

**293 MWe Coal Fired Generation Facility
For
60 Hz Countries**

Executive Summary

East West Power Pte Ltd is prepared to offer the following power plant equipment for power generation projects in countries that use 60 Hz electricity, subject to availability at time of sale:

- New (unused) 293 MWe CFB coal fired unit (General Electric and Alstom) that should meet the power plant developer's established technical criteria, conditional upon the securing of acceptable financial funding for the project and the availability of the desired power plant equipment at such time the financial funding is secured.
- Station auxiliary electric equipment such as high voltage breakers, motors, switchgear, GSU transformers, step down station use transformers
- Used coal unloading and coal handling equipment
- New (unused) and/or used dual fuel, fuel oil or gas fired combustion turbine generators.

Plant Design

(As Proposed - Subject to Availability)

Turbine: GE Tandem compound, 293.597 MW, 2400 psig, 1,000 °F, double flow, single reheat with 33.5 inch last stage blades.

Generator: GE 18 KV, 0.85 pf, 60 HZ, Hydrogen cooled

Generator Step Up Transformer (GSU): 405 MVA

Boiler: Alstom Circulating Fluidized Bed (CFB): 2535 psia, 2,018,142 lb/hr, 1005 F/1005 °F, single reheat, balanced draft furnace; Maximum Gross Boiler Heat Input = 3,000 MBtu/hr

CFB technology has demonstrated an unparalleled ability to achieve low NO_x production. This is possible due to low combustion temperatures (1550-1650° F / 845-900° C) and the staging of air by application of secondary air admission zones. Furthermore, CFB technology has exhibited a fuel flexibility with an ability to burn waste materials and fuels previously deemed uneconomical and/or impossible to handle by conventional boiler firing system technologies.

Fuel (Primary): Bituminous Coal (11,200 – 11,900 BTU/lb)

Fuel (Startup): Natural Gas or # 2 Fuel Oil (Diesel)

Limestone System: 40.2 tph at full load

Flue Gas Emissions

NOx Control: SNCR

Particulate Emissions Control: Spray Dryer Absorber (SDA) – Baghouse

Flue gas: 2,807,000 lb/hr at 274 °F

Coal Handling System

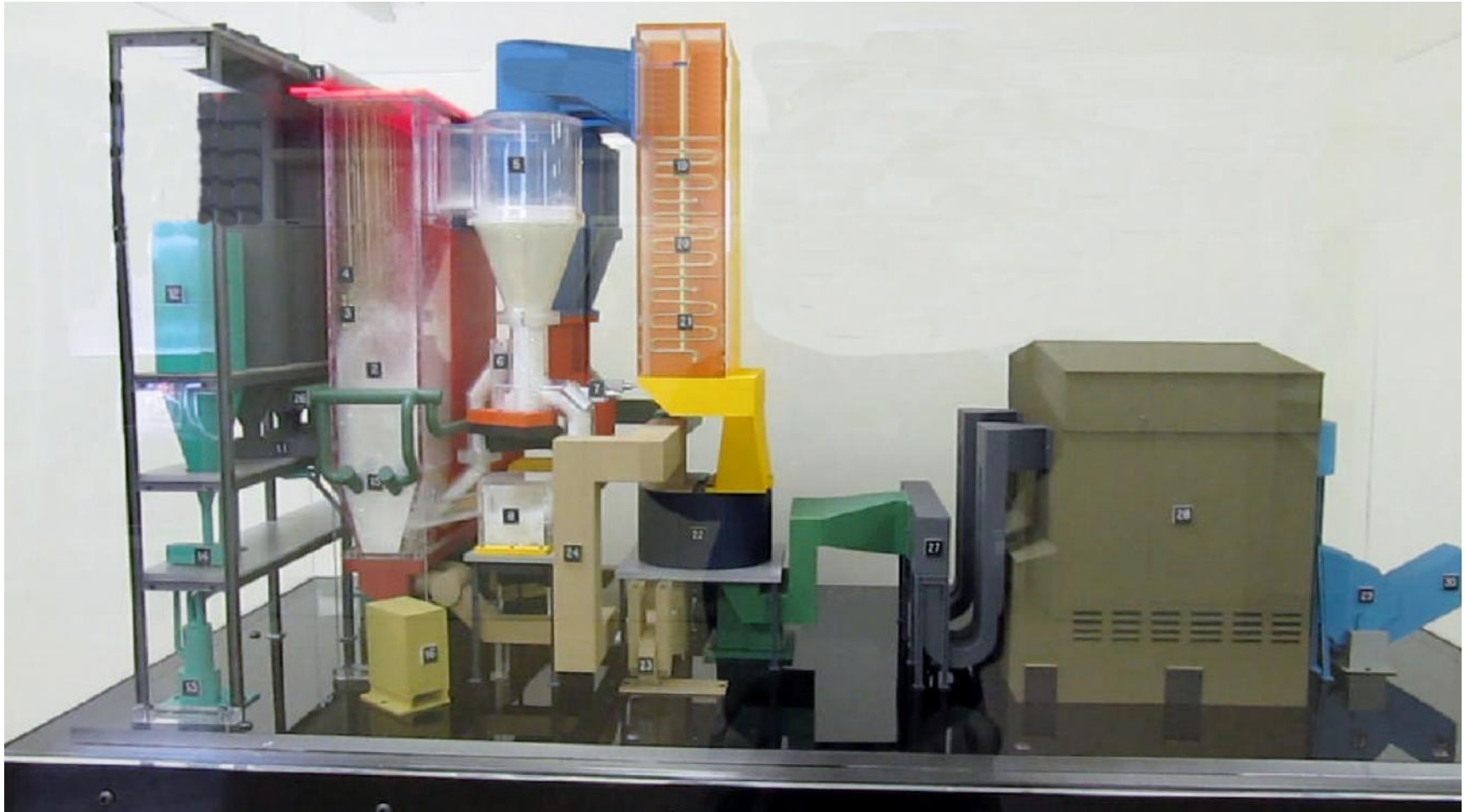
Unloading – Coal delivered to the power plant by ocean going vessels will berth alongside a coal jetty at the station site. Vessels will be either self-unloading or a rail mounted ship unloader (bucket elevator) will scoop the coal from the ship's hold and discharge it onto a conveyor system.

