

NORTH SINAI DEVELOPMENT PROJECT

**CONVEYANCE SYSTEM OF
EL SHEIKH GABER EL SABBAAH CANAL
MAIN POWER STATION**

TENDER DOCUMENTS

**PART 3: CONTRACT AND FORM OF
PERFORMANCE BOND**

PART 3: CONTRACT AND FORM OF PERFORMANCE BOND

CONTRACT

**BETWEEN RURAL ELECTRIFICATION AUTHORITY
ABBASSIA – CAIRO – ARE
REPRESENTED BY
CHAIRMAN OF REA**

AND

REPRESENTED BY

Whereas **R.E.A.** desires to purchase equipment

R.E.A. submitted and adjudication No.____ and High Purchasing Committee decided to give_____Company the above mentioned subject and accepted its offer with total amount.

ITEM 1: The above mentioned preamble is a part of contract.

ITEM 2: Company undertakes the responsibility for design, manufacturer, testing and delivery of equipment

According to primary acceptance and Final Order issued by **R.E.A.** with the stated following conditions.

SCHEDULE OF PRICES

ITEM	DESCRIPTION	TOTAL PRICE

TOTAL AMOUNT IN

The Determination of equipment and its technical specification stated in schedule of prices NO _____ in tender book including the technical specifications

ITEM 3: - TERMS OF PAY PAYMENT

ITEM 4: - TIME OF DELIVERY

ITEM 5: - GUARANTEE OF EQUIPMENT

Undertakes that guarantee of equipment furnished under the contract that they will be of first class material and factory workmanship.

The guarantee must state that the equipment have been tested in accordance with the specifications and the results of test comply with contracts specifications.

Undertakes during 10 days next day from REA's notification of the acceptance of the offer to provide an unconditional letter of guarantee issued or confirmed from ARE Bank equipment to 10% from the total value of the contract as a final guarantee and valid for the whole period of guarantee which is months from the date on which the equipment was put into permanent operation or months from the date of bill of lading of the last shipment whichever is carrier, according to item of the general condition of the tender and item of the special condition.

ITEM 6: - UNDERTAKES TO TRAIN

ITEM 7: - The following documents are part not separated from the contract

- A – The tender documents for Adjudication NO
- B – Letter of Intent
- C – Final Order

The general and special conditions for adjudication NO will be applicable if the mention of any special text is not stated in the contract in this connection.

ITEM 8: - In witness where of the parties have caused their respective common Seals on what above written.

The common Seal of **REA** was hereunto affixed in the presence of

CHAIRMAN OF REA

.....LS

The common Seal of the contractor was hereunto affixed in the presence of

.....LS

FORM OF PERFORMANCE BOND

With reference to Contract NO _____ signed on **between**

**RURAL ELECTRIFICATION AUTHORITY
CAIRO – ARAB REPUBLIC OF EGYPT**

AND

WE (THE BANK)

hereby irrevocably and unconditionally guarantee the supplier

up to the amount of low (ten percent) of the total value of the said Contract amounting to
free of interest and payable in cash, for the due execution and proper
performance of this contract in accordance to Article

Accordingly, we undertake to pay to
in favour of Arab Republic of Egypt on your first demand in writing to us any amount (s)
you may claim up to end not exceeding the above mentioned amount notwithstanding any
contestation of any party

This Letter of Guarantee remains in force at your disposal to
and shall be valid and maintained at its full amount until the supplier has fulfilled all his
obligations to your satisfaction, according to the terms and conditions of the said contract.

(THE BANK)

FORM OF ADVANCE PAYMENT L/G

L/G NO
FOR AMOUNT OF

We hereby issue the following letter of guarantee.

We, in Cairo, hereby guarantee ...
(the contractor) to extent of

(in word: ;).

This guarantee shall be effective on the date of transfer of the advance payment in favour of

We undertake to pay amount you may claim up to and not exceeding the sum of on your first written demand to us, notwithstanding any contestation by the contractor or ourselves or any third party.

This letter of guarantee will be reduced through instructions by the **RURAL ELECTRIFICATION AUTHORITY**.

This letter of guarantee shall remain valid up to after which date, and in the absence of any claim received by us up to that date, our liability will cease ipso facto and the present letter of guarantee will definitely become null and void.

(THE BANK)

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TENDER DOCUMENTS

PART 4: GENERAL CONDITIONS

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4-01 Definitions

The following terms wherever used in these contract documents and in any other documents which are made to form part of the CONTRACT, shall have the definitions respectively assigned to them hereunder, unless the context otherwise requires:

“REA” of “owner”	means Rural Electrification Authority, an agency of the government of the Arab Republic of Egypt.
“INSPECTOR”	means the Engineer or the Authorized representative of REA designed to examine the equipment.
“CONTRACT”	means the signed contract between REA and the contractor evidenced by the contractor documents.
“CONTRACT DOCUMENTS”	means the agreement and/or Purchase order and these General Conditions, the special conditions, the Technical Specifications, Drawings and the schedule of prices, including all authorized modifications thereof; the instructions to Tenderers and the Form of Tender and Appendices and in addition to the foregoing the contractor’s Tender. These Documents shall have precedence in the order named.
“CONTRACTOR”	means the party to whom the REA has assigned the supply of Equipment under this contract.
“SUB-CONTRACTOR”	means a person firm or corporation having a contract with the Contractor for part of the work, including the furnishing of equipment materials apparatus therefore.
“OTHER CONTRACTOR”	means any person of firm or corporation employed by or having a contract directly or indirectly with REA otherwise than through the Contractor
“EQUIPMENT”	including all materials, commodities, articles and things to be supplied under the Contract.
“PLANT”	includes all tools, implements, machinery, vehicles, buildings, structures, articles and things required for the manufacture of the equipment.
“WORKS”	means the Contractor’s or the Sub-contractor’s premises in which the equipment is to be manufactured
“COMPLETION TIME”	Time is of the essence of the contract

4-02 Interpretation of the CONTRACT Documents

The CONTRACTOR shall apply to REA for any explanation which the CONTRACTOR may require as to the meaning and intent of any provision in the CONTRACT or in any document forming part thereof, and the CONTRACTOR shall be liable for any loss, damage or expense which REA may insure, suffer or be put to as a result of the CONTRACTOR’S failure to obtain such explanation.

4-03 Successors and Assigns

The CONTRACT shall incur to the benefit of and be binding upon the parties hereto and their executors, successors, assigns and administrators.

4-04 Assignment of Contract

The CONTRACT or any part thereof may not be assigned without the written consent of REA.

4-05 Subcontracting by the Contractor

Neither the whole nor any part of the EQUIPMENT may be subcontracted by the CONTRACTOR without the consent of REA.

