

SCOPE OF WORK & SPECIAL CONDITIONS OF CONTRACT (SW& SCC)

1.0 SCOPE OF WORK

Transformers and Electricals Kerala Ltd (**TELK**), a joint venture of Government of Kerala and NTPC Ltd. is looking to update and develop state-of-the-art Transformers & Shunt reactors up to and including 765 kV class and thereafter take up commercial manufacturing of the same.

Competitive offers are invited for Co-operation / Consultancy / Technology transfer / up-gradation for Transformer and Reactor technology from world class transformer manufactures / consultants having technology up to 765 kV class transformers & reactors.

The implementation of collaboration / tie up projects shall be in phases.

Phase 1: Power Transformers & Reactors up to 400 kV class.

Phase 2: Power Transformers & Reactors of 765 kV class

The implementation of Phase 1 requires only up-gradation of existing technology and the additions in infrastructure are minimal. However Phase 2 requires new plant and machinery for production, processing & testing. So the Agency may now quote for Phase 1 only, as per the detailed scope below. However the agency shall make an agreement with TELK that they will support TELK for the implementation of phase 2, as and when it requires, on mutually agreeable terms.

2.0 DEFINITIONS

- 2.1 TELK** shall mean Transformers and Electricals Kerala Ltd, a joint venture of Government of Kerala and NTPC Ltd.
- 2.2 AGENCY** shall mean the firm which is quoting for Co-operation / Consultancy / Technology transfer / up-gradation for Transformer and Reactor.
- 2.3 PRODUCT** shall mean the Transformers and Shunt reactors for which new designs / technology are to be developed by the Agency upon request of TELK.
- 2.4 TECHNICAL INFORMATION** shall mean the design documentation supplied by the Agency at preliminary design stage, detailed design stage and documents & technical inputs required for commercial manufacturing, assembling, testing, erection, commissioning, troubleshooting, repair & servicing of the **PRODUCT**.

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2.5 TECHNICAL ASSISTANCE shall mean the services rendered by the Agency upon request of TELK either by way of deputation of their experts to TELK or design services carried out in their facilities and shall include clarifications provided to TELK from time to time

2.6 SOFTWARE shall mean the software required for the design and development of the PRODUCTS and shall include any and all subsequent updations of the same by the Agency.

2.7 IMPROVEMENT shall mean modification and / or correction of TECHNICAL INFORMATION made by the Agency during the period of collaboration in respect of PRODUCTS.

3.0 OBJECTIVES AND SCOPE:

The objective of the Co-operation / Consultancy / Technology transfer / up-gradation project is to establish the design methodology, generate engineering information, drawings and other necessary documentation which would enable TELK to commercially manufacture the PRODUCTS resulting in better performance and cost reduction. The Agency shall provide to TELK TECHNICAL INFORMATION and TECHNICAL ASSISTANCE as detailed in the hereafter to meet the objectives described herein.

3.1 TRANSFER OF TECHNICAL INFORMATION :

The scope includes TRANSFER OF TECHNICAL INFORMATION in the form of detailed design & calculations, customer drawings & manufacturing drawings, instructions for implementation of design, training for the engineers from design & production and supervision during manufacturing of PRODUCTS specified in the price schedule.

In addition to this, during the period of co-operation, the Agency shall upon request of TELK provide TECHNICAL INFORMATION to **TELK, at no** additional charge, for a total of 36 (thirty six) preliminary designs for PRODUCTS of various voltage class & capacity of for tendering purpose. This includes the material estimation, technical parameters required to be furnished along with offer, general arrangement drawing etc. in line with the technical specification provided by TELK.

Any additional requirement of preliminary and/or detailed designs of PRODUCTS, over and above those mentioned in the Price Schedule shall be provided by the Agency at additional charges in accordance with the rates quoted in the Optional Price Schedule.

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Alternatively the Agency can quote with a total package rate for the Transformer / Reactor Designs specified in the Price Schedule. However the payment schedule (in not less than five installments within the period of cooperation) shall be clearly brought out in the offer.

All the designs to be furnished by the Agency to TELK shall comply with IEC 60076. During preliminary or detailed design stages of a PRODUCT, the Agency shall immediately upon request furnish to TELK any information as required by TELK to meet customer technical specification or as sought by a customer of TELK.

The Agency shall verify and ensure completeness and correctness of design data, documents and information generated before release to TELK for tendering or manufacturing, to ensure flawless offer preparation and/or manufacturing of the PRODUCT. Materials specified in preliminary design shall be retained at detailed design stage also for manufacturing as change of material (grade) and major reduction in quantities of raw materials at detailed design stage is not entertained by the customer. Care shall be exercised during detailed design to optimize the cost and for this reason a variation in PRODUCT weight of a maximum of $\pm 3\%$ (three percent) is only permitted.

The TECHNICAL INFORMATION relating to the PRODUCTS, which are delivered by the Agency to TELK, will be developed based on and using state of the art design and production technologies and in line with latest test practices in accordance with international standards as being used by reputed transformer manufacturers. During the period of co-operation, any design/technological improvements made by the Agency shall be implemented for TELK projects also.

