Class   | <b>MCR</b>          | Insulation             | <b>Class 'F'</b>     |
| Power Factor   | <b>0.8</b>          | I.P.                   | <b>54</b>            |
| Ambient  | <b>15°C</b>         | Frame                  | <b>SEC125/405CJ</b>  |
| Temp. Rise   | <b>105°C by Res</b> | Order No.              | <b>Q4N02690</b>      |
| Nett. Weight   | <b>70000 kg</b>     | Tag No.                |                      |
| Rotor Weight   | <b>22000 kg</b>     | Stator Weight          | <b>30730 kg</b>      |
| Serial No.   | <b>262409/1</b>     |                        |                      |
| Silicone Diodes }<br>Normal Polarity Type<br>Reverse Polarity Type |                     |                        | <b>Pt 28637-3281</b> |
|  |                     |                        | <b>Pt 28637-3281</b> |
| Excitation Volts (d.c.)  | <b>76</b>           | Excitation Amps (d.c.) | <b>682</b>           |

# PEEBLES

**PEEBLES ELECTRICAL MACHINES LIMITED**

ROSYTH, KY11 2EA, SCOTLAND

## BRUSHLESS A.C. EXCITER

Made in U.K. **2001**

|               |                 |               |                     |
|---------------|-----------------|---------------|---------------------|
| Framesize     | <b>AX54/25</b>  | Core Ref.     | <b>530/890/250</b>  |
| Output k.V.A. | <b>70.5</b>     | Primary Amps  | <b>573</b>          |
| Rev. / Min.   | <b>1800</b>     | Primary Conn. | <b>STAR</b>         |
| Volts. (a.c.) | <b>71</b>       | Insulation    | <b>Class 'F'</b>    |
| Phases        | <b>3</b>        | Temp. Rise    | <b>Class 'B'</b>    |
| Hz            | <b>150</b>      | Brush Size    |                     |
| Rating        | <b>MCR (SI)</b> | Enclosure     | <b>Duct Vented</b>  |
| Specification | <b>IEC34</b>    | Protection    | <b>IP54</b>         |
| Altitude      |                 | Ambient       | <b>-20 to +40°C</b> |
| Humidity      |                 | Field Volts   | <b>58.0</b>         |
| Field Amps    | <b>4.65</b>     | Cooling       | <b>As Main M/C</b>  |
| Serial No.    | <b>262426/1</b> |               |                     |



# COOPER 3 $\phi$ TRANSFORMER

#1500-1725

CLASS DA-FFA 1991 65 °C/50Hz



CP: 0126000932/000E0A14C10S

#13800

#480Y/277

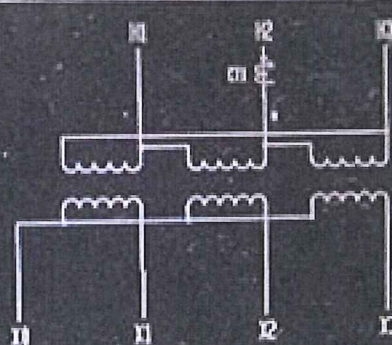
1/2Z @ 85°C DATE APR 01

HV KV BIL 110  
 HV NEUTRAL KV BIL --  
 LV KV BIL 30  
 HV/LV CONDUCTOR 01/01

WHEN MANUFACTURED CONTAINED LESS THAN 1 PPM PCB'S  
 CAUTION - READ INSTRUCTION MANUAL SECTION 31.9

### APPROX. WEIGHT IN LBS.

|                           |       |
|---------------------------|-------|
| CORE & COIL<br>INTANKING  | 4475  |
| TANK & FIT                | 3120  |
| FLUID OIL<br>GALLONS: 294 | 2940  |
| TOTAL                     | 10535 |



| TAP | VOLTAGE | MAX<br>AMPS | LOW<br>VOLTAGE       | MAX<br>AMPS |
|-----|---------|-------------|----------------------|-------------|
| A   | 14490   | 59.8        | 480                  | 1804        |
| B   | 14150   | 61.2        | CT-1<br>75'S FOR VTI |             |
| C   | 113800  | 62.8        |                      |             |

MANUFACTURED SPECIALLY FOR  
COOPER POWER SYSTEMS  
HAYDEN SWITCHGEAR PRODUCTS CORPORATION  
BUFFALO, NY

METAL ENCLOSED OUTDOOR SWITCHGEAR ASSEMBLY  
15.5KV, 600 AMP, 95KV BIL  
SUITABLE FOR USE ON A CIRCUIT CAPABLE OF DELIVERING  
NOT MORE THAN 25,000 RMS SYMMETRICAL AMPS

| AIR INTERRUPTER SWITCH TYPE           | VERSARUPTER |
|---------------------------------------|-------------|
| CONTINUOUS CURRENT, AMPERES           | 600         |
| INTERRUPTING CURRENT, AMPERES         | 600         |
| MAXIMUM VOLTAGE, KV                   | 15.5        |
| MOMENTARY CURRENT, KA RMS ASYM        | 40          |
| FAULT CLOSING CURRENT, KA RMS ASYM    | 40          |
| 2 SEC. SHORT-TIME CURRENT, KA RMS SYM | 25          |



# DATA SHEET NO. 7



## CFAS Enterprises Inc.

After Market Utility Power Equipment Brokerage

Mailto:Staff@CFASPower.com

Turbine URL: <http://CFASPower.com/Index.html>

Reciprocating URL: <http://CFASPower.com/Recips.html>

GTG\_1489LD\_FT4A-11PP.doc

### 1 x Restore Pratt & Whitney REPACKAGED FT4A-11 POWER PAC 23Mw 50 or 60hz

**Asking Price** \$6.0 MM

4-5 Months Delivery

#### **REPACKAGED FT4A-11 POWER PAC**

##### **GENERAL DESCRIPTION**

###### **GENERAL**

The FT4A-11 is a gas turbine engine consisting of a gas generator and a free turbine that uses the hot gases produced by the gas generator to develop shaft horsepower. The free turbine is coupled through an output shaft to an EM Air Cooled electric generator sized for most 50 HZ applications. The complete unit is called a Turbojet Power Pac and may be operated by either liquid or gaseous fuel. The unit is designed to generate power for peaking operations. Power output will vary because of changes in the inlet air conditions. Performance assumes that the gas turbine will be operated on clean distillate fuel or natural gas fuel conforming to the PWA Fuel Specifications.

###### **OPERATIONAL FEATURES**

The Power Pac may be operated manually from either the Local Control Panel located in the Power Pac control house or from an optional Remote Control panel.

The Power Pac may be synchronized in parallel with other electric generators already on the line, or operated alone as an isolated power source. Battery power is provided to start and operate the Power Pac in complete independence of external sources of power for black starts.

The Power Pac can be automatically started, synchronized and loaded to full output in approximately three minutes. On a normal shutdown, the unit is automatically unloaded, sequenced through the breaker opening, reduction to idle and cool-down phase of operation after which the gas generator rotors and the free turbine coast to a stop. In the event an electrical fault or a mechanical malfunction should occur in any of the Power Pac equipment, the unit is protected by alarms and automatic shutdown devices.

###### **GAS GENERATOR**

The gas generator has the characteristics described for dual compressor gas turbines in Pratt & Whitney Aircraft General Operating Instructions for Gas Generators and Turbine Engines for Industrial and Marine Use, PWA Operating Instructions 194, to which reference should be made for complete information pertaining to how an engine of this type operates. A full description of the gas generator may be found in the Pratt and Whitney Aircraft FT4A-11 Service Manual. The material presented in the Service

Manual is supplemented by the information in the specific operating instructions. Ignition System – Ignition of the gas generator is furnished by a dual, 125 volt DC, 4- joule ignition system. The two independent ignition systems, each with its own igniter, operate simultaneously when



energized. The ignition system operated only during the gas generator starting cycle. The speed mechanism in the Programmable Logic Controller (PLC) circuit limits the time the system is energized. Gas Generator and Free Turbine Speed Control – The speed of the free turbine prior to synchronization, and the speed of the gas generator to provide loading following synchronization, is controlled by a new Allen Bradley Control logix fuel control and sequencer designed to WGPW

specifications. This control senses gas generator high rotor speed (N2) free turbine speed (N3) gas generator exhaust gas temperature and load, and positions a Woodward fuel metering valve to regulate gas generator fuel flow. Free Turbine overspeed is sensed by a mechanical overspeed control and the Woodward fuel controller. Either control will close the fuel shutoff valve in the event free turbine speed exceeds  $4,125 \pm 25$  rpm (less in 50 HZ applications). Air Inlet Anti-Icing System – The system consists of an ice detection unit, hollow gas generator inlet guide vanes and a hollow nose cone. Hot, high pressure air is circulated through the guide vanes and nose cone whenever

icing conditions exists. The system may be operated either manually or automatically from the Gas Turbine Panel in the Power Pac control house; however, for normal operation, the control switch on the ice detection unit should remain in the Automatic position. In the Automatic position, the anti-icing air valves are opened automatically whenever icing conditions occur in the gas generator inlet plenum chamber during operation. When operating in Automatic-Parallel, the sequencer prevents operation of the anti-icing relay until after synchronization. The anti-icing system is

automatically turned off when the Power Pac is shut down. A temperature and humidity transducer, located on the inlet plenum dooradjacent to temperature sensor for the fuel control, supplies the signals to the anti-icing system. Icing is considered likely whenever the gas generator inlet temperature is below 46oF and simultaneously the relative humidity of the inlet air is greater than 90%. Free Turbine – The free turbine is connected to the exhaust case of the gas generator, but rotates independently of the gas generator compressors and turbines. It is directly coupled to the electric generator and rotates at a speed of 3,600 rpm (or 3000 rpm in 50 HZ applications) when synchronized

to the line frequency.

### **ELECTRIC GENERATOR EXCITER**

The Electrical Machinery air cooled open type AC generator is rated at 28,750 kva, 0.85 power factor, 13,800 volts, 3-phase, and 60 hertz at 80oF. The exciter is directly coupled to the generator and is rated at 250 volts. A field flashing relay is provided which will excite the field during the voltage buildup of the generator instead of relying entirely upon residual magnetism for this purpose.

### **LUBE OIL SYSTEMS**

Gas Turbine Lube System – The gas turbine has separate lube systems for the gas generator and free turbine. For a full description of the internal lube oil system for the gas generator and the free turbine, refer to the applicable PWA FT4A Service Manual. The two external lube systems are shown schematically in Figure 1-1. The lube oil used in both the gas generator and the free turbine lubrication systems must be a Type II synthetic gas turbine oil conforming to the latest revision of PWA Oil Specification No. 521. Refer to P&WA Turbo Power Service Bulletin No. 6, latest revision, for a listing of all approved oils that are commercially available. Synthetic oils for the gas turbines can be manufactured from any of several

basic materials. Since some of these materials are not compatible with one another and since synthetic oils of different brands are not necessarily derived from the same basic materials, even though they meet the same specifications, it is important to ensure that the synthetic oils

produced by different manufacturers are not mixed, or indiscriminately used together, in the same gas generator or free turbine lube oil system. A 125 VDC battery bank is provided to make DC power available at all times to both the DC auxiliaries and to the inverter, which supplies the essential AC auxiliaries, enables the Power Pac to be started without an external power source. Once the Power Pac is in operation and the generator main circuit breaker (52G) is closed, the non-essential AC auxiliaries, such as the battery charger, space heaters, cooling fan motors, etc., are furnished AC power directly from Power Pac output.

#### **FIRE EXTINGUISHING / GAS DETECTION SYSTEM**

A CO2 fire suppression system is provided for the engine enclosure. Fire and/or smoke detectors are provided for the generator enclosure and control room. Two gas detection heads are provided within the engine enclosure.

#### **START SYSTEM**

The gas generator is equipped with a pneumatic starter which operated on compressed air supplied at a pressure reduced to approximately 60 psig. The sequencer closes the starter air valves when the engine N2 reaches 3,400rpm.

The starter normally engages the engine at zero rpm and drives the compressor up to speeds necessary to sustain operation after light off. An additional feature of this starting system provides for controlling the rate of air flow to permit reengagement of the rotating engine at about 800 rpm without damage to the starter bearings or shear coupling.

#### **AIR START PAC**

An enclosed and skid mounted air compressor, electric drive motor, compressed air storage tank and started air flow control valving are provided to supply air to the pneumatic starter. Air storage of 490 psig is capable of providing 3 consecutive start attempts before recharge is required.

#### **INSTRUMENTATION AND CONTROLS**

The Power Pac can be operated locally from the Power Pac Control House or from an optional remote panel. This unit is offered with a Powell control house built for another FT4 Power Pac in 1999. It is repackaged with a new PLC, engine controller, a 125 VDC battery rack and charger, a fire protection and gas detection system, etc.

#### **ENGINE AND GENERATOR ENCLOSURES**

The gas turbine engine is housed in an acoustically treated engine enclosure including inlet and exhaust silencing and an inlet vandal hood. The generator enclosure is also acoustically treated with air inlet and exhaust silencers.



# DATA SHEET NO. 8



## CFAS Enterprises Inc.

After Market Utility Power Equipment Brokerage

Scott Condell

President/CEO

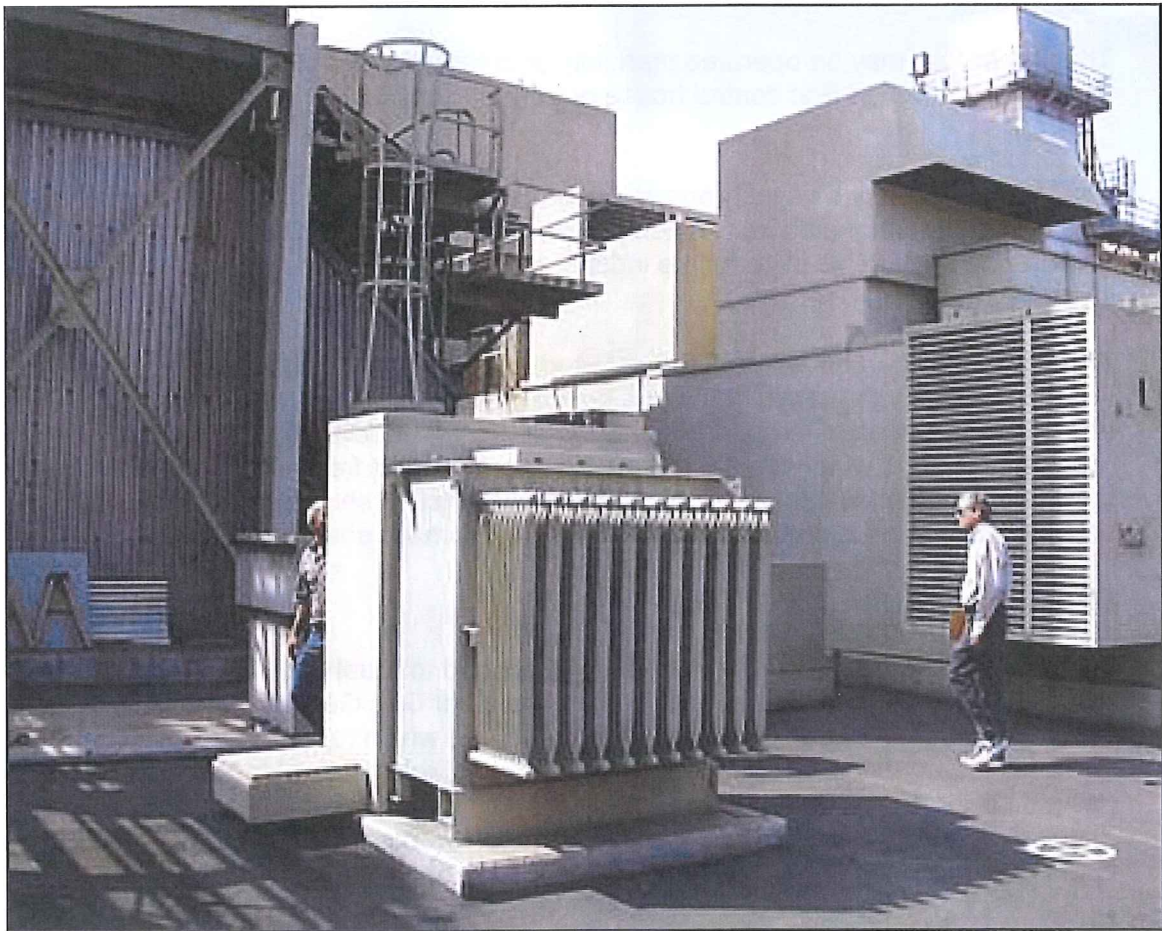
Phone: 718 347-8055

Mailto: Staff@CFASPower.com

Turbine URL: <http://CFASPower.com>

GTG\_1495LD\_PWFT4\_60Hz.doc

### Two (2) Rebuilt Pratt & Whitney FT4 A-9 Power Paks 18 MW 60 Hz, Nat Gas



Asking Price: \$4,832,000 Each Refurbished  
Delivery Time 4-5 Months

#### FT4A-9 POWER PAC GENERAL DESCRIPTION

GENERAL



This information applies specifically to the FT4A-9DF series and model gas turbine. The FT4A-9DF is a gas turbine engine consisting of a gas generator and a free turbine that uses the hot gases produced by the gas generator to develop shaft horsepower. The free turbine is coupled through an output shaft to an electric generator manufactured by either the Electric Machinery Manufacturing Company or Westinghouse. The complete unit is called a Turbojet Power Pac and may be operated by either liquid or gaseous fuel.

The unit is designed to generate power for peaking operation. Power output will vary because of changes in the inlet air conditions. Performance assumes that the gas turbine will be operated on clean distillate fuel or natural gas fuel conforming to the PWA Fuel Specifications provided in Appendix "A".

## OPERATIONAL FEATURES

The Power Pac may be operated manually or automatically from either the Local Control Panel located in the Power Pac control house or from an optional Remote Control Panel.

The Power Pac may be synchronized in parallel with other electric generators already on the line, or operated alone as an isolated power source. Battery power is provided to start and operate the Power Pac in complete independence of external sources of power for black starts.

The Power Pac can be automatically started, synchronized and loaded to full output in approximately three minutes. On a normal shutdown, the unit is automatically unloaded, sequenced through the breaker opening, reduction-to-idle and cool-down phase of operation after which the gas generator rotors and the free turbine coast to a stop. In the event an electrical fault or a mechanical malfunction should occur in any of the Power Pac equipment, the unit is protected by alarms and automatic shutdown devices.

## GAS GENERATOR

The gas generator has the characteristics described for dual compressor gas turbines in Pratt & Whitney Aircraft General Operating Instructions for Gas Generators and Turbine Engines for Industrial and Marine Use, PWA Oper. Instr. 194, to which reference should be made for complete information pertaining to how an engine of this type operates. A full description of the gas generator may be found in the Pratt and Whitney Aircraft FT4A-9 Service Manual. The material presented in the Service Manual is supplemented by the information in the specific operating instructions.

**Ignition System** - Ignition of the gas generator is furnished by a dual, 125 volt DC, 4-joule ignition system. The two independent ignition systems, each with its own igniter, operate simultaneously when energized. The ignition system operates only during the gas generator starting cycle. The speed mechanism in the PLC circuit limits the time the system is energized.

