

KENYA ELECTRICITY GENERATING COMPANY LTD



KGN-HYD-022-2017

TENDER FOR MANUFACTURE SUPPLY TESTING AND COMMISSIONING OF AN EMERGENCY DIESEL GENERATOR FOR KAMBURU HYDRO POWER STATION

ADDENDUM 1

18/09/2017

The clauses listed have been amended to read as written in the amended article column

	REQUIREMENT	AMENDMENT
1.	Amendment of Section VI, Technical Specifications, clause 6.5.1: diesel engine specifications	<i>The clause is amended as follows: The bidder shall supply a diesel engine rated 400kW, ESP (Emergency Standby Power). The engine shall be an in-line ('L') engine type with individual cylinder head. See below revised 'Table 6: Engine Set Specifications summary' of the tender document.</i>
2.	Pg. 53. Item 12 (c): clarification on firefighting equipment to be supplied for the EDG house	<i>Diesel generator house shall be fitted with a fire protection system comprising of a deterrent system (using a fuel cut off fuse) and a compressed Air foam system (CAFS) suppression system. The fuel cut off fuse shall cut off the fuel supply from the tank in case of a fire. The CAFS suppression system shall be a stored energy type. The system shall be manually activated in the event of a fire. <u>Specifications of the CAFS system:</u> <u>The pressure vessel specifications:</u> Pressure vessel capacity shall be 220Litres.</i>

		<p><i>Pressure vessel Type: shall be 2:1 ASME code head – elliptical type, built to ASME Code standards.</i></p> <p><i>Pressure vessel Construction: shall be made from Carbon steel with a 24inch diameter</i></p> <p><i>The interior shall be Lined with a protective coating</i></p> <p><i>Draw Tube shall be Specially Designed for Interior CAFS Mixing</i></p> <p><i>System Hoses shall be Braided Stainless Steel</i></p> <p><i>Plumbing: All fittings shall be Brass Fittings</i></p> <p><i>Discharge Hose shall be 1inch x 30.5m Booster Hose</i></p> <p><i>Hose Storage: shall be a Hose Reel</i></p> <p><i>Expellant Type shall be Nitrogen, housed in two (2) Expellant Cylinder of 55 Cubic Foot Capacity</i></p> <p><i>The bottles shall be secured SCBA Clip Type Bottle Bracket with Back Plate and Retainer Strap</i></p> <p><i>Regulator shall have two pressure gauges with bronze fitting</i></p> <p><i>Discharge Nozzle shall be 1inch Chrome Plated with Shutoff</i></p> <p><i>Discharge Tip shall be made of Aluminum Straight Bore</i></p> <p><i>The CAFS system shall be compatible with Class A - B – D Foam</i></p> <p><i>Frame Construction of the CAFS shall be Welded Aluminium</i></p> <p><i>The equipment shall have Powder Coated Finish</i></p> <p><i>CAFS output of 1inch diameter capable of releasing foam solution at the rate of 45litre/min, and a total of 22000litres finished form</i></p> <p><i>The minimum discharge range shall be a sustained 16m</i></p>
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		<i>The system design shall comply with NFPA 11-2016.</i>
	Amendment of Section VI, Technical Specifications, clause 6.13: Inspection and Testing:	<p><i>FAT: Factory Acceptance Tests shall include</i></p> <ul style="list-style-type: none"> • <i>EDG step load acceptance tests and dummy load tests</i> • <i>Power cubicle temperature rise test</i> • <i>Daily service fuel tank hydraulic test</i>
3.	Amendment of Section VI, Technical Specifications, clause 6.6.2: Supply of Power cable	<i>The bidder may supply a single four core cable as specified in the tender, or single core XLPE cables, armoured and PVC sheathed. If the bidder however opts to supply the single core cables, the bidder shall also provide clamps for clamping the four cores that will run the entire length and shall also be colour coded using approved sheaths at the points of termination for ease of identification as per IEC 60445 and IEC 60227-1. The clamps shall be subject to approval by the client.</i>
4.	Addendum on Section VI: Clause 6.13: Inspection & Testing: Reliability run after commissioning	<i>Reliability Run: After completion of the commissioning tests, the EDG shall be run at no load for one hour. Thereafter the EDG shall be run continuously for 72 hours on station load-this load shall be less than or equal to the EDG rating. The bidder shall supply the fuel oil required for the reliability run. During this reliability run, the EDG shall supply all the station loads without anomalies or trips. Should there be anomalies, the bidder shall rectify these anomalies soonest possible, then resume the reliability run. The run will be assumed to have been stopped, due to an anomaly, at the earliest time when the anomaly was noticed. Should more than two trips, attributed to the performance of the EDG occur, the hours run shall be lost and reliability shall</i>

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		<i>be deemed not to have been carried out, and thus the run shall begin afresh after the bidder corrects all anomalies. The reliability run shall be deemed successful after a continuous run of 72hours with ≤ 2 trips, which should have been rectified as soon as they are noted. After completion of the run, the EDG shall be serviced by the bidder and assisted by the client's staff. All materials consumed during the service shall be supplied by the bidder.</i>
5.	Bid submission date	<i>Due to the amendments in the tender documents through this addendum, the bid submission period has been extended by 26th September 2017 at 10.00 a.m. to 12th October 2017 at 10.00 a.m.</i>

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Engine Set Specifications:	
Engine Rating	400kW, ESP (Emergency standby Power)
Air intake system	Turbocharged, after-cooled
Speed	1500rpm
Cylinder Arrangement	In-Line Engine with individual cylinder heads
Combustion System	Direct Injection
Air inlet	Mounted Air filter
Time required from cold start	10Sec
Interval between starting impulse	10sec
Number of starting impulses	3
Type of Governor	EFC (Electronic Fuel Control, A1
Guaranteed limits of governing	As per Class A1 BS 5514
Method of Aspiration	Turbo charged After cooled
Method of Cooling of Engine	Radiator cooled Engine
Method of cooling of Lubricating Oil	Water Cooled
Air Filter Cum Silencer	Dry type with replaceable paper element
Diesel Storage Capacity	At least 6hours operation
Cycles	4Stroke
Method of starting	24VDC
Compression Ratio	17:1
Rated speed	1,500rpm
Rotation	Anti-clockwise, viewed on flywheel
Cooling system	Water cooled, designed for ambient temperature of up to 50°C
Governing type	Electronic
Governing class	ISO 8528 G2
Starting	Key Start/ Auto-start
Protection for environment:	Filters on air inlet and air outlet (IP27)
Frequency Regulation, Steady State:	± 0.25
Sudden Frequency Warp [100% Sudden Reduce]	$\leq +1\%$
Sudden Frequency Warp [Sudden Increase]:	$\leq -1\%$
Frequency Recovery Time [100% Sudden Reduce]	$\leq 5s$
Frequency Recovery Time [Sudden Increase]:	$\leq 5s$
Noise Level:	<80dB.

Table 6: Engine Set Specifications Summary - revised

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ACKNOWLEDGEMENT OF ADDENDUM 1

We, the undersigned hereby certify that the Addendum is an integral part of the document and has been incorporated in the tender document.

Signed

Tenderer:

Date