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# **THIRTEENTH QUARTERLY PROGRESS REPORT**

**OCTOBER - DECEMBER 2013**

**PRODUCED BY:**

**USAID POWER DISTRIBUTION PROGRAM**

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## **OCTOBER - DECEMBER 2013**

IRG, USAID contractor for the Power Distribution Program

House 23, Street 19, F-6/2

Islamabad, Pakistan

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# ACRONYMS

AM	Accounting Manual
AMR	Automatic Meter Reading
AT&C	Aggregate Technical and Commercial
BOD	Board of Directors
CEO	Chief Executive Officer
CIS	Customer Information System
CM	Change Management
COP	Chief of Party
CoS	Cost of Service
CoSS	Cost of Service Study
CPOP	Commercial Process Optimization Project
CSP	Completely Self-Protected
DISCO	Government-Owned Power Distribution Company
DSM	Demand Side Management
ERP	Enterprise Resource Planning
ESCO	Energy Service Company
FESCO	Faisalabad Electric Supply Company
GENCO	Generation Company
GEPCO	Gujranwala Electric Power Company
GIS	Geographic Information System
GOP	Government of Pakistan
GPRS	General Packet Radio Service

HESCO	Hyderabad Electric Supply Company
HHU	Handheld Unit
HR	Human Resource
HRIS	Human Resources Information System
HT	High Tension
IA Manual	Internal Audit Manual
IAPO	Internal Audit Process Optimization
IESCO	Islamabad Electric Supply Company
IRG	International Resources Group
IT	Information Technology
KP	Khyber Pakthunkhwa Province
KPI	Key Performance Indicator
KVA	Kilo Volt Amperes
kW	Kilowatt
kWh	Kilowatt-hour
LDI	Load Data Improvement
LESCO	Lahore Electric Supply Company
LOP	Life of Project
LT	Low Tension
MCO	Meter Change Order
MD	Managing Director
MIS	Management Information System
MEPCO	Multan Electric Power Company
MW	Megawatt

MWP	Ministry of Water and Power
NAB	National Accountability Bureau
NEPRA	National Electric Power Regulatory Authority
NTDC	National Transmission and Dispatch Company
NPCC	National Power Control Center
ORD	Outage Reduction Device
P&E	Planning & Engineering
PDC	Power Distribution Center
PDP	USAID Power Distribution Program
PEPCO	Pakistan Electric Power Company
PESCO	Peshawar Electric Supply Company
PO	Purchase Order
QESCO	Quetta Electric Supply Company
RF	Radio Frequency
RFP	Request for Proposal
RFQ	Request for Quotations
RO	Revenue Office / Officer
RTC	Regional Training Center
SECP	Securities and Exchange Commission of Pakistan
SEPCO	Sukkur Electric Power Company
TA	Technical Assistance
TORs	Terms of Reference
US	United States
USG	United States Government

USAID United States Agency for International Development  
VSD Variable Speed Drive  
WAPDA Water and Power Development Authority

# SECTION 1: PROGRAM OVERVIEW

The twelfth Quarterly Report of the United States Agency for International Development (USAID) Power Distribution Program (PDP) covers 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). Under Component 1, PDP conducted operational audits of MWP, all nine DISCOs and NEPRA, and developed Action Plans for future interventions and demonstration projects. Components 2 and 3 are focused on the execution of jointly-selected interventions identified in Action Plans with the goal of improving sustainability in the power sector.

This quarter saw continuation of on-going activities and initiation of new ones. It has been confirmed that PESCO's financial condition improved by \$163.5 million between FY 2012-13 over FY 2011-12. Of this, \$72.4 million can be attributed revenue enhancement activities supported by PDP broadly across PESCO.

Major infrastructure investments continued in PESCO this quarter with the installation of our 11,000th electronic meter, replacing old electro-mechanical meters or those that have been damaged or tampered with. In addition, PDP initiated piloted use of anti-theft cable, installing 1,000 meters in high-loss areas, an activity that has drawn attention and praise from PESCO senior management, the KPK Government and the KPK High Court. Lastly, commercial improvement activities such as theft control, billing recovery, improved meter reading, and prosecution of theft cases continue to deliver results in the Kohat Road subdivision. Based on these successes, PDP and PESCO are expanding the activities to additional subdivision.

PDP policy experts participated in talks between USAID and International Monetary Fund (IMF) this quarter to advise on the type of conditionality IMF might apply to their upcoming loan. Discussions focused primary on the Regulator, on what PDP is currently doing to support NEPRA's in capacity building, and how the program might help the Government of Pakistan (GOP) meet conditions should they be imposed. Talks are expected to continue in January 2014 after which time

USAID instructed PDP this quarter to provide support to the Multan Electric Power Company as the program's second Turnaround DISCO. The decision was made after close interaction between USAID and GOP. Largely based on previous successes and lessons learned, and in collaboration with MEPCO senior management, PDP developed a suite of interventions will ultimately improve commercial performance of the DISCO. These interventions will be presented in the revised PDP work plan to be submitted to USAID in January 2014 with a dedicated delivery team scheduled to relocate to MEPCO later that same month.

This quarter USAID also directed PDP to begin providing support to DISCOs scheduled for privatize in the coming 18 months. Interventions are expected to include both high-level policy reform activities as well as direct support to two DISCOs slated by the GOP for privatization including Phase 1 due diligence. PDP will be working closely with all stakeholders concerned, including the Ministry of Water and Power, NEPRA, the Ministry of Privatization, and others.

During the Cost of Service Study analysis, PDP discovered that all DISCO were under-billing select customer groups through the use of incorrect billing formulae. Time of Use consumers paying a fixed rate were being billed based on the determination of average demand, in place of NEPRA's determined tariffs for maximum demand, resulting in lower consumer bills and less revenue for DISCOs. This was being instituted for both commercial and industrial consumers who are billed based on both consumption and maximum demand. This practice resulted in over \$47 million in losses and has been a part of the current system for well over a decade, and would have gone unnoticed for longer until PDP's discovery. Subsequently, NEPRA after reviewing the evidence and supporting documentation supplied, concurred with PDP's findings and issued notices to DISCOs indicating the practice as being in violation of NEPRA's tariff protocols. The reversal of this practice is expected in the next quarter, resulting in a positive impact on DISCO revenues.