**Gas Generator and Free Turbine Speed Control** - The speed of the free turbine prior to synchronization, and the speed of the gas generator to provide loading following synchronization, is controlled by a Hamilton Standard SPC2A electrical fuel

control. This control senses gas generator high rotor speed (N2) free turbine speed (N3) gas generator exhaust gas temperature and load, and positions a fuel modulating valve to regulate gas generator fuel flow.

Free Turbine overspeed is sensed by a mechanical overspeed control and the SPC2A fuel control. Either control will close the fuel shutoff valves in the event free turbine speed exceeds  $4,125 \pm 25$  rpm.

**Air Inlet Anti-Icing System** - The system consists of an ice detection unit, hollow gas generator inlet guide vanes and a hollow nose cone. Hot, high pressure air is circulated through the guide vanes and nose cone whenever icing conditions exist. The system may be operated either manually or automatically from the Gas Turbine Panel in the Power Pac control house; however, for normal operation, the control switch on the ice detection unit should remain in the Automatic position. In the Automatic position, the anti-icing air valves are opened automatically whenever icing conditions occur in the gas generator inlet plenum chamber during operation. When operating in Automatic-Parallel, the sequencer prevents operation of the anti-icing relay until after synchronization. The anti-icing system is automatically turned off when the Power Pac is shut down.

A temperature and humidity transducer, located on the inlet plenum door adjacent to temperature sensor for the fuel control, supplies the signals to the anti-icing system. Icing is considered likely whenever the gas generator inlet temperature is below  $46^{\circ}\text{F}$  and simultaneously the relative humidity of the inlet air is greater than 90%.

**Free Turbine** - The free turbine is connected to the exhaust case of the gas generator, but rotates independently of the gas generator compressors and turbines. It is directly coupled to the electric generator and rotates at a speed of 3,600 rpm (or 3000 rpm in 50 HZ applications) when synchronized to the line frequency.

#### ELECTRIC GENERATOR EXCITER

The Electric Machinery or Westinghouse Air Cooled Open Type AC generator is rated at 21,875 kva, 0.85 power factor, 13,800 volts, 3-phase, 60 hertz, (3,600 rpm). The exciter is directly coupled to the generator and is rated at 250 volts. A field flashing relay is provided which will excite the field during the voltage buildup of the generator instead of relying entirely upon residual magnetism for this purpose.

#### LUBE OIL SYSTEMS

**Gas Turbine Lube System** - The gas turbine has separate lube systems for the gas generator and free turbine. For a full description of the internal lube oil systems for the gas generator and the free turbine, refer to the applicable PWA FT4A Service Manual. The two external lube systems are shown schematically in Figure 1-1, The lube oil used in both the gas generator and the free turbine lubrication systems must be a Type II synthetic gas turbine oil conforming to the latest revision of PWA Oil Specification No. 521. Refer to P&WA Turbo Power Service Bulletin No. 6, latest revision, for a listing of approved oils that are commercially available.

Synthetic oils for the gas turbines can be manufactured from any of several different basic materials. Since some of these materials are not compatible with one another and since



synthetic oils of different brands are not necessarily derived from the same basic materials, even though they meet the same specifications, it is important to ensure that the synthetic oils produced by different manufacturers are not mixed, or indiscriminately used together, in the same gas generator or free turbine lube oil system.

The battery, making DC power available at all times to both the DC auxiliaries and to the inverter, which supplies the essential AC auxiliaries, enables the Power Pac to be started without an external power source. Once the Power Pac is in operation and the generator main circuit breaker (52G) is closed, the non-essential AC auxiliaries, such as the battery charger, space heaters, cooling fan motors, etc., are furnished AC power directly from Power Pac output.

## FIRE EXTINGUISHING SYSTEM

The gas turbine enclosure is provided with a fire extinguishing system that consists of five 75 pound (content weight) CO<sub>2</sub> bottles, a 5 pound (content weight) pilot N<sub>2</sub> bottle, a one pound (content weight) manual release remote bottle and two Fenwall fire detectors. The fire detectors are located above the gas generator and are set to activate at 450°F, which is approximately 250°F higher than the highest temperature normally encountered at the detector locations.

In the event of a fire within the gas turbine enclosure, the detector unit opens the solenoid valve on the pilot N<sub>2</sub> bottle and releases control pressure to operate the discharge heads on the CO<sub>2</sub> storage bottles. Although the entire system is discharged, the valves on two of the bottles are pilot-operated discharge heads and are opened first. Pressure from the two pilot-operated discharge heads and are opened first. Pressure from the two pilot-operated discharge heads then passes through the manifold to open the discharge heads on the remaining three CO<sub>2</sub> storage bottles. A total of 375 pounds (content weight) of CO<sub>2</sub> is discharged in approximately two minutes through two shower heads located in the gas turbine enclosure.

The system may be manually discharged from the Cardox remote manual release station (fire box), located on the outside of the electric generator enclosure, by removing the safety pin from the small one pound (content weight) actuator bottle and depressing the handle. The system may also be manually discharged by removing the safety pin from either one or both of the Cardox pilot-operated discharge heads and opening either one or both of the red handwheels.

The gas turbine enclosure is normally cooled by air that enters the enclosure through the secondary air inlets. In the event of a fire, the discharge pressure of the fire extinguishing system will close the dampers of the secondary air inlets. Also, a Cardox pressure switch energizes a relay which will initiate the following:

1. The 4-1 master start lockout circuit will open, making it impossible for the Power Pac to be started.
2. The quick-acting fuel shutoff valve (fire valve) for the gas generator will automatically close.
3. The 86G- I relay will be automatically tripped, which will initiate an emergency shutdown of the Power Pac. Refer to Section V. Protective and Auxiliary Devices.



4. An alarm will sound and the Gas Turbine Enclosure Fire annunciator will illuminate.

NOTE: The secondary air inlet dampers and the Cardox pressure switch in the electric generator enclosure must be manually reset prior to further Power Pac operation. To reset switch, push plunger located at the bottom of the switch to the In position. Reset dampers by installing release cable end in Cardox pressure line sockets located on enclosure roof. The Power Pac may be electrically locked out without discharge of the CO<sub>2</sub> system by pulling the plunger to the Out position

#### START SYSTEM

The gas generator is equipped with a pneumatic starter which operates on natural gas supplied at a pressure reduced to approximately 60 psig. The sequencer closes the starter gas valves when the engine N<sub>2</sub> reaches 3,400 rpm.

The starter normally engages the engine at zero rpm and drives the compressor up to speeds necessary to sustain operation after light off. An additional feature of this starting system provides for controlling the rate of flow to permit reengagement of the rotating engine at about 800 rpm without damage to the starter bearings or shear coupling.

#### INSTRUMENTATION AND CONTROLS

The Power Pac can be operated locally from the Power Pac Control House or from an optional remote panel

The monitoring instruments and operating controls are located in the Power Pac Engine Control House on panels 1 through 8 and on the remote panel in the power station's control room. Panel 1 contains all starting, running and stopping controls and instruments. Panels 2 and 3 contain the control relays and watt hour meter which are not of immediate concern to the operator during starting and stopping except for the 86G-1 and 86G-2 manual reset switches which are on Panel 3. Panels 4 through 7 are motor controls and AC and DC distribution panel switches which must be placed in the On position and which will then be activated by the sequencer as required. Panel 8 contains the gas turbine instrumentation except the N<sub>2</sub> and N<sub>3</sub> speed readouts which are on Panel 1.

#### **Scope of Supply**

## Scope of Supply and Purchaser's Responsibilities

FT4-A9 POWERPAC POWER ISLAND  
EQUIPMENT ONLY  
DUAL FUEL

WOOD GROUP PRATT & WHITNEY  
INDUSTRIAL GAS TURBINE SERVICES

Qty: 1

WGPW

| Item | Description   | Quantity | Design | Supply | Installation | Notes  |
|------|---|----------|--------|--------|--------------|--|
| I.   | <b>GAS TURBINE POWER ISLAND</b>                                     |          |        |        |              |  |
| 1    | <b>GAS TURBINE PACKAGE</b>  | 1        | W      | W      | C            |  |
|      | Gas Generator (GG4A-9 Core Engine)                                  |          | W      | W      | C            |  |
|      | Power Turbine   |          | W      | W      | C            | FT4A-9   |
|      | Exhaust elbow   |          | W      | W      | C            |  |
|      | Exhaust transition  |          | W      | W      | C            |  |
|      | Fabricated gas turbine base and mount assembly                      |          | W      | W      | C            |  |
|      | Coupling connecting power turbine and generator                     |          | W      | W      | C            |  |
|      | Gas starter   |          | W      | W      | C            |  |
|      | Ignition system   |          | W      | W      | C            |  |
|      | GG & FT lube oil systems  |          | W      | W      | C            |  |
|      | * Oil-to-air coolers  |          | W      | W      | C            |  |
|      | * Motor driven pumps  |          | W      | W      | C            | One AC and one DC                                  |
|      | * Carbon steel piping   |          | W      | W      | C            |  |
|      | * Enclosure   |          | W      | W      | C            |  |
|      | Fuel supply systems   |          | W      | W      | C            |  |
|      | * Fuel gas strainer   |          | W      | W      | C            |  |
|      | * Gas fuel fire valve   |          | W      | W      | C            |  |
|      | * Liquid fuel filter  |          | W      | W      | C            |  |
|      | * Liquid fuel forwarding skid                                       |          | W      | W      | C            |  |
|      | * Liquid fuel fire valve  |          | W      | W      | C            |  |
|      | Gas turbine enclosure   |          | W      | W      | C            |  |
|      | * Secondary cooling air system with louvers                         |          | W      | W      | C            |  |
|      | * Vents and drains  |          | W      | W      | C            |  |
|      | * Interior AC/DC lighting   |          | W      | W      | C            |  |
|      | * CO <sub>2</sub> Fire Suppression System                           |          | W      | W      | C            | CO <sub>2</sub> Bottles supplied by Customer       |
|      | * Sound attenuation estimate  |          | W      | W      | C            | 90 dBA @ 3', 53 dBA @ 400'                         |
|      | * Gas detection system  |          | W      | W      | C            |  |
|      | * Air inlet weather hood  |          | W      | W      | C            |  |
|      | Inlet silencing   |          | W      | W      | C            | One inlet section                                  |
|      | Exhaust Stack   |          | W      | W      | C            | 3 section residential sound treatment              |
| 3    | <b>GENERATOR PACKAGE</b>  | 1        | W      | W      | C            |  |
|      | EM or Westinghouse Open Ventilated Air Cooled Synchronous Generator |          | W      | W      | C            | 13.8Kv, 3 phase, 60 HZ, 21,875 kVA, 0.85 PF 2 pole |
|      | Brushless Exciter Assembly  |          | W      | W      | C            | With pilot exciter                                 |
|      | Stator Heaters  |          | W      | W      | C            |  |
|      | Neutral ground transformer/resistor                                 |          | W      | W      | C            |  |
|      | Current transformers  |          | W      | W      | C            | Quantity 10 per package                            |
|      | Stator temperature detection  |          | W      | W      | C            |  |
|      | Bearing temperature detection                                       |          | W      | W      | C            |  |
|      | Generator and exciter air temperature detection                     |          | W      | W      | C            |  |

W=WGPW  
C = Customer

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| Item | Description  | Quantity | Design | Supply | Installer | Notes  |
|------|--|----------|--------|--------|-----------|--|
|      | Rotor ground detection   |          | W      | W      | C         |  |
|      | Lube oil System  |          | W      | W      | C         | Air cooled                                     |
|      | * Oil filter   |          | W      | W      | C         |  |
|      | * Motor driven pumps   |          | W      | W      | C         | AC and DC                                      |
|      | Enclosure  |          | W      | W      | C         | Prime painted                                  |
|      | * Inlet air filter   |          | W      | W      | C         |  |
|      | * Inlet and exhaust silencing  |          | W      | W      | C         |  |
|      | * Interior AC/DC lighting  |          | W      | W      | C         |  |
|      | * Sound attenuation to 85 dB(A) @ 3 ft   |          | W      | W      | C         | Inlet and Exhaust silencing                    |
|      | * Fire detection system  |          | W      | W      | C         |  |
| 4    | CONTROL PACKAGE  | 1        | W      | W      | C         |  |
|      | Prefabricated steel enclosure  |          | W      | W      | C         |  |
|      | * HVAC   |          | W      | W      | C         |  |
|      | * Fluorescent lighting   |          | W      | W      | C         |  |
|      | * DC emergency lighting  |          | W      | W      | C         |  |
|      | * AC power outlets   |          | W      | W      | C         |  |
|      | * Smoke detector   |          | W      | W      | C         |  |
|      | Operator control cabinet   |          | W      | W      | C         |  |
|      | * Starting and operating controls  |          | W      | W      | C         | Manual and automatic                           |
|      | * Speed indication   |          | W      | W      | C         |  |
|      | * Voltmeters and frequency meters  |          | W      | W      | C         | Bus and generator                              |
|      | * Ammeter  |          | W      | W      | C         |  |
|      | * Wattmeter  |          | W      | W      | C         |  |
|      | * VAR meter  |          | W      | W      | C         |  |
|      | * Synchroscope   |          | W      | W      | C         |  |
|      | Instrument Cabinet   |          | W      | W      | C         |  |
|      | * Automatic voltage regulator  |          | W      | W      | C         |  |
|      | * Synchronizer   |          | W      | W      | C         |  |
|      | * Vibration monitor  |          | W      | W      | C         | Gas turbine                                    |
|      | * Fire protection system power supplies  |          | W      | W      | C         |  |
|      | * Static inverter  |          | W      | W      | C         |  |
|      | Unit control cabinet   |          | W      | W      | C         |  |
|      | * PLC system for automatic starting, running, loading, unloading and shutdown of the unit. |          | W      | W      | C         |  |
|      | * Fuel control   |          | W      | W      | C         |  |
|      | Generator protective relay panel   |          | W      | W      | C         |  |
|      | * Generator protective relays  |          | W      | W      | C         |  |
|      | * Lockout relays   |          | W      | W      | C         |  |
|      | * Watt hour meter  |          | W      | W      | C         |  |
|      | Motor Control Center   |          | W      | W      | C         |  |
|      | * AC and DC distribution panels  |          | W      | W      | C         |  |
|      | * Motor starters   |          | W      | W      | C         |  |
|      | * AC distribution transformer  |          | W      | W      | C         |  |
|      | * Breakers as required   |          | W      | W      | C         |  |
|      | * Automatic transfer switch  |          | W      | W      | C         |  |
|      | * Field termination blocks   |          | W      | W      | C         |  |
|      | * Power supplies   |          | W      | W      | C         |  |
|      | Ventilated cubicle with rack mounted lead acid batteries                                   |          | W      | W      | C         | 125 VDC  |
|      | Battery charger  |          | W      | W      | C         |  |
|      | Switchgear module 15 kV Class  |          | W      | W      | C         |  |
|      | * Metalclad switchgear compartment   |          | W      | W      | C         | Mounted in control enclosure                   |
|      | * Circuit breaker  |          | W      | W      | C         | 1200 Amp/ 750 MVA, 15kV class totally enclosed |

W=WGPW  
C = Customer

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| Item | Description  | Quantity | Design | Supply | Installation | Notes  |
|------|--|----------|--------|--------|--------------|--|
|      | * Non-segregated insulated 3 phase bus duct  |          | W      | W      | C            |  |
|      | * Lightning arresters and surge capacitors   |          | W      | W      | C            |  |
|      | * Current transformers and potential transformer   |          | W      | W      | C            |  |
|      | * 3 phase station auxiliary transformer  |          | W      | W      | C            |  |
| 5    | INSTALLATION HARDWARE  |          |        |        |              |  |
|      | Site interconnecting piping  |          | C      | C      | C            |  |
|      | Foundation embedded material   |          | C      | C      | C            | Including all anchor bolts, shims and plates, and grout for WGPW supplied equipment.   |
|      | Interconnecting electrical cables  |          | W      | W      | C            | Between WGPW supplied equipment  |
| 6    | STARTUP AND COMMISSIONING SPARE PARTS AND CONSUMABLES  |          | W      | W      |              | For WGPW Scope of Supply   |
| II.  | ADDITIONAL RESPONSIBILITIES DURING CONSTRUCTION AND START-UP   |          |        |        |              |  |
|      | Technical Representatives to advise Customer Supervisory Personnel during FT4 equipment erection checkout, and startup   |          |        | W      |              |  |
|      | Instruction Manuals and Plant Documentation provided: Construction Manual, Commissioning Manual & Sign-off Sheets, TPM Drawing Package, Vendor Manuals & Drawings, FT4 Maintenance Manual, FT4 Illustrated Parts Catalog, FT4 Service Bulletins, Operating Instructions, Bill of Material, As Built Drawings, General arrangement drawing, Foundation interface drawing, Loading diagram |          |        | W      |              |  |
|      | WGPW training  |          |        | W      |              | Includes customer training on site. Training description can be found in the WGPW Customer Training Document version 21-0802. Travel and lodging for customer's personnel not included.  |
|      | Performance Testing  |          |        | C      |              | The customer is responsible for providing all necessary support to install, calibrate, and remove all temporary and plant instrumentation/equipment necessary for performing the acceptance test. WGPW provides technical support and manages the test plan for this work. |
| III. | PROJECT DEVELOPMENT AND OWNER'S RESPONSIBILITIES   |          |        |        |              |  |
| 1    | SITE DEVELOPMENT   |          | C      | C      | C            | Owner is responsible for compliance with WGPW operating, installation, and maintenance instructions.   |
|      |  |          |        |        |              | Owner is responsible for all areas of site development and are not limited to the items listed in this document.   |

W=WGPW  
C = Customer

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| Item | Description  | Quantity | Design | Supply | Installation | Notes  |
|------|--|----------|--------|--------|--------------|--|
|      | Adequate Title and Interest, Permanent Facility Permits, Construction Permits and Licensing  |          |        | C      |              | To permit the installation of such units and their operation for at least the period contemplated by the contract. Provide WGPW representatives unrestricted access at all times as may be reasonably necessary in the performance of their duties.                          |
|      | Sub-Soil Investigation & Report  |          | C      | C      | C            | Minimum sub-foundation bearing capacity of 2500 psf (120 kPa) and limits differential settlement of the main foundations equal to or less than 0.0005 times the foundation length.   |
|      | Foundations for all Equipment  |          | C      | C      | C            | WGPW will provide Loading Diagrams for WGPW supplied equipment.  |
|      | Below Grade Electrical Raceway   |          | C      | C      | C            | Includes Conduit, Duct Bank, Trenches, etc.  |
|      | Provision of <b>Secure Field Office</b> . Furnished with electricity, Heating and Air Conditioning, Drinking Water, Desks, Chairs, Parking Area, Lockers and others which are necessary for Field Works, Services & Sanitary Facilities of Office Personnel. |          | C      | C      | C            | Including 10' x 40' (3 m x 12 m) area for a field office. This field office needs to be able to accommodate 3-4 WGPW individuals.  |
|      | Provision of First Aid and Medical Services - OSHA Approved  |          | C      | C      | C            |  |
|      | Provisions of Local Communication Facilities   |          | C      | C      | C            | Including radio, telephone (local and long distance) with international direct dialing and fax machine. This should be a minimum of 3 lines in the WGPW field office. A separate dedicated phone line shall be provided to each turbine control system in the control house. |
|      | Temporary Construction Staging & Secure Inventory Area   |          |        | C      |              | A minimum area of approximately 115' by 136' is recommended per Power Island. A minimum of two shelved conex boxes and one non shelved or enclosed equivalent per PowerPAC prior to delivery of equipment.   |
|      | Access Road(s), Interior Roads, and Parking Areas  |          | C      | C      | C            | All-weather and unobstructed   |
|      | Transmission System  |          | C      | C      | C            |  |
| 2    | <b>ENGINEERING AND CONSTRUCTION</b>  |          |        |        |              |  |
|      | Plant Engineering  |          |        | C      |              |  |
|      | All Labor for complete off-loading, Inventory, Inventory control, Storage, Erection, Installation, Checkout, Testing, and Start-up of all WGPW and non-WGPW supplied equipment and material.   |          |        | C      |              |  |
|      | Maintaining and Guarding all Facilities, Equipment, and Materials during construction  |          |        | C      |              | Including security fence   |

