

PROFORMA FOR PRICE BIDof “**Refer ANNEXURE-A,SI-1**”.

1. Name of the firm :
2. Name of the Proprietor :
3. Address and Contact Numbers:

1.0 PRICE BID FOR MAJOR OVERHAULING OF CHTU RGC (TURBINE AND COMPRESSOR)

SL NO	Activity list	Amount (In Rs.)
A	CHTU-RGC-Turbine (NK 25/28-3. T0933, weight 9 Ton)	
1	Removal of insulation and collection at designated places.	
2	Removal of all turbovisory instrument	
3	Removal of all connected oil and steam pipelines.	
4	Decoupling rotor and alignment checking. (Turbine to compressor)	
5	Dismantling of V1 and V2 valve servomotors and pilot valve assemblies.	
6	Opening of turbine front and rear end bearing housings.	
7	Checking of Turbine Rotor centering	
8	Loosening of turbine casing bolts with the help of bolt heating machine.	
9	Removal of turbine casing bolts.	
10	Removal of turbine top casing.	
11	Checking of thrust float and clearances.	
12	Checking run out and face out for turbine rotor at various locations.	
13	Dismantling of Emergency stop valves, extraction valves after proper locking.	
14	Record the elevation of the top and the bottom half-casing diaphragms.	
15	Dismantling and removal of all top half internals.	
16	Check steam flow path readings on bottom half.	
17	Lifting the turbine rotor from the casing and placing on the stand.	
18	Removal of the bottom half internals.	
19	Blast cleaning of turbine rotor, diaphragms and other components with alumina powder/Dry ice.	
20	Repair of all damaged fins.	
21	Cleaning of casing components.	
22	Check for cylinder deformation and blue matching of parting planes.	
23	Elevation transfer from the bottom casing to the top casing and recording final values.	
24	Placing rotor and record centering wrt oil guard bore and thrust bearings.	
25	Adjustment of fin tip clearances by grinding, filing etc. as necessary.	
26	Check and record the steam flow path clearances after box up of thrust bearing.	
27	Rotor float checking and adjustment if required (by using shims between bearing and carrier).	
28	Checking of blade radial clearances with top half carriers.	
29	Overhauling of the Emergency Stop Valves (2 Nos. one on each side).	
30	Overhauling of V1 and V2 valves and replacement of parts if required.	
31	Cleaning/replacement of lube oil filters and control oil filters. (New filters will be supplied by MRPL).	

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32	Cleaning of Main Oil Tank and the overhead tank and refilling with the same oil through purifier.	
33	Overhauling of servomotors and pilot valve assemblies of V1 and V2.	
34	Box up the top casing cover and torque to the required value.	
35	Record the casing gap at different locations.	
36	Box up the V1, V2 Servomotors and ESV.	
37	Lapping and blue matching of ESV flange to valve chamber.	
38	Coupling assembly, Bearing box up and clearance checking.	
39	Final alignment of Turbine with compressor.	
40	Assembly of all turbovisory instruments	
41	Oil flushing of entire lube oil/control oil system.	
42	Calibration (stroke checking) of ESV, V1 and V2 valves and match the values with the protocol values.	
43	Calibration for alarm and trips of the turbine safety system.	
44	Check the pressure of the oil accumulators and refill if required.	
45	Testing of the governing system.	
46	Testing of turning gear mechanism.	
47	Check the jacking oil pressure for turbine and adjust if required to get the required rotor lift.	
48	Put the machine on barring.	
(A) Turbine Total=		

