Generatar COMPANY

A DIVISION OF TGC INTERNATIONAL LTD



Park House Ramsbury

Generator Proposal

TGC INTERNATIONAL LTD

Unit 12 Stirling Park, Laker Road, Rochester, Kent ME1 3QR tel: +44 (0)1634 668090 www.tgc.uk.com

Lowe Oliver
Cumnor Road,
Wootton, Boars Hill,
Oxford
OX1 5JW

For the attention of: Adam Lygo

Dear Adam

PROJECT: Park House Ramsbury 440kVA enclosure

PACKAGE TITLE: DIESEL GENERATOR INSTALLATION

Further to your recent enquiry, subsequent documentation and communications, we are pleased to submit our proposal for the design, supply, works testing, delivery, offloading/positioning, installation and commissioning of The Generator Company (TGC) diesel generating set and associated equipment on the above project, in accordance with the enclosed technical details and pricing schedule.

Summary outline of scope:

- Project Management and Design.
- 1 off 440kVA/352kW, 0.8PF, 400V, 50Hz, 1500rpm Standby Rated Diesel Generator.
- Local Generator Control Panel ComAp InteliGen control panel.
- Local Generator Circuit Breaker 630Amp MCCB.
- Generator acoustic enclosure equipment 75dBA@1m FFC.
- Generator exhaust silencing system 75dBA@1m FFC including.
- Generator fuel system 24-hour 2000ltr bunded base tank with fuel polisher.
- Deliver, offload and position of TGC supplied equipment. (Hiab included)
- Mechanical installation of TGC supplied equipment.
- Electrical installation of TGC supplied equipment.
- Commissioning of TGC supplied equipment.
- SAT and Training.
- O&M Manuals.

We trust our offer meets with your approval and provides sufficient information for your present requirements. Should you have any queries, please contact the undersigned who will be pleased to assist.

Yours sincerely,

Mike Haines

Sales Manager

The Generator Company
(A Division of TGC International Ltd.)

Unit B1
Colliery Business Park
Pike Road
Eythorne
Dover
Kent CT15 4ND
United Kingdom

Mobile No: + 44 (0) 787 214 7848
Direct office No: (0) 1304 833917
Email: m.haines@tgc.uk.com

Main office Tel: +44 (0) 1634 668 090
Main office Fax: +44 (0) 1634 687 037

Visit us at: www.tgc.uk.com

THE Generator COMPANY A DIVISION OF TGC INTERNATIONAL LTD

Contents

SECTION	DESCRIPTION
SECTION 1	Generator Specification:
	Section 1.1: *Generator Set Rating*
	Section 1.2: *Diesel Engine*
	Section 1.3: *Alternator*
	Section 1.4: *Engine Water Cooling System*
	Section 1.5: *Generator Mounting*
	Section 1.6: *Engine Starting System*
	Section 1.7: *Generator Controls*
	Section 1.8: *Fuel System*
	Section 1.9: *Acoustic/Ventilation Equipment*
	Section 1.10: *Exhaust System*
	Section 1.11: *Works Test*
	Section 1.12: *Finish*
	Section 1.13: *Electrical Installation*
	Section 1.14: *Commissioning*
	Section 1.15: *Builders work*
	Section 1.16: *Site Works*
	Section 1.17: *Spares/Maintainability*
SECTION 2	Project Management:
	Section 2.1: *Project Management*
	Section 2.2: *Documentation*
	Section 2.3: *Quality Assurance*
SECTION 3	Clarifications and Compliance:
	Section 3.1: *Comments on Specification*
	Section 3.2: *General Clarifications*

THE Generator COMPANY A DIVISION OF TGC INTERNATIONAL LTD

SECTION	DESCRIPTION
SECTION 4	Commercial:
	Section 4.1: *Pricing Schedule*
	Section 4.2: *Programme*
	Section 4.3: *Terms and Conditions*
SECTION 5	Data Sheets:
	Section 5.1: *Generator Data Sheet*
	Section 5.2: *Generator Controller Data Sheet*
	Section 5.3: 800A ATS Panel *Data Sheet option*

