

PRELIMINARY TECHNICAL PROPOSAL

THREE (3) SIEMENS SGT-600 GAS TURBINE GENERATOR SETS

Scope of Supply and Technical Particulars

3 x 24.5 MW(e) | DUAL FUEL | 50 Hz

16,000 operating hours after first major overhaul - each unit

1. Proposal Overview

This proposal covers three (3) Siemens SGT-600 gas turbine generator packages. Location-identifying information has been intentionally omitted. The stated operating hours have been standardized at 16,000 hours per unit after the first major overhaul, as instructed.

Item	Offered configuration
Quantity	Three (3) complete gas turbine generator sets
Gas turbine model	Siemens SGT-600
Nominal ISO output	24.5 MW(e) per unit; 73.5 MW(e) total nominal output
Unit 1 assembly year	2014
Unit 2 assembly year	2015
Unit 3 assembly year	2014
Operating hours - Unit 1	16,000 hours after first major overhaul
Operating hours - Unit 2	16,000 hours after first major overhaul
Operating hours - Unit 3	16,000 hours after first major overhaul
Fuel capability	Dual fuel; gas-fuel and liquid-fuel capability included
Frequency	50 Hz
Availability	Ready for shipment subject to site-specific requirements and contract

CONFIDENTIALITY

All names, geographic references, plant identifiers, operator details, and location-specific delivery references have been excluded from this proposal.

2. Main Generator Data

- AC generator supplied as part of each driven-unit package.
- Rated voltage: 11 kV / 13.8 kV; exact rating for each unit to be confirmed from serial-numbered documents.
- Three phase, 50 Hz, four pole, 0.8 power factor.
- Cylindrical-pole, brushless, filter-ventilated construction.
- Class F insulation with Class F total temperature rise.
- Generator bearing-temperature instrumentation.
- Lubricating-oil piping from gas turbine package to driven unit.

3. Gas Turbine Engine and Base Package

- SGT-600 gas turbine core engine with nominal ISO rating of 24.5 MW(e) per unit.
- Two-stage, uncooled, variable free-power turbine with nominal shaft speed up to 7,700 rpm.
- Gas generator, air-inlet casing, compressor rotor, and compressor stator with variable guide vanes (VGV).
- Centre casing and Dry Low Emissions (DLE) dual-fuel combustion system.
- Compressor-turbine rotor/stator, power-turbine rotor/stator, hot-gas interduct, output-shaft drive, and exhaust-outlet casing.
- Hot-end-drive arrangement.
- Engine bearing-temperature and vibration instrumentation.

4. Starting, Gearbox, Couplings and Guards

Starting System

- Hydraulic starting motor and pump driven by an AC electric motor.

Gearbox, Couplings and Guards

- Gearbox seismic-vibration instrumentation.
- Auxiliary gearbox incorporating drives for the starting system and lubricating-oil pump.
- High-speed flexible-element dry coupling between turbine and gearbox.
- Low-speed flexible-element dry coupling between gearbox and AC generator.
- Carbon-steel guards for high-speed and low-speed couplings.

5. Lubricating-Oil System

- Integral mineral-oil system serving the gas turbine, gearbox, and driven unit.
- Gearbox-driven main pump, AC-motor-driven auxiliary pump, and DC-motor-driven emergency pump.
- Duplex filtration with continuous-flow transfer valves; stated compliance with API 614.
- Carbon-steel filter body with differential-pressure indication.
- Smart pressure, temperature, and level transmitters with aluminium bodies.
- Tank immersion heater, breather, and oil-mist eliminator.
- Austenitic-stainless-steel breather ducting.
- Roof-mounted air-blast simplex cooler with one 100%-duty fan, suitable for a non-hazardous area.
- Austenitic-stainless-steel cooler supply and return piping.

6. Acoustic Enclosure and Ventilation

Acoustic Enclosure

- Painted carbon-steel acoustic enclosure over gas turbine, gearbox, and auxiliaries.
- Personnel and maintenance access doors.
- Stated sound-pressure level: 85 dB(A).
- Integral maintenance lifting beam and lighting.
- Siemens-standard smart acoustic-system transmitters with aluminium bodies.
- Ground-level access platforms and steps are excluded.