W=WGPW  
C = Customer

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| Item | Description  | Quantity | Design | Supply | Installabor | Notes   |
|------|--|----------|--------|--------|-------------|---|
|      | Site Organization During Construction  |          |        | C      |             | Including Resident Field Construction Manager, Supervision & Manpower for Erection Works, Checkout, Trouble Shooting, Start-up & Commissioning, Test Operation & Trial Operation, Plant Start-Up Engineering  |
|      | Emissions and Acoustic Testing   |          |        | C      |             |   |
|      | Worker's Compensation, Employer's Liability, or any other Local Insurance Required   |          |        | C      |             | WGPW will cover all WGPW personnel.   |
|      | Consumable Material for Erection Works   |          |        | C      |             | As required   |
|      | Construction Equipment, Tools and Aids   |          |        | C      |             | Including but not limited to the following: Cement Mixers, Loaders, Trucks, Cranes of varying capacities, Power Generators, Air Compressors, Welders, Drilling Equipment, Pipe Working Facilities & all hand tools required for expeditiously and competently completing all phases of the work under the contract. |
|      | Required Tests Prior to Startup:<br>Including but not limited to:<br>* Resistance ratio and polarity tests<br>* All high voltage dielectric tests<br>* Field check and calibration<br>Protective Relay Calibration |          |        | C      |             |   |
|      | Phasing and Synchronizing the Generator to Purchaser's system  |          |        | C      |             | Generator and Transformer CTs and PTs<br>All WGPW supplied protective relays and circuits. The WGPW Commissioning and checkout manual further clarifies the Customers responsibilities.   |
| 3    | POWER ISLAND INTERFACES<br>BOP Motor Control Centers<br>Control System Interface   |          |        | C      |             |   |
|      | Natural Gas for Start-up, Testing and Operation<br>445 psig (30 bar), Approximately 4700 scfm (2.2 m3/sec) per gas turbine   |          |        | C      |             | Customer is responsible for all-interconnecting hardware, software and documentation for all BOP I/O communication and control.   |
|      | Liquid Fuel for Start-up, Testing and Operations   |          |        | C      |             | Interface Point: Flange on WGPW Power Island. Per TPM Natural Gas Fuel Specification FR-2. Fuel to be tested by a certified lab and the results provided to WGPW prior to start-up.   |
|      | Potable Water for Gas Turbine Off-line Water Wash 50 psig (3.4 bar) min., Approximately 300 gallons (1150 liters) per gas turbine water wash at 110 gpm (415 liters/m)   |          |        | C      |             | Interface Point: Flange on WGPW Power Island. Per TPM Liquid Fuel Specification FR 1. Fuel to be tested by a certified lab and the results provided to WGPW prior to start-up.  |
|      | Vent and Drain. Maximum flow on Oily Waste drain is 35 GPM for water wash.   |          |        | C      |             | Interface Point: Flange on WGPW Power Island. Per TPM Potable Water Quality Specification   |
|      | High Voltage Power   |          |        | C      |             | Interface Point: Connections on WGPW Power Island.  |
|      | Backfed Electrical Power Supply 75 kVA per Power Island, 13.8kV, 60 Hz, 3 phase for lighting, heating and intermittent auxiliaries   |          |        | C      |             | Interface Point: Generator Terminals.<br>Plus as required for BOP and optional equipment loads  |

W=WGPW  
C = Customer

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| Item | Description  | Quantity | Design | Supply | Installation | Notes  |
|------|--|----------|--------|--------|--------------|--|
|      | Construction Power-Including distribution to the WGPW supplied equipment |          |        | C      |              | 480 V, 3 phase, 24 hours per day to electric generator upon arrival of the generator. Reliable temporary 480 V, 100 amp power at the control house for checkout and start-up at least 21 days prior to the first fire date of the first unit to be commissioned. |
|      | <b>4 OTHER OWNER RESPONSIBILITIES</b>                                    |          |        |        |              | The following list of items is provided for your convenience and gives examples of the types of equipment and/or services that are outside the WGPW Scope of work, and if required, are the sole responsibility of the Owner.                                    |
|      | Site Survey/Plot Plan  |          | C      | C      | C            |  |
|      | Excavation for Foundations, Pipes, Roads, Cabling & Grounding Grid       |          | C      | C      | C            |  |
|      | Site Levelling   |          | C      | C      | C            |  |
|      | Backfill   |          | C      | C      | C            |  |
|      | Finish Grading   |          | C      | C      | C            |  |
|      | Foundation embedded material   |          | C      | C      | C            | Including all anchor bolts, shims and plates, and grout for WGPW supplied equipment.   |
|      | Surface Drainage to and including any Collection Pond                    |          | C      | C      | C            |  |
|      | Oily Water Separator   |          | C      | C      | C            |  |
|      | Sanitary Waste Disposal  |          | C      | C      | C            |  |
|      | BOP and Plant Fire Protection Systems- Hydrants Panels and Extinguishers |          |        | C      |              | Including Fire Protection during construction  |
|      | Plant Lighting   |          |        | C      |              |  |
|      | Intra-communication system   |          |        | C      |              |  |
|      | Site Fencing and Gates   |          |        | C      |              |  |
|      | Construction Water   |          |        | C      |              |  |
|      | Builder's All Risk Insurance (BAR)                                       |          |        | C      |              |  |
|      | <b>IV. OPTIONS</b>   |          |        |        |              |  |
|      | 1. Spares Parts and Consumables  |          | W      | W      |              |  |
|      | 2. Long Term Maintenance Agreement                                       |          | W      | W      |              |  |
|      | 3. Air starter and air start pac   |          | W      | W      | C            |  |
|      | 4. Air inlet filter  |          | W      | W      | C            |  |
|      | 5. 60 HZ to 50 HZ conversion   |          | W      | W      | C            |  |
|      | 6. Off-line compressor internal water wash system                        |          | W      | W      | C            | Includes piping system, nozzles, valves, etc internal to the Gas Turbine Enclosure. Excludes Water Wash Skid   |
|      | 7. Gas turbine heating system  |          | W      | W      | C            | For condensation control   |
|      | 8. Water Injection System  |          | W      | W      | C            |  |

W=WGPW  
C = Customer

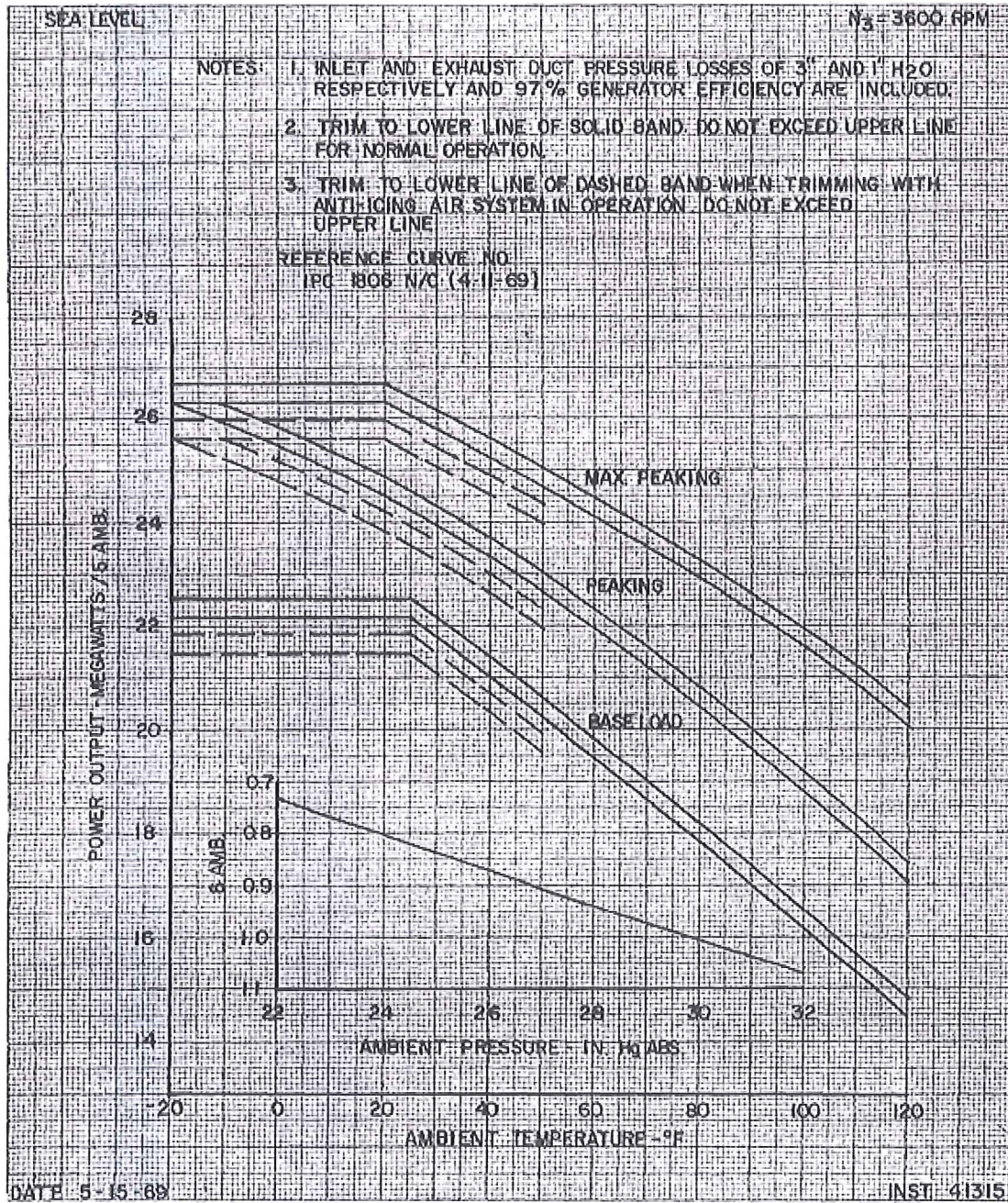
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**Curves**



# Turbo Power & Marine Systems

## Operating Instructions T-324

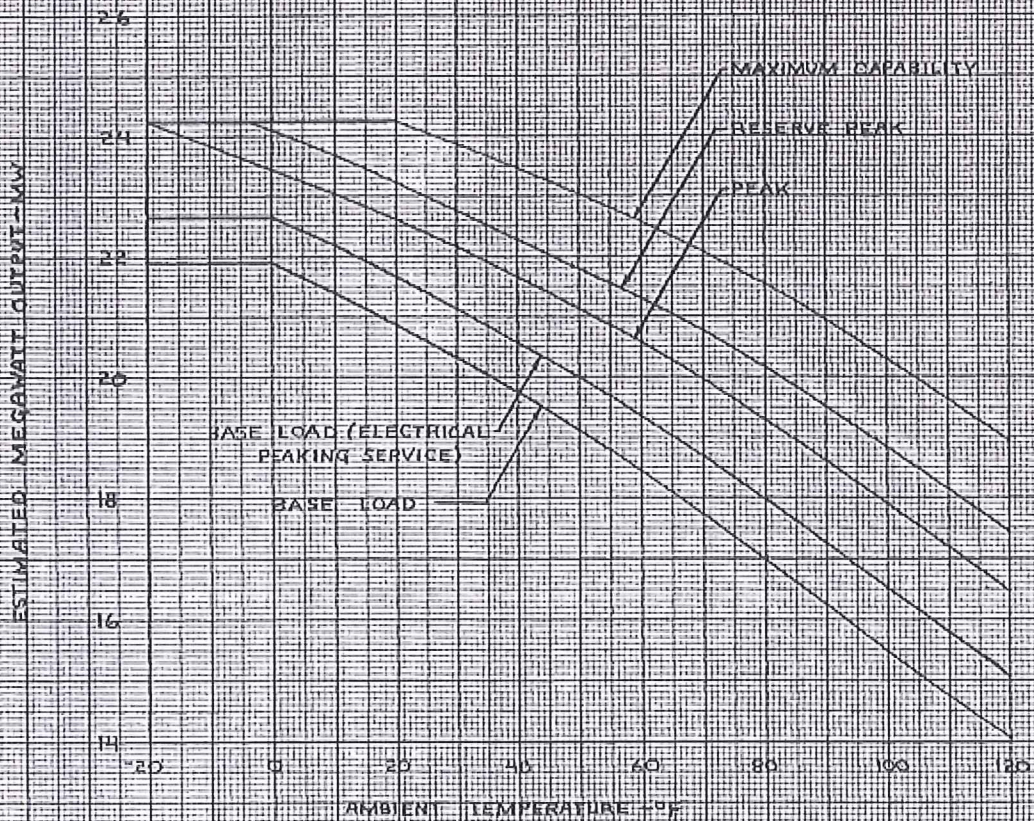


Estimated Installed Trim Curve



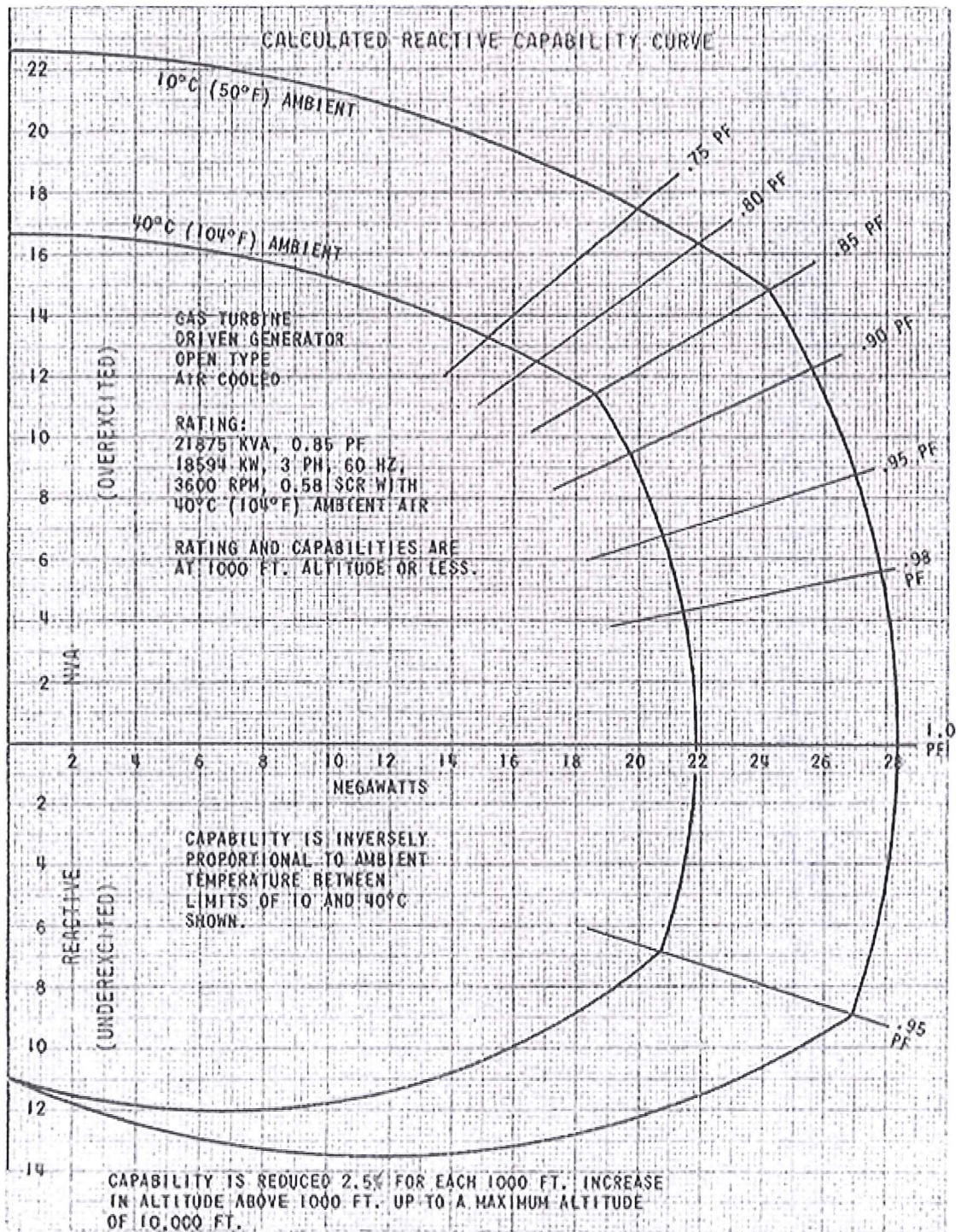
TURBO POWER AND MARINE SYSTEMS, INC.