THE Generator COMPANY A DIVISION OF TGC INTERNATIONAL LTD

Section 1: Generator Specification

Section 1.1: *Generator Set Rating*

Section 1.2: *Diesel Engine*

Section 1.3: *Alternator*

Section 1.4: *Engine Water Cooling System*

Section 1.5: *Generator Mounting*

Section 1.6: *Engine Starting System*

Section 1.7: *Generator Controls*

Section 1.8: *Fuel System*

Section 1.9: *Acoustic/Ventilation Equipment*

Section 1.10: *Exhaust System*

Section 1.11: *Works Test*

Section 1.12: *Finish*

Section 1.13: *Electrical Installation*

Section 1.14: *Commissioning*

Section 1.15: *Builders work*

Section 1.16: *Site Works*

Section 1.17: *Spares/Maintainability*

THE Generator COMPANY A DIVISION OF TGC INTERNATIONAL LTD

Section 1.1: Generator Set Rating

1- TGC diesel driven alternator, model type TGC_FE-440, capable of developing 440kVA, 352kW at 0.8 power factor, 3 phase, 4 wire, 400V, 50 Hz at a rotational speed of 1500 revs/min under NTP UK conditions.

Rating

Emergency Standby Power (ESP) (duty as defined by the engine manufacturer), the rating is available for a limited number hours per year (200 Hours) at a variable load, with an average load factor of 70%. No overload capability.

Rating

Standby

Warranty

Standby

Fuel Consumption

Approx. 83 litres per hour @100% load.

Performance Class

In accordance with the conditions laid out in ISO 8528 Part 5 Class G2.

The generator will operate under the following conditions, in accordance with the stated Performance Class:

a) Under load transient conditions (at genset`s maximum cold load step capability) : Class G2

THE Generator COMPANY A DIVISION OF TGC INTERNATIONAL LTD

Section 1.2: Diesel Engine

Scana Engine Model DC13 072A-0212, 6-cylinder, in line, exhaust gas turbocharged, water cooled industrial diesel engine, having a typical cold load acceptance capability of 50% that may be applied in a single step after engine start up with engine heaters on.

These figures are not to be misconstrued as a guarantee of performance and are quoted as a technical guide only, in accordance with engine manufacturers published literature and data (actual figures can be measured and documented at works test if requested at time of order. The works test results shall take precedence over any other quoted data).

The engine will be complete with the following ancillary equipment: -

Air:
Paper element, panel type, medium duty air filters with restriction indicator.
Exhaust gas driven engine mounted turbochargers.

Fuel:
Unit fuel injectors.
Diaphragm fuel lift pump.
Canister type fuel oil filters.
Fuel pump shutdown solenoid, 24VDC, energised to run.

Lub. oil:
Rotor type lubricating oil system, engine driven.
Shell and tube type oil cooler.
Canister type lubricating oil filters.
Standard manufacturer's high capacity lub. oil sump, complete with drain plug.

Engine instrumentation will be displayed on the generator control panel and comprise the following:

a) Oil pressure gauge.
b) Water temperature gauge.
c) Engine speed.

Engine mounted detector switches for the following conditions will be provided: -

a) Low oil pressure (alarm and shutdown).
b) High water temperature (alarm and shutdown).
c) Engine overspeed.

Close tolerance quick response electronic engine governing system providing regulation in accordance with ISO 8528 Part 5 (Class G2).

Engine block conditioning heaters, thermostatically controlled to aid cold starting.

Engine mounted battery charging alternator, complete with integral voltage regulator.

A 24V DC axial starter motor shall be incorporated on the engine.

The diesel engine is capable of running on diesel fuel to BS 2869 Class A1/A2 or equivalent.

THE Generator COMPANY A DIVISION OF TLC INTERNATIONAL LTD

Section 1.3: Alternator

Manufacturer: Stamford

Type: S4L1D-F

Rating: Standby

Construction: Single bearing, IP23, drip proof, star connected, brushless, screen protected, revolving field, self-exciting, self-regulating alternator, with PMG, Aux winding, four pole, 2/3rd pitch type.