Enclosure Ventilation

- Pad-type inlet filter and air-operated inlet/outlet dampers.
- Single AC-driven Zone 2 ventilation fan.
- Negative-pressure ventilation arrangement.
- Ventilation-air silencer, inlet/outlet ducting, and integral supports.

7. Gas Detection and Fire Protection

System	Included equipment
Gas detection	Two IR point gas detectors at the ventilation outlet
Fire detection	Three IR multi-spectrum flame detectors and two heat detectors
Alarm devices	Package-end sounder/beacon, internal beacon, status indicator, and one manual alarm contact
Fire extinguishing	CO ₂ fire-protection system stated to comply with NFPA 12; weatherproof cylinder cabinet, distribution piping, valves, and nozzles

8. Combustion Air and Exhaust

Combustion Air Inlet

- Painted carbon-steel static-element filter, weather hood, mist eliminator, and EPA filter stage.
- Painted carbon-steel inlet silencer and ducting.
- Integral supports, maintenance platform, and access ladder.

Exhaust System

- Horizontal ferritic-stainless-steel exhaust diffuser.
- Exhaust silencer with ferritic-stainless-steel hot section and coated carbon-steel outer casing.
- Floor-standing vertical exhaust stack, 15 m high, subject to final configuration confirmation.
- Thermal insulation and aluminium cladding for personnel protection.

9. Package Electrical Systems and LER

Each package includes an integral Local Electrical Room (LER) intended to protect package controls and operators. The stated scope comprises:

- 400 V AC supply for package motors and heaters.
- 230 V, 50 Hz distribution board.
- Internal and external lighting and industrial 230 V outlet.
- Air-conditioning/heat-pump unit intended to maintain the control room at 20°C under stated ambient conditions.
- Control-shelter baseplate and tread plates connected to the driver-unit baseplate for single-point lifting.
- Single control-panel cubicle with support frame.
- Combined battery charger, turbine/generator unit-control panel, and motor-control centre.
- VRLA batteries sized for safe emergency rundown of turbine and driven unit.

10. Package Auxiliaries

- Mobile turbine-compressor cleaning system with 316 stainless-steel tank for online and offline washing.
- On-package drain tanks.
- Smart-type auxiliary-module pressure and level transmitters with aluminium bodies.
- Instrument tagging to Siemens-standard P&ID; references.
- Package finish according to the stated Siemens onshore standard.

11. Control and Generator Protection

- Control system mounted within the integral LER.
- Simplex unit-control section based on Siemens SIMATIC PLC.
- Automatic package control and monitoring, including standard start/stop and load-control functions.
- Panel-mounted HMI PC with English operator interface.
- Machinery-vibration monitoring.
- Ethernet TCP/IP communication link to plant DCS.
- Generator-control section with AVR, automatic/manual synchronising, check synchroniser, metering, and electrical protection.

12. Remote Monitoring

- Siemens Turbomachinery Applications Remote Monitoring System (STA-RMS) described for operator support.
- Secure VPN communication through the customer's internet service.
- Automatic operating-data transfer to a remote diagnostic centre.
- Routine monitoring, predictive trending, anomaly detection, downtime prediction, historical data, and fleet/unit reporting.
- Remote HMI access, software support, and troubleshooting by authorised support personnel.

STA-RMS availability, licensing, data-access permissions, cybersecurity requirements, and service-contract conditions must be confirmed contractually.

13. Testing, Maintenance Equipment and Documentation

Testing

- AC generators stated as pre-tested; manufacturer works-acceptance test data stated available.

Installation and Maintenance Equipment

- Power-turbine roll-off equipment and core-engine removal trolley.
- Maintenance equipment, power-turbine barring gear, core lifting equipment, and semi-gantry crane.
- Auxiliary-gearbox support and installation tool cabinet with common hand tools.
- Holding-down fixings for package and off-package equipment.
- Selection of paints for site repairs.