FT4A-9A GAS TURBINE POWER PAC  
ESTIMATED MEGAWATT OUTPUT VS. AMBIENT TEMPERATURE  
3" H<sub>2</sub>O INLET & 1" H<sub>2</sub>O EXHAUST DUCT PRESSURE LOSSES  
SEA LEVEL N<sub>2</sub> @ 3000 RPM





# Capability Curve



## Heat Rates



PRATT & WHITNEY AIRCRAFT

FT4A-9 GAS TURBINE POWER PAC

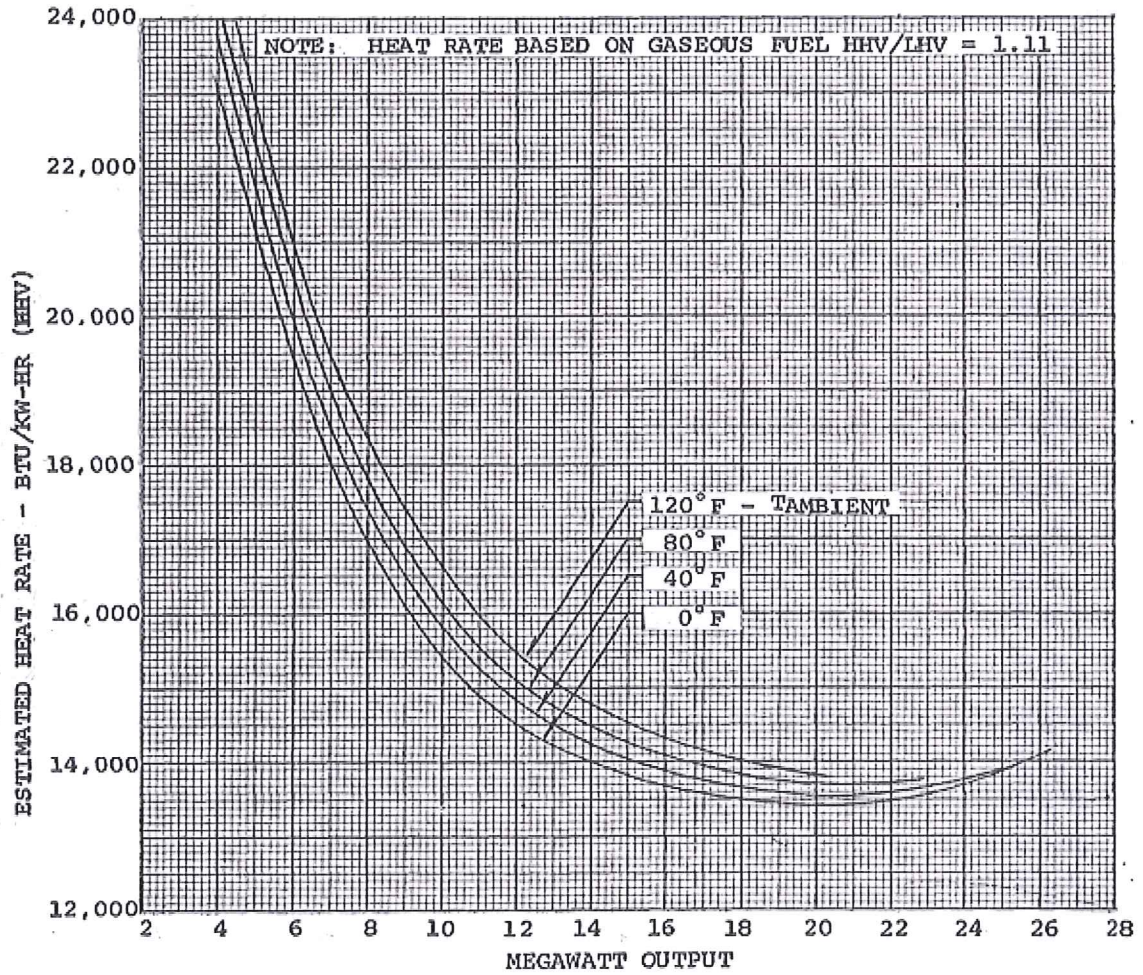
ESTIMATED HEAT RATE VS. MEGAWATT OUTPUT

3" H<sub>2</sub>O INLET DUCT PRESSURE LOSS  
1" H<sub>2</sub>O EXHAUST DUCT PRESSURE LOSS

SEA LEVEL

$\eta_{GEN.} = 97\%$

$N_3 = 3600$  RPM



PRATT & WHITNEY AIRCRAFT

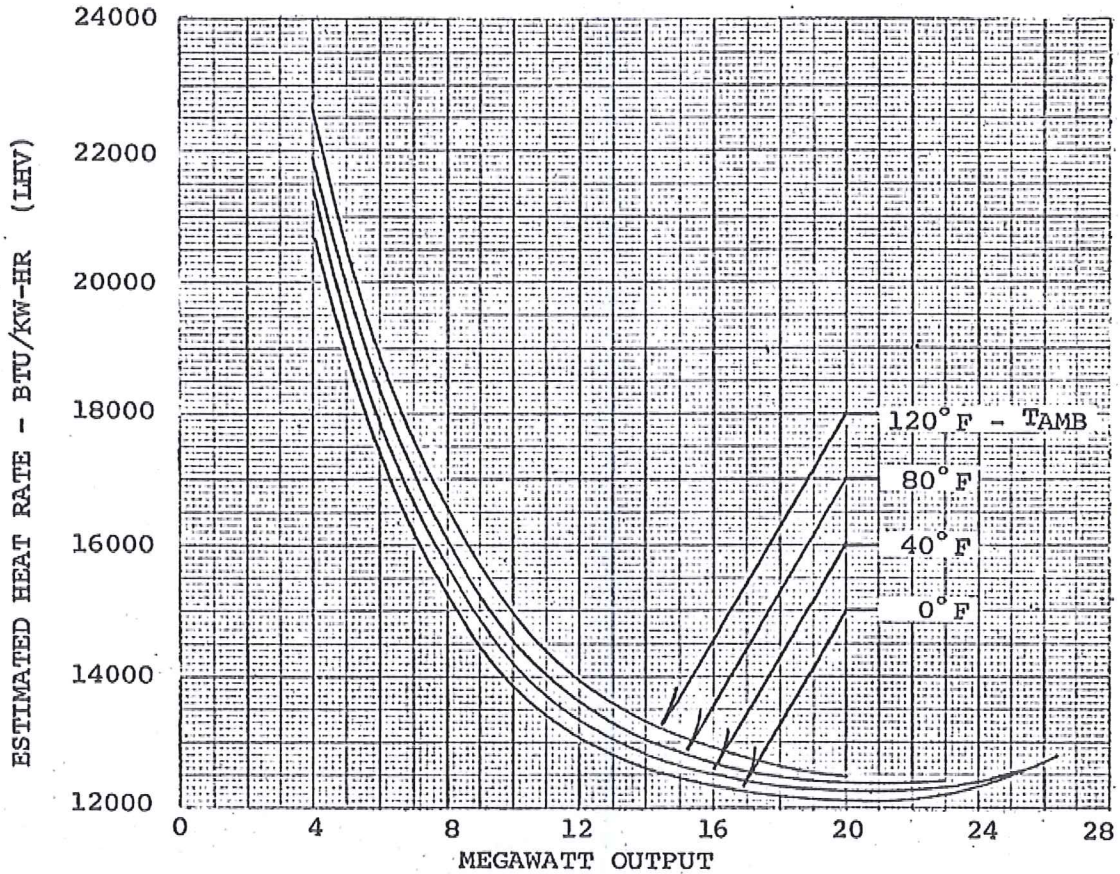
FT4A-9 GAS TURBINE POWER PAC  
ESTIMATED HEAT RATE VS. MEGAWATT OUTPUT

3" H<sub>2</sub>O INLET DUCT PRESSURE LOSS  
1" H<sub>2</sub>O EXHAUST DUCT PRESSURE LOSS

SEA LEVEL

$\eta_{GEN.} = 97\%$

$N_3 = 3600$  RPM





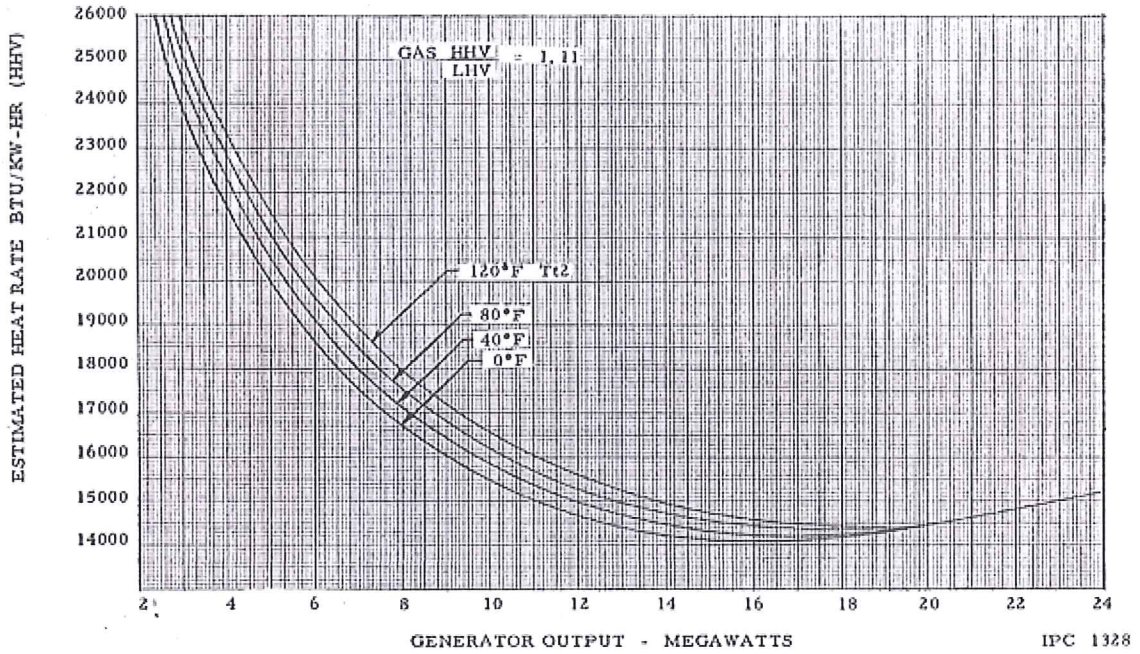
PRATT & WHITNEY AIRCRAFT

FT4A-9 GAS TURBINE POWER PAC  
ESTIMATED HEAT RATE VS GENERATOR OUTPUT FOR GASEOUS FUEL  
3" H<sub>2</sub>O INLET DUCT PRESSURE LOSS  
1" H<sub>2</sub>O EXHAUST DUCT PRESSURE LOSS

$\eta_{GEN} = 97\%$

SEA LEVEL

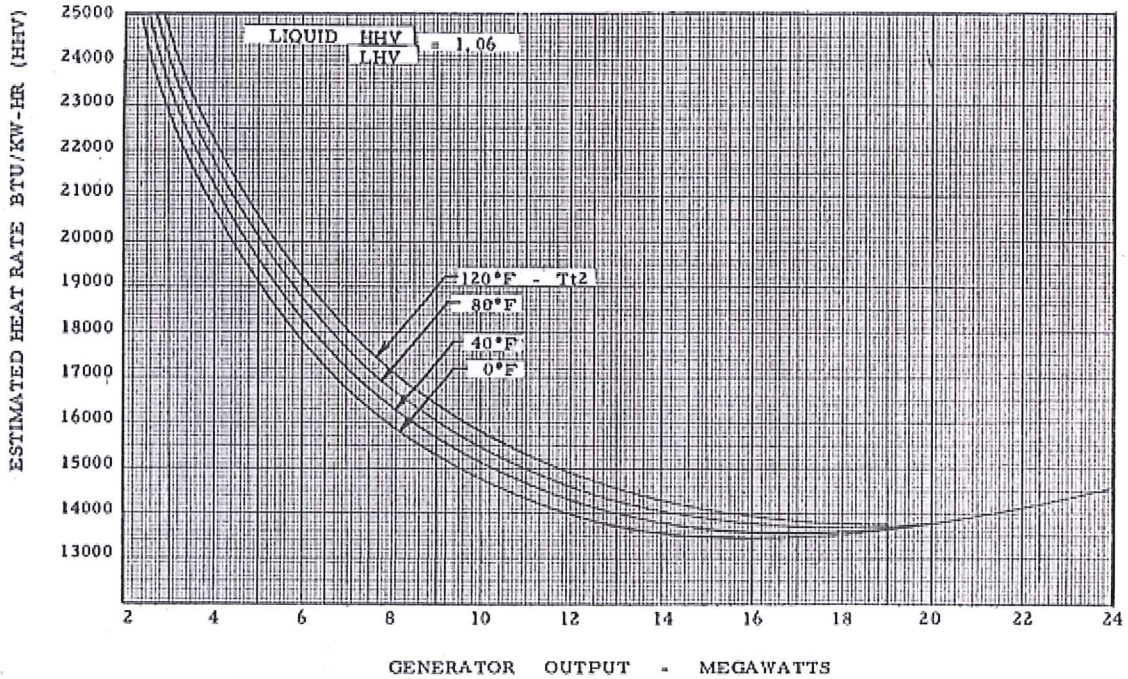
$N_3 = 3000$  RPM



PRATT & WHITNEY AIRCRAFT

FT4A-9 GAS TURBINE POWER PAC  
 ESTIMATED HEAT RATE VS. GENERATOR OUTPUT FOR LIQUID FUEL  
 3"H<sub>2</sub>O INLET DUCT PRESSURE LOSS  
 1"H<sub>2</sub>O EXHAUST DUCT PRESSURE LOSS

$\eta_{GEN} = 97\%$       SEA LEVEL       $N_3 = 3000$  RPM



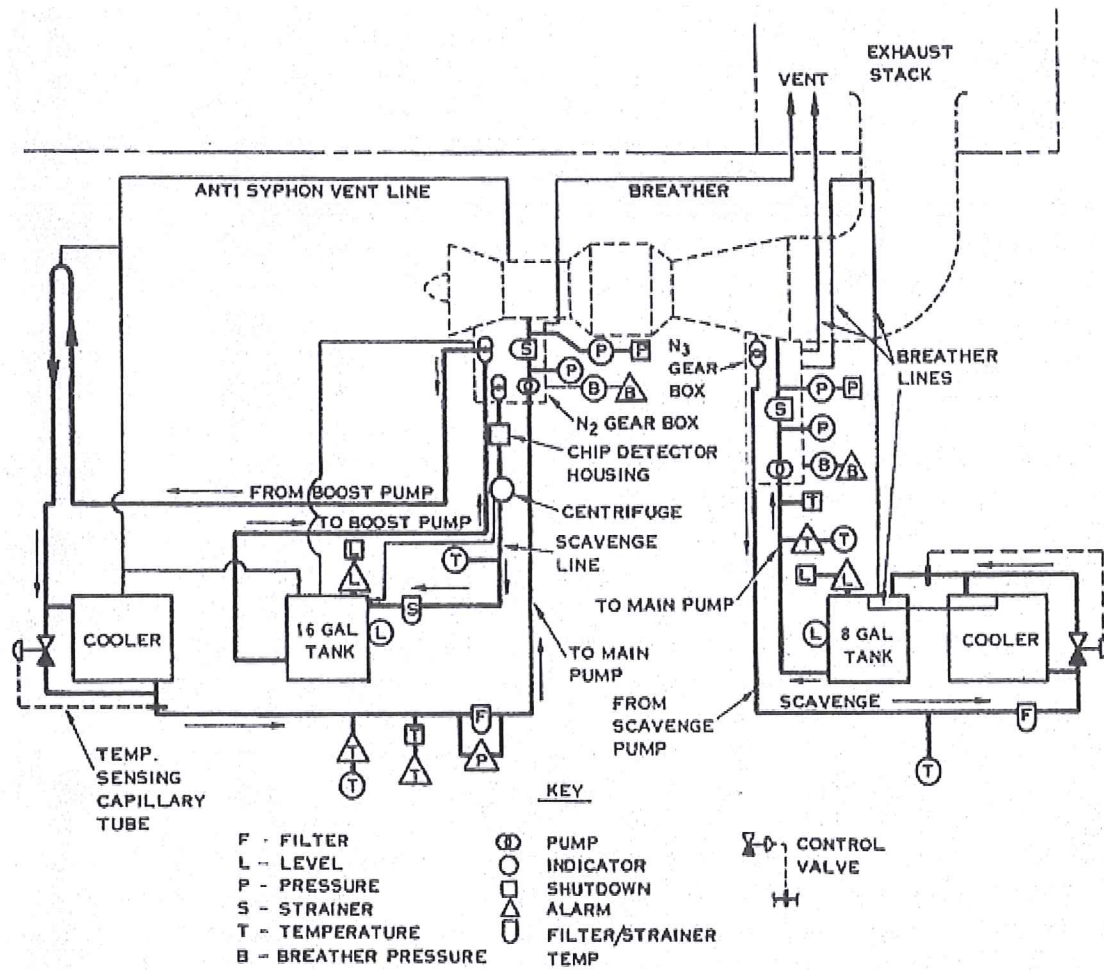
Emissions

FT4A-9 Estimated Emissions  
 Dry and with 1:1 H<sub>2</sub>O

101306

| Model  | Load Setting | Fuel                         | NOx<br>PPMVD @15% O <sub>2</sub> | CO<br>PPMVD @15% O <sub>2</sub> |
|--------|--------------|------------------------------|----------------------------------|---------------------------------|
| FT4A-9 | Ind base     | No 2 LF Dry                  | 192                              | 84                              |
| FT4A-9 | Ind base     | No 2 LF 1:1 H <sub>2</sub> O | 42                               | 332                             |
| FT4A-9 | Ind base     | Gas Dry                      | 102                              | 126                             |
| FT4A-9 | Ind base     | Gas 1:1 H <sub>2</sub> O     | 33                               | 298                             |

External Lube System

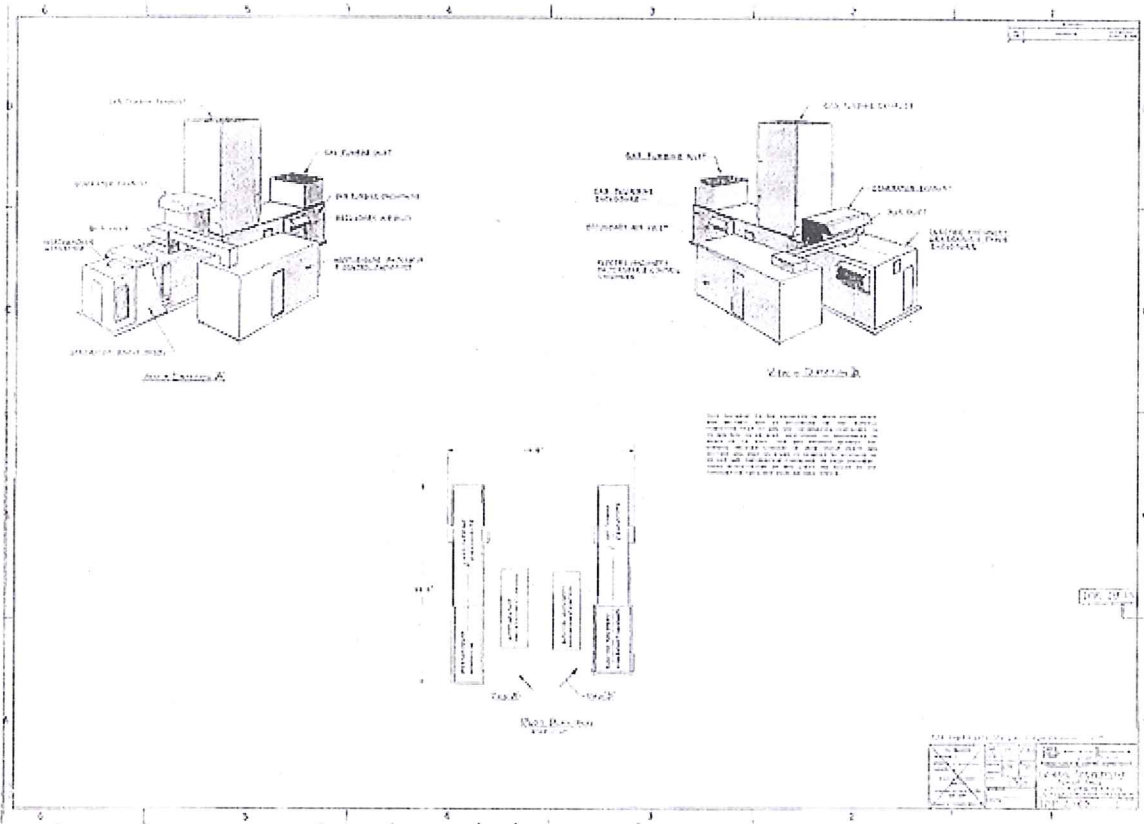


L-26433

Figure 1-1. External Lubrication System

Diagrams

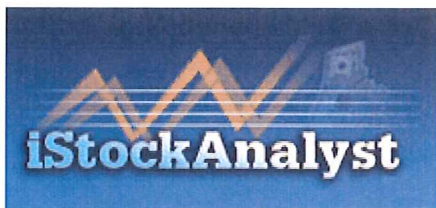




| Symbol   | Description         |
|----------|---------------------|
| [Symbol] | Gas Turbine Engine  |
| [Symbol] | Gas Turbine Inlet   |
| [Symbol] | Gas Turbine Outlet  |
| [Symbol] | Gas Turbine Exhaust |
| [Symbol] | Gas Turbine Inlet   |
| [Symbol] | Gas Turbine Outlet  |
| [Symbol] | Gas Turbine Exhaust |
| [Symbol] | Gas Turbine Inlet   |
| [Symbol] | Gas Turbine Outlet  |
| [Symbol] | Gas Turbine Exhaust |



# DATA SHEET NO. 9



## Hilco Industrial Sets Asset Auction Record for San Francisco Public Utility Company

Friday, March 19, 2010 12:51 PM

(Source: Business Wire) Hilco Industrial, LLC, a leading distressed asset disposition company, announces the sale of four (4) surplus, never-used General Electric LM6000 Sprint Turbine Generators on behalf of San Francisco Public Utility Company ("SFPUC"). The public auction sale was held earlier in March. The winning bidder paid \$44,000,000 for all four generators, capable of producing nearly 196,000 kW of power.