Any such consent shall not relieve the CONTRACTOR from any liabilities or obligations under the CONTRACT.

Each subcontract issued by the CONTRACTOR shall provide that the SUB-CONTRACTOR shall comply with all terms and conditions of this CONTRACT which can reasonably be applied to his undertaking.

4-06 Publicity

Publication by the CONTRACTOR of information originating by reason of this CONTRACT shall be only by permission of REA. The CONTRACTOR will not allow or permit any public ceremony in connection with the EQUIPMENT without the permission of REA.

4-07 Specifications and Drawings

The EQUIPMENT shall be executed in strict conformity with the specifications and/or drawings, and the CONTRACTOR shall do no work without proper specifications, instructions and/or drawings REA shall furnish the CONTRACTOR, free of charge, with copies of all specifications and/or drawings reasonably necessary to carry out the works including full size copies of specifications and/or drawings which were prepared by REA to assist Tenderers in preparing their proposals.

Specifications and/or drawings are intended to complement each other, so that if anything is shown on the drawings if required, but not mentioned in the specifications, or vice-versa, it shall be of like effect as if shown or mentioned in both. In case of discrepancies between drawings if required those of larger scale, and of these, the latest date of revision shall govern. Scaled dimensions shall not be used.

If any errors, omissions or discrepancies are discovered in the figures, specifications and/or drawings or if any feature of the specifications and or drawings shall appear to the CONTRACTOR to be indefinite and unclear, the same shall be referred to REA whose written confirmation, correction or explanation shall be obtained before proceeding with the work. If the drawings, when required, conflict with the specifications in any particular, the CONTRACTOR shall apply to REA for explanation.

The CONTRACTOR shall prepare and submit to REA for approval all additional drawings as are required by Technical Specifications or are necessary to show full details of the EQUIPMENT to be furnished.

Four prints with dark lines on white background shall be furnished to REA of all drawings submitted

for approval. One copy will be returned to the CONTRACTOR marked "APPROVED" or "APPROVED AS NOTED" or "NOT APPROVED". Each drawings marked "APPROVED AS NOTED" or "NOT APPROVED" shall be revised as indicated and resubmitted for approval.

After a drawing is "APPROVED" the CONTRACTOR shall furnish R.E.A. reproducible transparency of good quality on 0.002 inch thick Mylar or approved equal.

The CONTRACTOR shall allow 30 days for the REA's approval of drawings in its consideration of schedule of work and in the time allowed for completion of the contract. Extra time required for approval of drawings due to deficiencies in design or errors in submitted drawings shall be considered to be the responsibility of the CONTRACTOR and the onus shall be on him to recover any time so lost and to maintain specified delivery dates.

Approval by REA does not relieve the CONTRACTOR of his responsibility to manufacture all items in accordance with these CONTRACT DOCUMENTS.

The CONTRACTOR shall be responsible for any discrepancies, errors or omissions in any drawings or particulars supplied by him whether such drawings or particulars have been approved by REA or not.

4-08 Extension of Time

If, by reason of any one or more of the following events, namely:

- a. Additional or unforeseen work
- b. Deviation from the specification or temporary suspension of work by REA
- c. Any peril insured against pursuant to clause 4-17 hereof
- d. Force Majeure as defined by clause 4-26

The CONTRACTOR claims that he has been or will be delayed in the progress of the work, the CONTRACTOR may, within two weeks of the happening of any such event, make a written request to REA for an extension of time within which to complete delivery of the EQUIPMENT or any portion of it. The request shall state the reasons of the delay, and the amount of additional time the CONTRACTOR considers necessary.

If REA considers the claim to be valid, it may grant whatever extension of time it considers reasonable without thereby prejudicing REA's rights or in any manner affecting the validity of the CONTRACT. No extension of time shall be granted unless the CONTRACTOR makes written request within two weeks of the happening of the event which it is claimed results in the delay. The CONTRACTOR shall not have any further recourse of claim against REA nor shall be have right of action against REA for loss or damages suffered by reason of such delay.

R.E.A. and the CONTRACTOR shall be prompt and diligent to remove all causes of interruption or delay in the work, insofar as each is able to do so.

4-09 Additions, Deductions and Alterations

No additions to, deduction from or alteration in the EQUIPMENT and no amendment or repeal of and no substitution for any of the terms, conditions, provisos, or requirements of the CONTRACT (including without limitation; the terms or payments for, and the time for completion of any such addition to, deduction from or alteration in the work) shall be made, unless first approved and authorized in writing by both REA and the CONTRACTOR, and no verbal changes or agreements shall be recognized by REA.

If addition, deduction or alteration of the EQUIPMENT is approved and authorized in writing by REA as aforesaid, the amount of the additional payment by REA shall be as agreed upon by the CONTRACTOR and REA, and stated in the authorization for the change. Such payment shall be based either on a lump sum or unit prices as indicated in the Schedule of Prices.

The CONTRACTOR shall provide additional components to replace those damaged during installation in order to make all units to be complete. The payment shall be based on unit prices as indicated in part III, schedule of prices. The buyer has the right to increase or decrease the CONTRACT value up to 25% during the delivery period with the same price without any objections from the Tenderer's Side.

All additional work shall be performed strictly in accordance with the terms of the CONTRACT insofar as they are applicable thereto.

R.E.A. may grant the CONTRACTOR such extensions of time as REA considers reasonable and proper for the completion of delivery of the EQUIPMENT which is additional to originally contracted to be done by the CONTRACTOR.

4-10 Material, Plant and Labour

Unless otherwise specified in the contract, the CONTRACTOR shall furnish all material and plant and shall perform all labour necessary for the manufacture, fabrication testing and delivery of the EQUIPMENT.

The EQUIPMENT supplied pursuant to the CONTRACT shall be of suitable quality as determined by R.E.A.

All references in the CONTRACT Documents to standards and manufacturer's specifications shall imply the latest editions and revisions there to available at the time the tenders are submitted.

Unless otherwise expressly provided, all materials supplied shall conform to the specifications of the standards specified on equivalent recognized standards as approved by REA.

4-11 Test Certificates

The CONTRACTOR shall provided REA with existing Type-Test Certificates for all main equipment, i.e., transformers, circuit breakers, sectionalizers, CT's, VT's LA's battery and battery charger.

For standard stock items, the manufacturer's certificate of material is acceptable. These certificates shall be signed by a responsible technical representative of the CONTRACTOR.

4-12 Quality Control, Inspection and Testing

The CONTRACTOR'S quality control department shall review all CONTRACT and specification requirements and ensure that they are understood. They also ensure that all suborders issued are in accordance with the requirements of the CONTRACT. They shall review the manufacturing test and inspection of the CONTRACTOR and all the SUB-CONTRACTOR and ensure that they are adequate for the production and inspection of material, which will meet the CONTRACT requirements.

