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Factory Representative

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Pratt & Whitney FT8-1 Powerpac

Gas Turbine GENERATOR





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TO WHOM IT MAY CONCERN

Dear Sir

PRATT & WHITNEY

FT8® POWERPAC GAS TURBINE GENERATOR

(ENERGY CAPITAL – THE OWNER)

We thank you for your interest in our FT8 Powerpac.

Attached is the AIR spin data, demonstrating its excellent operational readiness.

Technical Details are attached for your review. Should you need further information or viewing of the said equipment, please do not hesitate to contact us.

HISTORY

1 Unit purchased in 1991 and simple cycle start operating on March, 1992.

- S/N P726403 (GG) , 80013 (PT)
- Type of Fuel (Dual Fuel, (Diesel & Natural Gas)
- Gas Conversion completed April, 2005
- Total Starts: 4903
- Total Firing Hrs: 55093
- Control System Manufacturer: Ge Micronet
- Generator Manufacturer: Brush Electrical Machines Ltd USA
- Generator Type: Brushless



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- Excitation: 11kV , 50 Hz
- Power Factor: 0.8

2 **Overhaul & Maintenance Record:**

- 2003 / December, Gas Generator was sent to USA, till now is about 1653 hrs.
- The next outage O/H for cold section parts: $50000 - 1653 = 48347$ hrs.

3 **PRICING**

- To be discussed

4 **Payment Terms:**

- To be discussed

Yours truly

Martin Lin

Business Development Manager

Yee Tah Ming

Managing Director

ENERGY CAPITAL PTE LTD, SINGAPORE



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FT8® POWERPAC GAS TURBINE GENERATOR



The FT8® POWERPAC is a compact, modular design with excellent operating characteristics.

The FT8 POWERPAC industrial gas turbine package is a 27 megawatt power generation unit that utilizes the SWIFTPAC modular design concept of very efficient electrical power. The FT8 is a derivative of the JT8D, one of the most successful flight engines in aviation history.

The gas turbine, mounted on a steel base, is packaged with its ancillary support systems and directly drives the generator package.



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For improved maintenance access, separate skid-mounted supporting ancillaries such as lubricating oil systems, water-injection NOx control systems and fuel filtering and forwarding equipment are available.

Installation costs and time are minimized by the use of the prefabricated, easily transportable units.

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EQUIPEMNT DETAILS

PRATT & WHITNEY FT8 POWERPAC GAS TURBINE GENERATOR

Completed with balance of plant

Model: FT-1 Powerpac
Power output: 27 Mw ISO conditions
Heat Rate: 9,245 Btu/Kwh
Voltage: 11.0 KV
Generator: Brush BDAX7-290ER
Frequency: 50 Hz

Powerpac: Originally Manufactured	1992
COD CC commencement	1995
Major overhaul Brush Generator Replaced	1997
Gas Turbine zero hour rebuilt	(if required by buyer)



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SCOPE OF SUPPLY

Please refer to the attached scope.

PRATT & WHITNEY FT8 POWERPAC GAS TURBINE GENERATOR

Completed with balance of plant, including demin water plant, gas conditioning skids, liquid fuel conditioning skids, controls and station transformers.





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SCOPE OF SUPPLIES

GAS TURBINE POWER ISLAND
1 GAS TURBINE PACKAGE
Gas Generator (GG8-1 Core Engine)
Power Turbine
Diffuser
Collector Box
Exhaust transition
Fabricated gas turbine base and mount assembly
Coupling connecting power turbine and generator
Hydraulic starting motor
Ignition system
Off-line compressor internal water wash system
Gas turbine heating system
Lube oil system
* Single oil-to-air cooler
* Motor driven pumps
* Stainless steel piping
* Enclosure
Fuel supply system Fuel supply system
* Fuel gas strainer
* Gas and liquid fuel fire valves
* Liquid fuel flowmeter/totalizer
Buffered air system
* Single air-to-air cooler
* Instrumentation for temperature control
Water injection NOx control system
* One AC motor driven pump
Gas turbine enclosure
* Secondary cooling air system with louvers



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* Vents and drains	Factory Representative
* Interior AC/DC lighting	FLENDER GRAFFENSTADEN
* CO2 Fire Suppression System	
* Sound attenuation to meet 85 dB(A)	
* Gas detection system	
2 HYDRAULIC STARTING PACKAGE	
3 GENERATOR PACKAGE	
<ul style="list-style-type: none">• Brush Open Ventilated Air Cooled Synchronous Generator or equivalent	
<ul style="list-style-type: none">• Brushless Exciter Assembly	
<ul style="list-style-type: none">• Stator Heaters	
<ul style="list-style-type: none">• Neutral ground transformer/resistor	
<ul style="list-style-type: none">• Current transformers	



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4 CONTROL PACKAGE
Prefabricated steel enclosure
<ul style="list-style-type: none">• HVAC• Fluorescent lighting• DC emergency lighting• AC power outlets• Smoke detector
Operator control cabinet
<ul style="list-style-type: none">• Starting and operating controls• Speed indication• Voltmeters and frequency meters• Ammeter• Wattmeter• VAR meter• Power Factor Meter• Synchroscope and lamps
Monitoring cabinet
<ul style="list-style-type: none">• ICE Monitor (CRT, keyboard and software for operator interface)• Printer
Instrument Cabinet
<ul style="list-style-type: none">• Micro automatic voltage regulator• Digital synchronizer• Vibration monitors• Fire protection system power supplies• Static inverter
Unit control cabinet
<ul style="list-style-type: none">• Timer Panel
Generator protective relay panel
<ul style="list-style-type: none">• Generator protective relays• Lockout relays



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<ul style="list-style-type: none">• Watt hour meter
Motor Control Center
<ul style="list-style-type: none">• AC and DC distribution panels
<ul style="list-style-type: none">• Motor starters
<ul style="list-style-type: none">• Distribution transformer
* Power supplies
Ventilated cubicle with rack mounted lead acid batteries
Battery chargers
Switchgear module 15 kV Class