

# Assam Power Generation Corporation Limited

Office of the Chief General Manager (Gen)

APGCL, Bijulee Bhavan, 3<sup>rd</sup> Floor

Paltan Bazar, Guwahati -781001, Assam

E mail: cgm-g@apgcl.com



Tender No. APGCL/CGM(G)/KLHEP/R&M/SHAFT SEAL/2018-19/1 Dated: 16.10.2018

Name of Work:

**RENOVATION OF TURBINE SHAFT SEAL ALONG WITH ANNUAL MAINTENANCE WORKS OF 1 (ONE) UNIT OF 50 MW CAPACITY, FUJI MAKE VERTICAL SHAFT FRANCIS TURBINE AND GENERATOR AT 2X50 MW KARBI LANGPI HYDRO ELECTRIC PROJECT, AMTRENG, KARBI ANGLONG, ASSAM.**

Price: Rs. 2000/-

ASSAM POWER GENERATION CORPORATION LIMITED

TENDER NO. APGCL/CGM (G)/KLHEP/R&M/SHAFT SEAL/2018-19/1 Dated: 16.10.2018

Invitee	The Chief General Manager, APGCL, Bijulee Bhawan, 3 <sup>rd</sup> Floor, Paltanbazar, Guwahati-781001.
Name of the work	<b>RENOVATION OF TURBINE SHAFT SEAL ALONG WITH ANNUAL MAINTENANCE WORKS OF 1(ONE) UNIT OF 50 MW CAPACITY, FUJI MAKE VERTICAL SHAFT FRANCIS TURBINE AND GENERATOR AT 2X50 MW KARBI LANGPI HYDRO ELECTRIC PROJECT, AMTRENG, KARBI ANGLONG, ASSAM.</b>
Bidder	Firms having experience in carrying out Annual Maintenance works in similar Hydro Turbine and Generator unit of not less than 50MW of capacity (at least 2 units during last 5 years) are eligible for bidding).
Tender fee (non refundable)	Rs. 2000.00 ( Rupees Two thousand only) in the form of a/c payee Demand Draft/ Banker's cheque duly pledged in favour of the Dy. General Manager (F&A), APGCL, payable at Guwahati.
Earnest money	Bids shall be accompanied with Earnest Money amounting to Rs 60,000.00 in the shape of Demand Draft/Banker's Cheque of any Nationalized/schedule Bank duly pledged in favour of the Dy. General Manager (F&A), APGCL, Bijulee Bhawan, Paltan Bazar, Guwahati-781001 payable at Guwahati.
Bid Publishing date	16.10.18 at 13:00 Hrs
Last date of bid submission	05.11.18 upto13:00 Hrs
Date of bid opening	06.11.18 at 14:00 Hrs
Intending Bidders may visit KLHEP site at their own cost on any working day for their guidance in preparing Bid Documents.	
Details of the tender are available in APGCL's website: <a href="http://www.apgcl.org">www.apgcl.org</a> and <a href="https://assamtenders.gov.in">https://assamtenders.gov.in</a> .	

Sd/-

CHIEF GENERAL MANAGER (GEN), APGCL.

### 1. OBJECTIVE:

Karbi Langpi Hydro Electric Project is having 2x50MW Fuji Electric make TG Sets. It is proposed to renovate the turbine shaft seal and carry out Annual Maintenance works of TG set of Unit-2 along with its auxiliaries. The works to be carried out is as per scope of work mentioned in Clause No. 4

### 2. BRIEF DESCRIPTION OF THE MACHINES:

The 50 MW set consist of one number of 51.5MW,500 rpm vertical shaft single runner single flow Francis turbine and a directly coupled to 12(Twelve) pole 62.5MVA Generator having output voltage 11KV.

#### SPECIFICATION OF GENERATOR:

TYPE	GDH60495-06
OUTPUT	62500 KVA
VOLTAGE	11000Volts
CURRENT	3280Amps
POWER FACTOR	0.8
FREQUENCY	50Hz
SPEED	500 RPM
RUNWAY SPEED	850 RPM
WINDING INSULATION CLASS	B
CONNECTIONS	STAR
FLYWHEEL EFFECT $GD^2$	500 t-m <sup>2</sup>
APPLICABLE STANDARD	IS : 4722
MAKE	FUJI ELECTRIC SYSTEM Co.Ltd.,JAPAN

