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# USAID POWER DISTRIBUTION PROGRAM

FISCAL YEAR 2015 WORK PLAN

March 2015 (Revised)

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FISCAL YEAR 2015 WORK PLAN  
March 2015

IRG, USAID contractor for the Power Distribution Program  
House 23, Street 19, Sector F-6/2  
Islamabad, Pakistan

**DISCLAIMER**

The author's views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States Government

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## ACRONYMS

ABC – Aerial Bundled Cable

AMR – Automatic Meter Reading

AT&C – Aggregate Technical and Commercial (losses)

BOD – Board of Directors

CDA – Capital Development Authority

CFL – Compact Florescent Lamps

CIS – Customer Information System

CONDUCTOR – Correct term for electricity “cable” that comprises more than one wire grouped/bundled together, are insulated, and which carry power/current. “Cable” is strictly a single non-insulated bare wire, which may or may not carry current (e.g. a supporting cable, a neutral cable)

COS – Cost of Service

CPPA – Central Power Purchasing Agency

CPPAG – Central Power Purchasing Agency Guarantee Limited

CSP – Completely Self Protected (transformer)

DISCO – Power Distribution Company

DSM – Demand Side Management

DQA – Data Quality Assessment

EE – Energy Efficiency

ELR – Energy Loss Reduction

EMMP – Environmental Monitoring and Mitigation Plan

EOI – Expression of Interest

ERP – Enterprise Resource Planning

ERRA – Energy Regulatory Regional Association

ESA – Electricity Supply Agreements

FY – Fiscal Year

GET – Gender Equity Trainings

GIS – Geographic Information System

GOP – Government of Pakistan

GPRS – General Packet Radio Service

GSM – Global System for Mobile Communication

HHU – Hand Held Unit

HR – Human Resources

HRIS – Human Resource Information System

HRM – Human Resource Management

HT – High Tension (11 kV)

ICO – Integrated Commercial Office

IEC - Informational and Educational Communication  
IEE – Initial Environmental Examination  
IMR – Improved Meter Reading  
IRG – International Resources Group  
IVR – Interactive Voice Response  
JD – Job Description  
K-Electric – Karachi Electric  
KPI – Key Performance Indicator  
KPK – Khyber Pakhtunkhwa Province  
kV – Kilo Volt  
kW – Kilowatt  
kWh – Kilowatt hour  
LDI – Load Data Improvement  
LT – Low Tension (400/230 V)  
M&E – Monitoring and Evaluation  
M&T – Metering and Testing  
MEPCO – Multan Electric Power Company  
MVAR – Mega Volt Ampere Reactive  
MW – Megawatt  
MWP – Ministry of Water and Power  
MYT – Multi-Year Tariff  
NEPRA – National Electric Power Regulatory Authority  
NPCC – National Power Control Center  
NTDC – National Transmission and Dispatch Company  
ORD – Outage Reduction Device  
PC – Privatization Commission  
P&E – Planning and Engineering  
PO – Purchase Order  
PDC – Power Distribution Control Center  
PDD – Project Design Document  
PDP – Power Distribution Program of USAID  
PESCO – Peshawar Electric Supply Company  
PEPCO – Pakistan Electric Power Company  
PITC – Power Information Technology Company  
PMO – PDP’s Program Management Office  
PMP – Performance Management Plan  
PMS – Performance Management System

PMU – Project Management Unit  
PQM – Power Quality Monitoring  
PR – Public Relations  
RF – Radio Frequency  
RFP – Request for Proposal  
RFQ – Request for Quotation  
RTC – Regional Training Center  
SECP – Security and Exchange Commission of Pakistan  
TOU – Time of Use  
TOR – Terms of Reference  
USAID – United States Agency for International Development  
USAID RF – USAID Result Framework  
USG – United States Government  
VSD – Variable Speed Drive  
VVO – Volt VAR Optimization  
WIL – Women in Leadership

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## Section 1: Executive Summary

Pakistan's power sector is beset by significant challenges including a limited reliable and affordable power supply, alarming and unsustainable subsidies, and an aging and inadequate generation, transmission and distribution infrastructure. The power sector suffers from inefficient governance and inadequate expansion planning, and its utility operational policies and practices lag significantly behind those of modern utilities elsewhere in the world. Almost all power sector entities are owned and operated by the Government of Pakistan (GOP), widely believed to be one of the main drivers to inefficiency. The result of these inefficiencies has created a crisis situation, with violent protests across cities leading to significant property damage, breakdown of law and order, and, in some cases, fatalities. The power crisis has had a significant ripple effect across the economy, with decreasing industrial output and business investments and stalled infrastructure and electricity access programs.

The United States Agency for International Development's (USAID's) response to Pakistan's energy crisis was to launch the Power Distribution Program (PDP). PDP, a five-year technical advisory and materials procurement project launched in September 2010, was designed to facilitate improvements in government-owned electric power distribution utilities across Pakistan through interventions and projects addressing governance issues, reducing technical and administrative losses, and increasing revenues. PDP will continue to support local counterparts and implement these interventions and projects until September 2015.

As minimum infrastructure investment requirements in the distribution system<sup>1</sup> have been estimated to exceed \$2.2 billion, PDP's approach includes transferring 'know-how' in all key areas of utility operation (commercial operations, finance and accounting, engineering, communications, training and capacity building etc.) while working at the federal level to improve the policy environment in which distribution companies (DISCOs) operate. PDP is leveraging its limited funding with DISCO resources to finance and deliver high-impact and essential activities that DISCOs can then replicate and expand using solely their own funding.

PDP's Fiscal Year (FY) 2015 Work Plan provides a detailed description of the activities that will be completed between October 1, 2014 and September 15, 2015. Activities range from policy reform efforts at the federal level to workforce training for DISCO linemen. Major activities in the FY 2015 Work Plan focus on 1) continued delivery of turnaround support at the Peshawar Electric Supply Company (PESCO), 2) initiating delivery of turnaround support at the Multan Electric Power Company (MEPCO), 3) policy reform efforts with various GOP stakeholders, and 4) assistance in facilitating the privatization of various GOP-owned DISCOs.

FY 2015 activities also include a number of cross-cutting interventions including a gender strategy, an internship program, training and capacity building and a DISCO communications program; all designed to increase the sustainability of the interventions being implemented. The Work Plan provides a detailed description of supporting project management activities including PDP's Engagement Strategy, Sustainability Strategy, Program Management Office (PMO), Program Schedule (Annex-1), Task Summary Matrix (Annex-2), Risk Matrix (Annex-3), FY 2015 Results Table (Annex - 4.1), mapping of Work Plan activities with USAID Result Framework (USAID RF) (Annex - 4.2) and Data Collection Methods (Annex - 4.3). These

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<sup>1</sup> This estimate is for government-owned DISCOs alone and does not include the privately owned Karachi Electric (K-Electric) and is based on the assessment made during audits of the DISCOs by PDP in 2010-11

project management activities will support the execution of the improvement initiatives; thus, increasing the likelihood for success of the overall program.

The program will continue the implementation of its planned activities at full pace until July 2015 after which the program activities will be ramping down. The close-out of some of the activities will begin before July 2015, but during July to September 2015, most of the physical activities will be closed-out followed by the demobilization of project staff. All stakeholders – particularly the GOP, DISCOs, their staff, and customers – are poised for major reform. Through successfully delivering program activities to date, PDP has established itself as a trusted advisor with a proven track record for delivering real change. Building on this foundation of success, PDPs FY 2015 activities will continue to deliver tangible results leading towards reforming the country's power sector.

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## Section 2: Tasks Narratives

The FY 2015 Work Plan addresses the delivery of the following six tasks as noted in the contract between International Resources Group (IRG) and USAID. These include:

- **Task 1-A:** Reforms in Turnaround Distribution Companies
- **Task 1-B:** Technical Assistance for the Transition of Selected Distribution Companies from Public Management to Private Management
- **Task 2:** Energy Conservation and Demand Side Management
- **Task 3:** Cost Reflective Tariffs and NEPRA Reform
- **Task 4:** Capacitors at Tubewells for Power Factor Improvement and Loss Reduction
- **Task 5:** Feeder Optimization for Loss Reduction
- **Task 6:** Expansion of High Impact Opportunities and Improved Governance

Task 1 has two parts. Task 1-A focuses on improving two Turnaround DISCOs with initiatives which will result in enhanced revenue generation, significant loss reduction and overall performance improvement to demonstrate how DISCOs' operations can be improved. Task 1-B focuses on providing technical assistance to the Government of Pakistan (GOP) in achieving its goal of privatization of the government owned DISCOs. PDP will work for transition of these distribution companies both at the national level and at the distribution company level.

Other tasks include Energy Conservation and Demand Side Management (Task 2), Cost Reflective Tariffs and National Electric Power Regulatory Authority (NEPRA) Reform (Task 3), Capacitors at Tubewells for Power Factor Improvement and Loss Reduction (Task 4), Feeder Optimization for Loss Reduction (Task 5) and High Impact Projects (Task 6). Under Task 6, high impact projects include some projects that were initiated under Component 2 such as governance, communications and outreach and lineman training programs which will continue in FY 2015 and will be expanded to benefit DISCOs. All tasks include an element of training and capacity building for sustainability and process improvement.

### Task 1-A: Reforms in Turnaround Distribution Companies

Task 1-A comprises the following two sub-tasks:

- Task 1.A.i: Turnaround DISCO – PESCO
- Task 1.A.ii: Turnaround DISCO – MEPCO

The following narrative describes the initiatives planned as an integral part of the Turnaround DISCOs activities:

#### Task 1.A.i: Turnaround DISCO - PESCO

PESCO was selected as a PDP Turnaround DISCO in July 2012. With Aggregate Technical and Commercial (AT&C) losses at 47.4% in FY 2011-12, PESCO as a company lost almost a half a billion dollars in technical and non-technical losses. Starting from August 2012, PDP fielded embedded advisors at the DISCO and have worked closely with the Board of Directors (BOD), senior management and staff to ensure successful

implementation of the PDP interventions. In FY 2015, PDP will continue to modernize policies, processes, and procedures and provide modern infrastructure that will allow PESCO to improve commercial, technical, and financial performance.

This sub-task covers the following activities:

- **Activity 1:** Wide-Scale Electronic Metering and Reconductoring Program
- **Activity 2:** Automatic Meter Reading (AMRs) Meters on High-End Bulk, Industrial and Commercial Customers
- **Activity 3:** Revenue Enhancement through Theft Control and Procedure Enforcement
- **Activity 4:** Communications and Outreach – Corporate Communications and Public Awareness
- **Activity 5:** Implement Enterprise Resource Planning and Customers Information System
- **Activity 6:** Preparing a Strategic Business Plan
- **Activity 7:** Organizational Restructuring, Training and Capacity Building and Change Management Initiatives

Task 1.A.i will focus on two categories of activities for PESCO: First are PESCO-wide interventions such as deployment of AMRs on high-end industrial, bulk, residential and commercial customers, wide-scale electronic metering, communication and outreach activities, organizational assessment and restructuring activity, training, implementation of Enterprise Resource Planning (ERP) and Customers Information System (CIS) and preparation of a strategic business plan. Second are those activities and projects which are implemented at high loss areas in Peshawar Circle where the security situation is more conducive to allowing PDP staff to work effectively in the field. These include the wide-scale electronic metering and reconductoring program, revenue enhancement through theft control and procedure enforcement and implementation of meter reading through hand held units in two circles, delivery of lineman tools and purpose built vehicles etc.,

### **Activity 1: Wide-Scale Electronic Metering and Reconductoring Program**

**Scope:** PESCO has an outdated metering system that depends heavily on electro-mechanical meters which are subject to manual meter reading, and are prone to tampering. PESCO lacks the management capacity and funding to effectively procure and install new meters and service drops to improve this system.

PDP will assist PESCO to carry out a large-scale meter replacement program which will include replacing electro-mechanical meters with up to 70,000 electronic meters and up to 42,000 Radio Frequency-(RF) enabled meters in mutually agreed areas in Peshawar Circle and other Circles of PESCO. In addition, PDP will work with PESCO to replace bare secondary conductor / low tension lines with insulated Aerial Bundled Cable (ABC)<sup>2</sup> and XLPE<sup>2</sup> insulated service drop with environmental protection sleeves in selected high loss areas. Installation of ABC / XLPE insulated service drop cables are primarily a safety and theft and loss

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<sup>2</sup> The ABC and XLPE Service drop cable installation program was delayed as PDP required confirmation of an extended warranty and assurance from the supplier that the material composition used in manufacturing of these cables was superior then required by the PDP technical specifications and was being used widely as an industry standard for outdoor installation. This confirmation was subsequently received.

reduction measure which prevents illegal connections and hooking in addition to offering extra load carrying capacity and protection against high temperatures. These activities will be focused on mutually agreed subdivisions with high losses but where the security situation is reasonably conducive to allow PDP and PESCO to work with minimum issue.

Installation works will be completed by a combination of DISCO-staff trained by PDP and hired subcontractors. Work will also include enumerating customers of Peshawar circle, classifying them in correct tariff codes and updating the customer information so that accurate information can be fed into the Customer Information System (CIS). This information is necessary for effective management of the meter installation program and billing.

To assist PESCO in modernizing its Metering and Testing (M&T) function, a new electronic meter testing system is also being provided, one main unit for the headquarters and field units for the circles.

**Schedule:** October 1, 2014 to September 10, 2015

PDP has been supporting PESCO on the ground since August 2012 – identifying project locations, analyzing data, and designing metering and reconductoring programs. Request for Quotations (RFQs) for a majority of the PESCO meters and associated materials were issued with the following procurement milestones already achieved.

#### **Deliverables Completed by FY 2014:**

- January 2014 – Delivery of 70,000 electronic meters
- February 2014 – Award PO for electronic meter testing systems
- January/March 2014 – Delivery of meter fixing materials for 100,000 meters (for remaining fixing material of PESCO and MEPCO a final procurement will be initiated in first quarter of FY 2015)
- January/March 2014 – Delivery of 42,000 RF-enabled meters
- March/April 2014 – Delivery of cable and accessories
- March 2014 – Award of installation contract for 40,000 electronic meters
- June 2014 – Delivery of electronic meter testing systems (for PESCO and MEPCO)
- July 2014 – Award of installation contract for 30,000 electronic and 42,000 RF meters
- July 2014 – Award of installation contract for cable
- September 2014 – Installation of around 10,000 electronic meters out of 70,000.

#### **Deliverables for FY 2015:**

- Installation of up to 42,000 RF-enabled meters
- Installation of up to 60,000 electronic meters
- Securing/replacement of service drops cables
- Installing ABC / XLPE Service Drop cable in selected PESCO areas
- Enumeration of customers (in selected Peshawar Circle areas)
- Delivery of electronic meter testing system for PESCO (laboratory test benches)

**Results:** Metering interventions targeted at high loss areas will result in a reduction in non-technical losses and will lead to forecasted improvement in revenues of up to \$3 million annually after the completion of the whole project. The losses contributed by theft are expected to be reduced by 3-10% in one year in the targeted areas after the completion of the whole project.

**Transition Plan:** The following activities will enable smooth transition:

- PESCO field staff will be involved during the installation of electronic meters, RF enabled meters and ABC cable.
- Field operation training is being imparted to PESCO staff.
- Meter readers are being trained to take readings using HHUs for the RF enabled meters
- PESCO Metering and Testing (M&T) engineers went abroad to perform Factory Acceptance Tests (FAT) for the meter testing equipment.
- To enable smooth transition, in third quarter of FY 2015, PDP will engage PESCO and MEPCO to ensure that operational and maintenance costs of all activities implemented by PDP are made part of the tariff petitions for FY 2016. This will ensure availability of funding post PDP for operations and maintenance of all interventions implemented by the Program.

## **Activity 2: AMR Meters on High-End Bulk, Industrial, Residential and Commercial Consumers**

**Scope:** PESCO has about 12,350 high-end industrial, commercial and domestic customers which are also subject to manual meter reading and the whole system is prone to lot of revenue leakage. Use of AMR metering on these customers will help reduce losses and will lead to securing PESCO's revenue from these customers.

A total of 12,607 AMR meters have been procured and are being installed on selected high-end customers. There are 6,900 direct connected / whole current AMR meters with remote connect / disconnect facility that will enhance the PESCO's capability for load management, while the remaining 5,700 are current transformer/potential transformer (CT/PT) operated AMR meters. Improvements in revenue from these customers will provide the expected returns on investment.

**Schedule:** October 1, 2014 to August 31, 2015

PDP has worked closely with PESCO to design an AMR program with GSM/GPRS communications for high end customers after analyzing all the data and other factors. RFQs for these meters were issued in February 2014. Purchase order was placed in August 2014 and AMR meter installation will begin in November / December 2014. This intervention will be completed by August 2015.

### **Deliverable Completed by FY 2014:**

- Turnkey project that includes production, supply, installation and commissioning was awarded in August 2014

**Deliverables for FY 2015:**

- Installation, testing and commissioning of up to 12,352 AMR meters for high-end customers
- About 255 AMR meters will also be provided to maintain the operational reserve supporting the sustainability objectives
- Installation of a head-end system
- Testing and commissioning of meter data communication and end-user interface software
- Establishing and commissioning of a comprehensive Advanced Metering Infrastructure (AMI)
- Impart system operation and maintenance training to PESCO staff
- Establishing an AMI cell within PESCO
- Providing microcomputers and associated hardware to all Subdivisions, Divisions, Revenue Offices and Superintending Engineer's offices to effectively operate the AMR system

**Results:** Securing PESCO's revenue from high end residential, commercial and industrial consumers will lead to forecasted improvement in revenues of up to \$5.3 million annually after one year after completion of the project.

**Transition:** The following activities will enable smooth transition:

- AMI cell will be established and the personnel will be trained in maintaining the AMI infrastructure.
- PESCO Commercial Service Directorate, Metering & Testing and field operation staff is being trained on AMR system technical operation
- PESCO field operation staff is being involved as implementation partners for the installation of AMR meters on high-end customers.
- PESCO Metering and Testing (M&T) engineers are regularly testing and accepting the AMR meters at manufacturing plant.
- Field operation and M&T personnel are officially embedded with the contractor staff to install CT/PT meters and the required committees have been formed in all of the PESCO circles.

### **Activity 3: Revenue Enhancement through Theft Control, Procedure Enforcement and HHU Meter Reading System**

- **Sub-Activity 3.1:** Protection Cell Establishment
- **Sub-Activity 3.2:** Enforcement Cell Establishment
- **Sub-Activity 3.3:** Implementation of HHU Meter Reading System

#### **Sub-Activity-3.1 and 3.2: Protection Cell and Enforcement Cell Establishment**

**Scope:** The primary challenge encountered by PESCO is high losses due to theft and poor revenue collection. AT&C losses for PESCO were 47.4% in FY 2011-12. Reduction in AT&C loss is also a high priority in the GOP's 2013 National Power Policy.

PDP has developed an integrated approach to address the problem of loss reduction and revenue protection. The critical elements of the strategy include a multi-stakeholder coordinated approach to deal with electricity theft and establishing effective commercial management mechanisms through Key Performance Indicators (KPIs) and monitoring of revenue-affecting commercial procedure. Furthermore, PDP in close collaboration with PESCO is creating an enabling environment for operations to succeed which includes seeking of legal and police support.

PDP has worked closely with PESCO management to setup up two revenue enhancement cells for Peshawar Circle. One is to be based in Peshawar City and the other in Charsadda Division of Peshawar Circle.

Both cells are to be equipped with the required staffing, vehicles and tools. The aim is to expand the operations of the cell across the entire Peshawar Circle. An electricity theft case desk is also being established at the Legal Directorate of PESCO. The desk will be managed by a legal officer. The desk will serve as both a monitoring tool and provide quality assurance services for the prosecution of theft. An electricity theft control document will also be prepared that will serve as a reference for all cases pertaining to theft of electricity. This document will have all information, forms, guidelines to handle cases pertaining to theft of electricity

**Schedule:** October 1, 2014 – August 30, 2015

#### **Deliverables Completed by FY 2014:**

- Set-up of fully staffed and equipped Revenue Protection Cells at the circle level
- Define and implement processes and procedures for the efficient operations of the revenue protection cell
- Develop a legal framework for the effective prosecution of electricity theft cases
- Develop KPI dashboards for the monitoring of key revenue affecting procedures
- Develop case trackers for theft cases
- Develop case trackers for customers with long outstanding arrears
- Provided 29 anti-theft surveillance vehicles

#### **Deliverables for FY 2015:**

- Build the capacity of relevant staff members
- Design and place KPI charts at Peshawar Circle subdivisions
- Establish Electricity Theft Case Desk at the legal directorate
- Expand operations and train staff for all divisions of Peshawar Circle
- Prepare Draft Electricity Theft Control Document

**Results:** This activity is aimed at decreasing AT&C losses through theft control, improving collections and enforcing key commercial procedures. The results for this activity are covered under Activity 1 above.

**Transition:** PESCO has already appointed a ‘Head of Revenue Protection’ for managing the cell. Training of staff across the circle is in progress and will be completed. Further, a physical cell equipped with all the required resources has been built and is operational.

### Sub-Activity 3.3 Implementation of HHU Meter Reading System

**Scope:** Distribution companies experience high losses and poor collections mainly due to power theft and ineffective billing and collections practices, resulting in payment imbalance. Meter reading manipulations contribute significantly to improper billings and lead to customer distrust and a lack of willingness to pay. The use of outdated manual procedures allows these errors to continue.

A number of important and compelling changes must occur to enable PESCO to achieve performance levels in line with standards set by modern, efficient and effective electric distribution utilities.

Meter read data integrity is fundamental to sustainable utility operations. This ensures that energy sold is accounted for properly and establishes trust between the customer and the utility.

The PDP-designed hand held unit (HHU) meter reading projects under Component 2 helped improve the efficiency of meter reading and discrepancy identification process and to reduce the opportunities for data manipulation. The project successfully implemented Improved Meter Reading (IMR) and used HHUs at several DISCOs and showed excellent results through reduction in losses, increase in revenue and decrease in customers’ complaints.

HHU project initially designed for implementation in Peshawar Circle is being expanded to another Circle<sup>3</sup>. PESCO requested to expand it to the whole company but due to the constraint of time and budget, it is being confined to two circles only. PDP will provide the required hardware and training and implement the project in this additional circle as well.

The project involves changes to current meter reading procedures and practices and setting KPIs for meter readers.

PDP will also upgrade all the subdivision offices of Peshawar Circle and will upgrade their one-window customer service centers. SDOs and supervisory staff will be trained in customer service excellence and change management. Subdivision face-lifting including painting will be carried out and furniture and fixtures will be provided as required. This will create a positive image of PESCO and USAID to the customers and employees and will also motivate employees for overall performance improvement of the Company. This upgrading will also provide environment for sustainability of new technology and improvements brought out by USAID PDP which include introduction of HHUs, CIS, AMR metering, lineman tools and equipment and purpose-built transport etc.

**Schedule:** October 1, 2014 – August 31, 2015

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<sup>3</sup> Based on security related challenges and how the situation develops in PESCO, PDP might have to implement part of the HHUs project outside the two selected Circles

**Deliverables Completed by FY 2014:**

- Implementation of handheld devices for meter reading at Kohat Road subdivision
- Supply of 258 HHUs, computers, printers, software and other related accessories
- Training of DISCO staff at Kohat Road Subdivision

**Deliverables for FY 2015:**

- Implementation of HHUs in subdivisions of selected Circles
- Supply of 221 HHUs
- Training of DISCO staff in remaining subdivisions
- Upgrading of subdivision offices in Peshawar Circle and provision of furniture, customer service counters etc

**Results:** It is estimated that by increasing the ability of the meter readers to accurately read every meter every month and reducing the opportunities for data manipulation/error, losses will be decreased by approximately 3% after one year of implementation of HHUs meter reading. This will also improve data integrity and contribute towards the willingness of the consumer to pay the bill. The results for this activity are covered under Activity 1 above and for Peshawar Circle, additional \$1 million revenue saving after one year of project completion at the second selected Circle.

**Transition:** PDP has already demonstrated sustainable implementation of the HHU Meter Reading System. The old paper based system is discontinued in subdivisions where this system is implemented. All staff is being trained and HHU devices are being provided. Where implementation is complete, the HHU meter reading system is being run entirely by PESCO employees without the support of PDP.

**Activity 4: Communications and Outreach – Corporate Communications and Public Awareness**

**Scope:** DISCOs' Public Relations (PR) Departments often comprise one PR Officer and two clerical staff who dedicate a majority of their time to issuing rebuttals to inaccurate media reports. Due to the lack of professional and qualified staff to handle communication components, the concept of image building and consumer awareness is lacking to the extent that not a single corporate campaign has been delivered in the last ten years. A PDP-supported Communications and Outreach Program for both PESCO and MEPCO is helping in an improved brand image of DISCOs, better customer services and better informed customers through a series of outreach campaigns.

The PDP-supported communications offices at PESCO and MEPCO will be of prime importance as they are completely engaged with the PR and Commercial Departments of both DISCOs. Key interventions for FY 2015 include planning and execution of energy efficiency and anti-theft campaigns consisting of mass media and Informational and Educational Communication (IEC) materials for dissemination to the public as well as internal communications. PDP has recently published high impact IEC materials for both internal and external communication. A well-designed anti-electricity theft campaign on mass media for PESCO and MEPCO were executed during 2013-14 that generated significant amounts of interest resulting in a positive impact on customers. PDP plans to continue similar campaigns for both PESCO and MEPCO in FY 2015.

