

## General Equipment Description and Scope.

(a) Two unused M501F gas combustion turbines manufactured by Mitsubishi Heavy Industries ("MHI") with a capacity of approximately 170 MW, each gas turbine equipped with an evaporative cooler and a gas heater to increase output. The Combustion turbines are stored in Japan.

(b) One steam turbine, also manufactured by MHI, with a nominal capacity of 195.5 MW. Stored in Dunkirk, France.

(C) Two brand new Vogt Power HRSG's, Type Natural Circulation - unfired, triple Pressure Heat Recovery Steam Generators design for F Class Turbines. (Partially built).

Mitsubishi has designed and manufactured the Gas Turbines consisting of two (2) sets of model M501F outdoor package type gas turbine generator unit.

### **Gas Turbines**

1. Two (2) sets, Gas turbine package including simple cycle, single shaft, industrial type heavy duty gas turbine equipped to burn natural gas, with turbine internal cooling system, ignition system, fuel system and compressor surge protection system.
2. Two (2) sets, totally enclosed water to air cooled, three phase, cylindrical rotor synchronous generator with static excitation system and current transformers.
3. Two (2) sets, Auxiliary package containing:
  - a) Lubrication oil system to gas turbine, generator, auxiliary gear and torque converter;
  - b) Starting system consists of electrical starting motor and hydraulic torque converter;
  - c) Turning gear system;
  - d) Accessory drive system.
4. Two (2) sets, Inlet air system for turbine combustion air consisting of:
  - a) Intake air filter housing containing two stages panel type air filtration;
  - b) Silencer and transition duct;
  - c) Expansion joint to compressor inlet manifold;

- d) Evaporative air cooling system.
- 5. Two (2) sets, Exhaust gas system consisting of:
  - a) Expansion joint between turbine exhaust and exhaust duct;
  - b) Exhaust duct.
- 6. Two (2) sets, 100% duty lube oil to water cooled plate type lube oil cooler.
- 7. Two (2) sets, 100% duty cooling air to ambient air radiator type cooler for the turbine internal cooling system including fuel gas heating elements.
- 8. Two (2) sets, Control oil system.
- 9. One (1) set, wet type compressor washing system (common to two gas turbines).
- 10. One (1) set, CO<sub>2</sub> gas type fire protection system for gas turbine enclosure (common to two gas turbines).
- 11. Two (2) sets, Auxiliary electric motors.
- 12. Two (2) sets, Potential Transformer and Surge Absorber unit (mounted in generator terminal).
- 13. Two (2) sets, Generator Neutral Grounding unit (mounted in generator terminal).
- 14. One (1) lot, Cable and cabling materials inside package supplied by MHI.
- 15. One (1) set, Maintenance support equipment including special tools lifting sling & beam and documents (common to two gas turbines).
- 16. Two (2) sets, Local Control/Electrical package containing the followings:
  - a) Gas turbine local control board including annunciator and controller;
  - b) Generator control board including meters, generator protective relays and automatic synchronizer;
  - c) Excitation cubicle with automatic voltage regulator;
  - d) LV Motor control center for auxiliaries;
  - e) Batteries and battery charger;
  - f) Air conditioner for package.

**Gas Turbine Unit 1**



**Gas Turbine Unit 2.**



**Gas Turbine Unit 2**



**Steam Turbine Generator**



## **Steam Turbine**

### Scope of supply

#### (a) Equipment

1. Reheat condensing turbine,
2. Main steam stop and control valves,
3. Reheat stop and intercept valves,
4. LP stop and control valves,
5. Steam strainers (start-up and permanent equipment),
6. HP outlet non-return valve(s),
7. Exhaust system:
  - Support structure of the whole exhaust system.
  - Exhaust flange. When applicable, the steam turbine Contractor shall design the steam turbine in order to have the efforts transferred by the LP exhaust as negligible.
8. Vacuum breaker valve,
9. Lube oil system (preferably independent from the control oil system) with:
  - AC or shaft driven main pump.
  - AC backup motor driven standby pump.
  - DC motor driven emergency pump
  - oil coolers
  - tanks
  - heaters
  - lube oil fire protection and detection equipment
  - lube oil purification equipment
  - all related instrumentation
10. Jacking oil system,
11. Complete protection system with digital electro-hydraulic control system,
12. Control oil system.