The alternator is of the industrial type and meets the requirements of BS EN 60034 and the relevant sections of other international standards such as BS5000, BS4999, NEMA, MG1-22, IEC34 and fitted with radio suppression equipment to BS EN 55014.

Insulation: The alternator will be insulated to Class H and limited to Class H temperature rises.

Output Voltage: The alternator will be wound for a supply of 400V, 3-phase, 4 wire, 50 Hz at a rotational speed of 1500 revs/min. The output voltage is maintained within ± 0.5% from no load to full load including cold to hot variations at any power factor between 0.8 lagging and unity by means of a solid-state automatic voltage regulator (AVR), and inclusive of a speed variation of 4½%. The automatic voltage regulator will be provided in the alternator terminal box.

Terminal Box: The alternator will be fitted with the manufacturers standard top mounted terminal box housing for connection of nominally rated flexible power cabling to the local generator circuit breaker that will be situated immediately at the side of the alternator.

Anti condensing heater

THE Generator COMPANY A DIVISION OF TGC INTERNATIONAL LTD

Section 1.4: Engine Water Cooling System

The engine jacket and lub oil cooling water shall be circulated by an engine driven water pump and is fitted with thermostats to maintain the engine at its optimum operating temperature.

Mounted on the baseframe immediately in front of the engine shall be a temperate duty radiator (38degC external ambient) complete with engine driven pusher fan and personnel guards.

The radiator would be complete with additional items, designed for protection of the generating set and ease of servicing and maintenance. These are as follows:

- Low level drain valve for ease of coolant replacement.

THE Generator COMPANY A DIVISION OF TGC INTERNATIONAL LTD

Section 1.5: Generator Mounting

The engine and alternator would be flexibly and directly coupled by means of an SAE flange/housing, mounted together with radiator onto a heavy duty baseframe.

Rubber type anti-vibration mountings shall be supplied for installation between engine and alternator feet and baseframe Steel spring type anti-vibration mountings between baseframe and plantroom floor.

The baseframe is fully welded, heavy duty rolled steel channel incorporating pads for engine and alternator mounting and incorporates suitable lifting arrangements.

The baseframe will be bunded to catch any spillages and be complete with leak detection switch.

Small wiring around the engine is ferruled, and an engine loom is provided for connection to the local generator control panel.

THE Generator COMPANY A DIVISION OF TGC INTERNATIONAL LTD

Section 1.6: Engine Starting System

The engine shall be complete with a 24V DC axial starter motor.

The starter motors shall be powered by heavy duty 24V DC Lead Acid engine starter batteries, complete with interconnecting links and battery cables, sized for 3 attempt starts at 15°C.

Battery rack/stand shall be provided with the batteries. The batteries shall be located as close to the engine starter motor as possible.

The type, voltage and ampere/hour capacity of the battery shall be sized suitable for the specific engine.

The battery charger shall be of the automatic float type to maintain the batteries at optimum condition and shall be mains operated. Battery charger controls shall be located within the generator control panel. The battery charger shall be automatically switched off when the engine receives a start signal, whereby the engine mounted charge alternator will charge the batteries when the engine is running, the battery charger will be automatically reinstated when the engine stops.

The starting cycle shall be controlled by the engine control module in the local generator control panel and consist of three attempts to start per battery, each comprising a 10 second cranking period followed by a 10 second rest period.

THE Generator COMPANY A DIVISION OF TGC INTERNATIONAL LTD

Section 1.7: Generator Controls

Set mounted generator control panel of fabricated sheet steel construction with front door access through a bolted door, finished in powder coat to TGC standard colour, providing protection to IP31.

The Local Generator Control Panel will house an engine control module which is used to control engine start up/shutdown sequences, as well as handling fault protection and alarm indication of the generator and for measurement and control of the diesel generator for the following applications:

1. Automatic remote start/stop.
2. Automatic mains failure standby.
3. Automatic mains synchronizing for no-break soft load transfer on mains return.

