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# **SEVENTEENTH QUARTERLY PROGRESS REPORT**

**OCTOBER - DECEMBER 2014**

PRODUCED BY:

USAID POWER DISTRIBUTION PROGRAM



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**OCTOBER - DECEMBER 2014**

IRG, USAID Contractor for the Power Distribution Program

House 23, Street 19, F-6/2

Islamabad, Pakistan

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# ACRONYMS

ABC	Aerial Bundled Cable
AMR	Automatic Meter Reading
AT&C	Aggregate Technical and Commercial
BOD	Board of Directors
CCTV	Closed Circuit Television
CEO	Chief Executive Officer
CFL	Compact Fluorescent Lamp
CIS	Customer Information System
CLM	Cornelius, Lane and Mufti
CoS	Cost of Service
CoSS	Cost of Service Study
CPOP	Commercial Process Optimization Project
CPPA	Central Power Purchasing Agency
CSP	Completely Self-Protected
CT	Current Transformer
DG	Director General
DISCO	Government-Owned Power Distribution Company
DSM	Demand Side Management
ELR	Energy Load Reduction
ERP	Enterprise Resource Planning
ESAs	Electricity Supply Agreements
FESCO	Faisalabad Electric Supply Company
FIR	Federal Investigation Report
FY	Fiscal Year
GEC	Gender Equity Champion
GEPCO	Gujranwala Electric Power Company
GET	Gender Equity Training
GIS	Geographic Information System

GM	General Manager
GOP	Government of Pakistan
GPRS	General Packet Radio Service
GSM	Global System for Mobile Communications
HBP	Hagler Bailly Pakistan
HESCO	Hyderabad Electric Supply Company
HHU	Handheld Unit
HR	Human Resources
HT	High Tension
IAPO	Internal Audit Process Optimization
IESCO	Islamabad Electric Supply Company
IGTDP	Integrated Generation-Transmission-Distribution Plan
IMR	Improved Meter Reading
IRG	International Resources Group
IT	Information Technology
KM	Kilometer
KV	Kilo Volt
KVA	Kilo Volt Amperes
kW	Kilowatt
kWh	Kilowatt-hour
LDI	Load Data Improvement
LESCO	Lahore Electric Supply Company
LT	Low Tension
MEPCO	Multan Electric Power Company
MIS	Management Information System
MVAR	Million Volt Ampere Reactive
MW	Megawatt
MWP	Ministry of Water and Power
NEPRA	National Electric Power Regulatory Authority
NESC	National Electric Safety Codes
NPCC	National Power Control Center

NTDC	National Transmission and Dispatch Company
OJT	On-the-Job Training
ORD	Outage Reduction Devices
P&E	Planning & Engineering
PDC	Power Distribution Center
PDP	USAID Power Distribution Program
PEC	Pakistan Engineering Council
PESCO	Peshawar Electric Supply Company
PETSAC	Pakistan Electric and Telecommunications Codes
PPI	Power Plan International
PT	Potential Transformer
QESCO	Quetta Electric Supply Company
RF	Radio Frequency
RFP	Request for Proposal
RTC	Regional Training Centers
SEPCO	Sukkur Electric Power Company
TA	Technical Assistance
TESCO	Tribal Areas Electric Supply Company
US	United States
USAID	United States Agency for International Development
USG	United States Government
VAR	Volt-Ampere Reactive
VFD	Variable Frequency Drive
VSDs	Variable Speed Drives
VVO	Volt/Var Optimization
WACC	Weighted average cost of capital
WAPDA	Water and Power Distribution Authority

# SECTION 1: PROGRAM OVERVIEW

This Quarterly Report of the United States Agency for International Development (USAID) Power Distribution Program (PDP) covers the continuing efforts of USAID and International Resources Group (IRG) to implement improvements affecting the overall commercial performance of participating government-owned power distribution companies (DISCOs), the Ministry of Water and Power (MWP), and the National Electric Power Regulatory Authority (NEPRA) in the October 2014-December 2014 period. Under Component 1, PDP conducted operational audits of MWP, nine DISCOs, and NEPRA, and developed Action Plans for future interventions and demonstration projects. Components 2 and 3 have focused on the execution of jointly-selected interventions identified in Action Plans as codified in the approved PDP Work Plan, with the goal of improving sustainability in the power sector.

## FINANCIAL SUMMARY

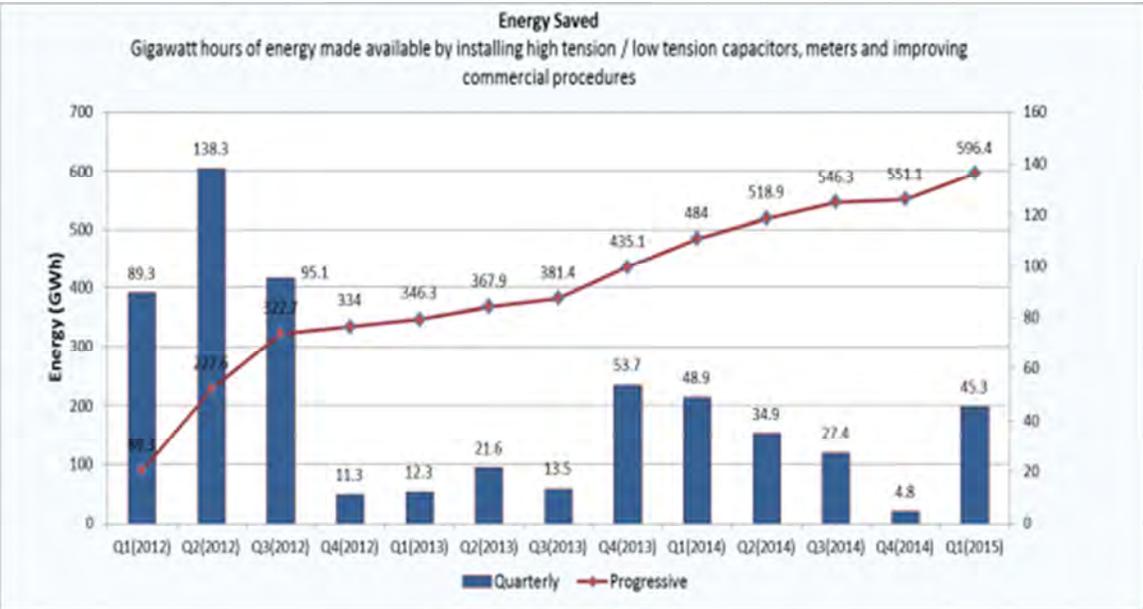
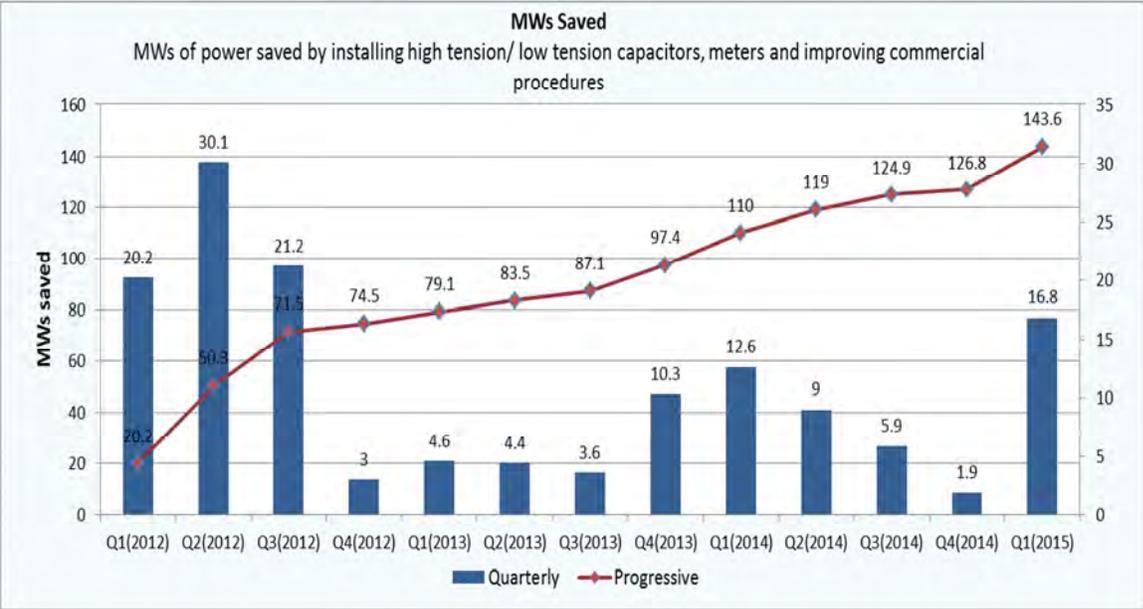
Contract No:	EPP-1-00-03-00006-00, Task Order 13
Date of Issuance of Task Order:	September 17, 2010
Amount Obligated Under Task Order:	US \$184,699,409
Total Project Funds Expended to Date:	US \$156,418,242
Project Funds Expended During the Quarter:	US \$22,101,295