The following Communications activities are planned for both MEPCO and PESCO:

- Corporate communication (including organizational branding, image promotion and employee motivation)
- Revamping of official DISCO websites of PESCO and MEPCO
- Media and outreach campaigns
- Radio talk shows and Public Service Messages
- Grassroots-level promotions and awareness such as community level or schools sessions

**Schedule:** October 1, 2014 – August 31, 2015

PDP started preparations for PESCO in November 2012. PESCO allocated office space, which was refurbished by mid-February 2013 and staffed with young professionals, after which the planned activities for public relations and communications kicked off through planning and development. Key interventions such as branding material, a website, and IEC materials have already been implemented and a localized media campaign was launched during Ramadan 2013 and therefore subsequent campaigns on energy conservation and anti-theft were also executed during 2014. In addition, PDP helped PESCO in the establishment of media center – first time PESCO branding in mass media improved. PDP will continue communications assistance to PESCO during FY 2015 with support in media campaigns, monthly newsletters, radio talk shows, school outreach program and general support as and when requested.

PDP started preparations for MEPCO at the end of Calendar Year 2013. PDP had already established a communications office at MEPCO under Component 2. Key interventions such as branding material, localized media and outreach campaigns, and IEC material for customer services were implemented in the first quarter of FY 2013 and were provided to MEPCO in FY2014. Activities such as corporate communications, public awareness on anti-theft and energy efficiency, corporate branding and internal campaigns of employee motivation are an essential part of the turnaround process of MEPCO and will continue into FY 2015.

#### **Deliverables Completed by FY 2014:**

- Corporate communication (including organizational branding, image promotion and employee motivation)
- Revamping of official DISCO websites of PESCO and MEPCO
- Media and outreach campaigns
- Radio talk shows
- Grassroots-level promotions and awareness such as community level / schools sessions

#### **Deliverables for FY 2015:**

- Corporate communication (including organizational branding, image promotion and employee motivation) – continues in FY 2015 such as brand revitalization using stationery, customer service centers and vehicle branding

- Revamping of official DISCO websites of PESCO and MEPCO (Official website of MEPCO was revamped but MEPCO management requested for few more functionalities which will also be completed in 2015)
- Media and outreach campaigns (Up to two media campaigns will be executed in FY2015 to educate consumers on energy conservation and anti-theft and promote DISCO's image)
- Radio talk shows and Public Service Messages (Radio talk shows at both MEPCO and PESCO will be aired while Public Service Messages for MEPCO will be aired between February and May, 2015)
- Grassroots-level promotions and awareness such as community level or schools sessions (Continues in 2015)
- Periodic newsletters and reports
- Documentaries on projects and success stories
- Supplementary reports on both Turnaround DISCOs will be produced and will be aired and published on local cable channels and newspapers respectively

**Results:** Improved DISCO's image as a dynamic and customer-friendly entity through external communications that will help both Turnaround DISCOs to smoothly implement consumer awareness campaigns and will empower the PR Department to deliver assertive communications and outreach on behalf of DISCOs. Internally motivated DISCO staff takes ownership of the above initiatives and foster a sense of pride for the companies they work for, in addition to fulfilling the overall objective of the company through well-designed behavioral change communication.

**Transition:** PDP is working with the Public Relations Department of both MEPCO and PESCO to strengthen their capacity to plan and execute communications and outreach initiatives. DISCOs' PR representatives had no experience and exposure to conduct outreach activities when PDP started its communications projects in 2013. PDP established communications offices both at MEPCO and PESCO, trained PR staff in photography, media campaign design and implementation, media monitoring and corporate newsletters. PDP communications activities will continue until August 2015 at both MEPCO and PESCO while efforts will be made to approve a dedicated budget for PR departments from MEPCO and PESCO boards for continuity of these activities.

## Activity 5: Implementation of Enterprise Resource Planning

### ERP – Financial, Material Management and Human Resource Information System

**Scope:** PESCO's legacy back-office operations are incapable of providing timely information required for management to make effective decisions or to properly monitor and control utility operations. PESCO's cost/revenue centers are dispersed geographically, adding to the delay in reporting. Furthermore, processes related to collection, validation, compilation and processing of data are inefficient. Automation of back-office operations through the delivery of an ERP system will result in streamlined processes, improved workflow efficiency, and reliable and precise financial and management information.

ERP implementation is planned in the following three modules:

- **Financials:** General ledger, accounts payable, accounts receivables, fixed assets and cash management

- **Human Resources Information System(HRIS):** Core employee data and payroll
- **Materials Management:** Inventory and procurement management

**Schedule:** October 1, 2014 – August 31, 2015

In June 2014, ERP Implementation Contractor started work at PESCO. Several trainings to master users in finance, material management and human resource have been provided. Current system evaluation (As-Is model) for all modules and the automated system (To-Be model) is being documented. System design and software configuration will start thereafter resulting in a final application for testing. After intensive testing of all the modules a final product will emerge. In parallel, IT infrastructure consisting of Local Area Network (LAN), Wide Area Network (WAN), Main Computer Servers, Data Center and PCs are to be installed and be made ready by April, 2015. Final trainings on all modules will be provided to all end users. Parallel full testing of all modules with live data and daily/weekly/monthly reconciliation will ensure all discrepancies, if any, are corrected. This exercise will continue for 3 consecutive months after which year-end books of PESCO will be closed on this system and reconciled to the manual books. By July-August, 2015 all modules will be live with actual data and manual system would discontinue.

#### **Deliverables Completed by FY2014:**

- Trainings of PESCO's core team on Finance, Material Management and HRMS were completed and a project control book was prepared
- Discovery workshops were conducted and gap analysis report was produced
- Business design documents for Finance and Material Management and HR were prepared
- Environment setup for development and configuration was completed
- Orders for IT infrastructure were placed

#### **Deliverables for FY2015:**

- System configuration for Finance, Material Management, HR and payroll will be completed
- Reports and interface development will be completed
- End user trainings will be completed
- IT infrastructure will be deployed
- Data migration will be completed followed by go-live

**Results:** Reduced cash flow cycle time, improved asset management operations and reporting, improved banking operations and reduction in labor costs associated with these operations and improved HR processes and manpower planning. The forecasted revenue savings after ERP implementation is \$2.2 million annually after one year from completion.

### **Customers Information System**

**Scope:** The operations of DISCO's in Pakistan are characterized by manual and cumbersome processes, inadequate controls, insufficient commercial focus, limited transparency and lack of reliable information. As a result, the operations are highly inefficient with substantial revenue leakages and poor customer orientation.

Integrating and automating core commercial functions like meter reading and billing and collection will minimize the human element in commercial processes and will lay the foundation for sustainable revenue cycle reforms.

CIS is the backbone of customer care and commercial operations. From customer care and metering to billing, payment, credit and collection, these applications improve the customer experience and support all aspects of billing and revenue collection. Augmented with handheld meter reading devices (HHUs), the CIS generates accurate consumer bills and provides one-window customer service center all the information a customer requires leading to improved customer experience. Part of the CIS project is a consumer census activity for the customers of the selected project area in Peshawar Circle to improve the customer database to reflect accurate field information.

Implementation has started with improvement of the consumer database by conducting a consumer census for the selected subdivisions of Peshawar Circle. This will be followed by development of an IT infrastructure and networking; integrating metering and billing processes for all categories of customers; deployment of handheld meter reading system; and concluding with CIS deployment. PDP is also going to extend the CIS billing system to rest of the five Circles of PESCO, this will give PESCO one central billing system to produce the bills for entire company.

**Schedule:** The schedule for CIS will follow the same pattern as discussed above under ERP. Both the CIS and ERP for PESCO are covered under one contract.

#### **Deliverables Completed in FY2014:**

- Initiation phase: Kick-off event, training of PESCO's core team and a project control book
- Analysis phase: Discovery workshops and gap analysis report, interfaces and reports analysis, environment setup for data migration and development, legacy file conversions and data analysis for data migration, and development of business design documents

#### **Deliverables for FY2015:**

- Assembly phase: Application configuration, reports development, interface development, unit testing, and training manual preparation
- Acceptance phase: End user testing and training
- Rollout: Final data migration and go-live
- Customer Service Centers equipped with modern tools to work with CIS

**Results:** This will result in improved operational efficiency, improved revenue flow, reduced receivables, increased accuracy of bills, reduced process cycle time, more efficient customer services and a reduction in customer's complaints.

**Transition:** A new IT organizational structure to support the implementation and operations of ERP and CIS was developed by PDP /PESCO and approved by the PESCO Board of Directors. Currently, hiring is in progress by PESCO for approved positions under the new structure. Additionally, master trainers are being

trained and developed for different project areas along with IT infrastructure for smooth operations of ERP and CIS.

## Activity 6: Strategic Business Plan for PESCO

**Scope:** This activity entails preparation of a five-year strategic business plan for PESCO. The plan will provide a roadmap including a series of transformation projects that, when implemented, will result in specific and measurable improvements. The plans will align the DISCO's own planned initiatives with PDP-supported activities to achieve the greatest impact in the shortest period of time.

PDP will assist PESCO to develop a five year business plan for the FY 2016-2020 period. The objective of the business plan is to identify what activities are important through development of strategic goals and objectives. PESCO will then align the DISCO's activities around the Strategic goals and objectives. Prior to the development of the Strategic Objectives and Goals, PESCO's senior management will need training in strategic planning. PDP will partner with a local vendor to train senior management.

The strategic goals will include the current status of goals and five year objectives for improvement. In areas needing improvement, senior management will set five-year improvement goals. As the business plan is developed, PESCO will develop action plans around the five-year improvement goals. PESCO will appoint mid-level managers as project managers to develop action plans (preliminary feasibility studies) for all five-year goals. The project managers will receive training in project management.

The senior management will select a limited number of action plans to enact as projects for implementation to achieve the strategic goals. The project manager will formally report to a meeting of senior management quarterly and more often if necessary.

### Sub-Activity 1: Development of Strategic Objectives and Goals

- Training of PESCO's senior management in strategic planning
- Workshop to develop strategic objectives and goals

### Sub-Activity 2: Preparation of Action Plans

- Training project managers in project management
- Technical assistance to PESCO's project managers in project management

### Sub-Activity 3: Preparing a Draft Business Plan

- Technical assistance will be provided in preparing a five-year business plan. The plan will provide a roadmap including a series of transformation projects (related to expansion and rehabilitation of transmission and distribution systems and other projects related to finance, commercial, communication and HR) that, when implemented, will result in specific and measurable improvements. The plan will align the DISCOs own planned initiatives with PDP-supported activities so as to achieve the greatest impact in the shortest period of time. Possibly establishing a

Strategic Business Unit structure in PESCO (one of the outcomes of the organizational restructuring initiative) will help ensure sustainability of the business planning function.

**Schedule:** October 1, 2014 – August 31, 2015

The definition on what is important (development of strategic objectives and strategic goals) will be completed by November 2014. The training of senior managers will be completed by March 2015, followed by training of project managers. Furthermore, a workshop for the Board of Directors of PESCO will also be conducted on Strategic Planning Process adopted by PDP to prepare the business plan with PESCO. Development of a draft business plan will commence in January 2015 and will be completed by June 2015.

#### **Deliverables for FY 2015:**

- Strategic Objectives/Strategic Goals 2016-2020 established
- Staff trained
- A Workshop for BOD PESCO on Strategic Planning Project Plans based on Strategic Objectives/Strategic Goals 2016-2020 codified
- The Business Plan

**Results:** Business plans, once implemented, will help PESCO achieve their long-term business goals. It will also help sustain improvements introduced by PDP.

**Transition:** The business plans are developed by PESCO with technical assistance from PDP. While preparing these plans, extensive trainings are being provided to the Senior Management and planning staff from various sections of the DISCO. These trainings are designed to enhance the skills and competence of the planners to prepare the plans on their own. Further, PDP will share an end-to-end process for preparation of the business plans with PESCO and highlight its importance to the Senior Management and Board of Directors to ensure continuation of this activity beyond September 2015. Further to ensure sustainability PDP will work with NEPRA to help them understand and endorse the business plan template to all DISCOs. The Business Plan/Distribution Investment Plan (DIP)<sup>4</sup> will then form the basis of the annual or multi-year-tariff. PDP will assist NEPRA in organizing a workshop for all DISCOs to help them understand the Business Plan/DIP template.

### **Activity 7: Organizational Assessment and Restructuring, Training and Capacity Building and Change Management Initiatives**

**Scope:** DISCOs have yet to develop a progressive corporate culture where management and staff members have well-defined job functions, management is empowered with appropriate authority, and employees accept and understand their responsibilities. The DISCOs' current organizational structures are not aligned well with current and future business requirements. Under Component 2, PDP worked closely with MEPCO to develop a new organizational structure that meets the current business requirements, clarifies reporting relationships, and helps corporatize and commercialize the DISCO's operations.

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<sup>4</sup> The term NEPRA utilizes for the plans is the Investment Plans. Therefore, Business Plan or Investment Plan is the name of the same document.

An organizational assessment and restructuring project has already been carried out at MEPCO with a number of sub-interventions, including developing and refining job descriptions (JDs) with relevant KPIs, establishing an effective performance management system, developing and putting in place a well-designed HR Management (HRM) system, and automation of the HR functions.

**Schedule:** October 1, 2014 – August 31, 2015

A service provider was mobilized in February 2014 and started working with PESCO and PDP. The future organizational structure that meets PESCO's current and future business requirements is expected to be completed by June 2015.

**Deliverables for FY 2015:** The following are the deliverables of this intervention:

### **Organizational Assessment and Restructuring**

The following are on-going interventions; proposals have been largely completed, however presentations to the Steering Committee for final feedback and its endorsement still remains. Once this is done, this will be presented to the Board of Directors for approval and implementation by PESCO.

- Revised organizational structure
- Upgrading of Safety Function
- Upgrading of Training Function
- Implementation of JDs/KPIs
- Performance based evaluation system
- HR policies manual
- Employee handbook
- Health Policy
- Recruitment Policy
- Compensation Study and Benefits Study

### **Training and Capacity Development**

- Strengthening of Training and Development function of PESCO along with an annual training calendar and implementation plan
- Board facilitation and development program
- Management development programs for senior and mid-level management focusing on leadership, service excellence, change management, etc
- Functional areas training program targeted to Peshawar Circle, in areas of:
  - Commercial
  - Finance
  - HR
  - IT/ERP

- Function-specific training for the subdivision officers and supervisory staff of the subdivisions that are planned to be up-graded. This will, among others, include customer excellence, change management training, etc
- Upgrading of Regional Training Center (RTC) and three Circle Training Centers (CTCs), one CTC at Abbottabad has already been upgraded
- Establishment of IT training lab at RTC

**Results:** A better aligned organizational structure focusing on business needs which will help improve overall performance of the company.

**Transition:** It is important to note that the set of change management initiatives, particularly introducing and implementing refined job descriptions and performance-based appraisal, will play a major role in sustaining the momentum that will be gained through these interventions. As opposed to the current practice, staff at all levels will have clear-cut responsibilities and accountabilities which are well defined and understood. While training programs, as being designed and delivered under PDP, are of significance and have a certain outreach to staff, the DISCOs will only be able to continue capacity development on their own, when it has an enabling environment. This is being provided by PDP, through the up-grading of the training centers and enhancing the training function.

### Task 1.A.ii: Turnaround MEPCO

MEPCO has been selected as PDP's second Turnaround DISCO. This decision was announced by USAID on December 20, 2013. Moving forward, PDP will modernize policies, processes and procedures and provide modern infrastructure that will allow MEPCO to improve commercial, technical and financial performance.

This sub-task covers the following activities:

- **Activity 1:** AMR Meters with Remote Disconnect / Re-connect Capability on all of the Agriculture Tubewell Customers in Multan and Vehari Circles
- **Activity 2:** AMR on High-End Residential, Agricultural, Bulk, Industrial and Commercial Customers Having Load above 20 kilowatt (kW)
- **Activity 3:** Expanding Geographic Information System (GIS) Mapping and Planning Function to Circle Level
- **Activity 4:** Launching Energy Loss Reduction (ELR) Program
- **Activity 5:** Volt VAR Optimization (VVO)
- **Activity 6:** Improving Commercial Operations
- **Activity 7:** Communications and Outreach – Corporate Communications and Public Awareness
- **Activity 8:** Implement Enterprise Resource Planning
- **Activity 9:** Preparing a Strategic Business Plan
- **Activity 10:** Change Management and Human Resource Development

Task 1.A.ii will focus on two categories of activities for the Turnaround MEPCO. First are those that focus on MEPCO-wide interventions such as deployment of AMR on 20 kW and above high-end industrial, bulk,

residential and commercial consumers, expanding GIS mapping and planning functions communication, outreach, the Material Management module of the Enterprise Resource Planning (ERP) and preparing a strategic business plan and Training Component. Second are activities that focus on Multan and Vehari Circles to make these models that the DISCOs will scale to other circles. These include AMR on tubewells connections, the ELR program, VVO, improving commercial operations, Financial and Human Resources (HR) component of the ERP implementation to the extent of provision of connectivity and peripheral devices, as the ERPs Financials and HR application modules will be configured to cover the entire company.

### **Activity 1: AMR Meters on All Agriculture Tubewell Customers in Multan and Vehari Circles**

**Scope:** MEPCO has around 13,000 tubewell customers in the Multan Circle and approximately the similar numbers of tubewells are each in Vehari Circle whose meters are currently being manually read. There is a significant loss of revenue from these customers which can be reduced by application of AMR technology which will improve accuracy of meter reading and will reduce opportunities for theft. PDP will assist MEPCO to improve their revenue in this area by focusing on installing AMR meters with remote disconnect and re-connect capability on all tubewell customers of these two selected Circles. These AMR meters will automatically transmit reads to the remote servers at predefined interval. Additionally, these meters will accept disconnection/reconnection commands by the backend system remotely as and when required. This arrangement will enable MEPCO to keep rural feeders running with a facility to switch off the tubewell customers for load shedding as required. In case of disconnection initiated by the backend system, the AMR meter will not reconnect until it receives a reconnection command. These AMR meters will have a two-way communication capability to demonstrate load management techniques. As part of the Demand Side Management techniques, these meters will also have the capability to support a minimum of two different load thresholds against different time slots (peak/off peak), which will be programmed to activate disconnection/reconnection automatically by the meter. The time between disconnection and reconnection will also be programmable. AMR meters installed on tubewell customers will have the capability to change load thresholds and associated time slots locally and remotely.

Replacement of existing meters with AMR meters on tubewell customers of Multan Circle will be carried out by an installation contractor in collaboration with MEPCO's field operations and its Metering and Testing (M&T) department. Further, MEPCO do also have approximately same number of tubewell customers Vehari Circle as are in Multan Circle, whose meters are also currently being manually read. PDP will provide AMRs for the additional selected Vehari Circle, similar to those provided for the Multan Circle's tubewell customers. The installation of these additional AMRs will be completed by August 2015.

Further, to assist MEPCO in modernizing its Metering and Testing (M&T) function, a new electronic meter testing system is being provided, one main unit for the headquarters and field units for circles.

**Schedule:** October 1, 2014 – August 31, 2015

#### **Deliverables Completed by FY 2014:**

- Turnkey project that includes production, supply, installation and commissioning was awarded in August 2014

**Deliverables for FY 2015:**

- Installation, testing and commissioning of up to 23,167 AMR meters for tubewell connections of two Circles (with up to 13,000 AMRs for Multan Circle and up to 10,167 AMRs in Vehari Circle) Installation and commissioning of the head-end system
- Installation and commissioning of meter data communication and end-user interface software
- Establishing and commissioning of a comprehensive Advanced Metering Infrastructure (AMI)
- Impart system operation and maintenance training to MEPCO Customer Service Directorate, Metering & Testing and field operation staff
- Establishing an AMI cell within MEPCO

**Results:** AMR metering intervention on tubewell connections will modernize MEPCO's meter reading and commercial management processes, and will result in considerable loss reduction and energy saving forecasted at approximately up to \$5.2 million annually after one year of completion of the project.

**Transition Plan:** The following activities will enable smooth transition:

- AMI cell will be established and the personnel will be trained in maintaining the AMI infrastructure
- Field commercial service department and M&T staff is being trained on AMR system technical operation
- Field operation staff is being involved as implementation partners for the installation of whole current AMR meters on tubewell connections and CT operated meters as well
- Metering and Testing (M&T) engineers are regularly testing and accepting the AMR meters at manufacturing plant

**Activity 2: AMR Meters on High-End Customers**

**Scope:** The activity has been designed to assist MEPCO achieve significant improvement in commercial performance through integration of advanced metering processes. MEPCO has an outdated metering system based on electro-mechanical metering subject to inaccurate manual readings and field tampering, both resulting in loss of revenue. MEPCO lacks the funding to upgrade these meters with state-of-the-art technology. Under this activity, PDP will assist MEPCO to carry out a large-scale meter replacement program across its territory, with AMR (GSM/GPRS) meters for up to 20,000 high-end residential, agricultural, commercial and industrial customers having a sanctioned load of more than 20 kW. This includes three-phase whole current AMR meters with remote disconnect and connect capability and AMR CT, CT/PT operated meters. These AMR meters will have a two-way communication capability to demonstrate load management capability. Three-phase AMR meters will accept disconnection/reconnection commands from a backend system remotely as and when required. In case of disconnection initiated by the backend system, the AMR meter will not reconnect until it receives a reconnection command. These will also have the capability to support minimum two different load thresholds against different time slots (peak/off peak) which will be programmed to activate disconnection/reconnection automatically by the meter and time between disconnection and reconnection will also be programmable.

Replacement of existing meters with AMR meters on high-end customers with 20 kW and above load will be carried out by an installation contractor in collaboration with MEPCO field operations, Metering and Testing (M&T) department and PDP.

**Schedule:** October 1, 2014 – August 31, 2015

#### **Deliverables Completed by FY 2014:**

- Turnkey project was awarded in August 2014

**Deliverables during FY 2015:** Following are the deliverables of this intervention:

- Installation of up to 16,526 AMR meters on high end customers having a sanctioned load of 20kW and above
- Installation and commissioning of the head-end system
- About 1,510 AMR meters will also be provided to maintain the operational reserve supporting the sustainability objectives
- Installation and commissioning of meter data communication and end-user interface software
- Establishing and commissioning of a comprehensive Advanced Metering Infrastructure (AMI)
- Impart system operation and maintenance training to MEPCO staff
- Establishing an AMI cell within MEPCO
- Providing microcomputers and associated hardware to all Subdivisions, Divisions, Revenue Offices and Superintending Engineer's offices to effectively operate the AMR system

**Results:** AMR metering intervention on MEPCO's high-end consumers will result in improved commercial performance, increased revenue (by modernizing MEPCO's meter reading) and commercial management processes. It will also result in considerable loss reduction and energy saving forecasted at approximately \$2 million annually after one year of completion of the project.

**Transition:** The following activities will enable smooth transition:

- AMI cell will be established and the personnel will be trained in maintaining the AMI infrastructure
- MEPCO M&T staff is being trained on AMR system technical operation
- MEPCO field operation staff is being involved as implementation partners for the installation of whole current as well as CT and CT/PT operated AMR meters on high end customers
- MEPCO's Metering and Testing (M&T) engineers are regularly testing and accepting the AMR meters at manufacturing plant

### **Activity 3: Expanding GIS Mapping and Planning Functions to All Circles of MEPCO**

**Scope:** Under this activity PDP will extend the access of geo-database to the circle level. Under Component 2, Planning and Engineering (P&E) intervention has strengthened and modernized distribution planning at the MEPCO headquarter-level through the use of modern GIS and load flow analysis tools. The P&E center developed at MEPCO headquarter is fully utilized by planning engineers to increase the overall distribution

system efficiency and curtail technical loss. MEPCO has demonstrated effectively the use of the P&E centers through creating cost-effective work plans that lower technical losses while improving system reliability. PDP's capacity building exercise has enabled MEPCO P&E to populate its geo-database on its own to support project sustainability objectives. It is essential to address issues like data entitlement, disaster recovery and data availability at this time. PDP will raise the implementation of GIS to a web-based enterprise level, addressing all these issues and implement it in MEPCO.

The following are the envisaged steps to achieve sustainable and secure implementation of GIS:

1. Establishment of a Centralized GIS Data Center to ensure data availability and access through secure authentication process. The data will be archived at regular intervals to eliminate data loss.
2. Deployment and configuration of ArcGIS enterprise server-based platform to provide centrally managed, high-performance GIS applications and services that can be accessed throughout an organization using browser-based, desktop, or mobile clients. It comes with standard, end user applications and services for spatial data management, visualization and spatial analysis. ArcGIS Server offers open access to extensive GIS capabilities that enable organizations to publish and share geographic data maps.
3. Proper P&E Centers will be established at all MEPCO's Circle offices to assist MEPCO to expand its P&E function in an integrated manner resulting in an accurate geo-database across the entire DISCO, supporting load flow analysis, segregating technical and non-technical losses and preparing an asset management database. These circle P&E centers will be provided with hardware and software and the staff will be trained. The circle centers will be able to prepare their own expansion and rehabilitation plans.
4. In collaboration with the MEPCO P&E Department, PDP will complete Multan Circle's GIS mapping and will have the distribution network analyzed to segregate technical and non-technical losses and help them initiate plans for loss reduction and expansion and rehabilitation.

**Schedule:** October 1, 2014 – August 31, 2015

#### **Deliverables Completed by FY 2014:**

- Turnkey project was awarded for supply and installation of P&E computer hardware in September 2014
- Contract was awarded for the supply and installation of ArcGIS Enterprise and SynerGEE software licenses in September 2014

#### **Deliverables for FY 2015:**

- MEPCO will establish P&E computer centers, for all Circles of MEPCO
- Commissioning of P&E hardware and software for all P&E computer centers
- Implementation of GIS Mapping and Distribution Network Planning at each circle
- Network analysis, including load flow analysis and segregation of technical and non-technical losses at each circle level
- Integration with the P&E center at MEPCO Headquarters

- Establishment of a Centralized GIS Data Center
- Trained field staff

**Results:** Accurate geo-database of actual physical distribution facilities leading to improved planning capability at each circle level. It will help them carry out feeder rehabilitation and reconductoring, network bifurcations, power factor improvements and other engineering analysis that results in cost-effective infrastructure investments, reduced technical losses and improved quality of customer service that will result into forecasted savings in revenue by \$2.4 million annually after one year of completion of the project.