Upon the award of the CONTRACT the CONTRACTOR, REA shall establish mutually acceptable quality, control and inspection procedures between the CONTRACTOR and REA and indications are to be given at that time by the CONTRACTOR as to how the agreed procedures will be implemented.

All work covered by the CONTRACT, and the inspection thereof by the CONTRACTOR, shall be subject to surveillance and/or further inspection REA's authorized representative for which purpose the CONTRACTOR (or SUB-CONTRACTOR) shall:

- a. Allow access at all times during manufacture, pre-assembly and testing to the premises in which the EQUIPMENT is being manufactured.
- b. Demonstrate to the satisfaction of REA authorized representative that the EQUIPMENT meets requirements of the contract.
- c. Print on the face of all orders on sub-contractors the following notation. This order is subject to surveillance and/or further inspection at its option by REA's duly authorized representatives.
- d. Not to deliver equipment until REA's authorized representative has been notified and release of the EQUIPMENT has been obtained. Waiving of surveillance or acceptance of the EQUIPMENT by REA's authorized representative shall not relieve the CONTRACTOR from the responsibility of furnishing the EQUIPMENT and workmanship in accordance with the contract.

4-13 Faulty or Defective Equipment

If as a result of inspection, testing or observation at any time during the progress of the manufacture, REA shall decide and notify the CONTRACTOR in writing that he has executed any unsound or imperfect work or has supplied any material inferior in quantity and quality to those specified or in any way has failed to conform to specifications and/or drawings the CONTRACTOR on receiving details of such defects or deficiency shall at his own expense, within five (5) days of his receiving the notice proceed to alter, remove or re-execute that part of the work considered to be defective and deficient and complete such work within the time specified in the notice. In the event that the CONTRACTOR fails to take remedial action with respect to the defects or deficiencies referred to above within the prescribed period, REA shall have the right to employ and pay others to do so or at its option may re-execute that part of the work itself and all expenses consequent thereon or incidental thereto shall be borne by and shall be recoverable from the CONTRACTOR by REA or

may be deducted by REA from any monies due or which may become due to the CONTRACTOR or may be recoverable through the performance bond.

Failure by REA to make such deduction shall not release the CONTRACTOR from payment to REA of the cost of the re-expected work, the provisions of this paragraph shall be in addition to and not in substitution for other provisions and guarantee under the CONTRACT.

4-14 Relations of CONTRACTOR and Sub-Contractors

Nothing contained in CONTRACT DOCUMENTS shall create any contractual relation between any the SUB-CONTRACTOR and REA.

The CONTRACTOR shall be held responsible to REA for the acts and omissions of the SUB-CONTRACTORS for their portion of the work and of persons directly or indirectly employed by them as for the acts and omissions of persons directly employed by him.

The CONTRACTOR shall be responsible for the coordination of all of the work, particularly work which is let to the SUB-CONTRACTORS. He shall ensure that the cost of all preliminary and supplementary work is included, especially in regard to sub-contracts so that the work may be completed to the full intent and purpose of the CONTRACT DOCUMENTS without additional cost to REA should a SUB-CONTRACTOR withdraw his bid or fail to carry out the work assigned to him, or become bank-rupt, an alternate SUB-CONTRACTOR, approved by REA may be substituted, contingent upon the evidence of withdrawal or bankruptcy being satisfactory to REA. However, any delays resulting there from shall not be cause for extension of time.

4-15 Contractor's Liability

Unless otherwise specifically provided in the contract, EQUIPMENT shall be and remain at the risk of the CONTRACTOR and the CONTRACTOR shall make good loss thereof or damage thereto occurring between the date of the CONTRACT and the date of the delivery at the point specified.

4-16 Insurance

The CONTRACTOR shall maintain and pay for insurance in the amount of the CIF value Egyptian port or FOB Egyptian Factory value of equipment plus 10% against loss or damage to the EQUIPMENT caused by or resulting from:

- a. Fire, smoke, explosion, falling objects, impact by aircraft or land vehicles, lightning riot, the escape of water, flood, act of God vandalism or malicious mischief, windstorm or hail.
- b. Collision, upset, overturn, derailment, stranding or sinking of a ship, an automobile or any conveyance of a carrier by land, water or air in which the EQUIPMENT or any part thereof is being carried including overland transportation in Egypt from the Egyptian Port to REA's storage yards, which transport will be preformed by others.
- c. Theft or attempted theft

This insurance must remain inforce until 90 calendar days after the material has been delivered to

REA's storage yards or until an insurance survey is made, which ever is earlier, certificates of such insurance and all renewals thereof shall be filed with the REA.

Should a loss be sustained, the CONTRACTOR shall replace or repair any loss or damage and complete EQUIPMENT in accordance with the CONTRACT as soon as possible after such loss or damage without waiting for the settlement of the insurance claim.

4-17 Suspension of Work

REA may from time to time and for a such period as it may deem expedient, delay, or suspend, in whole or in part, operations under the contract, either upon the whole of the EQUIPMENT, or for any particular part or parts thereof. Should any such delay or suspension of the work or should any delay caused by any circumstance which in the opinion of REA are beyond the control of, or not the fault of the contractor, unreasonably limit the time for the completion of the work within the time specified by this contract, REA shall approve an extension to the time for completion by such additional time as it deems sufficient in accordance with clause 4-11.

4-18 Cancellation of Contract

The CONTRACTOR shall execute the work with all skill and diligence so as to complete the work according to the schedule of times. If the CONTRACTOR should be adjudged bankrupt, or if he should make a general assignment for the benefit of his creditors, or if a receiver should be appointed for his insolvency, or if the CONTRACTOR in the opinion of REA is neglecting or is unable to provide adequate equipment and/or material, or is not providing sufficient workmen skilled and unskilled to enable the work to be carried on expeditiously or is failing to make prompt payments when due to sub-contractors or for material and labour, or is failing otherwise to comply with the contract, the specification or drawings then and in any such case REA shall have the right, without prejudice to any other right or remedy of REA to notify the CONTRACTOR that if he does not remedy the particular fault complained of in the notice within fifteen (15) days of receiving such notice REA may, at its option declare the CONTRACT cancelled and there upon REA shall be released from the CONTRACT and the CONTRACTOR shall immediately discontinue the work REA may at its option enter into possession of all or any part of the work that is uncompleted wherever situated REA may cause the work to be proceeded within any manner it thinks fit. The CONTRACTOR shall be liable to REA for all loss, damage and cost (other than consequential damages) which REA may suffer because of the CONTRACTOR's non-completion of the work and the cancellation of the contractor's non-completion of the work and the cancellation of the CONTRACT and may deduct the amount of such loss, damage and cost from any money due or to become due to the CONTRACTOR and may recover the balance from the CONTRACTOR or the balance of such loss damage and cost may be recoverable through the performance bond. REA shall not be liable for any loss or damage (including anticipated profits) incurred by the CONTRACTOR by reason of such cancellation of the contract.

