Terms of Reference (TOR)for Appointment of Consultant Firm/Institution fordetail Feasibility Study to establish a "**Smart &Complete XLPE Insulated Cable production plant including CCV line (Voltage rating up to 36KV) in Eastern Cables Ltd.**"at NorthPatenga, Chattogram.

Eastern Cables Limited

Bangladesh Steel and Engineering Corporation
Ministry of Industries.
North Patenga, Chattogram.

Terms of Reference (TOR)

The Terms of Reference (TOR) explain the objectives, scope of work, activities, tasks to be performed, respective responsibilities of the client & the consultant & expected results deliverables. Adequate and clear TOR is essential for the understanding of the assignment and its correct execution by the consultant. It also helps reducing risk of ambiguities during the preparation of proposals by the consultant, contract negotiation & execution of the services.

Terms of Reference normally contain the following sections:

S.No.		Title
A	:	**Assignment Background**
B	:	**Objectives of the assignment**
C	:	**Scope / Description of Work**
D	:	**Outline of the tasks to be carried out**
E	:	**Qualifications & Experiences**
F	:	**Duration, Terms & Conditions**
G	:	**Reporting Requirements/Deliverables**
H	:	**Final Outputs Required from the Consultant and Delivery Schedule**
I	:	**Data, Services and Facilities to be provided by ECL**

Terms of Reference (TOR)
for
Appointment of Consultant Firm /Institution for detail Feasibility Study to Establish a "Smart & Complete XLPE InsulatedCable production plant includingCCV line (Voltage rating up to 36KV) in Eastern Cables Ltd." at NorthPatenga,Chattogram.

A. Assignment Background:

Technologies are upgraded day by day. Peoples are always choosing more longevity and latest technology goods. To use the innovated technology XLPE Power Cable which has more current carrying capacity,High Insulation Resistance& longevity for power transmission line. Eastern Cables Ltd likes to implement the manufacturing plant.The plant will manufacture XLPE Power Cable and marketed in the competitive market & ECL will be gained financially. Presently, ECL has about 4.6% market share in Electric power Cable Sector. This poor percentage due to lack of XLPE insulated cable. Bangladesh Power Development Board (BPDB), Dhaka Power Distribution Company (DPDC), Dhaka Electric Supply Company Ltd. (DESCO) has taken action to implement underground power distribution network.Rural Electrification Board(REB),Dhaka Electric Supply Company Ltd. (DESCO) has taken action to implement of 1KV XLPE Insulated Service Line/Service drop Cables. As a result people will get modern power supply facilities (Underground network) which would reduce distribution cost as well as ensure uninterrupted power supply. By the implementation of the proposed project in ECL, Governments' only electric cable & wire production factory ECL could help to control the market price of the XLPE power cable and will break the monopoly of private manufacturers & imported XLPE power cable. Also ECL will be financially viable and survive in the global competition.
The proposed project will help to improve ECL's product quality, product diversification. It is mentionable here that the said project will be implemented (if Approved) in ECL premises so no land acquired is required.

B. Objective of the Assignment:

The main objective of the assignment is to techno-economic feasibility studies, for the proposed project. Others are as follows

- To study existing and future local market demand of XLPE cable
- To find out the voltage rating up to 36KV of XLPE cable with respect to

    i) ECL geographical location
    ii) Local market demand of XLPE Insulated Cables (1KV to 36KV)
    iii) Maximum ROI for the proposed project in ECL

- To identify related training program for ECL's officer, operator, worker & others (if required) in home and abroad for running the proposed XLPE cable plant

- To prepare set of the total manpower with knowledge and skill level for the effective and efficient production of XLPE insulated cable plant.

- To make efficient production cost by increasing the productivity & maximum return on investment (ROI). Moreover by implementing XLPE insulated cable to survive in the competitive market as well as to save foreign currency.

- To identify prevention of counterfeit ECL products at low cost in electric cable market

- To conduct all the required field studies with detailed primary, secondary baseline data collection (includes area of the side - based on raw materials, XLPE CCV line production flow process, voltage rating up to 36 kv of XLPE insulated cables, dispatch of finished product and slag if any).

