

Recruitment of Training Service Provider (Foreign & Local Training)

Under

**Up- Gradation, Rehabilitation and Intensification of Distribution System
(Rajshahi, Rangpur, Khulna & Barishal Division)**

ADB Loan: 3522-BAN

URIDS (RRKB) Project

Contract No. URIDS(W)-S-38

**Bangladesh Rural Electrification Board (BBREB)
Dhaka, Bangladesh**

Section 7

OUTLINE TERMS OF REFERENCE (TOR)

For
Training Services Provider

**Project: Up-Gradation Rehabilitation and Intensification of Distribution System
(Rajshahi, Rangpur, Khulna & Barishal Division) URIDS; RRKB Project**

1.0 Background

The Government of the Bangladesh has received loan from the Asian Development Bank (ADB) towards the cost of the Up-gradation Rehabilitation of Distribution System (Rajshahi, Rangpur, Khulna & Barishal Division) which was signed on 29th May, 2017. It is intended that part of the proceeds of this loan will be applied to the eligible payments required for imparting training to mid-level Engineers, as well as financial, accounting and Administrative officers in foreign countries and mid-level Engineers, AGMs and junior Engineers in Bangladesh. The required courses are listed in Table 1 and Table 2 below.

Table1 1: Foreign Training Courses

Serial No	Name of the Course	Trainees (Nos)	Duration
1	Efficient Distribution Network Planning & Design	6	21 days
2	Modern/ New Distribution Materials and Equipment	6	21 days
3	New Techniques of Distribution line Up-gradation and Rehabilitation	6	21 days
4	Electric Distribution System Operation and Maintenance.	6	21 days
5	Technical and Non-Technical Loss Reduction Methodology	8	21 days
6	Effective Project Planning Tools and Project Management	8	21 days
7	Introducing GIS System in Electricity Distribution System.	6	21 days
8	Development of Participatory Management System in RE Program.	15	21 days
9	Economic and Social Impact of RE Program	20	21 days
Total Trainees		81	

Table 2: Local Training Courses

SL.	Course Title	No. of Trainees	Duration
1	Electrical Distribution Design & Planning	15	5 days
2	Electrical Distribution System Operation & Maintenance	10	5 days
3	Technical Loss Reduction Methodology	10	2 weeks
4	Introducing GIS System in Electrical Distribution System	10	5 days
5	Economic Analysis of Electric Utility	15	5 days
6	Economic and Social Impact of RE Program	25	5 days
7	Participatory Management System in Electric Co-operative system	25	5 days
8	Transformer Operation, Maintenance & Repair	15	2 weeks
9	Power Transformer/ Voltage Regulator/ ACR/ OCR Operation, Maintenance & Repair	25	2 weeks
	Total :	150	

The detailed description of each training courses for both local and foreign training is given in Annexure 1(A) and 1(B).

2.0 Scope of Services to be Provided

2.1 General:

BREB envisages the appointment of a Training Consulting Firm/Institute who shall act as a Training Service Provider in accordance with the terms and conditions laid down in this Terms of Reference (TOR). The Training Service Provider hereinafter referred to as TSP shall be experienced in providing training services by external or through the use of specialized Training Firm(s) defined bellow. The TSP shall arrange the provision of relevant training (both local and foreign) by suitably qualified and experienced Training firm(s)/Institute(s).

2.2 Directives for Proposal by the Consulting Firm:

The training Service Provider shall suggest training institutions, venue, course contents and tentative schedule in its technical proposal. The training institution should have adequate multimedia class-rooms, software base laboratories equipped with relevant industry standard software and other necessary facilities for trainees' full and free access as necessary for both classroom and hands-on training.

In order to ensure adequate Quality, the tuition fee of training courses, and other trainee related expenses, i.e. air fare, accommodation, per diem, and visa fee will not be open for competitive price proposal, and an allocated amount will be kept for these purposes as provisional sums in the contract. The firms, however, will competitively propose the remuneration of experts and out-of pocket expenses in the financial proposal for the management of the training courses, including overhead expenses, support services and facilities. The proposed method of payment will be lump-sum for remuneration and out-of-pocket expenses as per Contract and costs related to expenses for the trainees (tuition fees, air

fare, accommodation, per diem and visa fee etc.) will be paid upon submission of invoice of consulting firm from the provisional sums.

2.3 Training Service Provider

The Training Service Provider shall be responsible for the overall management and coordination of the training. The scope of the services of the TSP shall include but not be limited to the following:

1. Liaison with URIDS; RRKB project to determine in detail the scope of local and foreign training under the project
2. Collect all necessary information from project in relation to the local and foreign training program.
3. Investigate suitable training facilities in electric utilities and other organizations in Bangladesh for imparting the local training in accordance with the training scopes/courses contained herein.
4. Provide complete proposal including financial offer and submit the same to the PD,URIDS; RRKB project.
5. Investigate suitable training facilities for imparting foreign training in accordance with the training scopes/courses contained herein.
6. Assist PD,URIDS (RRKB) to select and finalize the contract with the selected training Institutes/Centres for both local and foreign training.
7. Prepare the complete training schedule for both local and foreign training in consultation with URIDS (RRKB) project
8. Monitor the whole of the program and submit the required periodical progress reports for the training program.
9. Assist BREB participants in the processing of visa, air tickets round trip including airport charge, travel taxes, if any, ground transportation to and from the airport to final destination.
10. Arrange medical tests, medical insurance and anything else required to organize the foreign training.
11. The successful TSP shall provide and finalize contract with the project.

2.4 Overall Cost Involvement for the execution of the Training Program:

The Training Service Provider shall prepare total cost involvement in conducting the overseas training program considering the following expenditure as provisional sum:

- The cost for Round Trip Airfare (Economy class);
- Accommodation charges for trainees during travel and stay for the whole period of training and field visit.
- Tuition Fee (the tuition fees, remuneration of resource personnel/trainers/instructors, other relevant charges for the training institute, certification to successful trainees, tea & light refreshment and lunch for the training days);
- Per Diem allowance as per Government of Bangladesh (GOB) standard for each trainee for each training day;

- Transportation, such as: arrangement for travelling to and from training / regular classroom venue,
- Charges for course materials (pen; book, writing pads, bag etc.), training aids (access to computers/ work station, when necessary in relation to the content of the program), personnel protective measures during field visit, when applicable;
- One set of detailed printed training materials, such as: hand-outs, literature, books etc. In English Language as outlined earlier to each trainees and soft copies of all training materials/presentations in CDs/DVDs to all trainees;
- One set properly bound training materials of each course to be air-mailed on freight pre-paid basis to project for use in its technical library;
- Health & medical care including hospitalization, if needed, to each trainee during the period of training;
- Medical Coverage (insurance);
- Standard and suitable accommodation during visits to work site(s) and field;
- All sorts of administrative and co-ordination supports for the training programs; and
- Others, if any.