B	CHTU-RGC-Compressor (BCL407/A, Weight 18.1 Ton)	
1	Disconnecting lube oil piping and seal oil piping.	
2	Disconnecting instrumentation cables from junction boxes and bearings.	
3	Removal of bearings.	
4	Removal of Dry Gas Seal.	
5	Removal of end cover & Bundles.	
6	loosening of head flange bolts.	
7	Removal of Casing, Diaphragms and rotor.	
8	Inspection of compressor casing, head flanges, fasteners, coupling guards.	
9	Bundle to rotor clearance check (axial and radial).	
10	Bearing clearance check and blue matching check.	
11	Inspection and testing of rotor, diaphragms, bearings, casing.	
12	Assembly of new labyrinth seal.	
13	Assembly of bottom diaphragm.	
14	Assembly of bundle without rotor, casing inner dimension check.	
15	Assembly of Bundle with the rotor.	
16	Assembly of End cover.	
17	Assembly of Dry Gas Seal	
18	Assembly of bearings and instrumentation cables.	
19	Check and record thrust float, adjustment if necessary.	
20	Coupling hub contact check and installation of coupling hub.	
21	Install bearing covers, coupling guards.	
(B) Compressor Total =		

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NON-DESTRUCTIVE TESTING ACTIVITIES

Sl No.	Component	Name of test	Amount
1	Rotor	MPI	
		UT	
		DP	
2	Journal Bearings	UT	
		DP	
3	Thrust Bearing Pads & collar	UT	
		DP	
4	Casing	MPI	
		UT (Parting Plane)	
		DP (Parting Plane)	
5	Casing Bolts	MPI	
		UT	
6	Valve Stem	MPI	
		DP	
7	Valve cones/seat	MPI	
		DP	
8	Diaphragms	MPI	
		UT	
9	Coupling Bolts	MPI	
		UT	
(C) NDT Total =			

GRAND TOTAL OF CHTU RGC (TURBINE AND COMPRESSOR) (A+B+C)=

The above rates are exclusive of GST, which is to be paid extra as applicable

Notes: Customer (MRPL Scope)

1. All spares and consumables going permanently into the turbine and compressor.
2. EOT, Special tools, lifting slings, bolt heating machine, scaffolding material, tarpaulins.
3. Machining facility including drilling and milling, machining up to 800mm dia. on lathe.
4. Electricity, water, compressed air
5. Lighting and electrical connections.

Contractor scope:

1. All General hand tools and slugging tools
2. All Measuring tools
3. DP Kits, MPI Kit, UT Kit as required.
4. General lifting tools and tackles like slings, D-Shackles, chain blocks, Ratchet puller etc.
5. In case of grit blasting Alumina Powder 94 % purity and grit size 220 in sufficient quantity and grit blasting kits for blast cleaning of rotor and nozzle.
6. All consumables like cotton waste, emery paper, coarse cloth, plastic sheets, plastic covers, rustolene etc.
7. All safety and personal protective equipment like helmets, safety shoes, gloves, goggles and earplugs.

*** The activities mentioned in list above are indicative in nature and may not include every minute details. Other activities that may be necessary to carry out the overhauling of the turbine/compressor and to achieve required values as per the original protocol may be treated as part of the scope.**

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2.0 PRICE BID FOR MAJOR OVERHAULING OF PFCCU WGC (TURBINE AND COMPRESSOR)

