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# ENERGY POLICY PROGRAM

## LIVE LINE TRAINEE ASSESSMENT REPORT

### PESCO

APRIL - MAY, 2015



April – May, 2015

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### PESCO

APRIL- MAY, 2015

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# ACRONYMS

|        |                                                     |
|--------|-----------------------------------------------------|
| AEAI   | Advanced Engineering Associates International, Inc. |
| AE     | Assistant Engineer                                  |
| AET    | Assistant Engineer Training                         |
| 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 visit conducted on May 5<sup>th</sup>, 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 16 linemen from (Peshawar Electric Supply Company) PESCO in between April - May, 2015. EPP is planning to train the remaining three DISCOs in between May - 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 |
|---------------------------------------|---------|
| PESCO Electric Supply Company (IESCO) | 16      |
| Total                                 | 16      |

To monitor the progress of the refresher course and future training for the remaining DISCOs crews, EPP conducted site visit to PESCO 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:

- Linemen placed a request to provide the remaining tools and vehicles before the refresher course ends so they keep practicing their live line work
- Linemen requested for a separate office space/complaint office/garage and sanction space for LLM division

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 and PESCO's 16 linemen have been trained with 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 PESCO's linemen to review their individual experience, capacity gaps, and challenges. The assessment outlines improvements, USAID procedure compliance, refresher course recommendations, and future monitoring and evaluation procedures.



PESCO trainees during an in-the-field practice using LLM techniques

EPP's Monitoring and Evaluation (M&E) team conducted a post-LLM training assessment at PESCO on May 5<sup>th</sup>, 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:

- Peshawar Electric Supply Company (16 Linemen) – May 5<sup>th</sup>, 2015

## ASSESSMENT FINDINGS

The findings below are based on meetings with the linemen, Superintendent Engineers, and the Technical leads at PESCO. 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"><li>• Linemen requested USAID to extend one week for an additional training at dead end tower.</li></ul>                                                                                                              |
| Remaining T&P      | <ul style="list-style-type: none"><li>• Linemen placed a request to provide the remaining tools and vehicles before the refresher course ends so they keep practicing their live line work</li><li>• One vehicle isn't enough for 16 linemen.</li></ul> |
| Office Space       | <ul style="list-style-type: none"><li>• Linemen requested for a separate office space/complaint office/garage and sanction space for LLM division</li></ul>                                                                                             |

## 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 66 and 132 kV live line and dead tower transmission lines with the latest tools, vehicles and plants. Live line training with the T&P will help PESCO save time in repair and maintenance work of the transmission lines."*

*"The training reminded all the practices that we have had done at Tarbela Training Center under the supervision for 3 months. In this session, Mr. Zafar has helped us recall all the bare hand and stick methods while working on the working lines. There are a few tools missing and we request USAID to provide those tools as soon as possible for the successful implementation of training's objectives"*

*"Due to the non-availability of the tools, it was not possible for PESCO to practice the techniques between the first and refresher training. We thank USAID for giving 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"*

*"LLM training helped us in learning to change the disc insulators strings at live and dead tower, replacements of vibration dampers etc. without any interruption of supply to the end consumers. Moreover, it is helping PESCO in reducing the time delays which is improving our work performance"*

Linemen showed their concern regarding the payments of their travel allowance to be paid by PESCO.

*“PESCO isn’t paying the agreed TADA and due to which we are doing daily expenditures from our own pockets. We want USAID to talk to the official to solve this problem as soon as possible*

## RECOMMENDATIONS

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

### REMAINING T&P AND TIME EXTENSION

The remaining T&P and second vehicle should be provided before the refresher course ends so that we keep on practicing the techniques learned. We would like to request USAID to extend one week for an additional training at dead end towers.

### OFFICE SPACE

Linemen requested EPP to talk to PESCO for a separate office space/complaint office/garage and sanction space for LLM division

### SIMILAR COURSE

PESCO linemen requested USAID to conduct more such trainings for LLM crews in and outside the country for all the DISCOs to enable them with new and advance technical knowledge of LLM maintenance.

### 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 10<sup>th</sup> 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);">PESCO</p> <ul style="list-style-type: none"> <li>I am thankful to USAID to train us on 66 and 132 kV live line and dead tower transmission lines with the latest tools, vehicles and plants. Live line training with the T&amp;P will help PESCO save time in repair and maintenance work of the transmission lines.</li> <li>Due to the non-availability of the tools, it was not possible for PESCO to practice the techniques. USAID gave us the tools and vehicles which allowed us to practically perform the skills we learned.</li> </ul> | <ul style="list-style-type: none"> <li>We would like to request USAID to extend one week so that we can practice more on dead end tower under USAID's supervision.</li> </ul> | <ul style="list-style-type: none"> <li>PESCO requested to extend the program for one more week more under supervision practice at the dead tower.</li> </ul> | <ul style="list-style-type: none"> <li>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</li> <li>The remaining T&amp;P and second vehicle should be provided before the refresher course ends so that we keep on practicing the techniques learned.</li> <li>PESCO linemen requested USAID to conduct more such trainings for LLM crews in and outside the country for all the DISCOs to enable them with new and advance technical knowledge of LLM maintenance.</li> </ul> |

## ANNEX II: LINEMEN CONTACT DETAILS

| No.   | Name                  | Designation | Contact Information |
|-------|-----------------------|-------------|---------------------|
| PESCO |                       |             | [redacted]          |
| 1     | Sattar Khan           | AET         |                     |
| 2     | Shah Faisal           | ALM         |                     |
| 3     | Inayat Ullah          | LM – II     |                     |
| 4     | Yousaf Hussain        | ALM         |                     |
| 5     | Abdul Fayyaz          | LS – I      |                     |
| 6     | Muhammad Dil Jan      | LM – II     |                     |
| 7     | Isha Ullah Khan       | LM – II     |                     |
| 8     | Nek Abaz Khan         | LM – II     |                     |
| 9     | Hasan Dar Ali         | LM – II     |                     |
| 10    | Ashraf Ali            | ALM         |                     |
| 11    | Faqir Taj             | ALM         |                     |
| 12    | Tariq Muhammad        | LM-II       |                     |
| 13    | Muhammad Shehzad Khan | ALM         |                     |
| 14    | Atta-ur-Rehman        | ALM         |                     |
| 15    | Abdul Hassan          | ALM         |                     |
| 16    | Falak Zeb             | LS-I        |                     |

# ANNEX III: ASSESSMENT FEEDBACK FORMS

PESCO

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