Arrangements and Payments for the Various Aspects of the Training Program:

Requirement	Arranged By	Paid By
Trainees' Visas	Training Service Provider	Training Service Provider
Transportations to Dhaka Airport	Trainees	URIDS (RRKB) Project.
Trainees' Flight Tickets	Training Service Provider	Training Service Provider
Trainees' excess baggage fees	Trainee	Trainee
Transportations(between Airport-hotel-institute-site(s) & others)	Training Service Provider	Training Service Provider
Tuition Fees for the Training Program	Training Service Provider	Training Service Provider
Course Materials (pen, book, file/ bag etc.)	Training Service Provider	Training Service Provider
Certificate to all successful trainees	Training Firm/Institute	Training Firm/Institute
Trainees' Accommodation	Training Service Provider	Training Service Provider
Trainees' Food (Lunch during training days)	Training Service Provider	Training Service Provider
Trainees' Medical Coverage	Training Service Provider	Training Service Provider
Trainees' Personal protective measures	Training Service Provider	Training Service Provider
Per-diem	Training Service Provider	Training Service Provider

2.5 Training Firm/Institute

The Training Firm shall be a private company or training institute of an electricity utility referred to as the TF hereinafter. The scope of the services of the selected foreign and local Institute shall include but not be limited to the following:

1. Study and rationalize the course detail attached in Annexure-1

2. Prepare and submit a training program in consultation with URIDS; RRKB project for approval by the project
3. Prepare and submit course modules for each course for approval by URIDS; RRKB project
4. Conduct the training of the nominated trainees in accordance with the finalized plan
5. Provide course materials, notes, handouts, in hard and soft copies (CD, DVD)
6. Arrange transportation for field visits, study tours, site seeing, if any

A proposed tentative training plan with participants, batch and duration and time schedule is furnished in Annexure-2.

3 The Objectives of the Training Program (Local and Foreign)

The main objective of the training program is the capacity development of staff to enable them to more effectively manage, operate and maintain the distribution network and equipment of the BREB/PBS system. The specific objectives of the local and foreign training of the URIDS; RRKB Project include but are not limited to the following:

- To enhance institutional resources of BREB/PBSs
- To familiarize with Rural Electrification Concept and Master Plan
- To enhance capacity and skill in operation and maintenance of the distribution lines
- To develop skill and expertise in operation and maintenance of substations including main and secondary equipment such as control and protection
- To enhance the knowledge of safety measures required in maintenance and construction works
- To increase capacity and skill in reduction of the system loss of BREB/PBSs
- To train the working manpower of BREB/PBSs
- To develop skill for supply of uninterrupted and quality electricity to the customers
- To develop overall distribution system planning and augmentation assessment and planning expertise.

4 Methodology of Training

The TF shall adopt modern conventional methodologies in order to affect the transfer of knowledge and skills to the participants. Specially, the following training methods shall be utilized as a minimum:

- Class room lectures, discussions and tutorials
- Practical demonstrations
- Field and site visits and study tours
- Multimedia presentations
- Use of simulators/models
- Case study
- Pre and post evaluation of the trainees

5 Qualifications of the Training Service Provider and Firm/ Institute

5.1 Training Service Provider

The Training Service Provider shall be a reputable consulting/training firm/institute having extensive experience and capacity in conducting, managing and organizing training in relevant field in Bangladesh as well as abroad. The TSP shall have at least 5 (Five) years overall experience in conducting overseas training service for government of Bangladesh organizations and/ or international agencies. The TSP and TF shall have adequate financial capability to provide the training service as per this TOR. The TSP shall have an appropriate office and other facilities in Dhaka with adequate manpower to support the intended service.

5.2 Training Firm/Institute

The Training Firm shall be an internationally reputable and recognized training institute in the country of training having extensive experience in managing and providing training to the participants in the various fields. The Training Firm shall have at least 5 years overall and specific experience in the field of Electrical Power Distribution in the management and conduct of training.

5.3 Professional staffs of Training Service Provider (TSP)

Professional staffs those who have past record of Fraudulent Practices/ criminal record will not be considered for evaluation.

Position	Qualification and Experience
Overall Program Co-ordinator (Team Leader)- International	• Masters Degree in Human Resource Management/Education/Economics/MBA or in related field. • At least 15 years of experience in overseas training Management including 5 years in the capacity of team leader or deputy team leader or equivalent leadership position. • Proven experience in management of large-scale overseas training programs with suitable international experience. • Preference will be given to the persons having experience of Management of overseas training programs in the rural electrification/power or energy sector/related field.
Program Manager - National	• Masters Degree in Human Resource Management/English/Economics/MBA or in related field. • At least 10 years of overseas training related experience. • Proven experience in management of large-scale overseas training programs (80 or more in a single contract) • Preference will be given to the persons having experience of management of overseas training programs in the rural electrification/power or energy sector/related field.
Travel and Logistics support employees (2 persons) - National	Preferably Masters Degree in any discipline having at least 10 years of experience in overseas training logistics management.

5.4 Resource Persons/Trainers

The minimum qualifications and experiences of the resource persons for each of the courses are included in Table below.

Table 3: Qualification/Experience Requirements for Participants of – Foreign Training

Course/Topic (Refer to Table 1)	Minimum qualifications and experiences
1. Efficient Distribution Network Planning & Design	<u>Qualification:</u> Bachelor degree in Electrical Engineering. <u>Experience:</u> Work: 08 years' experience in planning, design, operation and maintenance of electrical distribution system Training: 2 years' experience in imparting training thereof
2. Modern/ New Distribution Materials and Equipment	<u>Qualification:</u> Bachelor degree in Electrical Engineering. <u>Experience:</u> Work: 08 years' experience in electrical distribution system/substation. Training: 2 years' experience in imparting training on new distribution materials and equipment for substation
3. New Techniques of Distribution line Up-gradation and Rehabilitation	<u>Qualification:</u> Bachelor degree in Electrical Engineering. <u>Experience:</u> Work: 08years' experience in operation and maintenance of electrical distribution system/substation Up-gradation and Rehabilitation. Training: 2years' experience in imparting training on Up-gradation and Rehabilitation
4. Electric Distribution System Operation and Maintenance.	<u>Qualification:</u> Bachelor degree in Electrical Engineering. <u>Experience:</u> Work: 08years' experience in operation and maintenance of electrical distribution system/substation. Training: 2years' experience in imparting training on substation equipment operation and maintenance
5. Technical and Non-Technical Loss Reduction Methodology	<u>Qualification:</u> Bachelor degree in Electrical Engineering. <u>Experience:</u> Work: 08 years' experience in planning, design, operation and maintenance of electrical distribution system including technical loss reduction and methodology. Training: 2 years' experience in imparting training thereof
6. Effective Project Planning Tools and Project Management	<u>Qualification:</u> Bachelor degree in Engineering plus Masters or MBA <u>Experience:</u> Work: 8– 10 years in project planning and management including customer relations, consumer affairs and planning Training: 2 years in the following: • Management concept