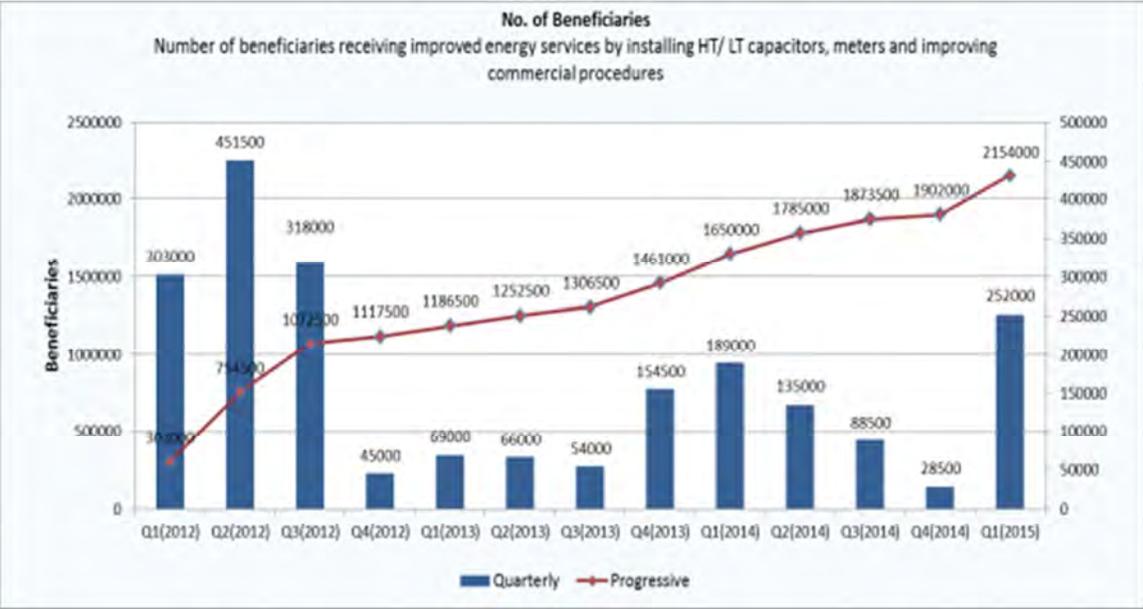
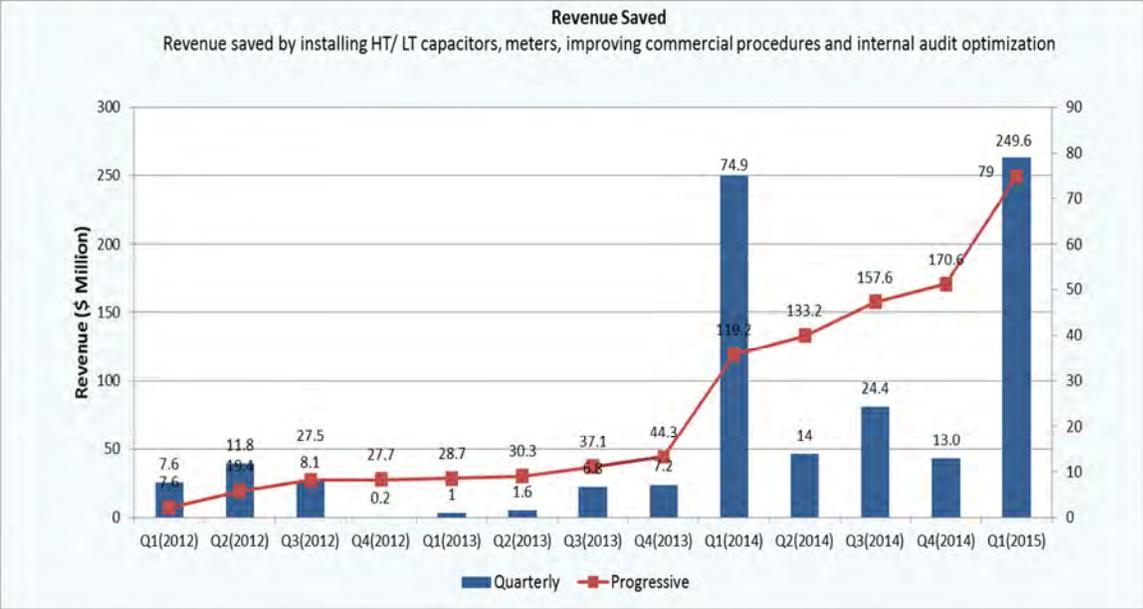
### Costs by DISCO

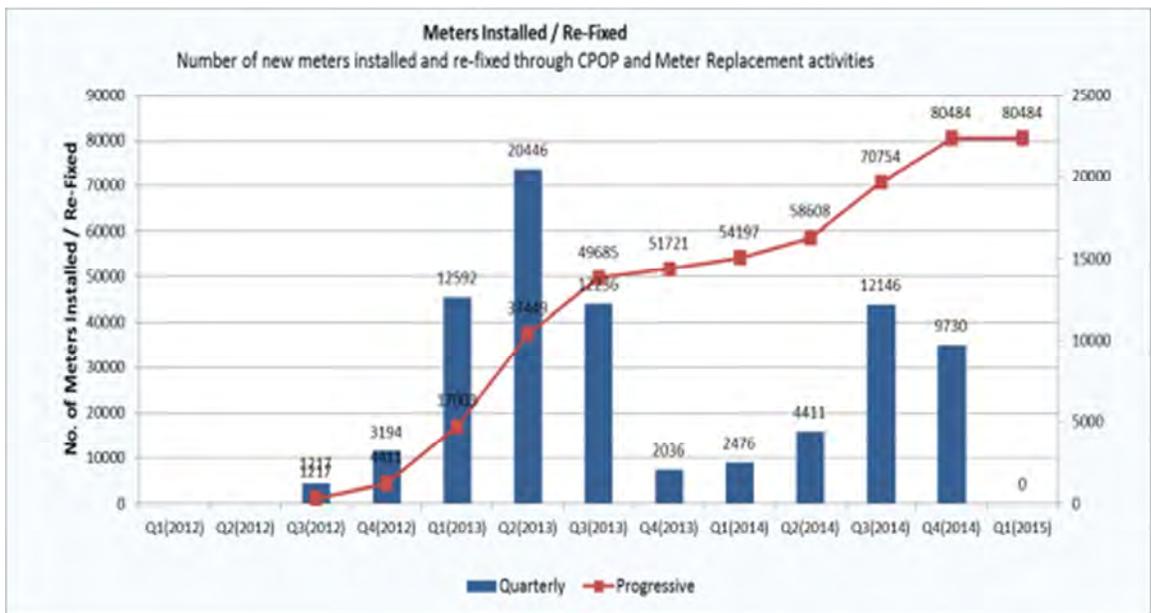
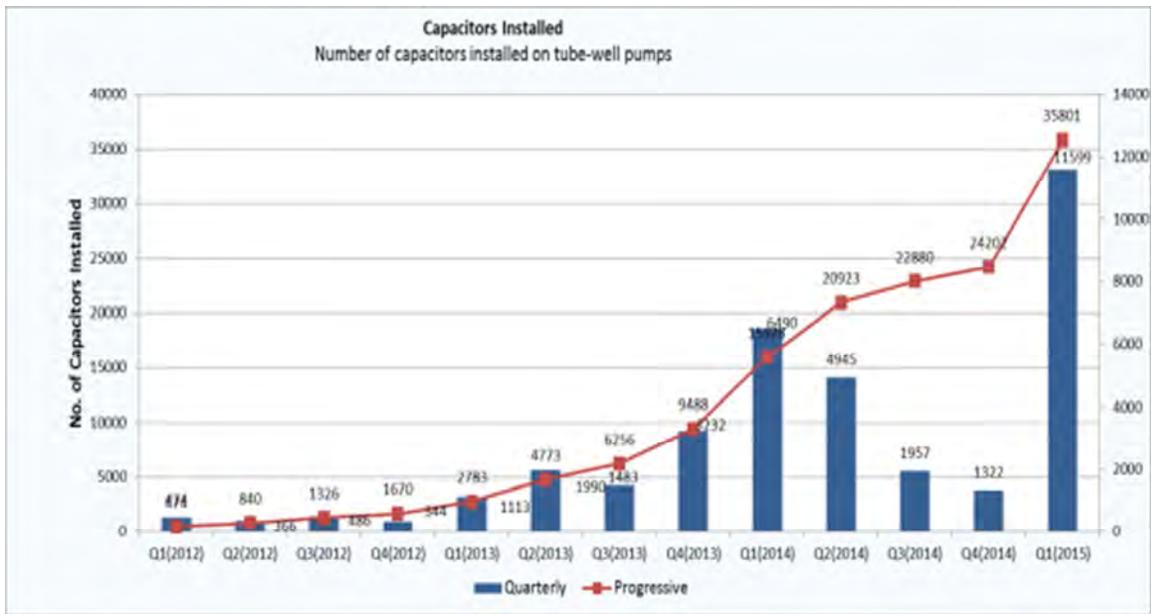
Project Inception to December 31, 2014	
DISCO	Amount (USD)
PESCO	38,929,179
LESCO	20,159,102
MEPCO	25,036,008
IESCO	11,859,893
HESCO	10,504,560
FESCO	9,903,847
GEPCO	9,326,527
QESCO	7,563,346
SEPCO	6,358,924
NEPRA/MWP	3,327,225
Stores *	13,449,931
<b>TOTAL</b>	<b>156,418,242</b>

\*Commodities which have not been issued to DISCO and are located in PDP warehouse.