The Local Generator Control Panel will contain the following instrumentation and control equipment:

Generating Set Control Module:

COMAP InteliGEN generating set control module complete with LCD display unit with push button control. Included within the unit is the following:

Instrumentation (Digital, via the LCD display):

Integral multi-meter providing the following readings:

a) Generating Set Volts (Line to Line and Line to Neutral)
b) Generating Set Amps (Each Phase)
c) Generating Set Frequency
d) Generating Set kWe
e) Generating Set pf
f) Generating Set kVA
g) Generating Set kVAr
h) Generating Set kWhr
i) Generating Set kVArh
j) Lubricating Oil Pressure
k) Lubricating Oil Temperature
l) Engine Jacket Water Temperature
m) Engine Hours Counter
n) Engine Starts Counter
o) Service Due Indicator
p) Battery Voltage

Protection with Indication:

All warnings, shutdowns and status are indicated via the LCD display, together with an audible alarm and mute facility.

Warnings only:

a) Low Lubricating Oil Pressure (1st Stage)
b) High Coolant Temperature (1st Stage)
c) Battery Voltage Alarm
d) Charge Alternator Fail – Engine

THE Generator COMPANY A DIVISION OF TGC INTERNATIONAL LTD

e) Day Tank Low
f) Day Tank High
g) Leak detected – generator baseframe

Shutdowns:

a) Low Lubricating Oil Pressure (2nd Stage)
b) High Coolant Temperature (2nd Stage)
c) Over / Under Speed
d) Failed To Start After 3 Starting Attempts
e) Overload
f) Undervoltage
g) Overvoltage
h) Emergency Stop Operated
i) Fire Valve Operated

Status – Generating Set:
a) Engine Running
b) Generator Circuit Breaker Closed
c) Generator Circuit Breaker Open
d) Engine Control Not In Auto
e) Engine On Cool Down Cycle

Plant Controls and Interfaces:

Operational modes are displayed on the LCD display, which are selected on the module via pushbutton control. The LCD would provide step-by-step updates as the control unit commences with each mode when operating.

Operation modes available are:

- Off – Set cannot start in this mode.
- Manual – Used for manual start and stop to test the generating set off load.
- Auto – Set to start automatically upon mains failure.
- Test – Used for testing the generating set on load by a simulated mains failure.

Pushbuttons:

a) Mode selection buttons
b) Manual start
c) Manual stop
d) Alarm accept
e) Alarm mute
f) Manual open/close – Generating Set Circuit Breaker
g) Scrolling menu cycle buttons
h) Set point increase/decrease buttons.
i) Set point acceptance button.

Timers:

a) Pre-start timer
b) Protection hold off timer

THE Generator COMPANY A DIVISION OF TGC INTERNATIONAL LTD

c) Generating Set cooling down timer

Additional Standard Features:

RS232 port available for following:

- Local PC connection.
- Modem connection.
- Site/SCADA system connection using MODBUS protocol.

Data Logging – Last 200 events.

Additional Items

1- Set of engine jacket water heater controls.

1- Set of 8 BMS volt-free contacts for the following:

a) Generator Running
b) Generator Fault
c)

1 - Set mounted, set rated 4 pole, motorised, fixed pattern 630A MCCB c\w auto

trip unit. 1 - Mains synch controller.

1 - G59 Protection Relay free issue to be installed in switchboard.

The control panel will be constructed in accordance with TGC standards including coloured wiring with relays, MCB's and legends and complete with incoming and outgoing Generating Set/Switchboard interface terminals.

THE Generator COMPANY A DIVISION OF TGC INTERNATIONAL LTD

Section 1.8: Fuel System

Included is a complete fuel storage system comprising the following: -

Per Generator

1 - Baseframe mounted, daily service fuel storage tank, in open bund, of 2 0 0 0 litre (24 hours) capacity complete with rotary contents gauge, incorporating high/low level switches, pump start/pump stop control switch, fill connection, vent connection, overflow connection, sludge drain connection, outlet connections to engine injection equipment.

1 - Bund alarm.