**Transition:** The following activities will enable smooth transition:

- Training on GIS mapping will be imparted to subdivision field operation staff to collect the field data and submit to the Circle P&E computer center
- Class room training will be provided to MEPCO Headquarter P&E and Circle P&E engineers as how to prepare planning proposals utilizing central Geo-database
- MEPCO Circle P&E engineers will be trained on ArcGIS and SynerGEE load flow analysis
- On-Job training will be provided to Circle P&E engineers in collaboration with the MEPCO Headquarter P&E trained engineers
- On-Job support will be extended to MEPCO P&E to ensure project sustainability

#### Activity 4: Launching Energy Loss Reduction (ELR) Program

**Scope:** PDP will assist MEPCO to carry out a large-scale meter replacement program on selected feeders of Multan Circle. This will include checking and re-fixing existing meters, replacing defective or damaged meters, securing service drops, installing parallel groove/compression connectors, the replacement of existing meters with AMR (GSM/GPRS enabled) meters on high-end residential, agricultural, commercial and industrial customers and on all tubewell customers with remote connect/disconnect capability. MEPCO has agreed to provide new electronic meters to replace the defective and damaged ones while PDP will be providing service drop cable and meter fixing material. Additionally, PDP will replace bare secondary conductor with insulated ABC cable, extend insulated high tension (HT) line, install inter-set transformers and Outage Reduction Devices (ORD) to curb technical loss and improve safety conditions in the selected congested area. Installation of AMR meters will be carried out by the AMR meter contractor whereas the remaining works will be executed utilizing DISCOs' crews with supervision and monitoring support from PDP or PDP subcontractors. This may also include enumerating all of the consumers of the targeted subdivision, classifying them in correct tariff codes and updating the customer information so as the accurate information can be fed into the CIS. This information is necessary for effective management of the meters installation program.

In addition, PDP will work with MEPCO to replace bare secondary conductor / low tension lines with insulated Aerial Bundled Cable (ABC) and XLPE insulated services drop with environmental protection sleeves in selected high loss areas in the same Circle. Installation of ABC / XLPE insulated service drop cables are primarily a safety and theft and loss reduction measure which prevent illegal connections and hooking in addition to offering extra load carrying capacity and protection against high temperatures. These activities will be focused on mutually agreed sub-divisions with high losses. Installation work will be

completed by a combination of DISCO-staff trained by PDP and hired subcontractors. The ABC / XLPE insulated service drop cables will also be used to demonstrate congested area strategies in MEPCO by extending insulated HT and LT lines using single phase distribution transformers.

**Schedule:** October 1, 2014 – August 31, 2015

PDP will be working closely with MEPCO to identify the project locations, analyze the data, and redesign the distribution network. Meter re-fixing will commence from January 2015. Orders for Outage Reduction Devices (ORD) devices, Completely Self Protected (CSP) Transformers and insulated HT and Low Tension (LT) conductors have been placed and the installation will begin after January 2015. This intervention will be completed by August 2015.

#### **Deliverables for FY 2015:**

- Installation of AMR GSM/GPRS enabled meters (covered under activity 2)
- Cable installation on the secondary of selected feeders of Multan Circle
- Installation of up to 50 CSP transformers
- Installation of up to 100 single phase CSP transformers
- XLPE service drop cable will be installed in conjunction with ABC cable and single phase transformers
- A monitoring program and consumer census for the target subdivision

**Results:** This intervention for the targeted feeders will result in a reduction in technical and non-technical losses and will lead to forecasted improvement in revenues up to \$1.1 million annually after one year of completion of the project.

**Transition:** The following activities will enable smooth transition:

- Planning proposals are being prepared in collaboration with MEPCO P&E engineers
- Multan Circle field operation staff is being involved as implementation partners for the selection of the high loss feeders and congested areas
- Cable and other equipment will be installed jointly by MEPCO construction staff and PDP contractor
- On-the-job training will be imparted to the field staff

#### **Activity 5: Volt VAR Optimization**

**Scope:** MEPCO has serious problems managing reactive power and proper voltage on lengthy feeders especially in rural areas. To assist in improving this situation, PDP will implement a VVO program utilizing MEPCO's Planning and Engineering function to identify locations where application of 11 kilo volt (kV) switched and un-switched capacitors and voltage regulating equipment / regulators could be deployed. This intervention will help reduce energy losses, improve line voltage and realize substantial savings, improve reliability of supply while significantly improving customer relations, particularly on selected feeders of in excess of 50 kilometers in length.

**Schedule:** October 1, 2014 – August 31, 2015

#### **Deliverables Completed by FY 2014:**

- In collaboration with MEPCO P&E engineers, fifty locations for the installation of VVO equipment have been identified and analyzed.
- In May 2014, RFQs for HT Switched Capacitors and Voltage Regulators were published

**Deliverables for FY 2015:** The deliverables of this activity are:

- Delivery of 125 HT Switched Capacitor Banks
- Completion of analysis for installation of VVOs for rest of the locations
- Installation of up to 125 HT Switched Capacitor units as part of VVO project
- Installation of up to 80 Voltage Regulators as part of VVO project (60 units of (220 KVA ) and 20 units of (440KVA))
- Training of staff

**Results:** With the introduction of VVO devices, it is expected to achieve about 5% loss reduction on individual feeders where these devices will be installed. This will result in forecasted revenue saving of \$0.4 million annually after one year of completion of the project.

**Transition:** The following activities will enable smooth transition:

- MEPCO P&E engineers and field operation staff are being involved as implementation partners for the selection of the potential rural feeders where VVO equipment will be installed
- Planning proposals are being prepared in collaboration with MEPCO P&E engineers
- VVO equipment will be installed by MEPCO construction staff whereas PDP will provide necessary training to MEPCO construction staff
- On the job training will be given to the field staff

### **Activity 6: Improving Commercial Operations**

Distribution companies experience high losses and poor collections mainly due to power theft and ineffective billing and collections practices, resulting in payment imbalance. Meter reading manipulations contribute significantly to improper billings and lead to customer distrust and a lack of willingness to pay. The use of outdated manual procedures allows these errors to continue.

A number of important and compelling changes must occur to enable MEPCO to achieve performance levels in line with standards set by modern, efficient and effective electric distribution utilities.

This activity will focus on the following sub-activities:

- **Sub-Activity 6.1:** Improved Meter Reading and HHUs
- **Sub-Activity 6.2:** Revenue Protection through Surveillance

- **Sub-Activity 6.3:** Customer Service Improvement Initiatives

### Sub-Activity 6.1: Improved Meter Reading and Handheld Units

**Scope:** Meter read data integrity is fundamental to sustainable utility operations. This ensures that energy sold is accounted for properly and establishes trust between the customer and the utility.

The PDP-designed Improved Meter Reading (IMR) and HHU projects under Component 2 helped improve the efficiency of meter reading and discrepancy identification process and reduce the opportunities for data manipulation. The project successfully implemented IMR and HHU in Gulgasht Subdivision pilot project and achieved excellent results with 3% reduction in progressive losses in June 2014, increased revenue and an average decrease of up to 80% in customer complaints.

IMR/HHU initiative designed for implementation in Multan Circle (with 37 subdivisions) is being expanded to one additional Circle (Vehari Circle with 16 subdivisions) of MEPCO. The project involves changes to current meter reading procedures and practices and setting KPIs for meter readers. Moreover, PDP will provide the HHUs, allied hardware IT equipment and training to master trainers for enabling MEPCO to implement the HHUs. The implementation will be initiated by PDP and will be completed in two circles only.

Under the IMR initiative, PDP will also update customer information, conduct audit of existing meter configurations, implement handheld units for meter reading and train the meter readers in best practices for meter reading.

**Schedule:** October 1, 2014 – August 31, 2015

The improvement part of IMR includes scanning of meters to identify discrepancies and potential theft, lowering the height of meters and getting the defective meters replaced. This process will be undertaken in all the subdivisions where deployment of HHUs is intended.

#### Deliverables Completed by FY 2014:

- Implementation of handheld devices for meter reading in 15 subdivisions of Multan Circle
- Provision of two vehicles for IMR/meter replacement activity
- Supply of 660 HHUs with all required IT tools and equipment for Multan Circle
- Training of DISCO staff

#### Deliverables for FY 2015:

- Implementation of handheld devices for meter reading in remaining subdivisions of Multan Circle
- Implementation of handheld devices for meter reading at one additional circle
- Supply of 240 HHUs with all required IT tools and equipment for Vehari Circle
- Training of DISCO staff

**Results:** It is estimated that by increasing the ability of the meter readers to accurately read every meter every month and reducing the opportunities for data manipulation/error, losses will be decreased by approximately 3%. This will also improve data integrity and contribute towards the willingness of the consumer to pay the bill. This will result in forecasted revenue savings of \$2.7 million annually after one year after the completion of the project.

**Transition:** PDP has already demonstrated sustainable implementation of the HHU Meter Reading System. The old paper based system is discontinued in subdivisions where this system is implemented. All staff is trained and HHU devices have been provided. Where implementation is complete, the HHU meter reading system is being run entirely by MEPCO employees without the support of PDP.

### **Sub-Activity 6.2: Revenue Protection through Surveillance**

**Scope:** Power theft contributes significantly towards losses and poor collections in the DISCOs. For revenue protection, PDP has developed a program to periodically monitor high revenue meters, especially agricultural customers and AMR meters being installed. PDP will assist the DISCO with technical assistance and enabling tools. The surveillance teams will also respond to alerts received from the AMR system.

**Schedule:** October 1, 2014 – August 31, 2015

PDP will start the training and capacity building of the staff while the procurement process of tools and equipment is carried out. Under this initiative surveillance vehicles will be procured and utilized to curb theft.

#### **Deliverables Completed by FY 2014:**

- A fully functional surveillance unit established and operating
- Supply of five vehicles to strengthen the unit
- Training and capacity building of staff

#### **Deliverables for FY 2015:**

- Defining and implementing processes and procedures for surveillance activity
- Communications and public outreach program

**Results:** This activity will help in revenue protection and reducing non-technical losses. It will also establish a mechanism for periodic inspection of high revenue meters and taking action on AMR system alerts. The results of this activity are covered under Activity 1, 2 and 6.1 above.

**Transition:** A fully functional surveillance units has been established. Vehicles have been provided and staff is being trained so the initiative can be continued after September 2015.

### Sub-Activity 6.3: Customer Service Improvement Initiatives

**Scope:** Efficient customer services are critical to success factor of electric distribution companies. DISCOs bear a significant responsibility to provide continuous and reliable service to their customers. Under this activity, PDP will improve the existing Regional Complaint Center and selected One-Window Operations offices of Multan Circle. Staff will be trained on customer service excellence and procedures will be improved to ensure a quick and timely response to customer complaints. Necessary tools will be provided to create an enabling environment. This activity also includes provision of basic Call Center with toll free telephone number with Interactive Voice Response (IVR) and Web Based Customers Management System (CMS) for providing centralized mechanism for redressing the complaints at the Regional Complaint Center.

PDP will also upgrade all the subdivision offices of Multan Circle and will upgrade their one-window customer service centers. SDOs and supervisory staff will be trained in customer service excellence and change management. Subdivision face-lifting including painting will be carried out and furniture and fixtures will be provided as required. This will create a positive image of MEPCO and USAID to the customers and employees and will also motivate employees for overall performance improvement of the Company. This upgrading will also provide environment for sustainability of new technology and improvements brought out by USAID PDP which include introduction of HHUs, CIS, AMR metering, lineman tools and equipment and purpose-built transport etc.

**Schedule:** October 1, 2014 – August 31, 2015

PDP will start working on the training, capacity building and procedure improvement part while the customer service facilities will be renovated.

**Deliverables for FY 2015:** Following are the deliverables for the activity:

- Improved customer service offices
- Upgrading of Regional Complaint Center
- Upgrading of fourteen one window operations centers of Multan Circle with provision of vehicles for speedy complaint redressing
- Upgrading of subdivision offices in Multan Circle with provision of furniture and fixtures and customer service counters etc.
- Customer service excellence training to staff
- Defining and implementing procedures for customer services

**Results:** This activity will help in improving the customer service function and create a positive image for the DISCO. The target is to decrease the customers' complaints up to 40% in selected project areas.

**Transition:** PDP is working with the Commercial Department MEPCO to design and implement this initiative. Extensive customer services excellence trainings are also being provided. MEPCO has shown keen interest in working with PDP to improve customer services through these initiatives and also plans to expand such initiatives DISCO wide.

## Activity 7: Communications and Outreach – Corporate Communications and Public Awareness

Please refer to Tasks 1.A.i, Activity 4.

## Activity 8: Implementation of Enterprise Resource Planning

### ERP - Financial, Material Management and Human Resource Information System

**Scope:** Existing DISCO legacy back-office operations are incapable of providing timely information required for senior management to make effective decisions or properly monitor and control utility operations. DISCO cost/revenue centers are dispersed geographically, adding to the delay in reporting. Furthermore, processes related to collection, validation, compilation and processing of data are inefficient. Automation of back-office operations through delivery of an ERP system will result in streamlined processes, improves workflow efficiency, and produces reliable and precise financial and management information.

ERP implementation is planned in the following three modules:

- **Financials:** General ledger, accounts payable, accounts receivables, fixed assets and cash management
- **HRIS:** Core employee data and payroll
- **Materials Management:** Inventory and procurement management

**Schedule:** October 1, 2014 – August 31, 2015

The ERP implementation contractor was mobilized in September 2014. Preparatory activities leading to enhancing readiness for ERP implementation began in MEPCO in January 2014. The service provider will complete the business blueprinting / modeling and initiate data migration in this year. The ERP activity will be completed by August 2015.

#### Deliverables Completed in FY 2014:

- Business blue prints or the processes to be incorporated into the ERP system were successfully mapped and completed for Financials, Material Management, and HRIS modules
- IT infrastructure has been selected and ordered consisting of production servers for the ERP system, Wide Area Network (WAN), Local Area Network (LAN), Data Center and PCs for end users

#### Deliverables for FY 2015:

- End user trainings
- Testing of software for all three modules
- Monitoring and assisting MEPCO in parallel testing of the software (2-3 months)
- Installation and configuration of servers, LAN, WAN, data center and PCs in time for the go live date (when end users start using the system).
- Go live on all three modules

**Results:** Reduced cash flow cycle time, improved asset management operations and reporting, improved banking operations and reduction in labor costs associated with these operations and improved HR processes and manpower planning. The forecasted revenue savings after one year of ERP implementation is \$4.1 million annually.

**Transition:** Training is necessary to ensure that the intended users of the system will continue to use it after PDP ends. Extensive trainings will be provided to MEPCO staff. In addition, targeted “super users” have been selected in each unit (modules) to receive enhanced training. This strategy will develop in house experts who will be the immediate focal points to address questions and issues that other employees might have. Similarly, the various components of IT infrastructure (servers, LANs, WAN, PCs) will each be covered by their individual respective warranties in case of any hardware failures. For management and maintenance of the network system and for end user support, a contract with an outside support firm is being proposed and will be presented to the MEPCO Board of Directors for their approval, along with an RFP package which they can issue to solicit such a contract.

## Customer Information System

**Scope:** The operations of distribution companies in Pakistan are characterized by manual and cumbersome processes, inadequate controls, insufficient commercial focus, limited transparency and lack of reliable information. As a result, operations are highly inefficient with substantial revenue leakages and poor customer orientation. Integrating and automating core commercial functions like meter reading and billing/collections will minimize the human element in commercial processes and lay the foundation for sustainable revenue cycle reforms.

CIS is the critical backbone of customer care and commercial operations. From customer care and metering to billing, payments and credit and collections, these applications enable the customer experience and support all aspects of billing and revenue collections. Augmented with handheld meter reading devices, the CIS will generate accurate consumer bills and a one-window customer services facility will provide improved customer experience.

PDP will leverage Component 2 activities to scale a Customer Information and Billing system developed at the subdivision level to scale it up for a Circle level implementation. This activity will be carried out in collaboration with the Power Information Technology Company (PITC).

The implementation of CIS will be done in phases, starting with rollout at model circle first i.e. Multan Circle through PDP. As the first implementation takes root, the CIS will be progressively rolled out to other Circles by MEPCO. PDP will provide necessary training and capacity building to enable that transition, along with PITC.

**Schedule:** October 1, 2014 – August 31, 2015

The application developed under Component 2 covered functionality up to subdivision level. The system scalability to Circle level requires some additional development effort which is under way and is expected to be completed by December 2014. The parallel testing of three months is anticipated to commence in early 2015. The project is expected to be completed by August 2015.

**Deliverables:** Following are the deliverables from the implementation of the CIS:

- IT infrastructure to support the CIS application at Circle level
- Wide Area Network (WAN) connectivity between the divisions of Multan Circle
- Replacement of legacy billing system with CIS at Multan Circle

**Results:** This will result in improved operational efficiency, increased accuracy of bills, reduced process cycle time and more efficient customer services with reduction in customer complaints.

**Transition:** PDP has successfully established the partnership of MEPCO with PITC. PITC is the de-facto IT solution provider for distribution companies, including MEPCO. Extensive trainings are provided to the DISCO to operate and maintain the system with PITC. MEPCO and PITC have taken full ownership of expanding the new billing system to other Circles of Multan.

### Activity 9: Preparing a Strategic Business Plan

**Scope:** This activity entails preparation of a five-year strategic plan for MEPCO. This plan provides a roadmap including a series of transformational projects that, when implemented, will result in specific and measurable improvements. The plans will align the DISCO's own planned initiatives with PDP-supported activities so as to achieve the greatest impact in the shortest period of time.

PDP is assisting MEPCO to develop a five year business plan for the FY 2016-2020 period. The objective of the business plan is to identify what activities are important through development of strategic objectives and related strategic goals. MEPCO will then need to align its activities around the strategic objectives and goals. Prior to the development of the strategic objectives and goals, MEPCO's senior management will need training in strategic planning. PDP will partner with a service provider to train senior management in FY 2015.

In March and April 2014, MEPCO's Senior Management prepared goals and five-year objectives for improvement. In those areas needing improvement, Senior Management set five-year improvement targets. As the business plan is developed, MEPCO will develop action plans around these five-year improvement goals. MEPCO has appointed mid-level managers as project managers to develop action plans (preliminary feasibility studies) for all five-year goals. The project managers have also received training in project management in FY 2014.

The senior management will select a limited number of action plans to enact as projects. The project manager will formally report to a meeting of senior management quarterly and more often if necessary.

#### Sub Activity 1: Development of Strategic Goals and Objectives

- Training of MEPCO's senior management in strategic planning will be conducted in FY 2015
- Workshop to develop strategic objectives and goals, which is already completed in FY 2014

## Sub-Activity 2: Preparations of Action plans

- Training of project managers in project management, which is already completed in FY 2014
- Technical assistance to MEPCOs project managers in project management started in FY 2014 and will continue in the final year

## Sub-Activity 3: Preparing a Draft Business Plan

- Technical assistance in preparing a five-year business plan will continue in FY 2015. The plan will provide a roadmap including a series of transformation projects (related to expansion and rehabilitation of transmission and distribution systems and other projects related to finance, commercial, communication and HR) that, when implemented, will result in specific and measurable improvements. The plan will align the planned initiatives of DISCOs with PDP-supported activities to achieve the greatest impact in the shortest period of time. Possibly, establishing a Strategic Business Unit structure in MEPCO (one of the outcomes of the organizational restructuring initiative) will help ensure sustainability of the business planning function.

**Schedule:** October 1, 2014 – August 31, 2015

The training of senior manager will be completed by February – March, 2015. Furthermore, a workshop for the Board of Directors (BOD) of MEPCO will also be conducted on Strategic Planning Process adopted by PDP to prepare the business plan with MEPCO. Development of draft business plan has started in July 2014 and will be completed by May-June 2015.

### Deliverables Completed in FY 2014:

- Strategic Objectives / Strategic Goals 2016-2020
- Training on Project Management for mid-level managers

### Deliverables for FY2015:

- Project Plans based on Strategic Objectives / Strategic Goals 2016-2020
- Strategic Management Training for Senior Management
- Workshop for BOD MEPCO on Strategic Planning
- The Business Plan

**Results:** Business Plan once implemented will help MEPCO achieve its long-term business goals. It will also help in sustaining improvements brought in by PDP.

**Transition:** The business plan is developed by MEPCO with technical assistance from PDP. While preparing this plan, extensive trainings are being provided to the Senior Management and planning staff from various sections of the DISCO. These trainings are designed to enhance the skills and competence of the planners to

prepare the plans on their own. Further, PDP will share an end-to-end process for preparation of the business plan with MEPCO and highlight its importance to the Senior Management and Board of Directors to ensure continuation of this activity beyond September 2015. Further to ensure sustainability PDP will work with NEPRA to help them understand and endorse the business plan template to all DISCOs. The Business Plan/Distribution Investment Plan (DIP)<sup>5</sup> will then form the basis of the annual or multi-year-tariff. PDP will assist NEPRA in organizing a workshop for all DISCOs to help them understand the Business Plan/DIP template.

## Activity 10: Change Management and Human Resource Development

While equipment supplies to the MEPCO will result in high impact gains, the sustainability of these actions will require people and processes to be augmented to a level comparable to a well-run utility.

This activity will focus on the following sub-activities:

- **Sub-Activity 10.1:** Organization Restructuring Implementation
- **Sub-Activity 10.2:** HR Development / Training and Capacity Building

### Sub-Activity 10.1: Organization Restructuring

**Scope:** DISCOs have yet to develop a progressive corporate culture in which both management and staff have well-defined job functions, management is empowered with appropriate authority, and employees accept and understand their responsibilities. The current organizational structures of DISCOs are not well aligned with current and future business requirements. Under Component 2, PDP worked closely with MEPCO to develop a new organization structure that meets current business requirements, clarifies reporting relationships, and will help corporatize and commercialize operations.

While an organizational assessment and resulting restructuring is necessary, it is not sufficient in and of itself. Other related and supporting actions as well as a number of sub-interventions are needed, including developing and refining Job Description (JDs) with Key Performance Indicators (KPIs), establishing an effective performance management system, developing and putting in place a well-designed HRM system, and automation of the HR functions through the HRIS (covered under the ERP activity).

Except for the HRIS, the other work activities, listed above, have already been carried out at MEPCO, with detailed proposals / reports prepared and available. Under Component 3, PDP will focus on the refinement of the earlier proposals, which have already been approved by the BOD. Further assessment / studies generally will not be required.

MEPCO has initiated implementation of the approved proposals; however, further assistance is required. As in the first phase, an out-sourced consultant will provide necessary assistance to MEPCO. The consultant will review the proposals and studies and, where necessary, modify them and remove any shortcomings to enable implementation.

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<sup>5</sup> The term NEPRA utilizes for the plans is the Investment Plans. Therefore, Business Plan or Investment Plan is the name of the same document.

**Schedule:** October 1, 2013 – August 31, 2015

An RFP for organizational assessment and restructuring was issued in February 2014. Vendor selection was completed in and mobilization was completed in August-September of 2014. The project will be completed by August 2015.

#### **Deliverables Completed by FY 2014:**

- Manpower Planning
- Performance-Based Evaluation System
- Job Profiles (Job Descriptions and KPIs)
- Recruitment and Selection Policy
- Training and Development Plan

#### **Deliverables for FY 2015:**

- Revised Organizational Structure
- Authority Matrix
- Grading Structure
- Separation
- Employee Relations
- Compensation and Benefits Study
- Employee Handbook
- Implementation Plan / Strategy
- Human Resource Manual
- Employee handbook
- HR Help Desk
- Training function development

**Results:** A better aligned organizational structure supporting business needs and operations. It will improve company's overall performance.

#### **Sub-Activity 10.2: HR Development/Training and Capacity Building**

**Scope:** DISCOs in Pakistan have not given much importance nor contributed the required resources to the development of their human capital in terms of training and capacity building. The absence of a learning culture leads to a poor working environment, low morale and productivity, misaligned skills sets and poor receptivity towards internal and external human needs of the organization. PDP will revitalize the training infrastructure including the provision of essential training equipment, instituting training programs for enhancing the skill set of all employees.

In addition, through the use of PDP implementation managers<sup>6</sup>, PDP will provide top leadership consulting, coaching and also facilitate top management for effective decision making.

**Schedule:** October 1, 2014 – June 30, 2015

**Deliverables for FY 2015:** So far, PDP has trained over 1,500 MEPCO employees under various functional training programs. The training will continue in FY2015 year in the form of the following deliverables:

- Board facilitation and development program
- Management development programs for senior and mid-level management focusing on leadership, service excellence, change management, etc.
- Functional areas training program targeted to Multan Circle, such as:
  - Commercial
  - Finance
  - HR
  - IT/ERP
  - Providing function-specific training for the subdivision officers and supervisory staff of the subdivisions that are planned to be up-graded. This will, among others, include customer excellence, change management training, etc
- Development of Training Function:
  - Training of Regional Training Center (RTC) Principal and other instructional staff
  - Training of Trainers (TOT) program– already completed
- Upgrading of RTC, and upgrading of four Circle Training Centers (CTCs) located in Sahiwal, Bahawalpur, Muzafargarh and Rahim Yar Khan
- Establishment of IT training lab at RTC

**Results:** Better trained and focused workforce to meet the requirements of a modern electric utility. It will help in improvement of overall performance of MEPCO.

**Transition:** It is important to note that the set of change management initiatives, particularly introducing and implementing refined job descriptions and performance-based appraisal, will play a major role in sustaining the momentum that will be gained through these interventions. As opposed to the current practice, staff at all levels, will have clear-cut responsibilities and accountabilities, which will be well defined and understood. While training programs, as being designed and delivered under PDP, are of significance and have a certain out-reach to staff, the DISCOs will only be able to continue capacity development on their own, when it has an enabling environment. This is being provided by PDP, through the up-grading of the training centers and enhancing the training function.