According to Robert Levy, a Hilco Industrial partner, the SFPUC sale event is believed to be one of the two largest revenue-generating auctions of its kind in history. This is the second such auction of power generation equipment staged by Hilco Industrial. The last one yielded \$55 million on behalf of Calpine Corporation, a Houston, TX-based independent power generation company.

### About Hilco Industrial, LLC

Hilco Industrial provides industrial asset disposition services, specializing in selling machinery, equipment and inventory auctions and negotiated sales. It sells the broad range of industrial assets found in manufacturing, wholesale and distribution companies through on-site, online and combination "webcast" auction sale events as well as negotiated (private treaty) sales. Hilco Industrial is headquartered in Farmington Hills, Michigan, and maintains offices in key cities in North America and the United Kingdom. It is a unit of Hilco Trading, LLC, an international leader in asset valuation, acquisition, disposition and advisory services.

A service of YellowBrix, Inc.

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# Data Sheet No. 10



**PRATT & WHITNEY FT4A-9 GAS  
TURBINE GENERATOR SET  
CTG~GTD-0711**

## **ONE (1) X 21 MW, 60 HZ, 13.8 KV PRATT & WHITNEY FT4A-9 GAS TURBINE GENERATOR SET**

### **Gas Turbine**

- Manufacturer : Pratt & Whitney
- Model : FT4A-9
- Output : 21,250 kW
- Fuel : Diesel

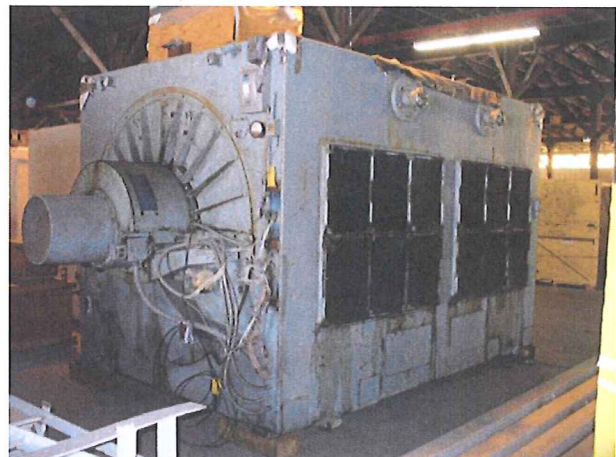
### **Generator**

- Manufacturer : Electric Machinery Manufacturing Company.
- Capacity : 25,000 kVA
- Voltage : 13,800 V
- Frequency : 60 Hz
- Speed : 3,000 rpm
- Power Factor : 0.85

### **Additional information**

- This plant was a peaking facility and therefore has only 5413 total original hours.
- This equipment was decommissioned in 2004 and removed to storage.
- The engine and free turbine were overhauled in 2006 & rebuilt to 0 hours.
- Controls and NOx water injection system included.

**PRICE : US\$ 3.25MM As is / Where is. FOB: US**



For More Information Please Contact The Camelot Technologies Group, Inc. (CTG) 17231 Camelot Court | Land O Lakes Florida 34638  
Tel: (813) 920-8725 | Fax: (813) 433-2423  
Email: [Info@Camelottech.com](mailto:Info@Camelottech.com) Website: [www.Camelottech.com](http://www.Camelottech.com)

# DATA SHEET NO. 11



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### Gas Turbine Gen Sets (10MW & Larger)

**Item Name: Pratt & Whitney FT4 gas turbine generators**

**Item Number: 35754**

Quantity: 4

Manufacturer: Pratt & Whitney



[View Large Image](#)

Description: PennEnergy has immediately available five (4) Pratt & Whitney FT4 gas turbine generators ranging from 18Mw to 48Mw ISO. Each GTG can be configured to run at 60Hz or 50Hz with only a slight derate when configured at 50Hz. Units must be purchased as remanufactured to a zero hour basis including manufacturer warranties and performance guarantees. Turnkey packages including engineering, design and construction are also available. There are (2) FT4C A-9 units at about 18MW each priced at US\$5.2 million each; and (2) FT4C-1D Twin Pac?s at about 48MW each priced at US\$12.5 million each. Price is for unit running on natural gas only. Call Randy Hall at 713-499-6330 or email [rhall@pennenergy.com](mailto:rhall@pennenergy.com) for further details. (2) Pratt & Whitney FT4A-9 Power Pac?s rated at 20 Mw @ 60 Hz or 18 Mw @ 50 Hz (1) Pratt & Whitney FT4A-11 Power Pac rated at 23 Mw @ 60 Hz or 21 Mw @ 50 Hz Call Randy Hall at 713-499-6330 for additional information

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Questions?

Contact us

E-mail: [equipment@pennenergy.com](mailto:equipment@pennenergy.com)

Phone: Mon-Fri 8AM - 5PM CST (713) 621-9720



# DATA SHEET NO. 12



POWER GENERATION / OIL & GAS / REFINERY & PETROCHEMICAL PROCESSING

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## Gas Turbine Gen Sets (10MW & Larger)

**Item Name: LM2500 Gas Turbine Gensets**

**Item Number: 35849**

Quantity: 1

Manufacturer: BGT Group

Description: Supplier can build stationary units (dual fuel, Water injection, Inlet Fogging, Switchgear) within 4 to 5 months for \$7.0 Million each. Turbine is zero time overhauled, BOP is brand new. Same warranty as new. Trailer mounted LM2500 Plants (dual fuel, Water Injection, Inlet Fogging, Switchgear), delivery 4-5 months for \$8.5 Million each. Turbine is zero time overhauled, BOP is new. Same warranty as new.

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### Questions?

**Contact us**

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Phone: Mon-Fri 8AM - 5PM CST (713) 621-9720

# DATA SHEET NO. 13



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Source: MMC Energy, Inc.

## MMC Energy, Inc. Completes Turbine Sale

NEW YORK, Oct. 6, 2009 (GLOBE NEWSWIRE) -- MMC Energy, Inc. (Nasdaq:MMCE) announced today that it has completed the sale of its two GE LM6000 PC Sprint turbines for \$26.65 million to a subsidiary of Pro Energy.

The sale of the turbines was part of a process to liquidate the Company's remaining assets as contemplated by the liquidation plan of the Company, which plan was overwhelmingly approved at a shareholders' meeting held on September 14, 2009. MMC Energy had previously announced the completion of the sale of its Chula Vista and Escondido electric generating facilities and certain other assets for \$4,865,500 to affiliates of Wellhead Electric Company, Inc.

As previously announced, with the turbine sale completed, the Company will now make the first of at least two liquidating dividend payments to shareholders. The Board of Directors today approved the amount of the first distribution to be \$1.35 per share. The Company expects to fund its payment agent, Continental Stock, Transfer & Trust Company, today and that the distributions will reach beneficial owner accounts within 3-5 business days. Registered shareholders who hold paper share certificates directly will be required to turn in their shares with other required paperwork which will be mailed to them promptly along with detailed instructions.

The Company has also revised its range of expected aggregate distributions to be \$1.45-\$1.60 per share.

As previously announced, coincident with closing the turbine sale, we anticipate trading in our common stock will be permanently suspended by the NASDAQ Global Market, effective at the close of trading today.

About MMC Energy, Inc.:

The Company is currently liquidating its electricity generating and energy infrastructure-related assets in the United States. The Company is traded on the NASDAQ Global Market in the United States.

Forward Looking Statements:

This press release contains 'forward-looking statements' within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934 including the amount of liquidation distribution proceeds ultimately available to the Company's shareholders. Although the forward-looking statements in this release reflect the good faith judgment of management, forward-looking statements are inherently subject to known and unknown risks and uncertainties that may cause actual results to be materially different from those discussed in these forward-looking statements including, but not limited to, those risks described in the Company's Annual Report on Form 10-K, its most recent prospectus filed with the SEC on November 19, 2007 and in its other public filings. Readers are urged not to place undue reliance on these forward-looking statements, which speak only as of the date of this release. The Company undertakes no obligation to update these forward-looking statements.

CONTACT: MMC Energy Inc.  
Denis G. Gagnon, Chief Financial Officer  
(212) 785-5478  
[www.mmcenergy.com](http://www.mmcenergy.com)

### Other Company Press Releases

[MMC Energy, Inc. Completes Turbine Sale - Oct 6, 2009](#)

[MMC Energy, Inc. Announces Voluntary Delisting From NASDAQ - Sep 25, 2009](#)

[MMC Energy, Inc. Announces Closing the Sale of Its Power Generating Operations - Sep 23, 2009](#)

[MMC Energy, Inc. Stockholders Overwhelmingly Approve Asset Sale and Plan of Liquidation - Sep 15, 2009](#)

[Federal Court Orders That MMC Energy, Inc. May Proceed With Its Suit Against Karl Miller - Sep 15, 2009](#)

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## RMA's Power Plants Online™

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| <a href="#">86 MW and larger</a> | <a href="#">11 MW - 30 MW</a>     |
| <a href="#">31 MW - 85 MW</a>    | <a href="#">10 MW and smaller</a> |

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#### Our most recent listings:

**Listed 3/28/10**

43MW Generator. This is the generator ( only) with no gas turbine. It was purchase in 1970 and never used. Manufactured in the US by EM, it is rated as follows: 50,500kVA, 42,925kW, 60Hz., 3600rpm, 13.8kVolts, 3 phase, .85PF. (Click here for images [1](#) [2](#)) **Call for price.** Contact Milt Fyre 503-351-9898 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

**Listed 3/17/10**

5.2MW Solar XQ200 Mobile Power Units for sale. Trailer mounted. 60Hz. Natural Gas. 13.8kV. Less than 4,500 total hours and less than 250 starts. ([Click here for details and images.](#)) Asking 2.5 million each. Contact Milt Fyre 503-351-9898 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

**Listed 2/23/10**

15.25MW GE Frame 5 Gas Turbine Generator Set for sale. Model MS-5001, Dual Fuel, 60Hz, 12,470 volt, Made in 1970. Ready for shipment. Very well maintained University take out, with all documentation. **Call for price.** Contact Kurt Patterson 503-320-7798 or [kurt@rmaglobal.com](mailto:kurt@rmaglobal.com)

**Listed 2/17/10**

4.4MW Solar Gas Turbine Generator Generation-II mobile package, natural gas only, 50Hz. Less than 4,300 total hours and 250 starts. 11kV. 2 units available. Ready for shipment. Asking \$3 million each. Contact Milt Fyre 503-351-9898 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)



**Listed 2/10/10**

23MW ABB GT Gas Turbine Generator for Sale 50Hz., Dual Fuel, optional 7MW ABB STAL Steam Turbine Generator ([Click here for details and images.](#)) Call for price. Contact Milt Fyre 503-351-9898 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

**Listed 2/4/10**

20MW GE LM2500 Gas Turbine Generator Set for sale. 50 Hz. This unit is running on natural gas and is very well maintained.  
Model: 7LM2500PE-MLWG03, 4340 starts, 55,056.4 total hours. Last major overhaul by in 2001. 14,000 hours since major overhaul. Exchange hot parts with GE in March 2004. 25.74MVA Brush Generator. Including controls, aux transformer, hydraulic start up system, lube oil & cooling system, air inlet system & plant room cooling system, control system, electrical system, monitoring system, fire fighting system, boiler monitoring system, plant supply transformer. **Asking \$7 million.** Contact Milt Fyre 503-351-9898 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

**Listed 12/12/09**

46MW GE LM6000 PD Sprint Gas Turbine Generator for sale. 50Hz., new, never used. Available in the US immediately. SPRINT® (Spray Intercooling) Power Boost System. Air cooled generator 2 pole

rated at 63,500 KVA @ 0.80 pf, (150C) cooling air, 11,500 volts, 50 Hz, Weatherproof acoustic enclosures with sound attenuation. Includes a natural gas fuel system, a fire protection system, and a free-standing control panel suitable for mounting in an indoor, area. ([Click here for more details and images.](#)) Contact Milt Fyre 503-351-9898 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

---

***Listed 12/10/09***

38MW Alstom Frame 6B Gas Turbine Generator Set for Sale (3 units for sale). Model PG 6541-B, 50Hz., 11kV, Dual Fuel, Made in 1986, Sentinel C PLC Control System. The unit is being remanufactured as follows: New Hot Gas Path and Combustion parts with increased firing temperatures. Expected GT output after remanufacture and uprate to be 38MW at ISO using Natural Gas to OEM Specifications. New turbine shell casings. New Sentinel Controls. Generator: Alstom type T190-240, 3000rpm, 45,362kVA. Available in 4 month after initial payment. Warranty and guarantees similar to new equipment. Contact Milt Fyre 503-351-9898 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

---

***Listed 12/10/09***

32MVA Alstom Atlantique Frame 5 Gas Turbine Generator Set for Sale. Model PG 5341-P, 50Hz., 11kV, Dual fuel, Made 1974, 1896 starts, Speedtronic MK II controls, 124,054 running hours, 3,100rpm. Dismantled in storage. Will sell "as is" or refurbished to buyer specifications. Contact Milt Fyre 503-351-9898 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

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***Listed 12/10/09***

29MVA GE Frame 5 Gas Turbine Generator Set for Sale. Model PG 5341-P, 60Hz. 13.8kV, Liquid fuel only (#2 diesel), Made in 1974, 1,091 starts, 115,961 running hours, Speedtronics MK I Controls. GE generator type S624A4, 3600rpm. The Detroit Diesel starting system have been refurbished by OEM. For sale "as is" or refurbished to buyer specifications or converted to 50Hz. (which will require a new generator.) Contact Milt Fyre 503-351-9898 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

---

***Listed 11/24/08***

100kW Spark-Ignited Natural Gas Engine Generators Sets for sale (50 + units available). New, unused (built in 2007) and some used units with 2,000-13,000 total run hours), 60Hz. 100kW continuous, 125kW Prime, 480 Volts, 3 phase. Mounted in an enclosure. Controls and main switch. Designed to burn Coal Bed Methane wellhead gas. Engines are SRC/International Harvester 4-cycle spark-ignited engines. **New cost \$60,000 each. Asking \$35,000 each.** Available immediately. ([Click here for details and images.](#)) Contact Milt Fyre 503-351-9898 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

---

***Listed 10/20/09 No longer for sale No longer for sale No longer for sale***

30MW LM 2500+PK Gas Turbine Generator New. (two immediately available in the US), 11kV, 50Hz., dual fuel. Includes remote work station, power control module, unit motor control center, simple cycle exhaust stack, and anchoring system. The package were designed for severe weather conditions of 50 deg C and 97% RH as sea level. Call for price and scope of supply. Contact Milt Fyre 503-351-9898 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

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***Listed 10/13/09***

48MW LM6000 PC Sprint for sale. 60Hz. New. 7 For price and details: Contact Milt Fyre 503-351-9898 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

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***Listed 10/13/09***

750kW Solar Turbine Generator sets for sale. 2 each, 60Hz. Diesel Fuel. Fully enclosed. Demacii GE Standby Generators. Woodward Speed Controls. Asking \$20,000 each. ([Click here for image.](#)) Contact Milt Fyre 503-351-9898 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

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***Listed 10/6/09***

30MW W-251 B8 Turbine Generator Set for sale. Includes all structures and spare parts (Peaking Unit). This complete simple cycle power plant (13.8 kV 60Hz) was disassembled and match marked. &nb sp; All maintenance records, specs, and manuals needed for the construction and operating of this equipment are available. The last major overhaul was in 2004, and the Plant operated until October of 2007. [Click here for images \( 1 2 \)](#) ([Click here for spare parts list.](#)) ([Click here for turbine parts list.](#)) **Call for price.** Contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

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*Listed 9/1/09*

10MW Solar Mars 100s complete 20MW power plant including: two 10 MW Solar Mars 100S, natural gas fuel turbines driving 12,500 kVA Ideal Electric generators, 1800 RPM, 60 Hz, 13.8 KV all auxiliaries one Deltak HRSG 500 KW Cat 3412 diesel generator, 600 volt. Built in 1999 with less than 3,500 total hours. (Click here for images [1](#) [2](#) [3](#) ) ([Click here for more details](#)) Contact Milt Fyre 503-351-9898 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

---

*Listed 6/20/09*

22MW Westinghouse W-251-G Gas Turbine Generator for sale. 3 each. Liquid fuel. Well maintained and in excellent condition. ([Click here for images.](#)) For more details contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

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*Listed 6/20/09*

15.6MW Westinghouse W-191-G Gas Turbine Generator for sale. 4 each. Liquid fuel. Well maintained and in excellent condition. For more details contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

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*Listed 3/24/09*

22.5MW Pratt & Whitney FT4A Gas Turbine Generator Set for sale. Liquid fuel - #2 diesel only. 13,800 Volts, 60Hz. Installed in 1969. **Asking \$4.5 million.** Contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

---

*Listed 2/12/09*

23.4MW Frame 5P Gas Turbine Generator Sets for Sale. 3 units available. 60Hz. Liquid Fuel. & nbs p; Low hours since last overhaul. **Price \$3.6 million each.** ([Click here for details.](#)) Contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

---

*Listed 2/12/09*

48MW LM6000 PC Sprint GTG 2 each, New, 60Hz. Natural Gas. for sale. **Call for price.** Contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com) See Data Sheet No. 2

---

*Listed 2/12/09*

22MW LM2500 - PE 60Hz. Placed in service as a peaking plant in 2001, refurbished in 2006, operated less than 70 hours per year. Averaged 13,000 BTUs/kWhr. Call for price and details. Contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

---

*Listed 1/18/09*

1210 kWe Solar Saturn Gas Turbine Generator Sets for sale. 2 Available. 50/60Hz. Asking \$1.1 million each ([Click here for images.](#)) ([Click here for spec sheet.](#)) Contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

---

*Listed 1/16/09*

53MW Frame 6B Combined Cycle Power Plant for sale. 50Hz. 39MW GE Frame 6551B and a 14MW Steam Turbine Genrator, plus balance of plant equipment. Only 1100 total operating hours. Operational in 1996 and STG added in 2004. Liquid fuel and black start capability. As is where is, located in China. **Asking \$7.6 million** ([Click here for details](#)) Contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

---

*Listed 1/16/09*

40MW LM6000 50Hz. For sale. Complete simple cycle power plant. Mfg. by Steward & Stevenson 1995. Operation in 1996. Dual Fuel. Only 11,500 total running hours. For sale as is where is in Asia. **\$8.6 million (USD)** ([Click here for details](#)) Contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

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*Listed 12/27/08*

10.3MW Rolls-Royce Avon Gas Turbine Generator Set for sale. Model 1534-1012L/ 10 Avon Maxis. 60Hz. Liquid fuel. Low hours. Complete Package Mounted on Trailers ([Click here for details](#)) Contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

---

*Listed 12/27/08*

1.2MW Solar Saturn 20 Gas Turbine Generator Package for sale: has a total of 37,500 hours and 504



starts. It was manufactured in 1995. 10kV, 1350kVA, 50Hz., dual fuel, natural and gas and diesel. Asking \$200,000 Euros. Dismantling, packing and loading \$40,000 Euros. ([Click here for images](#)) Contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com) for more information.