<u>SL NO</u>	<u>Activity list</u>	<u>Amount (In Rs.)</u>
A	PFCCU-WGC-Turbine (EHNK 40/56-3. T0919, weight 45 Ton)	
1	Removal of insulation and collection at designated places.	
2	Removal of all turbovisory instrument	
3	Removal of all connected oil and steam pipelines.	
4	Decoupling rotor and alignment checking. (Turbine to compressor)	
5	Dismantling of V1 and V2 valve servomotors and pilot valve assemblies.	
6	Opening of turbine front and rear end bearing housings.	
7	Checking of Turbine Rotor centering	
8	Loosening of turbine casing bolts with the help of bolt heating machine.	
9	Removal of turbine casing bolts.	
10	Removal of turbine top casing.	
11	Checking of thrust float and clearances.	
12	Checking run out and face out for turbine rotor at various locations.	
13	Dismantling of Emergency stop valves, extraction valves after proper locking.	
14	Record the elevation of the top and the bottom half casing diaphragms.	
15	Dismantling and removal of all top half internals.	
16	Check steam flow path readings on bottom half.	
17	Lifting the turbine rotor from the casing and placing on the stand.	
18	Removal of the bottom half internals.	
19	Blast cleaning of turbine rotor, diaphragms and other components with alumina powder/ Dry ice.	
20	Repair of all damaged fins.	
21	Cleaning of casing components.	
22	Check for cylinder deformation and blue matching of parting planes.	
23	Elevation transfer from the bottom casing to the top casing and recording final values.	
24	Placing rotor and record centering wrt oil guard bore and thrust bearings.	
25	Adjustment of fin tip clearances by grinding, filing etc. as necessary.	
26	Check and record the steam flow path clearances after box up of thrust bearing.	
27	Rotor float checking and adjustment if required (by using shims between bearing and carrier).	
28	Checking of blade radial clearances with top half carriers.	
29	Overhauling of the Emergency Stop Valves (2 Nos. one on each side).	
30	Overhauling of V1 and V2 valves and replacement of parts if required.	
31	Cleaning/replacement of lube oil filters and control oil filters. (New filters will be supplied by MRPL).	
32	Cleaning of Main Oil Tank and the overhead tank and refilling with the same oil through purifier.	
33	Overhauling of servomotors and pilot valve assemblies of V1 and V2.	
34	Box up the top casing cover and torque to the required value.	
35	Record the casing gap at different locations.	
36	Box up the V1, V2 Servomotors and ESV.	

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37	Lapping and blue matching of ESV flange to valve chamber.	
38	Coupling assembly, Bearing box up and clearance checking.	
39	Final alignment of Turbine with compressor.	
40	Assembly of all turbovisory instruments	
41	Oil flushing of entire lube oil/control oil system.	
42	Calibration (stroke checking) of ESV, V1 and V2 valves and match the values with the protocol values.	
43	Calibration for alarm and trips of the turbine safety system.	
44	Check the pressure of the oil accumulators and refill if required.	
45	Testing of the governing system.	
46	Testing of turning gear mechanism.	
47	Check the jacking oil pressure for turbine and adjust if required to get the required rotor lift.	
48	Put the machine on barring.	
(A) Turbine Total=		

B	PFCCU-WGC-Compressor (2MCL1007, Weight 115 Ton)	
1	Disconnecting lube oil piping and seal oil piping.	
2	Disconnecting instrumentation cables from junction boxes and bearings.	
3	Removal of bearings.	
4	Removal of Dry Gas Seal.	
5	Removal of end cover & Bundles.	
6	Loosening of head flange bolts.	
7	Removal of Casing, Diaphragms and rotor.	
8	Inspection of compressor casing, head flanges, fasteners, coupling guards.	
9	Bundle to rotor clearance check (axial and radial).	
10	Bearing clearance check and blue matching check.	
11	Inspection and testing of rotor, diaphragms, bearings, casing.	
12	Assembly of new labyrinth seal.	
13	Assembly of bottom diaphragm.	
14	Assembly of internals without rotor, casing inner dimension check.	
15	Assembly of internals with the rotor.	
16	Assembly of End cover.	
17	Assembly of Dry Gas Seal	
18	Assembly of bearings and instrumentation cables.	
19	Check and record thrust float, adjustment if necessary.	
20	Coupling hub contact check and installation of coupling hub.	
21	Install bearing covers, coupling guards.	
(B) Compressor Total =		

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NON-DESTRUCTIVE TESTING ACTIVITIES

Sl No.	Component	Name of test	Amount
1	Rotor	MPI	
		UT	
		DP	
2	Journal Bearings	UT	
		DP	
3	Thrust Bearing Pads & collar	UT	
		DP	
4	Casing	MPI	
		UT (Parting Plane)	
		DP (Parting Plane)	
5	Casing Bolts	MPI	
		UT	
6	Valve Stem	MPI	
		DP	
7	Valve cones/seat	MPI	
		DP	
8	Diaphragms	MPI	
		UT	
9	Coupling Bolts	MPI	
		UT	
(C) NDT Total =			

GRAND TOTAL OF PFCCU WGC (TURBINE AND COMPRESSOR) (A+B+C)=	
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The above rates are exclusive of GST, which is to be paid extra as applicable

Notes: Customer (MRPL Scope)

1. All spares and consumables going permanently into the turbine and compressor.
2. EOT, Special tools, lifting slings, bolt heating machine, scaffolding material, tarpaulins.
3. Machining facility including drilling and milling, machining up to 800mm dia. on lathe.
4. Electricity, water, compressed air
5. Lighting and electrical connections.