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<sup>6</sup> PDP shadow managers/embedded advisors are working side by side with the existing functional managers heading different functions like finance, IT, engineering, etc. The objective is to fill the gap in the existing skill sets that the DISCOs have at the senior staff level, and to facilitate the joint implementation of PDP work.

## Task 1.B.i: Technical Assistance for the Transition of Selected Distribution Companies from Public Management to Private Management

As part of its 2013 National Power Policy, the GOP stated their intent to privatize two or more of its ten state-owned DISCOs. The approach to privatization adopted by the GOP is to offer a minority stock interest to private investors under an irrevocable condition that an agent selected by the investor is responsible for the operation, maintenance, expansion and profit of the reformed company as a public / private partnership. This approach was used in 2002 to attract private investment and to restructure the Karachi Electric (K-Electric); that private investment has since been transformed from a minority interest of 30% to a majority interest of 70%.

The GOP has requested assistance from the U.S. Government (USG) in preparing GEPCO and LESCO for privatization. As USAID's primary contractor working in the power distribution sector, PDP proposes providing a combination of services addressing both policy alignment at the government level through conducting an independent review of the legal and regulatory framework, as well as providing support to the Privatization Commission by providing experts to work as in-house privatization advisor or expert to support privatization of the selected distribution companies.

PDP in consultation with USAID will work with GOP ministries, authorities and commissions to provide technical and policy assistance that will assist in the transition of selected distribution companies from public management to private management. The work products provided will support and contribute toward the effectiveness of the GOP privatization program within the power sector and elsewhere.

PDP's legal and regulatory due diligence analyses and research will provide assurances to private investors, government counterparts and the public at large that the GOP's privatization activities will be supported by a solid foundation of policies and regulations that are aligned with sale of either a minority or majority stock interest in state-owned energy entities to the private sector. These assurances conjoined with a secure legal and regulatory foundation are essential for creating an investment climate that attracts the largest number of potential investors from the private sector.

**Schedule:** October 2014 – June 2015

**Deliverables:** The deliverable for this activity is:

- Legal Due Diligence Determination
- Regulatory Due Diligence Determination

**Results:** Within the period mentioned above, PDP will provide to pertinent parties, especially the privatization commission and MWP, analyses of the legal and regulatory due diligence determinations for power sector.

**Transition:** Once an extensive sector-level legal and regulatory due diligence on the power sector becomes readily available, this will become the base for several critical documents to be created in the future and will be used as a strong credible reference point thereon.

## Task 1.B.ii: Technical Assistance to Privatization Commission

PDP in consultation with USAID will work with the Privatization Commission (PC) to provide technical and policy assistance that will support the transition of the state-owned power distribution companies from public management to private management. For this purpose PDP has embedded an advisor at PC. The work products, as described below, will provide support and contribute towards the effectiveness and transparency of the GOP privatization program within the power sector.

**Task 1:** PDP's advisor to the PC will identify, document and assess the current privatization process for strategic sales, asset sales and other privatization options and provide them written recommendations for improvement. The advisor will also oversee the local legal advisor's review of the documented process to confirm its accuracy and eradicating inefficiencies in the privatization process.

**Task 2:** PDP's advisor will provide strategic advice to the PC in developing implementation plans (road map / work plans) for short and medium-term power distribution company privatization programs as per the timelines set by the PC. He will also review and seek to improve the transaction team's transaction management systems while also assisting and reviewing the PC's current public outreach and external communication systems with a view towards improving transparency.

**Task 3:** Using comprehensive work plans for the power distribution companies scheduled for privatization, PDP's advisor will ensure that relevant approvals are obtained and are located in the central files. He will also advise on sellers due diligence and assist the PC in developing future request for proposals and refining the evaluation criteria for bidding. As part of privatization preparation, he will review and evaluate reports and recommendations from the financial advisors, and will advise the transaction team on problem resolution, public relations and improvement of the transaction process.

**Schedule:** December 2014 – July 2015

### Deliverables for FY 2015:

- Documented summary of the current processes with each major step and authorities identified and linked to the law, with areas of improvement identified, explained and endorsed by the local legal advisor(s).
- Draft implementation plan (road map) for short and medium-term power distribution company privatization programs at PC.
- A report on recommendations for improvement of the transaction process, including improvement of the public relations guidelines for particular transactions, annotated transactions, bid evaluation memos, and annotated closing memos.
- Short reports on the recommendations on the structure, regularity and management of the transaction teams' meetings, and improvement of the digital filing systems and file naming conventions.
- A series of written reports and drafts of press releases with recommendations on the PC's public-outreach and external communication systems, edits to draft documents already prepared by the PC and creation of a logbook of interventions (if required).

- Written report on transaction team's compliance with processes including recommendations for improvement on the evaluation process and evaluation of the performance of the current financial advisors' tasks, activities and associated deliverables, supplemented by viable recommendations.

**Results:** Within the period mentioned above, PDP will provide the PC with strategies that will enhance the credibility of the GOP, promote transparency, increase investor confidence and lay the necessary groundwork for major transactions.

**Transition:** Complete and accurate privatization process summaries provided to the PC will serve as a basis to improve the process, while also serving as a basis for the development of individual transaction work plans, which will improve each team's ability to manage transactions (e.g. by helping focus transaction team members on both strategic and detailed implementation-level goals), assess progress and adhere to timelines. Improved transaction management systems will increase transaction team efficiency while reducing both institutional and transaction execution risk. Improved public outreach increases transparency, investor confidence and reduces social and governance risk since improved public outreach can highlight the benefits of privatization and overcome its myths. Going forward, the PC will not only be able to follow and monitor privatization road map (work plans), but this will also enable the PC to make informed decisions based on the road map.

## Task 2: Energy Conservation and Demand Side Management

Pakistan is currently facing its worst power crisis in its history. Supply demand shortfall continues to persist leading to load shedding round the clock. Unplanned load shedding further aggravated the problem. Load shedding can be reduced either by adding new generation or by conserving available energy by reducing wastage or by reducing demand by demand-side management techniques. This is being done through the Load Data Improvement (LDI) Project and through the introduction of AMR meters with remote disconnect / reconnect load management capabilities. The following solutions to enhance DISCOs load management capability and reduce unplanned load shedding are implemented through PDP.

### Load Data Improvement Project

Unscheduled load shedding has been a serious problem in Pakistan. It causes serious civil disturbances with property damage and loss of life and is a focal point for civil disobedience. PDP is assisting the DISCOs and the National Power Control Center (NPCC) to obtain load flows information on a near real-time basis by installing over 9,000 AMR - data acquisition meters on all incoming and outgoing feeders of all 742 DISCO grid substations. This information is now being supplied to NPCC and DISCO-upgraded Power Distribution Control Centers (PDCs). LDI data management system was made operational by July 2013 and real-time data has been available since then at the PDCs of both the NPCC and DISCOs. The LDI system software is being constantly upgraded to meet with the DISCO reporting requirements. The use of this system has resulted in the reduction of unscheduled load shedding across Pakistan, improved DISCO load management, improved timeliness and quality of data required for investment planning. PDP has been and will continue to work with DISCOs' PDC staff to further build their expertise to operate and optimally utilize the LDI system.

The detailed description of this project is given under Activity 1 of Task 6.

## Direct Load Management

PDP has determined that reliable and reasonably priced AMR meters with connect/disconnect and load direct load management capabilities are now a practical option; up to 23,167 direct load management capability AMR meters will be installed for all MEPCO's Multan Circle tubewell consumers and MEPCO's high-end consumers with loads between 20 kW to 40 kW. These AMR meters will accept disconnection / reconnection and direct load management commands/plans by the backend system remotely as and when required. Also this arrangement will enable MEPCO to keep rural feeders running with a facility to switch-off the tubewell consumers for load shedding, if required. In case of disconnection initiated by backend system, AMR meter will not reconnect until it will receive a reconnection command from the backend system. These AMR meters will have a two-way communication capability to demonstrate load management techniques. These will also have the capability to support minimum two different load thresholds against different time slots (peak/off peak) which will be programmed to activate disconnection/reconnection automatically by the meter and time between disconnection and reconnection will also be programmable.

AMR meter installed on tubewell and / or other customers will give the DISCO the capability to change load thresholds and associated time slots locally and remotely. In a similar fashion these AMR meters with connect/disconnect and load direct load management capabilities will be installed in MEPCO's high-end consumers with loads between 20 kW to 40 kW.

## Task 3: Cost Reflective Tariff and NEPRA Reform

This task has the following two activities:

- **Activity 1:** Cost of Service Study and Tariff Design for all DISCOs
- **Activity 2:** Assistance to NEPRA

### Activity 1: Cost of Service Study and Tariff Design for All DISCOs

**Scope:** A crucial factor in any DISCO's sustained profitability is the tariff or the rate that it can charge its consumers. However, currently the consumer end tariff for several categories is either being subsidized by the government or cross-subsidized by other consumer categories. Furthermore, DISCOs file tariff petitions with the regulator without any Cost of Service (COS) analysis to back up the requested rates. As a result, the regulator disallows several portions of the requested cost causing significant loss of revenue for DISCO.

To fill this void, PDP embarked on undertaking Cost of Service studies for all public sector DISCOs. So far, PDP has completed COS studies for five DISCOs i.e. Islamabad Electric Supply Company (IESCO), Faisalabad Electric Supply Company (FESCO), Multan Electric Power Company (MEPCO), Gujranwala Electric Power Company (GEPCO) and Lahore Electric Supply Company (LESCO). PDP is currently working on COS studies at the remaining five DISCOs i.e. Peshawar Electric Supply Company (PESCO), Hyderabad Electric Supply Company (HESCO), Sukkur Electric Power Company (SEPCO), Tribal Areas Electric Supply Company (TESCO), and Quetta Electric Supply Company (QESCO). NEPRA has already expressed its agreement with the methodology and the model being used by PDP for COS Studies. Financial, commercial and load data is being collected for each DISCO to customize its COS model. AMR meters have been procured and are being installed at all transformers of selected feeders in each DISCO for establishing

demand coincidence and to help DISCOs in replicating COS work in future. An appropriate methodology for calculation of weighted average cost of capital has been developed to determine the market-based rate of return.

Each DISCO's revenue requirement will be estimated based on the analysis of financial statements, budgets, capital expansion plans, sales, and demand and load data projections. The total COS provision will be functionally unbundled with fixed and variable costs required to serve each customer category determined. Based on the results, demand, energy and customer related costs will be estimated. Costs allocated to each customer category as a result of the COS study will be compared with NEPRA-determined tariffs to assess the adequacy of current tariffs as well as the degree of cross-subsidization taking place under the old system within customer classes and across DISCOs.

Further, the COS team reviewed billing calculations of all categories of customers based on approved NEPRA tariff. It was discovered that the billing of maximum demand charges of TOU customers was not in accordance with the approved NEPRA tariff. The fact was brought into the notice of NEPRA who agreed with PDP calculations and directed all the DISCOs to modify the program for calculating maximum demand charges of TOU customers. Moreover, the COS has been of the opinion that the methodology used by NEPRA to calculate DISCO's Cost of Capital (in other words "allowed profit") is flawed and results in unjustified loss of income to DISCOs. In its new tariff determinations, NEPRA has adopted PDP's proposed methodology and has formally acknowledged USAID PDP's role in this change.

**Schedule:** PDP will assist each of these five remaining DISCOs in preparation of its tariff petition based on the results of COS study.

For data collection, COS model customization and cost allocation phases will be completed in December 2014. Initial COS results will be available in March 2015. Subsequently, technical assistance will be provided to these DISCOs in preparation of their tariff petitions to be filed with NEPRA based on the results of the COS studies. These DISCOs are expected to file tariff petitions by July 2015.

#### **Deliverables Completed by FY 2014:**

- PDP completed COS studies for FESCO, MEPCO, GEPCO, LESCO and IESCO; it also assisted these DISCOs in filing their tariff petitions with the regulator based on results of these studies
- Customized COS Models were prepared for each of these DISCOs
- New Tariff Design proposals were recommended to these DISCOs
- User Manual to accompany COS Model for IESCO was prepared
- Several working sessions were held to build capacity of these DISCOs to replicate COS work in future

#### **Deliverables for FY 2015:**

- Customize COS Model for PESCO, TESCO, HESCO, SEPCO and QESCO
- Complete COS studies for PESCO, TESCO, HESCO, SEPCO and QESCO and assist in filing of their tariff petitions with the regulator

- Recommend appropriate tariff design proposals to these DISCOs
- Prepare DISCO Specific COS Model User Manual for all remaining DISCOs
- Help in Capacity building of DISCOs for replication of COS work in future

**Results:** Total cost recovery gap for the Pakistani DISCOs for FY 2010-11 was \$609 million. International studies have shown that adjustments of rates subsequent to COS analysis leads to approximately 7-12% improvement in revenue. As such, PDP is forecasting an improvement of 10% which leads to a reduction in cost recovery gap of approximately \$61 million annually after one year of completion of COS work at the DISCOs.

**Transition:** Cost of Service study is a regulatory requirement for filing tariff petitions but prior to PDP's work NEPRA did not enforce this requirement. To ensure the sustainability of Cost of Service exercise, the regulator NEPRA was kept involved from the beginning. After reviewing PDP's Cost of Service Model, NEPRA expressed its complete agreement with the methodology and instructed DISCOs to file their future tariff petitions Cost of Service results of the PDP Model. So the regulator has ensured the sustainability of PDP's Cost of Service work. Furthermore, for smooth transition DISCO personnel are being trained for replicating the Cost of Service exercise on their own in future. The User Manuals accompanying the Cost of Service Models will also make it easier for future DISCO user to utilize it.

## Activity 2 – Assistance to NEPRA

NEPRA is mandated to regulate the electric power market of the country, with an eventual goal to deregulate the market so that it itself regulates the business with the regulator ensuring that the market is operating as per the parameters set through the NEPRA Act, its rules, regulations and procedures. However, in the sixteen years since its inception NEPRA has not been able to deliver the mandate under which it was created. There is a significant capacity, exposure, training, resource, technology deficit within the organization and this has resulted in significantly affecting the performance of the power market itself.

Through the interventions detailed below, the capacity of NEPRA will be improved to the level that it starts delivering and playing its role as an effective regulator.

### Sub-Activity 2.1: Organizational Restructuring of NEPRA

**Scope:** NEPRA lacks an organizational structure that encourages induction of professionals. Changes in the organizational structure of NEPRA are required to improve its capacity to deliver. This will involve carrying out an organizational and functional analysis of NEPRA, implementing performance management systems, creating revised Job Descriptions (JDs) and compensation and benefits study to make sure NEPRA can play the role of an effective regulator of the power sector in Pakistan.

**Schedule:** October 1, 2013 – August 31, 2015

The Organizational Restructuring assignment will be completed by January 2015. The training and capacity building will then follow.

The objective of Organizational Assessment and Restructuring project at NEPRA is to have in place an organizational set-up, reflecting a strong and progressive corporate culture, and have well defined JDs. A reinvigorated NEPRA structure and improved clarity of functional and technical roles will endow the management with the appropriate authority and acceptance of employees of their responsibilities.

Furthermore, PDP will be evaluating the current performance management system, compensation and benefits, and will be proposing new and improved systems for greater productivity. Training needs analysis will be completed for all functional departments and relevant management and functional trainings will be provided.

The project is segregated into four different stages – mobilization, assessment, development, and implementation. PDP has completed the first two stages and delivered the NEPRA “As Is” report which sets the functional baseline of NEPRA. The second stage has also been completed which includes development of JDs, the performance management system and organizational structure models.

The project is planned to be completed by August 2015.

#### Deliverables Completed in FY 2014:

- NEPRA “As Is Report”
- Fifty-eight JDs for NEPRA Executive Grade and NEPRA Professional Grade staff
- Performance Management System
- Compensation and Benefits Study
- Training Needs Assessment for functional and management trainings
- Organizational Structure Models development
- Fourteen Functional and Management Trainings completed
- Two Regional Training / Exchange Programs completed

#### Deliverables for FY 2015:

- Organizational Structure Models implementation
- Six Functional and Management Trainings
- Regional Training / Exchange Programs

**Result:** NEPRA organization strengthened and performing its role in effectively regulating the entire power sector.

#### Sub-Activity 2.2: Review of Electricity Sector Market Framework

**Scope:** There has been a lack of progress in moving the power sector towards deregulation and competition, partly because of massive power shortages in the country and non-implementation of an effective market framework. PDP will review electricity market frameworks from other countries and develop a vision of the competitive market structure that may ultimately be established. A course of action for eventual transition to deregulated and competitive environment will be devised.

**Schedule:** October 1, 2014 – August 31, 2015

Based on the initial report and discussions with NEPRA, a matrix of activities was developed to work on the development of the electricity market framework. During the period, an initial draft for reforms at the distribution end of the business was submitted to NEPRA. As furtherance to this, NEPRA-PDP have hold a conference related to reforms at the distribution end of the business, with emphasis on solutions successfully implemented by other countries to improve governance at the distribution end. Proceedings of the conference and a report with a possible road map have been shared with NEPRA.

As per the matrix developed, two white papers with recommendations have been developed and provided to NEPRA for discussion.

**Deliverables Completed in FY 2014:** This activity includes the following deliverables:

- An initial draft for reforms at distribution end of the business
- NEPRA-PDP will hold a conference related to reforms
- Proceedings of the conference and a report with a possible roadmap will be shared with NEPRA
- White papers with recommendations on key issues that need assistance

**Result:** A report with recommended way forward for moving towards establishing a competitive power market will help the markets transformation.

### **Sub-Activity 2.3: Modification in Tariff Rules and Regulations**

**Scope:** PDP assisted IESCO in preparation of FY 2013 first tariff petition based on COS results. Based on the process and current rules, regulations and methodology for tariff determination, PDP will assist NEPRA in preparation of guidelines (methodology and process) for determination of consumer end tariff including a regulatory calendar for regulatory proceeding relating to approval of planning documents, rate case and tariff structure which will improve the transparency of tariff determination process.

**Schedule:** October 1, 2014 – June 2015

**Deliverable:** This activity includes the following deliverables:

- Guidelines for the determination of consumer-end tariff (methodology and process)

**Result:** Improved and more transparent tariff process.

### **Sub-Activity 2.4: Equipment and Software Upgrade**

**Scope:** The existing IT infrastructure at NEPRA is outdated and cannot meet the requirements of a modern robust and dynamic system. There is a strong desire at NEPRA to have real-time communication links established between NEPRA and the DISCOs. This will include an assessment of the existing IT infrastructure (hardware/software) in use at NEPRA as well as uses related to staff competency assessment. Based on the assessment, required IT hardware and software at NEPRA will be upgraded.

**Schedule:** October 1, 2014 – May 30, 2015

#### **Deliverables Completed by FY 2014:**

- Provisioning and installation of Video Conferencing facility between NEPRA, Ministry of Water and Power and its affiliate entities
- Initiated the procurement of Network Infrastructure and Servers
- After detailed assessment, PDP prepared a comprehensive “NEPRA’s IT Infrastructure Augmentation Plan” and delivered it to NEPRA. This includes detailed recommendations on IT up-gradation path for NEPRA, restructuring of IT department and capacity building

#### **Deliverables for FY 2015:**

- Complete deployment of Network Infrastructure and Servers
- Installation of latest IT services and application software, being procured by NEPRA
- Migration of legacy IT applications and services to latest IT platform

**Result:** The sub-activity will result in the following:

- A customized consumer complaint handling system improving customers response times
- An interlink with DISCOs operational data thus improving data acquisition times
- An improved communication will facilitate improved decision making and operations of NEPRA
- Availability of updated IT infrastructure at NEPRA that will help meet the requirements of a modern robust and dynamic organization
- An improved IT infrastructure and backbone at NEPRA

#### **Sub-Activity 2.5: Regulatory Partnerships**

**Scope:** NEPRA has largely isolated itself from other stakeholders in the energy sector, with limited awareness of what is happening in the world outside. Many regulators in the region and around the world have contributed significantly in turning around loss-making entities. Such experiences will be significant for NEPRA in dealing with the crisis at hand.

PDP will work to establish relationships between NEPRA and international regulatory bodies (preferably countries in the region or with similar environments) and facilitate trainings, workshops and information exchange through regional educational visits and /or fielding international experts in Pakistan. PDP will identify separate regulatory training programs for commissioners / members and for professional staff and facilitate such trainings and workshops. PDP plans to send NEPRA experts to other regulators via exchange programs so that its experts can have hands-on experience of working with other regulators, and gather experience on how regulators function in open electricity markets. PDP has completed two exchange programs in USA and will be planning for a regional training on regulatory affairs.

**Schedule:** October 1, 2014 – July 31, 2015

**Deliverables Completed by FY 2014:** Two USA-based exchange programs were carried out for NEPRA

**Deliverables for FY 2015:** Assistance to NEPRA in acquiring associate membership at Energy Regulatory Regional Association (ERRA) and possible trainings exchange for regulatory partnerships<sup>7</sup>

**Result:** Sustainable regulatory partnership(s) / program(s) for long term information exchange, training, and continued development of activities.

### Sub-Activity 2.6: Regulatory Changes

**Scope:** Market practices have changed significantly locally, regionally and internationally, and need to be understood and adopted by the regulator as being prudent and beneficial for the competition process itself. Proposed changes in regulatory laws or solutions through which international best practices can be introduced. This will involve assessments and reviews of existing market practices that have been adopted by various regulatory authorities and have proved beneficial for the overall environment. The concept will be to find solutions that will move the market to the next stage without bringing any significant change to the regulatory laws. A consultant will be engaged for this purpose.

**Schedule:** October 1, 2014 – August 31, 2015

PDP team has reviewed current electricity market, recommended strategy and way forward to develop the market consistent with international best practices and local constraints included and with improved dynamics. For this purpose, PDP consultants regularly interacted with NEPRA and held workshops / conferences to explain modern concepts for market development. The outcome of such interaction will form the basis for the development of focused papers for NEPRA to recommend strategies for moving forward.

**Deliverable Completed by FY 2014:** Modern concepts like service providers, resale business and franchisee were discussed and presented to NEPRA with recommendations for adoption.

**Deliverable for FY 2015:** Hold workshops to explain modern concepts for market development, such as tariff setting.

**Result:** A recommended strategy developed for the market in the light of the international best practices and with improved dynamics.

### Sub-Activity 2.7: Improvement of NEPRA Performance

**Scope:** Provide assistance to NEPRA to improve administrative procedures based on the recommendations of NEPRA staff including a review of internal process and timelines for conducting regulatory hearings including approval of rolling five year Integrated Generation, Transmission and Distribution Plans (IGTDPs) submitted by DISCOs, to review and finalize market rules submitted by Central Power Purchasing Agency

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<sup>7</sup> The exchanges mentioned under this activity are subject to availability of funding from another program funded by USAID

Guarantee Limited (CPPA-G) and carve out CPPA function from NTDC License as and when requested by CPPA-G.

**Schedule:** October 1, 2014 – August 31, 2015

Within the period mentioned above, PDP with input from NEPRA will choose few high priority courses of capacity building and training that will improve NEPRA's performance as the most effective regulator of the power sector. In addition to these, PDP will assist NEPRA technical division for developing the internal process for approval of DISCOs submitted rolling five year IGTDP and will also assist NEPRA tariff and technical division for approval of CPPA-G submitted market rules and bifurcation of CPPA-G functions from NTDC.

**Deliverables Completed by FY 2014:** Documentation of process for approval of IGTDP by NEPRA

**Deliverable for FY 2015:**

- Administrative procedures for NEPRA in selected areas
- Documentation for NEPRA to approve market rules if market rules submitted by CPPA-G
- Documentation to support issuance of authorization for CPPA G functions if CPPA-G requests authorization

**Result:** Improved performance of NEPRA in the critical areas of regulatory functions.

**Transition:** PDP has endeavored to provide continuous support to NEPRA, in various capacities, all of which has and will remain extremely beneficial for the regulator. The recommendations provided to NEPRA in several key documents prepared by PDP are the result of extensive research and analyses carried out by PDP and thus, if acted upon, will go a long way in improving the systems at NEPRA. The technical assistance provided to the regulator in the form of IGTDP process and cost of service methodologies have strengthened the regulator in delivering the mandate under which it was created. Further, these methodologies will need to be applied where necessary and continuously upgraded, as need be, in order to continue to be qualified as effective regulatory mechanisms.

PDP has also provided white papers and recommended strategy along with suggested way forward in order to attempt at developing a market consistent with international regulatory best practices. In this regard, several workshops / trainings have been conducted at NEPRA, and key staff members have also been sent on trainings abroad. PDP is also assisting NEPRA in acquiring associate membership for the ERRA, an eastern European regulatory association, which will enable NEPRA to learn from the best practices being followed worldwide, and ensure sustainability of PDP's efforts at NEPRA. Such activities are meant to strengthen the manpower at NEPRA, and enable them to make well-informed regulatory decisions for moving forward to a competitive trading environment, all of which will not only add value to the regulator's output but that of the entire power sector.

As for the transition of equipment, NEPRA will approve and implement IT Replacement and Up-gradation Policy to effectively manage the life cycle of Computing and other IT equipment. Training of NEPRA's IT personal will ensure that the incorporated Hardware and Services are effectively maintained. PDP is also

assisting NEPRA in re-structuring its current IT department's structure and hierarchy to enable it to better serve the current and future ICT requirements. The restructuring will also help NEPRA's IT department to take independent and coordinated decisions on IT policy implementation and future upgrades.