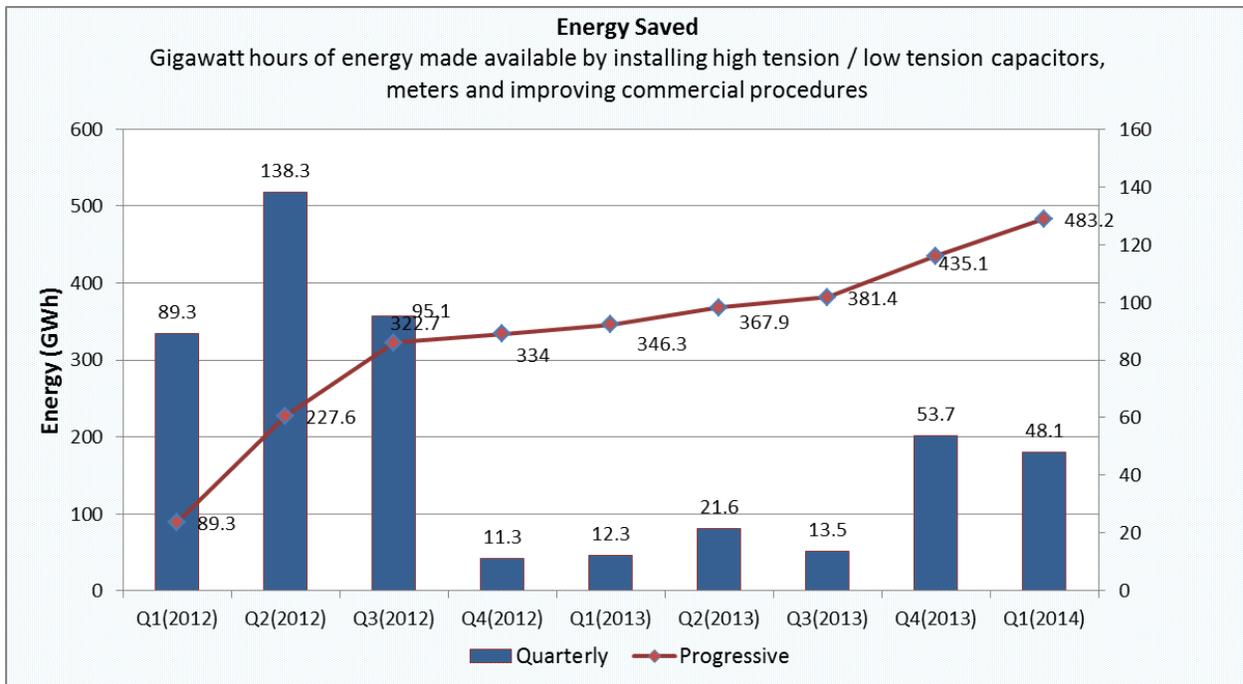
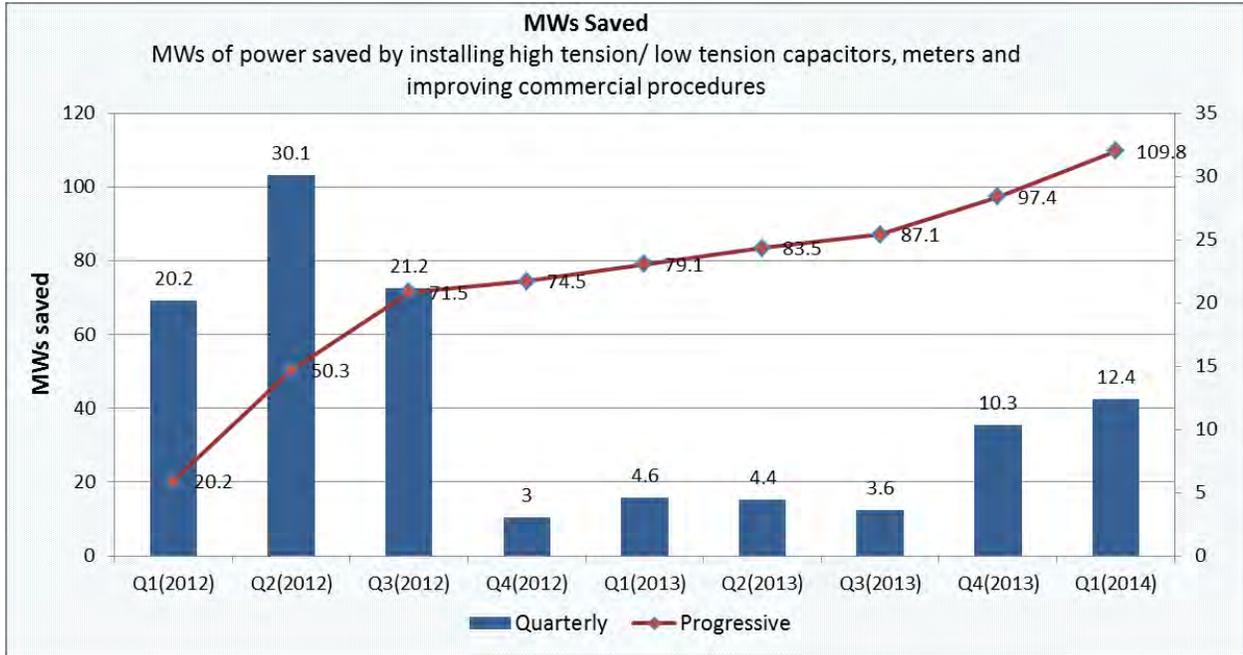
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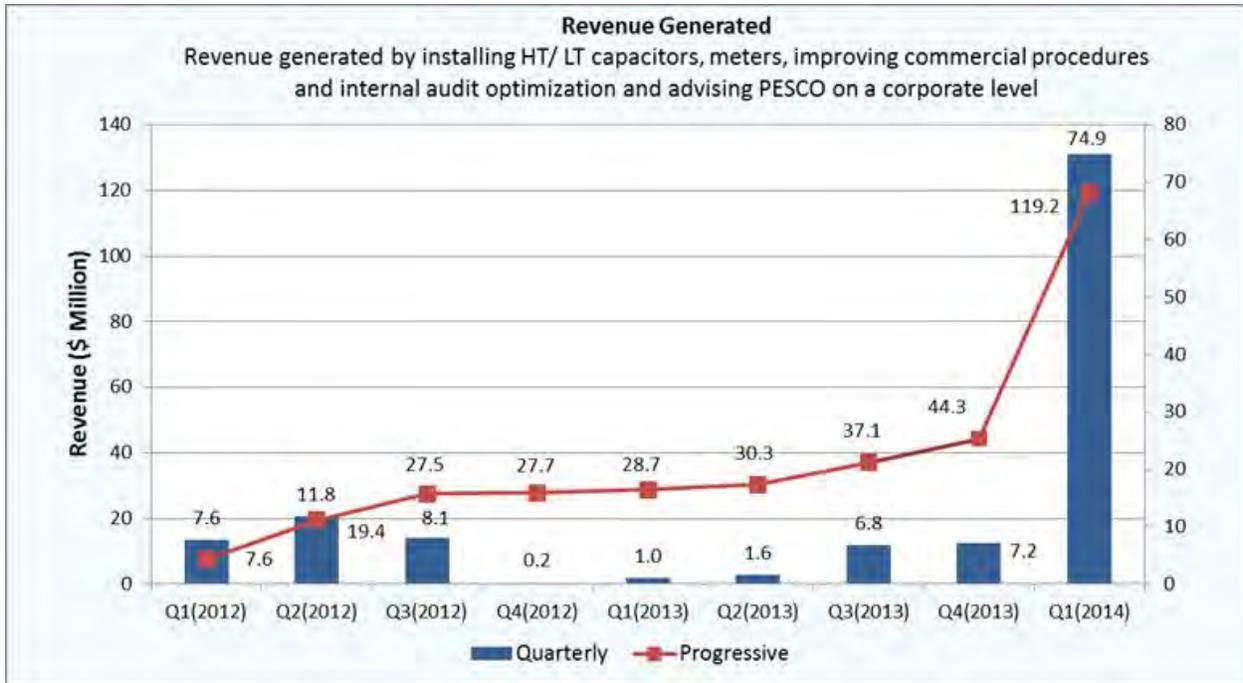
Craig R. VanDevelde  
Chief of Party

## **FINANCIAL SUMMARY**

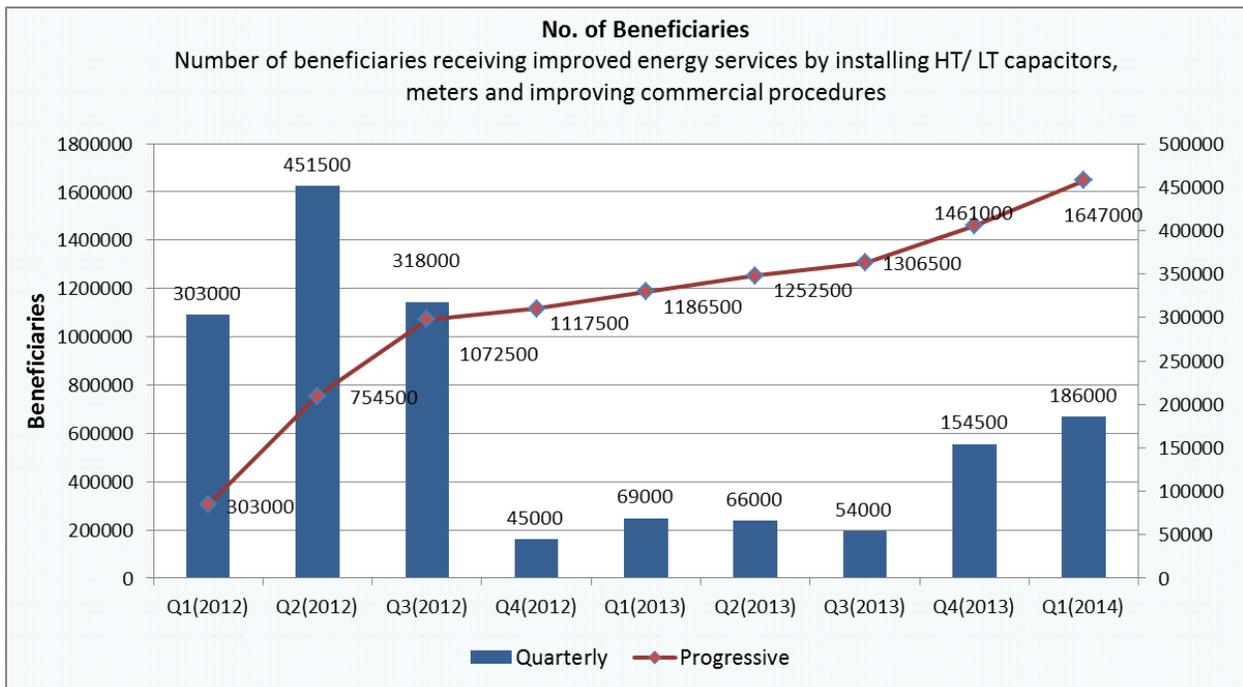
Contract No:	EPP-1-00-03-00006-00, Task Order 13
Date of Issuance of Task Order:	September 17, 2010
Amount Obligated Under Task Order:	US \$141,699,409
Total Project Funds Expended to Date:	US \$91,946,609
Project Funds Expended During the Quarter:	US \$15,179,476