# SECTION 2: PERFORMANCE







# SECTION 3: COMPONENT 3 TASKS

## TASK 1: COMMERCIALIZATION OF DISCOs

Task 1 provides a two-pronged approach to commercializing DISCOs, focusing on improving performance of two Turnaround DISCOs – Peshawar Electric Supply Company (PESCO) and Multan Electric Power Company (MEPCO). PDP will modernize policies, processes, and procedures and provide a modern infrastructure that will allow these companies to improve their commercial, technical, and financial performance.

### HIGHLIGHTS

- **Enhancing Revenue through the Revenue Protection Cell** – One of PESCO's primary

challenges has been high losses due to power theft and poor revenue collection. To counter this and meet the Government of Pakistan's high priority in reducing Aggregate Technical and Commercial (AT&C) losses, PDP developed an integrated approach to protect revenue and reduce losses. The core activities include theft surveys, theft surveillance, recovery of arrears, tracking cases of power theft and legal prosecution, and meter reading follow-up. The Cell currently operates in two divisions and will eventually encompass all of Peshawar circle with its 29 subdivisions and consumer base of 450,000. After the excellent results in the Kohat Road subdivision, meter reading through handheld units (HHUs) was completed in two additional subdivisions of Peshawar circle. An important and well-received initiative has been the incorporation of pictures of actual meters with their readings clearly visible, inserted into consumers' bills. This feature has created an additional layer of transparency in the meter reading process, in addition to improving the confidence of consumers in the company. As an added security measure, the HHU meter reading system is activated by meter readers at any sign of theft during the meter reading process. This information is then passed onto surveillance teams who visit the reported sites and perform the necessary actions. Case numbers are assigned to theft cases which are then passed to lawyers who follow their progress in the criminal courts. This quarter, 105 theft cases were identified and 88 illegal connections were disconnected. Additionally, 76 cases were registered with the police and 38 cases were closed where consumers were charged for illegally consumed electricity and penalized for theft.



Revenue Protection Cell in PESCO

- **Automated Meter Reading on High-End Customers**

– This activity has been designed to assist MEPCO and PESCO in achieving significant improvements in commercial performance through integration of advanced metering processes. Both turnaround distribution companies have an outdated metering system based on electromechanical metering, which is subject to inaccurate readings and field tampering, resulting in a loss of revenue. MEPCO and PESCO lack the funds to upgrade these meters to state-of-the-



Installation of Automatic Meter Reading Meters

art technology. Under this intervention, PDP is assisting both companies to carry out large-scale meter replacements across their territories, with Global System for Mobile Communications (GSM) / General Packet Radio Service (GPRS) enabled Automatic Meter Reading (AMR) meters for all high-end residential, agricultural, commercial, and industrial customers with sanctioned loads of over 20 kilowatts (KW). This includes three-phase whole current AMR meters with remote disconnect and connect capabilities and AMR Current Transformer (CT) / Potential Transformer (PT) meters. These AMR meters have two-way communication capabilities and can support a minimum of two different thresholds against peak and off-peak time slots. This quarter, in what is an ongoing activity, PDP installed 5,950 AMR meters at MEPCO and PESCO.

- **Transitioning Selected Distribution Companies from Public to Private Sector Management**

– PDP is working with the Ministry of Water and Power and the Privatization Commission in the transition of selected power distribution companies from publicly owned utilities to privately held ones. PDP this quarter retained the law firm Cornelius, Lane and Mufti (CLM) to undertake power sector legal and regulatory due diligence for the transition of all publicly owned distribution companies to privately managed utilities, consistent with the Government of Pakistan's National Power Policy wherein the Government states its intent to privatize all state-owned utilities. This initiative will provide a comprehensive review and analysis of the legal and regulatory aspects concerning commercial activities, private investment, distribution of electricity, and other issues that are expected to be encountered during privatization of the nine state-owned DISCOs. The Inception Report for this activity was submitted by CLM on schedule this quarter with the draft final report expected early next quarter.

- **Geographic Information System Mapping Continues in Peshawar**

– As an ongoing activity, PDP this quarter continued Geographic Information System (GIS) high tension (HT) and low tension (LT) network mapping in PESCO and all other distribution companies. PESCO staff is now fully trained and capable of independently completing this initiative with PDP providing minimal on-the-job support. PDP also continued feeder mapping and analysis

at both turnaround companies in order to facilitate them in developing a geo-database with accurate mapping and location information. By the end of the quarter, PDP successfully mapped 16 feeders for HT networks and 10 feeders for LT networks in all five circles of PESCO – i.e. the Peshawar, Mardan Khyber, Swat, and Hazara circles. PDP also continued to assist the company's Planning and Engineering (P&E) staff on the planning, analysis, and generation of proposals including Outage Reduction Devices (ORD), completely self-protected (CSP) transformers, and GIS mapping. GIS mapping and the use of SynerGEE planning software will lead to proper and effective planning and efficient system operations, resulting in massive savings.

- **Installation of Insulated Cables in Peshawar Electric Supply Company** – Generally, in Pakistan, illegal hooks – called “kundas” – to steal electricity are common in congested consumer areas where electricity lines pass close to roofs and balconies. Furthermore, the open wires are a constant life-threatening hazard to residents. In an ongoing activity, PDP is installing insulated quad cables which will effectively eliminate electricity theft, in addition to reducing non-technical losses and improving revenue. With the Wapdaga feeder selected as the model for this intervention, last quarter the design and work orders were completed and released for all 64 transformers where the bare LT wires will be replaced by insulated quad cables. By the end of this quarter, PDP completed 35 of the installations and shifted all meters to the new system. Field surveys for the remaining transformers were completed, all work orders were issued, and work on replacing the bare conductors with insulated conductors began.
- **Customer Information System Gains Momentum** – The Customer Information System (CIS) is a fully automated system that aims to increase the efficiency of the billing and collections processes, including setting up new connections and managing existing ones. The computerized system will revolutionize the way DISCOs conduct their business through reductions in operating costs, improved customer service, and enhanced employee efficiency. It will also help minimize the time needed to translate customer energy consumption into billing and billing into revenue, while dramatically reducing paperwork. Helped by the introduction of HHUs, the CIS generates accurate consumer bills and provides a one-window customer services center that will help improve customer services. PDP this quarter completed its series of “Discovery Workshops” and the PESCO senior management signed off on the discovery report, a major milestone. This document locks in the scope for the project in terms of processes, interfaces, and reports. Designs for future business processes are being prepared in consultation with PESCO subject experts, keeping in perspective PESCO's unique requirements and international best practices. These documents will be used to configure the CIS application. PDP was critical in obtaining an agreement from local banks to consolidate receipt and transmission of electricity bill payments into one account, significantly reducing payment processing time from eight to two days. **It will also drastically reduce the fees that PESCO has to pay the banks, which are in excess of Rs7 million per month.**

- **Enterprise Resource Planning Rollout at Turnaround Distribution Companies** – Existing back-office operations at power distribution companies are incapable of providing timely information required for making effective managerial decisions or for properly monitoring and controlling utility operations. Furthermore, their cost/revenue centers are dispersed geographically, adding to the delay in reporting. Additionally, current collection, validation, compilation, and data processing orders are inefficient. The automation of back-office operations through an Enterprise Resource Planning (ERP) system will streamline processes, improve workflow efficiency, and enable reliable and precise financial and management information. This quarter, PDP successfully reviewed all business processes with the various departments and then developed blueprint documents for MEPCO for Financial Management, Material Management, and Human Resource Management. These documents provide a blueprint of all existing processes in addition to laying out a plan for the functions that will be eliminated or added in the new system. In PESCO, senior management signed off on the discovery report, which is an important milestone as the report locks the scope of the project in terms of processes, interfaces, and reports. Designs for future business processes are being prepared in consultation with respective PESCO experts and PESCO's staff will be provided training on the system configuration to enable them to actively participate in this stage. PDP also initiated its Master Data and Validation Project this quarter, in order to centralize employee information and validate existing employee records. With the assistance of PESCO, PDP distributed personal information forms to all circles, divisions, and subdivisions and by the end of the quarter, distributed and received over 12,000 forms. These forms were then transmitted to the concerned department entering employee information into the system.
- **Enterprise Geographic Information System Mapping in Multan** – All PDP-created P&E computer centers at DISCOs' headquarters have been made operational and the mapping function extended to operational staff to ensure consistent updating and maintenance. GIS field data will be made available to field engineers responsible for system construction, maintenance, and operation. PDP, in consultation with MEPCO, identified how the existing GIS Information Technology (IT) infrastructure could be enhanced to facilitate remote data access. PDP will expand the GIS infrastructure to the circle level at MEPCO. The Deputy Director Technical, who remains in close contact with MEPCO's Stores, Construction, and Operations Divisions, will update the network as needed. PDP extended HT GIS mapping to all eight MEPCO circles, namely Bahawalpur, Vehari, Sahiwal, Bhawalnagar, DG Khan, Rahim Yar Khan, Muzaffargarh, and Multan. PDP provided on-the-job training (OJT) to MEPCO's planning engineers, operational staff, and field surveyors to ensure the project's sustainability. MEPCO's P&E Department is now able to use GIS maps for network optimization, calculating HT and transformation losses, and using the SynerGEE power analysis tool. Additionally, PDP also completed the GIS mapping of the LT network of 78 feeders for Aerial Bundled Cable (ABC) installation.

