



USAID
FROM THE AMERICAN PEOPLE



ENERGY POLICY PROGRAM

LIVE LINE TRAINEE ASSESSMENT REPORT

IESCO

MARCH - APRIL, 2015



March - April 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

IESCO

MARCH - APRIL 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	2
Objective.....	2
POST LIVE LINE TRAINING ASSESSMENT	3
Monitoring and Evaluation Visits.....	3
Assessment Findings.....	3
General Comments.....	3
RECOMMENDATIONS.....	4
Time extension.....	4
Additinal Training.....	4
Participant Selection and Briefing.....	4
ANNEX I: COLLECTED COMMENTS	6
ANNEX II: LINEMEN CONTACT DETAILS	7
ANNEX III: ASSESSMENT FEEDBACK FORMS.....	8
IESCO.....	9

ACRONYMS

AEAI	Advanced Engineering Associates International, Inc.
AE	Assistant Engineer
ALM	Assistant Lineman
DISCOs	Distribution Company
EPP	Energy Policy Program
FESCO	Faisalabad Electric Supply Company
GEPCO	Gujranwala Electric Power Company
HESCO	Hyderabad Electric Supply Company
IESCO	Islamabad Electric Supply Company
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
PESCO	Peshawar Electric Supply 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 collected during site visits conducted on April 3rd, 2015. Based on participants' feedback, the assessment appreciated the time invested by EPP and DISCOs in the successful completion of the refresher course. The Energy Policy Program (EPP) trained 7 linemen from (Islamabad Electric Supply Company) IESCO in between March – April, 2015. EPP is planning to train the remaining four DISCOs in between April - October 2015.

As a result of the LLM training, each DISCO has a 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.

Previously, EPP trained four DISCOs and during the first LLM training assessment session, these crews did not receive hot stick tools and trailers due to shipping delays. As a result, these four crews recommended a refresher course with the new tools and plants. The chart below details the location of the refresher course training participants:

DISCOs	Linemen
Islamabad Electric Supply Company (IESCO)	7
Total	7

To monitor the progress of the refresher course and future training for the remaining DISCOs crews, EPP conducted site visit to IESCO to interview and survey the training participants. EPP asked the participants 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:

- Delays occurred due to weather conditions in the completion of practical work at the dead towers. There should be an additional week to complete the training for dead tower.
- Additional technical training should be conducted for the skills required to work on the top and middle phase of the transmission line

Before the refresher course training provided, EPP conducted an assessment of the curriculum, trainers, and facilities (NTDC Tarbela Training Center). The results of the assessment were shared with the trainers and assessors at the DISCOs to help strengthen the refresher course training.

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.

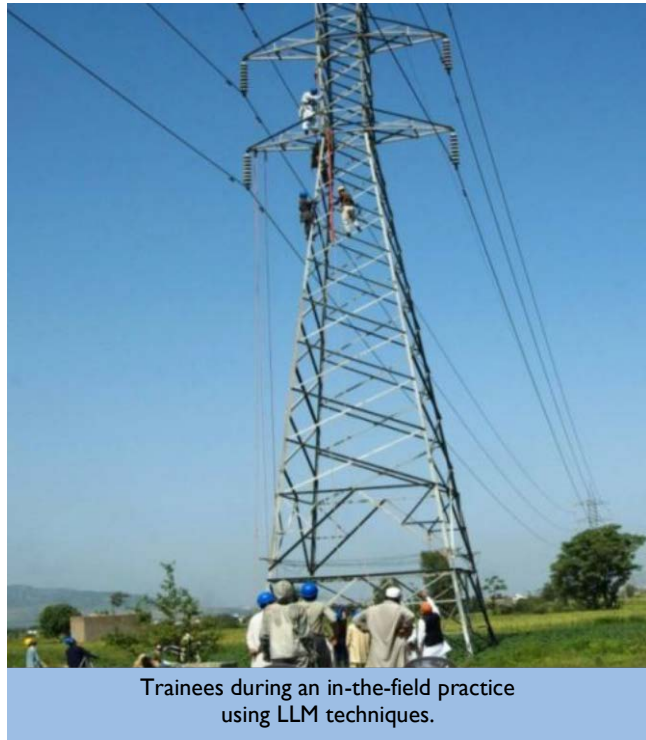
EPP's M&E Team conduct an additional post refresher course assessment to collect participant feedback. Annex II – Linemen Contact Details provides the contact information of all the participants by organization for future monitoring and evaluation.