#### SPECIFICATION OF TURBINE:

TYPE	VERTICAL FRANCIS
NET HEAD	239 m
OUTPUT	51500 KW
SPEED	500 RPM
MAKE	FUJI ELECTRIC SYSTEM Co.Ltd.,JAPAN

### 3. BID PROCEDURE:

The tender document can be downloaded from the website <https://assamtenders.gov.in> and NIT can be viewed from the APGCL's website ([www.apgcl.org](http://www.apgcl.org)). Only the hard copy of the Tender fee & EMD have to be submitted in the shape of Demand Draft duly pledged in favour of the Dy. General Manager (F&A), APGCL, payable at Guwahati and should reach the office of the CGM (G), APGCL, Guwahati end before 13.00 hrs of 05/11/2018. In case the hard copies of Demand Drafts and Bid are not received at this end within due date as stated above, the bid of the bidder will not be considered. Bidder shall upload

the scanned tender document duly signed and stamped on each page of tender in token of his acceptance along with his bid and also scanned copies of all requisite documents. The Bid must be submitted in online mode and no hard copy of the bid will be accepted for evaluation. The documents are to be uploaded in PDF format and each file should not exceed 10MB in size. Suggested scan in 150 dpi pdf. In case the document is more than 10 MB in size the same may be split to make the size below 10 MB. The Bidder will be required to encrypt & sign its online bid using own Digital Signature Certificate (Class- II or higher with both Signing and Encryption Certificates). Prospective Bidders must procure DSC before participating in the tenders. The bid shall be completed in two bid system: Technical & Price Bid.

The following document has to be submitted along with bid:

1. PAN CARD
2. GST CERTIFICATE
3. LAST 3 YEARS ANNUAL REPORT
4. EXPERINCE CERTIFICATE
5. AUTHORIZATION FROM MANUFACTURER

“Offered Price” dully filled. Offered Price shall have to include all taxes and duties etc. No stipulation, deviation, terms and, presumption, etc shall be stated in priced part of bid. APGCL shall not take cognizance of any such statement and may at their discretion reject such price bids. Also, price quoted by the bidder must be in INR.

#### 4. SCOPE OF WORK:

Renovation of turbine shaft seal, Supply and installation of Carbon packing rings along with slip ring brushes .The annual maintenance works include disassembling, Overhauling/repairing & reassembling works of different TG parts and auxiliaries and also testing & commissioning. The overhauling works as mentioned in the Annexure-IV are required to be carried out by the successful bidder. The process of annual maintenance works will be as per the guidelines of Fuji Electric Co. Ltd's O&M procedures and also with specific directive of APGCL. The approximate weight of different parts of Turbine and Generator and its auxiliaries is also shown in Annexure-IV for ready reference of the bidders.

Any activities or works which is not covered in the above scope of work but requires to be carried out for completion of annual maintenance works and commissioning purposes will also be under the scope of bidder without any extra cost involvement. All the works are to be performed to the full satisfaction of APGCL.

#### 5. BIDDER'S QUALIFICATION:

The intended bidder shall have experience in carrying out Annual Maintenance works in similar Hydro Turbine and Generator unit of not less than 50MW of capacity (at least 2 units during last 5 years). The bidder shall furnish credentials such as copies of work orders and completion certificates as supporting documents accompanied with performance certificate from their clients. However preference will be given to the bidders having experience in working with Fuji Engineers in overhauling/ Erection and successful Completion of similar type of Vertical shaft Francis Turbine. Moreover, bidders as single entity will be preferred than the bidders in the form of Joint Venture.

The intended bidder shall have authorization from the reputed manufacturer of the Carbon Packing Rings and Carbon Brush for Slip Rings having experience in manufacturing of similar items for Hydro Turbine.

## 6. SCHEDULE OF WORKS/TIME OF COMPLETION:

### a) Supply:

The supply of items has to be completed with 2(TWO) months from the date of issue of Work Order.

### b) Annual Maintenance:

The schedule of the work has to be submitted by the bidder. However the total no. days cannot exceed 23 days after handing over of site.

The successful Bidder is to comply with the work schedule submitted along with the bid. The bidder should not exceed the time mentioned in the bid document both for Supply and execution. If the contractor is found to be liable for the delay in completion from the offered time of completion, he shall be attracted to liquidated damage. However extension of annual maintenance works period beyond the specified period due to any major additional repairing work will be finalized by mutual agreement & in such case the LD Clause 15 will not be applicable for that extended period. In such cases decision of CGM (G), APGCL will be final.