- **Congested Area Improvement in Multan Electric Power Company Territories** – Under this project, PDP is providing MEPCO with 500 kilometers of ABC. This cable will be introduced in 462 locations of the Multan circle with 100 CSP low loss 50 Kilo Volt Amperes (KVA) single-phase transformers introduced in congested areas where it is typically difficult to install overhead conductors and conventional transformers; 50 75 KVA transformers will be introduced in open areas next quarter. This initiative will not only help in reducing technical losses but also enhance its reliability, with a reduction in theft and enhanced safety for the general public as added benefits.

- **Establishing Customer Service Centers at Turnaround Distribution Companies** – This

quarter, work continued on establishing a customer services center at MEPCO headquarters, expected to deal with a high volume of consumers and processing both billing and technical complaints. The center will have backend support through a complaint management system currently under development. This system will provide the tracking and quick resolution of long-pending complaints and an inbuilt queuing system will



**Newly Revamped Customer Services Center at MEPCO**

provide customer service representatives the ability to stay organized on complaints. The center is expected to be operational in the first half of the next quarter. In a related activity, work on customer services centers at PESCO headquarters, Peshawar circle, and Hayatabad circle was initiated this quarter. All staff at these centers were trained on Customer Service Excellence techniques with a special online complaint management system software procured for installation at PESCO headquarters. The installation of this system will not only increase staff productivity, but also increase the overall transparency and efficiency of the complaints registration process.

- **Commercial Activities at Multan Electric Power Company** – In Fiscal Year (FY) 2013-14, PDP started the implementation of mutually agreed performance improvement initiatives that included the expansion of the Improved Meter Reading (IMR) intervention, HHU projects in Multan circle, and surveillance activities for revenue enhancement. This quarter, six additional subdivisions completed the IMR initiative and four were converted to HHU-based billing, bringing the total subdivisions where IMR and HHU have been implemented to 25 and 17, respectively. The results from these subdivisions are promising with monthly losses reduced in 16 subdivisions and progressive losses reduced in 14 subdivisions. Additionally, civil work has been completed for one-window customer service centers in 15 subdivisions. More than 27,000 defective meters were replaced or re-fixed. Under the surveillance initiative, the PDP Commercial Team, with the help of MEPCO staff, **recovered 9.3 million units of electricity** through direct hook connections, bypassing energy meters.

- **Preparing a Strategic Business Plan for Turnaround Distribution Companies** – PDP’s

MEPCO plans include the development of a five-year strategic plan for the company which provides a roadmap for implementing specific and measurable improvements. In defining MEPCO’s strategic goals and objectives, the business plan will identify key activities required to meet them. PDP held a workshop for senior management at which goals and objectives were selected for strategic development and then transmitted to the Board of Directors for approval. For middle managers, PDP completed a successful session on Project Management and then held initial sessions with these managers to develop action plans for the achievement of the goals and objectives developed. In PESCO this quarter, PDP held a strategy session for senior management where they completed the selection of strategic goals and objectives. Further to this, middle managers were oriented on the business plan and business planning processes.



**A Workshop on Business Planning for MEPCO Staff**

- **Energy Conservation Drives at Peshawar Electric Supply Company** – To promote

PESCO’s corporate image and build awareness about energy conservation among students, PDP this quarter, in collaboration with PESCO, embarked on an energy conservation drive for schools throughout the Khyber Paktunkhwa province. The campaign aims to inculcate responsible citizenry through the dissemination of conservation tips and techniques. PDP and PESCO went from school to school disseminating information, with PESCO and its dedicated team of public speakers, committing to conducting these sessions regularly to reinforce the importance of conserving energy on a grassroots level. This quarter, the drive engaged over 22,000 people, including the friends, families, and relatives of students. The take-home material distributed included conservation tips, tips on responsible citizenry, and motivation for young students to serve as energy scouts in their communities.



**Energy Conservation Session in Swat**

- **Building Awareness of Reforms in Peshawar Electric Supply Company** – PDP this quarter conducted awareness sessions in the Swat and Mardan circles of PESCO to highlight the assistance USAID has extended to the company. All members of senior management working in these circles attended the sessions where detailed presentations were given,

highlighting USAID's efforts to reform the company. PDP also presented the new brand identity it developed for PESCO; periodicals and other material were shared to showcase the ways USAID is helping PESCO emerge as a more customer-friendly and progressive utility. All participants were highly appreciative of the awareness sessions and applauded USAID's efforts and support.

- **Repositioning the Multan Electric Power Company Brand**

– In order to build a softer image and awareness about MEPCO's role in the power sector, PDP is working to reposition the company as a more progressive and customer-friendly utility that is accessible to the public and flexible in accommodating emerging trends. PDP this quarter designed a new brand



**MEPCO's New Corporate Brand Identity**

identity for MEPCO that was duly approved by the CEO and senior management. Corporate merchandise – i.e. notepads, file covers, pens, caps, and mugs – was produced and will be handed over to the company in the next quarter. The repositioning will not only improve the company's image among its consumers and the public at large, but also contribute to the internal change management process underway to transform the company into a progressive unit. In a related activity, PDP also revamped MEPCO's website this quarter using state-of-the-art technology. The new content management system has effectively reduced the previous error-prone manual administration processes, in addition to ensuring that the website will be easy to maintain and user-friendly. The new website will incorporate billing information, load shedding schedules and contact information for all MEPCO offices, in addition to providing regular updates to consumers and handling all upcoming recruitments through its online application system. A detailed presentation, which included a demo of the website, was made to MEPCO senior management this quarter and the company's Management Information System Department has assigned officers to update it.

- **Building Sustainable Working Environments for Women**

– In continuation of its initiatives for the development of gender-friendly strategies in power distribution companies, PDP this quarter conducted Gender Equity Training (GET) sessions for PESCO's senior management. GET was designed to sensitize participants to gender inequalities within their own organizations, and assist them in identifying solutions through active discussions with their subordinates (or peers), creating a congenial work environment. In a related (and ongoing) activity, PDP is working with the Human



**Gender Equity Session for MEPCO Senior and Middle Management**

Resources (HR) departments of distribution companies to include GET as part of the course schedule at Regional Training Centers (RTC). Thus far, MEPCO, Lahore Electric Supply Company (LESCO), Faisalabad Electric Supply Company (FESCO), Hyderabad Electric Supply Company (HESCO), and Quetta Electric Supply Company (QESCO) will include this critical training within their syllabi for training given to field staff.

- **Creating Energy Conservation Awareness Among the Farming Community** – As part of its assistance to build MEPCO's communications and outreach capacity, PDP

this quarter launched its farmers' community outreach campaign. The campaign advocates the benefits of energy conservation and the detrimental effects of power theft for both consumers and the power sector. Given the country's reliance on the agriculture sector, the farming community can serve as change agents for MEPCO by adopting energy conservation

theft and acting against the impulse of power theft by reporting it. PDP conducted five seminars in the districts of DG Khan, Rajanpur, Tansa Sharif, Muzaffargarh, and Bahawalpur with a total reach of 2,000 farmers, including their spouses. Promotional material was distributed to farmers in these sessions that included flyers with conservation tips in addition to motivational messages on reducing electricity consumption. Through these sessions, influential people in the community were also mobilized to convince farmers in their localities to adopt these practices. MEPCO plans to continue this initiative in the future, noting its long-term benefits.



Energy Conservation Session in Muzaffargarh

- **Computer Training Labs Established at Turnaround Distribution Companies** – Two computer labs have been established at both PESCO and MEPCO headquarters. These labs will help in building the computer skills and increase overall engagement with technology among employees. These labs will not only enhance the professional capabilities of individual employees, but also contribute to improving the overall operations of the turnaround DISCOs. To date, 106 employees of MEPCO and 172 at PESCO have successfully completed comprehensive trainings on the Microsoft Office suite. The labs are also being used to train ERP users, with 161 employees trained thus far, and will accommodate other intervention-specific trainings in the future.