Drawings and Documentation

- Certified information and approval drawings in English.
- Existing drawings reviewed and issued with relevant modifications or a project-specific cover.
- English operator, maintenance, and driven-unit manuals in electronic format.
- Material Record Book containing quality-assurance and as-built records in English.

14. Packing, Spares and Quality Assurance

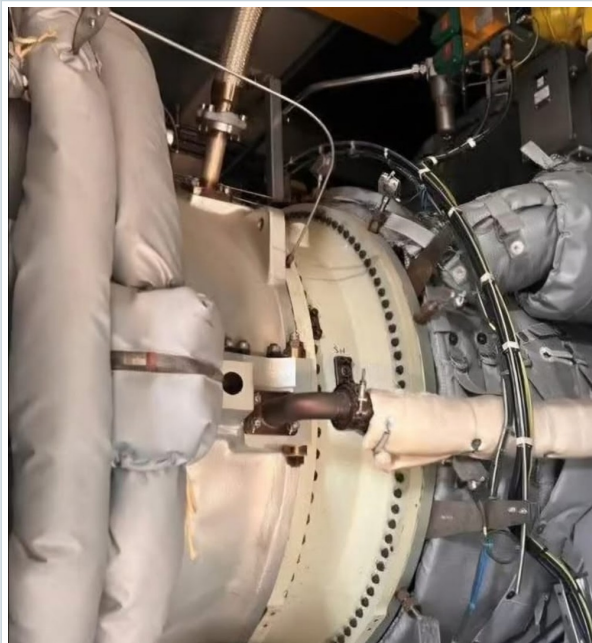
- Packing and preservation suitable for the agreed destination and transport method.
- Commissioning equipment and tools.
- Commissioning spares.
- Contract Quality Assurance Programme.
- Material Record Book (MRB) with quality-assurance and as-built records.

15. Photographic Overview

Selected photographs are presented to illustrate the general configuration and visible condition of the offered equipment. Duplicate and near-duplicate views have been omitted for clarity.



Package piping, flexible connection, and auxiliary interfaces



Gas turbine package - coupling and insulated hot-section view



Internal turbine section and instrumentation arrangement



Auxiliary equipment, filtration, piping, and cable routing

15. Photo Gallery - Continued



Package casing and large-bore auxiliary piping



General package view with motor-driven auxiliary system



Low-voltage switchgear panel lineup



Generator protection, metering, and local control panel

16. Consolidated Scope Summary

Scope group	Status / principal content
Three SGT-600 packages	Included
AC generators	Included
Dual-fuel capability	Included; gas and liquid fuel capability stated
DLE combustion	Included
Starting and gearbox systems	Included
Lubricating-oil system	Included
Acoustic enclosures and ventilation	Included
Gas detection and CO ₂ fire protection	Included
Combustion-air intake and exhaust system	Included
Integral LER and package electrical systems	Included
SIMATIC package control and generator protection	Included
Remote monitoring functionality	Subject to licence/service confirmation
Maintenance equipment and tools	Included as described
Commissioning spares	Included; detailed list and quantity to be confirmed
Documentation and MRB	Included
Location-identifying information	Excluded from this proposal

17. Clarifications Required Before Contract

- Confirm package and core-engine serial numbers for all three units.
- Confirm documentary basis for 16,000 operating hours per unit after the first major overhaul.
- Confirm exact generator voltage for each unit: 11 kV or 13.8 kV.
- Provide full overhaul history, maintenance records, preservation status, and latest inspection/borescope reports.
- Confirm guaranteed output, heat rate, emissions, and auxiliary consumption at the project site's conditions and fuels.
- Confirm exact fuel specifications and changeover capability.
- Confirm the 15 m exhaust-stack inclusion and all package battery limits.
- Confirm completeness, spares quantities, warranties, delivery schedule, Incoterm, and inspection procedure.
- Confirm that all documents and photographs correspond to the offered serial-numbered units.

DOCUMENT STATUS

This is a cleaned, anonymised, and professionally reorganised technical proposal derived from the supplied source document. It is not an OEM-certified data sheet and does not replace the final serial-numbered scope, inspection report, or executed contract.