4-19 Termination

Notwithstanding anything in the CONTRACT contained, REA may, by giving a thirty (30) days notice to the contractor, terminate the CONTRACT (save and except the provisions of this section)

as regards all or any part or parts of the work not therefore completed.

Upon such notice being given, the CONTRACTOR shall cease work (including the processing of materials for the fulfillment of the CONTRACT) in accordance with and to the extent specified in such notice, but shall proceed with all reasonable speed to complete such part or parts (if any) of the EQUIPMENT as are by terms of such notice to be completed and shall also proceed with all reasonable speed to complete up to such time and/or stage as may be specified in the notice any part or parts of the EQUIPMENT as required by such notice. REA may at any time or from time to time give one or more additional notices with respect to be completed after the giving of any previous notice or notices.

All EQUIPMENT completed by the CONTRACTOR under or pursuant to the provisions of the contract, before or after the giving of any notice, subject to acceptance by REA in accordance with the provisions of the contract, shall be paid for on the basis provided in the CONTRACT and the CONTRACTOR shall be entitled to be reimbursed the actual cost to the CONTRACTOR of equipment commenced, but not completed at the time of any notice, under or pursuant to the provisions of the CONTRACT and/or in any notice given pursuant thereto, plus a fair and reasonable profit in respect of work done thereon.

In the procuring of equipment or material required for the performance of the CONTRACT and in the subcontracting of any work hereunder, the contractor, shall, so far as practicable, procure or subcontract on terms that will enable the CONTRACTOR to terminate any CONTRACT entered into by the CONTRACTOR upon the same conditions and terms as those provided for this section in respect of the termination of the CONTRACT by REA and the giving of a notice or notices as aforesaid and upon the same conditions and terms in respect of reimbursement as those provided for in this section, and in the event of the termination of the CONTRACT as herein provided, as regards all any part of the work the CONTRACTOR shall co-operate with REA and do every-thing reasonable within this power at all times to minimize and reduce the amount of REA's obligation under the provision of this section.

The CONTRACTOR shall have no claim for damage compensations, loss or profit, allowance otherwise, by reason of or directly arising out of any action taken or notice given by REA or pursuant to the provisions of this section except as and to the extent in this section expressly provided. The right of termination and of giving notice herein before provided for shall be in addition to and not in substitution for any other right possessed by REA.

4-20 Patents

The CONTRACTOR shall indemnify REA against claims, actions suits and proceedings for infringement of use of any patent based upon the use of any invention protected by such patent in carrying out the CONTRACT and for royalties or other payments resulting which may be payable in connection with the CONTRACT only, provided however that in respect of the CONTRACT only, REA shall indemnify the CONTRACTOR against all such claims, actions, suits or proceedings in respect of anything the model, plan or design of which shall have been supplied by or on behalf of REA to contractor.

The party required hereunder to indemnify the other party shall be entitled to conduct the defense of such claims, actions, suits or proceeding, so long as such defense is diligently conducted, and each party shall keep the other party promptly and fully informed of the bringing of such claims, actions, suits or proceeding, and or the steps taken or which ought to be taken in the prosecution or defense thereof accordingly.

4-21 Liens

Before making final payment for the completed equipment REA may require the CONTRACTOR to furnish REA with evidence satisfactory to REA that every person, firm, and corporation who has registered or is entitled to register a mechanic's or other line for work or service required to be performed and material required to be furnished or placed pursuant to the CONTRACT or any subcontract has either been paid in full or has waived his right to register a lien or by reason of lapse of time has lost his right to register a lien or that arrangements satisfactory to REA have been made for the payment thereof.

4-22 Warranty

The CONTRACTOR shall submit during ten days from REA's notification at the acceptance of the offer a final letter of guarantee equal to 10% of the total amount of the accepted offer.

If within eighteen (18) months from the date on which the EQUIPMENT items was put into permanent operation or (24) twenty four months from the date of the Bill of lading of the last shipment whichever is earlier, the EQUIPMENT or any part thereof becomes broken or is defective or fails due to faulty or improper design (if applicable) material, workmanship, manufacture, fabrication, shipment or delivery or fails to meet the requirements of the CONTRACT, then the CONTRACTOR upon notification in writing from REA, shall forthwith make good every such breakage, defect or failure without cost (including without limitation, transportation cost, customs duties and sales taxes) to REA. If after such notification, the CONTRACTOR shall make default or delay in diligently commencing continuing and completing the making good of such breakage, defect or failure in a manner satisfactory to REA then REA may proceed to do so and to place the EQUIPMENT in good operating condition in accordance with the CONTRACT and the CONTRACTOR shall be liable for all costs, charges and expenses incurred by REA in connection therewith and shall forthwith pay REA an amount equal to such cost, charges and expense upon receipt of invoice therefore certified correct by REA. Provided the CONTRACTOR is not otherwise in default under the terms of the CONTRACT and subject to the provision of clauses 4-20 and 4-15 hereof the contractor's liability in respect of the EQUIPMENT whether in contract, tort or otherwise, shall cease upon the fulfillment by the CONTRACTOR of the contractor's obligations under this section provided further that any part of the EQUIPMENT made good under this section, shall be subject to all the provisions of this section for a further period of (18) eighteen months from the date when the same has been made good as aforesaid.

4-23 Arbitration

a. Any dispute which may arise between REA and the CONTRACTOR concerning the interpretation of this CONTRACT or the performance of the various commitments therefore and which cannot be

settled amicably shall be settled under the Rules of Regional Center for International Commercial Arbitration – Cairo by one or more arbitrators appointed in accordance with the Rules.

b. A request for arbitration must be submitted in writing to the above mentioned Center not later than eighteen (18) months after arrival of the final shipment of the EQUIPMENT at the port of Entry in the Arab Republic of Egypt or the fulfillment of all obligations under the CONTRACT whichever is later.

c. The decision of the Arbitrators shall be final and binding on both parties and not subject to appeal. Judgment upon the award rendered may be entered in any court having jurisdiction or application may be made to such court for judicial acceptance of the award and an order of enforcement as the case may be.

d. Unless the parties otherwise agree, the place of arbitration shall be Cairo, Arab Republic of Egypt.

e. Egyptian law shall be governing law for the contract.

