



Oil & Gas Development Company Limited

TE # FM/NSP/03/2019

**ATTACHEMENT FOR Web tender #**  
**(TE # FM/NSP/03/2019)**

**DESIGN, FABRICATION AND SUPPLY OF STEP-UP& STEP-  
DOWN TRANSFORMER 630 KVA FOR NASHPA**

Prepared by:	Ahmed Zia (DCE-Elect-N)	Doc: BOQ AND SPECS
		Rev: 0

**SCHEDULE OF REQUIREMENT****DESIGN, FABRICATION AND SUPPLY OF STEP-UP & STEP-DOWN TRANSFORMER**

S. No.	Description	Reference Specs./ Drawing No.	Unit	Qty	Unit Rate	Amount (Rs.)
1	Supply of 630 KVA, ONAN type, 0.4 kV/3.3 kV, Dyn11 step-up transformer as per Doc. No. Trafo-specs-01 complete with Buchholz relay, moisture analyzer, gauge glass oil indicator and all the required indications & protections and weather/ water proof terminal box. Complete in all respects.	Trafo-specs-01 Single line-01	No.	1		
2	Supply of 630 KVA, ONAN type, 3.3 kV/400V, Dyn11 step-down transformer as per Doc. No. Trafo-specs-01 complete with Buchholz relay, moisture analyzer, gauge glass oil indicator and all the required indications & protections and weather/ water proof terminal box. Complete in all respects.	Trafo-specs-01 Single line-01	No.	1		
3	Factory Acceptance Test (FAT) of item No. 1&2. <i>(The objective of the FAT is to verify that the offered transformer meet the requirements as specified in Doc. No. Trafo-specs-01. The FAT shall be a 100% complete system functional test and shall be witnessed by (02) numbers of OGDCL representative(s) at manufacturers' workshop. Expenses including fare, boarding &amp; lodging shall be borne by the Supplier. Complete in all respects.)</i>		Job	1		Free of cost
4	Site Acceptance Test (SAT) of item No. 1&2.		Job	1		Free of cost

Grand Total= Rs:

**Notes:**

- 1- The Supplier shall be responsible for the Factory Acceptance Test and Site Acceptance Test of supplied equipment.
- 2- The sizes as specified above for cable entry.
- 3- It is the responsibility of Supplier to transport the equipment safely at site.
- 4- The Supplier shall provide the civil foundation details for the offered transformer.
- 5- Civil works shall be done by OGDCL.
- 6- The Supplier shall provide the installation, operation and maintenance manuals for the offered transformers.
- 7- The Supplier shall provide certification as per DOC# trafo-specs-01 (attached) and clearance from GOP if required.

## **TERMS AND CONDITIONS**

Sealed bids are invited under Competitive Bidding Procedure on Single Stage Single Envelope Bidding Procedure. The bid shall contain financial proposal and technical proposal in single envelopes.

01. Technical proposals will be evaluated as per TOR/SOR and proposals which does not conform to the standards and criteria in TOR/SOR will be rejected. Financial proposals of only technically qualified suppliers will be considered.
02. Bidders are required to download the master set of tender documents from [www.ogdcl.com](http://www.ogdcl.com) under the title "Tender". Bidder shall follow the instruction mentioned in the master tender documents.
03. 100% payment will be made through cross cheque only payable to Suppliers Company after completion of assignment (supply of material) and submission of invoices with required documents and completion of store and accounts procedures and duly verified by I/C Electrical & Field Manager of Nashpa Plant.
04. All admissible taxes will be deducted as per rules.
05. Transportation/Mobilization of transformers will be on the part of the supplier.
06. Unloading of transformers at OGDCL premises will be provided by OGDCL at site under supplier's supervision. OGDCL will not be responsible for any damage occurred during unloading.
07. Bidders are required to quote as per schedule of requirement Annex "A". Price quoted shall include all applicable taxes.
08. Delivery period will be 60 days after issuance of PO.
09. Charges of any damage caused to any OGDCL equipment / appliances resulting from malfunctioning of transformers at time of commissioning will be charged from supplier as per actual.
10. The transformers must be brand new.