1 - Fusible link operated dead weight fire valve, installed in the feed line to the day tank.

1 - Set of manual isolation valves and filters.

1 - Set of flexible feed/return pipework from the engine to the daily service fuel tank.

1 - Fuel polisher.

THE Generator COMPANY A DIVISION OF TGC INTERNATIONAL LTD

Section 1.9 : Acoustic Equipment

This submission describes the acoustic treatment to the diesel generator, capable of reducing the airborne diesel generator noise to prescribed limits external to the acoustic enclosure.

Included is the supply and installation of generator acoustic/ventilation equipment, designed to achieve an external noise level not exceeding 75dBA@1m, under free field conditions assuming non- contributory background noise level and compatible builders work construction, whilst allowing cooling and combustion airflow within defined limits.

The design relates to a 440kVA unit powered by a Scania DC13 072A 0212 engine, with engine driven radiator unit, and using the following generator airflow information:

The acoustic treatment shall comprise the following: -

Close fit style acoustic, weatherproof enclosure incorporating a double access door each side.

Size: 4500 L * 1450 W * 2550 H
Wet Weight: 7500 kg

Bunded floor.

Air inlet weather louvre complete with bird mesh.

End/ mounted air intake splitter attenuator.

Radiator discharge flexible duct section. Positioned between the engine radiator and discharge damper, manufactured with V22F flame retardant 500g material to BS3119/3120.

End mounted air discharge splitter attenuator.

Air discharge fixed blade weather louvre complete with bird mesh.

Cable exit through side of generator enclosure for main power cabling, by others, to the Main LV Switchboard.

THE Generator COMPANY A DIVISION OF TGC INTERNATIONAL LTD

Section 1.10 : Exhaust System

Included is an individual 'up and over' format exhaust system designed to achieve a noise level not exceeding 75dBA@1 meter from the exhaust discharge, under free field conditions, assuming non-contributory background noise levels and compatible builders work construction comprising flexible engine bellows, mild steel primary/secondary cylindrical silencers, together with all necessary bends, straight rigid pipework, brackets, flanges and fixings, etc. to terminate the system to atmosphere on the outside of the generator plantroom, with a tailpipe not exceeding one meter in length.

The exhaust silencers and interconnecting pipework shall be of mild steel construction and finished in a heat resistant coating, the bellows shall be supplied in stainless steel. All shall be lagged at site with 25 mm thick high density mineral wool insulation and finished with aluminum cladding to prevent heat gain to the plantroom.

Exhaust silencers will be supported on the roof of the enclosure.

The exhaust system is designed on the parameters detailed below, provided by the engine manufacturer:

THE Generator COMPANY A DIVISION OF TGC INTERNATIONAL LTD

Section 1.11: Works Test

Prior to dispatch, included is our standard factory works test procedures which would comprise initial check of equipment followed by proving/simulation of all automatic sequences, protection devices, shutdowns where practical in relation to our scope of supply etc. When all of the above have proved to be satisfactory in operation there would follow a load run whereby the load would be increased over a period of time until finally a 110% load condition was achieved.

Therefore, any additional requirements would be charged on a time and materials basis. On completion certified copies of TGC Test Sheets would be supplied and if required engine/alternator manufacturers test sheets could be provided.

Witnessing of works tests is available, on request, at additional cost, and based upon a maximum of two persons in attendance (travel/hotel expenses to be provided by the client).

THE Generator COMPANY A DIVISION OF TGC INTERNATIONAL LTD

Section 1.12: Finish

The engine, alternator, baseframe etc. and control panels are finished to TCG standard colours.

Sub-contract items such as bulk tanks, etc. shall be subject to manufacturer`s standard finish. If a particular colour is required, this may be available from BS.4800/RAL spectrum on request at the time of order.