Conveyor System – Coal will be conveyed directly into the boiler house bunkers; transferred to and from a working stockpile; or conveyed to long term storage.

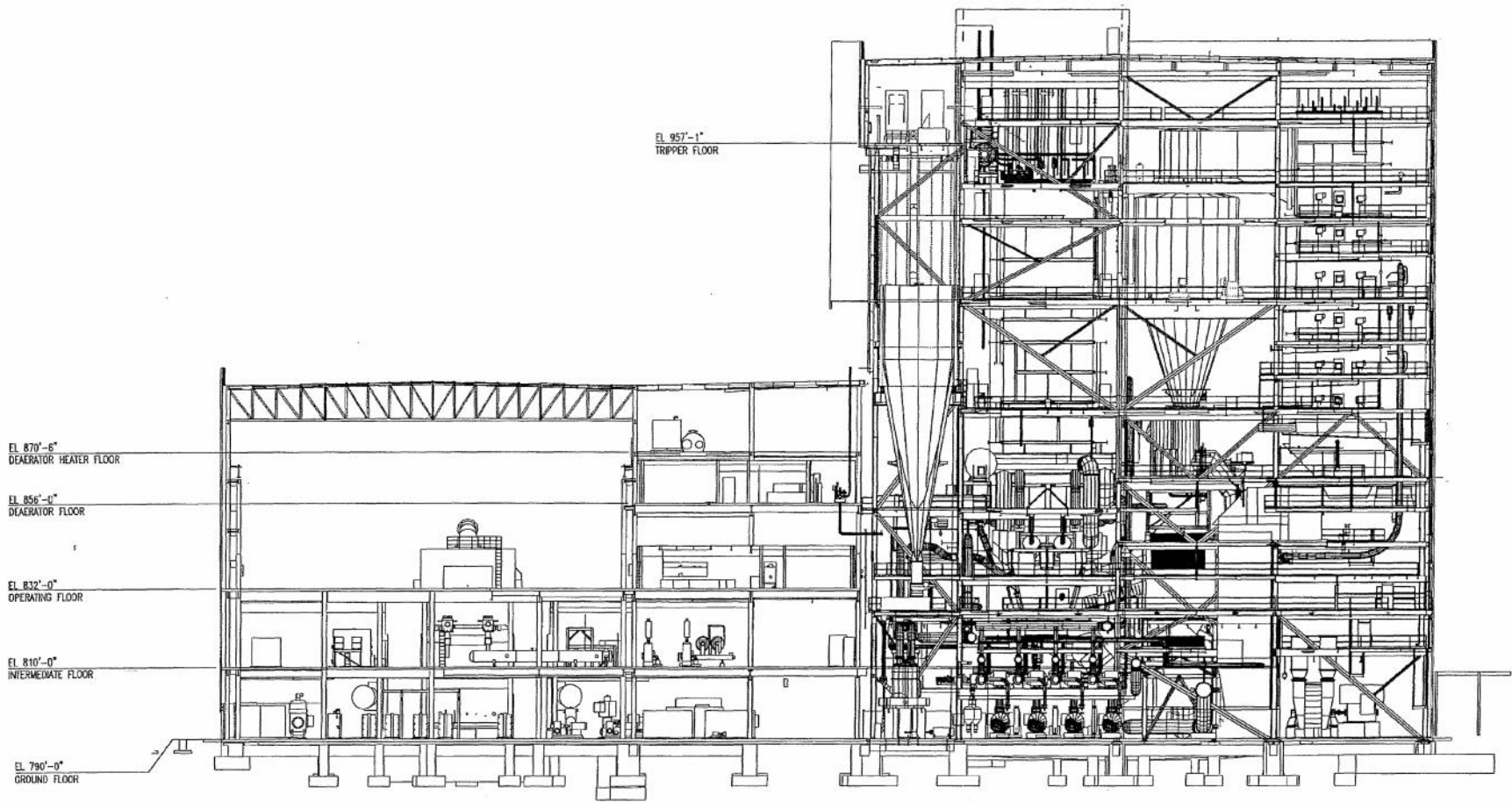
Fuel Blending System – The CFB Boiler provides the option for fuel blending of Petroleum Coke, Biomass and scrap tires if economics are favorable.