## Task 4: Capacitors at Tubewells for Power Factor Improvement and Loss Reduction

### Capacitor Installation Program on Tubewells

**Scope:** One of the biggest load in the system is that of agriculture tubewells. Nationwide, electric consumption by agriculture tubewell pump-sets accounts for 12% of the total annual energy consumption, with significant variation from one DISCO to another. Tubewell motors used in Pakistan have relatively low power factor<sup>8</sup>; frequent rebuilding of motors results in further reductions in power factor. Low power factor increases reactive power demand on transmission and distribution lines and transformers, resulting in higher technical losses. The high number of inefficient tubewell pumps and motors with low power factors has a significant effect on the system's technical loss, and creates unnecessary demand on the system.

The PDP capacitor installation program called for around 88,750 to be installed, of these about 24,200 have already been installed till FY2014. Over the remainder of the program, it is intended to install around a total of 64,550 LT capacitors with 44,000 LT capacitors in MEPCO, 10,000 LT capacitors in HESCO, 8,000 LT capacitors in SEPCO and 2,550 LT capacitors in IESCO..

Any capacitors remaining at the end of the program will be given to DISCOs to be installed under the DISCOs' own arrangements.

**Schedule:** October 1, 2014 – August 31, 2015

**Deliverables:** This activity includes the following deliverables:

- Around 64,550 will be installed in FY2015 which makes a total of up to 88,750 LT capacitors that will get installed on the tubewells by the end of the program
- Monthly reports showing installation status of LT capacitors along with average power and energy savings

**Results:** The installation of up to 64,550 capacitors on tubewells will improve their power factor, and lead to an overall forecasted annual saving of around 96.75 MW of generated power; resulting in \$21.3 million of forecasted annual energy savings to the DISCOs through reduction of the system's technical losses.

## Task 5: Feeder Optimization for Loss Reduction

This task is covered under Task 1.A. HT capacitor work details are given below.

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<sup>8</sup> In order of 80-85% even when new

## DISCO HT Power Factor Improvement

**Scope:** DISCOs have not assessed the current requirements for HT power factor correction as the feeder loads have changed with continuous addition of air conditioners, motors, Compact Florescent Lamps (CFL) and other appliances, causing poor power factor on many feeders with lost revenue, low voltage, high technical loss and customer dissatisfaction.

The PDP Engineering and Planning project will focus on the Turnaround DISCOs to conduct feeder power flow analysis using new software technology and to install proper switched and / or fixed 11 kV HT capacitor banks. This task will include 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 VVO concept as part of the ELR program. At PESCO the proposals will be generated and the DISCOs will be advised to install their own HT capacitors as per optimized plans prepared for selected feeders.

**Schedule:** October 1, 2014 – August 31, 2015

**Deliverables:** The following are the deliverables of this activity:

- Design and installation of 11 kV HT capacitors(fixed and switched) on feeders at MEPCO
- Installation of improved voltage control equipment at MEPCO

**Results:** Improved power factor and voltage on distribution feeders and at grid substations. It will result in improved system reliability, reduction in technical losses reduced demand, increased revenue, improved voltage and increased customer satisfaction.

## Task 6: Expansion of High Impact Opportunities and Improved Governance

This task includes the following activities:

- **Activity 1:** Load Data Improvement Project
- **Activity 2:** Lineman Training for all DISCOs / Line Staff Skill Development
- **Activity 3:** Exchange Programs
- **Activity 4:** Governance

### Activity 1: Load Data Improvement Project

**Scope:** Unscheduled load shedding has been a serious problem in Pakistan. It causes serious civil disturbances with property damage and loss of life and is a focal point for civil disobedience. Unscheduled load shedding occurs when the NPCC must take action to reduce load quickly to prevent the national grid from failing. The operators making these decisions do not have near real-time data available on actual system loading upon which to make decisions. If a DISCO does not follow the plan to shed load, the NPCC does not realize the problem until the system frequency starts to drop, and must then make decisions to take unscheduled load shedding actions. Before introduction of LDI, neither the nine DISCOs nor the NPCC were able to know in near real-time the actual load the individual DISCOs were taking from the NTDC grid

or the total aggregate load being drawn by all DISCOs. PDP is assisting the DISCOs and NPCC to obtain load flows information on a near real-time basis by installing over 9,000 AMR - data acquisition meters on all incoming and outgoing feeders of all 742 DISCO's grid substations. This information will be supplied to NPCC and DISCO upgraded PDCs. LDI data management system has been made operational by July 2013 and the real-time data is available since then in NPCC and DISCO PDCs.

At the request of the MWP, PDP has extended the LDI project to newly created Tribal Area Electric Supply Company (TESCO) and the Regional Control Center (South) so that these can also benefit from the LDI system. In addition, PDP will work to interface with the Secured Metering System (SMS) database so as to collect K-Electric's power draw. Load data information has also been disseminated in the office of each and every DISCO CEO and the Operations Director, allowing them to effectively monitor real-time coincident system demand and load and to oversee the implementation of the load management program for individual category of load.

Lastly, LDI data analytical reports and analyses will be developed for DISCOs to support efforts to improve their internal load management, operational capacity and financial performance. The availability of continuous live load data information in the offices of senior executives in the DISCOs and Regional Control Centers, analytical reporting and analysis and Power Quality Monitoring (PQM) systems are attributed as positive steps toward achieving effectiveness and sustainability of the LDI project.

Although the system has been handed over to DISCOs and their staff is operating and maintaining it yet technical assistance is provided to the DISCOs as and when requested.

**Schedule:** October 2014 – June 2015

PDP will continue to help DISCOs for enhancing their capability for using this LDI system as part of on the job support.

**Deliverables Completed by FY 2014:**

- Installation and commissioning of 9,153 AMR meters / data acquisition devices on all incoming and outgoing feeder panels at all the grid substations of all the ten DISCOs
- Establishment of a Power Distribution Control Center (PDC) at each DISCO
- Customized LDI system software
- Live data display at NPCC and DISCO PDCs
- Installation of executive screens in the offices of DISCOs chief executive officers and operation directors
- Establishing and commissioning of centralized 24x7, 365 day Network Operation Center (NOC)
- Establishing and commissioning of a complete AMI system

**Deliverables for FY 2015:**

- Providing technical advice as needed

**Results:** Reduction in unscheduled load shedding across Pakistan up to 85%. Improved DISCO load management, improved timeliness and quality of data required for timely operational decisions and on investment planning on feeder rehabilitation, bifurcations, load shifting, capacitor installations etc. Power quality control and availability of feeder data for power flow analysis and long-term planning, employing PQM. Further increase in revenue through better load management by diverting power towards areas with less losses and high collections.

**Transition:** The LDI System has already been officially transferred to DISCOs and they are smoothly operating the system.

## Activity 2: Lineman Training/Line Staff Skill Development

**Scope:** A good portion of the technical line losses are a result of scant attention paid to linemen training and training facilities by DISCO management and inadequate investment in tools, materials, transport, training and procedures. Current training has no direct application to the reality in the field because outdated methods are being used for training developed in 1980s and is, ineffective. Hence, line workers with inadequate training and tools, attempting to keep the system operational with materials that are unsuitable for recycling. As a result, transformers are damaged and line losses continue to escalate as the death and serious injury toll climbs.

Linemen Training, Tools and Equipment is an essential intervention for transforming DISCOs' frontline operations to match that of well-run utilities. Tools and equipment are being procured (in conjunction with the transportation intervention) and consolidated at central training locations. The DISCOs<sup>9</sup> will be required to provide some equipment, which has been determined to be of acceptable quality. The training segments will build skills and safe working practices through a combination of intensive training sessions designed to develop skills, such as proper installation of compression connectors, installation of complex three-phase AMR metering sets, conductor splicing, advanced transformer installations, and meter tampering inspections. The skills training will be rolled out to all DISCOs through a video training program supported by hands-on training activities at the subdivision level, as is commonly used in most advanced utilities. In addition, a team of advanced linemen will be provided more formal training in advanced skills and loss reduction techniques. These linemen will provide training and mentoring to linemen from underperforming subdivisions.

Crew tools are being procured for the crew transport to facilitate team or individual activities, maximizing the utility of the transportation. Low-cost line worker transportation prototypes have been designed and built providing transportation for workers, tools, and materials to the worksites. Materials will be identified and procured based on surveys at the subdivisions. These materials will allow the newly-trained and tooled line staff to begin improving system losses and reducing outages immediately upon returning to work. PDP will train PESCO planning engineers who will begin audits of major feeders. This will identify major loss connections and allow work plans and material lists to be developed. PDP procurement specialists will work with PESCO standards writers to develop specifications and procedures to minimize quality issues in procurements in the future.

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<sup>9</sup> As per direction from USAID this activity will focus more on the two Turnaround DISCOs while assistance will also be provided all other DISCOs in-terms of Quality and Safety trainings to trainers and Executive Quality and Safety Leadership trainings

**Schedule:** October 2012 – August 2015

### Deliverables Completed by FY 2014:

During FY2014, PDP continued to identify the working linemen to whom the trainings should be provided, in the selected circles of MEPCO and PESCO. A plan was developed for routine operation and maintenance work and PDP field installation work at MEPCO and PESCO. In addition, equipment for working linemen in 66 subdivisions (37 in MEPCO and 29 in PESCO) was procured. Some of major deliverables that were completed last year are:

- Over 2,600 employees (700 in PESCO and 800 in MEPCO, rest in other DISCOs) trained in various training programs for management and line staff on improving quality and safety in all DISCOs. These training programs included first aid, grounding, pole top rescue, hazard identification, safe use and care and safe work procedures and Permit to Work (PTW)<sup>10</sup>. Progress has been made in procurement and distribution of personal equipment and tools for 29 PESCO subdivisions and 37 MEPCO subdivisions. These tools included rubber gloves, belts, hard hats, and tools to put on the connectors and hot sticks, and team equipment including vehicles, grounding sets, proximity detectors, isolating gear and cover-up. So far, PDP has distributed tools to equip over 800 linemen of 14 subdivisions in PESCO and 1,800 linemen of 27 subdivisions in MEPCO.
- Two hundred lineman specialized vehicles (100 for MEPCO and 100 for PESCO) were distributed to suffice the requirements of Peshawar Circle of PESCO and Multan Circle of MEPCO.
- About 45,000 connectors (hot line clamps and splices) were delivered to PDP in late FY 2014 which will be distributed to selected circles of PESCO and MEPCO in FY2015.
- Quality and safety training program for senior and middle managers were developed for providing necessary support by management in improved governance for safety and quality workmanship by linemen.

### Deliverables for FY 2015:

- Developing a lineman training program that consists of a combination of classroom, video, and hands-on training sessions provided at the subdivision level, implemented on a monthly basis.
- Train up to an additional 700 lineman and senior safety and operations staff, concentrating on PESCO and MEPCO.
- Distribution of the linemen tools in remaining sub-divisions of PESCO and MEPCO. These tools will equip an additional up to 1,170 linemen of PESCO and up to 560 linemen of MEPCO.
- Additional lineman training, together with the distribution of specialized equipment, will be completed to improve the binding of joints in the distribution system along with the distribution of 45,000 improved connectors. Once installed, these will save power and improve revenues for the DISCOs as well as improve safety (for employees and general public), reliability of supply and customer satisfaction.

<sup>10</sup>An analysis of recent accidents concluded that the major cause of death and serious injury was by employees not following correct Permit to Work procedures. This has led to a change of emphasis on training for the remaining months of the project to address this issue

- Continue quality and safety training program for senior and middle managers for providing necessary support by management in improved governance for safety and quality workmanship by linemen.
- Improved specifications for tools provided to DISCOs.
- Assistance to safety department with some testing tools for recycling the hot sticks and rubber gloves.
- Assistance to regional and circle training centers by train the trainers program and giving linemen tools and safety equipment as training aids so that this can be incorporated as quality and safety workmanship in system.
- Safety Monitor training will be conducted for MEPCO nominated employees.
- Assistance will also be provided to all other DISCOs in-terms of Quality and Safety trainings to trainers and Executive Quality and Safety Leadership trainings.
- Safety working groups will be formed in all DISCOs to standardize the safety performance by developing safety management systems.

**Results:** Lineman Trainings, Tools and Equipment will be implemented to improve the binding of joints in the distribution system that will save power and improve revenues for the DISCOs as well as improve safety (for employees and general public), reliability of supply and customer satisfaction.

**For Turnaround DISCO (PESCO):**

- Changing the existing bad connectors on HT/transformers/LT mains of Peshawar Circle by PESCO line crews will eventually result in power savings of 3.4 MW, translating into annual cost savings to PESCO of \$1.4 million.
- Training the management in adopting a culture of safety will save lives and reduce injuries which result in loss of output and compensation claims.
- Equipping and training line staff with quality protective equipment will reduce damages to transformers and other line material

**For Turnaround DISCO (MEPCO):**

- Changing the selected connectors of HT/transformers/LT mains of Multan Circle by MEPCO line crews will eventually result in a power saving of 2.5 MW, translating into annual cost savings to MEPCO of \$1.2 million.
- Reduction in major accidents, by providing training to the management that will ensure sustainability to the program of improved safety introduced by PDP and make it a continuous process for future.
- Equipping and training line staff with quality protective equipment will reduce damage to transformers and other line material.

**Transition:** By the end of the Project, over 70 sub-divisions, safety offices and regional and circle training centers will have received quality hand tools and 200 purpose built vehicles. A monthly lineman training program will be implemented to deliver a sustainable training legacy and improve the current poor safety culture in DISCOs. Senior and middle managers will have received executive level safety training aimed at getting board level buy-in in all nine DISCOs, developing a culture of continuous improvement in safety, tool acquisition and basic lineman training.

### Activity 3: Exchange Programs

**Scope:** PDP implemented a two-way Utility Partnership Program for capacity building activities; the United States Energy Association organized international electric utility partnerships to transfer utility reform strategies and “utility best practices” to participating DISCOs. These partnerships proved very successful and provided practical information about commercially proven change management programs, management practices and utility work cultures. Based on the successes achieved through this program, PDP decided to carry out the activity a step further.

Under Component 3, the exchange programs will be arranged specially focusing on the two Turnaround DISCOs, however some of the programs would possibly involve the participation from other DISCOs, NEPRA<sup>11</sup> and MWP as well (if possible in the given time and availability of funding from another USAID funded program). The objective is to enhance the understanding of modern utility best practices, gather practical information about change management programs, and utility work cultures that are commercially proven and have the potential of being implemented in Pakistan. Through these exchange programs, participants will be introduced to best practices in some of the selected functions like Engineering Operations and Management, Distribution Planning, GIS, Commercial Procedures, Customer Services, Financial Management, Change Management, HRM, CIS, Regulatory Practices, Regulatory Structures and Power Market.

**Schedule:** October 2014 – August 2015

USAID is expected to earmark some funds from another USAID funded program based on which PDP will start implementing these exchanges through USEA and will look into the possibility of managing these exchanges internally as well.

**Deliverables:** This activity includes the following deliverables:

- Introduction and learning best practices in some of the selected functions like Human Resource Management (HRM), Change Management, Engineering Operations and Management, Distribution Planning, Commercial Management, Customer Services, Communications, Financial Management, Regulatory Practices, Regulatory Market and Structures.
- Documentation of best practices through reports from delegates and participating international utilities.

**Results:** Training and capacity building of power sector staff. Exposure to international work environment and best practices. Establishment of strong professional relationships with international experts.

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<sup>11</sup> The exchanges mentioned under Task 3 for NEPRA will be covered under this activity and this whole exchange program is subject to availability of funding from another program funded by USAID and will be conducted if the remaining time in the program permits

## Activity 4: Governance

Under this activity, PDP will provide policy and governance assistance to MWP aimed to support policymaking at the national level and enhanced director training for DISCO boards to improve corporate governance at the DISCO level. Component 3's improved governance activities will be designed to promote enhanced transparency in decision making and overall improved governance in the power sector as a whole, and the DISCOs in particular.

### Sub-Activity 1: Governance at MWP

MWP is the principal body within the GOP responsible for review and formulation of power sector policies needed to resolve power sector challenges including massive capacity shortfalls and mounting circular debt. Power sector governance has in the past been hampered by a lack of transparency, lack of implementation of policies and conflicting political objectives.

To assist in improved policy analysis and macro-level decision-making, the governance team will continue to provide support to MWP that is in line with its stake as the principal shareholder in the DISCOs, while encouraging DISCOs to achieve increasing levels of operational independence. The PDP Governance Team will achieve this goal by continuing to provide policy support to MWP in the form of analysis and advisory services.

In addition, PDP will work with the Security and Exchange Commission of Pakistan (SECP) to define a public sector code of corporate governance. The primary focus of the Component 3 governance assistance will be to continue to strengthen the understanding and capacity of DISCO BODs by creating a framework to enhance communication with DISCO senior management and MWP. The governance team will be working closely with MWP to provide them not only with technical assistance but also to help them in improving their decision-making capacity.

The implementation strategy for PDP is split into various activities that are described below, with major deliverables for all given at the end.

#### Sub-Activity 1.1: Assist MWP in Amendment of Legal Acts and Laws in the Power Sector

**Scope:** An activity of this component is to provide assistance to MWP whenever it is necessary to amend the legal acts and laws. The PDP Governance Team will assist MWP when required to amend the Electricity Act in order to improve the performance of the Pakistan power sector and to make power theft a criminal offence. PDP will also assist MWP in providing a roadmap for market reform that will lead power sector to a cost-beneficial future.

**Schedule:** October 1, 2014 – August 31, 2015

PDP assisted MWP in drafting required amendments relating to anti-theft to the Electricity Act and same was promulgated through an ordinance on December 31, 2013. Within the period mentioned above, PDP will work with MWP to get the same amendments issued through the act of parliament.

**Deliverables Completed by FY 2014:** Assistance was provided to MWP in drafting required amendments relating to anti-theft to the Electricity Act.

**Deliverables for FY 2015:** Regional training and instructional visits / programs for better understanding of the regulated business and learning best practices (this is covered under activity 3 above).

**Result:** Overall improvement in power sector governance, improvement in power sector operations and reduction in energy losses.

### Sub-Activity 1.2: DISCO's Reform

**Scope:** Support will be provided to DISCO BODs through the MWP for their commercial reforms so as to operate in a comprehensive and rational manner. A policy note on the commercial reforms and proposals for adjustment of the roles of MWP and NEPRA will be produced. The team would also work with the SECP to define a public sector code of corporate governance for public sector companies. The team would work with MWP to ensure that NTDC and the DISCOs prepare a five-year Integrated Generation, Transmission and Distribution Plans (IGTDPs) for approval by NEPRA that will become the basis for a business plan, Multi-Year Tariff (MYT) and performance contracts for the DISCOs. The team would work with MWP in development and deployment of Performance Monitoring Portal / Dashboard which will ensure monitoring and enforcement of performance KPI's laid out in the performance contracts of each DISCO.

**Schedule:** October 1, 2014 – August 31, 2015

Security and Exchange Commission of Pakistan (SECP) has issued Public Sector Code of Corporate Governance for public sector entities, draft for DISCOs performance contracts was prepared, and dashboard for monitoring of the performance contracts was developed which currently under testing. Within the period mentioned above, PDP will continue to support MWP for the Deployment of Performance Monitoring Portal (i.e. Dashboard) and the team will work with MWP and DISCOs to ensure that the Portal is updated regularly with the required data for performance contracts KPIs.

**Deliverables Completed by FY 2014:** Issuance of Public Sector Code of Corporate Governance, signed performance contracts by DISCOs and implementation of performance monitoring portal by MWP.

**Deliverables for FY 2015:** Assistance to MWP for implementation of DISCOs reforms.

**Result:** Improved governance in the sector and realignment in the role of MWP as a policymaker in addition to being an owner of these public sector entities.

### Sub-Activity 1.3: Prevent Accumulation of Circular Debt

**Scope:** Provide assistance to MWP to help develop a means to prevent the accumulation of circular debt that is attributable to events within the Pakistan power sector. An investigation of several alternative means of prevention will occur that leads to the selection of a specific approach to and method for completing this sub-activity. Also, PDP will assist MWP in encouraging the Ministry of Finance to make timely payments to the power sector in order to avoid the further accumulation of circular debt.

**Schedule:** October 1, 2014 – August 31, 2015

During 2014, PDP provided assistance in resolving the Fuel Price Adjustment cases, the development of tariff and subsidy policy, and the formulation of forward looking fuel price adjustment mechanism. PDP within the period mentioned above continues to support MWP to carry out a review of current policies and procedures for revenue collection and the prevention of circular debt attributable to the power sector as desired.

#### **Deliverables Completed by FY 2014:**

- Tariff and Subsidy Policy
- Forward looking fuel price adjustment mechanism

#### **Deliverables for FY 2015:**

- Tariff and Subsidy ongoing technical assistance

**Result:** These tasks will help reduce the circular debt by improving cash flows into the system. Will help improve overall power sector operations.

#### **Sub-Activity 1.4: Implementation of DISCOs Power Procurement and Agency Agreements**

**Scope:** Assist DISCOs and MWP to prepare Power Procurement and Agency Agreements (PPAA) between DISCOs and Central Power Purchasing Authority Guarantee Limited (CPPA-G).

**Schedule:** October 1, 2014 – June 30, 2015

Within the period mentioned the proposed PPAA will be prepared for review by the stakeholders. The PPAA is expected to be finalized by June 2015.

**Deliverable for FY 2015:** Draft PPAA for DISCOs will be produced.

**Result:** PPAA will result in authorizing CPPA-G to procure power on behalf of DISCOs and will establish a commercial arrangement between DISCOs and CPPA-G for existing and future energy procurement and payment thereof.

#### **Sub-Activity 1.5: Assistance to MWP on Pakistan Electric and Telecom Safety National Safety Code**

**Scope:** Assist MWP with the adoption of a safety code for the protection of public, system assets and linemen.

**Schedule:** October 1, 2014 – June 30, 2015

The initial draft created, reviewed by stakeholders and final draft put to governing body of Pakistan Engineering Council (PEC) for approval. Within the period mentioned above, the Pakistan Electric and Telecom Safety Code (PETSAC) will be approved by the Governing body of PEC and accordingly will be sent for notification to GOP. It is expected to be adopted by the entities by June 2015.

**Deliverables for FY 2015:** PETSAC National Safety Code notified for implementation by entities.

**Result:** Improved governance and management of public energy sector entities and reduction in fatal and non-fatal accidents.

### Sub-Activity 1.6: Operationalization of CPPA Guarantee Limited

**Scope:** This is a continuation of Component 2. Creation of Central Power Purchasing Agency Guarantee Ltd (CPPA-G), and its function as an independent entity to take over the responsibility for the settlement of power pool payments and the inducement of the development of a competitive power market.

**Schedule:** October 1, 2014 – August 31, 2015

PDP assisted MWP in preparation for changes in the Articles and Memorandum of Associations, drafted twenty JDs for higher level management, drafted Business Transfer Agreement (BTA) and developed Interim Market Rules and is currently documenting all Standard Operating Procedures currently functional at CPPA. Within the period mentioned above, PDP will continue to support MWP and CPPA-G in further improvements as required for its finalization by different agencies.

**Deliverables Completed by FY 2014: This activity includes the following deliverables:**

- Draft amendments in Articles and Memorandum of Associations
- Up to twenty JDs for high level management
- Initial draft of BTA
- Initial draft of Interim Market Rules

**Deliverables for FY 2015:**

- Draft PPAA for CPPA-G and DISCOs
- Documentation of existing Standing Operating Procedure (SOPs) of CPPA and accordingly alignment of SOPs and Interim Market Rules
- Revision of initial draft of BTA

**Result:** Operationalization of CPPA-G that will encourage the efficient, effective and transparent settlement of power pool payments and induce the emergence of a more competitive power market.

### Sub-Activity 1.7: Support for the Preparation of a Multi-Year Tariff

**Scope:** Provide assistance to NEPRA to introduce a tariff with improved stability characteristics by transitioning to a MYT methodology and assistance to MWP for preparing MYTs for two DISCOs. MEPCO has been selected by MWP as the first MYT DISCO.

**Schedule:** October 1, 2014 – August 31, 2015

PDP first half of 2014 assisted NEPRA in drafting tariff guidelines methodology and process both for annual and multiyear consumer end tariff. Within the period mentioned above PDP will support MWP in preparation of MYT application for two DISCOs based on draft/approved Integrated Generation, Transmission and Distribution (IGTDP) plan by NEPRA.

**Deliverables for FY 2015:**

- Draft MYT methodology including Minimum Filing Requirements
- MYT application for up to two DISCOs

**Result:** Two DISCOs will submit petitions for MYT consistent with NEPRA tariff guidelines and notification by the GOP

**Sub-Activity 1.8: Support for the Preparation of a Generation, Transmission and Distribution Investment Plan**

**Scope:** As mentioned in Sub-Activity 1.2 above, the Integrated Generation, Transmission and Distribution Investment Plan (IGTDP) will provide a necessary input for the preparation of a MYT by being the base planning document for a forward looking investment plan for the entire power sector.

**Schedule:** October 1, 2014 – June 30, 2015

PDP has provided assistance to MWP by overseeing the process for preparation of Integrated Generation Transmission and Distribution Plans (IGTDPs). DISCOs have prepared their five year Distribution plans in integration with NTDC's Generation and Transmission plans. The necessary direction has been issued by MWP to the DISCOs for submission of the plans to NEPRA for approval, consistent with NEPRA revised tariff guidelines for determination of consumer end tariff. After approval from NEPRA, these plans will become the basis for a business plan, multi-year tariff (MYT) and performance contracts for the DISCOs. These plans have been prepared by all DISCOs, submitted to MWP and filed to NEPRA for approval.

Within the period mentioned above, PDP will continue to help MWP to institutionalize integrated power planning at the two Turnaround DISCOs (MEPCO and PESCO) to ensure sustainability of the planning process. PDP is in process of assessing the current environment, processes and procedures of forecasting and integrated planning, after which it will propose measures and help MEPCO and PESCO to implement those, the outcome of which will be shared with all other DISCOs for guidance and implementation after approval by their respective competent authority.