 <p>Oil &amp; Gas Development Company Limited</p>	Indent No. FM/NSP/03/2019
	TE No. FM/NSP/03/2019
	Spec. No. Traffo-specs-01

## SPECIFICATIONS SHEET FOR DISTRIBUTION TRANSFORMER

Prepared by:	Ahmed Zia (DCE-Elect-N)	Doc: Traffo-SPECS-01
		Rev: 0

ITEM No.	DESCRIPTION	UNITS	REQUIRED	OFFERED
	<b>GENERAL</b>			
1	REQUIRED FOR		NASHPA OIL & GAS FIELD	
2	LOCATION		NASHPA	
3	EQUIPMENT DESCRIPTION		DISTRIBUTION TRANSFORMER	
4	EQUIPMENT TAG		TBA	
5	QUANTITY		01	
6	AREA CLASSIFICATION		SAFE AREA	
7	<b>MANUFACTURER INFORMATION</b>			
8	MANUFACTURER NAME		VTA	
9	PLACE OF MANUFACTURE		VTA	
10	APPLICABLE STANDARD		IEC-60076	
11	MODEL		VTA	
12	<b>APPLICABLE DOCUMENTS</b>			
13	SPECIFICATION FOR DISTRIBUTION TRANSFORMER		Trafo-144-01	
14	SINGLE LINE DIAGRAM		Single line-01	
15	<b>SITE CONDITIONS:</b>			
16	LOCATION OF DISTRIBUTION TRANSFORMER		OUTDOOR	
17	SITE ALTITUDE	ft.	2700	
18	MAXIMUM DRY BULB SHADE TEMPERATURE	°C	48	
19	MINIMUM DRY BULB SHADE TEMPERATURE	°C	0	
20	DESIGN TEMPERATURE FOR DISTRIBUTION TRANSFORMER (Max. / Min.)	°C	48/0	
21	<b>SUPPLY SYSTEM DATA</b>			
22	SUPPLY VOLTAGE	kV	400V ± 10%	
23	FREQUENCY	Hz	50 ± 2	
24	CONTROL SUPPLY	V	230VAC	
25	3.3 kV SYSTEM FAULT LEVEL MIN.	kA	TBA	
26	3.3 kV SYSTEM FAULT LEVEL MAX.	kA	TBA	
27	<b>DISTRIBUTION TRANSFORMER GENERAL CHARACTERISTICS</b>			
28	DUTY		Continuous	
29	RATED POWER	kVA	630 @ SITE	
30	RATED PRIMARY VOLTAGE FOR STEP-UP & FOR STEP-DOWN	kV	0.4 & 3.3	
31	RATED SECONDARY VOLTAGE FOR STEP-UP & STEP-DOWN	kV	3.3 & 0.4	
32	RATED FREQUENCY	Hz	50	
33	NUMBER OF PHASE	Ø	3	

ITEM No.	DESCRIPTION	UNITS	REQUIRED	OFFERED
	<b>GENERAL</b>			
34	VECTOR GROUP		Dyn 11	
35	<b>INSULATION SYSTEM</b>			
36	INSULATION CLASS		F	
37	BIL		As per IEC 60076-3	
38	TYPE OF INSULATION		Oil Immersed Conservator System	
39	OIL TYPE		class I oil confirming to IEC 60296.	
40	TRANSFORMER OIL DIELECTRIC STRENGTH		Min 45 KV and when de-hydrated >60 KV	
41	<b>COOLING SYSTEM</b>			
42	TYPE OF COOLING		ONAN	
43	INSULATING LIQUED		MINERAL OIL	
44	<b>PRIMARY WINDING</b>			
45	WINDING CONSTRUCTION MATERIAL		Copper	
46	MAXIMUM CURRENT DENSITY IN WINDING		VTA	
47	RATED PRIMARY CURRENT		VTA	