## 7. MANPOWER, EQUIPMENT, TOOLS AND CONSUMABLES:

### SCOPE OF BIDDER:

- a) All types of tools, machines, equipments, paints, testing and repairing instruments, air compressors that will be needed for carrying out the complete overhauling. Bidder must furnish details of equipments & machineries including tool list along with their technical bid. Any tools and equipments including testing equipments if provided by APGCL will be on chargeable basis.
- b) All consumables such as detergent, cleaning oil, cleaning compound, DP chemical, gases, electrodes and filler rod, sealing compound, STP compound, M seal, Lead wires, S.S shims, C. S. plate, S. S. plate, Gaskets, grinding wheel etc as required.
- c) The bidder should furnish a list of complete man power including the supervisory staff required for executing the work successfully within the stipulated time, indicating their experiences.
- d) The bidder must have TAN/TIN/GRN/PAN and photocopy of the same has to be submitted along with the tender.
- e) The bidder shall furnish up-to-date Income Tax and other clearance certificates along with the tender.
- f) The bidder should provide sufficient proof to show its financial soundness for execution of this work in the form of certified copy of balance sheet/Annual turnover etc. for the last 3 years.

It is the responsibility of the Contractor to make own arrangements for potable water supply for their labours/personnel.

The Contractor has to arrange to and fro transportation of his personnel.

Cleaning up of site during and after every day works. The Contractor shall keep the site and establishment areas clean and tidy. All debris and other rubbish shall be regularly removed to the designated disposal areas on the Site.

All fabrication and engineering work incidental to erection, like scaffolding, structural framing for overhauling shall have to be done by the Contractor at his own cost. The structural steel required for such work shall be arranged by the Contractor. Also, any fabrication work like cutting, grinding, welding, straightening, reaming, drilling, threading, fitting up etc. which in the opinion of the Engineer are incidental to the overhauling site shall have to be done by the Contractor. Any

defect in the fabrication shall have to be rectified by the Contractor at his cost.

The Contractor shall observe strict cleanliness during execution of the work and shall be in possession of vacuum cleaner for cleaning the internals of machinery under installation. They shall check that all the finished surfaces are greased and covered wherever necessary; all pipes and duct ends are covered with plastic or suitable type of cap during storage.

Before boxing up, the Contractor shall examine carefully to ensure that no foreign material, such as welding rod ends, welding beds, metal chips, rope, working tools or anything else has been left inside any equipment or piping.

The Contractor shall take full responsibility of the Works and of all temporary works. If any damage, loss or injury happens to the Works or to any part thereof or to any temporary work from any cause whatsoever, the Contractor shall at his own cost repair and make good the same so that at completion of the works shall be in good order and condition.

#### SCOPE OF APGCL:

- a) KLHEP will give shutdown notice of the units two weeks ahead of the shutdown.
- b) Recommended overhauling procedure and technical guidance wherever necessary.
- c) Service of EOT crane.
- d) Electrical power will be made available on chargeable basis.
- e) Detail specification of various kind of cleaning compound, welding electrodes and filler materials, paints etc.
- f) Any spares if required directly related to the TG and its auxiliaries.
- g) Guest House accommodation may be arranged on Chargeable basis. For skilled / un- skilled labour, free area for hutment will be provided with necessary water supply. Electricity to the hutment will be on chargeable basis.
- h) Workshop facility will be provided, if required, on Chargeable basis.

#### 8. PRICE:

The bidders should quote their prices keeping in view the scope of work, work schedule and the approximate weight of different parts of Turbine and Generator and its auxiliaries which are provided here within Annexure IV respectively for their ready reference. The complete price break-up including tax shall have to be uploaded as per the format enclosed in Annexure -III. The quoted price should be on lump sum basis & firm. Taxes & duties should be shown extra.

#### 9. EARNEST MONEY:

Bids shall be accompanied with Earnest Money amounting to Rs 60,000.00 in the shape of Demand Draft/ Banker's Cheque of any Nationalized/Scheduled Bank duly pledged in favour of the Dy. General Manager (F&A), APGCL, Bijulee Bhawan, Paltan Bazar, Guwahati- 781001 payable at Guwahati. Bids received without EMD or less amount of EMD shall be rejected outright. The EMD of unsuccessful bidders shall be released on request. The EMD of the successful bidder shall be retained until submission of Security Deposit as per Clause '10' below. No interest shall be paid against the EMD.