**Deliverables Completed by FY 2014:** Generation Transmission Distribution expansion and investment plans.

**Deliverables for FY 2015:** Integrated planning function As-is and To-be report, along with recommendations.

**Result:** All DISCOs will have a format and a process through which they will submit their investment plans which will become a part of their tariff petitions.

## Sub-Activity 2: Governance at DISCOs Level

**Scope:** Good corporate governance contributes to sustainable economic development by enhancing the performance of companies and increasing their access to outside capital. In emerging markets good corporate governance serves a number of public policy objectives. It reduces vulnerability of the financial crises, reinforces property rights, reduces transaction cost and cost of capital, and leads to capital market development. Corporate governance concerns the relationship among the management, Board of Directors (BOD), controlling shareholders, and other stakeholders.

A corporate governance system is comprised a wide range of practices and institutions, from accounting standards and laws concerning financial disclosure, to executive compensation, to size and composition of corporate boards. A corporate governance system defines who owns the firm, and dictates the rules by which economic returns are distributed among shareholders, employees, managers, and other stakeholders. As such, a country's corporate governance regime has deep implications for firm organization, employment systems, trading relationships, and capital markets. Thus, changes in Pakistani system of corporate governance are likely to have important consequences for the structure and conduct of country business.

Based on the feedback received from the participants of different workshops arranged by PDP for DISCOs' BOD's during Component 2, it is now realized that the corporate governance is one of the areas in DISCOs that requires an immediate training and development program to equip BOD members with modern skills in corporate governance.

Through these workshops and interactions, PDP will advance the Board members' understanding about corporate governance in general, and about their role, authority and fiduciary duties as Board members. This needs to be with particular reference to the Security and Exchange Commission of Pakistan (SECP) and legal framework in place - Companies Ordinance 1984, Code of Corporate Governance 2012, and Public Sector Companies (Corporate Governance) Rules 2013, among other.

PDP will roll out its corporate governance improvement program in the two Turnaround DISCOs. The program has two main components:

1. Impart trainings on Corporate Governance Leadership skill for the development of BODs of both the DISCOs by engaging professional institutions, such as the Pakistan Institute of Corporate Governance.
2. Provide assistance to initiate the board assessment process for the identification of areas of improvement in BOD functions.

### Schedule:

**For Turnaround 1 DISCO (PESCO): Start Date:** February 2013

**End Date:** August 2015

**For Turnaround 2 DISCO (MEPCO): Start Date:** June 2013

**End Date:** August 2015

**Turnaround 1 DISCO:** For PESCO, Directors of the BOD and key senior executives of the company will undergo a corporate governance leadership skill program. A number of further workshops will be arranged in-country for a better understanding of utility-specific corporate governance improvement action plans.

**Turnaround 2 DISCO:** In MEPCO a similar program will be rolled out.

**Deliverables Completed by FY 2014:** The following workshops were completed:

- Corporate Governance in the utility sector of Pakistan
- Risk management for board of directors
- Corporate governance leadership skills

**Deliverables for FY 2015:** The following workshops are planned:

- Benchmarking for performance improvement, network optimization and directors training program
- To help BODs have an increased appreciation of their responsibilities / authorities and to define their accountability
- Ensuring a better understanding of the legal requirements, as set forth in the Memorandum and Articles of Association, the Companies Ordinance and other regulations applying to DISCOs, and ensuring compliance
- Ensure policies in the DISCOs reflect the mandate given by MWP
- Have an oversight over financial and operational discipline within the DISCOs
- Provide guideline to BODs to devise corporate improvement action plans
- Special workshops / training sessions with the main objective of enhancing the Board's understanding of the utility business

**Results:** The anticipated results in Turnaround DISCOs are introduction of sustainable corporate governance in DISCOs, infusing a sense of ownership and responsibility within power utilities, autonomy of effective BODs and to help make utilities financially and operationally viable.

## Section 3: Cross-Cutting Activities

### Activity 1: Gender Strategy

**Scope:** DISCOs are generally considered male-dominated organizations where women number as little as less than 1% of employed staff. As a result, opportunities for career advancement are limited and women rarely succeed in climbing the corporate ladder to a senior managing level.

PDP's approach is focused on mainstreaming gender where applicable to be fully aligned with USAID policy on gender equality and women's empowerment. Gender strategy will remain cross-cutting intervention in commercial, finance, HR, and engineering projects to facilitate transformation of target DISCOs into competitive, diverse, profit-making entities in the long term.

Elements of PDP's Gender Strategy include:

- **Gender Equity Trainings (GET):** To be held for Senior Management to facilitate the development of a DISCO gender strategy in three critical areas (i) employment, (ii) career development and (iii) workplace conditions to reduce recruitment disparities and to facilitate women's entry into the power sector.
  - Keeping in view the sustainability of the intervention GET for Senior Management will be enhanced and a Training of Trainer (TOT) pertinent to GET arranged for selected Gender Equity Champions (GECs), volunteers from the management of respective DISCOs and instructors of various RTCs from respected DISCOs.
  - Introduction and implementation of GET as a regular curriculum module at Regional Training Centers (RTCs) of respective DISCOs. Parallel to the initiative, PDP gender team is working on a strategy to possibly include Gender Equity Trainings as part of regular curriculum module at all Regional Training Centers.
  - GET for Standing Inquiry Committee (SIQ) members working to limit sexual harassment so as to oversee the implementation of 'Protection Against Harassment at Workplaces' in continuation of GET initiatives.
- **Women in Leadership (WIL):** Long-term engagement strategy for women in the power sector by trying to increase the number of women interns at DISCOs in technical positions and have discussions with DISCOs on increasing the number of female employees at the leadership and decision-making levels.
  - Under WIL, initiative trainings to inculcate professionalism specifically for women employees will be arranged for females of all sections and all levels of the target DISCOs.

PDP will focus on rapid impact in three critical areas:

**Employment:** Promoting policies for the target DISCOs that will attract and, most importantly, retain women employees (e.g., flexible work hours, extended maternity leave with guaranteed return to employment within an agreed time period). Furthermore, internship programs will increase the number of women graduates' exposure to the power sector.

**Career Development:** To facilitate rapid scaling of women in leadership positions, PDP will initiate WIL initiative that will identify existing female employees in technical areas at target DISCOs. The initiative will facilitate their advancement through training in areas such as leadership development and best practices management training, ensuring significant knowledge in area of expertise and providing supplemental training as needed, and facilitating increased responsibilities with regular performance assessments.

**Improvement of Workplace Conditions:** The workplace environment is as important as providing equal salary for equal work for ensuring that women graduates and current DISCO female professional staff seek employment or remain within the power sector. PDP will work with DISCOs encouraging them to cater-for the basic requirements for women in all new constructions (keeping in-view the cultural sensitivities for women).

**Schedule:**

**PESCO - Turnaround DISCO 1:** October 2014 – August 2015

The following activities are envisioned in this Fiscal Year:

- In the first quarter of FY 2015, PDP provided technical assistance to support college campaigns conducted by the female employees of PESCO on energy conservation.
- PDP will provide trainings to members of the Sexual Harassment Protection Committee from all DISCOs including PESCO on how to monitor and deal with such issues in their organizations in the absence of witnesses. This activity will possibly be concluded in April 2015.
- Starting from September 2014, PDP will provide Gender Equity Trainings for the supervisory officials / managers of PESCO. As supervisors, they need to be aware of their responsibilities and maintain social and professional discipline as well as improve the work environment for their subordinates. Training being organized for employees at supervisory level i.e. Grade 17 and above, in batches of 20 participants. This activity will continue until June 2015.

**MEPCO – Turnaround DISCO 2:** October 2014 – August 2015

The following activities are envisioned in this Fiscal Year:

- PDP will provide trainings to members of the Sexual Harassment Protection Committee from all DISCOs including MEPCO on how to monitor and deal with such issues in their organizations in the absence of witnesses. This activity will conclude in May 2015.
- Starting from October 2014, PDP will provide GET for the supervisory officials/managers of MEPCO as well as PESCO. As supervisors, they need to be aware of their responsibilities and maintain social and professional discipline as well as improve the work environment for their subordinates. Training being organized for supervisory level i.e. Grade 17 and above, in batches of 20 participants. This activity will continue until June 2015.

**Deliverables:** This activity includes the following deliverables:

- Women’s capacity building through GET
- Assist and support the implementation of gender friendly policies / procedures to attract women employees – DISCOs take measures to improve infrastructure environment and growth opportunities for women.

**Results:** Build capacity of women in technical leadership and decision-making positions at Turnaround DISCOs to facilitate transformation of DISCOs into competitive, diverse, profit-making entities in the long term. The PDP Gender Strategy for Component 3 aims to engage and assist the target Turnaround DISCOs through our WIL-GET for Supervisors training program to recruit, develop, support and retain women as electrical engineers, IT specialists, and revenue officers with a clear strategy for merit-based career advancement.

### Activity 2: Internship Program

**Scope:** DISCOs are facing significant challenges in their operations stemming largely from deficiencies of human resource, recruitment embargoes, political pressures in respect of hiring practices, and a shortage of funds restricting hiring. The PDP Internship Program will help attract new talent with appropriate skills suited for a modernizing power sector. PDP’s unique program is designed to build capacity of PESCO and MEPCO and increase the number of young professionals in the power sector to facilitate bottom-up transformational change. The program will also support the delivery of PDP activities at the two DISCOs.

#### Schedule:

**PESCO - Turnaround DISCO 1:** October 1, 2014 – August 31, 2015

For PESCO the gap analysis was conducted in September and October 2012 by PDP to identify the staffing requirements. JDs were drafted for respective tasks in November 2012.

Interviews for selection of interns were conducted between January 2013 and April 2013 for various positions and 20 interns for PESCO were hired and positioned in May and June 2013 and now 15 are working in PESCO and attached with Finance, HR, Commercial, Planning and Engineering and are supporting PESCO’s core operations besides assisting PDP’s interventions at various levels. All the interns are working in the capacity of Support Officers/Management Trainees and have been provided with a desk and chair and a desk top computer.

During FY 2014 a fully-equipped IT lab as part of the Internship Program has been set up at PESCO’s head office with a capacity for 15 participants. This LAB was handed over and is operational and besides regular trainings is currently being utilized for ERP Trainings.

**MEPCO – Turnaround DISCO 2:** October 1, 2014 – August 31, 2015

For MEPCO the gap analysis was conducted and completed in January 2014 to identify the staffing requirements. Two batches of 19 Interns are positioned at MEPCO’s various sections and another batch has

been positioned to complete 27 intern trainees in capacity of PDP's Support Officers. All the interns are provided with Desk, Chair and a Desktop.

A fully equipped IT lab as part of Internship Program has been set up at MEPCO Headquarters building, with an aim to render the MEPCO employees tech savvy and prepare them to transformation. Besides, the IT Lab will be utilized also for various trainings under PDP interventions like ERP.

**Deliverables:** This activity includes the following deliverables:

- Staff Requirement Report and associated JDs developed
- Hiring internees from multidimensional academic portfolio for target DISCOs

**Results:** The program is designed to support the two Turnaround DISCOs as young professionals will bring tech-savvy skills and meet short term needs for extra assistance. This will not only assist PDP in its smooth implementation of activities but will also increase the chances of sustainability of interventions at the two DISCOs. Moreover, DISCOs will have experienced potential employees whenever DISCOs are allowed to do new hiring.

### Activity 3: Communications

**Scope:** DISCO's Public Relations Department mainly comprises one PR Officer and two clerical staff who most of the time issue rebuttals to the media reports. Due to the lack of professional staff qualified to handle communication components, the concept of image building and consumer awareness is lacking to the extent that not a single corporate campaign has come up since last five year. There is no linkage between PR and consumers, resulting in a widening gap between PESCOs and its consumers and contributing to the DISCO's generally poor reputation of among its consumers and media, same is true for MEPCO.

PDP's Communication and Outreach Program for Turnaround DISCOs will continue to demonstrate the importance of communications and outreach functions through a set of carefully selected activities that will help in strengthening PR departments by bridging the existing gap. DISCOs' Communications and Outreach Program comprises delivering communications and outreach campaigns, community and schools events, revamped websites, establishing corruption reporting hotlines possibly through Call Centers with dedicated Interactive Voice Response, regular communication channel with the targeted customers facilitating smooth delivery and improved DISCOs corporate branding.

PDP along with PESCO and MEPCO will continue to develop communications protocols and a strategy that will address the DISCO's long term objectives and PDPs implementation of the Component 3 activities. Trainings to DISCO PR staff will continue to empower them on designing strategies and campaigns for consumer awareness and improvements in customer services. DISCO senior staff will also be involved in outreach campaigns especially in the outreach meetings on energy conservation and theft issues both at schools and industrial levels. Regular internal communications activities including but not limited to monthly newsletters, staff assemblies, posters and banners for employees and other corporate activities will also be conducted to support Change Management and organizational change during the turnaround process.

**Schedule:**

**Turnaround DISCO 1 - PESCO:** October 1, 2014 – August 31, 2015

**Turnaround DISCO 2 - MEPCO:** October 1, 2014 – August 31, 2015

**Turnaround DISCO 1 - PESCO:** PDP started preparations for Turnaround PESCO in November 2012. PESCO allocated office space, which was refurbished by mid-February 2013 and staffed with young professionals, after which the planned activities for public relations and communications kicked-off through planning and development. Many interventions such as branding material, website, IEC material and a localized mass media campaign were launched during Ramadan. PDP will continue its communications assistance to PESCO during FY 2015 with support in media campaigns, monthly newsletters, radio talk shows, school outreach program and general support as and when requested by PESCO.

**Turnaround DISCO 2 - MEPCO:** PDP started preparations for Turnaround of MEPCO in November 2013. PDP had already established communications office at MEPCO under Component 2. Many interventions such as branding material, localized media and outreach campaigns, IEC material for customer services were implemented in the first quarter of FY 2014, however, activities such as corporate communications, public awareness on anti-theft and energy efficiency, corporate branding and internal campaigns of employee motivation are an essential part of the turnaround process of MEPCO and will continue during FY 2015.

**Deliverables for Turnaround 1 and 2:** The following are the deliverables from this intervention:

- Revamping PESCO and MEPCO official websites
- Revamping PESCO and MEPCO corporate branding
- Radio Talk Shows and Public Service Messages
- Periodic Newsletters and Reports
- Communications and Outreach Campaigns on Anti-theft, Energy Efficiency and Image Promotion and customer services
- Corporate Communications and redefining PESCO and MEPCO brand image

PDP will submit regular quarterly communications reports. Press coverage received for various activities will continue to be regularly shared with USAID. Documentaries on projects and success stories through supplementary reports at both Turnaround DISCOs will be produced and will be aired on local cable channels as well as local newspapers.

**Results:** Improved DISCO's image as a dynamic and customer friendly entities through external communications that will help Turnaround DISCOs to smoothly implement anti-theft campaigns and empower the PR Department towards aggressive communications and outreach of DISCOs.

## Section 4: Engagement Strategy

PDP is in line with the GOP’s objective to improve the operational, technical and financial performance of the DISCOs to eliminate circular debt in supply chain and reduce dependence on government subsidy in phased manner. In order to achieve the stated objectives of the program and to effectively implement the tasks stated in the technical proposal for Component 3 for both turnaround DISCOs, PDP has well defined stakeholder engagement strategy. All DISCOs are regulated by NEPRA and all the prudent costs and investments programs are being determined/approved by NEPRA annually. The delayed determination of tariff is adding to the circular debt issues as well as negatively impacting the DISCO ability to operate effectively.

Similarly the GOP is extending its role in the management of DISCOs resulting in confusion and conflicts between the CEO and BOD. Further, DISCOs also require the support from the Provincial Governments for pursuing war against theft and clearance of government dues by provincial government departments in timely manner. Under the Company’s Ordinance 1984, the BOD of DISCOs are sole decision making authority including the appointment of CEO and senior management and accordingly the BOD is responsible for compliance with all the rules and regulation applicable to the company and enact policies for the company under the guidelines issued by the GOP and approve operating procedures for the company consistent with the laws and regulations.

In order to effectively deliver the program the following are the main stakeholders identified, their requirements and PDPs high level actions to meet those requirements in-order to engage these stakeholders.

Stakeholders	Stakeholders Requirements	Actions
MWP	Reduce circular debt, improve load management and manage the power crisis to an acceptable level	<ul style="list-style-type: none"> <li>Initiate meetings with MWP to apprise them about PDP’s alignment with their priorities. Make them Champion of this change.</li> <li>Quarterly PDP progress meetings with MWP.</li> <li>PDP will periodically report to USAID of any potential bottlenecks with GOP entities and will give suggestions to resolve them.</li> </ul>
NEPRA	<p>DISCOs to provide the tariff petitions with supportive analysis as well as develop long term business plans</p> <p>A better aligned organizational structure</p> <p>Training and capacity building</p>	<ul style="list-style-type: none"> <li>Facilitate PESCO and MEPCO in preparing a multiyear tariff petition so that risk in regulatory approval can be eliminated. This MYT petition will be aligned with the long term strategic business plans of the DISCOs.</li> <li>Reorganize and realign organizational structure, with improved Job Descriptions, KPIs and Performance Management System.</li> <li>Conduct Training Needs Analysis, based on which conduct a comprehensive training and capacity development program.</li> </ul>
PESCO and MEPCO BODs	Develop long term vision and goals setting, coupled with a resource plan to deliver it. Increase the autonomy of the DISCOs to achieve the strategic objectives of the companies. Quick fixes to improve operational performance	<ul style="list-style-type: none"> <li>Conduct Progress Review Meetings with the Senior Management and / or BODs of both DISCOs on a monthly basis</li> <li>Facilitate in developing short medium and long term strategic objectives and target setting through development of business plans</li> <li>Place technical advisors in each functional area of the</li> </ul>

		<p>DISCO to support delivery of the projects and to enhance the capacity of DISCO management.</p> <ul style="list-style-type: none"> <li>• Employ college graduate interns to assist DISCO's management and PDP advisors with program delivery.</li> <li>• Conduct facilitation and development program for BODs</li> </ul>
<b>PDP</b>	Support from MWP/BODs/CEOs/senior level DISCO management. Support from DISCO operations for program delivery	<ul style="list-style-type: none"> <li>• USAID to add covenants in agreements with MWP/GOP as rules of engagement such as level of BOD autonomy, tenure postings of CEO, hiring and firing power for senior management, etc.</li> <li>• USAID support to pursue donor agencies for leveraging additional funds for long term sustainability.</li> </ul>
<b>Functional Heads of DISCOs</b>	Assigning shadow advisors to specific DISCO area and require clear understanding about the role and responsibilities of the shadow advisors	<ul style="list-style-type: none"> <li>• Conduct Progress Review Meetings with the Senior Management and / or BODs of both DISCOs on a monthly basis</li> <li>• Develop clear role and responsibilities for shadow advisors.</li> <li>• Developing close coordination and working relationships with the functional heads by the shadow manager. Solicit periodic and regular feedback from the functional heads regarding performance of the shadow managers.</li> </ul>
<b>Energy Policy Project</b>	Energy Generation, Transmission and Distribution system plans coordination	<ul style="list-style-type: none"> <li>• Bi-monthly coordination meetings to ensure integrated power planning for generation, transmission and distribution network.</li> </ul>
<b>USAID</b>	Achievement of committed results and timely completion of the project. Positive visibility of program results.	<ul style="list-style-type: none"> <li>• Program will be designed and planned in detail. PDP will prepare and manage internal detailed project planning documents, aligned with this Work Plan to ensure timely achievement of committed results.</li> <li>• PDP will devise a comprehensive communication strategy with detailed action plan to ensure success of the program and ensuring visibility of the USAID efforts to reform the sector amongst the masses.</li> </ul>
<b>DISCOs</b>	NEPRA to approve timely tariff petition and approve long and short-term business plans.	<ul style="list-style-type: none"> <li>• Timely preparation and submission of tariff petitions.</li> </ul>
<b>Consumer Groups</b>	Improvement in load shedding, customer service and availability of power	<ul style="list-style-type: none"> <li>• Prepare communications and share with consumers to highlight achievement in power availability, reduced load shedding and improved customer services.</li> </ul>

## Section 5: Sustainability Strategy and Plan

The sustainability of the improvements brought in by the projects implemented under PDP's Component 3 is vital for long term operational sustainability of the DISCOs especially the two Turnaround DISCOs.

For the above purpose, PDP envisages to facilitate the following steps which need to be taken by different entities within the Power Sector:

### Government of Pakistan

- Empower NEPRA to directly notify tariffs after determination. This will increase substantially the autonomy and credibility of the regulatory regime.
- The government should issue a policy guideline with timeline on how it plans to phase out the tariff differential subsidy or how much it needs to retain it through budget.
- NEPRA to then determine cost-reflective tariffs and a rate design that will take into consideration the subsidy. This will also credibly signal investors and development partners that the government will not default on its plan to phase out the subsidy.
- Ensure competent Board of Directors for DISCOs with full autonomy.
- Timely and full payment of subsidies which means the government must reduce them to a level it can pay and eliminate over medium to long term.
- Pursue Federal and Provincial government institutions to clear their electricity bills.
- Empower Board of Directors and give autonomy to the DISCOs as envisaged in the public sector corporate governance guidelines.
- Give the companies full autonomy over their operations, including staffing, procurements, commercial operations, stock management policy and investment programs.

### Board of Directors

- Set long term corporate objective in line with overall sector policies and regulatory framework.
- Approve the corporate business plan to achieve the long term financial sustainability of the organization.
- Approve filing of multiyear tariff petition with NEPRA in accordance with the business plan.
- Appointment of CEO and senior management of the company purely on merit and performance and their evaluation based on the objectives set in the business plan.
- Approve the restructuring of the organization to meet their current and future needs and to facilitate the introduction and sustainability of new technologies in the company.

### Management of DISCOs

- Management must be guided by a corporate business plan including objectives and goals for which the Chief Executive and the senior management shall be held accountable.
- Preparation and submission of multiyear tariff petition to NEPRA in accordance with the business plan.

- For commercial operations it is crucial to install an appropriate mechanism for checks and balances. Commercial efficiencies will not be achieved, neither in the public nor private-owned utilities if politicians interfere in utilities' operations.
- The DISCOs must (i) formulate clear, well-specified JDs for each position including the tasks for which the staff member will be held accountable (ii) improve the transparency in recruitment processes by establishing clear process rules how to execute the selection process, and (iii) establish a system to regularly appraise staff combined with the adoption of performance-based salary structures in the medium to long term once they are able to implement them.
- DISCOs should collect revenues from their electricity sales (including subsidies from the government for DISCOs) that fully cover the costs of supply and distribution and generate an appropriate return on capital invested.
- Get approvals from the BODs for the organizational restructuring to support new technology and hiring of qualified resources or training of existing ones to take on new positions.
- Get approvals from the BOD to provide resources for field installation work.
- Ensure availability of resources for PDP's IT interventions, such as IT support teams i.e. application support, technical support and IT help desk including the proper physical infrastructure space for IT data center/server room.
- Active participation of DISCOs staff in IT and other training and capacity building programs of PDP.

### Power Distribution Program

- Stakeholders will be engaged at all phases of program delivery including design, implementation and closeout. A communications program will ensure stakeholders are continually informed as to what has been, is being, and will be done, and what the impacts were, are or will be.
- An effective change management strategy will be implemented with focus on internal champions and considering the organizational culture.
- Staff from DISCOs and other entities will be seconded and will be utilized for design and delivery of the various sub-projects.
- PDP will work with MWP to get the support for the DISCOs for successful implementation of the program.
- For improving the relationship between the regulator and the DISCOs, workshops, conferences, dialogues, and meetings will be arranged on the relevant issues.
- DISCOs will be assisted in filing a tariff petition based on the cost of service study, and to streamline the process for tariff determination for both DISCOs and NEPRA.
- For sustainability of PDP interventions at the Turnaround DISCOs, organizational structure will be improved to augment the physical and human capacity of these DISCOs, enabling them to operate and maintain what has been delivered during the program.
- Costs associated with the continued delivery of program activities after PDP's closeout will be calculated and shared with counterpart DISCOs so as to be incorporated into their own budgets during the annual budgeting cycle.

- PDP will conduct lineman training for skill enhancement and for improved field installation work and they will be involved in execution of the relevant PDP's projects in their DISCOs to some extent.

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## Section 6: Program Management Office

### Main Objective

The Program Management Office (PMO) serves as a centralized facilitating management structure for group of projects being executed at PDP, aimed at ensuring standardization, implementation of the scope, cost and schedule, centralized coordination among teams and aligning the vision-strategy of the management with the project delivery teams.

### Functions of PMO

PDP's PMO is performing the following functions:

1. Assistance to Program Management
2. Monitoring and Evaluation
3. Environmental Compliance

#### 1. Assistance to Program Management

The PMO is involved right from the design work i.e. development of the Work Plans to development of PDP's detailed internal Project Design Documents (PDDs) derived from the Work Plans. The PDDs entail detailed estimates for scope, schedule, cost and procurements that form the baseline for further project's monitoring. The PMO assists the management to monitor and track project progress, resolve issues and facilitate implementation by coordination between the on-site PMU for Turnaround DISCOs, other delivery teams assigned to the tasks that are spread all across DISCOs and centralized project finance/procurement teams. The PMO also facilitates and helps senior management to manage the interdependencies between PDPs delivery teams.

#### 2. Monitoring and Evaluation

This important function by the M&E Team is assuring a standard process of M&E of outcomes. M&E Team coordinates and works closely with PDPs field implementation team and the sub-contractors to ensure that the results achieved by physical process are validated by conducting data quality assessment to physical sample site visits. These results are then shared with the management of PDP for result based monitoring.