4-24 Notices

Every notice, which may require to be given or served pursuant to the contract, shall be in writing dated and signed by the party giving the same. Notices to REA may be given or served by personal service, by forwarding same by registered mail, postage prepaid. Notices to the CONTRACTOR may be given or served by personal service or an officer of the contractor, or by sending the same by registered mail, postage prepaid, addressed to the CONTRACTOR at the contractor's principal place of business or registered office.

4-25 Force Majeure

a. The term Force Majeure as used in this CONTRACT shall mean any contingencies or causes beyond the control of REA and the CONTRACTOR or either of them and which could not be foreseen and which prevents either or both of them from wholly or partly performing any of their duties or obligations under this contract.

Force Majeure will include but not be limited to any of the following:

1. War, revolution, insurrection or hostilities (whether declared or not)
2. Riot, civil commotion or civil uprising (other than among the contractor's personnel)
3. Earthquake, flood tempest, hurricane, lightning or natural disaster
4. Any fire or major portions or explosion
5. Epidemic
6. Strike lockout, or other industrial disturbance

b. If there occurs an event constituting Force Majeure, the CONTRACTOR will give written notice of the occurrence to REA within 15 days of the occurrence or as soon thereafter as is practicable, including a statement describing the effect of such occurrence upon the performance of this contract.

c. In the event of a Force Majeure, the CONTRACTOR unless otherwise directed by REA in writing, will continue to undertake and perform the duties set forth in this CONTRACT as far as is reasonably practicable. If prevented from so performing by such Force Majeure, the performance may be suspended during the continuance of such inability but for no longer period and such

inability will be removed if practicable with all reasonable dispatch.

d. In the event of a Force Majeure resulting in a suspension of work this CONTRACT will be extended by a period equal to that for which the CONTRACTOR was prevented from performing.

e. No indemnity shall be claimed by either party due to Force Majeure.

4-26 Bribery

If it is proved that the CONTRACTOR has himself, or by means of another person, paid directly or indirectly a bribe to one of the government official or employees who have any connection with the contract, or if it is proved that this has been attempted, the CONTRACT shall be immediately terminated, the performance guarantee expropriated, the CONTRACTOR'S name removed from the list of approved contractor's and court proceeding instituted.

4-27 Fraud

If it is proved that the CONTRACTOR has falsified any record or made false declaration so as to obtain extra payment or to avoid any obligation under the contract, the CONTRACTOR shall be terminated, the performance guarantee expropriated, the CONTRACTOR'S name removed from the list of approved contractors and court proceedings instituted.

4-28 Engineer's Right to Stop Work

The Engineer has authority to stop the work whenever in his opinion such stoppage may be necessary to ensure its proper execution.

4-29 Laws and Regulations

The CONTRACT shall be governed, in all respects & matters arising in its performance, with the Egyptian Legislation.

NORTH SINAI DEVELOPMENT PROJECT

**CONVEYANCE SYSTEM OF
EL SHEIKH GABER EL SABBAAH CANAL
MAIN POWER STATION**

TENDER DOCUMENTS

PART 5: SPECIAL CONDITIONS

Part 5: SPECIAL CONDITIONS

5-01 Scope of Contract

The Contractor shall design, manufacture, test, installation and deliver the following Equipment complete with specified accessories and appurtenances and spare parts all in accordance with these contract documents.

All equipment and devices for the Main Power Substation 66/11 kV substation

5-02 Delivery, Completion and Liquidated Damages

The Contractor shall deliver the Equipment furnished under the contract, FOB at port of export in a period of 12 months from the day coming into force of the contract.

The Bidder shall show in the Delivery schedule in accordance with a part 2 Appendix C the delivery dates of the various items.

On the other hand for delayed delivery, one percent (1%) per week or part of a week will be applied in addition to the quoted prices for comparison only however, maximum allowed delay is one (1) month.

If the Contractor fails to deliver any portion of the Equipment by the time shown in the Delivery Schedule in section 7, R.E.A may assess as liquidated damages and one percent (1%) of the delivered value of the delayed Equipment for each week or part of a week, but not more than ten (10%) of the value of the delayed goods.

If such delay prevent from making use of Equipment, which form the subject matter of the contract the fine shall then be calculated on the total value of the contract.

This liquidated damage value will be deducted from the Performance Bond as per section 3, herein provided that the Contractor will increase the said Performance Bond to maintain its original value (10%).

5-03 Progress Report

A monthly progress report shall be prepared by the Contractor at the close of each calendar month, in a form approved by R.E.A to show the progress of design, material orders, material deliveries, manufacturing progress, testing, installation and shipment of the various items included in this contract.

Six copies of the report shall be forwarded to R.E.A not later than 15 days after the close of the reporting period.

5-04 Standards

All materials supplied and all materials used in their manufacture shall be in accordance with the

latest edition of the IEC standards and their appendices or approved equivalent. Where no standard exists, as in the case of patented items, or special materials, all such materials and workmanship shall be of the best quality and full details of the materials and any quality control tests to which they may be subjects shall be furnished to R.E.A. The Tenderer shall state the code numbers of the standards they adopted.

5-05 Preparation for Shipment

The Contractor shall prepare all Equipment, materials, and shipment in such manner as to protect them from damage in transit and to be acceptable to R.E.A.

Equipment shall be packed to protect all parts thereof in the best possible manner to avoid damage or loss and to withstand repeated handling and extremes of climate during transport and storage in R.E.A storage yards. Packing shall be non-returnable. The cases and package units shall be protected from external damage and the entrance of dirt and moisture during transport and storage lids and external cross battens of all packing, cases shall be fixed by screw and not by nails. Hoop metal bindings of cases shall be sealed where ends meet, and if not, of rust – resisting material, shall be painted.

Contents of cases shall be bolted or otherwise fastened securely in place with struts or cross battens and not held by wooden wedges. Wood wool packing shall be avoided as far as possible. Waterproof paper, plastic, and felt linings shall overlap at seams and seams shall be secured together in an approved manner, but the enclosure shall be provided with screened opening for ventilation. Where practicable, all indoor items such as electric motors, switch, and control gear, instruments and panels, machine components, etc, shall be enclosed in polyethylene sheeting, sealed at joints and the enclosure provided internally with an approved desiccate. Each crate or package shall contain a packing list in a waterproof envelope and copies of the packing lists shall be forwarded to R.E.A prior to dispatch of the goods. All items shall be clearly marked for easy identification against the packing list.

All cases, crates, packages, bundles, etc shall be clearly marked on the outside to indicate the total weight, to show where the weight is bearing and to show the correct position of slings. They shall bear identification marks relating them to appropriate packing lists and shipping documents, as well as number of the Contractor and names of client. All stencil marks on the outside of packages shall be either waterproof or protected by shellac or varnish to prevent obliteration in transit.