	• Strategic/master planning • Leadership • Use of planning and management tools
7. Introducing GIS System in Electricity Distribution System.	<u>Qualification:</u> Bachelor degree in Electrical Engineering. <u>Experience:</u> Work: 08 years' experience in planning, design, operation and maintenance of electrical distribution system including application of Geographic Information System (GIS) in the field of electric power engineering. Training: 2 years' experience in imparting training thereof
8. Development of Participatory Management System in RE Program	<u>Qualification:</u> Bachelor degree in Engineering plus Masters or MBA <u>Experience:</u> Work: 8– 10 years in management including customer relations, consumer affairs and planning Training: 2 years in the following: • Management concept • Strategic/master planning • Leadership • Roles and responsibilities of directors and member consumer in cooperative organization/environments
9. Economic and Social Impact of RE Program	<u>Qualification:</u> Bachelor degree in Social Science with MBA and/or post graduate degree. <u>Experience:</u> Work: 08 years' overall experience in electric utilities. Training: 2 years' experience in social impact of electrical infrastructure projects

Table 4: Table 4 Qualification/Experience Requirements for Participants of – Local Training

Course/Topic (Refer to Table 1)	Minimum qualifications and experiences
1. Efficient Distribution Network Planning & Design	<u>Qualification:</u> Bachelor degree in Electrical Engineering. <u>Experience:</u> Work: 08 years' experience in planning, design, operation and maintenance of electrical distribution system Training: 1 year experience in imparting training thereof
2. Electrical Distribution System Operation & Maintenance	<u>Qualification:</u> Bachelor degree in Electrical Engineering. <u>Experience:</u> Work: 08 years' experience in operation and maintenance of electrical distribution system/substation. Training: 1 year experience in imparting training on substation equipment operation and maintenance
3. Technical Loss Reduction	<u>Qualification:</u> Bachelor degree in Electrical Engineering. <u>Experience:</u>

Methodology	Work: 08 years' experience in planning, design, operation and maintenance of electrical distribution system including technical loss reduction and methodology. Training: 1 year experience in imparting training thereof
4. Introducing GIS System in Electrical Distribution System	<u>Qualification:</u> Bachelor degree in Electrical Engineering. <u>Experience:</u> Work: 08 years' experience in planning, design, operation and maintenance of electrical distribution system including application of Geographic Information System (GIS) in the field of electric power engineering. Training: 1 year experience in imparting training thereof
5. Economic Analysis of Electric Utility	<u>Qualification:</u> Bachelor degree in Economics/Finance/Business. <u>Experience:</u> Work: 08 years' overall experience in electric utilities. Training: 1 year experience on economic analysis of the electric utility and economic and social impact of Rural Electrification Program
6. Economic and Social Impact of RE Program	<u>Qualification:</u> Bachelor degree in Social Science with MBA and/or post graduate degree. <u>Experience:</u> Work: 08 years' overall experience in electric utilities. Training: 1 year experience on social impact of Rural Electrification Program
7. Participatory Management System in Electric Co-operative system	<u>Qualification:</u> Bachelor degree in Engineering plus Masters or MBA <u>Experience:</u> Work: 08 years in management including customer relations, consumer affairs and planning Training: 1 year in the followings:- • Management concepts • Strategic/master planning • Leadership • Roles and responsibilities of directors and member consumer in cooperative organization/environments
8. Transformer Operation, Maintenance & Repair	<u>Qualification:</u> Bachelor degree in Electrical Engineering. <u>Experience:</u> Work: 08 years' experience in planning, design, operation and maintenance of electrical distribution system including technical loss reduction and methodology. Training: 1 year experience on the above subjects
9. Voltage Regulator/ ACR/ OCR Operation, Maintenance & Repair	<u>Qualification:</u> Bachelor degree in Electrical Engineering. <u>Experience:</u> Work: 08 years' experience in planning, design, operation and maintenance of electrical distribution system including technical loss reduction and methodology. Training: 1 year experience on the above subjects

It is the responsibility of the TF to provide sufficient qualified trainers for each course. The trainers to be used for each course shall be clearly identified against each course and a list of courses and proposed trainers for each course shall be provided along with their qualifications and both work and training experience clearly stated.

6 Venue/Country of Training

The local training shall be conducted in professional training centres/institutes operated by any private company or electrical utility having requisite qualifications and training facilities in Bangladesh. For foreign training, service provider will identify and select suitable university/institutes in overseas destinations and estimate cost per training and submit proposal to Project Director for final selection.

7 Duration of Contract

The duration of the contract to implement the training programs both local and overseas training program will be 06 months from the Effective Date of Contract. Extension of Contract will not be considered except in exceptional circumstances. The Effective Date of Contract shall occur on the date of concurrence of the contract by competent authority. This will be notified to the successful Applicant(s).

8 Standards and Quality Assurance

The selected Training Firm/Institute to be engaged whether for local and foreign training shall comply with the highest standard of performance and quality assurance and professional ethics applicable to this type of assignment.

9 Client's Obligation

The URIDS; RRKB Project will provide all relevant information, available data and existing documents related to training, as required by the TSP and/or Firm. The Project will render all necessary cooperation as and when required by the TSP/ Firm. In addition, the Project Director, URIDS; RRKB project will be responsible for the following tasks.

1. To nominate the participants and obtain government clearance for the selected candidates for every course in time.
2. To cooperate with the TSP to assist them with academic documentation/medical certificates, health certificates as required.
3. To cooperate with TSP/TF and provide all relevant information/ training data as required.
4. Review and approve training plan, program, and course modules.
5. Monitor and evaluate the performance of the TSP/TF.
6. To arrange timely payments to the Training Firm/ TSP as per provisions of the contract on the basis of satisfactory performance.
7. Support for obtaining passport for the trainees as required.