M&E core activities include the following:

**Performance Management:** In order to measure project performance, PDP maintains a Performance Management Plan (PMP) based on the performance indicators identified by USAID Pakistan in its Results Framework. PDP's PMP ensures that collection and reporting of performance indicators is timely and useful to the project team and to USAID. PMO works with teams to come-up with the solid methodologies which are then utilized to report results in certain interventions.

**Data Collection and Management:** As part of the M&E function, performance results with respect to the USAID RF meters are collected from each PDP team including respective subcontractors on monthly and quarterly basis. On the other hand subcontractors are required to submit, on a weekly basis, their data in form of progress reports.

**Data Quality Assessments:** Overall quality of data and conformity with standards and procedures is maintained through evaluation and analysis of processed data. The sub-contractors are responsible for ensuring the overall quality of data at site through pre-entry verification, authenticating data entered against filled forms and pictures taken at the field and filing of paper version of forms as per the agreed statement of work. In order to further validate the quality of data collected from the sub-contractors and PDP teams, internal Data Quality Assessments (DQA) are performed by central M&E team on periodic basis; focusing on validity, integrity, reliability, precision and timeliness.

### 3. Environmental Compliance

As per US Regulation 216, an Initial Environmental Examination (IEE) for PDP was carried out by USAID in July 2010. Based on the IEE's recommendations and in compliance with overall USG environmental requirements, an Environmental Mitigation and Monitoring Plan (EMMP) were developed to incorporate environmental considerations in all aspects of the program.

The PMO has been tasked to work with the external environmental consultants and program delivery teams to ensure all interventions developed under PDP are compliant with the EMMP requirements.

## Section 7: Component 2 Activities Continuing into Component 3

The activities moving from Component 2 to Component 3 are those that achieved tremendous results and those that make logical sense to be continued. Component 2 covers all DISCOs, including PESCO and MEPCO. The high impact activities that are being executed under Component 2 are continued and augmented in PESCO and MEPCO. Apart from these, the activities like capacitor work, Improved Meter Reading (IMR) with hand held devices (HHUs), and improved metering with AMR technology that was being carried out and were showing good results across DISCOs are being completed or continued in Component 3 in the relevant DISCOs, with the strategy to give implementation priority to the Turnaround DISCOs. The following are the major activities moving into Component 3.

### 1. Congested Area Strategy

Under Component 2 congested area work is being carried out in PESCO, MEPCO and LESCO. Under Component 3, PDP will assist the DISCOs to plan congested areas, focusing in the Turnaround DISCOs, and install cable, extend HT lines by shortening LT lengths, install new high efficiency transformers etc. To achieve this improvement, it is planned to purchase and install the bulk of the material with DISCO participation. This activity will lead to reduced losses and increased revenue in congested and high theft areas with improved customer safety and satisfaction.

### 2. Improved Metering with AMR Technology

AMR meter work (about 800) which was started under C2 is being completed in MEPCO. These meters are being installed on small and medium sized industry in Multan Circle. Hundred meters are also being installed in PESCO.

As a loss reduction project, AMR meter work was started in HESCO high loss Qasimabad subdivision which will be completed. This is a complete system with head-end system. It will help reduce losses and increase revenue. Under Component 3, PDP is executing a large scale AMR program at both turnaround DISCOs.

### 3. GIS Survey and Engineering Analysis

In Component 2, PDP carried out feeder mapping and analysis of one sub-division per DISCO. PDP initiated a program to enable nine DISCOs to develop geo-database containing accurate mapping and location information of all field installations. To date nine DISCO P&E computer centers have been made operational. Under Component 3, PDP will continue provide technical support and advanced training to build DISCO capacity to map entire divisions and circles. High emphasis on this activity will be focused at the Turnaround DISCOs. In PESCO, PDP Team worked with PESCO to map all the feeders in Peshawar Circle. Now, technical assistance is being provided to map feeders in other Circles of PESCO.

### 4. Improved Meter Reading with HHUs

Improved meter reading (IMR) with hand held devices was started under Component 2 and gave excellent results in MEPCO. Under Component 3, it continues in MEPCO and PESCO. This is helping in reducing

losses and increasing revenue. Support is being provided to LESCO, on their request, for a pilot project in one subdivision with hand held units, a desk top with software and staff training.

## 5. LT Capacitor Installation Program

Under the Component 2 Capacitor Pilot Program, PDP installed LT capacitors on agricultural tubewells for the purpose of improving power factor of the pump motors to release much needed demand and to reduce technical losses. This activity was carried out on selected feeders in MEPCO, FESCO, LESCO, IESCO and QESCO. In QESCO, a large scale installation about 16,000 capacitors has been completed. Based on the successful results of this project, PDP has started the large scale capacitor installation project under Component 3. These will help reduce demand and technical losses.

## 6. Cost of Service Study

Having completed the COS study with IESCO, PDP is currently working on COS studies at nine (9) other DISCOs (LESCO, FESCO, GEPCO, MEPCO, HESCO, PESCO, SEPCO, TESCO 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. AMR meters will be procured and installed at all transformers of selected feeders in each DISCO for establishing demand coincidence and contribution to the DISCO's demand. An appropriate methodology for calculation of weighted average cost of capital will be used to determine market based rate of return. This is covered under Task 3.

## 7. Enterprise Resource Planning

Under Component 2, ERP work was limited to preparation of ERP implementation manual that included road map for DISCOs for its implementation and the "As-Is" and "To-Be" for financial processes. This was completed in July 2012. Based upon the knowledge and experience gained from the development of the ERP Documentation Manual (Manual) under Component 2, PDP will implement the ERP initiative at both Turnaround DISCOs in accordance with the guidelines outlined in the manual.

## 8. Organizational Assessment and Restructuring

This project was undertaken at MEPCO under Component 2. Taking the fact into account that all DISCOs are structured in a similar manner with very minor differences, the assessment work conducted at MEPCO will be validated for PESCO environment under Component 3 and minimal assessment will be done only in areas where there might be discrepancies/inconsistency. The project will now focus on the implementation of approved proposals both in MEPCO and PESCO.

## 9. Linemen Training in DISCOs

In Component 2 linemen training was focused on nine DISCOs. Component 3 will see efforts largely focused at the two Turnaround DISCOs. Efforts will be continued at the remaining seven DISCOs albeit on a comparatively smaller scale. The intervention will be titled as Lineman Tools and Training under C3. Leading Quality and Safety Training will be conducted for senior and middle managers of all the DISCOs.

## 10. Upgrading of DISCOs Regional Training Centers

Lineman safety equipment and tools along with training aids are being provided to all the DISCO RTCs under Component 2. Now, a 24 station computer lab is being established in RTCs of six DISCOs: GEPCO, HESCO, LESCO, MEPCO, PESCO and QESCO. This will help DISCO build the capacity of their work force which will help improve the overall performance of the Company.

## 11. Improved Switching through Outage Reduction Devices

Outage reduction devices (ORDs) including HT switches, drop out cut outs for transformers, sectionalizers, fault indicators and on and off load switches are being installed on selected feeders to demonstrate outage reduction. These are being installed on selected feeders in FESCO, GEPCO, HESCO, IESCO, LESCO, MEPCO and PESCO. The work was started in Component 2 and is now being completed.

## 12. MWP IT Plan

This activity is a continuation of Component 2. This project is designed for updating and expanding IT Infrastructure and services in the Ministry of Water and Power (MWP). The plan includes provision of basic IT hardware to MWP employees, which would be scalable to cater for future expansion needs. The system is planned with the capacity to become a building block of the Management Information System (MIS) of the Ministry of Water and Power and potentially handle many of its internal communications, information processing, administrative services, presentations, records, archives, and communications with DISCOs, GENCOs, and other entities. The project is being implemented in four phases. First three phases of the project have been completed and work is continuing on Phase-4 which includes IT Infrastructure upgrade of MWP Satellite Offices, development and deployment of Central Data Repository, development and deployment of Dashboard for DISCO performance monitoring and Implementation of EGD E-Office Suite. Upon completion, these upgrades will help in replacing manual processes, increasing productivity and accuracy, and improving both internal and external communication leading to improved management and staff decision-making based on real-time information.

## 13. Ten Year Financial Forecasts and Business Plans

In Component 2, PDP provided technical assistance to all DISCOs for preparation of ten year financial forecast model. In Component 3, PDP is assisting MEPCO and PESCO to prepare the Strategic Business Plans. On the request of LESCO BOD, PDP will possibly provide technical assistance to LESCO to prepare the Business Plan.

## **Annexures**

**Annex 1: Life of Project Schedule**

**Annex 2: Task Summary Matrix**

**Annex 3: Risk Matrix**

**Annex 4.1: Results/Outputs Table**

**Annex 4.2: Work Plan – USAID Result Framework Mapping**

**Annex 4.3: Data Collection at PDP**

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# PDP FY2015 Work Plan Schedule

ID	Name	Duration	Start	Finish	12	2013			2014			2015				
					Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3			
1	<b>Power Distribution Program Schedule</b>	<b>782 days</b>	<b>Sep 3 '12</b>	<b>Aug 31 '15</b>												
2	<b>Execution Phase</b>	<b>782 days</b>	<b>Sep 3 '12</b>	<b>Aug 31 '15</b>												
3	<b><u>Task 1-A (i) Turnaround PESCO</u></b>	<b><u>587 days</u></b>	<b><u>Jun 3 '13</u></b>	<b><u>Aug 31 '15</u></b>												
4	<b>Activity 1 - Wide Scale Electronic Metering &amp; Reconductoring</b>	<b>484 days</b>	<b>Oct 24 '13</b>	<b>Aug 31 '15</b>												
97	<b>Activity 2 - AMR on High-End Consumers</b>	<b>415 days</b>	<b>Jan 28 '14</b>	<b>Aug 31 '15</b>												
144	<b>Activity 3 - Revenue Enhancement Activities</b>	<b>502 days</b>	<b>Sep 27 '13</b>	<b>Aug 31 '15</b>												
193	<b>Activity 4 - Communications &amp; Outreach</b>	<b>586 days</b>	<b>Jun 3 '13</b>	<b>Aug 31 '15</b>												
206	<b>Activity 5 - Implement Enterprise Resource Planning (ERP)</b>	<b>413 days</b>	<b>Jan 30 '14</b>	<b>Aug 31 '15</b>												
313	<b>Activity 6 - Strategic Business Plan for PESCO</b>	<b>348 days</b>	<b>May 1 '14</b>	<b>Aug 31 '15</b>												
335	<b>Activity 7 - Org Assessment, Training &amp; Capacity Building</b>	<b>510 days</b>	<b>Sep 17 '13</b>	<b>Aug 31 '15</b>												
357	<b><u>Task 1-A (ii) Turnaround MEPCO</u></b>	<b><u>478 days</u></b>	<b><u>Nov 1 '13</u></b>	<b><u>Aug 31 '15</u></b>												
358	<b>Activity 1- AMR on Tubewells</b>	<b>416 days</b>	<b>Jan 28 '14</b>	<b>Aug 31 '15</b>												
397	<b>Activity 2 - AMR on Hi-End Consumers</b>	<b>415 days</b>	<b>Jan 29 '14</b>	<b>Aug 31 '15</b>												
399	<b>Activity 3 - Expanding GIS Mapping &amp; Planning &amp; Engineering</b>	<b>411 days</b>	<b>Feb 3 '14</b>	<b>Aug 31 '15</b>												
449	<b>Activity 4 - ELR Program</b>	<b>475 days</b>	<b>Nov 5 '13</b>	<b>Aug 31 '15</b>												
485	<b>Activity 5 - Volt VAR Optimization</b>	<b>411 days</b>	<b>Feb 3 '14</b>	<b>Aug 31 '15</b>												





# PDP FY2015 Work Plan Schedule

ID	Name	Duration	Start	Finish	12	2013				2014				2015						
					Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3			
939	<b>Activity 6.4 - Governance</b>	<b>673 days</b>	<b>Feb 1 '13</b>	<b>Aug 31 '15</b>																
940	<b>Sub-Activity 1: Governance at MWP Level</b>	<b>663 days</b>	<b>Feb 15 '13</b>	<b>Aug 31 '15</b>																
941	<b>Sub-Activity 1.1: Assist MWP in Amendment of Legal Acts and Laws</b>	<b>663 days</b>	<b>Feb 15 '13</b>	<b>Aug 31 '15</b>																
943	<b>Sub-Activity 1.2: DISCO Reform</b>	<b>336 days</b>	<b>May 20 '14</b>	<b>Aug 31 '15</b>																
945	<b>Sub-Activity 1.3: Prevent Accumulation of Circular Debt</b>	<b>401 days</b>	<b>Feb 18 '14</b>	<b>Aug 31 '15</b>																
947	<b>Sub-Activity 1.4: Implementation of DISCOs Power Proc. Agreement</b>	<b>608 days</b>	<b>Mar 1 '13</b>	<b>Jun 30 '15</b>																
949	<b>Sub-Activity 1.5: Assistance to MWP on National Safety Code</b>	<b>608 days</b>	<b>Mar 1 '13</b>	<b>Jun 30 '15</b>																
951	<b>Sub-Activity 1.6: Operationalization of CPPA Guarantee Limited</b>	<b>456 days</b>	<b>Dec 3 '13</b>	<b>Aug 31 '15</b>																
953	<b>Sub-Activity 1.7: Support for the Preparation of a Multi-Year Tariff</b>	<b>478 days</b>	<b>Nov 1 '13</b>	<b>Aug 31 '15</b>																
955	<b>Sub-Activity 1.8: Support for the Preparation of a GTID Plan</b>	<b>412 days</b>	<b>Dec 2 '13</b>	<b>Jun 30 '15</b>																
957	<b>Sub-Activity 2: Governance at DISCO Level</b>	<b>673 days</b>	<b>Feb 1 '13</b>	<b>Aug 31 '15</b>																
960	<b><u>Cross Cutting Activities</u></b>	<b><u>673 days</u></b>	<b><u>Feb 1 '13</u></b>	<b><u>Aug 31 '15</u></b>																
961	<b>Activity 1: Gender Strategy</b>	<b>673 days</b>	<b>Feb 1 '13</b>	<b>Aug 31 '15</b>																
963	<b>Activity 2: Internship Program</b>	<b>478 days</b>	<b>Nov 1 '13</b>	<b>Aug 31 '15</b>																
965	<b>Activity 3: Communications</b>	<b>501 days</b>	<b>Oct 1 '13</b>	<b>Aug 31 '15</b>																

## Annex 2: Tasks Summary Matrix

**TASK 1-A: Reforms in Turnaround Distribution Companies**

The purpose of this task is to implement such interventions in the selected Turnaround DISCOs that would help them to operate independently and effectively.

**TASK 1-A.i: Turnaround PESCO**

The purpose of this task is to work with PESCO which is selected as Turnaround DISCO-1 to improve its commercial, technical and financial performance by modernizing policies, processes and procedures by providing technical assistance along with modern infrastructure.

Activities	Sub-Activities	Lead	Support	Comments	Output/Milestone
<b>Activity 1:</b> Wide Scale Electronic Metering & Reconductoring Program	<b>1.1:</b> Large Scale Meter Replacement Program	IRG / Engility	External Sub		<ul style="list-style-type: none"> <li>• Installation of up to 42,000 RF-enabled meters</li> <li>• Installation of up to 60,000 electronic meters</li> <li>• Securing/replacement of service drops cables</li> <li>• Installing ABC / XLPE Service Drop cable in selected PESCO areas</li> <li>• Enumeration of customers (in selected Peshawar Circle areas)</li> <li>• Delivery of electronic meter testing system for PESCO</li> </ul>
	<b>1.2:</b> Replace of Bare Secondary Conductor with Insulated Aerial Bundled Cables (ABC)				
<b>Activity 2:</b> AMR on High End Bulk, Industrial and Commercial Consumers	<b>2.1:</b> AMR Metering on High-Use Residential, Commercial and Industrial Consumers	IRG / Engility	External Sub		<ul style="list-style-type: none"> <li>• Testing and commissioning of the AMR meters for high-end customers</li> <li>• Installation of a head-end system</li> <li>• Testing and commissioning of meter data communication and end-user interface software.</li> <li>• Establishing and commissioning of a comprehensive Advanced Metering Infrastructure (AMI).</li> </ul>

	<b>2.2:</b> AMR Meters with Connect/disconnect Facility on High-End Consumers				<ul style="list-style-type: none"> <li>• Impart system operation and maintenance training to PESCO staff.</li> <li>• Establishing an AMI cell within PESCO</li> </ul>
<b>Activity 3:</b> Revenue Enhancement Through Theft Control And Procedure Enforcement	<b>3.1:</b> Protection Cell Establishment  <b>3.2:</b> Enforcement Cell Establishment  <b>3.3:</b> Implementation of HHU meter Reading System	IRG / Engility	External Sub		<ul style="list-style-type: none"> <li>• Set-up of fully staffed and equipped Revenue Protection Cells at the circle level</li> <li>• Define and implement processes and procedures for the efficient operations of the revenue protection cell</li> <li>• Develop a legal framework for the effective prosecution of electricity theft cases</li> <li>• Build the capacity of relevant staff members</li> <li>• Develop KPI dashboards for the monitoring of key revenue affecting procedures</li> <li>• Design and place KPI charts at Peshawar Circle subdivisions</li> <li>• Develop case trackers for customers with long outstanding arrears</li> <li>• Provide anti-theft surveillance vehicles</li> <li>• Training of DISCO staff</li> <li>• Provision of HHUs, IT hardware equipment for the Peshawar Circle and one additional Circle and training of the master trainers</li> </ul>
<b>Activity 4:</b> Communications & Outreach – Corporate Communications & Public Awareness	<b>4.1:</b> Designing of Campaign  <b>4.2:</b> Production of Awareness Material  <b>4.3:</b> Implementation of Campaign	IRG / Engility	External Sub	These activities will be implemented in PESCO headquarters and circles. While Security	<ul style="list-style-type: none"> <li>• Corporate communication</li> <li>• Revamping of official DISCO websites of PESCO and MEPCO</li> <li>• Media and outreach</li> <li>• Radio talk shows &amp; Public Service Messages</li> <li>• Grassroots-level promotions and awareness such as community level or schools sessions</li> <li>• Periodic newsletters and reports</li> <li>• Documentaries on projects and success stories</li> </ul>

	<b>4.4:</b> Outreach Campaign Activation			remains a challenge, branding waiver will be applied.	<ul style="list-style-type: none"> <li>• Supplementary reports on both Turnaround DISCOs will be produced and will be aired and published on local cable channels and newspapers respectively</li> </ul>
<b>Activity 5:</b> Implement Enterprise Resource Planning (ERP)	<b>5.1:</b> Enterprise Resource Planning System (ERP)	IRG / Engility	External Sub	ERP and CIS will be coordinated under one umbrella for strong integration and to maximize benefits	<ul style="list-style-type: none"> <li>• Implementation of Financial, Material Management and Human Resource Information System</li> <li>• IT infrastructure supporting ERP that include data centers with servers, end user computers and network infrastructure</li> <li>• Baseline reporting for collecting and validating existing data</li> <li>• Accurate customer database and mapping to distribution network</li> <li>• Assembly phase: Application configuration, reports development, interface development, unit testing, and training manual preparation</li> <li>• Acceptance phase: End user testing and training</li> <li>• Rollout: Final data migration and go-live</li> <li>• Customer Service Centers equipped with modern tools to work with CIS</li> </ul>
	<b>5.2:</b> Customer Information System (CIS)	IRG / Engility	External Sub		
<b>Activity 6:</b> Strategic Business Plan for PESCO	<b>6.1:</b> Development of Strategic Goals and Objectives	IRG / Engility	External Sub		<ul style="list-style-type: none"> <li>• Establishment of Strategic Objectives/Strategic Goals 2016-2020</li> <li>• Training of staff on Strategic Management &amp; Project Management</li> <li>• A Workshop for BOD PESCO on Strategic Planning</li> <li>• Codification of project plans based on Strategic Objectives/Strategic Goals 2015-2019</li> <li>• The Business Plan</li> </ul>
	<b>6.2:</b> Preparations of Action plans				
	<b>6.3:</b> Preparing a Draft Business Plan				

<p><b>Activity 7:</b> Organizational Assessment &amp; Restructuring, Training &amp; Capacity Building &amp; Change Management Initiative</p>	<p><b>7.1:</b> Organizational Assessment &amp; Restructuring</p> <p><b>7.2:</b> Designing &amp; Training &amp; Capacity Development</p>	<p>IRG / Engility</p>	<p>External Sub</p>	<ul style="list-style-type: none"> <li>• Improved &amp; corporatized organizational structure with improved:             <ul style="list-style-type: none"> <li>○ Job descriptions KPI's</li> <li>○ Performance Management System</li> <li>○ Compensation &amp; benefits</li> <li>○ Safety etc.</li> </ul> </li> <li>• HR manual</li> <li>• Training &amp; capacity building             <ul style="list-style-type: none"> <li>○ BoD development</li> <li>○ Management development</li> <li>○ Functional trainings</li> </ul> </li> <li>• Upgrade RTC, including establishment of IT training lab, and four Circle Training Centers</li> <li>• Establishment of IT training lab at head office</li> </ul>
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<b>TASK 1-A.ii: Turnaround MEPCO</b>					
<p>The purpose of this task is to work with MEPCO which is selected as Turnaround DISCO-2 to improve its commercial, technical and financial performance by modernizing policies, processes and procedures by providing technical assistance along with modern infrastructure.</p>					
<b>Activities</b>	<b>Sub-Activities</b>	<b>Lead</b>	<b>Support</b>	<b>Comments</b>	<b>Output/Milestone</b>
<p><b>Activity 1:</b> AMR meters on all of the Agricultural Tube-well connections in Multan and Other Selected Circle(s)</p>	<p><b>1.1:</b> AMR Meter Installation on Tube-wells</p> <p><b>1.2:</b> Establishment of Automated Metering Infrastructure (AMI) with head-end system</p>	<p>IRG / Engility</p>	<p>External Sub</p>		<ul style="list-style-type: none"> <li>• Installation, testing and commissioning of the AMR meters for tubewell connections of selected Circles(s)</li> <li>• Installation and commissioning of the head-end system.</li> <li>• Establishment and commissioning of a comprehensive Advanced Metering Infrastructure (AMI)</li> <li>• Installation and commissioning of meter data communication and end-user interface software</li> <li>• Establishing and commissioning of a comprehensive Advanced Metering Infrastructure (AMI)</li> <li>• Impart system operation and maintenance training to MEPCO staff</li> <li>• Establishing an AMI cell within MEPCO</li> </ul>
<p><b>Activity 2:</b> AMRs on High-End Consumers having load above 20 KW</p>	<p><b>2.1:</b> Large Scale Meter Replacement Program</p> <p><b>2.2:</b> Establishment of Automated Metering Infrastructure</p>	<p>IRG / Engility</p>	<p>External Sub</p>		<ul style="list-style-type: none"> <li>• Installation of AMR meters on high end customers having a sanctioned load of 20kW and above</li> <li>• Installation and commissioning of the head-end system</li> <li>• Establishment and commissioning of a comprehensive Advanced Metering Infrastructure (AMI)</li> <li>• Installation and commissioning of meter data communication and end-user interface software.</li> <li>• Establishing and commissioning of a comprehensive Advanced Metering Infrastructure (AMI).</li> </ul>

	(AMI) with head-end system				<ul style="list-style-type: none"> <li>• Impart system operation and maintenance training to MEPCO staff.</li> <li>• Establishing an AMI cell within MEPCO.</li> </ul>
<p><b>Activity 3:</b> Expanding GIS Mapping and Planning functions to Circle level</p>	<p><b>3.1:</b> Establishment of P&amp;E Circle Offices</p> <p><b>3.2</b> Establishment of a Centralized GIS Data Center</p> <p><b>3.3:</b> Deployment and Configuration of ArcGIS Server</p>	IRG / Engility	External Sub		<ul style="list-style-type: none"> <li>• MEPCO will establish P&amp;E computer centers, one each Circle</li> <li>• Commissioning of P&amp;E hardware and software for each of the eight circle P&amp;E computer centers</li> <li>• Implementation of GIS Mapping and Distribution Network Planning at each circle</li> <li>• Network analysis, including load flow analysis and segregation of technical and non-technical losses at each circle level</li> <li>• Integration with the P&amp;E center at MEPCO Headquarters</li> <li>• Establishment of a Centralized GIS Data Center</li> <li>• Trained field staff</li> </ul>
<p><b>Activity 4:</b> Launching Energy Loss Reduction (ELR) Program</p>	<p><b>4.1</b> Installation of Aerial Bundled Cables</p> <p><b>4.2:</b> Outage Reduction Devices Installation</p> <p><b>4.3:</b> Installation of Inter-set Transformers</p>	IRG / Engility	External Sub		<ul style="list-style-type: none"> <li>• Installation of AMR GSM/GPRS enabled meters (covered under activity 2)</li> <li>• Cable installation on the secondary of selected feeders of Multan Circle</li> <li>• Installation of 150 CSP transformers</li> <li>• XLPE service drop cable will be installed in conjunction with ABC cable and Single Phase transformers.</li> <li>• A monitoring program and consumer census for the target subdivision</li> </ul>