# SECTION 2: PERFORMANCE

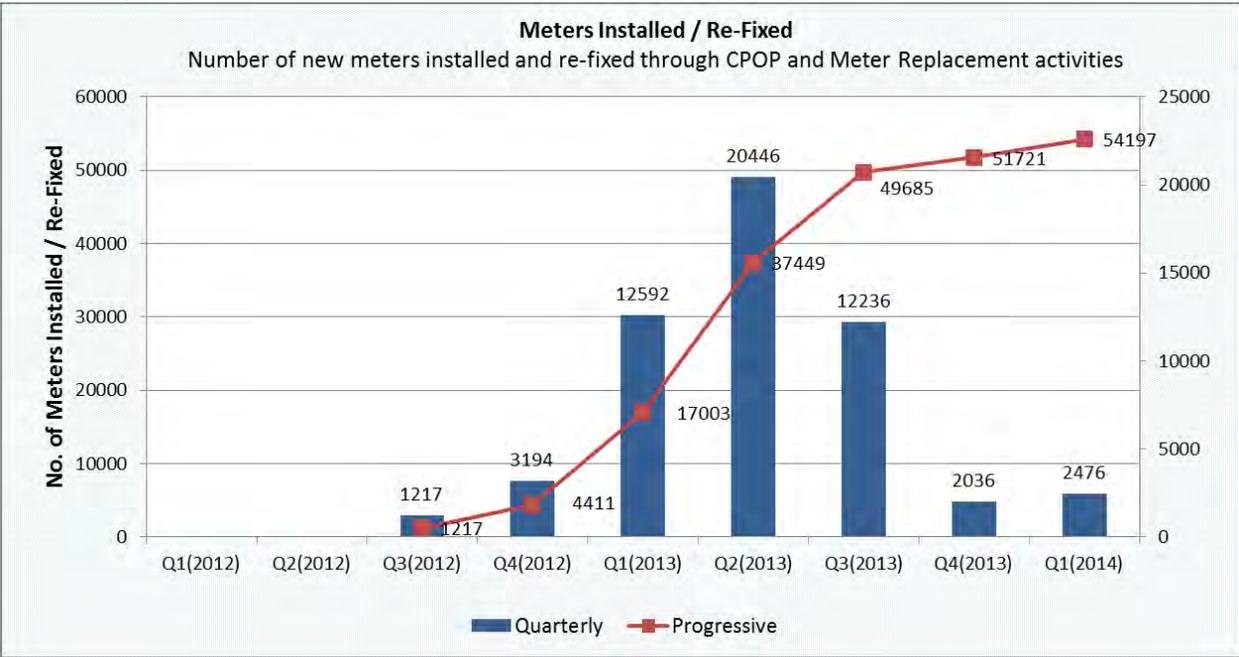
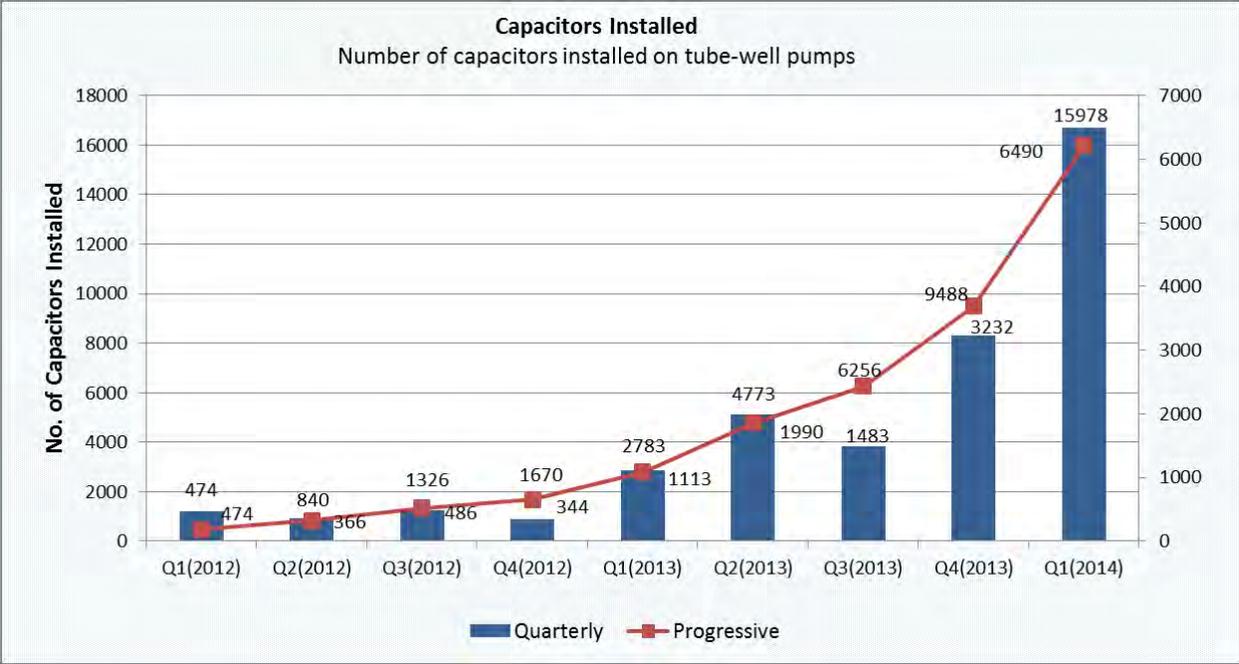


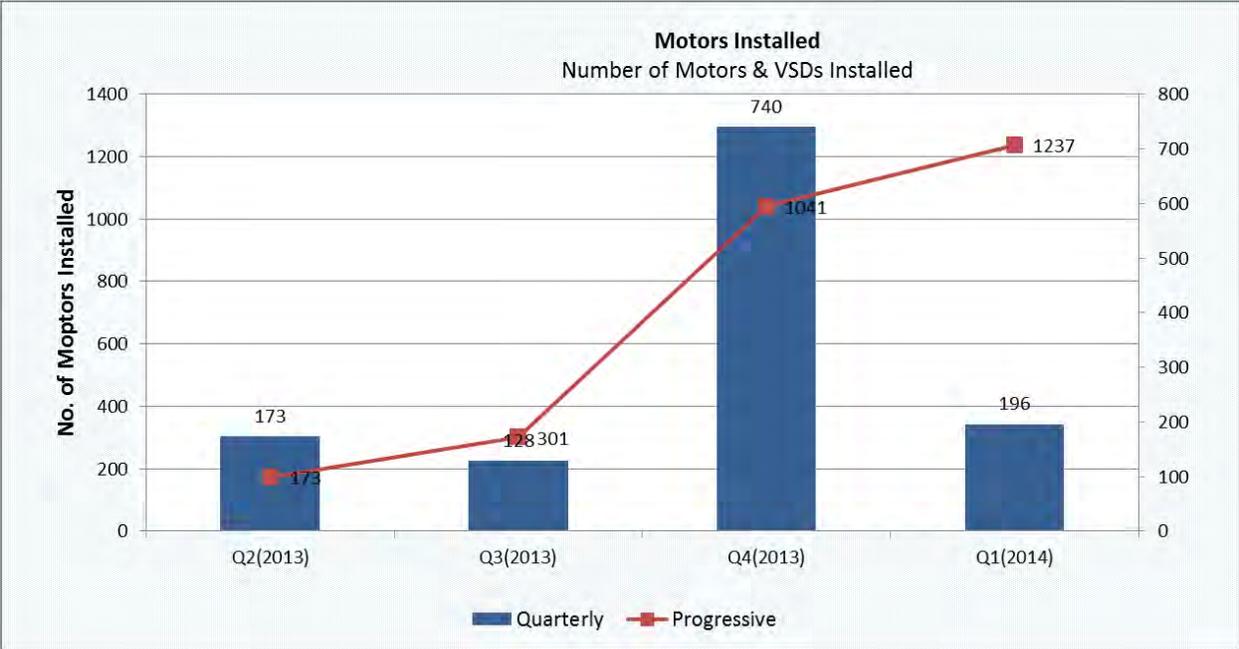
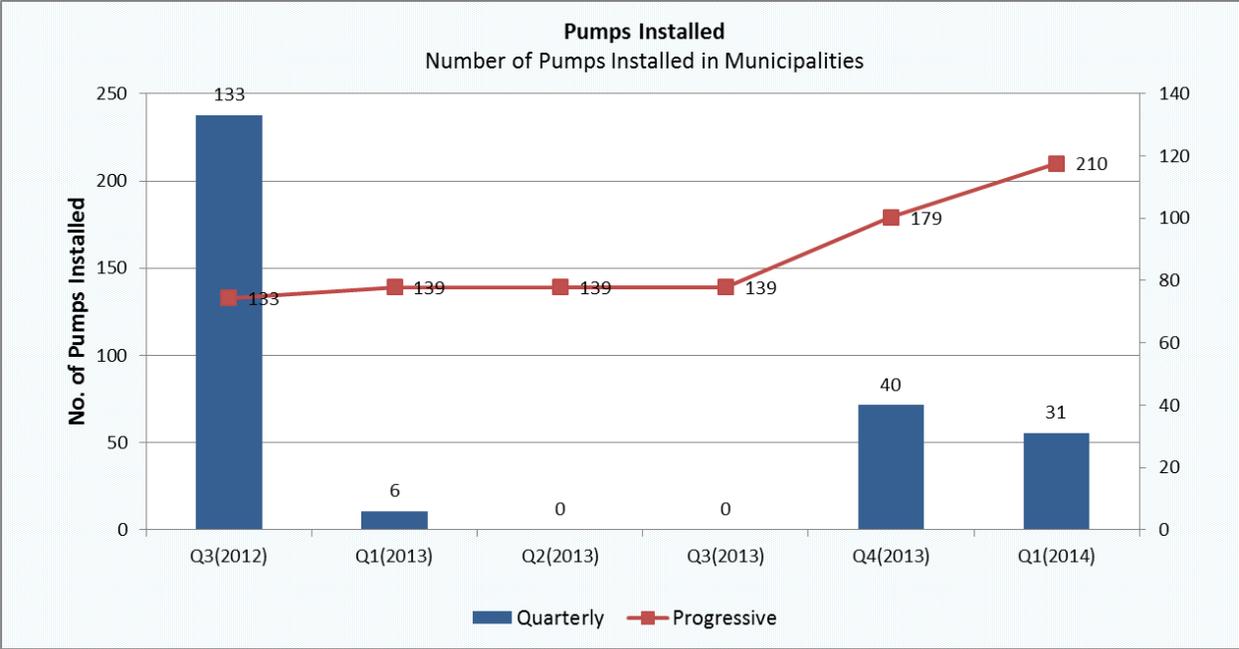