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***Listed 11/06/08***

4x30.66MW Frame 6 Gas Turbine Power Plant (complete) for sale. Alstom Model PG 6531, 60Hz. (Can be converted to 50Hz.) Liquid Fuel, Alstom Generator, 13.8kV, 0.8PF, Speedtronic Mark IV Controls, power transformer 13.8kV/230kV, Circuit Breaker, Fuel Oil Filtering Skid, backup diesel generator set. Built 1989. ([Click here for more information and images.](#)) Contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com) for more information.

---

***Listed 11/06/08***

3x30.99MW Frame 6 Gas Turbine Power Plant (complete) for sale. Hitachi Model PG 6531, 60Hz. (Can be converted to 50Hz.) Liquid Fuel, Hitachi Generator, 13.8kV, 0.8PF, power transformer 13.8kV/230kV, Circuit Breaker, Fuel forwarding skid Skid, fuel oil tanks. Built 1989. ([Click here for more information and images.](#)) Contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com) for more information.

---

***Listed 11/06/08***

31.64MW Frame 6 Gas Turbine Power Plant (complete) for sale. GEC-Alstom Model PG6 541B, 60Hz. (Can be converted to 50Hz.) Liquid Fuel, GEC-Alstom Generator, 13.8kV, 0.8PF, Speedtronic Mark II Controls, diesel starting EG, power transformer 34.5kV/13.8kV, Circuit Breaker, Fuel Tank, forwarding skid Skid, fuel oil tanks. Built 1992. ([Click here for more information and images.](#)) Contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

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***Listed 11/05/08***

11MW Frame 5D Gas Turbine Generator for sale. Natural Gas Fuel only. 60Hz., Installed 1961 for peaking operation. 1040 starts and 4,260 total hours. All auxiliary components, including field breaker and associated controls are available. PTs, CTs and related relaying/metering devices are available. GE Generator Step Up Transformer. All manuals, drawings and inspection reports. Controls including a Woodward 501 DCS control system. ([Click here for more information and images.](#)) Contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

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***Listed 10/21/08***

171MW GE Frame 7FA Gas Turbine Generators for sale. (3 each new surplus units available.) 60Hz. General Electric PG7241FA Dry Low NO. Natural Gas. Static Start. Air Filtration: Two Stage Static. Exhaust System Axial Exhaust. Outdoor Enclosure. Generator: Model 7FH2 Cooling Hydrogen. Power Factor (PF) 0.85 Lagging. 18.0 kV. Generator Excitation EX2000P-Static Bus Fed. Outdoor Enclosure Load Compartment. Control Systems: Turbine-Generator SPEEDTRONIC Mark VI. For more details and price contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

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***Listed 10/21/08***

65MW GE Frame 7E Gas Turbine Generator Sets (6 each) for Sale. model: MS7000B STAG/uprated to E status. 60Hz. Emission controls: Dry Low NOx (DLN) Heat rate 10,999 btu/kW, Natural gas, Control System: Turbo-Tronics. BOP equipment available, including breakers and transformers. Can be converted to 50Hz. **Call for price** Contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com) for more information.

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***Listed 10/13/08***

3X11MW Frame 5D Gas Turbine Generators for sale. Dual fuel, 60Hz., all required auxiliary components, including a Woodward 501 DCS control system, with all required auxiliary components, including field breaker and associated controls, including all associated PTs, CTs and related relaying/metering devices, GE Generator Step Up Transformer, All manuals, drawings and inspection reports available. There are 3 day tanks and a 500,000 gal tank available. ([Click here for more information and images.](#)) Contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com) for more information.

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***Listed 10/7/08***

2x60MW Complete Gas Turbine Power Plant For Sale. Two General Electric Company (GEC) Model EM610C 2x61.7MW base load, 66.9MW peak load 50Hz 11.8 KV Fuel, #2 diesel. Installed in 1981, Less than 600 hours, 700 starts. ([Click here for more information](#)) The units are dismantled.



Transformers 132kV and 33kV available for purchase. **\$6.0 million each (USD) FOB Asian Port. Packed and ready for shipment. Turnkey installation available** Contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

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**Listed 8/16/08**

800kW Solar Saturn Gas Turbine Generator set for sale. 50Hz. 3 units available. Manufacturer: International Harvest (Solar)  
Type: Saturn GSE 1.000, Turbine 3-stage Compressor 8-stage, Power Turbine: 900k, Generator 800kW EM Bemac II Brushless Synchr., 380V, 3 phase, 50Hz., PF .8, RPM turbine 22,300 rpm, RPM generator: 1,500 rpm. Starting up < 45 sec. Fuel: Jet A1 or petroleum, heating oil.  
Generated heat 43.000 kJ/kg Air mass 780 kg/m<sup>3</sup> Fuel consumption: ca. ,370 kg/kWh Air consumption: 0,96 Nm<sup>3</sup>/s Needed cooling air: 3,84 Nm<sup>3</sup>/s  
Shut down in April 2008. All equipment is in perfect, turnkey condition. These units are complete with all logs, manuals, maintenance reports, switch gear, control system, pumps, air intake filtration system, exhaust silencer. Located in Europe. **Price 300,000 Euros per unit.** ([click here for more information and images.](#)) Contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

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**Listed 6/6/08**

15MW Solar Titan Gas Turbine Generator set for sale. Manufactured by Solar in 2001 and never placed into service. Heat rate 9,603 btu/kWhr. So-Lo-NOx dry low NOx system. Professional inspected and stored by Solar 2008. Configured for 60Hz. and can be configured for 50Hz. Includes inlet/exhaust equipment and all documentation and drawings. ([Click here for images.](#)) Contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

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**Listed 6/6/08**

10.685MW Solar Mars Gas Turbine Generator set for sale. Manufactured by Solar in 2001 and never placed into service. Heat rate 10,513 btu/kWhr. So-Lo-NOx dry low NOx system. Professional inspected and stored by Solar 2008. Configured for 60Hz. and can be configured for 50Hz. Includes inlet/exhaust equipment and all documentation and drawings. Deltak HRSG with diverter/stack. 300psig, 70,000 obs/hr steam. ([Click here for images.](#)) Contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

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**Listed 5/7/08**

22.5MW GE Frame 5PA (MS-5001PA) Gas Turbine Generator Set for sale. Natural Gas. single cycle, single shaft. Mark IV Speedtronic controls. Generator model: air cooled Lynn unit, Rating 33,700 kVA, Over-speed, over-temperature, vibration detection. 5,100 rpm, 51,000 total hours, 6,200 hours since overhaul 7/11/2000, 1,400 total starts, 752 starts. ([Click here for images.](#)) Contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

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**Listed 3/6/08**

5.2MW Solar Taurus T-60 Gas Turbine Generator Sets for Sale. 3 Trailer-mounted sets and 7 regular sets. These units are low hours and in excellent condition. 50/60Hz. ([Click here for details and image.](#)) **Call for price.** Contact Pete Hoffman 503-595-5418 [pete@rmaglobal.com](mailto:pete@rmaglobal.com)

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**Listed 2/8/08**

12.5MW W-191G gas turbine generator plant for sale to be moved. 60Hz. Dual Fuel, built in 1968. Recently operating. Westinghouse WDPF control system. Generator: Westinghouse, 60Hz. 3600 rpm, 12,000 Volts, 15,625kVA, 0.8 PF. Eaton AVS/ECR Generator field control system (2006) Sun Solaris operator interface and run time workstations (3 each, 2006). DeLaval oil Centrifuge. Reduction gear 4862/3600 rpm. ([Click here for images](#)) Call for price Contact Pete Hoffman 503-595-5418 [pete@rmaglobal.com](mailto:pete@rmaglobal.com)

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**Listed 2/1/08**

22.6MW LM 2500PE-MLWG03, Model 7, 50Hz., Dual Fuel, Mircronet Control System, 1990 year of mfg. Powerfactor 0.85. Output Voltage 11kV. 4,500 total starts. Exhaust not included. 14,000 hour since overhaul. 800 hour since hot section exchange. ; Asking \$8.75 million. Contact Milt Fyre 503-595-5418 or 503-351-9898 [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

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**Listed 2/1/08**

27.4MW P&W FT-8 Gas Turbine Power Plant, 50Hz. Dual Fuel, ISO Rating : 27.4MW, 35.63 MVA. Heat Rate : 9269 BTU/kW-hr, GE Micronet,



Manufactured 1991. Water injection, air starting system, installed water injection NOX control. 56,000 total hours, 5,000 starts, 2,000 hour since overhaul. Generator: Brush Electric, Brushless Excitation, 11.5 kV. Call for price. Contact Milt Fyre 503-595-5418 or 503-351-9898  
[milt@rmaglobal.com](mailto:milt@rmaglobal.com)

**Listed 10/30/07 \* \*\*\*\*\* SOLD SOLD SOLD See Data Sheet No. 5**  
26MW LM 2500 gas turbine generator set. New gas turbine and rebuilt generator. We are direct with owner. Price is \$6.5 Million. (Click here for more details) Contact Milt Fyre 503-595-5418 or 503-351-9898 [milt@rmaglobal.com](mailto:milt@rmaglobal.com) or Lane Kadel 503-595-5418 or 503-803-2029 [lane@rmaglobal.com](mailto:lane@rmaglobal.com)

**Listed 10/18/07 \*\*\*\*\* SOLD \*\*\*\*\* SOLD \*\*\*\*\* SOLD \*\*\*\*\***  
49.6MVA GE Frame 6B Gas Turbine Generator and balance of plant equipment for sale. Model PG 6541B 60 Hz. New in 1991 Total Fired Hours - approx. 48,000. Zero hours since GE overhaul. DLN Extra Equipment - New Fuel Nozzles, Never Used Air Inlet, Never Used Exhaust Stack. Speedtronics Mark IV Control system and other associated equipment plant equipment. Deal directly with the seller/owner. (Click here for list of associated plant equipment.) Call for price. Contact Milt Fyre 503-595-5418 or email [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

Listed 8/18/07  
80MW 2x40MW ABB-STAL Laval GT120 Gas Turbine Generators, 50Hz. Commissioned in 1960. Extensively refurbished in 1991. 8,200 hours of operation. Presently running on #2 diesel. Can be converted to natural gas or HFO (designed to operate on HFO). ASE A Generator 11kV, 3000rpm. (Click here for details and Images.) Call for price Contact Milt Fyre 503-595-5418 or email [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

Listed 2/12/07  
570kW Kongsberg KG 831 gas turbine generator sets, 2 each, 700 kVA, 0.8 pf, 50Hz. Anton Piller NKT 570-4 generators. One unit has only 38 starts and 13 working hours and the other has 824 starts with 315 working hours. The units show a little environmental corrosion on the outer case, but the equipment is working with no problems. The turbines are made by Garrett. Click here for images ( [1](#) [2](#) [3](#) [4](#) ) Call for price Contact Milt Fyre 503-595-5418 or email [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

Listed 2/5/07  
45MW Gas Turbine Generation Station Model SK60 (50Hz.) comprised of 2 (each) RR Olympus gas turbines driving a single 45MW Parsons generator. Natural gas fuel. Built in 1980. Total running hours: Turbine A 26,000 hours, and Turbine B 31,000 hours. Both have 8,000 hours since overhaul. ( [image 1](#) [image 2](#) ) Call for price. Contact Milt Fyre 503-595-5418 or email [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

Listed 11/06/06  
750kW Solar Gas Turbine Generators (3 Available) Rated 750kW, 60Hz. .8PF diesel fuel. Installed in the early 70s as backup units and have about 1,000 total hours. The units are enclosed and have exhaust silencers. They are in excellent condition. Manual and documentation available. (Click here for images) Call for price. For more information contact Milt Fyre 503-595-5418 or email [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

Listed 7/26/06  
5MW Alstom Tornado Gas Turbine Generator, 60Hz., Natural Gas, 4160 Volts, KATO Generator, Ancillary Systems, Auxiliary Equipment, for more details and images (Click here). For more information contact Milt Fyre 503-595-5418 or email [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

Listed 12/20/05  
58 MW CC Power Plant (Equipment Only) 43MW GE Frame 6 GTG, 16MW GE STG, steam injection. 8,500 heat rate. Built in early 90's. HRSG and auxiliary boilers. 1100kW CAT (emergency generator) 60Hz. For more information contact Milt Fyre 503-595-5418 or email [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

Listed 12/5/05 \*\*\*\* SOLD \*\*\*\* SOLD \*\*\*\* SOLD \*\*\*\*  
86MW CC Power Plant (Equipment for sale) 52MW ABB GT8 B/C GTG, dual fuel, 5,000 hours on major overhaul. 34MW ABB STG, Zurn HRSG, York Shipley auxiliary boiler. Heat rate 8,800 Built in early 90's. 2000kW CAT generator. 60Hz. For more information contact Milt Fyre 503-595-



5418 or email [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

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**Listed 12/1/05**

85MW CC power plant built in 1994. 42MW LM6000 GTG and a 22MW LM2500 GTG. Dual fuel. 25MW STG. & nbsp; Zurn HRSG, duct burners, Mitsubishi SCRs, auxiliary boilers. Heat rate 8,000. 41,000 hours total. 60Hz. For more information contact Milt Fyre 503-595-5418 or email [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

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**Listed 11/4/05**

850kW Solar Saturn Gas Turbine Generator (T-1200 Mark I), 60Hz., 600 volt, 3 phase, 1800 RPM induction generator. Rated for continuous duty. Including Sound Insulating Enclosure and Switch Gear. Skid mounted 25 kV/600V transformer, 25kV Breaker. ([Click here for details.](#)) **All offers will be considered. Must sell!** Contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

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**Listed 10/13/05**

22MW LM2500 PC GTG (4 available) Natural Gas, 50Hz. or 60Hz., Like new Warranty. Available in mobile TM2500 configuration. Delivery time 2 to 4 months. Also available as gas compressor units. **Call for Price** Contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

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**Listed 8/15/05**

750kW Solar Saturn Model 10 Gas Turbine Generator Set (2 available) 50Hz. Liquid fuel. ([Click here for details and images.](#)) Call for price. Contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

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**Listed 6/18/05 \*\*\*\* SOLD \*\*\*\* SOLD \*\*\*\* SOLD \*\*\*\***

750kW Solar Saturn Diesel Turbine Generators (2 each), 1000 hp, diesel fuel, standby service, 60 Hz., 3 phase, 4160 volt fully enclosed, Low hours. **Call for price.** ([Click here for details](#)) Contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

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**Listed 3/23/05**

450KW - 1,327kW Gas Turbine Generators 50Hz. or 60Hz., Fueled by Natural Gas, Propane, or Liquid Diesel. Heat rate from 14,000 to 15,000. Generators are driven by well-proven and dependable Pratt & Whitney ST6 (derived from the PT6 series of aviation turbines) and these sets are packaged by a very experienced company. Parts, maintenance, and servicing are readily available in most areas. Call for price. Contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com) ;

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**Listed 3/18/05**

Gas Turbine (turbine only) Westinghouse 191 Model W171/191M gas fired turbine in excellent condition, originally applied in a furnace gas drive operation. Recently inspected and refurbished and stored in a protective environment. Many upgrade features - anti-foul treatment to the rotor, Betts Injection, Digital ESD Control System capability and a high speed balance. Was used at low firing temperatures during its operation. Simple cycle, single shaft gas turbine shaft speed. 4810 starter turbine and a complete set of spare parts. Made 1966. Capacity speed 1480 RPM. Design temp @ 95 deg. F. Inlet Pressure 14.69 PSIA. & nbsp; Temperature 1450 DEG F Horsepower 27,200 HP. Shipping weight 70 Tons. **As is price \$1,500,000** (could power a 12MW to 14MW generator) Contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

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**ReListed 8/21/01 Owner Must Sell \*\*\*\*\***

10 MW Rolls Royce 1533 Avon mobile gas turbine generator. 10.3 MW base and 16 MW peak. 60 Hz. 13.8kV. Black start. Liquid fuel. Silencer. All equipment mounted on main and auxiliary trailer. The unit available in 30-40 days from contract, delivered to US port.& nbsp; 1977, 25,500 total hrs. ~~\$3.2~~ **Million** **Owner must sell immediately and will consider any reasonable offer.** ([Click here for more details](#)) Contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

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**Listed 12/27/04**

3 MW Gas Turbine Generator (2 available) 50/60 Hz. Unused, Allied Signal ASE 40 natural gas fired Gas Turbines.

Full one year warranty, originally installed 1999, 0 hours, 0 starts. **2.0 million (EUR) ea ch.** [Specifications and details](#) Contact Lane Kadel 503-595-5418 or 503-803-2029 or [lane@rmaglobal.com](mailto:lane@rmaglobal.com) 595-5418 or 503-803-2029 or [lane@rmaglobal.com](mailto:lane@rmaglobal.com)

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*Listed 11/05/04*

LM2500 Turbine Only. **Price is \$550,000 USD.** Contact Lane Kadel 503-595-5418 or 503-803-2029 or [lane@rmaglobal.com](mailto:lane@rmaglobal.com)

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### 86 MW and Larger

***Listed 04/30/03 SOLD! SOLD! SOLD!***

770MW MHI 501G Gas Turbine Generator Combined Cycle Power Island – Model 501G 2x2x1 configuration. (new) available immediately. Heat rate of 5,844 Btu/kWh. 60Hz. In storage. Equipped with MHI's Dry Low NOx combustion systems for use with natural gas. **\$110 million.** Contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

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***Listed 04/23/03 SOLD! SOLD! SOLD!***

500MW Siemens V84.3A2, Combined Cycle Power Island 60 Hz. New. Two GTG and one STG. ([Click here for more details](#)) Contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

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***Listed 04/30/03 No longer available***

187MW SW 501FD Gas Turbine Generator – Model 501FD – one (1) unit (new) available immediately. – Heat rate of 9,123 Btu/kWh. 60Hz. Equipped with SWPC's Low NOx combustion systems for use with natural gas. Stored indoors near rail. **\$19 million.** Contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

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***Listed 10/21/08***

171MW GE Frame 7FA Gas Turbine Generators for sale. (3 each new surplus units available.) 60 Hz. General Electric PG7241FA Dry Low NO. Natural Gas. Static Start. Air Filtration: Two Stage Static. Exhaust System Axial Exhaust. Outdoor Enclosure. Generator: Model 7FH2 Cooling Hydrogen. Power Factor (PF) 0.85 Lagging. 18.0 kV. Generator Excitation EX2000P-Static Bus Fed. Outdoor Enclosure Load Compartment. Control Systems: Turbine-Generator SPEED TRONIC Mark VI. For more details and price contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

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***Listed 04/30/03 SOLD! SOLD! SOLD!***

171MW GE 7FA Gas Turbine Generator – Model PG7241 – one (1) unit (new) available immediately. Heat rate of 9,420 Btu/kWh. 60Hz. Dry Low NOx combustion systems. Dual fuel (natural gas and liquid fuel). ; Contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