#### 10. SECURITY DEPOSIT CUM PERFORMANCE BANK GUARANTEE:

On receipt of the formal Work Order, the successful bidder have to sign a contract agreement within 10 days and have to furnish a security cum performance bank guarantee for an amount equivalent to 10% of the total order value including taxes and duties . The BG shall be released after expiry of the Guarantee period. A copy of the BG format is enclosed as (Annexure-I).

#### 11. VALIDITY OF THE OFFER:

The offer shall be valid for a period of 180 (one hundred Eighty) days from the date of opening of the bid.

#### 12. GUARANTEE:

The overhauling work shall have to carry guarantee against performance for a period of 06 (six) months or 4000 running hours, whichever is earlier from the date of completion of the work. Free service shall have to be provided pertaining to any defect that may develop under normal running condition of the machine during the guarantee period.

#### 13. TERMS OF PAYMENT:

Supply:

- i) 100% payment against shall be made after receipt of materials at site in full and good condition.

Annual Maintenance:

- i) 100% payment against shall be made after the completion of the Annual maintenance work.

Note: Any payments mentioned above will be released subject to submission of Performance Bank Guarantee as per the bid condition.

#### 14. SPECIFICATION OF CARBON PACKING RING AND SLIP RING BRUSH:

The items have to be supplied as per the specification and material composition mentioned in Annexure-V. The requisite test certificate of the items has to be submitted along with the materials.

#### 15. LIQUIDATED DAMAGE:

In case of failure of completing the job within the time of completion of work as referred in clause 6, Liquidated Damage @ 2% of the total contract value per day subject to a maximum of 10% of the contract value, shall be imposed on the bidder. The amount will be recovered from the bill of the contractor; however this is subject to Force Majeure clause- 19.

#### 16. PLACE OF WORK:

Karbi Langpi (Lower Borpani) Hydro Electric Project is located in the Karbi Anglong District of Assam, about 155 Km from Guwahati by road. The nearest train station Kampur is 40Km away from the project site. The postal address of the project office is as follows.

**O/O the General Manager,  
2x50MW, Karbi Langpi Hydro Electric Project,,  
Assam Power Generation Corporation Ltd, Lengry, P.O. Boithalangso-782 450,  
Dist. Karbi Anglong, Assam.**

**17. DEVIATION:**

If the Bidder is asking for any deviation, the same is to be furnished in a separate sheet clearly in one place only.

**18. WORK SUSPENSION/ CANCELLATION:**

If the bidder is found failed to start/execute/complete work as per schedule for the Reason not attributable to APGCL, then APGCL has their full right to cancel or terminate the work with 7 (Seven) days notice to the bidder through E-mail followed by hard copy. In such case, the security deposit of the vendor will be forfeited. APGCL shall however judiciously review such kind of act of delay, work stop or non performance on the part of the bidder and shall issue one warning notice to the bidder (7 days duration) before issuing the termination / cancellation notice. This clause shall however not be applicable in case of force Majeure Clause (19).

**19. FORCE MAJEURE:**

Force Majeure shall cover only act of God, Fire, war, Strikes, riots and civil commotion, act of Government etc. Any constraints other than those specified above will not constitute force majeure condition. In view of the other constraint beyond the control of the Contractor primarily due to statutory compulsion, extension of execution may also be considered on individual merit of the case. In case of Force Majeure condition the contractor shall notify the purchaser such condition within 10(ten) days from the beginning of such delay in writing for consideration and acceptance.

**20. GENERAL:**

All prospective bidders are hereby notified that, before any bid submitted in response to this invitation is considered for award, the APGCL may ask for further statement of facts in details as to the previous experience of the bidder and the financial resource available with him for performing the contemplated work. The APGCL reserves the right to reject any bid for not complying with the above and is not liable to justify such rejection or accept the lowest rate.

Any other terms & conditions not specifically mentioned above shall be governed by "General Conditions for Supply and Erection of erstwhile APGCL".

-Sd/-

ChiefGeneralManager(G), APGCL



ANNEXURE-I

Proforma of Bank Guarantee For Security Deposit cum Performance Bank  
Guarantee

(To be stamped)

Bank Guarantee No.....

Date.....

