



USAID
FROM THE AMERICAN PEOPLE



ENERGY POLICY PROGRAM

LIVE LINE TRAINEE ASSESSMENT REPORT

MEPCO AND SEPCO

FEBRUARY - MAY, 2015

February – May, 2015

This report is made possible by the support of the American People through the United States Agency for International Development (USAID). The contents of this report are the sole responsibility of Advanced Engineering Associates International Inc. (AEAI) and do not necessarily reflect the views of USAID or the United States Government (USG).

ENERGY POLICY PROGRAM

LIVE LINE TRAINEE ASSESSMENT REPORT

MEPCO AND SEPCO

FEBRUARY – MAY, 2015

Contract No: AID-EPP-I-00-03-00004

Order No: AID-391-TO-12-00002

©USAID Energy Policy Program
House 4, Street 88, Sector G-6/3
Ataturk Avenue, Islamabad, Pakistan
Tel: +92 (51) 835 7072, Fax: +92 (51) 835 7071
Email: jhicks@ep-ep.com.pk



DISCLAIMER

The contents of this report are the sole responsibility of AEAI and do not necessarily reflect the views of USAID or the United States Government (USG).

CONTENTS

ACRONYMS.....	ii
EXECUTIVE SUMMARY	1
BACKGROUND	3
Objective.....	3
POST LIVE LINE TRAINING ASSESSMENT	4
Monitoring and Evaluation Visits.....	4
Assessment Findings.....	4
General Comments.....	4
RECOMMENDATIONS.....	5
Similar Training.....	4
Tools and Plants.....	4
Accomodation	4
Participant Selection and Briefing.....	5
ANNEX I: COLLECTED COMMENTS	7
ANNEX II: LINEMEN CONTACT DETAILS	8
ANNEX III: ASSESSMENT FEEDBACK FORMS.....	9
MEPCO AND SEPCO.....	10

ACRONYMS

AEAI	Advanced Engineering Associates International, Inc.
AE	Assistant Engineer
ALM	Assistant Lineman
DISCOs	Distribution Company
EPP	Energy Policy Program
LESCO	Lahore Electric Supply Company
LLM	Live Line Maintenance
LM	Lineman
LS	Line Superintendent
M&E	Monitoring and Evaluation
MEPCO	Multan Electric Power Company
NTDC	National Transmission and Despatch Company
QESCO	Quetta Electric Supply Company
SEPCO	Sukkur Electric Power Company
T&P	Tools and Plans
USAID	United States Agency for International Development

EXECUTIVE SUMMARY

This assessment report summarizes and highlights the responses from Live Line Maintenance (LLM) training participants from MEPCO and SEPCO collected during site visit conducted to NTDC Tarbela on May 15th, 2015. Based on participants' feedback, the assessment appreciated the time invested by EPP and DISCOs in the successful completion of two of the four DISCOs during Batch II. The Energy Policy Program (EPP) trained 20 linemen from MEPCO (Multan Electric Power Company) and SEPCO (Sukkur Electric Power Company) from February 2 – May 15, 2015. EPP is planning to train the remaining two DISCOs in between May - October 2015.

As a result of the LLM training, each DISCO will get a LLM trained crew to work on live lines with new tools and transportation equipment for high voltage lines. By working on live lines, DISCOs will reduce the number of bottlenecks by avoiding shutdowns for maintenance and repairs. In turn, LLM training will reduce power outages and losses currently affecting the reliable delivery of electricity to the consumers.

In 2015, EPP planned to train four DISCOs; out of which MEPCO and SEPCO has already completed the LLM training. As a result, DISCOs LLM crew will get Live Line Maintenance Training Certification and new tools and plants for better implementation of the skills learned. The chart below details the location and number of linemen:

DISCOs	Linemen
Multan Electric Power Company (MEPCO)	10
Sukkur Electric Power Company (SEPCO)	10
Total	20

To monitor the progress of the LLM course and future training for the remaining DISCOs crews, EPP conducted site visit to Tarbela training center to interview and survey the training participants, principal and instructors. EPP asked the participants and instructors to detail the challenges they faced during the training program, and to propose potential solutions for future similar trainings. The participants highlighted the following recommendations:

- Linemen requested to conduct a similar training outside the country to learn international ways of working on live transmission lines and dead towers.
- NTDC Tarbela requested to provide the latest tools and plants to be used to train the LLM crews during the live line and dead tower training courses because the present tools and plants are obsolete.
- NTDC principal requested USAID to conduct visit with the Technical leads during the training to identify the on-going challenges and course of action.

Before the second phase of LLM training provided, EPP conducted an assessment of the curriculum, trainers, and facilities at NTDC Tarbela Training Center. The results of the assessment were shared with the trainers and assessors at the training center to help strengthen the upcoming trainings courses.

This assessment reviews the background on LLM training, participant feedback and recommendations provided by participants and EPP's Monitoring and Evaluation (M&E) Team. Annex I – Collected Comments provides additional comments highlighted in the feedback forms for future improvements.