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***Listed 04/30/03 SOLD! SOLD! SOLD!***

171MW GE 7FA Gas Turbine Generator – Model PG7241 – one (1) unit (new) available immediately. Heat rate of 9,420 Btu/kWh. 60Hz. Dry Low NOx combustion systems. Natural gas. Stored indoors near rail. Contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

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***Listed 2/21/05 SOLD! SOLD! SOLD!***

160 MW Mitsubishi 501F gas turbine generators. 2 units are immediately available. ([Click here for more details](#)) Contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

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***Listed 6/26/02 SOLD SOLD SOLD***

112 MW Complete operating gas turbine power plant to be dismantled and erected at your location. Two general electric Company (GEC) Model EM610B gas turbine generator sets. 58.7MW base load, 61.9MW peak load 50Hz 11.8 kV. Fuel, #2 diesel. & nbsp; Installed in 1981, 800 hours, 1,000 starts. ([Click here for more information](#)) Contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

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**Listed 10/09/03**

1-GE Frame 7EA. **\$12.9mm** Nat gas fuel only, 9ppm dln Contact Lane Kadel 503-595-5418 or [lane@rmaglobal.com](mailto:lane@rmaglobal.com)

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**Listed 12/5/05 \*\*\*\* SOLD \*\*\*\* SOLD \*\*\*\* SOLD \*\*\*\***

86MW CC Power Plant (Equipment for sale) 52MW ABB GT8 B/C GTG, dual fuel, 5,000 hours on major overhaul. 34MW ABB STG, Zurn HRSG, York Shipley auxiliary boiler. Heat rate 8,800 Built in early 90's. 2000kW CAT generator. 60Hz. For more information contact Milt Fyre 503-595-5418 or email [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

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**Listed 12/1/05**

85MW CC power plant built in 1994. 42MW LM6000 GTG and a 22MW LM2500 GTG. Dual fuel. 25MW STG. Zurn HRSG, duct burners, Mitsubishi SCRs, auxiliary boilers. Heat rate 8,000. ; 41,000 hours total. 60Hz. For more information contact Milt Fyre 503-595-5418 or email [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

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**Listed 04/30/03**

85MW GE 7EA Gas Turbine Generator – Model PG7121 – three (3) units (new) available immediately. Heat rate of 10,420 Btu/kWh, 60Hz. Dry Low NOx combustion systems. Natural gas. Stored indoors near port and rail. **Price \$12.9 million.** Contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

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**Listed 02/07/04 SOLD \*\*\*\*\* SOLD \*\*\*\*\* SOLD \*\*\*\*\***

80MW ABB Stal-Laval. NEW in 1980 and used a total of 1070 hours since. Used as Emergency or Peak Load Power station, now Fuel LFO, can be conv. for Gas. ASEA GTA 1500 EV 50Hz Generator. **\$Call.** ([Click here for more details](#)) Contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

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**Listed 8/18/07**

80MW 2x40MW ABB-STAL Laval GT120 Gas Turbine Generators, 50Hz. Commissioned in 1960. Extensively refurbished in 1991. 8,200 hours of operation. Presently running on #2 diesel. Can be converted to natural gas or HFO (designed to operate on HFO). ASEA Generator 11kV, 3000rpm. ([Click here for details and Images.](#))&n bsp; **Call for price** Contact Milt Fyre 503-595-5418 or email [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

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**Listed 6/26/02 \*\*\*\*\* SOLD \*\*\*\*\***

2 X 76 MW complete operating gas turbine power plant to be dismantled and erected at your location. Two ASEA Brown Boveri (ABB) Model GT 13D open cycle gas turbine generator sets distillate fuel and capable of HFO after treatment. 50Hz, 10.5kV, 110MVA Generators ISO Rated at 78.28 MW (base) / 85.7 MW (peak). Installed in 1980, 1,000 hours, 800 starts. ([Click here for more information](#)) **US\$31.2 Million Turnkey In stallation** Contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

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**Listed 04/30/03 SOLD \*\*\*\*\* SOLD \*\*\*\*\* SOLD**

70MW GE 6FA Gas Turbine Generator - Model PG6101 – two (2) units (new) available immediately. Heat rate of 9,980 Btu/kWh. 60Hz. Dry Low NOx combustion systems. Natural gas. Stored indoors near a port. **\$11 million.** Contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

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**Listed 10/21/08**

65MW GE Frame 7E Gas Turbine Generator Sets (6 each) for Sale. model: MS7000B STAG/uprated to E status. 60Hz. Emission controls: Dry Low NOx (DLN) Heat rate 10,999 btu/kW, Natural gas, Control System: Turbo-Tronics. BOP equipment available, including breakers and transformers. Can be converted to 50Hz. **Call for price** Contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com) for more information.

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**Listed 10/7/08**

2x60MW Complete Gas Turbine Power Plant For Sale. Two General Electric Company (GEC) Model EM610C 2x61.7MW base load, 66.9MW peak load 50Hz 11.8 KV Fuel, #2 diesel. Installed in 1981, Less than 600 hours, 700 starts. ([Click here for more information](#)) The units are dismantled. Transformers 132kV and 33kV available for purchase. **\$6.0 million each (USD) FOB Asian Port. Loaded and ready for shipment. Turnkey installation available** Contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

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**Listed 12/20/05**

58 MW CC Power Plant (Equipment Only) 43MW GE Frame 6 GTG, 16MW GE STG, steam injection. 8,500 heat rate. Built in early 90's. HRSG and auxiliary boilers. 1100kW CAT (emergency generator) 60Hz. For more information contact Milt Fyre 503-595-5418 or email [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

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**Listed 1/16/09**

53MW Frame 6B Combined Cycle Power Plant for sale. 50Hz. 39MW GE Frame 6551B and a 14MW Steam



Turbine Generator, plus balance of plant equipment. Only 1100 total operating hours. Operational in 1996 and STG added in 2004. Liquid fuel and black start capability. As is where is, located in China. Asking \$7.6 million ([Click here for details](#)) Contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

**Listed 5/19/04**

50MW Gas Turbine Generators - 6 (six) x 50MW FT4C TWINPACs (up to 300 MW in 50 MW blocks) available for immediate delivery. These refurbished FT4C Units have a new state-of-the-art digital control system, new high voltage switchgear metering, new 125 vdc supply, and refurbished inlet and exhaust structures. Available in 50/60Hz. Call for pricing. ([Click here for details](#)) 503-595-5418 or [lane@rmaglobal.com](mailto:lane@rmaglobal.com).

**Listed 10/18/07 \*\*\*\*\* SOLD \*\*\*\*\* SOLD \*\*\*\*\* SOLD \*\*\*\*\***

49.6MVA GE Frame 6 B Gas Turbine Generator and balance of plant equipment for sale. Model PG 6541B 60 Hz. New in 1991 Total Fired Hours - approx. 48,000. Zero hours since GE overhaul. DLN Extra Equipment - New Fuel Nozzles, Never Used Air Inlet, Never Used Exhaust Stack. Speedtronics Mark IV Control system and other associated equipment plant equipment. Deal directly with the seller/owner. ([Click here for list of associated plant equipment.](#)) **Call for price.** Contact Milt Fyre 503-595-5418 or email [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

**Listed 10/13/09**

48MW LM6000 PC Sprint for sale. 60Hz. New. For price and details: Contact Milt Fyre 503-351-9898 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

**See Data Sheet No. 1**

**Listed 2/12/09**

48MW LM6000 PC Sprint GTG 2 each, New, 60Hz. Natural Gas. for sale. **Call for price.** Contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

**Repeat Listing, See Data Sheet No. 2**

**Listed 12/12/09**

46MW GE LM6000 PD Sprint Gas Turbine Generator for sale. 50Hz., new, never used. Available in the US immediately. SPRINT® (Spray Intercooling) Power Boost System. Air cooled generator 2 pole rated at 63,500 KVA @ 0.80 pf, (150C) cooling air, 11,500 volts, 50 Hz, Weatherproof acoustic enclosures with sound attenuation. Includes a natural gas fuel system, a fire protection system, and a free-standing control panel suitable for mounting in an indoor, area. ([Click here for more details and images.](#)) Contact Milt Fyre 503-351-9898 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

**Listed 2/5/07**

45MW Gas Turbine Generation Station Model SK60 (50Hz.) comprised of 2 (each) RR Olympus gas turbines driving a single 45MW Parsons generator. Natural gas fuel. Built in 1980. Total running hours: Turbine A 26,000 hours, and Turbine B 31,000 hours. Both have 8,000 hours since overhaul. ([image 1](#) [image 2](#)) **Call for price.** Contact Milt Fyre 503-595-5418 or email [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

**Listed 3/28/10**

43MW Generator. This is the generator ( only) with no gas turbine. It was purchase in 1970 and never used. Manufactured in the US by EM, it is rated as follows: 50,500kVA, 42,925kW, 60Hz., 3600rpm, 13.8kVolts, 3 phase, .85PF. ([Click here for images 1 2](#)) **Call for price.** Contact Milt Fyre 503-351-9898 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

**Listed 1/16/09**

40MW LM6000 50Hz. For sale. Complete simple cycle power plant. Mfg. by Steward & Stevenson 1995. Operation in 1996. Dual Fuel. Only 11,500 total running hours. For sale as is where is in Asia. **\$8.6 million (USD)** ([Click here for details](#)) Contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

**Listed 5/16/02**

39MW GE Frame 6B MS6001, 60Hz, gas turbine generator. Completely rebuilt. Dual fuel, water injection, refurbished. ([Click here for more details](#)) &nbsp; Available immediately. Contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com) **Price \$6.0 Million for the water injection unit.**

**Listed 11/14/02 \*\*\*\*\* SOLD \*\*\*\*\* SOLD \*\*\*\*\***

LM6000 Simple Cycle Balance of Plant Equipment (New) for 4 LM6000s. 2 cooling towers, 1 5000-kVA Padmount Transformer, 6 gas compressors, 4 chillers, 2 SCRs, 1 emissions monitoring system, 2 air compressors, 8 demin. tanks, 245kV circuit breakers, 230kV switch gear and insulators, 12,000 ft. 230kV underground cable, 5kV & 15kV switch gear (The LM6000s available separately from other sources.) ;([Click here for more details](#)) Contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

**Listed 12/10/09**



38MW Alstom Frame 6B Gas Turbine Generator Set for Sale (3 units for sale). Model PG 6541-B, 50Hz., 11kV, Dual Fuel, Made in 1986, Sentinel C PLC Control System. The unit is being remanufactured as follows: New Hot Gas Path and Combustion parts with increased firing temperatures. Expected GT output after remanufacture and uprate to be 38MW at ISO using Natural Gas to OEM Specifications. New turbine shell casings. New Sentinel Controls. Generator: Alstom type T190-240, 3000rpm, 45,362kVA. Available in 4 month after initial payment. Warranty and guarantees similar to new equipment. Contact Milt Fyre 503-351-9898 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

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**Listed 12/10/09**

32MVA Alstom Atlantique Frame 5 Gas Turbine Generator Set for Sale. Model PG 5341-P, 50Hz., 11kV, Dual fuel, Made 1974, 1896 starts, Speedtronic MK II controls, 124,054 running hours, 3,100rpm. Dismantled in storage. Will sell "as is" or refurbished to buyer specifications. Contact Milt Fyre 503-351-9898 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

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**Listed 12/10/09**

29MVA GE Frame 5 Gas Turbine Generator Set for Sale. Model PG 5341-P, 60Hz. 13.8kV, Liquid fuel only (#2 diesel), Made in 1974, 1,091 starts, 115,961 running hours, Speedtronics MK I Controls. GE generator type S624A4, 3600rpm. The Detroit Diesel starting system have been refurbished by OEM. For sale "as is" or refurbished to buyer specifications or converted to 50Hz. (which will require a new generator.) Contact Milt Fyre 503-351-9898 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

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**Listed 10/6/09**

30MW W-251 B8 Turbine Generator Set for sale. I ncludes all structures and spare parts (Peaking Unit). This complete simple cycle power plant (13.8 kV 60Hz) was disassembled and match marked. All maintenance records, specs, and manuals needed for the construction and operating of this equipment are available. The last major overhaul was in 2004, and the Plant operated until October of 2007. Click here for images ( [1](#) [2](#) ) ([Click here for spare parts list.](#)) ([Click here for turbine parts list.](#)) **Call for price.** Contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

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11 MW - 30 MW

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**Listed 10/20/09 No longer for sale No longer for sale No longer for sale**

30MW LM 2500+PK Gas Turbine Generator New. (two immediately available in the US), 11kV, 50Hz., dual fuel. Includes remote work station, power control module, unit motor control center, simple cycle exhaust stack, and anchoring system. The package were designed for severe weather conditions of 50 deg C and 97% RH as sea level. Call for price and scope of supply. Contact Milt Fyre 503-351-9898 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

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**Listed 11/06/08**

4x30.66MW Frame 6 Gas Turbine Power Plant (complete) for sale . Alsthom Model PG 6531, 60Hz. (Can be converted to 50Hz.) Liquid Fuel, Alsthom Generator, 13.8kV, 0.8PF, Speedtronic Mark IV Controls, power transformer 13.8kV/230kV,Circuit Breaker, Fuel Oil Filtering Skid, backup diesel generator set. Built 1989. ([Click here for more information and images.](#)) Contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com) for more information.

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**Listed 11/06/08**

3x30.99MW Frame 6 Gas Turbine Power Plant (complete) for sale. Hitachi Model PG 6531, 60Hz. (Can be converted to 50Hz.) Liquid Fuel, Hitachi Generator, 13.8kV, 0.8PF, power transformer 13.8kV/230kV,Circuit Breaker, Fuel forwarding skid Skid, fuel oil tanks. Built 1989. ([Click here for more information and images.](#)) Contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com) for more information.

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**Listed 11/06/08**

31.64MW Frame 6 Gas Turbine Power Plant (complete) for sale. GEC-Alsthom Model PG6541B, 60Hz. (Can be converted to 50Hz.) Liquid Fuel, GEC-Alsthom Generator, 13.8kV, 0.8PF, Speedtronic Mark II Controls, diesel starting EG, power transformer 34.5kV/13.8kV, Circuit Breaker, Fuel Tank, forwarding skid Skid, fuel oil tanks. Built 1992. ([Click here for more information and images.](#)) Contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com) for more information.

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**Listed 2/1/08**



27.4MW P&W FT-8 Gas Turbine Power Plant, 50Hz. Dual Fuel, ISO Rating : 27.4MW, 35.63 MVA. Heat Rate : 9269 BTU/kW-hr, GE Micronet, Manufactured 1991. Water injection, air starting system, installed water injection NOX control. 56,000 total hours, 5,000 starts, 2,000 hour since overhaul. Generator: Brush Electric, Brushless Excitation, 11.5 kV. Call for price. Contact Milt Fyre 503-595-5418 or 503-351-9898 [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

**Listed 10/30/07 \*\*\*\*\* SOLD SOLD SOLD Repeat Listing, See Data Sheet No. 5**  
26MW LM 2500 gas turbine generator set. New gas turbine and rebuilt generator. We are direct with owner. Price is \$6.5 Million. (Click here for more details) Contact Milt Fyre 503-595-5418 or 503-351-9898 [milt@rmaglobal.com](mailto:milt@rmaglobal.com) or Lane Kadel 503-595-5418 or 503-803-2029 [lane@rmaglobal.com](mailto:lane@rmaglobal.com)

**Listed 2/12/09**

23.4MW Frame 5P Gas Turbine Generator Sets for Sale. 3 units available. 60Hz. Liquid Fuel. Low hours since last overhaul. Price \$3.6 million each. (Click here for details.) Contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

**Listed 2/10/10**

23MW ABB GT Gas Turbine Generator for Sale 50Hz., Dual Fuel, optional 7MW ABB STAL Steam Turbine Generator (Click here for details and images.) Call for price. Contact Milt Fyre 503-351-9898 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

**Listed 08/6/01 \*\*\*\*\* SOLD SOLD SOLD \*\*\*\*\***

23 MW Frame 5 N (PG5341) 50/60Hz. Diesel fuel (3 available) Low hours, built in 1974. Currently operating as standby unit s. (Click here for more details) Price is \$9.5 Million for all 3 units. Units can not be sold separately. Contact Milt Fyre 503 -595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

**Listed 2/1/08**

22.6MW LM 2500PE-MLWG03, Model 7, 50Hz., Dual Fuel, Micronet Control System, 1990 year of mfg. Powerfactor 0.85. Output Voltage 11kV. 4,500 total starts. Exhaust not include d. 14,000 hour since overhaul. 800 hour since hot section exchange. Asking \$8.75 million. Contact Milt Fyre 503-595-5418 or 503-351-9898 [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

**Listed 3/24/09**

**Repeat Listing**

22.5MW Pratt & Whitney FT4A Gas Turbine Generator Set for sale. Liquid fuel - #2 diesel only. 13,800 Volts, 60Hz. Installed in 1969. Asking \$4.5 million. Contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

**Listed 2/12/09**

**Repeat Listing**

22MW LM2500 - PE 60Hz. Placed in service as a peaking plant in 2001, refurbished in 2006, operated less than 70 hours per year. Averaged 13,000 BTUs/kWhr. Call for price and details. Contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

**Listed 5/7/08**

22.5MW GE Frame 5PA (MS-5001PA) Gas Turbine Generator Set for sale. Natural Gas. single cycle, single shaft. Mark IV Speedtronic controls. Generator model: air cooled Lynn unit, Rating 33,700 kVA, Over-speed, over-temperature, vibration detection. 5,100 rpm, 51,000 total hours, 6,200 hours since overhaul 7/11/2000, 1,400 total starts, 752 starts. (Click here for images.) Contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

**Listed 6/20/09**

22MW Westinghouse W-251-G Gas Turbine Generator for sale. 3 each. Liquid fuel. Well maintained and in excellent condition. (Click here for images.) For more details contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

**Listed 10/13/05**

22MW LM2500 PC GTG (4 available) Natural Gas, 50Hz. or 60Hz., Like new Warranty. Available in mobile TM2500 configuration. Delivery time 2 to 4 months. Also available as gas compressor units. Call for Price Contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

**Listed 12/02/04**

22 MW GE LM2500 PE-MDW Gas Turbine Generator. This is a trailer-mounted unit manufactured 1993. 60Hz. Dual fuel. The unit was delivered, not operated, and stored under good conditions. It was test operated in 2001. The



unit will be started, commissioned, and operated under load within 45 days following purchase confirmation. ~~\$7.5 million~~ **Now \$6.0 Million** (Click here for more information and images) Contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

**Listed 8/2/02**

22MW GE Frame 5 P, N Generation company offers (5) 22MW GE FRAME 5 P,N gas turbine generators, 60 Hz, actually in stand by, very good condition. (Click here for more details) call for price. Contact José Angulo at 511-6154653 or [turbine@ev1.net](mailto:turbine@ev1.net).