10 Other Conditions

The following shall be additional conditions applicable to the TSP/TF. The training modules and number of participants may change subject to the future needs of BREB/PBSs. The TSP/TF will be advised at least one month in advance of any proposed changes or re-scheduling. In addition, the following shall apply:

1. The TSP shall submit an Inception Report within one month after the signing of the contract. Monthly progress reports and training completion reports are also required.
2. The physical execution of the training shall commence within one month after signing of the contract.
3. In case of any delays, the training courses shall be adjusted so that the training courses will be completed within the stipulated duration.
4. Establish a team of coordinators with Team Leader and Administrative Officer with an office in Dhaka to liaise between the TSP's office and either client's office as and when required.
5. Depute suitably qualified and experienced local personnel as training course coordinators.
6. Monitor and support the various local and foreign training programs.
7. Out of pocket expenses for trainees shall be as per GoB rules.
8. The TSP/TF shall provide out of pocket expenses to the trainees weekly in advance.
9. On successful completion of the courses, the trainees shall be evaluated in a suitable manner (e.g., examination, practical test, presentation).
10. A Certification of Attainment shall be provided to the successful attendees.

11 Mode of Payments

The following general payment procedure is proposed:

1. Advance payment for mobilization- 10% of the contract amount
2. Progress payment- based on milestones of contract- 90% of the contract amount

For the advance payment, a bank guarantee of equal amount shall be submitted before payment. The exact mode of progress payments will be confirmed during negotiation with the successful Applicant(s). All VAT and taxes of the contract price applicable under the Government of Bangladesh rules will be added in the contract and deducted from the invoices of the TSP. Payments related to the overseas and the local training will be made in USD and BDT (Bangladeshi Taka) respectively.

12 Confidentiality

All information, files, documents and reports will be treated in strict confidence and become the property of the GoB at the completion of the contract.

Indicative Training Course Details

Foreign Training

<u>Course 1</u> - Electric Distribution Planning & Design	Theoretical %	Practical %	Remarks
Electric Distribution System Study and Long Range Planning • Importance and Purpose of System Review and Study • Combining Results of Special Studies • Plant aging and Sufficiency • Testing of Standing Poles • Collecting Inspection Reports and Processing Information • Identifying and Reporting Problems and Solutions • Importance of Annual, 5-year and 10-year work plan • Producing of Annual, 5-year and 10-year work plan • Estimating System Improvements and Line Replacements • Estimating and Scheduling Manpower			
Electric Distribution System Design • Technical Introduction to Project • System Design Criteria and Line Routing • Mapping • Grounding and the MGN System • Construction Standards • Voltage Labels and Calculations • Over Voltage Protection and Insulation Levels • Over Current Protection • Transformers • Meters • Voltage regulators • Capacitors and Power Factor Improvements • System Losses and Conductor Thermal			

- Conductivity - Construction Glades - Clearances - Poles and Cross Arms - Conductor Characteristics - Anchors and Guys - Line Renovation Engineering			
Electric Distribution System Construction Management - Introduction to the Electric Distribution System - Introduction to Substation of Electric Distribution System - Mechanical Design and Construction Standards - Conductor Handling, Installation and Connection - Equipment Installation, Connection and Grounding - Proper Use of Maps and Staking Sheets - Line Materials and Tools - Safety and Construction Methods - Distribution Line Renovation - Contractor personnel Training and Staffing Policy - Construction Contracts - Relationship of Parties Involved in Construction - Energization and Output Procedures - Contractor Site Management and Logistical Support - Close Out Procedures - Critical Path Method (CPM)			
Distribution Line Design and Staking - The Purpose of Staking and Uses of Staking Sheets. - Staking Process for New Distribution Line. - Staking Equipment. - Control Points. - Conductor Sizes, Selection and Application. - Pole Heights, Span Lengths and Clearances. - Selecting Construction Units, Guy,			

Anchor and Transformer. • Selecting Ground Units and Lightning Protection. • Common Staking Errors to Avoid. • How to Check Staking Sheets. • How to Inspect New Lines and make Clean-up Notes.			
Losses /Voltage Drop Study and Power Factor Improvement • Importance and Purpose of Losses, Voltage Drop and Power Factor. • Standards and Goals for Losses, Voltage Drop and Power Factor. • Causes and Remedies for Losses and Power Factor. • Causes and Remedies for High and low Voltage. • O and M Principles of Capacitors and Voltage Regulators. • Collecting and processing Data. • Producing Single Line Diagrams. • Identifying and Reporting Problems and Solutions. • Assembling a Total Report on Losses, Voltage Drop and Power Factor.			
Losses /Voltage Drop Study and Power Factor Improvement • Operating and Maintenance Principles of OCRs. • O and M Principles of Fuses and Sectionalizes. • Substation over Current Protection. • Collecting and Processing Data. • Selecting Devices and Locations. • Producing Single Line Sectionalizing Diagrams. • Assembling the Total Report.			

<u>Course 2 - Modern/ New Distribution Materials and Equipment</u>	Theoretical %	Practical %	Remarks
• Overview of latest distribution materials and equipment available • KWHR Meters and boxes • Fuses; HRC Fuse Links & Bases			

• Street lighting, Poles and fittings • Switches, Capacitor switches, Switch Disconnectors • Air Circuit Breakers, MCBs (Miniature Circuit Breakers), MCCBs (Moulded Case Circuit Breakers) • Aerial Cables, Electrical LT/HT Cables, Flexible Cables • Conduit Trays • Fault Indicators • Sectionalizers • Reclosers • Power Capacitor • Voltage Stabilizer, Servo Stabilizer, UPS, • Voltage Regulators • Distribution Boards; AC distribution board panels			
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<u>Course 3</u> – New Techniques of Distribution line Up-gradation and Rehabilitation	Theoretical %	Practical %	Remarks
Introduction and Operation • Purpose of Substation and General information. • Substation Components and Symbol. I 3. Single Line Diagram and Component Numbers. • Substation Log Book and Records. • Substation Electrical Measurements and measuring Instruments. • Operating Practices and Safety • Connecting and Removing Equipment. • Emergency Procedures. • Voltage Regulator Operation. • Operation of OCRs I Circuit Breaker. • Operation of Switches and Fuses			
Inspection and Maintenance • Weekly, Monthly and Annual Inspection. • Power Transformers. • Voltage Regulators. - Oil Circuit Re-closers. • Switches and Fuses.			