The TECHNICAL INFORMATION provided shall be complete to enable submission of compliant offers against customer tenders in case of preliminary design and for defect free manufacturing in case of detailed design and shall be as per the best international practices.

The zero date for beginning of the design work by the Agency shall be the date of receipt of input data from TELK and the completion date would be the date specified by TELK. A time schedule of 7 (Seven) working days for transfer of TECHNICAL INFORMATION relating to preliminary (tender) design and 60(sixty) working days for transfer of TECHNICAL INFORMATION related to detailed design including related manufacturing information. The details for starting procurement

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action of materials like Copper conductor, CRGO, special copper items, Press Board items, etc and components like OLTC / OCTC, Bushings etc. that require high lead time shall be furnished within 21 (twenty one) working days from the zero date. The likely variance if any shall be informed in advance to TELK and accordingly TELK shall consider their request based on complexity of work involved.

The TECHNICAL INFORMATION shall be delivered in English.

The TECHNICAL INFORMATION shall be made in the metric system of measurements. All drawings will be to scale except some sketches for bringing out clarity. The Agency shall provide any clarifications/ queries sought by TELK relating to the TECHNICAL INFORMATION in writing.

4.0 DESIGN PROGRAMS AND DESIGN MANUAL :

The scope includes installation of software for design & calculations (tender as well as final), optimization of designs, technical data required for preparation of drawings, & bill of materials etc. for PRODUCTS (Transformers & Reactors up to 400 kV class). This also includes the handing over of keys, licenses, etc. whichever is applicable. The programs should be integrated type (One set of input will give outputs related to magnetic, winding, insulation, thermal, hydraulic, etc.), user friendly and shall be easily adaptable to TELK engineers. Proper implementation of change over to new technology includes training to TELK engineers and supervision during initial stages. SOFTWARE shall be transferred and installed by the Agency at the registered office of TELK namely

**TRANSFORMERS & ELECTRICALS KERALA LIMITED,
ANGAMALY SOUTH. P.O.,
ERNAKULAM DISTRICT,
KERALA STATE, INDIA, PIN : 683 573**

The Agency shall provide all necessary licenses for use of the SOFTWARE at no additional charge. SOFTWARE installed shall be regularly updated, maintained, user and troubleshooting support provided by the Agency online. The Agency should assure that they will provide these services for a period not less than 5 years from the date of installation.

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Along with software the Agency should also provide a Design Manual for the PRODUCTS to enable TELK Engineers to design & manufacture similar PRODUCTS in future.

Any information about the existing processes of manufacturing of testing equipment, materials used (properties, specification), characteristics of the component parts and other data that is required by the Agency to fulfill their obligations will be provided by TELK.

5.0 TRAINING AND SUPERVISION

5.1 TRAINING FOR PRODUCTS:

The Agency shall depute its technical experts to TELK for training / supervision of manufacturing, assembly, testing, etc. of PRODUCT. Thirty (30) working man-days of the Agency experts at TELK premises, for each detailed design of PRODUCT received from the Agency, spread over four visits, shall be provided by the Agency at no additional charge to TELK. Such visits shall take place upon the request of TELK.

5.2 TRAINING FOR DESIGN PROGRAMS AND DESIGN MANUAL:

The Agency shall also provide forty (40) working man-days of experts for training TELK engineers on the use of SOFTWARE & DESIGN MANUAL at no additional charge to TELK. The schedule of training will be mutually agreed upon.

The Agency shall quote rates in case of TELK requests additional services of experts over and above in the Optional Price Schedule. Such man-day rates shall be all inclusive (i.e including boarding, lodging and travel). These working man-day rates would remain valid for further period of three years after the termination of collaboration.

6.0 QUALIFYING REQUIREMENTS

- a. The Agency or the Chief consultants (at least 2 senior consultants) of the Agency should have at least 15 years of experience in the design & implementation of products defined above.

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- b. The Agency should have implemented the proposed Technical Information of the Products, at least in 2 companies and they should produce performance certificate from such companies.
- c. The agency should confirm that more than 2 Nos. of Products with the proposed design philosophy is successfully Short Circuit tested and should submit the details of the same.
- d. The agency should confirm that the proposed Design Program shall be an integrated one for the entire design requirements.
- e. The agency should submit major raw material content for 3 transformers Designs coming under the category specified in 2, 4 & 5 of I A of Price SCHEDULE.

7.0 SITE VISIT

Since the PRODUCTS as per the designs furnished by the Agency would be manufactured at existing facilities (plant) of TELK, an assessment of the existing infrastructure in such facilities shall be carried out by the Agency for their appropriateness to manufacture the PRODUCTS and the Agency shall then advise any necessary modification/ augmentation for consideration by TELK.

8.0 NON-PERFORMANCE OF PRODUCTS

Technical assistance / services / support to analyze any non-performance (during field operations/demonstrations) of PRODUCTS and suggested remedial actions shall be provided by the Agency at no additional charge to TELK.