Inauguration of IT Lab at RTC Charsada

- Internship Program Supports Turnaround Initiatives** – PDP positioned 27 interns at MEPCO who are assisting and supporting the work PDP is doing under its ERP intervention, in which the legacy financial systems of power distribution companies are being replaced by automatic processes. The interns are working with the P&E Department to support PDP’s GIS and Load Data Improvement (LDI) interventions; the HR Department to support PDP’s training programs; and MEPCO’s Management Information System (MIS) Department, where they are supporting both MEPCO’s MIS administration and CIS interventions. Furthermore, PDP positioned 16 interns at PESCO for supporting PDP’s ERP, GIS, and HR interventions at the company. PDP’s internship program was designed to instill best practices and increase the number of qualified young professionals in the energy sector to facilitate a bottom-up transformational change in power distribution companies.
- Consumer Census Helps Populate PESCO Consumer Database** – Under its CIS intervention, PDP is using consumer censuses to ensure PESCO’s consumer database reflects accurate information. PDP expanded its consumer enumeration to five divisions of Peshawar circle and over 98,000 consumers have been enumerated to date. Any discrepancies have been reported to PESCO for corrective actions – thus far, over 22,000 changes to consumer data have been forwarded to the distribution company. In a related activity, PDP performed an analysis on the Peshawar circle consumer database in preparation for CIS data migration.
- Capacity Building Continues for Multan Electric Power Company** – Under its Board of Directors Facilitation and Development activities, PDP this quarter organized a training workshop on “Governance of Risk” for the MEPCO senior management and Board of Directors. Overseeing the risk oversight process typically falls under the jurisdiction of the Board, which is also responsible for deciding the company’s business strategy and business model, determining and agreeing on the acceptable levels of risk for both. The workshop was designed to facilitate the MEPCO Board in understanding the concepts of risk identification, assessment, and treatment. In a related activity, under PDP’s Management Development Program initiative, PDP this quarter also arranged two one-day workshops on “Customer Service Excellence” for MEPCO senior and middle managers. This workshop was designed to increase the capacity and build sustainability for customer service staff in MEPCO, in addition to publicizing the important role customer services play in a company.



**Governance of Risk Workshop for MEPCO and PESCO Senior Management and Board**

## TASK 2: ENERGY CONSERVATION & DEMAND SIDE MANAGEMENT

Pakistan's power supply falls significantly short of the estimated demand from consumers year-round. The capacity shortfall has resulted in eight to 10 hours of load shedding in metropolitan cities such as Lahore, and as much as 16 hours of load shedding in rural areas. In the face of such challenges, energy efficiency and Demand Side Management (DSM) can contribute significant benefits and often within the shortest possible timeframe.



18.5 KW Tubewell Motors awaiting replacement at Ittehad Chemicals Limited, one of Pakistan's largest chemical producing companies.

DSM initiatives are considered to be the most cost-effective options for transforming peak demand growth to a longer time horizon and reducing wasted electricity consumption due to inefficiency.

### HIGHLIGHTS

- **Demand Side Management of Industrial Motors** – The Industrial DSM Program focuses on the replacement of inefficient motors and Variable Speed Drives. Industrial motors are estimated to contribute between 60-80% of industrial electricity consumption in most Pakistani industrial sectors. PDP installed 1,540 industrial motors and replaced 749 Variable Frequency Drives (VFDs) over the course of the program that concluded this quarter. This activity resulted in saving 12.54 Megawatts (MW) of power. The project was successfully completed and closed in FY 2013-14.
- **Loss Reduction on Feeders – Volt / Volt-Ampere Reactive (VAR) Optimization Program at Multan Electric Power Company** – The objective of this initiative is to deliver power with appropriate voltage limits and optimal power factor, and to minimize system losses, which will also ensure that equipment on the consumer-end will operate properly. Under this initiative, PDP is supplying MEPCO with 125 switched capacitors and 80 voltage regulators with the capacity of 400-Amps (20 regulators) and 200-Amps (60 regulators). Fixed capacitors will be provided by MEPCO. This equipment will provide immense relief to high loss 11 KV feeders by reducing customer peak demand and energy consumption. During this quarter, PDP also carried out technical analysis of 14 11 KV feeders on SynerGEE, and developed proposals for seven fixed capacitors, 39 switched capacitors, and 46 voltage regulators. These proposals were submitted to MEPCO for approval and issuance of work orders. By the end of the quarter, three work orders were approved, whereas the remaining proposals were sent to

the MEPCO Construction Division for site verification. **With the execution of these proposals, the projected annual energy savings will be 14 Million kilowatt-hours.**

### **TASK 3: COST OF SERVICE & NEPRA REFORM**

This task covers two activities: Cost of Service Study (CoSS) and Tariff Design for all DISCOs and NEPRA Reform. The Cost of Service Model is the tool with which the CoSS is performed, and includes a repository of financial, technical, and billing information in a spreadsheet-based model. The model performs a functional classification of the total costs a utility incurs, and then allocates these costs to different customer categories. Once a customized model is developed, it becomes possible for utility staff to perform CoSS by simply updating the information repository.

#### **HIGHLIGHTS**

- **Work Continues on Cost of Service Study** – After successfully completing Cost of Service Studies for MEPCO, FESCO, GEPCO, and LESCO, PDP this quarter assisted these distribution companies in filing their tariff petitions based on the results of these studies. Support is also being provided in regulatory processing of these petitions. Data collection for the Cost of Service Studies continued for the last batch of DISCOs, i.e. HESCO, PESCO, QESCO, Sukkur Electric Power Company (SEPCO) and Tribal Areas Electric Supply Company (TESCO). PDP undertook several visits to these companies to ensure the quality of the data collected and to clarify any issues. The task of updating and customizing the Cost of Service model for each of these companies on the basis of data collected has been started and the initial results will be available in the next quarter.
- **Support to NEPRA on Cost of Service-Based Tariffs** – Meetings and discussion sessions were held with NEPRA Tariff Division staff regarding the various aspects of the Cost of Service Model and the tariff petitions filed by distribution companies. Issues of weighted average cost of capital (WACC), cost allocation methodology, and transfer pricing of power transmission were deliberated in detail. NEPRA staff appreciated the support provided, adding that this would greatly help them to arrive at an improved tariff determination.
- **Assisting NEPRA in Developing the Process for Approving Integrated Generation Transmission Distribution Plans** – The overarching theme of the Integrated Generation Transmission Distribution Plan (IGTDP) is that all power sector planning will be conducted in a manner consistent with the NEPRA Act. The IGTDP contains backward integration (via integrated load-flow studies) with generation projects currently under construction and projects that will be initiated in the future in compliance with the Power Policy 2013. Steps taken in the creation of the IGTDPs include forecasting future loads, identifying potential

resource options to meet those future loads and their associated costs, determining the optimal mix of resources receiving and responding to public participation (where applicable), and creating a resource plan (i.e. expansion and investment plan). One of PDP's initiatives is supporting NEPRA through carrying out a gap analysis, which is conducted to discover the underlying disparities between current NEPRA in-house practices and the requirements for processing IGTDPs consistent with the NEPRA Act and the NEPRA Draft Tariff Methodology and Guidelines issued in June 2014, which provide a strategy for setting consumer-end tariffs on an annual and multi-year basis. The IGTDP is an integral part of the Draft Tariff Methodology and Guidelines; it has been prepared by each distribution company, and is being prepared for submission to NEPRA for approval. However, NEPRA does not currently have a concise internal approval process for IGTDPs. The findings of the gap analysis show that significant gaps exist between what is expected of NEPRA per national policies and international commitments and what it delivers. The IGTDP process is designed to fill those very gaps, as can be seen from the results of the gap analysis, a conclusion which was subsequently presented to the NEPRA Authority.

- **Reevaluating Organizational Assessment and Restructuring at NEPRA** – Currently, NEPRA's organizational structure is non-competitive and non-growth oriented, resulting in low staff retention, limited skill development, and low employee morale. This quarter brought on a change in leadership in the organization, with the Government of Pakistan appointing a new Chairman. PDP teams working with NEPRA, the PDP Chief of Party, and representatives from USAID had a focused group discussion with the new Chairman to discuss the various ways USAID is assisting the organizations and highlighted key issues that required his immediate attention. This quarter, PDP completed its comparison study of NEPRA's compensation and benefits with market practices and submitted it to the Authority. PDP also conducted a series of workshops under its Management Development Program and Functional Skills Program, focused on enhancing the customer service skills and computer skills of concerned staff.