Ash Handling System

Dry Type Pneumatic Collecting/Conveying System – The baghouse collects fly ash and the reaction products of the SO₂ removal process. All of the coal combustion byproducts are collected dry and pneumatically conveyed to an ash silo. Dry fly ash may be sold to a local Cement Company if it meets buyer's specifications.



Model of Operating 293 MWe CFB Unit



293 MWe CFB UNIT - Cross Section View

LIST OF KEY EQUIPMENT

The following equipment is immediately available for purchase and delivery:

1. Turbine Generator: General Electric
 - a. Steam turbine
 - b. Generator
 - c. Lube oil equipment
 - d. Main stop and control valves
 - e. Steam seal system
 - f. Exciter
 - g. Mark VI control system
2. Feedwater Heaters: Yuba
 - a. High pressure feedwater heaters 3, 5, 6, and 7
3. Condenser: TEI
 - a. Two low pressure feedwater heaters in condenser neck
 - b. Condenser (requires retubing/modification for seawater service)
4. Boiler Feed Pumps: Flowserve
 - a. Boiler feed pumps (2)
 - b. Boiler feed booster pumps (2)
 - c. Electric Motors (2)
5. Alloy Pipe: BendTec
 - a. Random lengths, unfabricated, of P22 pipe material for hot reheat and main steam
 - b. Random lengths A106B pipe, unfabricated, for cold reheat
6. Boiler Island: Alstom
 - a. Boiler structural steel
 - b. Boiler pressure parts
 - c. Fluidizing blowers
 - d. Duct Work
 - e. Coal and Limestone Silos

The following equipment must be purchased to complete the balance of plant systems:

1. Deaerator
2. Circulating Water Pumps
3. Condensate Pumps
4. Distributed Control System (DCS) or other control system
5. Induced Draft, Primary Air, and Secondary Air Fans
6. Ash Handling System and Transport Blowers
7. Ash and Lime Storage Silos
8. Turbine Bridge Crane or Gantry Crane
9. Large Power Transformers (Step Up) and others as required
10. Medium Power Transformers (Auxiliary, 2)
11. Isophase and Non-Seg Bus Duct
12. Switchgear
13. Motor Control Centers
14. Turbine Building Structural Steel
15. Cooling Tower (if required)
16. Continuous Emissions Monitoring System (if required)
17. Vacuum Pumps
18. Instruments
19. Sampling System
20. Makeup Water Treatment System
21. Air Compressors (Instrument and Service Air)
22. Fire Protection System
23. Field Erected Tanks – Service Water/Fire Protection, Condensate, Demineralized Water
24. Carbon Dioxide, Hydrogen, Nitrogen, and Ammonia Storage
25. Turbine Lube Oil Purification and Clean/Dirty Oil Tanks
26. High Pressure Valves
27. Control Valves
28. Instrumentation

29. Tripper Conveyor and Dust Collector
30. Fuel and Limestone Handling & Storage Systems
31. Refractory
32. Baghouse
33. Dry Scrubber Device (NID, Spray Dryer, or RDS)
34. Insulation and Lagging
35. Elevator
36. Ash Screw Coolers
37. Boiler Hangers
38. Fuel Unloading System
39. Fly Ash Collection & Storage System
40. Deep Water Seaport

CONSTRUCTION OVERVIEW



GE LOW PRESSURE TURBINE ROTOR



GENERATOR



CFB BOILER HEADERS



CFB BOILER DRUM



SLIDING THE CONDENSER INTO PLACE
UNDER THE TURBINE PEDESTAL



BAGHOUSE CONSTRUCTION



TURBINE GENERATOR CONSTRUCTION



INSTALLATION OF LOW PRESSURE
TURBINE ROTOR



TYPICAL RAIL MOUNTED SHIP UNLOADER



COAL PLANT ON OCEAN SITE