5-06 Shipment

As the terms of delivery is FOB, the Contractor shall be responsible for making all arrangements and paying all cost for transporting and insurance from manufacturer works to any part to fulfill his FOB obligations.

The shipment of the Equipment will be effected through xxxxx.

At least 30 days in advance of an anticipated shipment date the Contractor shall furnish by air mail to R.E.A notices giving full information about shipment. Immediately after each consignment is

shipped the Contractor shall dispatch shipping documents as follows to the R.E.A in Cairo or as directed by R.E.A.

1. 3 originals and 3 copies of Bill of Lading to the order of R.E.A
2. 6 copies of Ocean Freight Bill
3. 10 copies of Commercial Invoice
4. 6 copies of Packing Lists
5. 4 copies of Certificates of Origin
6. 1 original and copy of Inspection Certificate
7. 1 original and copies of Insurance Policy

5-07 Price Adjustment

Prices quoted for this contract are firm during the whole life of the contract.

5-08 Inspection and Testing before Shipment

1. R.E.A representatives shall have at all reasonable times access to the Contractor's manufacturing facilities to inspect and test the Equipment after its manufacture.
2. The Contractor shall notify R.E.A by facsimile (or cable) confirmed by letter 60 days in advance of the date on which items of Equipment will be ready for inspection and the place of the manufacturer works. The copies of such notify shall be delivered to R.E.A simultaneously.
3. The inspection and testing shall be carried out in accordance with the provision of the technical specifications.
4. R.E.A representatives shall issue, after successful completion of inspection and testing a certificate releasing the accepted item for shipment.
5. In case R.E.A representative is not present for the inspection and testing within 30 days from the date of readiness of the Equipment for inspection and testing as notified to R.E.A, the Contractor after acceptance of R.E.A shall carry out the required tests, and if the results are satisfactory, they will be regarded as accepted. The Contractor shall forward to R.E.A four (4) duly certified copies of the test results. In this event the Contractor's certificate will be accepted in place of the R.E.A's representatives certificate. The Contractor shall have no authority to issue such inspection certificate except in the above-mentioned case.

The test certificate has to be legalized by the chamber of commerce in the Contractor's country, and endorsed from Egyptian Consulate there.

6. It is understood that the inspection and testing as herein specified shall not in any way release the Contractor from proper fulfillment of the guarantee stated in article 5-09.
7. Cost of testing at manufacture works will be borne by the Contractor.

5-09 Guarantee

1. The guarantee provision specified hereunder shall apply in lieu of those in clause 4-25 of the general conditions regardless of the precedence of documents as stated in clause 4-01 of the general conditions.
2. The Contractor shall guarantee that all items of the Equipment furnished under the contract are of first class material and factory workmanship throughout, that they have been tested in accordance with the specifications and that the results of the tests comply with the requirements of the specifications.
3. The guarantee period shall extend for 18 months from the date on which the Equipment items was put into permanent operation or 24 months from the date of the Bill of Lading of the last shipment which ever is earlier.
4. During the guarantee period, the Contractor shall at his own expense and to the satisfaction of R.E.A restore, make good or defective due to faulty design, faulty materials or faulty manufacture so that at the expiration of the guarantee period the Equipment is in a sound and satisfactory working condition.
5. When any unsound or defective parts due to faulty design, faulty materials or faulty manufacture were found during the guarantee period, the Contractor shall establish ten (10) percent L/G of the value of the Equipment containing such unsound or defective parts endorsed by a first class bank in Egypt. The said L/G shall be valid for 18 months for the concerned Equipment after repair or replacement.
6. The notice from R.E.A concerning the defect(s) discovered during the guarantee, period shall be sent to the Contractor's head office in writing as promptly as possible. The notice shall contain the nature of the defect in detail and its obvious reason where possible.
7. The Contractor shall inform R.E.A within 30 (thirty) days from R.E.A notice with the necessary program from the repairing or replacing defective deliveries.

5-10 Training

The Contractor shall provide training for R.E.A personnel in the country of the Equipment manufacture as follows:

Number of Personnel		Period of Training
a. Senior Engineers	2	2 weeks
b. Junior Engineers	5	2 months
c. Technicians	5	2 months

If possible, part of the training should take place at sites in the Contractor's country where Equipment similar to that supplied under the contract is being installed.

All expenses (cost of training, accommodations food, medical treatment, local travel in the Contractor's country) shall be included in the prices offered for such training in schedule of prices the cost of air tickets from Cairo to the Contractor's country and return will be borne by R.E.A separately.

5-11 Language

All correspondence and all specifications, drawings and other documents furnished by the Contractor in connection with the contract shall be in the English Language.

5-12 Effective Date of Contract

This contract comes into force at the latest of the following dates:

1. The date of signing it by the two concerned parties.
2. After the Contractor established the performance guarantee and advance payment guarantee.
3. The date of establishment of the respective L/C if needed and L/G for the facilities amount.

5-13 Bid's Deviation or Exception

Any and all deviation and/or exception to the Bidding Documents shall not be allowed unless otherwise specified in the Bidding Documents.

Deviations and/or exception made not in accordance with Bid Documents may cause the proposal to be rejected.

Any and all alternative proposals shall not be considered unless otherwise specified in the Bidding Documents.

NORTH SINAI DEVELOPMENT PROJECT

**CONVEYANCE SYSTEM OF
EL SHEIKH GABER EL SABBABH CANAL
MAIN POWER STATION**

TENDER DOCUMENTS

PART 6: TECHNICAL CONDITIONS

PART 6: TECHNICAL CONDITIONS

Section 6-1 GENERAL TECHNICAL CONDITIONS

6-1-01 GENERAL DESCRIPTION

This section of the specification covers the supply and installation of the equipment applied to conventional and indoor type substation in accordance with the general conditions as follow:

Main Power Substation (for El Salaam No. 7 Pumping Station), rated 4 x 25 MVA, 66/11 kV.

It will be interconnected to the 66 kV distribution network via 66 kV over head transmission lines.

It shall supply the 11 kV load demand for El Salaam No. 7 Pumping Station.

The deliveries for the substation shall include the following:

- a. 66 kV complete switchgear
- b. Main transformers 66/11 kV, 20 / 25 MVA each
- c. Medium voltage switchgear
- d. Control, metering and protection equipment
- e. Auxiliary equipment
- f. Cables and accessories
- g. Spare parts
- h. Maintenance tools
- i. Buildings

All the 66 kV equipment shall be conventional type and the 11 kV switchgear shall be metal clad with draw-able type.

6-1-02 SUBSTATION EQUIPMENT

The substation shall comprise the following parts as specified herein and shown on the attached drawings and single line diagram.