## TASK 4: CAPACITORS AT TUBEWELLS FOR POWER FACTOR IMPROVEMENT & LOSS REDUCTION

One of the largest loads on Pakistani DISCOs is that of tubewell pumps. Nationwide, electric consumption via tubewell pumps accounts for about 12% of the total annual energy consumption, with significant variation from one DISCO to another. Tubewell pumps used in Pakistan have low-rated power factors, on the order of 80-85% even when new. Frequent rebuilding of pumps due to poor power quality results in further reductions in power factor. Low power factor increases reactive power demand on transmission and distribution lines and transformers, and results in higher technical losses. The high number of inefficient tubewell pumps with low power factor has a significant effect on the system's technical loss, and creates unnecessary demand on the system.



Capacitors for Tubewell installations at PESCO

### HIGHLIGHTS

- **Capacitor Installation at Five Power Distribution Companies** – Under its Capacitor Installation Program, PDP is installing capacitors on tubewells throughout the country, and capacitors have been installed in PESCO and QESCO. Over 11,000 additional capacitors, from a planned program of 45,000 installations, were fitted to tubewells in MEPCO this quarter. The installation of capacitors in SEPCO, HESCO, and IESCO is also being planned for implementation in 2015. The capacitor installation program will result in substantial reduction in demand and technical losses.

## TASK 5: FEEDER OPTIMIZATION FOR LOSS REDUCTION

DISCOs have not assessed current requirements for HT power factor correction. Feeder loads have changed with the addition of air conditioner motors and other appliances, causing poor power factor on many feeders, leading to lost revenue, low voltage, and customer dissatisfaction.

PDP's P&E program will focus on MEPCO to perform feeder power flow analysis using new software technology and install 11 KV HT capacitors. This task will include installation of HT capacitors on feeders and in grid stations.

## HIGHLIGHTS

- **Planning and Engineering Capacity Building** – As part of its capacity building to strengthen the P&E departments of distribution companies, PDP this quarter held an advanced training session of the ArcGIS software for planning engineers of all nine distribution companies. The Lahore-based session focused on information systems and associated area planning activities to improve the performance of the distribution network. In a related activity, a series of on-the-job training sessions were conducted to ensure the independence of distribution companies in conducting GIS mapping and load flow analyses using the SynerGEE planning software. These sessions – 71 in total – focused on facilitating users in processing spatial data captured through field surveys so that it can be used in SynerGEE. **This activity is expected to result in savings of approximately 80 MW.**

## TASK 6: EXPANSION OF HIGH IMPACT OPPORTUNITIES & IMPROVED GOVERNANCE

This task includes the following activities:

- Activity 1: Load Data Improvement Project
- Activity 2: Improved Meter Reading Project
- Activity 3: Line Staff Skill Development
- Activity 4: Governance
- Activity 5: Lineman Training for all DISCOs

## HIGHLIGHTS

- **Load Data Improvement Program** – PDP ended this quarter by successfully achieving the objective of the LDI program, i.e. to reduce unscheduled load shedding through the installation of AMR meters at the grid substations of all 10 power distribution companies. Following the establishment of TESCO, the MWP asked PDP to integrate its power utilization intervention with the LDI project. By quarter's end, a total of 9,153 meters were installed across all DISCOs, including TESCO, thereby bringing the LDI program into all of Pakistan's distribution companies. In a related activity, PDP established and made operational a Power Distribution Center (PDC) at TESCO. The PDCs now established at all 10 companies are critical to making quick adjustments to load management issues as they arise, an initiative that has almost eliminated unscheduled (forced) load shedding. PDP also installed specially designed executive screens in the CEO and General Manager (GM) / Chief Engineer Operation offices at all DISCOs. For the first time in the history of the power distribution

sector, real-time MWs received from the national grid are displayed on these live data screens, which are instrumental in controlling and reducing unscheduled load shedding.

- **Outage Reduction Devices Project** – The reliability of electric distribution systems is critically important for distribution companies and the consumers they serve. Currently, distribution companies lack the sectionalizing devices integral in isolating power faults to the affected area, as opposed to causing consumers outside the vicinity to suffer as well. In FESCO, LESCO, MEPCO, GEPCO, IESCO, and HESCO, PDP this quarter installed 396 fault indicators. These devices will reduce the time it takes to determine the source of faults in the distribution system. In addition to this, PDP installed six 900 Amps ground-operated gang switches on critical and sensitive feeders, 147 disconnect switches of 600 Amps on main feeders, and 585 load break switches of 200 Amps on branch lines. An additional 1,626 fused cutouts of 100 Amps were installed on distribution transformers making a total of 1,760 ORD switches installed in the six companies. These devices will reduce the customer outage time while the switches will help in isolating only the affected section as opposed to the entire feeder, thereby reducing the outage time for the remaining consumers on that feeder. This quarter, PDP also completed the design and work orders for 73 feeders and the material release for the remaining are in progress.
- **Implementation of Electricity Supply Agreements for Distribution Companies** – PDP is providing assistance to the MWP in preparation of the Electricity Supply Agreements (ESAs) between the Central Power Purchasing Authority and distribution companies. These ESAs will result in distribution companies taking ownership of the energy they procure, and by extension, being accountable for all losses and inefficiencies currently being added to the circular debt. The outsourced firm hired by PDP – Cornelius, Lane and Mufti – is working on the task and is expected to finish by the first week of January 2015.
- **Improving Safety for Linemen in Power Distribution Companies** – Under its Linemen Training Program, PDP trained linemen from across all nine DISCOs on safety techniques and meter installations using PDP-provided safety tools and equipment, and PESCO and MEPCO line staff in safety hazard identification. In a related activity, senior managers from all DISCOs, through PDP's "Executive Safety Leadership" workshops, were trained on safety management with additional personnel from all DISCOs. These workshops were designed to bring awareness about the responsibilities of senior managers concerning the occupational health and safety of their workforce. A



**Pole Top Rescue Operation Being Demonstrated at the Practical Demonstration Yard**

significant portion of technical losses in DISCOs results directly from senior management's lack of attention to linemen training and the inadequate investment in tools, materials, training, and procedures. Poorly trained line workers using tools not suited to their tasks are attempting to keep the system operational, resulting in damaged transformers, escalating line losses, and a rising injury and death toll. Under its Safety Improvement Program, PDP provided 70 rickshaws and 30 Suzuki Ravis to PESCO in FY 2013-14 and organized the dispatch of ladders, tools, and other equipment that support loss reduction and results in improved outage response times. As part of its "Leading Quality and Safety Training Program," PDP trained managers from MEPCO, SEPCO, LESCO, and HESCO. This program focuses on building management systems that have enabled various organizations to maintain strong leadership positions in their industries for decades, enabling senior management to align the corporate vision with safety directives, while rejuvenating commitment and setting the stage for an effective safety management system in the power sector. Finally, to highlight the importance of linemen safety, PDP conducted Oath Taking Ceremonies in MEPCO, FESCO, and LESCO with linemen pledging to always keep safety first when performing their field duties. Events like these are crucial for building and maintaining the morale of field staff, the unsung heroes of the power sector.

- **Formulation of National Electric Safety Codes** – PDP continued assisting in the development of the national electric safety codes (NESC) now known as the Pakistan Electric and Telecommunications Safety Codes (PETSAC), in collaboration with the Pakistan Engineering Council this quarter. The Pakistan Engineering Council (PEC) regulates the engineering sector in Pakistan and the new codes will help in implementing safe work practices in the power and telecommunications sectors. The intent is to minimize accidents that occur due to failed safety equipment and poor work practices, resulting in the loss of 200 lives per year. This quarter, the PEC sent the PETSAC to its energy think tank led by the Minister for Planning for feedback on the appropriateness of the codes for Pakistan. The think tank reviewed and approved the codes and returned the draft to the PEC which will approve the codes in its next meeting. Upon approval, the codes will be mandated for adoption across all utilities, transforming the safety practices in the sector.
- **Instituting an IT-Friendly Environment at the Ministry of Water and Power** – PDP is expanding the existing IT infrastructure at the MWP, an initiative aimed at improving overall power sector performance and loss reduction. This intervention will significantly improve the MWP's workflow, efficiency in processing cases, and the quality and speed of its interaction with affiliate or subsidiary organizations. This system was designed to serve as a building block for the MWP's MIS Department to handle internal and external communication, administrative processes, records, and archives. Thus far, 80% of MWP's staff has already been equipped with updated and technologically advanced desktop computers, and Requests for Proposal (RFPs) have been issued for the procurement of IT equipment for the remaining staff. Furthermore, the implementation of PDP's state-of-the-art video conferencing solution has helped the MWP reduce travel and other operational costs; this well-received system has

enabled communication between all power sector players and is increasingly being used for meetings and conferences. PDP completed the development of a web-based dashboard application this quarter which automates the flow of information between the Ministry and distribution companies. Once operational, this application will facilitate the MWP in monitoring and enforcing the Key Performance Indicators as detailed in the performance contracts of each company. PDP also completed work on the Server Room this quarter, which is fully equipped to provide centralized storage, core switching, Internet access management, user rights management, upgraded internet access, fully automated backup system, and a network security management system. Satellite offices of MWP located in different locations in Islamabad are being directly connected to the MWP Server Room to extend the benefits of the IT services to all sites and enhance information and network security.