**Listed 2/4/10**

20MW GE LM2500 Gas Turbine Generator Set for sale. 50 Hz. This unit is running on natural gas and is very well maintained.  
Model: 7LM2500PE-MLWG03, 4340 starts, 55,056.4 total hours. Last major overhaul by in 2001. 14,000 hours since major overhaul. Exchange hot parts with GE in March 2004. 25.74MVA Brush Generator. Including controls, aux transformer, hydraulic start up system, lube oil & cooling system, air inlet system & plant room cooling system, control system, electrical system, monitoring system, fire fighting system, boiler monitoring system, plant supply transformer. **Asking \$7 million.** Contact Milt Fyre 503-351-9898 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

**Listed 6/20/09**

15.6MW Westinghouse W-191-G Gas Turbine Generator for sale. 4 each. Liquid fuel. Well maintained and in excellent condition. For more details contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

**Listed 2/23/10**

15.25MW GE Frame 5 Gas Turbine Generator Set for sale. Model MS-5001, Dual Fuel, 60Hz, 12,470 volt, Made in 1970. Ready for shipment. Very good condition University take out, with all documentation. **Call for price.** Contact Kurt Patterson 503-320-7798 or [kurt@rmaglobal.com](mailto:kurt@rmaglobal.com)

**Listed 6/6/08**

15MW Solar Titan Gas Turbine Generator set for sale. Manufactured by Solar in 2001 and never placed into service. Heat rate 9,603 btu/kWhr. So-Lo-NOx dry low NOx system. Professional inspected and stored by Solar 2008. Configured for 60Hz. and can be configured for 50Hz. Includes inlet/exhaust equipment and all documentation and drawings. (Click here for images.) Contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

**Listed 4/02/02**

14MW Stal Laval PP3 liquid fuel gas turbine generator liquid fuel gas turbine generator, 14,000 kw, 50 hz. Made in 1965, renewed completely in 1975 only 3000 hours. Still in use. Including 80,000 L of fuel. Can be used for industrial or marine purposes. (Click here for more details). Priced at \$700,000. Contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

**Listed 2/8/08**

12.5MW W-191G gas turbine generator plant for sale to be moved. 60Hz. Dual Fuel, built in 1968. Recently operating. Westinghouse WDPF control system. Generator: Westinghouse, 60Hz. 3600 rpm, 12,000 Volts, 15,625kVA, 0.8 PF. Eaton AVS/ECR Generator field control system (2006) Sun Solaris operator interface and run time workstations (3 each, 2006). DeLaval oil Centrifuge. Reduction gear 4862/3600 rpm. (Click here for images) **Call for price** Contact Pete Hoffman 503-595-5418 [pete@rmaglobal.com](mailto:pete@rmaglobal.com)

**Listed 11/1/05 SOLD \*\*\*\*\*SOLD\*\*\*\*\*SOLD**

12.5MW (2 each) Complete Rolls Royce-Avon Gas Turbine Power Plant (60Hz.). For sale or lease. 2 Rolls-Coberra GTG Packages consisting of a Rolls Royce Avon 76 Gas Generator, Cooper-Bessemer RT66 Power Turbine, Electric Machinery 12,500 KW Generator with exciter, plus lubricating oil systems, switchgear and controls to operate the unit in attended or unattended service. Less than 12,000 total hours with less than 7,500 hours on 1975 overhaul. The entire package is furnished complete with weatherproof enclosure to eliminate the need for a separate building. (Click here for details.) Call for Price Contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

**Listed 10/13/08**

3X11MW Frame 5D Gas Turbine Generators for sale. Dual fuel, 60Hz., all required auxiliary components, including a Woodward 501 DCS control system, with all required auxiliary components, including field breaker and associated controls, including all associated PTs, CTs and related relaying/metering devices, GE Generator Step Up Transformer, All manuals, drawings and inspection reports available.  
There are 3 day tanks and a 500,000 gal tank available. (Click here for more information and images.) Contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com) for more information.



**Listed 11/05/08**

11MW Frame 5D Gas Turbine Generator for sale. Natural Gas Fuel only. 60Hz., Installed 1961 for peaking operation. 1040 starts and 4,260 total hours. All auxiliary components, including field breaker and associated controls are available. PTs, CTs and related relaying/metering devices are available. GE Generator Step Up Transformer. All manuals, drawings and inspection reports. Controls including a Woodward 501 DCS control system. ([Click here for more information and images.](#)) Contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com) for more information.

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**Listed 3/18/05**

Gas Turbine (turbine only) Westinghouse 191 Model W171/191M gas fired turbine in excellent condition, originally applied in a furnace gas drive operation. Recently inspected and refurbished and stored in a protective environment. Many upgrade features - anti-foul treatment to the rotor, Betts Injection, Digital ESD Control System capability and a high speed balance. Was used at low firing temperatures during its operation. Simple cycle, single shaft gas turbine shaft speed. 4810 starter turbine and a complete set of spare parts. Made 1966. Capacity speed 1480 RPM. Design temp @ 95 deg. F. ; Inlet Pressure 14.69 PSIA. Temperature 1450 DEG F Horsepower 27,200 HP. Shipping weight 70 Tons. **As is price \$1,500,000** (could power a 12 MW to 14MW generator) Contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

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**Listed 02/13/03**

GE Frame 5002B (x 2) gas turbines. Less than 300 total fired hours since new. Mfg year: 1971. Liquid fuel. **\$5,350,000 USD per unit.** ([Click here for more details](#)) Contact Lane Kadel 503-595-5418 or [lane@rmaglobal.com](mailto:lane@rmaglobal.com)

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10 MW and smaller

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**Listed 6/6/08**

10.685MW Solar Mars Gas Turbine Generator set for sale. Manufactured by Solar in 2001 and never placed into service. Heat rate 10,513 btu/kWhr. So-Lo-NOx dry low NOx system. Professional inspected and stored by Solar 2008. Configured for 60Hz. and can be configured for 50Hz. Includes inlet/exhaust equipment and all documentation and drawings. Deltak HRSG with diverter/stack. 300psig, 70,000 obs/hr steam. ([Click here for images.](#)) Contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

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**Listed 12/27/08**

10.3MW Rolls-Royce Avon Gas Turbine Generator Set for sale. Model 1534-1012L/ 10 Avon Maxis. 60Hz. Liquid fuel. Low hours. Complete Package Mounted on Trailers ([Click here for details](#)) Contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

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**Listed 9/1/09**

10MW Solar Mars 100s complete 20MW power plant including: two 10 MW Solar Mars 100S, natural gas fuel turbines driving 12,500 kVA Ideal Electric generators, 1800 RPM, 60 Hz, 13.8 KV all auxiliaries one Deltak HRSG 500 KW Cat 3412 diesel generator, 600 volt. Built in 1999 with less than 3,500 total hours. ([Click here for images 1 2 3](#)) ([Click here for more details](#)) Contact Milt Fyre 503-351-9898 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

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**Listed 9/16/02**

10 MW Pratt & Whitney gas turbine generator. 13.8 kV, 3,600 RPM, 60Hz. Worthington Frame EA-113, & nbsp; S.O.U. 15950, Serial Number 27621, Governor Ham/Std. type SPC-2A, 10 MW @ 0.8 PF @ 104 F and 11 MW @ 0.8PF @ 80 F. Will consider all reasonable offers. ([Click here for image](#)) Contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

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**Listed 8/21/01**

10 MW Rolls Royce 1533 Avon mobile gas turbine generator. 10.3 MW base and 16 MW peak.& nbsp; 60 Hz. 13.8kV. Black start. Liquid fuel. Silencer. All equipment mounted on main and auxiliary trailer.& nbsp; The unit available in 30-40 days from contract, delivered to US port. 1977, 25,500 total hrs. **\$3.2 Million Owner must sell immediately and will consider any reasonable offer.** ([Click here for more details](#)) Contact Milt Fyre 503-239-5 157 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

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**Listed 01/14/04 \*\*\*\*\* SOLD SOLD SOLD \*\*\*\*\***



10 MW Rolls Royce Avon Gas Turbine Power Plant Package. Rolls Royce Avon 1533. Brown Boveri Expander Turbine. 220 hours on the engine and 440 hours on the generator. It has been modified to run on natural gas. **\$1.7 Million.** (Click here for more details) Contact Lane Kadel 503-595-5418 or [lane@rmaglobal.com](mailto:lane@rmaglobal.com).

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**Listed 1/14/02**

8.0 MW Orend a gas turbine generator set. Located on US West Coast. Ideal for standby power. Owner can assist with transportation, start-up and commissioning, and training. (Click here for more details) **\$450,000** Contact Lane Kadel 503-595-5418 or [lane@rmaglobal.com](mailto:lane@rmaglobal.com)

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**Listed 3/18/02**

8MW IHI IM1500 (LM1500) 60Hz gas turbine generator. Includes switchgear, fuel storage tank, exhaust stack, inlet air system. 48 hours of operation. (Click here for more details). **Price \$1.4 million.** Pictures available upon request. Contact Lane Kadel at 503-595-5418 or [lane@rmaglobal.com](mailto:lane@rmaglobal.com)

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**Listed 06/19/01**

7.5 MW Westinghouse W101G gas turbine generator sets (two units) 60Hz. The turbines and turbine parts have been sold. The two generators and still available. (Click here for more details.) Contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

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**Listed 3/17/10**

5.2MW Solar XQ200 Mobile Power Units for sale. Trailer mounted. 60Hz. Natural Gas. 13.8kV. Less than 4,500 total hours and less than 250 starts. (Click here for details and images.) Asking 2.5 million each. Contact Milt Fyre 503-351-9898 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

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**Listed 3/6/08**

5.2MW Solar Taurus T-60 Gas Turbine Generator Sets for Sale. 3 Trailer-mounted sets and 7 regular sets. These units are low hours and in excellent condition. 50/60Hz. (Click here for details and image.) **Call for price.** Contact Pete Hoffman 503-595-5418 [pete@rmaglobal.com](mailto:pete@rmaglobal.com)

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**Listed 7/26/06**

5MW Alstom Tornado Gas Turbine Generator, 60Hz., Natural Gas, 4160 Volts, KATO Generator, Ancillary Systems, Auxiliary Equipment, for more details and images (Click here). For more information contact Milt Fyre 503-595-5418 or email [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

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**Listed 2/1/08 \*\*\*\*\* SOLD 7/08 \*\*\*\*\***

4.6MW Solar Centaur Gas Turbine Generator Set for Sale. The Equipment includes a skid mounted Solar Centaur 50 combustion turbine, SoLoNOx emissions control, a CO Catalyst, and a Rentech HRSG. The natural gas fired plant supplies 25,000 pounds/hour of steam (40,000 pph with duct firing) at 135 psi. It produces 4.6 MWs at 12,470 Volts to a host facility. The plant is in excellent condition with 14,500 total hours. 60Hz. (Click here for more information.) **Call for price.** Contact Milt Fyre 503-595-5418 or 503-351-9898 [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

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**Listed 2/17/10**

4.4MW Solar Gas Turbine Generator Generation-II mobile package, natural gas only, 50Hz. Less than 4,300 total hours and 250 starts. 11kV. 2 units available. Ready for shipment. Asking \$3 million each. Contact Milt Fyre 503-351-9898 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)



**Listed Rick Hendrix/ Henergy Global rickhendrix@mac.com 615-662-4848-I need 2,900,000.00 for each. Need to get commission**

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**Listed 6/15/04**

3.5 MW Solar Centaur Gas Turbine Generator Mobile system on two trailers. Dale UK, Solar Centaur "H" 5500, Output 3618 KW, ISO Peak Rating 4008KW, originally installed 1995, Less than 80 total hours Generator Leroy Somer LSA56v19 13.8 kV, 50Hz. Included; Turbine, Generator, Diesel hydraulic start system, PLC control, Donaldson Reverse-Pulse Air Filters, Switch Gear, Synchronizing System, Mobil step up 5 mva, Power Transformer included. Unit is presently located in Middle East. **\$900,000.** Contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)



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**Listed 6/13/03**

3.5 MW Allison 501 KB5 Gas Turbine Co-Gen Plant. Complete Plant, disassembled and stored. Built by Turbosystems, Int'l. **Call for price.** ([Click here for more details](#)). Contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

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**Listed 01/30/04**

3.2 MW Rolls Royce/ Proteus Gas Turbine Power Plant Packages. Two available. Rolls Royce Zero Time 3.2 MW Proteus Machines, New ABB 3.2 Mva 13.2 kV / 60 Hz Generator. ~~\$900,000~~ **\$500,000 each.** ([Click here for more details](#)) Contact Lane Kadel 503-595-5418 or [lane@rmaglobal.com](mailto:lane@rmaglobal.com).

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**Listed 12/27/04**

3 MW (2 available) 50/60 Hz - Unused Allied Signal ASE 40 natural gas fired Gas Turbines. Full one year warranty, originally installed 1999, 0 hours/ 0 starts **EUR 2.0 mil each net Specifications and details** Contact Lane Kadel 503-595-5418 or 503-803-2029 or [lane@rmaglobal.com](mailto:lane@rmaglobal.com)

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**Listed 10/3/01**

3MW Rolls Royce Proteus gas turbine power plant. 50 Hz. Siemens generator trailer mounted. **\$990,000 - Gas Fired, and \$850,000 Million - Liquid Fired.** ([Click here for more details](#)) Contact Lane Kadel 503-595-5418 or [lane@rmaglobal.com](mailto:lane@rmaglobal.com)

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**Listed 05/24/01**

NEW Pratt & Whitney ST18 (1.8 Mw) turbines packages. **\$750K USD each – 2 Available. Additional Turbine Equipment (turbines only) available.** ([Click here for details!!](#)) ([Click here for emissions!!](#)) Contact Lane Kadel 503-595-5418 or [lane@rmaglobal.com](mailto:lane@rmaglobal.com)

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**Listed 12/27/08**

1.2MW Solar Saturn 20 Gas Turbine Generator Package for sale: has a total of 37,500 hours and 504 starts. It was manufactured in 1995. 10kV, 1350kVA, 50Hz., dual fuel, natural and gas and diesel. Asking \$200,000 Euros. Dismantling, packing and loading \$40,000 Euros. ([Click here for images](#)) Contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com) for more information.

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**Listed 2/28/01**

1.2 MW gas turbine generator set, 50/60Hz. Dual fuel. 480V **\$520,000** (New) available immediately. We are direct with the seller. ([Click here for more information](#)) Contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

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**Listed 1/18/09**

1210 kWe Solar Saturn Gas Turbine Generator Sets for sale. 2 Available. 50/60Hz. Asking \$1.1 million each ([Click here for images.](#)) ([Click here for spec sheet.](#)) Contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

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**Listed 3/23/05**

450KW - 1,327kW Gas Turbine Generators 50Hz. or 60Hz., Fueled by Natural Gas, Propane, or Liquid Diesel. Heat rate from 14,000 to 15,000. Generators are driven by well-proven and dependable Pratt & Whitney ST6 (derived from the PT6 series of aviation turbines) and these sets are packaged by a very experienced company. Parts, maintenance, and servicing are readily available in most areas. Call for price. Contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

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**Listed 1/20/01**

Three units (3) 1650Hp / 1000kw ORENDA Model OTC-5 liquid fueled industrial gas turbines. s/n#1008,1018,1020 Convertible to natural gas. W.H. ALLEN epicyclic gear reducers 1800RPM output speed. WOODWARD EGB-10 governor. Former government units. **Price: \$65,000 for the lot.** Contact Lane Kadel 503-595-5418 or [lane@rmaglobal.com](mailto:lane@rmaglobal.com)

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**Listed 11/4/05**

850kW Solar Saturn Gas Turbine Generator (T-1200 Mark I), 60Hz., 600 volt, 3 phase, 1800 RPM induction generator. Rated for continuous duty. Including Sound Insulating Enclosure and Switch Gear. Skid mounted 25kV/600V transformer, 25kV Breaker. ([Click here for details.](#)) **All offers will be considered. Must sell!** Contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

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**Listed 10/13/09**

750kW Solar Turbine Generator sets for sale. 2 each, 60Hz. Diesel Fuel. Fully enclosed. Demacii GE Standby Generators. Woodward Speed Controls. Asking \$20,000 each. ([Click here for image.](#)) Contact Milt Fyre 503-351-9898 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

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**Listed 12/13/06 \*\*\*\*\* Sold \*\*\*\*\***

750kW Solar Gas Turbine Generators (12 available) Trailer Mounted. 3 phase, 4 wire, 4160V, Made 1986, 400 total hours. Jet fuel or diesel. The units are enclosed and have exhaust silencers. They are in excellent condition. Manuals. [Click here for images \( 1 2 3 4 \)](#) **Call for price.** Contact Milt Fyre 503-595-5418 or email [milt@rmaglobal.com](mailto:milt@rmaglobal.com).

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**Listed 11/06/06**

750kW Solar Gas Turbine Generators (3 Available) Rated 750kW, 60Hz. .8PF diesel fuel. Installed in the early 70s as backup units and have about 1,000 total hours. The units are enclosed and have exhaust silencers. They are in excellent condition. Manual and documentation available. ([Click here for images](#)) **Call for price.** For more information contact Milt Fyre 503-595-5418 or email [milt@rmaglobal.com](mailto:milt@rmaglobal.com).

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**Listed 8/15/05**

750kW Solar Saturn Model 10 Gas Turbine Generator Set (2 available) 50Hz. Liquid fuel. ([Click here for details and images.](#)) **Call for price.** Contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

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**Listed 6/18/05 \*\*\*\* SOLD \*\*\*\* SOLD \*\*\*\*&nb sp; SOLD \*\*\*\***

750kW Solar Saturn Diesel Generators (2 each), 1000 hp, diesel fuel, standby service, 60 Hz., 3 phase, 4160 volt fully enclosed, Low hours. **Call for price.** ([Click here for details](#)) Contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

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**Listed 2/12/07**

570kW Kongsberg KG 831 gas turbine generator sets, 2 each, 700 kVA, 0.8 pf, 50Hz. Anton Piller NKT 570-4 generators. One unit has only 38 starts and 13 working hours and the other has 824 starts with 315 working hours. The units show a little environmental corrosion on the outer case, but the equipment is working with no problems. The turbines are made by Garrett. [Click here for images \( 1 2 3 4 \)](#) **Call for price** Contact Milt Fyre 503-595-5418 or email [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

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**Listed 8/12/00**

550 KW gas turbine generator set (used) **\$67,500** Natco KG831-14G-001-00. Viking model 4P3-2263. 490 kW continuous, 550kW standby. Powered by Garrett I.E. 831 gas turbine. Built in 1979. Presently set up for burning #2 or light distillate, but can be converted to natural gas firing. Turbine is connected through a reduction gear to a 612.5kVA continuous, 688kVA standby Kato generator, 3/60/480v, 1800 rpm, 835 amps. The generator is serial # 550-4033-61121. Unit is housed in an outdoor, weatherproof enclosure and is equipped with an air intake filter, free standing exhaust muffler, Turbo-tronics control system and switchgear. Stock #-047082. Contact Milt Fyre 503-595-5418 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

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**Listed 11/24/08**

100kW Spark-Ignited Natural Gas Engine Generator Sets for sale (50 + units available). New, unused (built in 2007) and some used units with 2,000-13,000 total run hours), 60Hz. 100kW continuous, 125kW Prime, 480 Volts, 3 phase. Mounted in an enclosure. Controls and main switch. Designed to burn Coal Bed Methane wellhead gas. Engines are SRC/International Harvester 4-cycle spark-ignited engines. **New cost \$60,000 each. Asking \$35,000 each.** Available immediately. ([Click here for details and images.](#)) Contact Milt Fyre 503-351-9898 or [milt@rmaglobal.com](mailto:milt@rmaglobal.com)

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