ITEM #	DESCRIPTION	UNITS	REQUIRED	OFFERED
	<b>GENERAL</b>			
48	CONFIGURATION (STEP-UP AND STEP-DOWN)		WYE AND DELTA	
49	<b>SECONDARY WINDING</b>			
50	WINDING CONSTRUCTION MATERIAL		Copper	
51	MAXIMUM CURRENT DENSITY IN WINDING		VTA	
52	RATED SECONDARY CURRENT		VTA	
53	CONFIGURATION (STEP-UP AND STEP-DOWN)		DELTA AND WYE	
54	<b>TEMPERATURE RISE</b>			
55	TOP OIL TEMPERATURE RISE	° C	51	
56	AVERAGE WINDING TEMPERATURE RISE	° C	56	
57	<b>ELECTRICAL AND MECHANICAL CHARACTERISTICS</b>			
58	METHOD OF SYSTEM EARTHING		Solidly Earth	
59	TANK EARTING EARTHING POINTS		Required	
60	SKID EARTHING POINTS		Required	
61	NO LOAD CURRENT (PRIMARY) AND POWER FACTOR		VTA	
62	IMPEDANCE VOLTAGE AT PRINCIPLE TAP AND RATED CURRENT AS PER IEC 60076-5 TABLE-1	%	VTA	
63	PRIMARY RATED CURRENT	A	VTA	
64	SECONDARY RATED CURRENT	A	VTA	
65	PEAK INRUSH CURRENT	A	VTA	
66	TIME TO HALF PEAK CURRENT	Sec	VTA	
67	CORE FLUX DENSITY	weber/ m2	VTA	
68	PRIMARY WINDING RESISTANCE PER PHASE (COLD)	ohm	VTA	
69	SECONDARY WINDING RESISTANCE PER PHASE (COLD)	ohm	VTA	
70	PRIMARY SYSTEM APPARENT SHORT CIRCUIT RATING		As per SLD	
71	SECONDARY SYSTEM APPARENT SHORT CIRCUIT RATING		As per SLD	
72	MAXIMUM SHORT CIRCUIT DURATION		1 sec	
73	NO-LOAD LOSSES	kW	VTA	
74	LOAD LOSSES	kW	VTA	
75	TOTAL LOSSES	kW	VTA	
76	GUARANTEED EFFICIENCY (AT 0.8 PF) AT 100%, 75% 50% OF CONTINUOUS MAXIMUM RATING EFFICIENCY AT UNITY POWER FACTOR & 100 % / 50 % RATED CURRENT		VTA  ≤ 98.43 % / ≤ 99.03 %	
ITEM #	DESCRIPTION	UNITS	REQUIRED	OFFERED
77	MAXIMUM EFFICIENCY AT % OF CONTINUOUS MAXIMUM RATING		VTA	
78	MAXIMUM UNBALANCED LOAD CAPABILITY AND DURATION		VTA	
79	VOLTAGE REGULATION			

79.1	-AT PF 1.0 & rated current		> 1.59 % and exact value = VTA	
79.2	-AT PF 0.85		≥4 % and exact value = VTA	
80	CORE MATERIAL		VTA	
81	CORE TYPE		VTA	
82	<b>ENCLOSURE OF TRANSFORMER</b>			
83	ENCLOSURE TYPE		Tank	
84	MATERIAL OF TANK		Steel	
85	TANK CONSTRUCTION TYPE		As per doc .(Trafo-144-01)	
86	RADIATOR MATERIAL		VTA	
87	NUMBER OF RADIATORS		VTA	
88	DEGREE OF PROTECTION FOR ENCLOSURE		IP 65	
89	TANK COVER TYPE		Welded or Bolted	
90	BREATHING TYPE		Required, Dehydrating Type	
91	<b>TAP CHANGERS</b>			
92	TAP CHANGER TYPE		OFF LOAD	
93	TAP CHANGER RANGE		5.0,0-2.5-5-7.5	
94	NUMBER OF TAP POSITIONS		5	
95	CAPACITY		Full Power Rating	
96	OPERATING HANDLE WITH PADLOCK FACILITY		Required	
97	<b>NOISE LEVEL</b>			
98	NOISE LEVEL	dB A	Not more than 65dB A at 0.3 Meter	
99	<b>PRIMARY/SECONDARY CABLE CONNECTION</b>			
100	CABLE TERMINATIONS		0.4 KV Y (4 core cable) / 3.3 KV Δ ( 3 core cable)	
101	CABLE TYPE		Specified at S# 132	
102	TYPE OF BUSHING		IEC-60137	
103	BUSHINGS (DIMENSION, IMPULSE, LOW-FREQUENCY INSULATION LEVELS AND OTHER CHARACTERISTICS)		VTA	
104	PROTECTIVE ENCLOSURE		Complete With Cable Glands Air Insulated Type	
105	IP RATING		IP 65	
106	MINIMUM CLEARANCE BETWEEN LIVE METAL AND DIFFERENT PHASES	mm	As Per IEC 60076-3	
107	MINIMUM CLEARANCE BETWEEN LIVE METAL AND EARTH	mm	As Per IEC 60076-3	
108	MINIMUM CREEPAGE DISTANCE OVER INSULATOR	mm	As Per IEC 60076-3	
109	<b>ACCESSORIES AND AUXILIARIES</b>			
110	WINDING TEMPERATURE MONITOR DEVICE WITH CONTACTS		Required RTD / Thermistor	
111	OIL TEMPERATURE (DIAL TYPE) MONITOR DEVICE WITH CONTACTS		Required	