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 refresher course each Disco's crew underwent a 4-week intensive training program that consisted of:

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

To date, IESCO's 7 linemen have been trained with PESCO, FESCO, HESCO, and GEPCO remaining. Due to shipping delays, the hot stick tools and trailers were not delivered to the DISCOs which are delivered during the refresher course. EPP anticipate the completion of the remaining refresher courses by the third quarter of FY2015. EPP conducted a detailed assessment with IESCO'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 IESCO on April 3rd, 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. 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:

- Islamabad Electric Supply Company (7 Linemen) – April 3rd, 2015

ASSESSMENT FINDINGS

The findings below are based on meetings with the linemen, Superintendent Engineers, and the Technical leads at IESCO. The tables highlight the issues discussed and the comments received.

Highlighted Issues	General Feedback and Comments
PESCO	
Additional Week	<ul style="list-style-type: none">• Linemen placed a request for an additional week training to complete dead tower field work.• Due to weather delays the linemen could not complete the dead tower work.
Techniques	<ul style="list-style-type: none">• Linemen requested for additional topics to be covered during the course e.g. technical details and working at the middle and top phase of the transmission line.• More on the job practice of the tools and plants

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 132 kV live line work. It was an amazing training and full of learning opportunities.

"The training reminded all the practices that we have had done at Tarbela Training Center under the supervision for 3 months. In this session of refresher course we have revised safety procedures, hazard identification, artificial respiration, and importance of PPE"

"Due to the non-availability of the tools, it was not possible for IESCO to practice the techniques. USAID gave us the tools and vehicles which allowed us to practically perform the skills we have learned during the first LLM training. Refresher course was extremely helpful in recalling all the skills and techniques, in addition there should be a course for top and middle phase of the transmission line"

Linemen suggested the following related to the extension of course duration.

"Practical demonstration of the work on the dead tower training was delayed due to the weather conditions. We would like to request USAID to extend one week so that we can complete the remaining field work on the dead towers"

RECOMMENDATIONS

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

TIME EXTENSION

Practical demonstration of the work on the dead tower training was delayed due to the weather conditions. We would like to request USAID to extend one week so that we can complete the remaining field work on the dead towers.

ADDITIONAL TRAINING

Linemen requested USAID for an additional training on the technical skills required to work on the top and middle phase of the transmission lines.

PARTICIPANT SELECTION AND BRIEFING

Going forward, EPP will train the previously USAID-approved participant (LLM Batch I). Specifically, 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
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">IESCO</p> <ul style="list-style-type: none"> I am thankful to USAID to train us on 132 kV live line work. It was an amazing training and full of learning opportunities. Due to the non-availability of the tools, it was not possible for IESCO to practice the techniques. USAID gave us the tools and vehicles which allowed us to practically perform the skills we learned. 	<ul style="list-style-type: none"> We 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"> Practical demonstration of the work on the dead tower training was delayed due to the weather conditions. We would like to request USAID to extend one week so that we can complete the remaining field work on the dead towers. IESCO requested to extend the program for one more week for the completion of the dead tower work. 	<ul style="list-style-type: none"> Practical demonstration of the work on the dead tower training was delayed due to the weather conditions. We would like to request USAID to extend one week so that we can complete the remaining field work on the dead towers. IESCO's trained LLM crew hasn't been awarded any certificate for the LLM training. IESCO requested to award the 7 linemen a certification for the refresher course. Refresher course was extremely helpful in recalling all the skills and techniques, in addition there should be a course for top and middle phase of the transmission line

ANNEX II: LINEMEN CONTACT DETAILS

No.	Name	Designation	Contact Information
PESCO			[redacted]
1	Muhammad Saleem Khan	A.E (T)	
2	Muhammad Ashfaq	LS -II	
3	Abu Turab Ali	LM - II	
4	Amir Nadeem	LM - II	
5	Azhar Mehmood	ALM	
6	S. Nawazish Ali	ALM	
7	Muhammad Asif Hussain	LM - I	

ANNEX III: ASSESSMENT FEEDBACK FORMS

IESCO

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