THE Generator COMPANY A DIVISION OF TGC INTERNATIONAL LTD

Section 1.13: Electrical Installation

Our offer excludes all site electrical installation, including provision of main power/control cabling and containment to the LV Switchboard, bulk tank, BMS, auxiliary supplies, earthing, earth nest, etc. which shall be provided by the Electrical Sub-Contractor. = L&O

TGC shall provide the following only: -

a) Control wiring, generator to adjacent local generator control panel.

b) Power cabling, generator to adjacent local generator circuit breaker.

c) All cable away from the generator breaker by others.

Section 1.14: Commissioning

Following completion of the installation and testing of ancillary plant by others, our commissioning and final handover of the equipment would be carried out at site, based on normal weekday and daily working hours. Included is the following: -

First fill of lubricating oil.

First fill of engine anti-freeze.

Fuel for first fill **2000ltrs**, testing/commissioning and replenishment following commissioning and SAT **664ltrs**, all other fuel shall be provided by others. (Including First fill tank 2,000ltrs).

Commissioning on **resistive load bank** provided by TGC (sized at 352kW/440kVA), concluding with individual full load run for 4 hours and, where applicable, depending on power rating) 1 hour at 110% load. We have allowed for a 30-metre cable run between the load bank and suitable LV connection point (to be provided by others).

2 days of hire included for – any additional days shall be chargeable.

1 day of IST testing is included.

1 day of client training is included. Is this enough ?

After successful commissioning/testing, any additional days required for 'site wide' testing/commissioning or separate instruction periods etc. shall be chargeable.

Section 1.15: Builders Work

Our offer does not include for any builder's work including fire stops and fire rated ducts/enclosures, etc., whatsoever, however, full details of all builders work necessary to carry out the installation of our equipment would be advised accordingly.

THE Generator COMPANY A DIVISION OF TGC INTERNATIONAL LTD

Section 1.16: Site Works

Included are the following services, based on normal weekday and daily working hours: -

Delivery to the job site in a single visit of the generator, control panel and all other associated equipment.

Off-loading and positioning labour, provided by TGC.

Hiab provided by TGC assuming no special craneage requirements and subject to site survey. The mobile Hiab is to be positioned adjacent to final position of Generator plinths/bases and any permissions, road closures, permits, and suitability of ground condition to take weights of Hiab outriggers is to the care of others.

Positioning of the generator set on suitable base in external ~~plant room,~~ (base by others). RWA

Positioning of the bulk tank onto suitable base, (base by others). RWA

Installation of the fuel system as detailed.

Installation of the acoustics as detailed.

Installation of the exhaust system as detailed.

Electrical installation as detailed.

Commissioning as detailed.

Our quotation is based upon and assumes that delivery of the generator, fuel tank and associated equipment etc. shall be programmed such, that all equipment can be delivered and positioned in their final position (without equipment breakdown) via suitable builders work access provisions with a continuous working programme during normal weekday working hours, without hindrance or stoppage caused by third parties and that straightforward hardstanding clear access to site would be available at the time of delivery and that first in, free access is available at all levels of installation works.

Any delays/returns to site or weekday overtime and weekend working will be subject to variation.

Unrestricted access and parking on site is required for all Transport/Vehicles and personnel vans.

All necessary safety lighting, small power, etc. required to carry out our works shall be provided by others.

Any abortive lifts or site visits due to adverse weather conditions, restrictions or instructions by a third party etc. shall be recoverable from our client in full.

Any items requiring specialist attention in order to comply with local authority (or other official body) requirements, e.g. Section 20, fire protection to fuel lines etc. shall be catered for by others, unless stated otherwise. In particular, Clean Air Act, District Surveyor, Fire Department and Planning Application, shall be the clients responsibility. Should any additional works be required to obtain approval, then this would be subject to a variation.

The Generator COMPANY A DIVISION OF TGC INTERNATIONAL LTD

Section 1.17: Spares/Maintainability

Spares/Tools

Our offer does not include for the provision of any spare parts or tools for this machine or it's peripheral equipment.

Maintenance

It is TGC's policy to offer Contract Maintenance facilities for equipment installed within the United Kingdom, whereby, we visit site on an agreed frequency per annum to carry out routine preventative maintenance and check over the equipment to ensure that it remains available for efficient operation. Should further details be required for this service, please do not hesitate to contact us.