It shall be noted that the control oil system will be preferably a fully independent system using a fire resistant oil (non-flammable fluid).

- Fluid reservoir
  - Redundant motor driven pumps
  - Redundant filters
  - Fluid polishing unit
  - Fluid cooler
13. Gland steam sealing system with all related controls and instrumentation and the gland steam condenser,



14. Shaft turning device system,
15. All the necessary security devices including exhaust steam cooling water spray,
16. Atmospheric relief devices at LP turbine exhaust,
17. Vibration protection and monitoring equipment: sensors, supports, electrical and mechanical connections,
18. All the necessary electrical protection devices,
19. Motor-operated HP cylinder vent valve with associated orifice and steam trap with isolating and by-pass valves,
20. All the necessary bosses for turbine air forced cooling system and dry air preservation system.

The generator and its auxiliary systems, including the following items:

1. Generator:
  - the generator itself;
  - the current transformers on the stator line and neutral terminals, for measuring, protection, tests and voltage regulation purposes;
  - the neutral connections of the stator winding;
  - the generator neutral earthing equipment;
  - the rotating machines driven by the generator shaft, that are necessary for the excitation system;
  - the instrumentation and control devices:
2. Air cooling system
3. Carbon dioxide system
  - the CO<sub>2</sub> heating (antifreezing) and relief devices;
  - the gas filling and purging system.
4. Seal oil system
  - the AC and DC oil pumps;
  - the vacuum and detrainning tanks;
  - the seal oil circuit;
5. The instrumentation:
  - Excitation and voltage regulation systems
  - Generator and Step-up transformer electrical protection
  - Generator measurement and metering systems

For each of the above mentioned items, the following equipment is included:

- the electrical motors to drive the mechanical auxiliaries,
- the sensors with junction boxes and terminal cabinets,
- the control cubicles associated with the auxiliaries systems,
- the I & C cabling between components that are included in the Contractor supply,

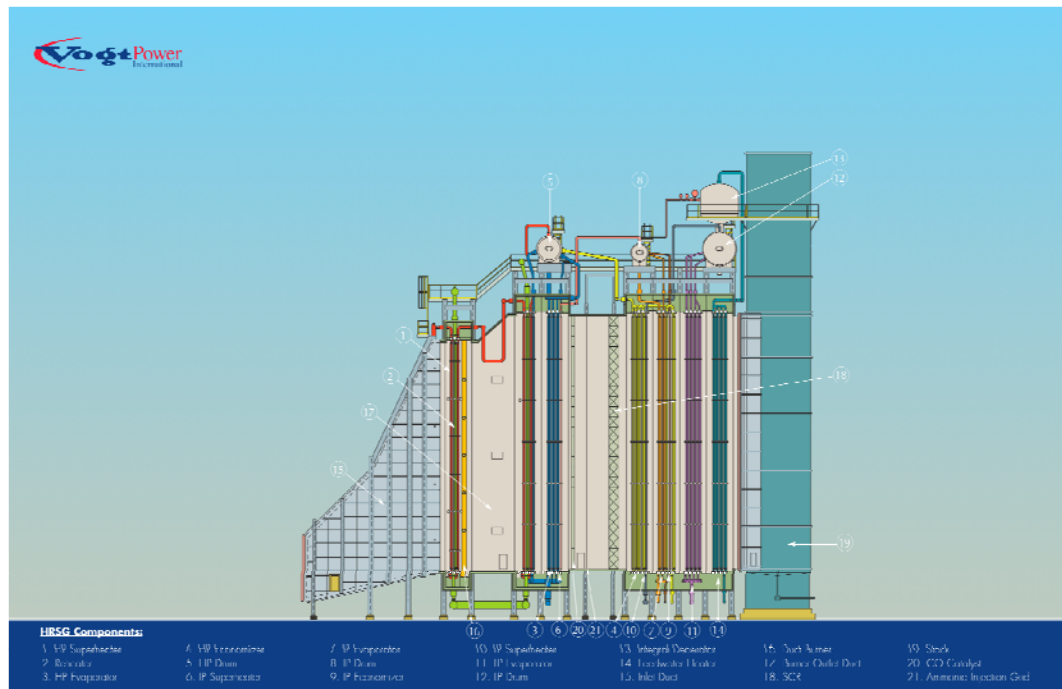
- the piping between components that are included in the present scope of supply,
- the valves and the fittings.