A. 66 kV EQUIPMENT

Bus-bars, insulators, isolating switches, circuit breakers, instrument transformers, protection relays, lightning arresters etc. necessary for the connection of the circuits mentioned herein after.

- a. Two bays for overhead transmission line feeders with short circuit level 31.5 kA, and rated current 1,250 amp.
- b. Four bays for main transformer feeders with short circuit level 31.5 kA, and rated current 1,250 amp.
- c. One bay for bus coupler for future extension

B. MAIN TRANSFORMERS AND NEUTRAL POINT EQUIPMENT

- a. Four main transformers: oil immersed step down power transformers, outdoor type each of capacity 20/25 MVA, DYN 11, 66/11 kV provided with on load tap changer with plus and minus 10 % in 17 steps.
- b. Each two main transformers will be used in parallel connection.

- c. Two regulated resistors for neutral point of two parallel running main transformers: 0 - 500 A, 12 - 15 ohm, 10 sec. in five steps.
- Five single-phase isolating switches 11 kV, 630 A - Two lightning arresters 12 kV, 10 kA for each two parallel running main transformers.

C. 11 kV METAL CLAD SWITCHGEAR TOTALLY ENCLOSED

- a. Two circuit breaker units: 40 kA, 3,000 amp for two outgoing feeders.
- b. Four circuit breaker units: 40 kA, 2,000 amp for four main transformer feeders.
- c. Two circuit breaker units: 40 kA, 400 amp for two station transformers.
- d. One circuit breaker units: 40 kA, 3,000 amp for one bus-bar sectionalizer.
- e. Two circuit breaker units: 40 kA, 1,000 amp for lightning arrester.
- f. Four-cable termination panels for 11 kV feeders from the main transformer.
- g. Four neutral point equipment panels.
- h. Two circuit breaker units: measuring cells equipped with potential transformers and necessary equipment.
- i. Necessary bus bars instrument transformers, earthing switches, etc.

D CONTROL METERING AND PROTECTION EQUIPMENT FOR:

- a. Two 66 kV transmission line feeders.
- b. Four 66 kV main transformer feeders.
- c. Two 11 kV parallel running main transformer feeders.
- d. Two 11 kV outgoing feeders to No. 7 Pumping Station
- e. One 11 kV bus-bar sectionalizing
- f. Two 11 kV station transformer feeders.
- g. Operator control board with mimic diagrams and alarms.

E. AUXILIARY EQUIPMENT

- a. Two 500 kVA, 11,000 / 400 - 231 volt, dry type station transformers.
- b. Low tension switchboards for the control of the low-tension side of the two station transformers, station lighting, battery chargers and etc.
- c. D.C. Power supply unit comprising of 220 V, 500 Ah batteries, and charging unit with necessary control, and distribution boards.
- d. All auxiliary connections and small fittings as required.
- e. Fire protection equipment.
- f. Substation lighting system.
- g. Substation earthing system.
- h. Substation ventilation system.

F. CABLES

- a. Copper conductor XLPE cables for power supply system.
- b. Copper conductor shield type cables for control system.

G. SPARE PARTS AND MAINTENANCE TOOLS

The Tenderer shall submit the list of spare parts and tools as required for two years normal operation of the substation.

H. STANDARD, SPECIFICATIONS AND CORDS

All equipment and material subject to these specifications shall conform to the latest issue of the IEC standards or approved equivalent. Tenderers shall state clearly the standard specifications they have adopted for the various items.

6-1-03 FULLY DETAILS SPECIFICATIONS ESSENTIAL

No tender will be considered which is not accompanied by complete sets of drawing and specifications, full details and information in connection with the various sections of the work included in the contract to allow the complete study and analysis of the offer.

As sufficient time will not be available between the opening of the tenders and the placing of the order for this contract to permit correspondence regarding doubtful items, the tenderers should provide the fullest possible information in respect of the equipment to be supplied and should fill in completely all the schedules of prices, and equipment data tables, as well as the tables of technical particulars.

6-1-04 SCHEME OF CONNECTIONS

A. HIGH VOLTAGE SIDE

The high voltage side shall be of single sectional bus-bar system and shall be fed from two circuits overhead transmission lines being carried on one tower line. The operating voltage shall be 66 kV, 50 HZ.

B. MEDIUM VOLTAGE SIDE

On the medium voltage side sectionalized single bus bar system shall be used, two sections shall be tied through a circuit breaker as shown in the attached single line diagram.

6-1-05 BUILDINGS

A. SUBSTATION BUILDING

The substation building will comprise SF6 Circuit breaker for indoor 66 kV switchgears, main and station transformers, medium voltage and low voltage switchgears, DC power unit consist of batteries and charger, control, metering and protection boards, cables. The building shall be equipped with general and emergency lighting, socket outlets and other items required for a complete proper functioning installation whether mentioned here or not.

The supply under this contract shall include all fittings and tension insulators required connecting the incoming conductors to the 66 kV indoor switchgear.

The incoming conductors furnished by the transmission line contractor will be of 380/50 mm² ACSR.

The terminal tower for the transmission lines shall be located in the substation site with a distance not more than 20 meters from the substation building.

B. ADMINISTRATION BUILDING

The administration building will contain the operator office, store room, laboratory, workshop and substation control room etc.

6-1-06 CLIMATIC CONDITIONS

The climatic conditions are prevailing as follows.

A. TEMPERATURE

a. Max. air temp in shade:	51 °C
b. Average temperature daily maximum of hottest month:	41.3 °C
c. Minimum air temperature:	- 2.0 °C
d. Average daily minimum of coldest month:	6.0 °C
e. Maximum temperature of black bulb:	81 °C
f. Average daily maximum black bulb in hottest month:	73 °C
g. Maximum temperature of bright bulb:	65 °C
h. Maximum temperature of the conductor:	80 °C
i. Every day stress (EDS) temperature of the conductor:	20 °C

B. RAINFALL

The maximum in any year is about 9 mm and the average 2.7 mm.
However, heavy rainfall is known to have occurred occasionally in the region.

C. SNOW AND SLEET

Hail falls very rarely.

D. THUNDER STORMS

Thunderstorms occur occasionally wind speed will be of the maximum wind velocity.

E. BAROMETRIC PRESSURE

a. Average of highest pressure per month:	763 bar
b. Average of lowest pressure per month:	754 bar
c. Mean for the year:	758 bar
d. Highest ever recorded:	770 bar
e. Lowest ever recorded:	749 bar

F. RELATIVE HUMIDITY

- a. Average humidity in wettest month: 45%
- b. Average humidity in driest month: 25%
- c. Average yearly humidity: 34%
- d. The humidity falls frequent below 4% and occasionally to zero.
- e. The maximum monthly average relative humidity at 8 am: about 83%
- f. The minimum monthly average relative humidity at 2 pm: about 44%
- g. The yearly average relative humidity: about 75%
- h. The maximum relative humidity is higher than 83% and the minimum relative humidity is lower than 44%, their duration may be long.