ITEM #	DESCRIPTION	UNITS	REQUIRED	OFFERED
112	OIL LEVEL GAUGE WITH CONTACTS		Required	
113	PRESSURE RELIEF VALVE WITH ALARM CONTACTS		Required	
114	PRESSURE / VACUUM GAUGE		Required	
115	THERMAL PROTECTION RELAY (49)		Required	
116	BUCHOLZ RELAY (Gas & Liquid Actuated)		Required	
117	BOTTOM DRAIN VALVE		Required	
118	TOP VENT VALVE		Required	
119	FILTER CONNECTION VALVE NEAR THE TOP OF THE TANK		Required	
120	RATING PLATE		Required	
121	JACKING PADS AND PULLING EYES		Required	
122	HOOKS FOR HORIZONTAL TRACTION		Required	
123	BI-DIRECTIONAL ROLLERS (WHEELS)		Required	
124	<b>CABLES</b>			
125	MV CABLE TYPE		XLPE/SWA/PVC/CU	
126	MV CABLE SIZE		3 core 35 to 95 sq mm	
127	LV CABLE SIZE		XLPE/SWA/PVC/CU or PVC/SWA/PVC/CU, 4 core 120 to 240 sqmm	
128	CONTROL CABLE		VTA	
129	<b>MISCELLANEOUS</b>			
130	GROUNDING TERMINAL & SIZE		VTA	
131	-NEUTRAL GROUNDING		Required	
132	-TANK GROUNDING		Required,	
133	-MV and LV cable box		Required	
134	PAINT		VTA	
135	<b>REQUESTED SIGNALS (ALARMS)</b>			
136	WINDING TEMPERATURE ALARM & TRIP		Required	
137	OIL TEMPERATURE ALARM & TRIP		Required	
138	OIL RAPID PRESSURE RISE - TRIP		Required	
139	PRESSURE RELIEF DEVICE - ALARM		Required	
140	BUCHOLZ RELAY ALARM & TRIP		Required	
141	LIQUID LEVEL INDICATOR ALARM & TRIP		Required	
	<b>GENERAL</b>			
142	<b>WEIGHT &amp; DIMENSION</b>			
143	OVERALL HEIGHT	mm	VTA	
144	OVERALL WIDTH	mm	VTA	
145	OVERALL DEPTH	mm	VTA	

ITEM #	DESCRIPTION	UNITS	REQUIRED	OFFERED
146	DISTANCE BETWEEN ROLLER AXIS	mm	VTA	
147	CORE AND WINDING WEIGHT	kg	VTA	
148	TANK AND FITTING WEIGHT	kg	VTA	
149	OIL WEIGHT	kg	VTA	

ITEM #	DESCRIPTION	UNITS	REQUIRED	OFFERED
150	OIL VOLUME	Liters	VTA	
151	TOTAL WEIGHT	kg	VTA	
152	TOTAL TRANSPORTATION WEIGHT	kg	VTA	
153	<b>ROUTINE TESTS</b>			
154	ALL ROUTINE TESTS AS PER SPECIFICATION & IEC REQUIREMENT		Yes	
155	TYPE/ROUTINE TEST CERTIFICATES		Yes	
156	WITNESS / NOT WITNESSED		Witnessed	
157	SPECIFIC SITE TEST REQUIREMENT		Yes	
158	<b>DOCUMENTATION</b>			
159	COMPLETE DATA SHEET		With bid and after award	
160	GENERAL ARRANGEMENT DRAWINGS		With bid and after award	
161	WIRING DIAGRAMS		With bid and after award	
162	TEST REPORTS CERTIFICATES		After award	
163	FAT PROCEDURE		After award	
164	INSPECTION AND TEST PLAN		After award	
165	OPERATION & MAINTENANCE MANUAL		After award	
166	INSPECTION AND TEST PLAN		After award	

**NOTES:**

- 1 VTA = Vendor To advise  
TBA = To be advised