Other Generator equipment:

- generator accessory equipment
- electrical/control package
- Tools and maintenance equipment

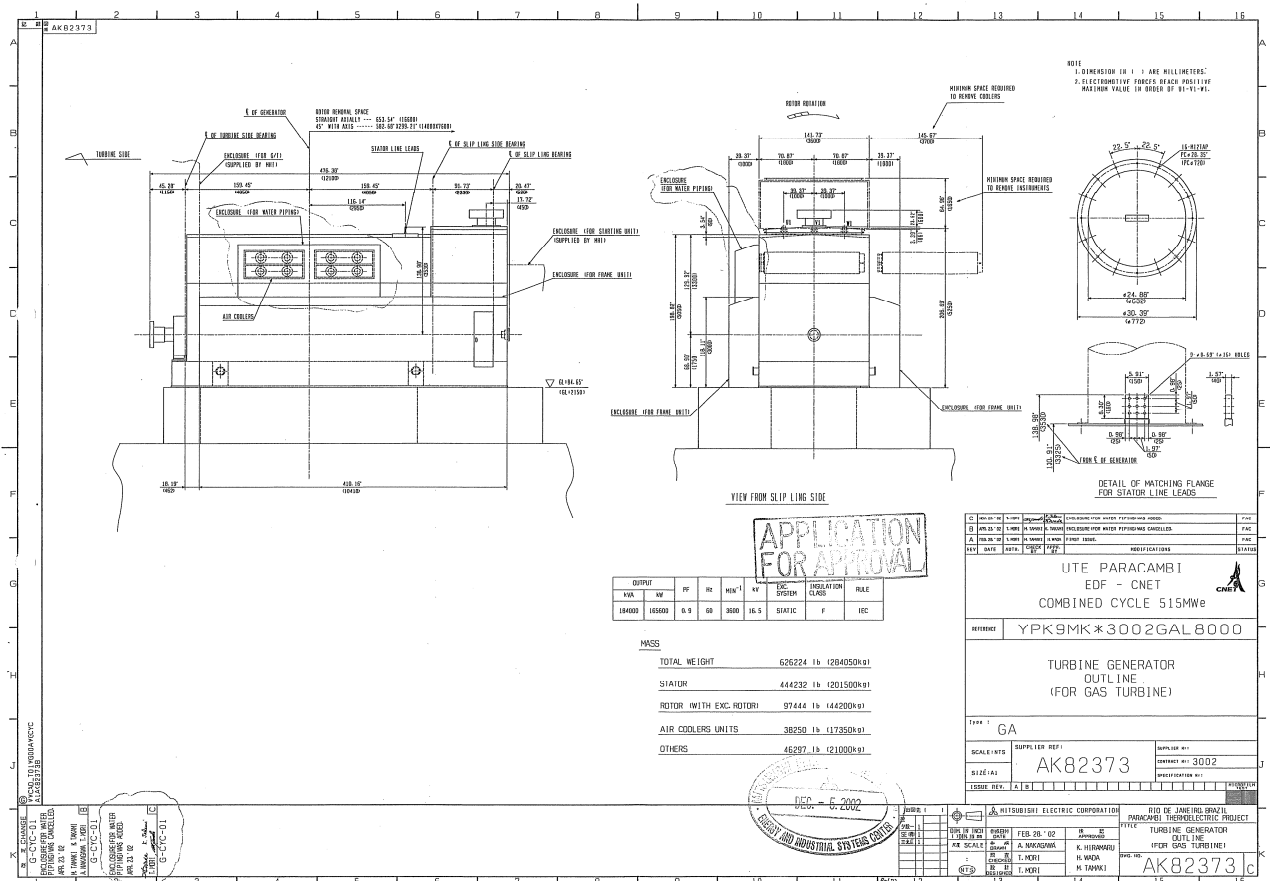
Detailed technical data can be provided upon request. In addition serious and qualified parties are welcome to inspect the assets.