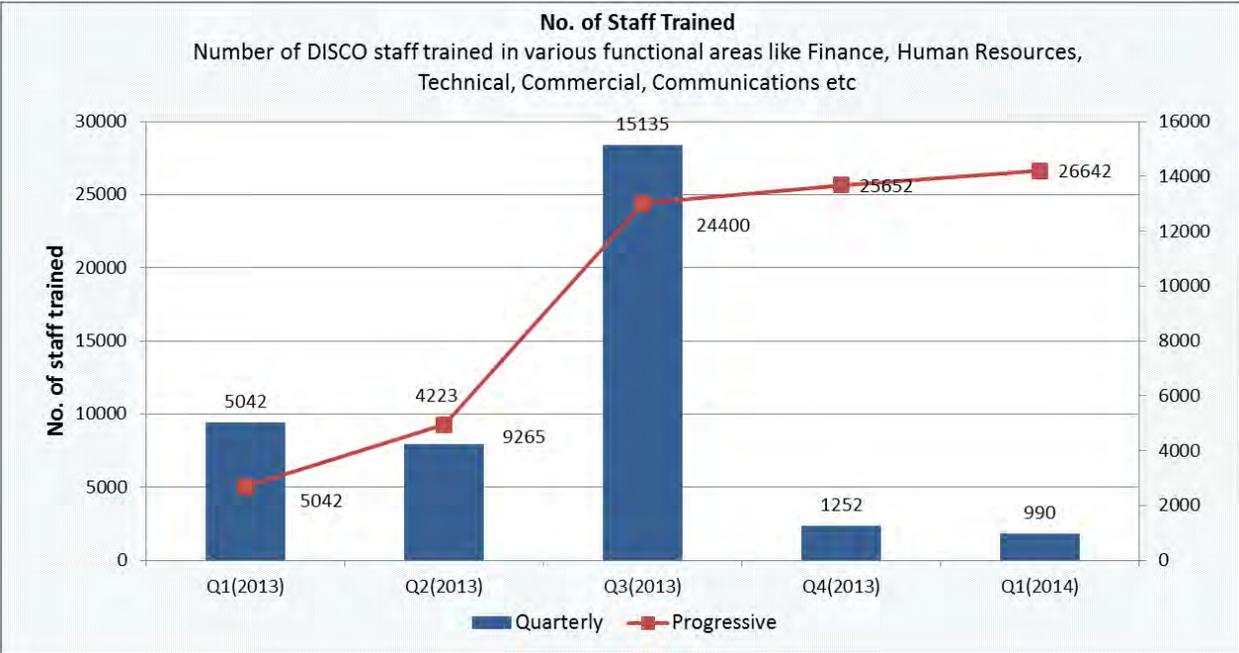
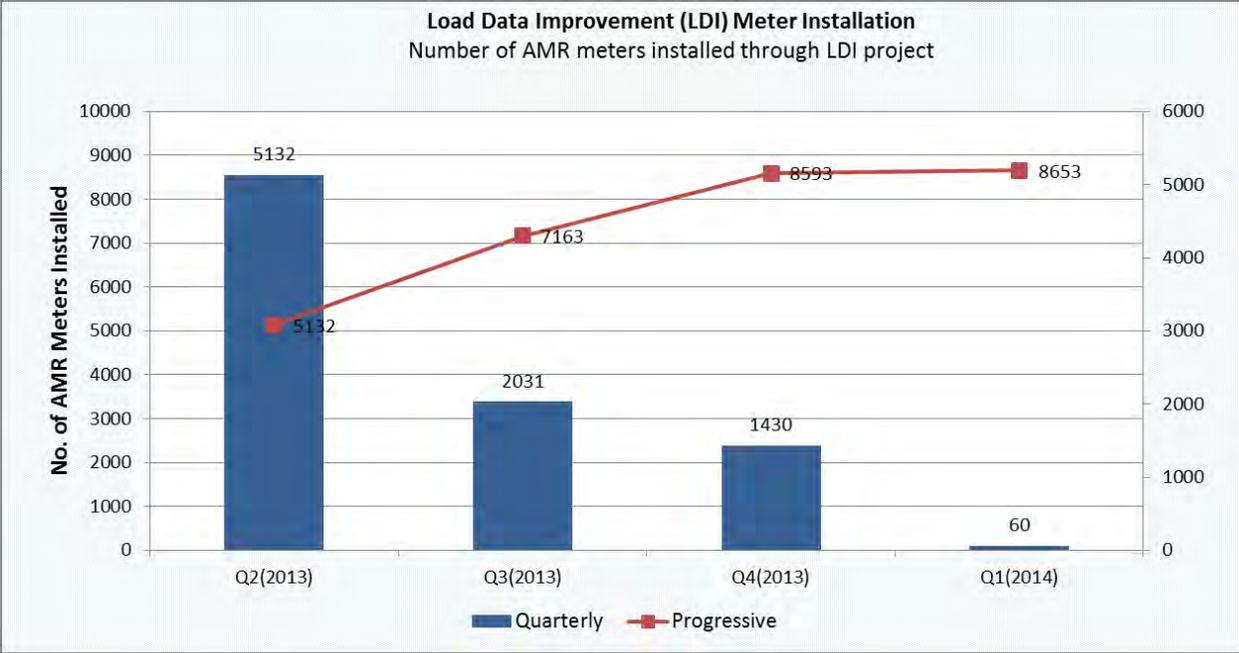
<sup>1</sup> See footnote below.



<sup>1</sup> The \$74.9 million increase in revenue as realized by PDP this quarter is a function of work delivered at the Turnaround DISCO for their FY 2012-13 running from July 1, 2012 to June 30, 2013, as reported in audited financials received in October 2013.









- 1,647,000 beneficiaries received improved energy services
- \$119.2 million in savings and revenue generated by PDP's interventions
- 109.8 megawatts (MW) saved through installation of capacitors, pumps, motors and electronic meters

# SECTION 3: COMPONENT 2 TASKS

## **TASK 1: TRAIN AND MENTOR DISCO BOARDS OF DIRECTORS AND SENIOR MANAGEMENT**

The MWP dissolved the Board of Directors (BOD) of all nine government-owned DISCOs in November 2010 and announced new boards in early February 2011. The decision to name new directors was undertaken to reduce the influence of both the national and local governments in DISCO governance and to ensure greater participation of local stakeholders in DISCO decision-making. In response to this important change, PDP began a series of training activities.

### **HIGHLIGHTS**

- **Implementing Corporate Governance with the Ministry of Water and Power** – PDP-developed Corporate Governance policies were approved by MWP for adoption at DISCOs. These policies were adopted by most DISCO boards while the remaining BODs are also in the process of adopting them. PDP also assisted the Securities and Exchange Commission of Pakistan (SECP) in making modifications to the draft Public Sector Companies (Corporate Governance) Rules 2013 to improve corporate governance of public sector companies. This quarter, PDP conducted a workshop on “Corporate Leadership Skills Development” for the PESCO Board of Directors (BOD) and senior management. Additionally, PDP completed a training session on tariff-setting processes and the performance of each DISCO.

## **TASK 2: DEVELOP DISCO BOARD POLICIES & PROCEDURES MANUAL**

Since previous DISCO BODs were composed primarily of MWP, Pakistan Electric Power Company (PEPCO) and Water and Power Development Authority (WAPDA) representatives, the DISCOs did not have policies and procedures for board activities that are oriented toward operating as independent, autonomous bodies focused on supporting long-term profitability and sustainability. PDP first drafted a policies and procedures manual to suit all DISCOs, and later customized this manual to address the specific needs of each DISCO. This activity has been completed.

## **TASK 3: EVALUATE CHANGES IN DISCO ORGANIZATIONAL STRUCTURE**

To foster a corporate culture that embraces change, all employees must feel like valued corporate assets in whom investment (such as training) will be made and whose welfare is considered vital. Leading utilities around the world empower their employees to identify problems, help devise solutions and receive recognition and rewards for doing so. Empowering DISCO employees to participate meaningfully in the fundamental changes that lie ahead requires continuous improvement of work practices and the understanding that no problem is too small to receive attention.

DISCO service areas are established on a political and geographical basis that encourages political interference and creates inherent conflicts between Engineering, Operations and Commercial Management Departments. Given the challenges in Commercial Management to act independently and responsibly for all activities related to consumer billings and collections, changes are required in the organizational structure of DISCOs.

### **HIGHLIGHTS**

- **Organizational Assessment & Restructuring at Multan Electric Power Company – PDP** continued its support of MEPCO's organizational restructuring. All deliverable reports were received from the contractor as part of organizational assessment and restructuring efforts. These include "Performance Evaluation System", "Organization Structure", "Grade Structure & Career Path Planning", "Manpower Planning", "Recruitment & Selection", "Delegation of Power & Authorities", "Employee Relations", "Training & Development", "Job Profiles", "Compensation & Benefits Structure", "HRIS – RFP, Software & Hardware", and "Employee Handbook". All contractor deliverables were reviewed by PDP and MEPCO's Change Management Steering Committee. As a result, five of the reviewed proposals have been immediately accepted and approved by MEPCO's BOD for implementation. The five proposals include "Performance Evaluation System", "Job Profiles", "Recruitment and Selection", "Manpower Planning", and "Training and Development". Implementation of these five proposals began this quarter and PDP is providing limited technical assistance to the MEPCO Human Resources (HR) Department. A close-out report on the project was prepared and submitted. With MEPCO's buy-in received this quarter, PDP began developing RFPs which will be finalized in early January 2014.

- Improving the Distribution Standards at Power Distribution Companies** – PDP this quarter held the fifth meeting of the Distribution Standards Committee which was attended by Chief Engineers and Project Directors (Construction) from all nine DISCOs, Faisalabad Electric Supply Company's (FESCO) CEO, the Design and Standards and Material Inspection Departments of the National Transmission and Dispatch Company (NTDC), and USAID representatives. This forum promotes effective communication and coordination among DISCOs to discuss the improvement of equipment, material and construction standards and will help reduce losses, improve work practices and improve the supply of consumers across all nine DISCOs.