Contractor scope:

1. All General hand tools and slugging tools
2. All Measuring tools
3. DP Kits, MPI Kit, UT Kit as required.
4. General lifting tools and tackles like slings, D-Shackles, chain blocks, Ratchet puller etc.
5. In case of grit blasting Alumina Powder 94 % purity and grit size 220 in sufficient quantity and grit blasting kits for blast cleaning of rotor and nozzle.
6. All consumables like cotton waste, emery paper, coarse cloth, plastic sheets, plastic covers, rustolene etc.
7. All safety and personal protective equipment like helmets, safety shoes, gloves, goggles and earplugs.

* The activities mentioned in list above are indicative in nature and may not include every minute details. Other activities that may be necessary to carry out the overhauling of the turbine/compressor and to achieve required values as per the original protocol may be treated as part of the scope.

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3.0 PRICE BID FOR MAJOR OVERHAULING OF DHDT RGC (TURBINE AND COMPRESSOR)

SL NO	Activity list	Amount (In Rs.)
A	DHDT-RGC-Turbine (NK 25/28-3. T0909, Weight 6 Ton)	
1	Removal of insulation and collection at designated places.	
2	Removal of all turbovisory instrument	
3	Removal of all connected oil and steam pipelines.	
4	Decoupling rotor and alignment checking. (Turbine to compressor)	
5	Dismantling of V1 and V2 valve servomotors and pilot valve assemblies.	
6	Opening of turbine front and rear end bearing housings.	
7	Checking of Turbine Rotor centering	
8	Loosening of turbine casing bolts with the help of bolt heating machine.	
9	Removal of turbine casing bolts.	
10	Removal of turbine top casing.	
11	Checking of thrust float and clearances.	
12	Checking run out and face out for turbine rotor at various locations.	
13	Dismantling of Emergency stop valves, extraction valves after proper locking.	
14	Record the elevation of the top and the bottom half-casing diaphragms.	
15	Dismantling and removal of all top half internals.	
16	Check steam flow path readings on bottom half.	
17	Lifting the turbine rotor from the casing and placing on the stand.	
18	Removal of the bottom half internals.	
19	Blast cleaning of turbine rotor, diaphragms and other components with alumina powder/Dry ice.	
20	Repair of all damaged fins.	
21	Cleaning of casing components.	
22	Check for cylinder deformation and blue matching of parting planes.	
23	Elevation transfer from the bottom casing to the top casing and recording final values.	
24	Placing rotor and record centering wrt oil guard bore and thrust bearings.	
25	Adjustment of fin tip clearances by grinding, filing etc. as necessary.	
26	Check and record the steam flow path clearances after box up of thrust bearing.	
27	Rotor float checking and adjustment if required (by using shims between bearing and carrier).	
28	Checking of blade radial clearances with top half carriers.	
29	Overhauling of the Emergency Stop Valves (2 Nos. one on each side).	
30	Overhauling of V1 and V2 valves and replacement of parts if required.	
31	Cleaning/replacement of lube oil filters and control oil filters. (New filters will be supplied by MRPL).	
32	Cleaning of Main Oil Tank and the overhead tank and refilling with the same oil through purifier.	
33	Overhauling of servomotors and pilot valve assemblies of V1 and V2.	
34	Box up the top casing cover and torque to the required value.	
35	Record the casing gap at different locations.	
36	Box up the V1, V2 Servomotors and ESV.	