• Arrestors and Insulators. • Meters and Instrument Transformers. • Protective Lighting and Structure Yard. • Grounding, Tools and Equipment. • Spare Parts. • Circuit Breaker VCB, SF6. • Battery and Battery charger. • Instrument Transformer.			
Sub-station Up-gradation • Introduction to Existing Sub-station. • Short/ Mid/ Long Term Planning. • Study of Existing System. (Condition of Existing Power Transformer, ACR, VCB and other Equipment) • The Overall Planning Data Requirement. • Principle Areas of Activity. • Existing Load Data Study. • Future Load Growth Study. • Power Factor and Reactive loading Study • Thermal Capability of Conductor • Proper power transformer, ACR, OCR and other equipment (Including hardware and metering item): selection for Up-gradation of substation. • Case Study • Summary.			

<u>Course 4</u> - Electric Distribution System Operation and Maintenance	Theoretical %	Practical %	Remarks
Electric-Distribution System Introduction • Introduction to Electric Distribution System. • Purpose of Distribution Lines and General Information. • Distribution Line Components and Symbols. • Materials Identification, Accounting, Handling. • Maps. • Line Construction Standards, Criteria, Methods, Procedures and Safety • Line Routing. Mapping and Staking • Substation and line Equipment and Materials.			

• Substation Construction Methods and Procedures. • Multi Grounded Neutral System. • Tools Identification, Handling, Use and Maintenance. • Transformer and Secondary Sizing of Large Loads. • Energy Metering. • Control of Losses and Power Factor.			
Distribution Line Operation • Safe Work Procedures. • Conductors (Sizing, Voltage Drop, Losses etc.) • Phasing, Tie Lines and Loop Feeders. • Switches and Fuses. • OCRs Sizes and Types. • Coordinating OCRs, Fuses and Sectionalizes. • Grounding. • Line Voltage Regulators. • Line Capacitor (Sizes. Types. Kh, Seal Control etc.) Motors. • Emergency Operating procedures. • System Primary Troubleshooting. • Load Management.			
Distribution System Inspection and Maintenance • Distribution Line Inspection Procedure. • Poles and Cross arms. • Conductors and Grounding. • Distribution Transformers, Meters, Service Drops etc. • Power Transformer and Regulator Inspection. • Voltage Regulations and Metering. • Over Voltage and Over Current Protection. • Line Sectionalizing. • Emergency Procedures. • Troubleshooting and Complain Management • Line Patrol, Right of way Inspection and Clearing. • Identification of Troublesome Areas and			

Remedies. • Line Inspection and Maintenance Work Planning. • Needs for Maintenance Material and Equipment. • Tool Maintenance. • Hot Line Program Administration and Operations. • System Study and Operational Diagram, Analysis and Recommendations. • Technical Work Plans. • Distribution Line Operation, Inspection and Maintenance (Field)			
Test and Practices of distribution Sub-station and Equipment • 3 Phase Power Transformer, S/S Maintenance and Up Gradation. • On Load Tap Changer. • Test of Transformer. • Characteristics of Insulating oil with Test. • Types of high Voltage Circuit Breaker I Vacuum Circuit Breaker and SF6 Circuit Breaker. • Protection of Distribution Line and Transformer. • Battery and Battery charger/DC system in S/S. • Routine maintenance of Equipment/Power Transformer. • HV Switchgear O and M.			

<u>Course 5</u> - Technical and Non- Technical Loss Reduction Methodology	Theoretical %	Practical %	Remarks
Short-term Measures for Technical Loss Reduction • Network Reconfiguration. • Network Re-conductor. • Preventing Leakages at Insulators. • Employing AVB (Automatic Voltage boosters). • Better Management of Distribution Transformers. • Load Balancing and Load Management • Capacitor installation (Shunt or Series).			

• Improving Joints and Connections. • Laying Additional Link Lines. • Increase in HT/L T Ratio. • Adoption of High Voltage Distribution System (HVDS). • Regular Maintenance of Distribution Network. • Creation of Primary Sub-station.			
Long-term Plans for Technical Loss Reduction • Data Collection Regarding Existing Loads, Operating Conditions, forecast of Expected Loads etc. from Grid • Sub-station to Consumer level. • Mapping of Existing System. • Analysis of Existing System (Voltage Regulation, T and D Losses in Existing System, Adequacy of Back-up System. • Load forecast. • Plan for Up-grading the Network. • Technology Options including Integration of Features for modernization of System • Evaluation of Various alternatives for least cost Optimal Solution. • Firming up of scope of works. • Preparation of Cost Estimates. • Phasing of Works and their Cost. • Financial Analysis.			

<u>Course 6 - Effective Project Planning Tools and Project Management</u>	Theoretical %	Practical %	Remarks
Effective Project Planning Tools •Introduction to Project Planning •Requirements Management •Scope Management •Schedule Management •Time Scheduling •Resource Scheduling •Planning Tools & Techniques •Planning & Teamwork •Resource Management •Project Mobilization •Project Control •Project Change Control •Planning & Knowledge Management			

•Project, Programme & Portfolio distinctions (P3) •Breakdown of tasks •Estimating cost •Analyzing feasibility •Creating Gantt Chart •Risk Assessment			
Introduction to Projects •Unique challenges and management of projects •Understanding stakeholders •Stakeholder exercise •Scoping capital projects •Work breakdown and deliverables •Work breakdown exercise			
Team Formation and Management •The nature and requirements of the capital project team •Resource assignments and resource loading •Team building and maintenance •Resource monitoring and control •Roles and responsibilities exercise			
Scheduling Projects •Defining activities and durations •Scheduling impacts of long lead items •Information sources for project time estimates •Activity sequencing •Crashing and fast tracking schedules •Scheduling exercise			
Cost Management on Projects •Project cost determinants and drivers •Information sources for project cost estimates •Estimating procedures for projects •Early conceptual estimates •Detailed cost estimating •Cash flow management on projects •Cost management exercise			
Project Risk Management •Project risk planning for projects •Project risk sources/risk			

identification •Project risk assessment •Project risk response planning •Risk register exercise			
Constructability •Capital project constructability defined •Constructability phased approach •Project constructability process description •Constructability process deliverables •Constructability exercise			
Communication Management •Planning project communications Anddocumentation •How to develop a project communication plan •Information distribution •Performance reporting •Communications plan exercise			
Project Environmental Planning •Utility project environmental permitting •Managing invasive species •Project storm water management •Project waste management •Utility project environmental plan •Environmental plan exercise			
Safety/Security Project Planning •Incorporating safety into the design of the project •Six areas to incorporate into project's safety plan •Assessing security vulnerability •Security planning for substations and line projects •Safety/security plan exercise			
Project Procurement Management •Material acquisition •Vendor managed inventories •Contractor acquisition •Contract closure •Utility procurement exercise			
Project Quality Management			