**Fifth Distribution Standards Committee Held in Islamabad**

- Internal Audit Process Optimization at Power Distribution Companies** – As part of the PDP's Internal Audit Process Optimization (IAPO) project, a new internal audit manual and framework was introduced and being implemented at DISCOs, emphasizing a risk-based approach which considers the entire business process rather than individual transactions. This includes training programs for internal audit staff, DISCO senior management and BOD Audit Committees (Committee). The results have been significant and revenue improvements at all DISCOs are estimated to exceed \$9 million per year. The revenue improvement amounts are based on audit results, primarily, from the revenue and receivables audit areas which were performed at DISCO revenue offices. The IAPO project is designed to improve the transparency of financial transactions and operational efficiencies of DISCOs while introducing better controls in the organizations. The new framework will involve the DISCOs Committees which will oversee the internal audit function and report results directly to the Board of Directors, instead of centralizing accountability into the hands of the CEO. This will improve the level of financial transparency and financial accountability. PDP is providing on the job training as well as a "training the trainer" programs. The DISCO will be provided with an internal audit training calendar and recommendations to achieve a sustainable internal audit capacity at each DISCO. The new internal audit manual was delivered by PDP to DISCO Boards of Directors. This project began in July, 2012 and is expected to be completed in February, 2014.

## **TASK 4: PERFORM FULLY ALLOCATED COST OF SERVICE STUDY**

DISCOs continue to operate with tariff structures that have been designed to cross-subsidize electric service from industrial and commercial consumers to domestic and agricultural consumers, as well as from larger domestic to smaller domestic consumers. Tariffs do not reflect full cost of

service to DISCOs as a whole, or customer categories. PDP has completed one comprehensive Cost of Service Study (CoSS) for Islamabad Electric Supply Company (IESCO) and has embarked on performing similar studies in the remaining eight DISCOs. PDP is demonstrating true cost of service and charting a course to tariff reform that can lead to the elimination of all but social safety net subsidies. This task was successfully concluded last quarter after PDP submitted the fully complete IESCO Cost of Service Model to NEPRA which appreciated the efforts, directing other DISCOs to include the CoSS with their future petitions, a process PDP is assisting in, as detailed in **Component 3, Task 3: Cost of Service & NEPRA Reform**.

## **TASK 5: ERP DOCUMENTATION MANUAL AND TECHNICAL ASSISTANCE PROJECT**

Enterprise Resources Planning (ERP) systems are standard management tools for well-managed, modern electric distribution utilities. The project produced an ERP documentation manual as a resource for DISCOs and a blueprint for ERP implementation. The ERP focused on financial, materials, and project management and payroll applications and can be used for other platform applications as well. The documentation manual focused on documenting business processes at FESCO and validated at IESCO. Technical assistance was provided upon request to all DISCOs. Other objectives of this project included reviewing, validating and documenting existing and future processes, practices and procedures by mapping current and future processes.

### **HIGHLIGHTS**

- **Enterprise Resource Planning at Power Distribution Companies** – PDP successfully concluded this project by handing the ERP documentation manual to IESCO for further action. A close-out report was completed and sent to USAID for archiving. The ERP manual is now being used as a resource and manual in two turnaround DISCOs including PESCO, as part of Component 3 activities. ERP implementation will focus on performance improvement to demonstrate how low-performing DISCOs can be improved.

## **TASK 6: IMPLEMENT ANTI-THEFT, SUBDIVISION DISTRIBUTION SYSTEM OPTIMIZATION, AUTOMATIC METER READING**

PDP is conducting a number of improvement initiatives focused on theft reduction and feeder optimization. Also included in this initiative are power factor improvements for tubewells. An Automatic Meter Reading (AMR) initiative is aimed at reducing theft and improving revenue at select locations. These projects have several implementation elements in common, including use of Geographical Information System (GIS) to map distribution systems, and engineering software to model losses and identify loss reduction targets. Projects will provide an introduction of AMR

metering technology for each feeder and for selected distribution transformers, multiplex secondary circuits to reduce vulnerability to theft, primary circuits for reducing Low Tension (LT) losses, smaller and more efficient distribution transformers, and improved service drop design with secure revenue meters.

## HIGHLIGHTS

- **Automatic Meter Reading Program** – This quarter, work continued on PDP’s AMR program which is installing about 24,000 AMR meters in five DISCOs: MEPCO, IESCO, PESCO, Lahore Electric Supply Company (LESCO) and Hyderabad Electric Supply Company (HESCO). These include meter installations for general customers, on transformers for energy accounting and cost of service, and on high-end consumers. Radio Frequency (RF) meters are being installed at two feeders of LESCO’s Niaz Baig subdivision, an activity expected to conclude in the next quarter. Also in this quarter, IT infrastructure equipment was installed and commissioned at Wateen’s data center in Lshore and the Global Packet Radio Service (GPRS) communications system between DISCOs and the data center was made operational. This equipment is being used to collect the AMR meter readings from meters being installed at HESCO’s Qasimabad subdivision. A total of 80 AMR meters were installed this quarter at HESCO which have successfully enhanced end-to-end performance of the AMR metering system.
- **Energy Conservation Campaigns in Peshawar Electric Supply Company** – This quarter, PESCO’s PDP-trained female employees successfully completed energy conservation campaigns in four women’s colleges, with over 1,400 students and professors attending. These campaigns enlighten female college students about PESCO and its role in the power sector, including discussing the power system in Pakistan, and the role and responsibilities of DISCOs in general and PESCO in general. Energy conservation habits were also discussed and fliers distributed to inculcate these measures in households. The students, mostly in their final year of undergraduate study were also informed about careers in the power sector and were encouraged to join the female workforce.



**RF Meters Are Being Installed at Two LESCO Feeders**

## **TASK 7: CONCENTRATION ON HUMAN RESOURCE MANAGEMENT INITIATIVES**

One of the most significant deficiencies at all DISCOs assessed during the operational audits was the poor quality of HR management systems. Realizing that HR is key to sustained improvements, PDP is concentrating on improving DISCOs HR management capabilities in all areas, including addressing HR factors impacting all action plans and project improvement activities.

### **HIGHLIGHTS**

- **Effective Meter Reading and Surveillance Program Continues at Multan Electric Power Company** – As part of PDP’s efforts to improve the quality of meter reading in DISCOs, PDP delivered its “Effective Meter Reading and Surveillance Program” at MEPCO. The program focuses on the duties and responsibilities of meter readers and techniques for reading electromechanical and various other types of meters. Additional sessions will be conducted next quarter with over 30 participants for each of the three sessions.
- **Upgrade of Regional Training Centers Continues at Four Power Distribution Companies** – Work continued this quarter at HESCO, LESCO, Gujranwala Electric Power Company (GEPCO) and Quetta Electric Supply Company (QESCO) to upgrade their Regional Training Centers (RTCs) to include larger classrooms and computer labs. These state-of-the-art labs will provide these RTCs with the capacity to delivering training for all employees on various types of software used by DISCOs. This capacity building effort is critical to ensure DISCOs continue to adopt modern automated processes found in effectively operated electric utilities.
- **Enhancing the Professional Workforce at Power Distribution Companies** – PDP is positioning interns in the Finance Department, Planning and Engineering (P&E), HR and Project Management Unit Departments, as part of its Management Training Program which aims to place qualified young professionals at key positions within DISCOs. Thus far, PDP has positioned 20 well-qualified interns from relevant undergraduate and postgraduate backgrounds. This quarter, PDP set up a Computer Training Lab at PESCO to deliver trainings that will help improve the computer knowledge of PESCO employees, under the guidance of two qualified instructors.
- **Improving Safety for Linemen** – Through PDP’s linemen training program, this quarter over 300 linemen staff from all nine DISCOs were trained on safety techniques and meter installations using PDP-provided safety tools and equipment. Historically in Pakistan, over 100 experienced linemen lose their lives annually on the job, while an equal number become physically incapacitated. This in turn adversely affects DISCOs who lose manpower and

operational capability. These accidents are a direct result of a failure to properly inculcate a safe operational environment including imparting the appropriate amount of training to inexperienced staff members. These capacity building trainings not only impart the right professional training to linemen, but also ensure they operate in a safe and professionally conducive environment.



**Linemen Training for PESCO Linemen at RTC IESCO**

## **TASK 8: IMPROVE COMMERCIAL MANAGEMENT PRACTICES**

Currently, most DISCOs employ manual, paper-driven commercial management practices such as handwritten logs of customer information and electricity consumption. However, DISCOs have matured to the point where these legacy systems and practices are no longer feasible to manage customer information, meter readings, billing and revenue collection efficiently. Automating these procedures is now a requirement for a modern utility which will improve revenue collection and transaction transparency.

### **HIGHLIGHTS**

- **Scaling Up Customer Information System at Multan Electric Power Company** – Following on from last quarter’s successful deployment of the Customer Information System (CIS) at MEPCO’s Bosan Road subdivision, and the senior management’s request that it be scaled up to other subdivisions, PDP this quarter developed and began executing the scalability plan of the CIS from the subdivision level to the circle level. The billing module of the project was successfully completed this quarter with work on the second phase – commercial process automation beginning. At the end of the quarter, PDP developed five new procedures for the CIS (“periodic cash collection and reconciliation”, “equipment removal order process”, “data preparation system process”, “domestic billing, and “industrial billing”) after which, upon mutual consent with MEPCO senior management, this was phased out in preparation for the next phase. The CIS is a wholly automated and computerized system which increases the efficiency of the billing and collections processes in DISCOs by reducing operational costs, enhancing customer services, and increasing employee efficiency.

- **Handheld Units Project at Multan Electric Power Company** – PDP this quarter successfully implemented meter reading using Handheld Units (HHUs) at MEPCO’s Bosan Road subdivision resulting in a substantial reduction in consumer complaints and a nine percent decrease in losses between November and December. As a measure of project sustainability, MEPCO initiated procurement of 130 units to scale up HHU implementation to other divisions and circles and expressed the desire to have the Musa Pak division serve as a model division by switching entirely to the electronic meter reading system, eliminating the current paper-based model resulting in faulty and corruptible readings. As a result of this initiative, meters now can be read and billed efficiently thus reducing the time from meter reading to billing.