C. Scope / Description of Work:

1. The consulting firm will carry out a feasibility study identifying a sampling methodology, appropriate data and information collection tools, price verification of cable industry machineries, visiting sites, cable factories and other related organizational offices to collect base line information, also communication with foreign countries and manufacturer for necessary information such as plant's operational machinerieswith specification & number, raw materials for products, machineries spare part's etc.

2. Suggest the techno economic voltage level up to 36 kv or morefor XLPE cable in ECL considering geographical location, XLPE Insulated Cables market demand and maximum ROI for the proposed project in ECL

3. Also advise with details drawing for the economic power supply facilities from source of BPDB or renewable energy or generator or combination of all to this XLPE cable plant.

4. Perform financial analysis / Internal rate of return (IRR), Return on investment (ROI), Return on Asset (ROA), Net present value (NPV), Benefit cost ratio (BCR), Economic rate of return (ERR), sensitivity analysis and the SWOT will be analyzed.

5. Prepare detail drawing (basic engineering) and lay-out/Indicative design of this plant including identification the international source of manufacturing machineries and equipment.

6. Estimate details of (i.e. Land Development Cost, Machineries list with cost, Factory shades cost, Certification cost and others) the total investment cost to establish the XLPE insulated cable plant.

7. Preparation of advanced/ automated / latest technical lab facilities for the XLPE, PVC insulated cables voltage levelup to 36kvincluding raw materials chemical, electrical & physical testing facilities as per International Electro-technicalCommission(IEC) standards.

8. Prepare the total manpower list with knowledge level, to run the factory properly and smoothly. And suggests require training needed to develop the manpower skillness within the factory complex or others.

9. One or more XLPE Cable Manufacturing company visiting program shall be arrange by consulting firm.

10. Perform demand analysis, which includes as follows:

i) Market access
ii) SWOT (Strengths, Weaknesses, Opportunities and Threats) analysis
iii) Market growth
iv) Competition
v) Pricing analysis
vi) Criteria of unit cost & case scenarios
vii) Strategy of sales & marketing
viii) Advertisement & Awareness Campaign.
ix) Sales Forecast
x) Financial Terms

11. Prepare the Initial Environmental Examination (IEE), Environmental Impact Assessment (EIA) socio- economic impact assessment, Environmental Management Plan(EMP), ETE, Fire security system, Water Treatment Plant (WTP) etc. as per necessary for the proposed project. The firm/institution may hire specialists/firms/company for these works.

12. Prepare the breakdown of XLPE cable's unit selling prices

13. Prepare a final analytical report according to the proposed projects objectives, scope / description of work. The final report will be accepted after certify by the selected engineering institution.

14. Prepare DPP for this project.

D. Outline of the tasks to be carried out:

In order to achieve the intended results, this consultancy services includes the following tasks:

a. Perform demand analysis.
b. Perform Field Survey, format an appropriate survey methodology, including sampling method to focus the research & data collection
c. Performed Financial analysis/IRR, ERR calculation & NPV analysis
d. List of Machineries with specifications, numbers & capacity, manpower needed etc.
e. Prepare detail drawing (basic engineering) and lay-out/Indicative design of this plant including identification the international source of manufacturing machineries and equipment.
f. Format clear conceptual time-framework of this study
g. Submit a draft report
h. Incorporate comments to create a final draft of the report and in addition to providing all raw data collected during the study in electronic format
i. Provide data sets, final report/analysis
j. Submit summarized final report.

E. Qualifications & Experiences:

01.General experience of the consultant firm should have at least 05 (five) years conducting feasibility study and having excellent analytical skills and adequate experience in conducting field study and surveys etc.The consultant firm shall have experience of successful preparation of atleast three (3) Techno-Economic Feasibility work.The consulting firm should have an adequate financial & technical resource/ capability to perform the assignment in due time & manner.

02.Work Order/Contract Document& completion certificate issued by Clients as work experience should be submitted by the consulting firm.

03. The firm should have a well conversant team of specialist with the sampling technique and have a strong and proven orientation towards applied research/experiance in plant such as XLPE cable & HT cable production plant.

04. Eligible consulting firm is to indicate the interest in providing the above mentioned services. Interested consultants must provide information indicating that they are qualified to perform the services (such as: brochures, description of similar assignments, experience in similar conditions, availability of appropriate skills among staff, proposed methodology, work plan etc.)