EPP's M&E Team conduct a post LLM training batch II monitoring and evaluation assessment to collect participants' feedback. Annex II – Linemen Contact Details provides the contact information of all the participants by organization for future monitoring and evaluation.

BACKGROUND

Prior to LLM training, lines were often shut down for routine and preventative maintenance which resulted in losses and created bottlenecks in energy delivery and reliability. EPP helped each DISCO develop one LLM crew dedicated to using new hot stick tools, maintenance techniques, and trailers to service live 132kV and 66kV transmission lines. During the LLM course each Disco's crew underwent a 14-week intensive training program that consisted of:

- 4 week of in-class training focused on health and safety standards
- 10 weeks of extensive field-based training, including supervision, on-the-job practice with hot-stick tools, and bare hand maintenance techniques

During batch II, EPP has trained SEPCO and MEPCO. In 2015, EPP started Batch II LLM training at NTDC Tarbela Training Center. Previously, EPP has already trained five DISCOs where due to shipping delays, the hot stick tools and trailers were not delivered which are delivered during the refresher course currently in process at the DISCOs. EPP anticipate completing the remaining Batch II trainings by October 2015.

EPP anticipate the completion of the remaining courses by the third quarter of FY2015. EPP conducted a detailed assessment with MEPCO and SEPCO's participants to review their experience, capacity gaps, and challenges. The assessment outlines improvements, USAID procedure compliance, refresher course recommendations, and future monitoring and evaluation procedures.

EPP's Monitoring and Evaluation (M&E) team conducted a post-LLM training assessment at NTDC Tarbela Training Center on May 15th, 2015 to identify the program's results, challenges and sustainability. The assessment consisted of two steps:

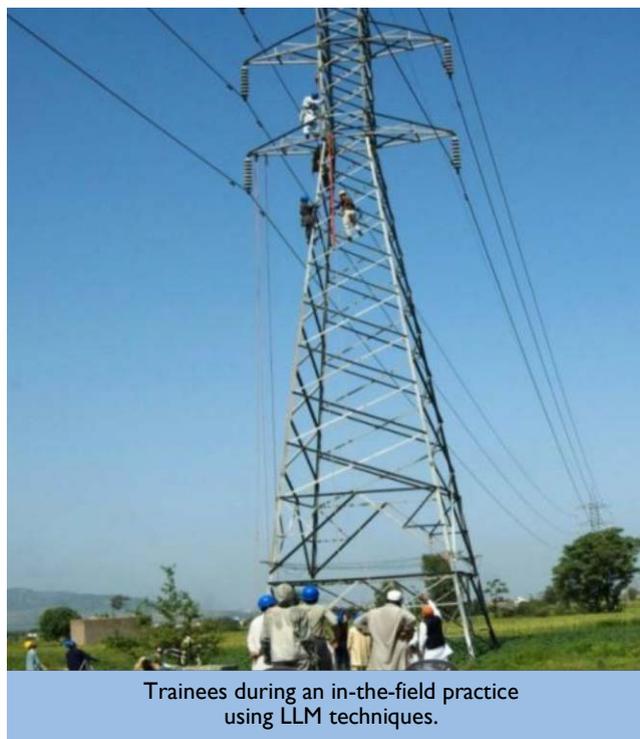
- Feedback forms completed in person with M&E team members
- Sound bites collected from the participants based on their individual experience

This two-step assessment process provided the linemen and engineers an opportunity to express their unbiased opinions about the training, and gave EPP important information that will shape future LLM training programs.

OBJECTIVE

The training sought to:

- Highlight the achieved results
- Identify challenges and recommendations
- Sustainability assessment for future similar trainings
- Identify areas needing improvements



POST LIVE LINE TRAINING ASSESSMENT

MONITORING AND EVALUATION VISITS

In conducting the training assessment, EPP's M&E team worked closely with Mr. Sher Ahmed, EPP's LLM Coordinator and Mr. Zafar Ali Khan, EPP's Live Line Demonstrator, Muhammad Hanif Malhi, NTDC Tarbela Trainer. Assessment forms are attached in Annex III– Assessment Feedback Forms and were delivered in both English and Urdu. EPP visited IESCO on the following dates:

- Multan Electric Power Company (10 Linemen) – May 15th, 2015
- Sukkur Electric Power Company (10 Linemen) – May 15th, 2015

ASSESSMENT FINDINGS

The findings below are based on meetings with the principal, trainer, linemen, and the Technical leads at NTDC Tarbela. The tables highlight the issues discussed and the comments received.

Highlighted Issues	General Feedback and Comments
MEPCO and SEPCO	
Similar Trainings	<ul style="list-style-type: none">• Trainees requested USAID to conduct a similar training outside the country on the transmission lines and dead towers where they can learn new skills and techniques.
Tools and Plants	<ul style="list-style-type: none">• NTDC Training Center requested USAID to provide tools and plants which they can use in training more LLM crews from different DISCOs.• They requested USAID for tools because their current tools and plants are outdated and cannot perform the required functions effectively.
Technical Visits	<ul style="list-style-type: none">• NTDC principal requested USAID to conduct visit with the Technical leads during the training to identify the on-going challenges and course of action.