# SECTION 4: COMPONENT 2 TASKS

## CONTINUING IN COMPONENT 3

### TASK 1: CONGESTED AREA IMPROVEMENT

Under Component 2, congested area work is underway at PESCO, HESCO, and LESCO. Under Component 3, PDP will assist the DISCOs in planning congested areas, focusing on the two Turnaround DISCOs, and installing ABC cable to extend HT lines by shortening LT lengths, plus installing new high efficiency transformers, switches, and outage reduction equipment. To achieve this improvement, PDP will purchase and install the bulk of the material with participation from distribution companies. This activity will lead to reduced losses and increased revenue in congested and high theft areas, resulting ultimately in improved customer safety and satisfaction.

#### HIGHLIGHTS

- **Installation of Completely Self-Protected Transformers**

– PDP’s intervention to install 45 KVA CSP transformers aims to reduce overloading existing PESCO transformers, while reducing the low voltage secondary length in order to reduce losses on lengthy LT lines. This quarter, PDP provided and allocated 31 45 KVA and 47 75 KVA transformers for installation on PESCO’s distribution system. Field surveys, design, and work orders with maps and material were released for 29 of the 45 KVA transformers and 21 of the 75 KVA transformers. Two of these transformers will be retained as spares in PESCO’s stores for emergency and maintenance purposes. PESCO’s Construction Division assigned five PDP-trained linemen to exclusively work on installing the 45 KVA transformers and eight PDP-trained linemen to work on installing the 75 KVA transformers. By the end of this quarter, 27 of the 45 KVA and eight of the 75 KVA transformers were installed, with the remaining expected to be installed by the end of the next quarter.



**A 45 KVA CSP Transformer Being Installed in Peshawar Circle**

## **TASK 2: HIGH TENSION POWER FACTOR IMPROVEMENT**

Under Component 2, the DISCOs have committed to repair or replace installed HT capacitors. PDP will continue under Component 3 to assist the DISCOs to complete this ongoing effort. Improved distribution system power factor will reduce technical losses and reactive power (MVAR) demand with improved voltage resulting in customer satisfaction. DISCOs have not assessed current requirements for HT power factor correction. Yet the feeder loads have changed with continuous loads of air conditioners, motors, compact fluorescent lamps (CFLs), and other appliances, resulting in poor power factor on many feeders and lost revenue, low voltage, high technical loss, and customer dissatisfaction. PDP will focus on PESCO and MEPCO to conduct feeder power flow analysis, using new software to determine the requirement for installation of HT capacitors on feeders and congested area strategies on high-loss feeders. At MEPCO this activity is coupled with voltage regulators for the introduction of the VVO Program as part of the Energy Loss Reduction (ELR) program.

### **HIGHLIGHTS**

- **Energy Loss Reduction Program Begins at Multan Electric Power Company** – Under the ELR program, a mix of switched HT capacitors and HT voltage regulators will be applied to improve MEPCO's voltage and power factor problems on critical feeders. This quarter, 125 units of 450 KVAR-switched HT capacitor orders were received at MEPCO's regional stores in Multan. Orders were placed for 125 32-step voltage regulator units with delivery expected in mid-February 2015.

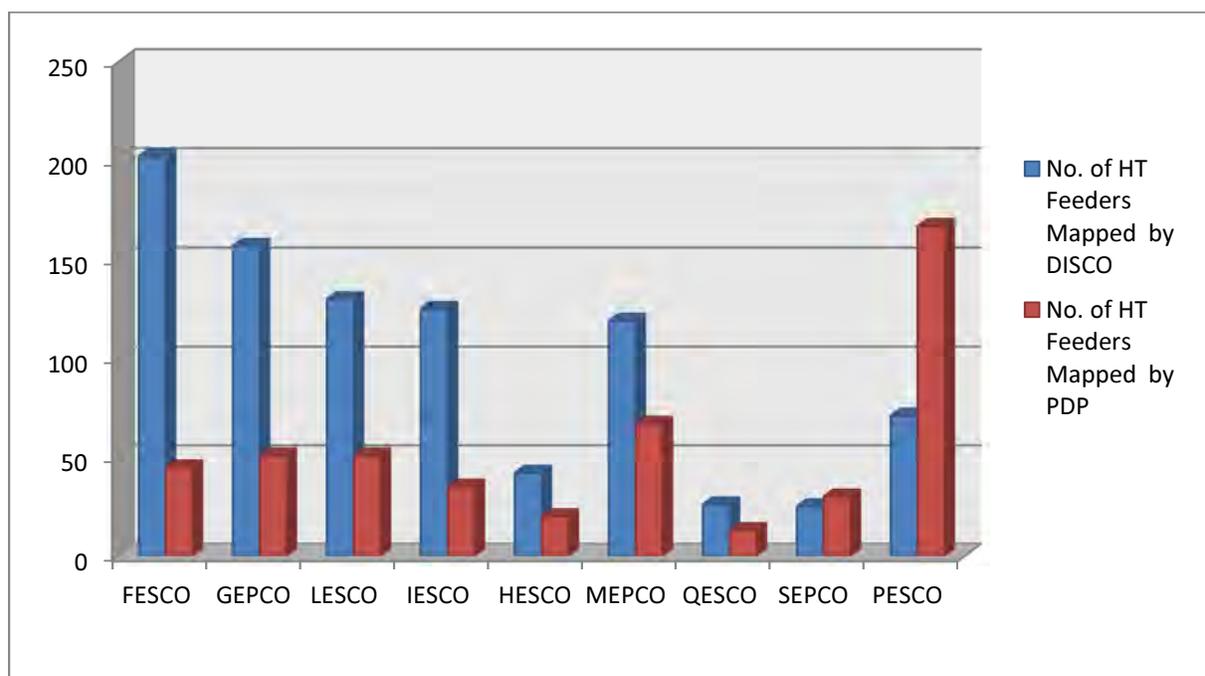
## **TASK 3: GEOGRAPHIC INFORMATION SYSTEM SURVEY & ENGINEERING ANALYSIS**

In Component 2, PDP carried out feeder mapping and analysis of one subdivision per DISCO. PDP initiated a program to enable all nine DISCOs to develop a geodatabase with accurate mapping with locations of all field installations. To date, nine DISCO P&E computer centers have been made operational. Under Component 3, this effort will continue and PDP will build the capacity in DISCOs to map entire divisions and circles. Planning engineers will be encouraged to concentrate their engineering software analysis on these areas to produce more accurate feeder / area rehabilitation plans, based on field GIS data.

### **HIGHLIGHTS**

- **Data Collection and Database Development Continues at all Distribution Companies** – The creation of a GIS database of the power distribution facilities at all DISCOs is essential for

improved governance and resource management. This quarter, work continued at all DISCOs where individual data per feeder is being collected and processed into a GIS database suitable for mapping and engineering analysis. Seven DISCOs are, with PDP's assistance, now using their own personnel to conduct GIS work, with PDP providing OJT only. PDP's GIS trainings focused on facilitating staff in processing spatial data captured through field surveys and subsequent processing for use in SynerGEE, the power flow analysis tool. Thus far, over 1,500 feeders have been mapped across the country, with the DISCOs mapping an increasing number of feeders themselves. The chart below provides a comparison between feeders mapped by DISCOs and those mapped with PDP's assistance.



## TASK 4: DEMAND SIDE MANAGEMENT PROGRAM

Industrial motors contribute an estimated 60-80% of industrial electricity consumption in most Pakistani industrial sectors. Under the rollover program and through funding from the Energy Efficiency Program, PDP, in Phase 1 of its “Motors in Industry” program, installed 811 energy efficient motors and 641 VFDs in industries throughout Pakistan (except Baluchistan) until December 2013. In Phase 2, PDP installed 729 motors and 318 VFDs; this phase concluded on May 31, 2014. Another program activity was the replacement of inefficient pump-sets in the publicly owned water and sewerage utilities. Under Component 2, PDP replaced 135 inefficient municipal pump-sets of Islamabad’s Capital Development Authority Islamabad, and 75 big tubewell motors and pumps in the Karachi Water & Sewerage Board. This activity concluded in December 2013.

## **TASK 5: LOW TENSION CAPACITOR INSTALLATION PROGRAM**

Under Component 2's Capacitor Pilot Program, PDP is installing 24,000 LT capacitors on agricultural tubewells for the purpose of improving pump-set power factor in MEPCO, FESCO, LESCO, IESCO, and QESCO. Based on the successful results of this project, PDP has started the national capacitor installation project under Component 3 with the installation of 73,917 LT capacitors on tubewell motors, addressing the challenges faced during the pilot project, to maximize the nationwide program's success and peak demand savings and technical loss reduction.

## **TASK 6: COST OF SERVICE STUDY**

Having completed the CoSS with IESCO, PDP is currently working on CoSS at eight DISCOs – LESCO, FESCO, GEPCO, MEPCO, HESCO, PESCO, SEPCO, and QESCO. The methodology used with IESCO and approved by NEPRA will be applied and amended to meet the needs of each DISCO. Financial, commercial, and load data will be used to populate the model. An appropriate methodology for calculation of weighted average cost of capital will be used to determine market-based rate of return.

