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SEDIBENG TVET COLLEGE
"GROW WITH THE FLOW"

SCOPE OF WORKS FOR THE SUPPLY AND INSTALLATION OF THE BACKUP GENERATOR AT VANDERBIJLPARK CAMPUS, SEDIBENG TVET COLLEGE.

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For:

VANDERBIJLPARK CAMPUS – SEDIBENG TVET COLLEGE
Represented by: Ms Thandiwe Mbhem (Project Managers)

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Project Name	Back-up Generator
Project Description	Supply and installation of backup generators.
Client	Sedibeng TVET College, Vanderbijlpark Campus.
Current Project Phase	Pre-contract

1. TENDER OBJECTIVE

The employer's aim with this tender process is to procure the services of a competent and experienced electrical contractor who will supply, install, commission and maintain a backup generator system for Sedibeng TVET college, Vanderbijlpark campus.

The aim of the project is to mitigate the disruptions brought on by power interruptions because of load shedding and/or other network faults.

2. SCOPE OF THE WORKS

This scope covers the complete design, manufacture, factory testing, delivery to site, civil works, rigging of key equipment into position, installation and commissioning and testing of backup diesel generators with associated ATS, switchgear equipment and LV busbar and cabling into existing campus network.

In addition to the required compulsory tender site inspection, tenderers are required to inspect the existing campus LV supply network, necessary space required to place their proposed installation and make the necessary cost allowances required for a complete working installation.

INSTALLATION OF 200KVA GENERATOR AND DISTRIBUTION CABLES	
No	Description
1	Supply and install a 200 KVA backup diesel generator with accompanying silent canopy set, 200 KVA ATS Panel and integrated control system. Generator to be placed on a bounded purpose-built plinth as recommended by the generator manufacturer.
2	Intercept the incoming cable and pull it back
3	Install the existing cable in the generator ATS and run a new cable from the generator ATS to the minisub LV side
4	Install required cabling with the required trenching as per general electrical specification and supplied bill of materials
5	All control cabling and wiring to facilitate full emergency backup power system
6	Complete generator control and synchronising system to function so as to provide a fully automatic backup generator system with a fully functional facility for the interface of alarms as well as data logging
7	Generator to include an exhaust silencer so as not to exceed a noise level of 75 decibels at a distance of 7 meters
8	Complete civil works associated with; breaking concrete, excavating, site grading, concrete plinth, and pipe trenches to be included in the scope
9	Onsite commissioning and testing of the complete generator installation
10	Issuing of a certificate of compliance for the full installation
11	Perform routine and maintenance on the new installation for a period of 3 years
12	Supply, Deliver and install soundproof canopy for existing 500kVA generator

14	Supply and installation of 50mm² PVC/SWA/PVC/PVC 4 core [From Main Kiosk (B- Block) to Main BD - C Block] including earth wire and Cable terminations complete with glands, shrouds, lugs, connections and commissioning
15	Supply and installation of 120mm² PVC/SWA/PVC/PVC 4 core [From Main Kiosk (B- Block) to Main DB - L Block] including earth wire and Cable terminations complete with glands, shrouds, lugs, connections, and commissioning
16	Supply and installation of 185mm² PVC/SWA/PVC/PVC 4 core [From Main supply to Main BD - Main Kiosk B- Block] including earth wire and Cable terminations complete with glands, shrouds, lugs, connections and commissioning
17	Supply and installation of new circuit breakers. These should be Schneider, ABB, CBI or Hager or Similar approved
	(a) new 600A CB 25KA, inside minisub
	(b) new 600A CB 25KA, inside Main Kiosk (B- Block)
	(b) new 200A CB 25KA, inside Main BD - L Block

Specifications for Generators is as follows

Supply and Installation of New 200KVA x 1 Generator that will supply the Kitchen, H- Block and Auditorium.

200KVA 3 Phase Silent Diesel Generator (GKY-220)

Generator Specification

Standby Power : 220kVA@ 230/400v | 50Hz | 1500rpm
YTO six-cylinder water-cooled YM6H4L-D88EF-U2 diesel engine
Prime power (PRP) : 200kVA
Ideal for business applications
Dimensions (LxWxH) : 3450mm x 1300mm x 1800mm
Dry Weight: 2775kg
Starts & Stops Automatically
Maintenance-free Battery

Silent Weatherproof Mild-steel Canopy
Long-range Fuel Tank
Easy Cable Entry
Emergency Stop Button
Weatherproof Exhaust System

Engine Specifications

GKOS 22	CUMMINS 42KVA 3 PHASE (GKC-46)
Diesel generator model	YM6H4L-D88EF-U2
Engine make	Diesel Engine
Displacement	8.822l
Cylinder bore/Stroke	120mm x 130mm
Fuel system	In-line fuel injection pump
Fuel pump	Electronic fuel pump
Cylinders	Six (6) cylinders, water cooled Engine output power at 1500rpm 186kW
Turbocharged or normally aspirated	Turbocharged
Cycle	Four stroke
Combustion system	Direct injection
Compression ratio	17.5:1
Fuel tank capacity	630l
Fuel consumption	100% 47.7 l/h
Fuel consumption 75%	35.7 l/h
Fuel consumption 50%	23.8 l/h
Fuel consumption 25%	11.9 l/h
Oil type	CD-15W-40
Oil capacity	23l
Cooling method	Water-cooled radiator and fan
Coolant capacity (engine only)	40l
Starter	24v DC and charge alternator
Governor system	Electronic
Engine speed	1h500rpm
Filters	Replaceable fuel filter, oil filter and dry element air filter
Battery Maintenance	free battery including rack and cables Silencer Exhaust silencer

Alternator Specifications

GKOS 22	FAW 22 kVA Single Phase
Alternator brand	Stromer
Standby power output	220kVA
Prime power output	200kVA
Insulation class	Class-H with circuit breaker protection
Type	Brushless
Phase and connection	Three phase, four wire Automatic voltage regulator (AVR)
	✓Included

AVR model	SX460
Voltage regulation	± 1%
Voltage	230/400v
Rated frequency	50Hz
Voltage regulate change	≤ ±10% UN
Phase change rate	± 1%
Power factor	0.8ϕ
Protection class	IP23 Standard | Screen protected | Drip-proof
Stator	2/3 pitch
Rotor	Single bearing
Excitation	Self-exciting

Contractor should note that all extended power interruptions shall be done after working hours or during weekends.