GENERAL COMMENTS

Linemen were asked to complete the Live Line Post Training Feedback Form, and were provided assistance by EPP's M&E Team. Most of the linemen opted to fill out the forms in Urdu, and EPP translated their responses to generate quotes. General comments and findings appear below:

"I am thankful to USAID to train us on Live Line Maintenance. We always worked on live lines and this training has helped us in learning about the techniques used at the dead towers with expert opinions and practical demonstration by our trainer. Our trainer Mr. Hanif was very helpful throughout the course."

"Previously we had to switch off the transmission lines while working on the faults and repairing discs but after this training with new tools and plants we will be able to work on the live lines and fix the faults without any interruptions"

"The LLM training has helped us in repairing the dumpers and their weights on the live lines and dead tower without any delays. This will help reduce the load shedding in Pakistan"

Linemen suggested the following related to the training:

"Practical demonstration of the work on the dead tower training was excellent, there should be more training like these for more linemen across the country. Linemen requested to be sent outside the country along with the trainers to learn international techniques of working on the live lines"

RECOMMENDATIONS

As a result of EPP's assessment, the following recommendations have been offered to enhance future refresher course:

SIMILAR TRAININGS

MEPCO and SEPCO trainees requested USAID to conduct a similar training outside the country on the transmission lines where they can learn new skills and techniques. They requested USAID to conduct more international dead tower trainings.

TOOLS AND PLANTS

NTDC Training Center requested USAID to provide tools and plants which they can use in training more LLM crews from different DISCOs. They requested USAID for tools because their current tools and plants are outdated and cannot perform the required functions effectively.

ACCOMODATION

NTDC Tarbela requested USAID to build an accommodation facility and better class room, as currently; they can only fit in a group of 15 people which makes it difficult to accommodate 20 or more people.

PARTICIPANT SELECTION AND BRIEFING

Going forward, EPP will train the remaining LLM Batch II DISCOs. EPP followed the following selection criteria for selecting the participants:

- Less than 45 years of age.
- 10-15 years of experience in their department. For junior linemen, 1-2 years of experience.
- Completion of 10th Grade of equivalent and the ability to read and write in Urdu
- Willingness to attend the training sessions
- Mental and physical fitness to perform the standard duties of a lineman

ANNEXES

ANNEX I: COLLECTED COMMENTS

	Overall Experience	Live Line Training Course	Concerns about the Training	Comments
IESCO	<ul style="list-style-type: none"> I am thankful to USAID to train us on Live Line Maintenance. We always worked on live lines and this training has helped us in learning about the techniques used at the dead towers with expert opinions and practical demonstration by our trainer. Our trainer Mr. Hanif was very helpful throughout the course. 	<ul style="list-style-type: none"> MEPCO and SEPCO would like to request USAID to extend one week so that we can complete the remaining field work on the dead towers. Due to the fact that preventative measures require a detailed explanation and walk through for developing a thorough understanding. 	<ul style="list-style-type: none"> The trainer was excellent and demonstrated all the techniques really extensively. We will implement all these techniques with the newly provided tools and plants on our return to our DISCOs. The training content will help us recalling all the basics we have learned during this training. NTDC principal requested USAID to conduct visit with the Technical leads during the training to identify the on-going challenges and course of action. 	<ul style="list-style-type: none"> MEPCO and SEPCO trainees requested USAID to conduct a similar training outside the country on the transmission lines where they can learn new skills and techniques. They requested USAID to conduct more international dead tower trainings.

ANNEX II: LINEMEN CONTACT DETAILS

No.	Name	Designation	Contact Information
MEPCO			[redacted]
1	Muhammad Rafique	LS-I	
2	Sadiq Ali	LM-I	
3	Muhammad Quosain Shah	LM-I	
4	Altaf Hussain	LM-II	
5	Shahid Iqbal	LM-II	
6	Nasar Iqbal	LM-II	
7	Muhammad Asim	LM-II	
8	Allah Wasaya	LM-II	
9	Muhammad Imran	LM-II	
10	Muhammad Ansar	ALM	

No.	Name	Designation	Contact Information
SEPCO			[redacted]
1	Altaf Hussain	ALM	
2	Shakeel Ahmad	ALM	
3	Sardar Bux	ALM	
4	Nazeer Ahmad	ALM	
5	Shafqat Ali	LM-II	
6	Zahid Hussain	ALM	
7	Shahid Hussain	ALM	
8	Naveed Akhtar	LM-II	
9	Muhammad Azam	LS-II	
10	Zahid Ali	ALM	

ANNEX III: ASSESSMENT FEEDBACK FORMS

MEPCO AND SEPCO

Energy Policy Program
House 4, Street 88, G-6/3, Islamabad, Pakistan
Tel: +92 51 835 7072, Fax: +92 51 835 7071
www.ep-ep.com.pk