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37	Lapping and blue matching of ESV flange to valve chamber.	
38	Coupling assembly, Bearing box up and clearance checking.	
39	Final alignment of Turbine with compressor.	
40	Assembly of all turbovisory instruments	
41	Oil flushing of entire lube oil/control oil system.	
42	Calibration (stroke checking) of ESV, V1 and V2 valves and match the values with the protocol values.	
43	Calibration for alarm and trips of the turbine safety system.	
44	Check the pressure of the oil accumulators and refill if required.	
45	Testing of the governing system.	
46	Testing of turning gear mechanism.	
47	Check the jacking oil pressure for turbine and adjust if required to get the required rotor lift.	
48	Put the machine on barring.	
(A) Turbine Total=		

B	DHDT-RGC-Compressor (BCL407/A, weight 19 Ton)	
1	Disconnecting lube oil piping and seal oil piping.	
2	Disconnecting instrumentation cables from junction boxes and bearings.	
3	Removal of bearings.	
4	Removal of Dry Gas Seal.	
5	Removal of end cover & Bundles.	
6	loosening of head flange bolts.	
7	Removal of Casing, Diaphragms and rotor.	
8	Inspection & cleaning of compressor casing, head flanges, fasteners, coupling guards.	
9	casing internals to rotor clearance check (axial and radial).	
10	Bearing clearance check and blue matching check.	
11	Inspection and testing of rotor, diaphragms, bearings, casing.	
12	Assembly of new labyrinth seal.	
13	Assembly of bottom diaphragm.	
14	Position the lower half bearing on DE & NDE side and rotor placement	
15	Assembly of diaphragms without rotor, casing inner dimension check.	
16	Assembly of diaphragms with the rotor.	
17	Top and bottom casing radial clearances check by lead wire	
18	Tightening of parting plane bolts and rotor rotation confirmation.	
19	Assembly of End cover.	
20	Assembly of Dry Gas Seal	
21	Assembly of bearings and instrumentation cables.	
22	Check and record thrust float, adjustment if necessary.	
23	Coupling hub contact check and installation of coupling hub.	
24	Install bearing covers, coupling guards.	
(B) Compressor Total =		

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NON-DESTRUCTIVE TESTING ACTIVITIES

Sl No.	Component	Name of test	Amount
1	Rotor	MPI	
		UT	
		DP	
2	Journal Bearings	UT	
		DP	
3	Thrust Bearing Pads & collar	UT	
		DP	
4	Casing	MPI	
		UT (Parting Plane)	
		DP (Parting Plane)	
5	Casing Bolts	MPI	
		UT	
6	Valve Stem	MPI	
		DP	
7	Valve cones/seat	MPI	
		DP	
8	Diaphragms	MPI	
		UT	
9	Coupling Bolts	MPI	
		UT	
(C) NDT Total =			

GRAND TOTAL OF DHDT RGC (TURBINE AND COMPRESSOR) (A+B+C)=	
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The above rates are exclusive of GST, which is to be paid extra as applicable

Notes: Customer (MRPL Scope)

1. All spares and consumables going permanently into the turbine and compressor.
2. EOT, Special tools, lifting slings, bolt heating machine, scaffolding material, tarpaulins.
3. Machining facility including drilling and milling, machining up to 800mm dia. on lathe.
4. Electricity, water, compressed air
5. Lighting and electrical connections.

Contractor scope:

1. All General hand tools and slugging tools
2. All Measuring tools
3. DP Kits, MPI Kit, UT Kit as required.
4. General lifting tools and tackles like slings, D-Shackles, chain blocks, Ratchet puller etc.
5. In case of grit blasting Alumina Powder 94 % purity and grit size 220 in sufficient quantity and grit blasting kits for blast cleaning of rotor and nozzle.
6. All consumables like cotton waste, emery paper, coarse cloth, plastic sheets, plastic covers, rustolene etc.
7. All safety and personal protective equipment like helmets, safety shoes, gloves, goggles and earplugs.

*** The activities mentioned in list above are indicative in nature and may not include every minute details. Other activities that may be necessary to carry out the overhauling of the turbine/compressor and to achieve required values as per the original protocol may be treated as part of the scope.**

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