05. The Consulting firmshall submit audited annual financial reports for last three (3) consecutive financial years ending prior to the date of notice inviting tender. But publicentity does not need to submit the financial reports.

06. In case of getting consulting service from public organization/Institute/Engineering University, also needs to perform the tasks according to the terms & conditions of FS, EOI & TOR.

The experience certificate of Publicorganization/institution/Engineering University is appreciable.

07. Personnel Requirements / Team Composition:

The study Team would compose of the following Minimum team members:

SL	Key Professionals & other Staff	Number	Qualification & Experience
1	Team Leader	01	The Team Leader shall have a B.Sc. Engr. degree in Electrical/Electronics/ Mechanical Engineering with excellent analytical skills and at least 20 years professional experienceincluding substantive experience inXLPE Cables production in CCV Line.
2	Electrical Engineer	01	A graduate Electrical/Electrical & Electronics Engineer with excellent analytical skills and at least 15 year's professional experienceincluding substantive experience in XLPE Cables production in CCV Line.

3	Mechanical Engineer	01	A graduate Mechanical Engineer with excellent analytical skillsand at least 15 yearsprofessional experienceof which 10 years in Cables industry.
4	Civil Engineer	01	Should have a Bachelor degree in Civil Engineering with excellent analytical skills and at least 15 years' professional experience in relevant field
5	Cost Estimate Engineer	01	Graduate in Mechanical/Industrial or other related engineering discipline shall have at least 10(ten) years substantiveprofessional experience in Cables industry with specialist in demand analysis where includes as follows: Market Access, SWOT analysis, market analysis, market growth, competition, pricing analysis, criteria of unit cost & case scenarios, strategy of sales & marketing etc.
6	Environmental Expert	01	Graduate in Environmental/Civil/Chemical Engineering having at least 10 (ten) years professional experience in relevant field
7	Economist	01	Graduate in Economics/CMA/CA having at least 10 (ten) years professional experience in relevant field
8	Others staff	03	For office related work.

Note:Consulting firm must provide Mobile No.,Email ID and Original signature with CV of Key Professionals.

The consultant must visit XLPE Cable production factories and existing market & conduct survey with questionnaire, discuss with beneficiaries, use other methodologies (as agreed with cable factory) to collect required information. The consultant will give input to the survey, conduct For Group Decision (FGD) & apply other techniques to assess the national benefit of the project. Consultant Supervision Institute like BUET/DUET/CUET/KUET/RUET/ public engineering institution will check the quality of the collected information i.e. overall survey draft final and final report.

F. Duration, Terms & Conditions:

The assignment should be completed within 06(six) months from the date of the signing contract. The Firm/Institution will work in close co-operation with the Departmental Head, Production/Planning and other staff. They will be solely responsible and accountable to the Managing Director, ECL for their services and activities. As the contract is performance based, so the task will have to be completed within the stipulated time frame. Payments for the assignment (draft final and final report) will be payable on a report submitted reflecting the key outputs be certified by supervisor engineering institution i.e.BUET/DUET/CUET/KUET/RUET/public engineering institution of Bangladesh.

G. Reporting Requirements/Deliverables:

During the contract, the consultant will submit report once in every two weeks and the final report will be certified by supervisor engineering institution i.e. BUET/DUET/CUET/KUET/RUET/Public engineering institution before the final approval. Updates on data collection and analysis should be provided once every two weeks, the final deliverable includes:

a. **Inception report:** submit a detail of the proposed timing and methodology (including proposed sampling techniques; data collection methods; method of data processing, analysis, including detail of the statistical analysis etc.)

b.**Interim report:** It includes a summary, a brief description of the progress, the evaluation thus far, and an overview of the situation.

c.**Draft Final Report:**These reports are to include a summation of the work performed and results obtained for execution of various studies or technical work packages during the entire contract period of performance. This report shall be in sufficient detail to describe comprehensively the results achieved.

d.**Validation Workshop:**It is a crucial step in ensuring that the project meets the needs and expectations of the users and the business.where business analysts and stakeholders review and confirm the requirements, assumptions, and constraints of a project or solution.This Validation Workshop expenses will be carried out by the consultant.