G. SALTY POLLUTION

Due to some salty lands and sea, atmosphere is often charged with salt dusts, which are deposited after condensation of humidity and are not completely washed out by rainfall.

H. WIND VELOCITY AND STORMS

- a. The maximum wind velocity at small height is about 35 m /sec.
- b. For heights 15 meter a load factor should be used.
- c. The wind may blow from any direction.
- d. Storms usually occur in winter.
- e. The maximum number of stormy days per month is about 9 days and the number of stormy days per year is about 15 days.
- f. Sandy storms occur about once per month.

6-1-07 INFORMATION TO BE VERIFIED

Tenderers upon there own responsibility shall make enquiry and obtain further information in verification or otherwise of the information provided herein.

They shall make such use thereof as they shall deem necessary in making their tenders and fixing their rates, and no payment compensation or allowance shall be made to the contractor, nor shall the contractor be entitled thereto by reason of any extra expense or any loss or delay which may arise from any errors, misstatements or omissions in these contract documents or in any other information supplied to the tenderers.

Any inaccuracies in the information provided or the fact that any data subsequently obtained by the contractor differs in any way from the data herein given, shall not remove or diminish in any degree the responsibility of the contractor to supply to the REA and erect the equipment required for a first class installation in all respects, and strictly in conformity with the conditions of contract.

The tendered rates and prices shall be taken as providing for and covering all risks.

6-1-08 UNITS

All the measuring, indicating and recording instruments to be supplied under this contract shall be graduated to read according to the metric system.

6-1-09 DOCUMENTS TO BE SUBMITTED WITH TENDER

Tenderers shall submit with their offer all detailed catalogues, pamphlets and description they may think necessary to explain the constructional features and functioning characteristics of the different apparatus they are offering.

The following diagrams and drawings shall be submitted with the tender.

- a. General layout of the substation
- b. Complete plans of the substation showing the position of the indoor equipment
- c. Sections in the layout showing the position of the equipment and the heights of each part
- d. Details of the constructions of the substation and administration buildings
- e. Dimensions and details of all equipment foundations
- f. Layout arrangement of the indoor equipment
- g. Single line electrical connection diagram showing 66 kV, 11 kV and 0.4 kV system with their metering and protection.
- h. Layout of the control room showing the position of the panels and the arrangement of the equipment
- i. Arrangement of the 11 kV cubicles and details of the panels
- j. Sectional drawings of each type of circuit breaker
- k. Detail of cable trenches and manholes
- l. Complete sets of detailed dimension drawings and illustrative catalogues for transformers, switchgear equipment, insulators, current transformers, voltage transformer lightning arresters and substation auxiliaries.
- m. Arrangement of 0.4 kV cubicles and the details of the panels
- n. Arrangement of battery and battery charging equipment
- o. Layout of electrical lighting installation for transformer station
- p. Detail drawing of conductor joints and fittings
- q. Details of bushing, insulators

All dimensions and measurements given or indicated on the drawings shall be in metric units.

All the information and data furnished in and with the tender for all the substation equipment shall be identified in the English Language.

6-1-10 DRAWINGS TO BE SUBMITTED FOR APPROVAL

Within two months the CONTRACTOR shall submit to REA for approval, detailed working drawings of the various parts of equipment and building together with the calculations justifying their use.

The REA approval of such detailed working drawings should be obtained before starting the manufacture of any part of the equipment. In any case, the manufacture of any part shall be at the sole risk and expense of the CONTRACTOR if it is executed before receipt of the REA approval.

The CONTRACTOR shall supply during the execution of the work such further working drawings and samples as may be required from time to time by the REA Engineer.

6-1-11 COPIES OF CONTRACT DOCUMENTS

The CONTRACTOR shall submit to the REA for the substation.

- a. 20 copies of the contract and 10 sets of the tender drawings
- b. 8 sets of civil drawings to elaborate the civil design of the substation and to be handed over to REA within two months after signing the contract.
- c. 8 copies of erection drawings to be delivered during 4 months from coming into force of the contract
- d. 8 copies of the wiring diagrams to be delivered during 4 months from coming into force of the contract
- e. 8 copies of the complete maintenance and operation instructions and catalogues for all equipment, to be delivered during 6 months from coming into force of the contract
- f. 1 set of wiring diagrams (hand corrected) to be handed over to REA during commissioning and 4 sets finally corrected after one month
- g. One reproducible translucent copy of each such above mentioned drawings to be delivered after 1 month from the commissioning date of the substation.

6-1-12 SERVICE OF GUARANTEE TECHNICIAN

Before the end of the guarantee period, the guarantee technician shall dismantle and overhaul the plant with the help of the substation staff in such a manner as to permit the examination of all working parts by the REA representative.

6-1-13 DESIGN OF THE PLANT

The design of the equipment of the substation as well as the arrangement of the plant as a whole, shall follow the latest modern practice.

The rated voltage is the voltage by which an electrical installation or equipment is designated and to which certain service properties are referred.

The rated voltages are 66 kV, 11 kV and 400 volts.

The service voltage (operating voltage, working voltage) is the voltage locally occurring between two conductors of equipment or parts of an installation. The service voltages are 66 kV, 11 kV, 380 V and 220 volts.

The highest voltage for the equipment is the highest voltage for which the equipment is designed regarding to its insulation. The voltage shall be at least equal to the highest system voltage for which the equipment is intended.

The highest voltage of the system is the highest effective value (RMS. value) line to line voltage, which can be sustained under normal operating conditions at any time and at any point of the system. The highest voltages are 72.5 kV and 12 kV.

The system frequency shall be 50 Hz

The methods of measurement and testing shall be in accordance with the standard specifications adopted unless otherwise stated in these specifications.

The insulation of all equipment shall be designed for tropical conditions.

All indoor metal works shall be given two coats of rust resisting paint followed by two coats of coloured paint.

6-1-14 LABELING

Labels shall be so designed and placed as to facilitate orientation both within the switchyard and when approaching it from outside.

All parts of the equipment or system shall be able to easily identify by labels.

All switchboards, distribution boards, control boards and units there of, components mounted therein and wiring and cables, shall be provided with label and marker.

All labels shall be in English and shall comply with IEC standards.

All labels shall be of plastic or metal for indoors and of enameled metal for out doors, and shall have the text or symbol engraved.

Text and symbols shall be of dark color and the surface shall be in light.

All labels shall be permanently fixed to the switchboard and glued labels and marking tape are not acceptable.

Control cable terminals and for small load circuits also power terminals shall be clearly marked for identification.