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Gas Turbine Package - Simple Cycle Scope of Supply

The existing used **Gas Turbine Package** includes the following major assemblies for each of four GT units:

1. Gas Turbine 701DU Siemens

- GT engine
- Dual Fuel Std. Combustion System
- Turbine Bearing Fire Fighting
- On Board I&C Devices
- On Board Air Cooling System
- On Board Bypass System
- GTLS Special Tools (one set for four GTLS)

2. Generator (ABB)

- Hydrogen cooled Generator (excitation system included)
- Rotor Jacking oil system
- Hydrogen oil sealing system
- Generator Assembly Special Tools (one set for four units)

3. Control Package:

- Vibration monitoring system (Bently Nevada)
- Gas Detection System (MSA)
- Fire protection board (Ciodue)

4. Electrical Package:

- Motor control center
- 6 kV board
- Generator protective relay panel
- Battery charger with batteries and inverter
- Auxiliary Transformer
- Insulated bus bar duct
- Generator Circuit Breaker
- Excitation board
- Excitation transformer
- Lighting board

5. Starting Package:

- Static Frequency Converter (2 packages for 4 power islands)
- Barring Gear

6. Inlet Air System:

- Filter Room
- Inlet Manifold
- Inlet Silencer

7. Exhaust System:

- Horizontal Diffuser
- Silencer
- Vertical Stack
- Diverter box

8. Mechanical Package:

- Common lube oil system for the gas turbine and generator
- Atomizing and instrument air system
- Cooling air system
- Gas fuel system skid
- Liquid fuel system skid
- Cooling water skid
- Water injection skid
- Liquid fuel forwarding skid

9. Cooler Assemblies

- Air-to-air cooler for rotor cooling
- Oil-to-water cooler for lube oil cooling
- Water-to-air for water cooling system

10. Firefighting System

- GT Enclosure
- Turbine Bearing
- Mechanical Package Enclosure

11. Enclosures with Ventilation and Lighting System

- Gas Turbine Module
- Generator (only a shed)
- Mechanical Package
- Electrical Package
- Control room
- Battery and DC distribution room

12. Emergency diesel generators (2 packages for 4 power islands) with relevant boards

13. GT Pipe Rack Assemblies

14. Bridge Crane (one serving four units)

Documentation

- Layouts, P&I drawings, Single Line Diagram (as available on site)
- O&M manuals (as available on site)

Terminal Points

The used Gas Turbine Package is delimited by the following boundaries:

1. Natural gas: @ inlet flange of the Gas Skid in the mechanical packages;
2. Diesel Fuel Oil: @ inlet flange of GT injection skid;
3. 15kV: Insulated Bus Bar Duct Terminals
4. I&C interconnection: @ marshalling box at the supplied equipment.
5. Other Utilities: (e.g. water etc): @ inlet flange at the supplied equipment.
6. Pipe rack: @ boundary of the power island.

Exclusions

The following equipment, systems and connections, necessary in order to operate the power plant, are excluded by GTI scope of supply:

Pipes with diameter ≤ 2 "

Cables, conduits and cableways

Control Systems

Valves, fittings, pipes, cables, structures and any other material of any kind outside terminal points;

Communication systems

Fire-fighting system(s) apart GT bearing, GT and mechanical enclosures

Gas reducing/Compression station

Tank and tank farm

Fuel oil transfer from tank to forwarding skid

Fuel oil treatment system

Fuel oil unloading bay system

Electrical substation

Ancillary buildings (e.g. warehouse, workshop etc.) with relevant equipment

Lighting system outside the existing GT power island boundary

Lightning system

Embedded systems and materials (e.g. oily and rainy water; raw, potable and demi water; sewage; cathodic protection; earthing grid etc.)

Water treatment plants (e.g. raw, potable, oily, demi etc.)

Hydrogen storage and/or production system

DCS for power plant control

Power plant electrical system supply

Black start system

HV and I&C interconnection to HV substation

Any kind of modification request to comply with new site design conditions, norms, codes, local laws etc.

Power Plant Site Design Conditions

(the following information are not binding and provided for information only)

Seismic acceleration:	S = 9 (1)
Wind pressure:	1000 N/m ²
Snow load:	900 N/m ²
Relative humidity:	100%

Min. Temperature: -10°C
Max. Temperature: 40°C
Quality of atmosphere: Industrial

Power Plant Performance (according to original installation figures)

(the following information are not binding and provided for information only)

Power Output 126,000 kW
Heat Rate 2,680 kCal/kWh

(@ ISO conditions, New and Clean conditions, Base Load, Dry, Natural Gas, with GT Auxiliaries only)