FRAME 9E Gas Turbine Package

We are pleased to offer the following FRAME 9E Gas Turbine Package PG9171 w/ Sequential DLN and Power Augmentation for sale:

Gasturbine model	Frame 9E
Manufacturer	GE
Unit Serial number	
Year of manufacturing	2009
Certificate number	
Certificate module	A
PED / model/ category	G/IV
Nobo number as per installation in 2010	38
Nominal speed	3000 rpm
Net power output as per original specification	127.214 Mwe
Unit date of installation / commissioning	2010
Specification of the Generator	
Generator model	BDAX -450 ERH
Manfacturer	Brush Electrical machines Limited England
type	Turbo generator
Machine . no.	
GE Serial number	
Protection class	IP 55
Spec	I.E.C 60034 -3
Ambient Temperature (degree Celsius)	15
Altitude	Up to 1000m
Output	3000
Voltage	15000
AMPS	6199
P.F	0.8
Condition of the Gas turbine	
Currently operating / standby	Preservation
Date of decommissioning / stop	2015
Total Factored fired hours (FFH)	< 500 FFH
Total Factored fired Starts (FFS)	< 100 FFS
Date of Last Major inspection	32 k when power augmentation is disabled
Type of fuel (Natural gas ,Liquid Fuel)	Natural Gas
Mode of operation	Not applicable
Type of control system	Mark Vles ,SIL
Pictures showing the current unit condition	On request available
Report of Last Major (or HGP) Inspection performed in the engine with rotor in place	Not applicable

CONDITION GASTURBINE AND GENERATOR.
The gas turbine and generator have been last inspected in 2018 and were found to be in excellent condition. Since then, the unit and equipment have been enrolled in a preservation program to maintain the condition as was found in 2018. It is expected that the preservation program has led to a stable condition and that no degradation has taken place since 2018. A borescope inspection has been planned to confirm the expected condition of the equipment.

The unit was installed in 2010 and commissioned in 2011, after a short testing period the unit was preserved until 2015. In 2015 the gas turbine was upgraded with Late Lean Injection (LLI) and fully re-commissioned including performance test. Late lean injection enables emissions compliance at low loads resulting in an improved turndown. Due to technical constraints of the oil production system the unit was preserved again up till 2018. In 2018 another upgrade was installed enabling power augmentation with the means of steam which is extracted from the HRSG. Both upgrades are currently commercially available, more detailed information can be requested from COMPANY (under precondition)

HISTORY

- 2009 year of production
- 2010 installation of equipment
- 2011 commissioning of equipment
- 2011-2015 equipment mothballed.
- 2015 NPI upgrade LLI
- 2015-2018 equipment mothballed.
- 2018 NPI upgrade power augmentation; steam injection wrapper
- 2018-today equipment mothballed

UPGRADES

In 2015 LLI was installed under a NPI program of GE, high level overview of impacted parts:

- Wrapper modification to allow for fuel piping.
- Modification of transition pieces with “headset” for secondary combustion
- Upgrade to 24K combustion hardware
- DLN skid; additional fuel valve and piping to allow for LLI

In 2018 power augmentation was installed under a GE NPI program, high level overview of impacted parts:

- Wrapper modification to allow for steam injection to compressor air.
- Steam injection control system and piping
- Installation of combustion dynamics monitoring
- Upgrade to 32K combustion hardware
- Upgrade of MARK VIes
- Upgrade of generation protection panels
- New HMI's

PRESERVATION PROGRAM

Since the installation of the equipment, there have been several periods in which the equipment has been mothballed. The preservation program entails amongst others:

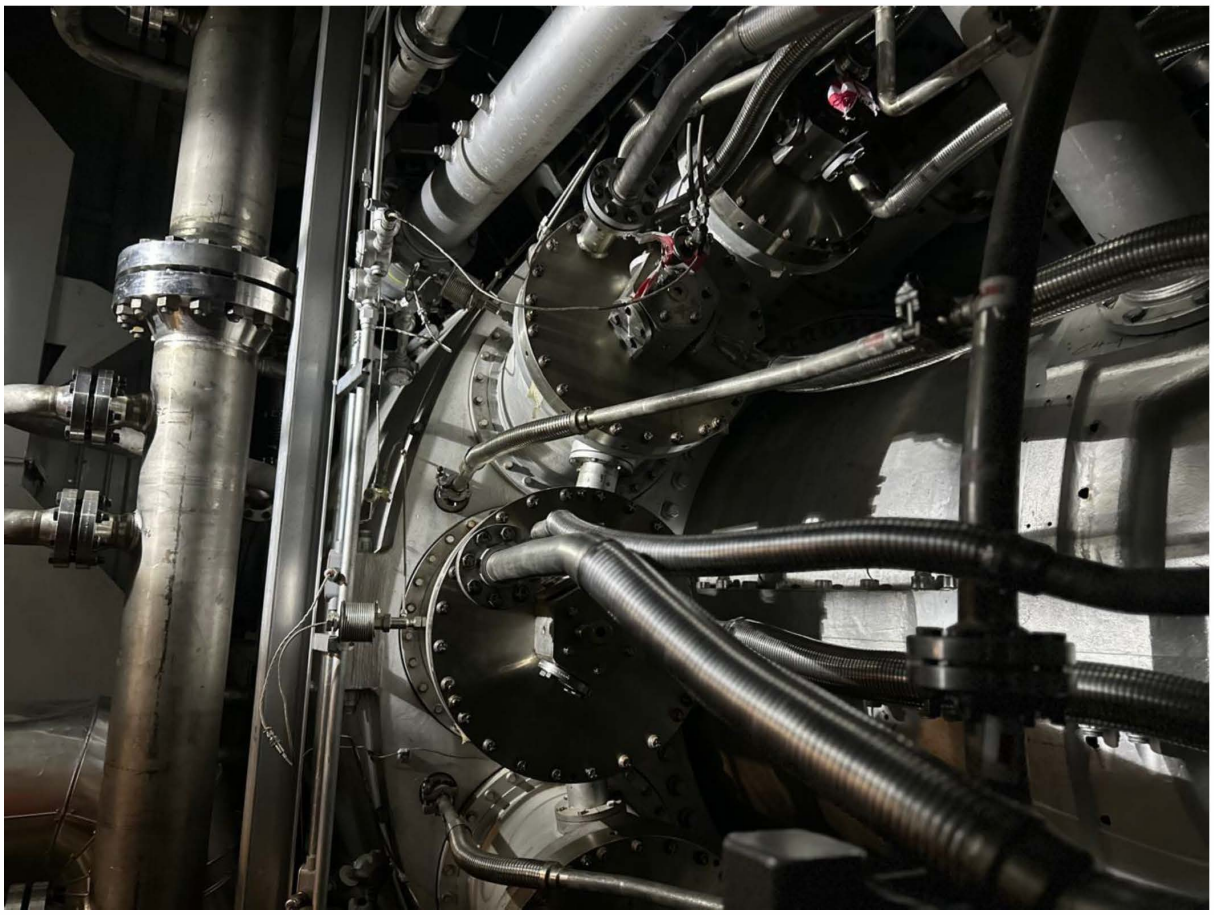
- Closed off air intake and exhaust duct allowing for closed loop air circulation (dried and heated)
- Oil systems active, automated temperature-based activation.
- Space heaters are active.
- HVAC systems are active.
- Stand still heating generator online.
- Periodic oil sampling
- Nitrogen blanketed piping
- Monthly operation of auxiliary equipment
- Bi-weekly and monthly inspections
- The rotor is not rotated as part of the preservation program to prevent damage to bearings and rotor.

SCOPE OF SUPPLY

Systems	In scope
Gas Turbine	X
Gas Turbine lube oil system	X
Hydraulic Oil system	X
Inlet Guide Vane system (Trip Oil) system	X
Air inlet & Exhaust	x
Performance monitoring	X
Cooling and Sealing Air system	X
Gas Fuel system	X
Gas turbine Auxiliary systems	X
Cooling water system	x
Compressor Washing system	X
Heating and Ventilation systems	X
Fire Protection system	X

Systems	In-scope
Hazardous Gas Protection system	X
Starting system	X
MK VIes Control system	X
Generator	X
Additional spare parts/tools	X
No break unit (as part of the PECC container)	X
PECC container	X
Interconnecting piping and cables GT	X
Enclosures for the GT system	X
Boiler feed water pumps for HRSG including VSDS (9101A/B)	optional
Power augmentation system (steam)	X
Natural gas pressure reduction and heating station of the GT, the unit 9310, 2 gas heaters (by hot water)	X
Generator cooling system, the unit 9510. “CCCW systems (2 pump, 40% glycol/water), air cooler, expansion vessel.	X
Heating system for anti-icing GT (9520 unit). 2 pumps (40% glycol/water), heater (via steam) and expansion vessel.	X
Wobbe meters	optional
Enclosures of the GT (within the GT building)	X
Internal civil constructions/supports	X
Supports (E.g. steel grating/stairs/ and handrails)	X
Systems	**OUT SCOPE**
Compressor building and building ventilation , Exhaust stack	X
Foundation (removal)	X
Transformer TR 9001and TR-9002 to grid	X
High Voltage cables (Busduct) from generator to the 2 trafo (outside building)	X
Overhead Crane 50 T	X
Generator Circuit Breaker	X


CONVERTEAM
FLENCO
GROUP

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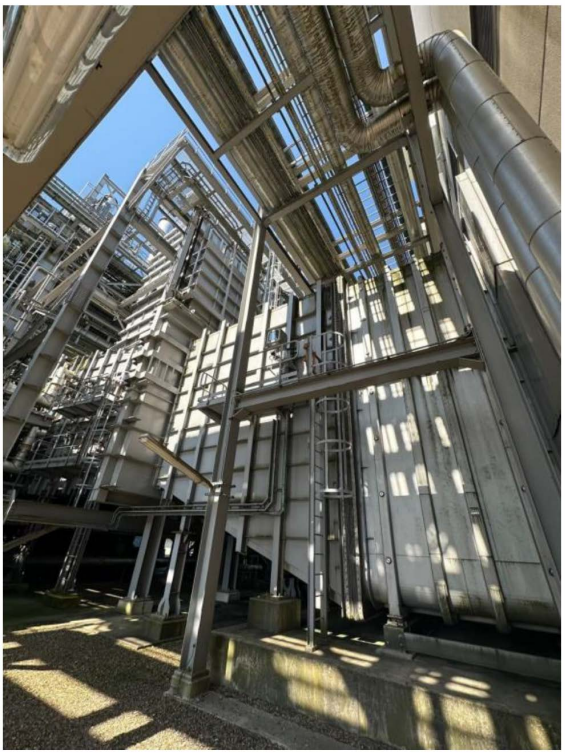


DEMI-WATER
CLEANBLADE GTC1000
GASTURBINE REINIGER
400 Liter


GE Energy
Mark* VIeS Control