THE Generator COMPANY A DIVISION OF TGC INTERNATIONAL LTD

Section 2: Project Management

Section 2.1: *Project Management*

Section 2.2: *Documentation*

Section 2.3: *Quality Assurance*

THE Generator COMPANY A DIVISION OF TGC INTERNATIONAL LTD

Section 2.1: Project Management

Included as follows:

a) Offsite Project management including production and Supply of RAMs as necessary to execute our scope of works as a Sub-Contractor and comply with CDM.
b) Pre-Start Meeting after PO Placement to review scope, Design, Specification, Program and Coordination of Services and Client expectations.
c) Pre-Delivery Survey.
d) Delivery and Positioning.
e) Commissioning & Testing Coordination Meeting.

Note. Additional meetings would be at discretion of The Generator Company or would be subject to additional cost.

THE Generator COMPANY A DIVISION OF TGC INTERNATIONAL LTD

Section 2.2: Documentation

Manuals

1 hard copy of Operating and Maintenance manual in accordance with TGC standard format, illustrated spares manual for the engine and alternator and schematic layout of the engine control system, etc., to be supplied in English. 1 CD copies also to be provided.

Drawings

Drawings shall be provided including the following:

General Arrangement of the generator.

General Arrangement of the control panel.

General Installation of the generator.

General Installation of the fuel system.

General Installation of the exhaust system.

General Installation of the acoustics system.

Electrical Schematics of engine/panel wiring.

Cabling Schedule.

THE Generator COMPANY A DIVISION OF TGC INTERNATIONAL LTD

Section 2.3: Quality Assurance

QUALITY ASSURANCE

The generating set will be manufactured according to BS.EN ISO 9001 approved procedures, covering the manufacture, and works testing of diesel generating equipment.

THE Generator COMPANY A DIVISION OF TGC INTERNATIONAL LTD

Section 3: Clarifications and Compliance

Section 3.1: *Comments on Specification*

Section 3.2: *General Clarifications*

THE Generator COMPANY A DIVISION OF TGC INTERNATIONAL LTD

Section 3.1: Comments on Specification

This proposal is based on TGC standard design and working practices and whilst we have attempted to comply with the requirements set out within the HL-Electrical Specification-Tender Issue Specification, our proposal takes precedence over the specification.

We have the following comments and clarifications to make:

1) We have not allowed for a dump valve on the day tank.

2) All LV and control cable away from the generator breaker by others.

3) We have allowed for G99 relay.

4) The switch board will need a ComAp IntileMaines control panel.

5) First fill of the bulk tank is included and fuel for 4 hours commissioning and 4 hours SAT.

6) We have allowed for spring mounts to be fitted between the base frame and floor.

7) We have allowed for 75dBA@1m Enclosure.

8) We have allowed a stage V engine as on option.

Section 3.2: General Clarifications

1. This offer has been based solely upon the information made available at time of issue of this proposal and we reserve the right to amend the proposal in line with any alterations that may arise from new information and/or the issue of additional information, contract drawings or our own site surveys.
2. All load control, Load Shedding, Power Management is excluded unless detailed herein.
3. All cabling and earth systems are excluded unless detailed herein.
4. We assume the site load and in particular all nonlinear load characteristics have been taken into account by others to determine the Generator rating is correct.
5. Safe access and working areas for installation is by others. If required we have included for mobile towers only to 3m height.
6. We assume that we will have continuity on site for the installation. Any break from site for periods of time out of our control, would impose additional costs of deliveries/collections of plant or weekly costs of hire and storage of uninstalled materials in a safe area.
7. Electrical Isolations and making safe by others.
8. Protection of our equipment when The Generator Company personnel are not on site is by others.
9. On site pressure testing of all liquid systems is excluded.
10. Temporary 415v, 30A supplies immediately adjacent to all areas of Works to be provided by others.
11. Road closures and/or traffic control is by others.