## **TASK 9: IMPROVE CUSTOMER RELATIONS THROUGH COMMUNICATIONS & OUTREACH**

PDP in partnership with DISCOs is developing a general communications management program to address general DISCO communications needs, and to implement specific demonstration interventions to illustrate how to develop and communicate messages from DISCO management to customers. This will include trainings and technical assistance to commercial staff that have direct contact with customers, seeking to sensitize staff to the need for projecting a more positive image of DISCOs.

### **HIGHLIGHTS**

- **Dedicated Media Center Established at Peshawar Electric Supply Company** –

This quarter, PDP established a dedicated media center at PESCO headquarters with a state-of-the-art public address system and multimedia facilities to cater for press conferences and briefings. This center provides the DISCO with a centralized location for all its media activities including interviews and briefings and with its prime location next to the Director General, Public Relations, it has helped PESCO streamline its communication and contacts with both local and international media.



**Inside View of PESCO Media Center**

- **Documentaries Developed for Peshawar Electric Supply Company** – This quarter, PDP produced two documentaries to support its communications activities at PESCO. The first aimed to educate students on energy conservation and PESCO’s role as a distribution

company with a question and answer quiz for audience participants. The second documentary was part of PDP's Anti-Theft Program and will be aired on local cable networks to highlight the crackdowns on power theft currently underway in Peshawar.

- **Building Confidence with Stakeholders** – This quarter, PESCO with PDP's support, launched a monthly newsletter in its efforts to regularize both external and internal communication. Thus far, three issues have been published and circulated to a broad audience including all major stakeholders, politicians, policymakers and most importantly, PESCO's employees. All activities of both PESCO and PDP are presented in the periodical which has begun to receive positive feedback.

## **TASK 10: SUPPORT TO NATIONAL ELECTRIC POWER REGULATORY AUTHORITY**

PDP is supporting NEPRA in improving its regulatory capacity in line with international best practices by employing regulatory, legal, and economic advisors. These advisors are international regulatory experts and will visit Pakistan on an as-required basis.

### **HIGHLIGHTS**

- **Guiding NEPRA on Regulatory Environment** – Task reported in “Section 3: Component 3 Tasks” under “Task 3: Cost Reflective Tariff and NEPRA Reform.”

## **TASK 11: TRAIN MWP, DISCO & OTHER GOVERNMENT OFFICIALS ON UTILITY REFORM OPTIONS**

PDP is engaging with MWP, DISCO BODs and senior management, and other Government of Pakistan officials in a series of workshops on utility reform options including management contracts and other privatization options.

### **HIGHLIGHTS**

- **Engaging With DISCOs and NTDC for Performance Contracts** – Last quarter, PDP advisors were engaged by the interim Minister of Water and Power to draft performance contracts for DISCOs and NTDC, to be signed by the CEOs and Chairman BOD under the supervision of Secretary MWP. PDP advisors created Key Performance Indicators (KPIs) and monitoring mechanisms to ensure that performances at these public sector companies were streamlined especially with regards to operational and financial improvements.

## TASK 12: SUPPORT ENERGY EFFICIENCY & DEMAND SIDE MANAGEMENT IMPLEMENTATION

PDP is engaging with MWP and DISCOs on opportunities to improve energy efficiency, including appliance efficiency, and support for the design and implementation of Demand Side Management (DSM) programs. In particular, PDP will assist two DISCOs with large industrial loads in designing and implementing load management programs and two DISCOs with large urban loads in developing their capacity to conduct energy audits for residential, commercial, and industrial customers.



**Newly Installed Motor at Diamond Fabrics  
Near Faisalabad**

### HIGHLIGHTS

- **Support Energy Efficiency and Demand Side Management** – Task reported in “Section 3: Component 3 Tasks” under “Task 2: Energy Conservation and Demand Side Management.”

## TASK 13: IMPLEMENT PERFORMANCE IMPROVEMENT INTERVENTIONS & PROJECTS

PDP is performing a combination of general and specific performance improvement interventions that ensure sufficient performance improvement projects are implemented across all DISCOs. These include theft reduction through feeder optimization, revenue management through prepaid metering and anti-theft intervention.

### HIGHLIGHTS

- **Planning & Engineering Centers in Power Distribution Companies** – PDP has successfully established P&E centers in all nine DISCOs, with state-of-the-art equipment to modernize planning procedures. These centers are equipped with GIS and SynerGEE network flow analysis software, which will help modernize and strengthen the P&E Departments to reduce energy losses, increase revenue, and increase the amount of reliable power for consumers. For the first time, this new USAID-provided equipment will allow DISCO planning engineers to produce accurate GIS maps of existing feeders and transformer locations, and conduct engineering analysis to reduce losses and optimize new projects. This quarter, as part of capacity building at DISCOs, PDP conducted intensive classroom trainings for GIS mapping and load flow analysis software for all nine DISCOs.

The hands-on training conducted by PDP experts focused on the three core models used in the SynerGEE planning software. This training followed by consistent technical support will ensure a permanent change and increase each DISCO's sustainability upon PDP's withdrawal.

- **GIS Data Collection and Database Development in Power Distribution Companies** – Work continued this quarter for assisting DISCOs in the development of GIS databases for their power distribution facilities – this data is collected by individual feeders and processed into a GIS database suitable for map preparation as well as engineering program analysis.

DISCOs are being encouraged to use their own personnel to conduct the GIS work and six DISCOs have already informed PDP that all GIS functions are being carried out by their own personnel, with PDP providing on-the-job support only. PDP's sessions focus on facilitating staff in processing spatial data captured through field surveys and subsequent processing to be used in SynerGEE, the power flow analysis tool. PDP assisted in completing GIS mapping of High Tension (HT) and all other feeders in PESCO's Peshawar circle. PDP has trained the P&E Departments of PESCO and other DISCOs to use GIS maps for network optimization and in calculating HT and transformation losses, using SynerGEE.



**The SynerGEE Planning Software  
in Use by P&E Staff**



**“The Load Data Improvement Program will enable HESCO to monitor the flow of power on their grid stations. This will help the company overcome unscheduled load shedding. The USG is committed to assisting the Government of Pakistan in improving the power distribution system throughout the country. We partner with public sector power sector distribution companies to improve their operations, reduce losses, and ultimately make sure that consumers have a more reliable power supply”,** said Michael Dodman, U.S. Consul General in Karachi

**(Pictured Above) Minimizing Unscheduled Load Shedding at HESCO:** Unplanned load shedding is one of the leading irritants in the country’s power crisis, which cost Pakistan an estimated 2% of its Gross Domestic Product and 400,000 jobs in 2012. Load-shedding is a consequence of the imbalance between electricity generation and demand, and only increased generation will eliminate load shedding completely. Unscheduled load shedding, however, is the result of a lack of reliable real-time energy consumption data and can be reduced by improved monitoring systems, such as the one inaugurated at HESCO.

# SECTION 4: COMPONENT 3 TASKS

## TASK 1: COMMERCIALIZATION OF DISCOS

Task 1 provides a two-pronged approach to commercializing DISCOs by focusing on improving performance of two Turnaround DISCOs, PESCO and MEPCO. As the MEPCO turnaround activity was only authorized to move forward in December of this quarter, this report focuses only on PESCO with initiatives resulting in significant loss reduction and performance improvement to demonstrate how poorly-performing DISCOs can be improved.

### HIGHLIGHTS

- **Improving Financial Performance at PESCO** – The success of PDP’s initiatives will ultimately be reflected in the DISCO’s financial statements as revenue improvements or a reduction in operating costs. In turn, the financial position bottom line would be improved by either reducing net loss or increasing net income. In an effort to develop a methodology to objectively measure PDP’s contribution to the improvement of PESCO’s financial position a review and analysis of PESCO’s audited financial statements was performed. The years analyzed included fiscal year ending June 30th, 2012 (FY 2011-12) and June 30th, 2013 (FY 2012-13). After a review and consideration of various approaches, the average revenue per kwh sold approach was determined to be the best indicator since ultimately a majority of PDP’s improvements would flow through revenue. The approach is calculated by taking Total Sales of Electricity and dividing it by Total kWh Sold. It is important to note that Total Sales of Electricity must factor out the effects of GOP subsidy, tariff rate increases or decreases and such other anomalies which may distort the data.

It has been confirmed that PESCO’s financial condition improved by \$163.5 million between FY 2012-13 over FY 2011-12. Of this, \$72.4 million can be attributed to PDP-led and inspired activities such as the theft reduction program, the Load Data Improvement project, the internal audit project and others. It would be fair to say that PDP’s efforts contributed significantly either directly or indirectly to the majority of this revenue improvement. This is roughly 44% of the overall \$163.5 million improvement in performance realized by PESCO.

- **Improving Engineering Projects in PESCO** – The selection of PESCO as PDP’s first turnaround DISCO was followed by detailed planning of engineering projects focused on improving the DISCO’s performance in terms of losses and theft. For this purpose, the Peshawar Circle was selected with 500,000 customers divided into 29 subdivisions. In 18 of these subdivisions, losses exceeded 15 million kilowatt-hour (kWh) annually. PDP is focusing

on improving the performance of these subdivisions. PDP's project to upgrade congested areas using inter-set transformers and insulated LT conductors will help reduce losses and improve revenues in these areas. To demonstrate improvement in congested areas, reduce technical losses and improve customer service, PDP provided 30 Complete Self-Protected (CSP) 45 Kilo Volt Amperes (KVA) transformers and insulated secondary conductors for the Peshawar Circle, with an additional 47 transformers in the pipeline. Site selections using the GIS mapping database led to the identification of locations most suitable for the installation of these transformers; sites where the installation of the 45 KVA transformers would reduce the extra load resulting from overloaded distribution transformers in congested areas and lengthy LT lines, thus resulting in significant decreases in power losses and voltage drops, and improving revenue and customer satisfaction. This quarter, PDP assisted PESCO in developing 20 technical proposals for the installation in the pre-selected Kohat Road subdivision using USAID-provided P&E engineering tools. Implementation of the first seven proposals will save 383,000 kWh annually.