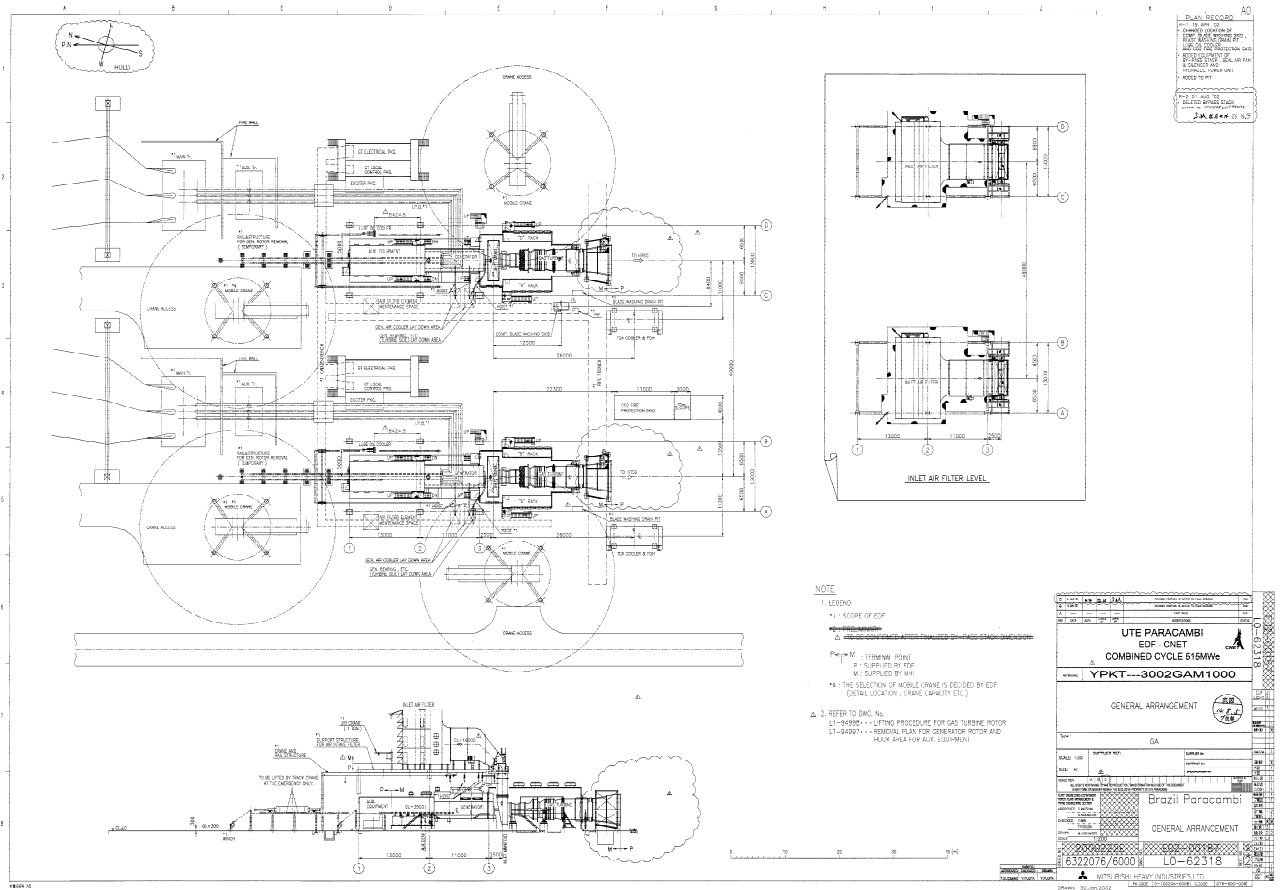
## (2) Vogt HRSG's



- (2) Vogt Power HRSGs (Partially Built)
- Type: Natural Circulation – Unfired, Triple Pressure Reheat Heat Recovery Steam Generators (HRSGs) designed for F class Gas Turbines.
- The HRSGs are designed for duct firing and feature a horizontal gas path. 3 Pressure levels & Reheat Unfired.
- The buyer will have some flexibility to incorporate certain modifications before final completion by Vogt.
- Units come complete with all normally supplied auxiliaries.
- Includes factory warranties covering manufacturing defects and performance guarantees tied to site specific applications.









**M501F Power Project  
Technical Scope Document**

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December 2, 2009

Dear Gentlemen:

Thanks for considering ProEnergy Services for your project needs; we have 2 Mitsubishi M501F and a Mitsubishi STG new, never used in boxes ready to ship.

These units were purchased from EDF who cancelled a project in Brazil. The 2 CTs never left the Mitsubishi factory in Japan and are as new condition. The STG was delivered to Dunkirk, France and is unused and is in "as new" condition. The output of this equipment is approximately 530MW in combined cycle.

We have attached the general descriptions as well.

Our offering price is \$155,000,000.00 (US Dollars One Hundred Fifty Five Million Only) without delivery, however, including limited warranties.

We are aware that this 501F technology is being used in your country. It would be our pleasure for you and your team to come for an inspection at your earliest convenience.

Kind regards,

A handwritten signature in blue ink, appearing to read "Joaquin S. Mavares". The signature is fluid and cursive, with a large initial "J" and "M".

Joaquin S. Mavares  
Director of International Sales  
ProEnergy Services

