To: **Company management**

REQUEST FOR PROPOSAL

Company Ltd. is working out the issue of purchasing "SILVER OIL TRANSFORMATOR" in quantity of 3 units, to the Republic of Uzbekistan, according to the following requirements:

Name:
Power double-winding transformer with split winding of lower voltage type TRDN 63000/110 (115)/6 (10) U1 (hereinafter referred to as TRDN)
or energy efficient and more productive analogs.

Structure of conventional designation TRDN-63000/110 U1:
T - three-phase
P - split LV winding
E - forced air circulation and natural oil circulation
H - with on-load tap-changer
63000 - power, kV A
110 - voltage class of HV winding, kV
6,3 - LV winding voltage class, kV
U1 - climatic design and placement category

Information on novelty (year of production/issue of equipment)

RDN (including component parts), must be new, not earlier than 2023 year of manufacture (not used, repaired, preserved, not assembled from reconditioned units and elements, which has not been replaced with component parts, as well as have not been restored consumer properties, it is not allowed to supply exhibition or prototypes).

Scope of application

In accordance with GOST 12965-85 "General purpose oil-filled power transformers of 110 kV voltage classes" are used for power supply of Copper Concentrator.
The 63,000 kV-A three-phase double-winding oil-filled power transformer (TRDN) is designed to convert three-phase alternating current with rated voltage of 115 kV into three-phase alternating current with rated voltage of 6.3/6.3 kV at 50 Hz and is designed for operation in open electrical installations.

General operating conditions

TRDN (including component parts), operated in MOF conditions, climatic condition of operation U1, in areas with moderate climate with placement category 1 (outdoors) according to GOST 15150-69, Operating temperatures °C -45 / +40 Limit operating temperatures °C -50 / +45

Additional/special requirements for operation

No remarks on the quality of goods and maximum operating time of TRDN (including component parts) in accordance with the Customer's requirements.
The transformer in terms of the impact of climatic factors of the external environment shall comply with the group of operating conditions M2 of GOST 17516.1-90, safety requirements of GOST 12.2.007.2-75, GOST 12.2.003-74, GOST 12.2.024-76,
GOST 12.1.004-91, as well as GOST 12965-93, GOST 12965-93.
TRDN operation mode is round-the-clock (S1).

Requirements for equipment operating costs

*In accordance with the manufacturer's NTD to provide information on the service life of the goods, the warranty period of the transformer is established in accordance with GOST 11677-85***.**

Basic technical requirements

In accordance with GOST 11677-85, as well as those specified in Appendix No. 1.
The participant of procurement procedures can (has the right) to offer delivery of any other manufacturers' power oil three-phase two-winding power transformers (TRDN with the capacity of 63 000 kV A) with characteristics that are improved and exceed the indicators, as well as with higher performance and energy efficiency not inferior to the stated minimum requirements (parameters) in this Technical Assignment, subject to the compatibility (integration) of the dimensions of the proposed Transformers power oil three-phase double-winding (TRDNmot 63 000 kV A), with the mandatory submission of the original international quality certificate.

Main technical, economic and operational indicators

In accordance with GOST 11677-85, and the supplier must guarantee the customer a minimum operating life of the equipment under the condition of proper operation.
Reliable and accident-free, trouble-free operation of the goods during the entire warranty period of operation.
Robust construction combined with the highest quality of wear-resistant materials and assembly shall ensure long service life and trouble-free operation even under the most difficult operating conditions. Fulfillment of the main operational indicators of spare parts established by production norms, standards and reliability guarantee, quality from the manufacturer should be characterized by the following values of reliability indicators:
1) Installed failure-free operation, not less than 25000 hours from the date of commissioning; 2) Service life before the first overhaul, not less than 12 years; 3) Full service life of the goods is set by the manufacturer, but not less than 25 years according to GOST-11677-85, with the manufacturer's *(performer, seller) is*

obliged to provide the consumer with necessary and reliable information in a timely manner regarding spare parts, which must necessarily contain information on their service life.

Design requirements, installation and technical requirements

The magnetic system is of three-rod, single-frame construction made of coiled electrical steel with insulating coating.
The rods are pressed by glass tape bandages, the yoke pressings are made by yoke beams tightened by steel half-bandages. The magnetic system is grounded through the yoke beams to the transformer tank. Cylindrical windings are concentrically placed on the frame bars.
HV windings are star-connected, HH1-HH2 windings are delta-connected.
Built-in current transformers are designed for maximum and differential current protection and measuring devices.
The transformer is equipped with: two current transformers on the HV line inputs, two current transformers in the neutral of the input. On the LV side the bushings are installed. The transformer is cooled by radiators, each of which is blown by two fans.
The blowing unit is supplied from a three-phase network with a voltage of 380 or 220 V.
The transformer is equipped with an automatic control cabinet. The expander is piped to the transformer tank and has an arrow oil indicator.
The transformer is equipped with air dryer, safety valve, thermosiphon filter, manometer thermometer sensors, clamping box, gas relay of voltage regulator, gas relay of transformer. The transformer tank is split, bell-type.
The active part of the transformer is lifted by lugs in the upper yoke beams, the upper part of the tank or fully assembled transformer is lifted by lifting devices. For moving within the substation, the transformer is equipped with swivel rollers with flanges. The transformer is equipped with a ladder. On-load voltage regulation (on-load tap-changer) is carried out by a switching device with a drive on the HV side.

Name	**Parameters**	
Normative document for manufacturing	GOST 12965	
Rated power, kVA	63000	
Number of phases/frequency, Hz	3/50	
Rated winding voltage, kV	VN	115
	NN	6,3-6,3
External insulation level	B (reinforced category II according to GOST 9920)	
110 kV inputs	110kV inputs	
Schematic and winding connection group	Un/D-D-11-11-11	
Control method and range on the HV side	on the HV side	
On-load tap-changer type	vacuum type	
Type of on-load tap-changer drive	motor drive	
Auto controller	AVR	
Short-circuit voltage on the main branch, related to rated power, %	VN-NN	10,50
	NN1-NN2	30,00
	VN-HH1	20,00
	VN-HH2	20,00

No-load current, % not more	0,50
No-load losses, kW not more	50,0
Short-circuit losses, kW within the range of	245
Type of cooling system (AN,ONAN,ONAF)	ONAF (Д)
Type of transformer oil	GC
Jet relay for on-load tap-changer protection	55/130
Тип газового реле	Double float
Т ермосигнал изатор	OTI WTI
Built-in current transformers: HV, Neutral	Bushing CT
Electric motors supply voltage, V	380V / 50Hz
Oil gauge type	45#
Shape of rollers	Ribbed
Track longitudinal, transverse, mm	1524x2000
Type of packaging and method of transportation	Partial rail, by road

Bid currency: Currency of the country of origin.
Delivery terms: FCA/FOB (INCOTERMS 2010).

Place of shipment of equipment and country of origin: specify in the quotation.

The proposal shall state:

- The term of the proposal

- Production period

- Term of preparation for transportation (obtaining export documentation, packaging, third party inspection, etc.).

- Warranty period.

Please submit your TAC by November 20, 2023 (inclusive).