- **Modern HR Concepts and Practices at Peshawar Electric Supply Company** – This quarter, PDP conducted two orientation sessions for PESCO's senior management and its HR Department on the importance of change management in the development of any organization, along with the role of the HR Department in the implementation of change management initiatives.

- **Enterprise Resource Planning Rollout at Peshawar Electric Supply Company** – As part of PDP's ERP and CIS implementation, PDP's ERP Project Management firm was deployed and work began last quarter. A PESCO Steering Committee was established this quarter and functional core and coordination teams were formed, with the selection of the ERP implementation vendor in its final stages. Senior management from PDP regularly meets with PESCO senior management to provide updates on the project.



**Participants of the HR & Change Management Training at PESCO Headquarters**

- **Customer Information System and Business Process Improvement at Peshawar Electric Supply Company** – The CIS is a fully automated system that aims to increase the efficiency of the billing collections process including setting up new connections and managing existing ones. The computerized system will revolutionize the way DISCOs conduct their business by reducing operating costs, improving customer services and enhancing employee efficiency. It will also help minimize the time it takes to translate customer energy consumption into billing

statements and billing statements into revenue while dramatically reducing paperwork. This quarter, PDP technically evaluated proposals received through open competitive bidding. Shortlisted bidders formally presented their proposed solutions and methodologies to PDP's evaluation committee and the final bidders were asked to submit their best offers which will be evaluated in January 2014. Also this quarter, PDP continued preparatory work for CIS and completed mapping of "as-is" commercial procedures for improved business processes at PESCO. These procedures facilitate the initial CIS foundation work and will greatly assist in designing the subsequent process model for the DISCO.

- **Protection and Enforcement Cells Established for Enhancing Revenue** – This quarter as part of its Revenue Enhancement Program PDP established a Protection Cell and Enforcement Cell to reduce theft through the use of specialist tools and technical assistance, and monitoring commercial management for performance improvement, respectively. Under its Protection Cell, PDP developed a first responder guide to streamline the process of identifying and processing direct hook cases. This quarter, PDP detected 77,000 units valued at Rs. 0.9 million. October's losses were brought down to 7% against 30% during the same period in 2012; November's losses were down to 5.3% against 30%, with December's down to 10% against last year. Under its Enforcement Cell, PDP developed monitoring and reporting processes for the "meter reading", "running defaulters" and "meter change" processes which resulted in a substantial reduction of fault reading complaints, timely replacements of faulty meters and the charging of over 40,000 units worth Rs.500,000.
- **Commercial Activities Continue in Peshawar Electric Supply Company** – This quarter, PDP successfully completed the documentation and back-office work for 1,650 meters replaced by PDP field staff at PESCO's Gulberg subdivision. The Meter Change Order (MCO) forms for these meters were prepared and sent to the Revenue Office for additional processing. Additionally, the process baseline activity continued this quarter – this activity will help establish baselines which will be compared against the results of future interventions while also identifying areas for improvement. Thus far, PDP has successfully completed surveys at Peshawar Cantt, Peshawar City, Peshawar City Rural and Peshawar Cantt Rural divisions. Data analysis reflects that both meter reading and customer service processes need major improvements.
- **Meter Replacement Work at Gulberg Subdivision** – PDP continued meter replacement work at Gulberg subdivision through PESCO's own lineman that have been re-trained and equipped by PDP. Till now around 2000 meters have been installed along with 1000 meters of anti-theft cable.
- **Effective Load Shedding Through Use of the LDI System** – PESCO has started to utilize data provided through the LDI program to more heavily load shed those feeders with high AT&C losses. As a result, approximately 80 feeders with very high payment and low AT&C

losses are not being load shed at all, whereas 100 of the highest loss feeders are load shed for more than twelve hours per day. As a result of this strategy, PESCO is able to convert more of its power allocation into real revenue.

## **TASK 2: ENERGY CONSERVATION & DEMAND SIDE MANAGEMENT**

Pakistan is currently facing the worst power crisis in its history. The country's current power supply falls significantly short of the estimated demand from consumers year-round. The capacity shortfall has resulted in 10-12 hours of load shedding in metropolitan cities such as Lahore, and as much as 16-20 hours of load shedding in rural areas. In the face of such challenges, energy efficiency and DSM can contribute significant benefits and in many cases in the shortest possible timeframe. 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.



**18.5 KW Tubewell Motors for Replacement at Ittehad Chemicals Limited, One of Pakistan's Largest Chemical Producing Companies**

### **HIGHLIGHTS**

- **Demand Side Management of Industrial Motors** – The Industrial DSM Program focuses on the replacement of inefficient motors and VSDs. Industrial motors are estimated to contribute between 60-80% of industrial electricity consumption in most Pakistani industrial sectors. Thus far, PDP has installed 796 industrial motors while orders for the replacement of an additional 642 Variable Frequency Drive motors are in process.

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

This task covers two activities: 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 incurred by a utility 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

- **Cost of Service Model Customized Continues for Four Power Distribution Companies –** Work continued this quarter on the Cost of Service studies for the first set of four DISCOs (FESCO, GEPCO, LESCO and MEPCO) where the model is being tailored for each DISCO. Work is currently underway to finalize these models after which the organizations will be assisted in the preparation of their tariff petitions based on the results, which will be submitted to NEPRA in June 2014.
- **Cost of Service Study Begins for Four Power Distribution Companies –** After the successful completion of IESCO's Cost of Service Study and incorporating its results in the tariff petition filed with NEPRA, this quarter PDP began working on a similar level with HESCO, PESCO, QESCO and Sukkur Electric Power Company (SEPCO). Data templates have been distributed and data is being collected based on these templates. Upon completion, their results will be utilized in the preparation of tariff petitions.
- **Identifying Underbilling in Power Distribution Companies Results in Massive Savings –** During the Cost of Service Study analysis, PDP discovered that all DISCO were under-billing select customer groups through the use of incorrect billing formulae. Time of Use consumers paying a fixed rate were being billed based on the determination of average demand, in place of NEPRA's determined tariffs for maximum demand, resulting in lower consumer bills and less revenue for DISCOs. This was being instituted for both commercial and industrial consumers who are billed based on both consumption and maximum demand. This practice resulted in over \$47 million in losses and has been a part of the current system for well over a decade, and would have gone unnoticed for longer until PDP's discovery. Subsequently, NEPRA after reviewing the evidence and supporting documentation supplied, concurred with PDP's findings and issued notices to DISCOs indicating the practice as being in violation of NEPRA's tariff protocols. The reversal of this practice is expected in the next quarter, resulting in a positive impact on DISCO revenues.
- **Reevaluating Organizational Assessment and Restructuring at NEPRA –** Currently, NEPRA's organizational structure is non-competitive and non-growth oriented leading to low staff retention and resulting in limited skills and low employee morale. The absence of a mechanism for individual assessment and growth with a perpetually readjusting organizational chart has resulted in significant employee satisfaction, adversely affecting employee satisfaction. This quarter, PDP completed and presented an "As-Is" report to NEPRA detailing the current state of affairs and functions at NEPRA with recommendations for corrective measures. PDP also developed new organizational structure models and is working to improve NEPRA's performance management system while building toward the provision of a fully modern IT-enabled working environment.

- **Continuing Reforms Agenda at NEPRA** – As part of continued interaction with NEPRA, PDP held a joint conference with NEPRA on December 11-12 on “Power Market Structure and Distribution Franchise”. The conference was attended by over 50 participants representing all tiers of the power sector including representatives from NEPRA, MWP, the GENCOs, IPPs, DISCOs, and KESC. The conference was inaugurated by Vice Chairman NEPRA and was also attended by former members of NEPRA Authority. The conference was an important stepping stone towards developing a road map reforming the overall power sector. Recommendations coming out of the conference have been shared with NEPRA and a final report is under preparation.

## 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 by tubewell pumps accounts for 15% 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 required 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 Installation at PESCO

### HIGHLIGHTS

- **Capacitor Installation at Peshawar Electric Supply Company** – The PESCO capacitor installation program for installing 9,000 capacitors was awarded to Mansha Brothers Consulting last quarter and is now successfully progressing with over 2,000 capacitors installed at PESCO. Meanwhile the QESCO program which aims to install 16,000 capacitors over the life of the project successfully installed over 8,000 capacitors. This quarter, PDP installed 6,490 LT capacitors. 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 air conditioner motors and other appliances being added causing poor power factor on many feeders with lost revenue, low voltage and customer dissatisfaction.

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

## HIGHLIGHTS

- **Area Planning Using Geographical Information Systems**

– The distribution network has undergone tremendous growth in the last year. This growth was not governed by effective planning, resulting in a maze of feeders essentially serving the same area. GIS provides a vision of ground realities and conditions to planners, enabling them to properly manage the load of feeders and transformers. The SynerGEE software simulates the conditions and allows planners to test different network arrangements prior to field work. This quarter, LESCO completed mapping of its Qartaba grid and successfully performed a small area planning exercise and, after load flow analysis of the grid, the Fateh Sher Road feeder was discovered as being overloaded – the GIS data was then investigated to determine adjacent feeders that could share its load.