Whereas ASSAM POWER GENERATION CORPORATION LIMITED (hereinafter called APGCL) which expression shall unless repugnant to the context or meaning thereof include its successor, administrators and assigns has entered in to a contract agreement No dated with M/S.....( hereinafter called the 'Contractor') which expression shall unless repugnant to the context or meaning thereof include its successor, administrators, executors and assigns for Annual maintenance works of Unit#2 of 50MW Fuji make Vertical shaft Francis Turbine & Generator. Whereas by virtue of the conditions of the Contract, the contractor is required to furnish a Security Deposit cum Performance Guarantee from a Nationalized/Scheduled Bank for a sum of Rs.....(Rupees.....)

Only towards satisfactory performance of the disassembling, Overhauling/repairing & reassembling works of different TG parts and auxiliaries and also testing & commissioning work within the guarantee period of 6 months from the date of completion of the work.

In consideration of the APGCL entering into the contract aforementioned, we the (Name and address of the Nationalized/Scheduled bank) (Hereinafter called the Bank) which expression shall, unless repugnant to the context or meaning thereof include its successor, administrators, executors and assigns take into indemnity and keep indemnified the APGCL against any damage, injury or loss occasioned to it by any breach or violation of Guarantee stipulated in the aforementioned agreement and shall pay to the APGCL all sums demanded by it towards such, injury, loss or damage or penalties as and when demanded, not withstanding any difference between the APGCL and the Contractor or any dispute pending before any court, tribunal, arbitrator or any other authority provided that the total liability under this Bank Guarantee shall not exceed Rs..... (Rupees.....) only

Provided further that this guarantee shall remain in force till the expiry of the guarantee period stipulated in the order.

Provided further that this guarantee shall not continue in force beyond..... (Date) unless it is renewed at request of the APGCL by the Bank from time to time.

All claims under this Guarantee shall be preferred to the executants Bank before.....We .....(Name and address of the Nationalized/Scheduled bank) hereby undertake not to revoke this guarantee during the period it is in force without obtaining the prior written consent of the APGCL . Notwithstanding anything contained herein before, our liability under this guarantee shall be restricted to RS.....(Rupees.....) only our guarantee shall remain in force until.....unless it is renewed as aforesaid.

All rights of APGCL under this guarantee shall be forfeited and the Bank shall be relieved and discharged from all liabilities there under unless the APGCL brings any suit or action to enforce a claim under this guarantee against the bank within Six months from the above mentioned date or from the extended date thereof.

Date .....day of .....2018

At .....

(Signature on behalf of the Nationalized/Scheduled Bank)

(Seal of the Nationalized/Scheduled Bank)

ANNEXURE - II

TECHNICAL BID

The bidders are requested to ensure that the following points / aspects in particular have been compiled within their offer failing which the offer is liable to be rejected.

1. Please tick ( ) the box, whichever is applicable, and cross (X) the box(es), whichever is/are not applicable (NA).

2. Please sign on each sheet.

3. This "Bid Information Sheets" duly filled in must be submitted along with the offer.

(A) COMMERCIAL

1.0 Whether requisite tender fee has been paid?

YES	NO	NA

2.0 If so, furnish the following

- i) DD/Banker's Chaque no. and date .....
- ii) Name of the Bank .....
- iii) Value .....
- iv) Period of Validity .....

3.0 Earnest Money Deposit (EMD):

i) Whether requisite EMD has been enclosed?

YES	NO	NA

ii) If yes, furnish the following

a) Name of the Bank .....

b) Value .....

c) Instrument No. ....

d) Date of Issue .....

e) Period of Validity .....

4.0 If EMD exemption is claimed, whether copies of current and valid certificates from competent authority have been enclosed? YES NO NA

5.0 Whether the period of validity of the offer is as required in the tender document? YES NO

6.0 If not, mention the extent of variation (You can use extra sheet also) Extent of Variation

7.0	If the bidder is seeking business with APGCL (former Assam State Electricity Board) for the first time, has he given the details of parties to whom the bidder has provided services in past along with performance reports from the parties?	YES	NO	NA
8.0	Is the offer being sent by Regd. Post, Courier Services or proposed to be dropped in Tender Box?			
	Sent by Regd. Post		YES	NO
	Sent by Courier Services		YES	NO
	Dropped in Tender Box		YES	NO
9.0	Has the tender been prepared in sufficient Details clearly so as to avoid post tender opening clarifications?		YES	NO
10.0	Acceptance of the following clauses :			
	i) Security Deposit cum Performance Bank Guarantee clause:		YES	NO
	ii) Guarantee clause:		YES	NO
	iii) Terms of Payment clause:		YES	NO
	iv) Time Period for completion of Work clause:		YES	NO
	v) Arbitration clause:		YES	NO

(B) TECHNICAL

1.0 Whether experience certificate has been attached with the offer?

--	--

(C) BIDDER'S PAST EXPERIENCE PROFORMA

SI. No.	NAME AND ADDRESS OF CLIENT(S)	BRIEF DESCRIPTION OF WORKS	ORDER VALUE	REMARKS

NOTE: Certificate from client to be enclosed along with the above proforma.