## **1.0 COMMERCIAL TERMS**

### **1.1 Basis of Pricing**

#### **1.1.1 Validity**

This proposal is valid until December 30, 2009. Subject to prior Sale.

#### **1.1.2 Taxes**

No sales or use taxes have been included in this quotation. The prices quoted exclude any Federal, State or local taxes, or fees, which may be associated with the purchase equipment and/or services.

### **1.2 Price**

(a) Two unused M501F gas combustion turbines manufactured by Mitsubishi Heavy Industries ("MHI") with a capacity of approximately 170 MW, each gas turbine equipped with an evaporative cooler and a gas heater to increase output. The Combustion turbines are stored in Japan.

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## **EQUIPMENT**

Set price (Total).....US\$155,000,000

### **1.3 Payment Schedule**

Purchaser will demonstrate its financial capability to continue to carry out its obligations under this Contract. This demonstration may require that Purchaser furnish adequate payment security. This proposal is based upon receipt of a letter of credit.

	<b>Payment Event</b>	<b>% of Equipment Price</b>
1	With of signature of the Contract Agreement by both Parties, paid against Seller's invoice.	30%
2	Upon notice of Ready to Ship for the Gas Turbines and Steam Turbines and auxiliaries	65%
3	Upon notice of Ready to Ship, Hrsg's	5%

On the Notice of Readiness to Ship Milestone, payment must be received at least 5 days before shipment, but no later than 15 days [depending on terms] from notification of Readiness to Ship.

#### 1.4 Shipment Schedule

Based upon execution of a contract agreement and receipt of Payment Event #1 by the Validity date, the following shipment dates are offered, subject to prior sale.

<b>Units</b>	<b>Notice of Ready to Ship date</b>	<b>Terms</b>
1	December 30, 2009 Gas Turbines & Steam Turbine	EX-Works Manufactures Facility
2 Aug	2010 Hrsg's	EX-Works Manufactures Facility