**Area Planning Using GIS and SynerGEE**

## 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 is working on priority to provide DISCOs with the capability to reduce unscheduled load shedding through the installation of AMR meters at grid substations of all nine DISCOs. This quarter, PDP installed 8,650 AMR meters in all DISCO grid substations. These meters provide each DISCO Power Distribution Center (PDC) and the National Power Control Center (NPCC) with near real-time data on current loads which allow both organizations to make quick adjustments to load management problems, and has successfully helped eliminate unscheduled i.e. forced load shedding. This quarter, PDP successfully equipped HESCO's PDC with live monitoring of the real-time supply and demand of power by the DISCO, which will allow the organization to, for the first time, effectively control the distribution of power, without subjecting the system to unscheduled load shedding. For the first time in the history of the DISCO, real-time MWs are being received from the national grid and being displayed on the live data screens installed at HESCO's PDC. This information is being used by the distribution company for load management and planning activities, and will help in controlling and reducing unscheduled load shedding in the region.



**Delegates Being Briefed About the Functioning of the HESCO PDC Center**

- **Outage Reduction Devices Project** – The reliability of electric power distribution systems is critically important for both DISCOs and the consumers they serve. Due to the current lack of sectionalizing devices in the distribution systems of DISCOs, consumers not in the vicinity of faults are also affected during power outages. This quarter, PDP began installing the outage reduction devices (ORDs) purchased last quarter, at FESCO, LESCO and GEPCO with installations at PESCO, IESCO, MEPCO and HESCO to begin in January 2014. ORDs include switches, fuses, fault indicators and low voltage protection switches. Due to the current lack of sectionalizing devices in DISCOs, consumers not in the vicinity of faults are also affected during power outages. In a related activity, PDP held a two-day workshop for the planning engineers of seven DISCOs – “Developing Proposals for the Outage Reduction Devices Program” – which focused on developing proposals for the proper utilization of ORDs through the application of PDP-provided tools.
- **Instituting an IT-Friendly Environment at the Ministry of Water and Power** – As part of PDP's assistance to the power sector in improving overall performance and reducing losses,

PDP is working to expand the existing Information Technology (IT) infrastructure at the MWP. This intervention will significantly improve MWP's workflow, efficiency in processing cases, and the quality and speed of its interactions with affiliate or subsidiary organizations. This system was designed to serve as a building block for the MWP's Management Information Systems Department which will handle both internal and external communication, administrative processes, records and archives. Because MWP plays a key role in implementing power sector reform, its improved efficiency will also benefit reforms. Following on from last quarter's implementation of PDP's state-of-the-art video conferencing solution to eliminate travel and other operational costs for communication between power sector players, PDP this quarter equipped three of MWP's four wings with the latest desktop machines and related software. MWP staff members were also provided training on the Windows 7 operating system, IT resource sharing over the network, IT security guidelines and best practices.

- **Creating an Independent Central Power Purchasing Agency** – PDP is assisting MWP in the re-creation and operationalization of the Central Power Purchasing Agency (CPPA) as an independent company that will act as an agent between generators and distributors. The new entity, now called “CPPA Guarantee Limited”, has been created and first meeting of new BOD was held on December 30, 2013 in which BOD has recommended the changes required in the CPPA's memorandum and articles of association which was prepared by PDP. The same changes were also approved by members of CPPA Guarantee Limited in its extraordinary general meeting held on December 31, 2013. PDP advisors are also assisting MWP and the CPPA Guarantee Limited to develop a roadmap to fully operationalize the CPPA, including the drafting of job descriptions and assisting in advertising for hiring a CEO, Company Secretary and CFO. In addition PDP developed for adoption of CPPA Guarantee Limited's internal governance policies.
  
- **Institutional Development for the Ministry of Water and Power**
  - **Preparation of five year Integrated Generation, Transmission and Distribution Plan Leading Towards Development of Multi-Year Tariff** – In order to position Pakistan's power sector for sustainable growth and the eventual development and adoption of individual multi-year tariffs for the distribution companies, PDP advisors are assisting MWP in development of Five-Year Integrated Generation, Transmission and Distribution Plan and accordingly also working with working groups of NTDC and DISCOs on behalf of MWP for timely completion of the task. It is also highlighted that this plan will be used as base for multi-year tariff application submission by DISCOs to NEPRA.
  
  - **Formulation of National Electric Safety Codes (NESC)** – PDP is assisting with the formulation and development of the national electric safety codes in collaboration with the Pakistan Engineering Council (PEC), a statutory body under the constitution of

Pakistan, in order to implement safe working practices in the power sector as well as at the communication companies of Pakistan, whether privately or governmentally owned. The purpose for developing these codes is to minimize accidents that occur during working hours and are due to failed safety equipment. These failures caused the loss of 200 lives in one year. The limits of the codes are from boundary of the generator to the boundary of the end consumers.



**“To date, this program has replaced over 30,000 meters nationwide. Not only are meters being replaced, they are also being adjusted to readable heights for meter readers. This is a small yet powerful intervention,”** said John Pullinger, PDP’s Field Operations Director

**(Pictured Above) Improving PESCO’s Commercial Viability** – The Power Distribution Program has to date successfully replaced 11,137 meters in PESCO. PDP is replacing all electro-mechanical meters with electro-static ones and existing meters are being reinstalled. The purpose of this intervention is to improve PESCO’s commercial viability by reducing theft and improving the accuracy of energy billed to consumers, eliminating overbilling and under-billing in the process. By replacing these meters, the possibility of meter tampering is significantly reduced, leading to a reduction in losses and improvement in PESCO’s profitability. Relatedly, PDP has replaced 20,382 meters in LESCO and 8,610 meters in FESCO.



## SECTION 5: EVENTS

### PROMOTING A SAFETY CULTURE IN PESCO

#### ENHANCING MOBILITY OF PESCO STAFF:

A fleet of 100 vehicles was handed over to the PESCO CEO in a ceremony held at PDP's Islamabad offices. The fleet comprises of 30 Suzuki pickups and 70 purpose-built tri-wheelers. All the vehicles are equipped with necessary linemen safety gear and equipment to carry out field work.

#### MESSAGE DELIVERED:

These new items will improve the supply and reliability of electricity by helping PESCO linemen do their job more efficiently and effectively. Additionally, these vehicles were painted in the distinctive Burnt Orange to generate consumer confidence In PESCO's customer care services, enhance linemen's esteem in their profession and instill a sense of ownership in both the vehicles and the equipment they carry.



## **U.S. CONSUL GENERAL INAUGURATES HESCO POWER DISTRIBUTION CENTER**

### **FACILITATING LOAD DATA IMPROVEMENT:**

In a high-profile event covered by both print and electronic media, U.S. Consul General Michael Dodman inaugurated the HESCO PDC as part of PDP's LDI program. This program has received prominent interest from both the USG and the GOP which included it in its National Energy Policy.

### **MESSAGE DELIVERED:**

With live monitoring screens presenting continuous actual data load from all HESCO's grid stations and feeders, it allows the DISCO's PDC operators to, for the first time, have an immediate display of real-time actual load data and feeder load shedding status of the utility's system. This information will enable HESCO to monitor its planned load shedding to stay within its allocation quota set by the NPCC and avoid the need for unscheduled load shedding.

# APPENDIX A: TABULAR PERFORMANCE RESULTS

Indicator	Unit	Start of Project to End of Previous Quarter	Current Quarter (Oct-Dec 2013)	Start of Project to End of Current Quarter
<b>Power and Energy Saving</b>				
MW of power saved by installing high tension/ low tension capacitors, meters and improving commercial procedures	MW	97.4	12.4	109.8
Gigawatt hours of energy made available by installing high tension / low tension capacitors, meters and improving commercial procedures	GWh	435.1	48.1	483.2
Revenue saved by installing high tension / low tension capacitors, meters, improving commercial procedures and internal audit co-sourcing	\$ million	44.3	74.9	119.2
<b>Beneficiaries</b>				
Number of beneficiaries receiving improved energy services by installing high tension / low tension capacitors, meters and improving commercial procedures	No.	1,461,450	186,000	1,647,450
<b>Capacitors</b>				
Number of capacitors installed on tubewell pumps	No.	9,488	6,490	15,978

Indicator	Unit	Start of Project to End of Previous Quarter	Current Quarter (Oct-Dec 2013)	Start of Project to End of Current Quarter
<b>Pumps &amp; Motors</b>				
Number of pumps installed in municipalities	No.	179	31	210
Number of motors installed	No.	644	152	796
Number of variable speed drives (VSDs) on motors	No.	397	44	441
<b>Load Data Improvement (LDI)</b>				
Out of the target of 9,045 meters, number of Automatic Meter Readers (AMR) meters installed	No.	8,593	60	8,653
<b>Meter Installation</b>				
Number of new meters installed through CPOP	No.	9,682	0	9,682
Number of meters re-fixed with new service drops and proper fixing brackets through meter replacement activity	No.	14,000	110	14,110
Number of new meters installed through meter replacement activity	No.	28,039	2,366	30,405
Total new meters installed and re-fixed through CPOP and meter replacement activity	No.	51,721	2,476	54,197
Percent reduction in complaints	%	76%	76%	76%

Indicator	Unit	Start of Project to End of Previous Quarter	Current Quarter (Oct-Dec 2013)	Start of Project to End of Current Quarter
<b>Census</b>				
Number of consumers enumerated	No.	48,528	0	48,528
Number of theft cases observed through census	No.	1,099	0	1,099
Wrong tariff cases identified through census	No.	146	0	146
<b>Lineman Training</b>				
Number of linemen trained on proper safety techniques by PDP	No.	1,575	724	2,299
Number of linemen trained on proper safety techniques by DISCO through PDP's trained trainers	No.	8,727	780	9,507
Percent reduction in fatal accidents (maximum in a month)	%	71%	-	71%
Percent reduction in non-fatal accidents (maximum in a month)	%	66%	-	66%
<b>Functional Training</b>				
Number of DISCO staff trained in various functional areas like Finance, Human Resources, Technical, Commercial, Communications etc.	No.	25,652	990	26,642
<b>Governance</b>				
Number of policies analyzed and issued	No.	17	6	23

**USAID Power Distribution Program**

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

**Islamabad, Pakistan**