Past experience shall include works executed during last 5 (seven) years only. (Use separate sheets if required)

.....

Signature and Seal of the Bidder

ANNEXURE – III

PRICEBID

1. Tender No. ....
2. Tender Name .....
3. Due Date .....
4. Validity of the Bid .....
5. Payment Terms .....

PARTICULARS	Price IN FIGURES	PRICE IN WORDS (RUPEES)
Supply of Carbon Packing Ring For Shaft Seal and Carbon Brush For Slip Ring.		
Erection Testing and Commissioning		
Taxes, if any (please specify)		
Other charges, if any (please specify)		
<b>GRAND TOTAL</b>		

**NOTE:**

1. The above quoted prices shall be firm without any variation in any way till completion of Work at KLHEP site.
2. Statutory charges which will not be borne by the bidder must specifically be indicated in the above format, failing which the bidder shall bear the same and APGCL will not be liable for payment of such charges.
3. Any increase in Service Tax during the period of work until completion shall have to be absorbed by the bidder.
4. Use additional sheets if required.

.....

Signature and Seal of the Bidder

ANNEXURE-IV

SCOPE OF WORK

SL NO.	ITEM DESCRIPTION
1	Supply of Carbon Packing Ring for Shaft Seal and Carbon Brushes for Slip Ring.
2	<b>Turbine Guide Braring/Oil Cooler</b>
(i)	Dismantling of Guide Bearing, wt 620 kg
(ii)	Re-erection of Guide Bearing, wt 620 kg
(iii)	Dismantling of Guide Bearing, wt 2000 kg
(iv)	Re-erection of Guide Bearing, wt 2000 kg
(v)	Desmantling of Oil reservoir, wt 200 kg apprx.
(vi)	Re-erection of Oil reservoir, wt 200 kg apprx.
2	Shaft Seal Carbon Ring/Sliding Plate
(i)	Dismantling of Housing, wt 400 kg apprx.
(ii)	Re-erection of Housing, wt 400 kg apprx.
(iii)	Dismantling of Ring Holder, wt 600 kg apprx.
(iv)	Re-erection of Ring Holder, wt 600 kg apprx.
(v)	Dismantling of Sliding Plate (wt 5% of 500 kg=25kg)
(vi)	Re-erection of Sliding Plate (wt 5% of 500 kg=25kg)
(vii)	Opening of DT Manhole & Runner Inspection, wt 300 kg apprx.
(viii)	Cleaning & Closing of DT Manhole, wt 300 kg apprx.
3	<b>GENERATOR UPPER OIL COOLER</b>
(i)	Dismantling, 20% of 600 Kg =120 Kg



ANNUAL MAINTENANCE OF UNIT-2

(ii)	Re-erection, 20% of 600 Kg =120 Kg
4	Lower guide Bearing Works
(i)	Unloading of Oil & Dismantaling of Guide, wt 300 kg
(ii)	Loading of Oil & Re-erection of Guide, wt 300 kg
5	Oil Sump Tank, Strainer & Presure pipeline
(i)	Unloading of Oil/Cleaning of sump tank & preasure pipe line (wt 5% of 1900 kg=95kg)
(ii)	Loading of Oil & Re-erection of strainer & presure pipe line wt 95 kg
6	Job of opening/cleaning/lifting of spirel casing manhole, Apprx weight 200 kg
(i)	Opening
(ii)	Re-fitting
7	Job of opening/cleaning/fitting of water strainer system Apprx wt 700 kg
(i)	Dismantling of strainer for water & shaft Seal
(ii)	Re-erection of strainer for water & shaft Seal
8	Air Duct TOP Cover(6 segments, wt 750 kg apprx)
(i)	Dismantling
(ii)	Re-erection
9	Generator Air Cooler, wt 3000 kg apprx
(i)	Dismantling
(ii)	Re-erection
10	Filtering oil of 21 MVA GT, wt=33KL (11KLx3)