Section 4: Commercial

Section 4.1: *Pricing Schedule*

Section 4.2: *Programme*

Section 4.3: *Terms and Conditions*

THE Generator COMPANY A DIVISION OF TGC INTERNATIONAL LTD

Section 4.1: Pricing Schedule

Project manage in accordance with TGC standard procedures, design, manufacture, works test, supply, deliver, supervise off load and positioning, install, commission, strictly as described within.

Item	Description	Cost
1	1 off 440kVA/352kW 400V 50Hz generator c\w local generator control panel ComAp InteliGen and local 630A generator circuit breaker and standard factory acceptance test.	
2	Fuel system comprising 2000ltr daily service fuel tank, vent, and feed/return pipework.	
3	Acoustic enclosure comprising air inlet and discharge attenuators 75dBA@1m FFC, radiator flexible.	
4	Exhaust system comprising exhaust silencers 75dBA@1m, bellows.	
5	Electrical installation. (All cable away from generator by others) Supply only installed by others	
6	Delivery and offload/position labour (Hiab included).	
7	Commissioning, utilizing a temporary resistive load bank, IST Test and Training. First fill of fuel and fuel for commissioning and SAT	
8	O&M Manuals.	
9	Project Management, design, drawings and documentation.	

Optional Costs

Item	Description	
1	**FAT** The Witness Test would be conducted once the set is installed within its acoustic canopy at our premises, it will be to our standard test procedure, this is based on the ISO8528-6 Test Procedures with exceptions, a copy of this (with comments) is available on request. We have included for a suitably sized **RESISTIVE** loadbank for this test, 1 of our commissioning engineers and fuel sufficient for a 3-hour run. The test is scheduled for a single set on a single day and will be for duration of 3- hours. Please note we have made provision within these costs for travel expenses occurred by the customer in attending the test...	N/A
2	**Stage V Generator** Volvo TAD1382GE stage V generator with Ab Blue system and particulate filter install to meet emission regulations. The total value price above would be	N/A
3	**ATS Panels** 1 x 400-amp Ats panels as per attached data sheet. (These are standard ATS panels no by-pass)	N/A now in PBG
4	**ATS Panels** 1 x 630-amp Ats panels as per attached data sheet. (These are standard ATS panels no by-pass)	
5	**Catalytic converter** To supply and install a Cat in the exhaust silencer	N/A

The Generator COMPANY A DIVISION OF TGC INTERNATIONAL LTD

6	**Maintenance Contract option** Provide a twelve-month maintenance contract based on two visits over a twelve-month period. Inclusive of 1 x lube oil analysis. Price based per set.	N/A

THE Generator COMPANY A DIVISION OF TGC INTERNATIONAL LTD

Section 4.2: Programme

At the time of quoting, we anticipate that drawings will be available within 3-5 working weeks of receipt of firm order and design information.

Dispatch of the plant could be affected typically within 24-28 working weeks ex our works, dating from receipt of a finalised order. TBC once order placed

Indicative programme subject to time of PO placement:

Week 1	Receive PO.
Week 2	Accept PO.
Week 3	Issue Tech Sub for Long Lead Items.
Week 4 to 24	Manufacturing lead time for Generator and main components.
Week 25	Delivery of equipment.
Week 25 to 27	Installation.
Week 28	Commission & Training.

Notes:

Firm and improved programmes may be available subject to application at time of order.

Delays in issuing information required to complete our design or delay's in providing drawing approval will have an adverse effect on the projected programme.

THE Generator COMPANY A DIVISION OF TGC INTERNATIONAL LTD

Section 4.3: Terms and Conditions

Validity

The quoted costs are strictly net and are open for acceptance for a period of 30 days from the date of this quotation. This price is fixed till October 2024.

THE Generator COMPANY A DIVISION OF TGC INTERNATIONAL LTD

Section 5: Data Sheets

:

Section 5.1: *Generator Data Sheet*

Section 5.2: *Generator Controller Data Sheet*

Section 5.3: 630A ATS Panel *Data Sheet*

Section 5.4: 400A AST Panel Data sheet option

THE Generator COMPANY A DIVISION OF TGC INTERNATIONAL LTD