•Defining project quality requirements •Understanding needs vs. expectations •Managing and documenting project quality achievement •Quality planning exercise			
Project Controls Planning and Execution •Baseline cost and schedule •Project control gates, cost tracking, and schedule tracing •Project controls exercise			
Project Closure • Project closure procedures			

<u>Course 7 - Introducing GIS System in Electricity Distribution System.</u>	Theoretical %	Practical %	Remarks
Overview of GIS System • Introduction to GIS • The Geographic Approach • Empowering Utilities with GIS • Role of GIS in distribution sector •Overview of Geographical Information Systems(GIS)system in electricity distribution system • Role of GIS in preventing power pilferage			
GIS system in Electricity Distribution System • GIS process in transmission and distribution sectors • Application of GIS in electrical distribution network system • Management of distribution system with the use of GIS • Geometric data acquisition using GPS • Attribute data acquisition • GPS data downloading • Design and creation of spatial database using Microsoft Excel and Arc • Plotting of Maps • Spatial analysis • Presentation of the required information in form of customized map and table • GIS based distribution system planning • GIS based load forecasting • Distribution analysis in a GIS			

environment • Diagnostics and integration in electric utilities			
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<u>Course 8</u> - Participatory Management System in Electric Co-operative System	Theoretical %	Practical %	Remarks
Participatory Management System in Electric Co-operative System • Rural Electrification Concept, Master Plan of its Achievements. • Area Coverage Rural Electrification Background. • Modern Management Concepts. • Importance of Participatory Management System. • Employee Development Training and Coaching. • Employee Development Counseling. • Wage of Salary Plan. • Leadership. • Rights of the Member-Consumer. • Roles and Responsibilities of Member-Consumer. • Problem Faced by Member-Consumer. • Handling Problems and Overcoming. • Roles and Responsibilities of Board Directors.			

<u>Course 9</u> - Socio-Economic Impact of RE Program	Theoretical %	Practical %	Remarks
Socio-Economic Impact of RE Program • Rural Electrification Program - An Overview. • Identifying Objectives of RE. • Concept of Baseline and Panel Survey. • Identifying Implicit and explicit goal of RE. • Identifying Methodology. • Sample design, Sample Sizes for Observation Measurement Unit.			

• Qualitative Survey. • Measurable Objects, variables, Impact Indicators and statistical and financial analysis. • Testable hypothesis. • Testable hypothesis, factor analysis, cluster analysis, income determination model and TOBIT/PROBIT Model • Analysis. • Determine Data Collection Instruments. • Structuring Questionnaires. • Quantitative and Qualitative Survey. • Measuring Demographic, social and cultural, Health, Hygiene and Sanitation. Social Environment and • Protective Security impact. • Measuring Economic impact: Income, Occupation and Employment, Expenditure, Surpluses and Savings, Credit, Ownership, Property and Assets. • Poverty analysis and measuring tools. • Poverty reduction and human development. • Impact on household, commercial activities, irrigation and Industrial development. • Data verification. Editing entry, cleaning, analysis, linking and organizing a data base. • Using e-views, SPSS software for data analysis. • Report writing.			
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Note: The Applicant shall insert the percentage of theoretical and practical time for each of the above. Add any relevant remarks to the “Remarks column”.

Local Training

<u>Course 1 - Electric Distribution Planning & Design</u>	Theoretical %	Practical %	Remarks
Electric Distribution System Study and Long Range Planning • Importance and Purpose of System Review and Study • Combining Results of Special Studies • Plant aging and Sufficiency • Testing of Standing Poles • Collecting Inspection Reports and Processing Information • Identifying and Reporting Problems and Solutions • Importance of Annual, 5-year and 10-year work plan • Producing of Annual, 5-year and 10-year work plan • Estimating System Improvements and Line Replacements • Estimating and Scheduling Manpower			
Electric Distribution System Design • Technical Introduction to Project • System Design Criteria and Line Routing • Mapping • Grounding and the MGN System • Construction Standards • Voltage Labels and Calculations • Over Voltage Protection and Insulation Levels • Over Current Protection • Transformers • Meters • Voltage regulators • Capacitors and Power Factor Improvements • System Losses and Conductor Thermal Conductivity • Construction Glades • Clearances • Poles and Cross Arms			

• Conductor Characteristics • Anchors and Guys • Line Renovation Engineering			
Electric Distribution System Construction Management • Introduction to the Electric Distribution System • Introduction to Substation of Electric Distribution System • Mechanical Design and Construction Standards • Conductor Handling, Installation and Connection • Equipment Installation, Connection and Grounding • Proper Use of Maps and Staking Sheets • Line Materials and Tools • Safety and Construction Methods • Distribution Line Renovation • Contractor personnel Training and Staffing Policy • Construction Contracts • Relationship of Parties Involved in Construction • Energization and Output Procedures • Contractor Site Management and Logistical Support • Close Out Procedures • Critical Path Method (CPM)			
Distribution Line Design and Staking • The Purpose of Staking and Uses of Staking Sheets. • Staking Process for New Distribution Line. • Staking Equipment. • Control Points. • Conductor Sizes, Selection and Application. • Pole Heights, Span Lengths and Clearances. • Selecting Construction Units, Guy, Anchor and Transformer. • Selecting Ground Units and Lightning Protection. • Common Staking Errors to Avoid.			

• How to Check Staking Sheets. • How to Inspect New Lines and make Clean-up Notes.			
Losses /Voltage Drop Study and Power Factor Improvement • Importance and Purpose of Losses, Voltage Drop and Power Factor. • Standards and Goals for Losses, Voltage Drop and Power Factor. • Causes and Remedies for Losses and Power Factor. • Causes and Remedies for High and low Voltage. • O and M Principles of Capacitors and Voltage Regulators. • Collecting and processing Data. • Producing Single Line Diagrams. • Identifying and Reporting Problems and Solutions. • Assembling a Total Report on Losses, Voltage Drop and Power Factor.			
Losses /Voltage Drop Study and Power Factor Improvement • Operating and Maintenance Principles of OCRs. • O and M Principles of Fuses and Sectionalizes. • Substation Over Current Protection. • Collecting and Processing Data. • Selecting Devices and Locations. • Producing Single Line Sectionalizing Diagrams. • Assembling the Total Report.			