N.B: All seminarexpenses(at least three) will be carried out by the consultant.

e.**Final report:**Final report contains the following table

	Final report contains the following information:
1	Occupational Safety and Health (OSH) practices require in the proposed XLPE insulated cable plant
2	Techno economic XLPE voltagelevel upto 36 kv
3	List of complete copper machineries(Drawing & Stranding) with cost, country of origin, production rate, power consumption, lay out drawing
4	List of complete PVC Extruder machineries with cost, country of origin, production rate, power consumption, lay out drawing
5	Whole factory, shade drawing i.e. basic engineering
6	Design, Drawing & Layout i.e. basic engineering
7	Utility requirement, gas, water, power system.
8	Modern and digital testing lab machineries with cost and skill or knowledge level develop facilities
9	Details set up of the total manpower require with knowledge & skill level.
10	Uninterrupted Power supply facilities by PDB/Generator/Renewable energy or all of combination.
11	Total investment cost scenario for the project
12	Return on investment (ROI) of the proposed project
13	Market demand analysis for XLPE insulated cable
14	Prevention of counterfeit ECL products at low cost in electric cable market
15	Production flow , process flow, production mix
16	Keeping raw material storage
17	Security system like fire extinguisher, fire alarm,IEE ,EIA, EMP, ETE, WTP, ETP as required
18	List of related and required training in abroad or local to develop our manpower's skill & knowledge
19	Sample based XLPE cable's breakdown of per unit selling prices
20	Details of raw material with country of origin and source
21	Identify prevention of counterfeit ECL products at low cost in electric cable market

H.Final Outputs Required from the Consultant and Delivery Schedule:

01. Suggestion of the plant set up for XLPE Insulated Cables voltage rating up to 36 KVin ECL

02. The supervision Consultant/Institute will appointment by the Consulting Firm.The documents will be submitted by the Consulting Firm will be vetted by the supervision Consultant/Institute.

03. Final report has to meet all the requirements as per proposed proposal according to TOR. The supervision consultant Universities/Institutes like BUET/ DUET/CUET/RUET/KUET or any otherpublic Engineering Institution will check and certify to approve the final report. After certified by Universities / Institutes or any other public Engineering Institution assigned committee will check the final report & recommend for correction (if any corrective measures required) or forwarded for approval from proper authority.

Assigned committee member (Not as per seniorities)

Sl No	Designations	Remarks
01	Director, Planning& Development, BSEC.	The senior most officers will be functioned as Chairman of the Committee.
02	Head of Planning & Development, BSEC.	
03	Chief Engineer, BSEC.	
04	Head of Production, ECL	
05	Head of Planning, ECL	Member Secretary

03.Fill-up the Delivery Schedule within 06 (six) months from the date of contractsigning

Delivery Time-based Schedule

Evaluation activities/Task	Time Frame for the task/activities
Inception report: submit a detail outline of the proposed timing, methodology and details work plan etc.	
Finalize sample, collection methodology, checklist and field visit itinerary in consultation with ECL	
Data processing, editing and analysis	
Prepare draft report, design, drawing and layout submit to ECL	
Incorporate ECL comments and include supplemental data (if needed)	
Submit final report in hard and soft copy and any additional raw data and documentation in soft copy to ECL.	
Other activities or task if required	

The assignment should be completed within 06 (six) months of signing the contract. ECL will provide required project related documents after signing the contract.

I. Data, Services and Facilities to be provided by ECL

a.ECL will provide only relevant program documents including project concept paper.

b.Procedure for Review of Inception, Interim(Progress) Reports status, Draft Final and Final Reports / Out-comes (to be included if applicable)

10.01.24
(Md. Billal Hosen)
Sub-Assistant Engineer
Planning &Trainning.
Member Secretary

10.01.24
(Md. Golam Hidher)
Engineer(Mechanical)
Head of Purchase.
Member

10.01.2024
(Engr. Rafiqul Alam)
Engineer (Mechanical)
Head of Sales.
Member

10.01.24
(Engr. Nurul Afser)
Deputy Chief Engineer(Elect.)
Head of Production & Maint.
Member

30/1/24
(Sanjay Kumar Datta)
Deputy Chief AccountsOfficer
Head of Accounts.
Member

10.1.24
(Engr. Md. Abu Taher)
Deputy Chief Engineer (Elect.)
Head of Planning &Trainning
Quality Head (Ad.)
Conveynor