9.0 PROVISIONS

TELK will provide office space with required amenities within the premises of TELK office to the experts of the Agency visiting TELK for Technical Assistance / Training at its cost. However it would be the responsibility of the Agency to obtain necessary entry visas from the authorities for its experts deputed to TELK works. TELK shall provide necessary support by way of required documentation.

10.0 RIGHTS

The Agency should transfer and grand to TELK the following royalty free rights:

- a) An exclusive right during the collaboration period to design, manufacture, assemble, test, erect, commission, troubleshoot, repair and service the PRODUCTS using the TECHNICAL INFORMATION provided by the Agency.

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b) A non-exclusive perpetual license to use the SOFTWARE installed at TELK

c) The TECHNICAL INFORMATION, prepared by the Agency upon the request of TELK shall be the exclusive property of TELK. The Agency shall not transfer nor make available the TECHNICAL INFORMATION to a third party during the period of collaboration.

11.0 PRICE SCHEDULE

Sl. No.	DESCRIPTION				QUANTITY
DESIGN PROJECTS					
I A	TRANSFORMER DESIGNS				
	Capacity	Voltage Class	No. of Phases	Type of Transformer	1
1	Below 100 MVA	220 kV	3	2/3 Winding	1
2	100 MVA & Above	220 kV	3	2/3 Winding	1
3	100 MVA to 250 MVA	220 kV	3	Auto Transformer	1
4	100 MVA to 250 MVA	400 kV	3	Auto Transformer	1
5	Above 200 MVA	400 kV	3	G T	1
6	Above 200 MVA	400 kV	1	G T	1
7	315 MVA	400 kV	3	Auto Transformer	1
8	500 MVA	400 kV	3	Auto Transformer	1
I B	REACTOR DESIGNS				
1	400 k V Class Single / Three Phase Reactor Designs				2
II	DESIGN PROGRAMS for Transformers & Reactors up to 400 kV class				
1	Tender Design & Calculations				1
2	Final Design & Calculations				1
III	DESIGN MANUAL for the above				1

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12.0 OPTIONAL PRICE :

In addition to the above price schedule price for Optional items as per below table shall also be quoted to meet any additional requirements, if arises during the actual execution of the project.

PRICE SCHEDULE (OPTIONAL) :

Sl. No.	DESCRIPTION				QUANTITY
DESIGN PROJECTS					
	TRANSFORMER DESIGNS				
	Capacity	Voltage Class	No. of Phases	Type of Transformer	1
1	Below 100 MVA	220 kV	3	2/3 Winding	1
2	100 MVA & Above	220 kV	3	2/3 Winding	1
3	100 MVA & Above	220 kV	3	Auto Transformer	1
4	100 MVA & Above	400 kV	3	Auto Transformer	1
5	Above 200 MVA	400 kV	1 or 3	G T	1
6	Additional training / Supervision during implementation of Design Projects				Per Man Day
DESIGN PROGRAMS					
1	Additional training during implementation of Design Programs				Per Man Day

13. PAYMENT

The payment term for Design Project is

- 15% of the total price of released project along the order of release. All advance payment shall be made against irrevocable Bank Guarantee in the format acceptable to TELK.
- 50% of the total price released project on completion of manufacturing Drawings.
- 35% of the total price released project on successful completion final testing, including Short Circuit Test if specified, of Transformer / Reactor.

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The payment term for Design Programs & Design Manual

1. Payment of 50% of the total price within 15 working days from the date of confirmed order. All advance payment shall be made against Bank Guarantee.
2. Payment of balance 50% of the total price within 30 working days from the completion of training.

14.0 WORK COMPLETION PERIOD

The project completion period shall be 3 years and can extent up to 5 years from the date execution of the Co-operation agreement. The design project implementation period shall be as per the mutual agreement between the party & TELK at the time of release of order for the same.

15.0 SUBMISSION OF BIDS : Bidder must have a clear understanding of the of al the tasks/scope to be accomplished by him before submission of the bid. TELK will not be responsible for incorrect bidding arising out of misconception of tender document.

16.0 BIDS (Techno-commercial and price bids separately) should be submitted separately in presentable formats through e-tendering. TELK will not assume any responsibility for errors, omissions or misinterpretations resulting from incomplete downloading of tender documents. The bids and documents submitted to TELK shall be in English language. All prices quoted shall be fixed for the duration of the contract.

17.0 CLARIIFCATION OF BIDS : To assist the examination, evaluation and comparison of bids, TELK may ask the bidders for clarification of their bids. The request for clarification and the response shall be by fax or e-mail, but no change in the prices or substance of the bid shall be sought, offered or permitted except as required to confirm the correction of arithmetic errors discovered by TELK during the evaluation of bids.

18.0 ENGINEER IN CHARGE : The Engineer in charge will act in all matters pertaining to this contract on behalf of TELK. Further correspondences and communications with regard to the clarifications on tender details and execution of contract shall be done with the Engineer in charge. Contact details of the Engineer in charge is given below :

Mr. REJI JOHN

Deputy General Manager (Design/Engineering)

TELK, Angamaly

Email id : mrtd@telk.com

Mob : 9388167227

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