<u>Course 2</u> - Electric Distribution System Operation and Maintenance	Theoretical %	Practical %	Remarks
Electric-Distribution System Introduction • Introduction to Electric Distribution System. • Purpose of Distribution Lines and General Information.			

• Distribution Line Components and Symbols. • Materials Identification, Accounting, Handling. • Maps. • Line Construction Standards, Criteria, Methods, Procedures and Safety • Line Routing. Mapping and Staking • Substation and line Equipment and Materials. • Substation Construction Methods and Procedures. • Multi Grounded Neutral System. • Tools Identification, Handling, Use and Maintenance. • Transformer and Secondary Sizing of Large Loads. • Energy Metering. • Control of Losses and Power Factor.			
Distribution Line Operation • Safe Work Procedures. • Conductors (Sizing, Voltage Drop, Losses etc.) • Phasing, Tie Lines and Loop Feeders. • Switches and Fuses. • OCRs Sizes and Types. • Coordinating OCRs, Fuses and Sectionalizes. • Grounding. • Line Voltage Regulators. • Line Capacitor (Sizes. Types. Kh, Seal Control etc.) Motors. • Emergency Operating procedures. • System Primary Troubleshooting. • Load Management.			
Distribution System Inspection and Maintenance • Distribution Line Inspection Procedure. • Poles and Cross arms. • Conductors and Grounding. • Distribution Transformers, Meters, Service Drops etc. • Power Transformer and Regulator Inspection.			

• Voltage Regulations and Metering. • Over Voltage and Over Current Protection. • Line Sectionalizing. • Emergency Procedures. • Troubleshooting and Complain Management • Line Patrol, Right of way Inspection and Clearing. • Identification of Troublesome Areas and Remedies. • Line Inspection and Maintenance Work Planning. • Needs for Maintenance Material and Equipment. • Tool Maintenance. • Hot Line Program Administration and Operations. • System Study and Operational Diagram, Analysis and Recommendations. • Technical Work Plans. • Distribution Line Operation, Inspection and Maintenance (Field)			
Test and Practices of distribution Sub-station and Equipment • 3 Phase Power Transformer, S/S Maintenance and Up Gradation. • On Load Tap Changer. • Test of Transformer. • Characteristics of Insulating oil with Test. • Types of high Voltage Circuit Breaker I Vacuum Circuit Breaker and SF6 Circuit Breaker. • Protection of Distribution Line and Transformer. • Battery and Battery charger/DC system in S/S. • Routine maintenance of Equipment/Power Transformer. • HV Switchgear O and M.			

Course 3 - Technical Loss Reduction Methodology	Theoretical %	Practical %	Remarks
Short-term Measures for Technical Loss Reduction • Network Reconfiguration. • Network Re-conductor. • Preventing Leakages at Insulators. • Employing AVB (Automatic Voltage boosters). • Better Management of Distribution Transformers. • Load Balancing and Load Management • Capacitor installation (Shunt or Series). • Improving Joints and Connections. • Laying Additional Link Lines. • Increase in HT/L T Ratio. • Adoption of High Voltage Distribution System (HVDS). • Regular Maintenance of Distribution Network. • Creation of Primary Sub-station.			
Long-term Plans for Technical Loss Reduction • Data Collection Regarding Existing Loads, Operating Conditions, forecast of Expected Loads etc. from Grid • Sub-station to Consumer level. • Mapping of Existing System. • Analysis of Existing System (Voltage Regulation, T and D Losses in Existing System, Adequacy of Back-up System. • Load forecast. • Plan for Up-grading the Network. • Technology Options including Integration of Features for modernization of System • Evaluation of Various alternatives for least cost Optimal Solution. • Firming up of scope of works. • Preparation of Cost Estimates. • Phasing of Works and their Cost. • Financial Analysis.			

<u>Course 4 - Introducing GIS System in Electricity Distribution System.</u>	Theoretical %	Practical %	Remarks
Overview of GIS System • Introduction to GIS • The Geographic Approach • Empowering Utilities with GIS • Role of GIS in distribution sector • Overview of Geographical Information Systems (GIS) system in electricity distribution system • Role of GIS in preventing power pilferage GIS system in Electricity Distribution System • GIS process in transmission and distribution sectors • Application of GIS in electrical distribution network system • Management of distribution system with the use of GIS • Geometric data acquisition using GPS • Attribute data acquisition • GPS data downloading • Design and creation of spatial database using Microsoft Excel and Arc • Plotting of Maps • Spatial analysis • Presentation of the required information in form of customized map and table • GIS based distribution system planning • GIS based load forecasting • Distribution analysis in a GIS environment • Diagnostics and integration in electric utilities			

Course 5 – Economic Analysis of Electric Utility	Theoretical %	Practical %	Remarks
• Introduction of Electric Utility • Economic Decision Analysis • Simple Economic Measure • The Time Value of Money • Present and Future Value • Cost and Benefit Analysis • Concept of Life Cycle Costing • Purchase Cost vs. Operating Costs. • Project cost, Budget and Budgetary Control • Fixed Expenditure of Electric Utility • Operation and Maintenance cost of Electric Utility • Planning System Improvements and Line Replacements • System Loss Improvement • Power factor Improvement • Load Growth • Load Management • Office Management • Components of Electric Tariff			

Course 6 - Socio-Economic Impact of RE Program	Theoretical %	Practical %	Remarks
Socio-Economic Impact of RE Program • Rural Electrification Program - An Overview. • Identifying Objectives of RE. • Concept of Baseline and Panel Survey. • Identifying Implicit and explicit goal of RE. • Identifying Methodology. • Sample design, Sample Sizes for Observation Measurement Unit. • Qualitative Survey. • Measurable Objects, variables, Impact Indicators and statistical and financial analysis. • Testable hypothesis. • Testable hypothesis, factor analysis, cluster analysis, income determination model and TOBIT/PROBIT Model			

• Analysis. • Determine Data Collection Instruments. • Structuring Questionnaires. • Quantitative and Qualitative Survey. • Measuring Demographic, social and cultural, Health, Hygiene and Sanitation. Social Environment and • Protective Security impact. • Measuring Economic impact: Income, Occupation and Employment, Expenditure, Surpluses and Savings, Credit, Ownership, Property and Assets. • Poverty analysis and measuring tools. • Poverty reduction and human development. • Impact on household, commercial activities, irrigation and Industrial development. • Data verification. Editing entry, cleaning, analysis, linking and organizing a data base. • Using e-views, SPSS software for data analysis. • Report writing.			
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<u>Course 7 – Participatory Management System in in Electric Co-operative System</u>	Theoretical %	Practical %	Remarks
• Rural Electrification Concept, Master Plan of its Achievements • Area Coverage Rural Electrification Background • Modern Management Concept • Importance of Participatory Management System • Leadership • Rights of the Member-Consumer. • Roles and Responsibilities of Member-Consumer • Roles and Responsibilities of Board Directors.			