## **TASK 7: ORGANIZATIONAL ASSESSMENT AND RESTRUCTURING**

A similar project was undertaken at MEPCO under Component 2. Understanding that all DISCOs share similar structures, the assessment work conducted at MEPCO will be validated for PESCO with minimal assessment performed in areas where there might be discrepancies or inconsistencies. The project will focus on the implementation of approved proposals / studies.

### **HIGHLIGHTS**

- **Organizational Assessment and Restructuring at Multan Electric Power Company** – PDP continued its support for MEPCO's organizational restructuring. With MEPCO's buy-in last quarter, PDP this quarter developed RFPs for nine additional proposals. These include "Job Descriptions & Key Performance Indicators," "Performance-Based Evaluation System," "Training and Capacity Building," "Training Function Development," "Recruitment Policy," "Employee Handbook," "Rewards and Recognition Policy," "HR Help Desk," and "Identification of Anomalies." This quarter, MEPCO with PDP support constituted a Steering Committee for the implementation of the Performance-Based Evaluation System and other components and the first workshop on the System was organized for MEPCO managers.

- **Organizational Assessment and Restructuring at Peshawar Electric Supply Company**

– PESCO’s existing organizational structure is non-competitive with vague policies and procedures resulting in delayed decision-making besides lowering the morale of employees. This intervention was initiated to address the deficiencies within PESCO’s organizational structure. This quarter, PDP developed proposals for nine functions – “Employee Handbook”, “Job Descriptions and Key Performance Indicators”, “HR Manual (Policies and Procedures)”, “Recruitment Policy and System”, “Performance-Based Evaluation System”, “Compensation and Benefits”, “Safety Function Upgrade”, “Training Function Upgrade”, and “Health Policy and Procedures”.



**Workshop on Organizational Restructuring for MEPCO Staff**

- **Internal Audit Process Optimization at Power Distribution Companies** – As part of PDP’s Internal Audit Process Optimization (IAPO) project, a new internal audit manual and framework was introduced, which emphasized a risk-based approach that considers the entire business process rather than individual transactions. This includes training programs for internal audit staff, DISCO senior management, and Board of Directors (BOD) Audit Committees (Committees). The IAPO project is designed to improve the transparency of DISCO financial transactions, while introducing better controls. The new framework will include the DISCO Committees that will oversee the internal audit function and report the results directly to the BOD, instead of centralizing accountability with the Chief Executive Officer (CEO). This will improve the level of financial transparency and accountability. PDP also provided OJT and an internal audit training calendar and recommendations to achieve sustainable internal audit capacity at each DISCO; and delivered the new internal audit manual to all DISCO BODs. Results to date are encouraging. However, due to the hiring ban, the Government of Pakistan’s reconstitution of BODs and the DISCOs’ lack of capacity in the internal audit function, the original scope of work (Phase 1) could accomplish only a portion of its sustainable objectives. PDP’s strategically focused two-pronged solution (Phase 2) will continue services that proved successful under Phase 1, while introducing new services that will result in more sustainable solutions. The first approach focused on six DISCOs – FESCO, GEPCO, HESCO, IESCO, QESCO, and SEPCO. The second approach will focus on the two turnaround DISCOs, i.e. MEPCO and PESCO.



## SECTION 5: EVENTS

### USAID ENERGY DIRECTOR VISITS POWER DISTRIBUTION CONTROL CENTER AT IESCO

#### ELIMINATING UNSCHEDULED LOAD SHEDDING:

At a high-level event, USAID Energy Director Mike Curtis and other senior officials observed operations of IESCO's Power Distribution Center.

#### MESSAGE DELIVERED:

In the past, power distribution companies failed to accurately assess areas where loads were higher than the allocated supply of electricity. IESCO's Power Distribution Center allows operators to have an immediate display of real-time information through live data screens. This is crucial in ensuring the company stays within its power allocation quota assigned by the Government, and eliminates the need for forced (i.e. unscheduled) load shedding.



## U.S. AMBASSADOR INAUGURATES WAPDA NETWORK OPERATIONS CENTER

### FACILITATING LOAD DATA IMPROVEMENT:

In a high-profile event covered by both print and electronic media, U.S. Ambassador Richard Olsen inaugurated the newly installed Network Operations Center at the Water and Power Distribution Authority (WAPDA) in Lahore, as part of PDP's LDI program. This program has received prominent interest from both the United States Government and the Government of Pakistan, which included it in its National Energy Policy.

### MESSAGE DELIVERED:

The new Network Operations Center established at WAPDA will help improve power flow management through the network, which in turn will assist in the reduction of unscheduled load shedding which lies at the heart of PDP's LDI program. With the new system, consumers will possess advance knowledge about load shedding times, which will assist them in planning out their activities around the schedule.

# APPENDIX A: TABULAR PERFORMANCE RESULTS

Indicator	Unit	Start of Project to End of Previous Quarter	Current Quarter (Oct-Dec 2014)	Start of Project to End of Current Quarter
<b>Power and Energy Saving</b>				
MWs of power saved by installing LT capacitors, HT capacitors, meters, pumps, motors and optimization of commercial procedures	MW	126.8	16.8	143.6
Giga-watt hours of energy made available by installing high tension / low tension capacitors, meters and improving commercial procedures	GW-h	551.1	45.3	596.4
Revenue saved or revenue generated by installing high tension / low tension capacitors, meters and improving commercial procedures, internal audit process optimization, LDI project and advising PESCO on a corporate level	\$ million	170.6	16.7	187.3
Revenue saved through LDI project by selling more power to better performing DISCOs (From July 2013 to December 2014) <sup>1</sup>	\$ million	-	62.3	62.3
Total revenue saved	\$ million	170.6	79.0	249.6
<b>Beneficiaries</b>				
Number of beneficiaries receiving improved energy services by installing high tension/low tension capacitors, meters, and improving	No.	1,902,000	252,000	2,154,000

<sup>1</sup> Based on the directives of USAID, PDP carried out an independent assessment through Hagler Bailly Pakistan (HBP) to evaluate the benefits of the LDI project. In its assessment, HBP reported a projected annual increase in the sales revenues of DISCOs of \$62.3 million annually, by selling more power to better performing DISCOs. Later, USAID carried out verification of the results reported by HBP through Management System International (MSI), who verified the reported the results in the last quarter. Therefore, the revenue savings achieved by PDP since the launch of LDI project from July 2013 to July 2014 is reported by PDP in the current quarterly report.

commercial procedures				
<b>Capacitors</b>				
Number of capacitors installed in tube well pumps	No.	24,202	11,599	35,801
<b>Pumps &amp; Motors</b>				
Number of pumps installed in municipalities	No.	210	0	210
Number of motors installed	No.	1,539	0	1,539
Number of variable speed drives (VSDs) on motors	No.	749	0	749
<b>Load Data Improvement Project</b>				
Number of AMR meters installed for LDI Project	No.	9,030	123	9,153
<b>Meter Installation Improved Meter Reading &amp; Meter Replacement Activity</b>				
Number of new meters installed through improved meter reading & meter replacement activity	No.	64,878	-	64,878
Number of meters re-fixed with new service drops and proper fixing brackets through meter replacement activity	No.	15,606	-	15,606
Total new meters installed and re-fixed through improved meter reading and meter replacement activity	No.	80,484	-	80,484
<b>Miscellaneous Installations</b>				
Number of outage reduction devices	No.	1,523	1,237	2,760
Number of automatic meter reading meters	No.	4,374	10,238	14,612
Number of transformers	No.	25	10	35
Meters of quadraplex cables	Meter	5,000	0	5,000

<b>Revenue Protection Cell</b>				
Total number of FIRs lodged	No.	251	76	327
Total number of theft cases / illegal hooks detected	No.	1,588	193	1,838
<b>Improved Meter Reading</b>				
Number of theft cases detected	No.	3,352	834	4,186
Number of consumer premises checked	No.	25,294	124,598	149,892
Number of meters replaced	No.	9,814	17,186	27,000
<b>Census</b>				
Number of consumers enumerated	No.	59,680	86,686	146,366
Number of theft cases observed through census	No.	1,099	526	1,625
Wrong tariff cases identified through census	No.	161	88	249
<b>Linemen Training</b>				
Number of linemen trained on proper safety techniques	No.	13,920	623	14,543
Average percent reduction in fatal accidents	%	51%	12%	41%
Average percent reduction in non-fatal accidents	%	-	-	-
<b>Functional Training</b>				
Number of DISCO staff trained in various functional areas like Finance, Human Resources, Technical, Commercial, Communication etc.	No.	28,765	1,055	29,820

<b>Governance</b>				
Number of policies and international best practices analyzed, developed and issued	No.	39	2	41

**USAID Power Distribution Program**

**House 23, Street 19, F-6/2,**

**Islamabad, Pakistan**