<u>Course 8 – Transformer Operation, Maintenance and Repair</u>	Theoretical %	Practical %	Remarks
• Introduction of Transformer • Principles of Transformer • Different External Component of Transformer • Different Internal Component of Transformer • Measuring and Controlling Devices of Transformer • Auxiliaries of DESA/PDB Used Transformer • Routine Test (Expect Loss and Insulation Test). • Procedure of Loss Test • Procedure of Insulation Test • Procedure of Short Circuit Test of Transformer • Procedure of Making Parallel Connection of two Transformer • Removing and Replacing of Bushing • Repairing of Core and Coil of Transformer			

• Installation and Removal of Radiator of Transformer • Pre-Inspection for Installation of Transformer in Power Line • Maintenance Schedule and its Recording • Insulating oil of Transformer • Maintenance of Transformer • Trouble Shooting • Decision Making for Purchasing for New Transformer • Course Review			
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<u>Course 9 – Voltage Regulator/ACR/OCR Operation, Maintenance & Repair</u>	Theoretical %	Practical %	Remarks
Voltage Regulator Operation, Maintenance & Repair • Introduction to Voltage Regulator and its Theory • Voltage Regulator Theory Operation • Pre-Installation Inspection and Testing • Installation of Voltage Regulator • Operation of Voltage Regulator and its Control Panel • Maintenance Schedule and its Recording • Procedure of Inspection and Routine maintenance of Voltage Regulator • Meager and oil Testing of Voltage Regulator • Changing Regulator's Tap Changer, Moving or Fixed Contracts, Reversing Switch, Holding Switch. • Changing Regulator Bushing and Lighting Arrester, Position Indication Flexible Shaft (Internal and External). • Changing of Motor and Capacitor • Testing/Checking of Regulated Output Voltage after Repairing. • Regulator dry out Procedure • Testing of Supply Voltage of Control Panel and Motor Circuit for Cooper and Siemens • Procedure to free a stalled Tap Changer. • Setting of Control Panel Parameter with Schematic Diagram of Cooper, Siemens and Toshiba. • Door Sealing (Checking of Tightness) of Control Cabinet, Junction Box and Control Cable (drying, cleaning and tightness). • Trouble Shooting • Safety Precautions for Working with VR.			

ACR/OCR/VCB Operation, Maintenance & Repair • Automatic Circuit Re-closers • Introduction to Different Components of ACR • Factors to Operating of ACR • Re-closers to Re-closers and Fuse to Re-closers Coordination • Description on Operation of ACR • Description of General Maintenance of ACR/OCR/VCB • Periodic Inspection and Maintenance of oil or Vacuum Interrupted Hydraulically Controlled ACR. • Testing Different Operation of ACR • Sampling, Handling and testing oil. • High Potential Insulation level withstand Tests. • Changing of ACR Bushing and Insulator • Removal of Head Casting. • Changing or Maintenance of ACR Interrupting Assembly • Changing or Maintenance of Vacuum Interrupting Assembly • Changing or Maintenance of Closing Solenoid and Closing Solenoid Contactor • Changing or Maintenance of Hydraulic Pump and Lockout Piston. • Inspecting, Adjusting and Reinstalling of Time Delay Units • Periodic Inspection and Maintenance Procedure of Vacuum Interrupted Electronically Controlled ACR and its Replacement. • Different Components of Vacuum Interrupted Electronically Controlled ACR and its Replacement. • Battery Maintenance. • Control Feature of FXB (Cooper) Microprocessor Based Re-closers. • FXB Microprocessor Based Re-closers Control Software User's Manual.			
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• Installation of FXB Microprocessor Based Re-closers. • Testing Procedure of Different Parts of FXB (Cooper) Microprocessor Based Re-closers. • Control Feature of Nu-Lec Microprocessor Based Re-closers. • Installation and Operation of Nu-Lec Microprocessor Based Re-closers. • Maintenance of Nu-Lec Microprocessor Based Re-closers and its Control Cubicle. • Control Level Over Travel Adjustment and Counter Adjustment. • Safety Precaution for Working with ACR. • Trouble Shooting. • Review of the Course.			
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Note: The Applicant shall insert the percentage of theoretical and practical time for each of the above. Add any relevant remarks to the “Remarks column”.

Annexure 2

Training matrix

Indicative Foreign Training Matrix (A)

Sl. No.	Course/Topic	Participa nts	No. of Participants	Duration		Indicative Program Schedule											
						2020											
					Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
1	Efficient Distribution Network Planning & Design	BREB/PB S	6	21 days													
2	Modern/ New Distribution Materials and Equipment	BREB/PB S	6	21 days													
3	New Techniques of Distribution line Up-gradation and Rehabilitation	BREB/PB S	6	21 days													
4	Electric Distribution System Operation and Maintenance	BREB/PB S	6	21 days													
5	Technical and Non-Technical Loss Reduction Methodology	BREB/PB S	8	21 days													
6	Effective Project Planning Tools and Project Management	BREB/PB S	8	21 days													
7	Introducing GIS System in Electricity Distribution System.	BREB/PB S	6	21 days													
8	Development of Participatory Management System in RE Program.	BREB/PB S	15	21 days													
9	Economic and Social Impact of RE Program	BREB/PB S	20	21 days													
81																	

Annexure 2

Indicative Local Training Matrix (B)

Sl. No.	Course/Topic	Participants	No. of Participants	Duration		Indicative Program Schedule											
						2020											
					Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
1	Electrical Distribution Design & Planning	BREB/PBS	15	5 days													
2	Electrical Distribution System Operation & Maintenance	BREB/PBS	10	5 days													
3	Technical Loss Reduction Methodology	BREB/PBS	10	2 weeks													
4	Introducing GIS System in Electrical Distribution System	BREB/PBS	10	5 days													
5	Economic Analysis of Electric Utility	BREB/PBS	15	5 days													
6	Economic and Social Impact of RE Program	BREB/PBS	25	5 days													
7	Participatory Management System in Electric Co-operative system	BREB/PBS	25	5 days													
8	Transformer Operation, Maintenance & Repair	BREB/PBS	15	2 weeks													
9	Power Transformer/ Voltage Regulator/ ACR/OCR Operation, Maintenance & Repair	BREB/PBS	25	2 weeks													
			150														