<p><b>Activity 5:</b> Volt VAR Optimization (VVO)</p>	<p><b>5.1:</b> Installation of 11 kV Switched and Un-switched Capacitors</p> <p><b>5.2:</b> Voltage Regulating Equipment Installation</p>	<p>IRG / Engility</p>	<p>-</p>		<ul style="list-style-type: none"> <li>• Procurement of 125 HT Switched Capacitor Banks and 80 Automatic Voltage Regulators</li> <li>• Completion of analysis for installation of VVOs for rest of the locations</li> <li>• Installation of 125 HT Switched Capacitor units as part of VVO project</li> <li>• Installation of 80 Automatic Voltage Regulators as part of VVO project.</li> <li>• Trained staff</li> </ul>
<p><b>Activity 6:</b> Improving Commercial Operations</p>	<p><b>6.1:</b> Improved Meter Reading and HHUs</p> <p><b>6.2:</b> Revenue Protection through Surveillance</p> <p><b>6.3:</b> Customer Service Improvement Initiative</p>	<p>IRG / Engility</p>	<p>-</p>		<ul style="list-style-type: none"> <li>• Implementation of handheld devices for meter reading</li> <li>• Supply of 240 HHUs with all required IT tools and equipment</li> <li>• Training of DISCO staff</li> <li>• Provision of HHUs, allied IT hardware equipment for the entire company and training of masters trainers</li> <li>• Defining and implementing processes and procedures for surveillance activity</li> <li>• Communications and Public Outreach Program</li> <li>• Improved customer services offices</li> <li>• Up gradation of Regional Complaint Center</li> <li>• Up gradation of fourteen one window operations centers of Multan Circle with provision of vehicles for speedy complaint redressing</li> <li>• Upgrading of subdivision offices in Multan Circle</li> </ul>

					<ul style="list-style-type: none"> <li>• Customer service excellence training to staff</li> <li>• Defining and implementing procedures for customer services</li> </ul>
<b>Activity 7:</b> Communications & Outreach – Corporate Communications & Public Awareness				Refer Task 1.A(i), Activity 4	
<b>Activity 8:</b> Implement Enterprise Resource Planning	<p><b>8.1:</b> Enterprise Resource Planning System (ERP)</p> <p><b>8.2:</b> Customer Information System (CIS)</p>	<p>IRG / Engility</p> <p>IRG / Engility</p>	<p>External Sub</p> <p>External Sub</p>		<ul style="list-style-type: none"> <li>• Implementation of Financial, Material Management and Human Resource Information System</li> <li>• IT infrastructure supporting ERP that include data centers with servers, end user computers and network infrastructure</li> <li>• Baseline reporting for collecting and validating existing</li> <li>• IT infrastructure to support the CIS application at Circle level with customer base of approximately 1.2 million</li> <li>• Wide Area Network (WAN) connectivity between the eight divisions of Multan Circle</li> <li>• Replacement of legacy billing system with CIS at Multan Circle</li> </ul>
<b>Activity 9:</b> Strategic Business Plan for PESCO	<p><b>9.1:</b> Development of Strategic Goals and Objectives</p> <p><b>9.2:</b> Preparations of Action plans</p>	<p>IRG / Engility</p>	<p>External Sub</p>		<ul style="list-style-type: none"> <li>• Establishment of Strategic Objectives/Strategic Goals 2016-2020</li> <li>• Training of staff on Strategic Management &amp; Project Management</li> <li>• Workshop for BOD MEPCO on Strategic Planning</li> <li>• Codification of Action plans based on Strategic Objectives/Strategic Goals 2016-2020</li> </ul>

	<b>9.3:</b> Preparing a Draft Business Plan				<ul style="list-style-type: none"> <li>• The Business Plan</li> </ul>
<b>Activity 10:</b> Change Management & Human Resource Development	<b>10.1:</b> Organization Restructuring / Process Re-Engineering		External Sub		<ul style="list-style-type: none"> <li>• Revised and improved               <ul style="list-style-type: none"> <li>○ Authority Matrix</li> <li>○ Grading Structure</li> <li>○ Separation Policy</li> </ul> </li> <li>• Compensation &amp; Benefits Study</li> <li>• Employee Handbook</li> <li>• HR Help Desk</li> <li>• Recruitment Policy</li> <li>• Training Needs Assessment</li> <li>• Training function development</li>   <li>• Upgrading of one Regional &amp; four Circle Training Centers including IT Training Lab</li> <li>• BOD development program</li> <li>• Management development programs</li> <li>• Functional training programs</li> <li>• Train the trainers courses</li> <li>• Updated curriculum and training material</li> </ul>
	<b>10.2:</b> HR Development / Training & Capacity Building	IRG / Engility	External Sub		

**TASK 1-B.i: Technical Assistance for the Transition of Selected Distribution Companies from Public Management to Private Management**

The purpose of this task is to work with GOP ministries, authorities and commissions to provide technical and policy assistance that will assist in the transition of selected distribution companies from public management to private management.

Activities	Sub-Activities	Lead	Support	Output/Milestone
Activity 1: Legal & Regulatory Due Diligence	1.1: Legal Due Diligence	IRG / Engility	External Sub	<ul style="list-style-type: none"> <li>Due diligence determination on legal constraints on privatization</li> </ul>
	1.2: Regulatory Due Diligence	IRG / Engility	External Sub	<ul style="list-style-type: none"> <li>Due diligence determination on regulatory constraints on privatization</li> </ul>

**TASK 1-B.ii: Technical Assistance to Privatization Commission**

The purpose of this task is to provide technical and policy assistance to PC that will support the transition of the state-owned power distribution companies from public management to private management.

Activity 1: Assessment of current privatization process		IRG / Engility	-	<ul style="list-style-type: none"> <li>Documentation on current privatization process</li> </ul>
Activity 2: Provide strategic advice to PC		IRG / Engility	-	<ul style="list-style-type: none"> <li>Road maps and work plans for short and medium term privatization programs</li> <li>Improvement in the transaction team's transaction management systems</li> </ul>
Activity 3: Assistance in preparation for privatization		IRG / Engility	-	<ul style="list-style-type: none"> <li>Provide advice on sellers due diligence</li> <li>Assist the PC in developing future RFPs</li> <li>Refining the evaluation criteria for bidding</li> </ul>

**TASK 2: Energy Conservation and Demand Side Management**

The purpose of this task is to implement industrial and municipal DSM programs in the Turnaround DISCOs by installing energy efficient motors, VSDs in the industry, and pump-sets in the publicly-owned water and sewerage utilities, and evaporative cooling units in urban areas.

Activities	Sub-Activities	Lead	Support	Comments	Output/Milestone
<b>Activity 1:</b> Solutions to enhance DISCOs Load Management and Reduce Unplanned Load Shedding	<b>1.1:</b> Load Data Improvement Project  <b>1.2:</b> Direct Load Management	IRG / Engility	External Sub	See Task 6, Activity 1	<ul style="list-style-type: none"> <li>• Installation of over 9,000 AMR meters with connect/disconnect feature</li> <li>• Demonstration of load management techniques</li> </ul>

### TASK 3: Cost Reflective Tariff and NEPRA Reform

The purpose of this task is to ascertain the actual cost of service for various consumer categories in each DISCO for determination of DISCO specific cost reflective tariffs. Another aspect of this task is to strengthen NEPRA to effectively regulate the electricity sector in Pakistan. The task will essentially focus on improving the internal and external capacity of the regulator.

Activities	Sub-Activities	Lead	Support	Comments	Output/Milestone
<b>Activity 1:</b> Cost of Service Study & Tariff Design for all DISCOs	<b>1.1:</b> Data Collection and Analysis	IRG / Engility	-		<ul style="list-style-type: none"> <li>• Customized cost of service model and user manual</li> <li>• Cost of service study for each DISCO</li> <li>• New tariff design proposal</li> <li>• Installation of AMRs at all feeders across DISCOs for data collection</li> <li>• Tariff petitions filings based on cost of service study results</li> <li>• Capacity building of DISCOs in preparation and filing of tariff petitions based on cost of service</li> </ul>
	<b>1.2:</b> Customization of COS Model				
	<b>1.3:</b> Cost Allocation & Tariff Design				
	<b>1.4:</b> Installation of AMR Meters on selected Feeders				
	<b>1.5:</b> Assist in Preparation of Tariff Petition				

<p><b>Activity 2:</b> Assistance to NEPR</p>	<p><b>Sub-Activity 2.1:</b> Organizational Restructuring of NEPR</p> <p><b>Sub-Activity 2.2:</b> Review of Electricity Sector Market Framework</p> <p><b>Sub-Activity 2.3:</b> Modification in Tariff Rules and Regulations</p> <p><b>Sub-Activity 2.4:</b> Equipment and Software Upgrade</p> <p><b>Sub-Activity 2.5</b> Regulatory Partnerships</p> <p><b>Sub-Activity 2.6</b> Regulatory Changes</p> <p><b>Sub-Activity 2.7</b> Improvement of NEPR Performance</p>	<p>IRG / Engility</p>	<p>-</p> <p>-</p> <p>-</p>	<p>The tasks being cross cutting both internally (PDP) and externally (NEPR) will be coordinated by PESCO Lead but functionally handled by the support teams as indicated and the consultant engaged for the purpose</p>	<ul style="list-style-type: none"> <li>• Organizational structure models implementation</li> <li>• Functional and management trainings</li> <li>• An initial draft for reforms at distribution end</li> <li>• Joint conference related to reforms</li> <li>• Reforms road map</li> <li>• White papers on key issues that need assistance</li> <li>• A Guidelines for the determination of consumer-end tariff (methodology and process)</li> <li>• Complete deployment of Network Infrastructure and Servers</li> <li>• Installation of latest IT services and application software, being procured by NEPR</li> <li>• Migration of legacy IT applications and services to latest IT platform</li> <li>• Assistance to NEPR in acquiring associate membership at Energy Regulatory Regional Association (ERRA)</li> <li>• Possible trainings exchange for regulatory partnerships</li> <li>• Hold workshops to explain modern concepts for market development, such as tariff setting</li> <li>• Improved performance of NEPR in the critical areas of regulatory functions</li> </ul>
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**TASK 4: Capacitors at Tube-wells for Power Factor Improvement and Loss Reduction**

The purpose of this task is to reduce the peak MW demand through installation of 86,600 LT capacitors across different DISCOs in Pakistan.

Activities	Sub-Activities	Lead	Support	Comments	Output/Milestone
2:LT Capacitor Installation	<b>2.1:</b> Energy Audits of Sites <b>2.2:</b> Installation of LT Capacitors <b>2.3:</b> Monitoring & Evaluation	IRG / Engility	External Sub		<ul style="list-style-type: none"> <li>• Around 44,000 will be installed in FY2015 which makes a total of 68,200 LT capacitors that will get installed on the tube-wells by the end of the program</li> <li>• Monthly reports showing installation status of LT capacitors along with average power and energy savings</li> </ul>

TASK 5: Feeder Optimization for Loss Reduction					
Activities	Sub-Activities	Lead	Support	Comments	Output/Milestone
Feeder Optimization	<p><b>1:</b> Implement Feeder Optimization and Congested Area Strategies on High-loss Feeders</p> <p><b>2:</b> Implement Outage Reduction Improvements</p> <p><b>3:</b> Feeder Power Flow Analysis Using new Technology and Software</p> <p><b>4:</b> Installation of Proper 11kV HT Capacitors</p>	IRG / Engility	-		<ul style="list-style-type: none"> <li>• Design and installation of 11 kV HT capacitors(fixed &amp; switched) on feeders at MEPCO</li> <li>• Installation of improved voltage control equipment at MEPCO</li> </ul>

<b>TASK 6: Expansion of High Impact Opportunities and Governance</b>					
The purpose of this task is to identify and implement a number of high impact short lead-time activities.					
Activities	Sub-Activities	Lead	Support	Comments	Output/Milestone
<b>Activity 1:</b> Load Data Improvement Project	<p><b>1.1:</b> Obtaining Load Flow Information</p> <p><b>1.2:</b> Installation of AMR-data Acquisition Meters</p> <p><b>1.3:</b> Information Supplied to NPCC &amp; DISCO Power Dispatch Centers</p>	IRG / Engility	External Sub		<ul style="list-style-type: none"> <li>• Installation and commissioning of over 9,000 AMR meters serving as data acquisition devices on all incoming and outgoing feeders at all nine DISCOs</li> <li>• Customized LDI system software</li> <li>• Live data display at NPCC and DISCO Power Dispatch Centers</li> <li>• Establishing and commissioning centralized 24x7x365 Network Operation Center (NOC)</li> <li>• Establishing and commissioning of a complete AMI system</li> <li>• Reduction in unscheduled load shedding across Pakistan</li> <li>• Providing technical advice as needed</li> </ul>
<b>Activity 2:</b> Linemen Training		IRG / Engility	-		<ul style="list-style-type: none"> <li>• Developing a lineman training program that consists of a combination of classroom, video, and hands-on training sessions provided at the subdivision level, implemented on a monthly basis.</li> <li>• Train up to an additional 700 lineman and senior safety and operations staff, concentrating on PESCO and MEPCO.</li> <li>• Distribution of the linemen tools in remaining 15 x subdivisions in PESCO and 10 x sub-divisions in MEPCO. These tools will equip additional 1,170 linemen of PESCO &amp; 560 linemen of MEPCO.</li> <li>• Additional lineman training, together with the distribution of specialized equipment, will be completed to improve the binding of joints in the distribution system along with the distribution of 45,000 improved connectors. This will save power and improve revenues for the DISCOs as well as improve safety (for</li> </ul>

					<p>employees and general public), reliability of supply and customer satisfaction.</p> <ul style="list-style-type: none"> <li>• Continue quality and safety training program for senior and middle managers for providing necessary support by management in improved governance for safety and quality workmanship by linemen</li> <li>• Improved specifications for tools provided to DISCOs</li> <li>• Assistance to safety department with some testing tools for recycling the hot sticks and rubber gloves.</li> <li>• Assistance to regional and circle training centers by train the trainers program and giving linemen tools and safety equipment as training aids so that this can be incorporated as quality and safety workmanship in system.</li> <li>• Safety Monitor training will be conducted for MEPCO nominated employees.</li> </ul>
<p><b>Activity 3:</b> Exchange Programs</p>		<p>IRG / Engility</p>	<p>External Sub</p>		<ul style="list-style-type: none"> <li>• Introduction and learning best practices in Human Resource Management (HRM), Change Management, Engineering Operations and Management, Distribution Planning, Commercial Management, Customer Services, Communications, Financial Management, Regulatory Practices, Regulatory Market and Structures.</li> <li>• Documentation of best practices through reports from delegates and participating international utilities.</li> <li>• Implementation of international best practices in DISCOs, NEPRA &amp; MWP.</li> </ul>

<p><b>Activity 4:</b> Governance</p>	<p><b>4.1: Governance at MWP Level</b>  <b>Sub-Activity 1:</b> Assist MWP in amendment of Legal Acts and Laws</p> <p><b>Sub-Activity 2:</b> DISCOs Reform</p> <p><b>Sub-Activity 3:</b> Prevent Accumulation of Circular Debt</p> <p><b>Sub-Activity 4:</b> Implementation of DISCOs Power Procurement and Agency Agreements</p> <p><b>Sub-Activity 5:</b> Assistance to MWP on National Safety Code</p> <p><b>Sub-Activity 6:</b> Operationalization of CPPA Guarantee Limited</p> <p><b>Sub-Activity 7:</b> Support for the Preparation of a Multi-Year Tariff</p> <p><b>Sub-Activity 8:</b> Support for the GTD Plan Multi-Year Tariff</p>	<p>IRG / Engility</p>	<p>-</p>	<p>Assistance to be provided to both MWP &amp; MOF and training and capacity building of DISCO BoD</p>	<ul style="list-style-type: none"> <li>• Regional training and instructional visits</li> <li>• Assistance to MWP for implementation of DISCOs reforms</li> <li>• Tariff and Subsidy ongoing technical assistance</li> <li>• Draft PPAA for DISCOs will be produced</li> <li>• PETSAC National Safety Code notified for implementation by entities</li> <li>• Draft PPAA for CPPA G and DISCOs</li> <li>• Documentation of existing SOP and market rules</li> <li>• Revision of Draft Business Transfer Agreement</li> <li>• Methodology for multi-year tariff, investment plan and projections for capital expenditures</li> <li>• Integrated planning function As-is and To-be report, along with recommendations</li> </ul>
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	<p><b>4.2: Governance at DISCO Level</b></p> <ul style="list-style-type: none"> <li>• Development of Policies in line with Mandate by MWP</li> <li>• Oversight over Financial and operational discipline</li> <li>• Facilitation and Development / Training Program</li> <li>• Assessment of BOD Functions</li> </ul>	<p>IRG / Engility</p>			<ul style="list-style-type: none"> <li>• Benchmarking for performance improvement, network optimization and directors training program</li> <li>• To help BODs have an increased appreciation of their responsibilities / authorities and to define their accountability</li> <li>• Ensuring a better understanding of the legal requirements, as set forth in the Memorandum and Articles of Association, the Companies Ordinance and other regulations applying to DISCOs, and ensuring compliance</li> <li>• Ensure polices in the DISCOs reflect the mandate given by MWP</li> <li>• Have an oversight over financial and operational discipline within the DISCOs</li> <li>• Provide guideline to BODs to devise corporate improvement action plans</li> <li>• Special workshops / training sessions with the main objective of enhancing the Board’s understanding of the utility business</li> </ul>
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**Cross-Cutting Activities: Gender Strategy**

The purpose of this activity is to build capacity of and increase the number of women in technical leadership and decision-making positions at the Turnaround DISCOs including commercial, finance, and engineering divisions to facilitate transformation of DISCOs into competitive, diverse, profit-making entities in the long term.

Activities	Lead	Support	Comments	Output/Milestone
<p><b>Activity 1:</b></p> <ul style="list-style-type: none"> <li>• Gender Equity Training</li> <li>• Women in Leadership</li> </ul>	<p>IRG / Engility</p>	<p>External Sub</p>	<ul style="list-style-type: none"> <li>• Reduce recruitment disparities and to facilitate women’s entry into the power sector</li> <li>• Supports increase the number of women managers and directors</li> <li>• Increase the number of women in technical positions and decision making level</li> </ul>	<ul style="list-style-type: none"> <li>• Implementation of policies to attract women employees</li> <li>• Career focused trainings for women employees</li> <li>• Provision of improved working conditions to female staff</li> <li>• Long-term engagement of women in power sector</li> <li>• Educate regulatory officials and policy makers on challenges facing women in the power sector</li> </ul>

**Cross-Cutting Activities: Internship Program**

The purpose of this activity is to build capacity of PESCO MEPCO employees and graduates, instill best practices and increase the number of young professionals in the power sector to facilitate bottom-up transformational change at the DISCOs. This opportunity will provide valuable professional experience and build leadership skills of new graduates.

Activities	Lead	Support	Comments	Output/Milestone
<b>Activity 2:</b> Facilitate Bottom-up Transformational Change at the DISCO by Hiring & Deputing Interns	IRG / Engility	Local Universities	Link internship program with turn around DISCO with specific focus on planning, or other areas	<ul style="list-style-type: none"> <li>• Hiring of interns from multi-dimensional academic portfolio for PESCO &amp; MEPCO</li> <li>• Development and implementation of a comprehensive orientation program for interns</li> <li>• IT Training LAB: to render all employees tech savvy.</li> </ul>

<b>Cross-Cutting Activities: Communications</b>					
The purpose of Communications Program is to build capacities of both Turnaround DISCOs in communications and outreach and assist them in use of streamlined techniques and tools to improve their outreach and service to consumers.					
Activities	Sub-Activities	Lead	Support	Comments	Output/Milestone
<b>Activity 3:</b> Communications	<ul style="list-style-type: none"> <li>• External DISCO Communications</li> <li>• Internal DISCO Communications</li> <li>• PDP Project Communications</li> </ul>	IRG / Engility	External Sub	These activities will be implemented in PESCO and MEPCO. While Security remains a challenge, branding waiver will be applied	<ul style="list-style-type: none"> <li>• Establishment of a Communications and Outreach office</li> <li>• Communications and Outreach campaigns</li> <li>• Community / Schools events</li> <li>• Revamping DISCO official website</li> <li>• Revamping DISCO's corporate branding</li> <li>• Radio Talk Shows</li> <li>• Corporate communications</li> </ul>

## Annex 3: Risk Matrix

Task	Objectives	Risks / Challenges	Mitigation Approach
<b>Task 1-A.i, Activity 5 &amp; Task 1-A.ii, Activity 8: ERP / CIS</b>	1. The availability of timely and accurate business information through back-office automation  2. Integrate and automate commercial operations to reduce commercial losses and improve efficiency and quality	1. DISCO staff lack skills and aptitude to adopt to ERP environment	1. To build capacity by providing trainings to DISCO staff, involving them right from design to implementation and provide day to day support through PDPs advisors placed at the DISCOs
		2. DISCO staff may resist this change	2. Steering committee established comprising board members to champion this change and conduct monthly review of status of ERP project. Moreover, PDP will conduct awareness workshops and reach out to the internal stakeholders through publication of ERP newsletters periodically
		4. Labor Union might resist this change by perceiving that ERP implementation will result in job layoffs	4. Awareness strategy starting from the BOD down to all levels of the organization, especially addressing the labor unions, giving the message that the ERP implementation will not result in reduction of jobs but increase productivity of employees
		5. Transition from manual to automated/semi-automated process flow	5. Change management, capacity building, phased implementation
<b>Task 1-A.i, Activity 1&amp;2 and Task 1-A.ii, Activity 1-5: Technical Interventions</b>	To improve the technical performance of DISCOs by providing modern technology and infrastructure	1. Inadequate coordination between Technical Team and other PDP teams could result in late discovery of conflicts and less than optimum results	1. Identification interdependencies followed by communication on frequent basis with other teams to keep each other informed
		2. Funding by the DISCOs for sustainability and maintenance are issues which can impact success of technical projects	2. High priority on having clear understandings with DISCO management, with commitments in writing

Task	Objectives	Risks / Challenges	Mitigation Approach
		3. GPRS reliability, particularly during times of civil unrest when gov't shutdown of GPRS network may occur	3. Develop strategies and procedures to cope with such occurrences with users
		4. Installation of new RF or AMR meters require verification proper communications and operation	4. Establish capability of on-site acceptance testing using PDP personnel
		5. Customer resistance may delay schedule	5. Work with DISCO to establish customer preparation and communication ahead of installation
		6. Higher quantity requirements in specified subdivision due to addition of new customers or bifurcation between order placement and installation	6. Close coordination with DISCO on expected totals and allowances
		7. Delay in DISCO installation support impacting schedule	7. Obtain strong CEO and BOD agreement with MWP concurrence for DISCO services to be provided. PDP to closely monitor and control the installations
		8. Law and order situations impacting ability to complete work	8. Close coordination with DISCOs to plan work in areas with low probability of law and order issues
		9. Material delivery delay	9. Plan for contingency in schedule- specify standard product
		10. Design completion delays	10. Plan for contingency in schedule and keep design simple and make maximum use of current practices
<b>Task 3, Activity 1: Cost of Service Study</b>	To ascertain the actual cost of service for various consumer	1. Lack of cooperation from DISCOs	1.Liaison committees established in each DISCO

Task	Objectives	Risks / Challenges	Mitigation Approach
	categories in each DISCO for determination of DISCO specific cost reflective tariffs	<p>2. Poor data quality</p> <p>3. Acceptability of the model and methodology</p> <p>4. Delays in load measurements at due to delay in metering equipment installation</p>	<p>2. Detailed data analysis, scrutiny and cross verification from multiple sources</p> <p>3. Ensure presentations to all stakeholders to seek their buy-in through workshops</p> <p>4. Use of alternate allocation criteria in case of delay in data collection due to delay in installation of AMR meters on selected feeder</p>
<b>Task 3, Activity 2: Assistance to NEPRA</b>	To improve the overall environment of Governance of the sector through strengthening the regulatory environment/regime	<p>1. Non-committal approach by NEPRA management</p> <p>2. NEPRA management changes during the tenure of the program</p> <p>3. Non related trainings</p> <p>4. NEPRA does not provide client end equipment for IT infrastructure provision</p>	<p>1. Frequent and regular meetings with members and professionals of NEPRA. Engaging them through workshops, seminars and discussion forums with notes and action items as outputs and circulated to all</p> <p>2. Constant engagement with all Sr. management. Even if some of the members are changed, the others and the Sr. professionals can keep the pace and scope of the project intact</p> <p>3. Trainings jointly identified by NEPRA and PDP by performing Trainings Need Assessment (TNA). A guide line provided for NEPRA to remain focused</p> <p>4. PDP provided the infrastructure of creating a back bone system for NEPRA's IT system. It not provides end machines. It is a self-executed project till its end point</p>
<b>Task 4: Capacitors at Tube-wells for</b>	To reduce the peak MW demand through the installation of	1. Oversized installation of capacitor which may result in a power factor correction that	1. The PDP methodology for Capacitor sizing has stringent rules for

Task	Objectives	Risks / Challenges	Mitigation Approach
<b>Power Factor Improvement and Loss Reduction</b>	capacitors for the purpose of power factor correction	goes as high as 99% or even greater than 1, leading to long term damage to the farmer's motor	establishing only 95-96% Power Factor. PDP will supervise and conduct regular spot checks of LT capacitor installations to ensure that capacitor installations are carried out by the installation teams according to the guidelines for the installation and capacitor sizing provided by PDP
		2. DISCOs are short staffed, and the risk of getting linemen to locate tube-well sites and assist in their installations is crucial	2. PDP works with DISCO senior management to ensure requisite linemen are made available. PDP management has secured commitment from the CEOs and senior management of all DISCOs already
		3. Rural areas of Pakistan suffer extreme load shedding, most often 16 hours a day. This can hamper an installation team's work as no pre-audit and right capacitor sizing can take place	3. PDP Senior Management coordinates with the DISCOs and seek their support in coordinate load shedding on feeders where LT Capacitors are being installed
<b>Task 6, Activity 2: Governance</b>	Improve governance in the sector and realignment in the role of MWP as a policy maker rather than owner of these public sector entities	<p>1. Risk of not to complete the task in the allotted time period with agreement of multiple stakeholders</p> <p>2. Lack of support and cooperation from employees and unions</p> <p>3. Weak financial position of the government</p> <p>4. Financial and operational independence of DISCOs</p>	<p>1. Champions and stakeholders identified who wanted the same objective</p> <p>2. Champions identified to facilitate the process</p> <p>3. Strong Donor conditionality for the government to improve its overall governance</p> <p>4. Strong USAID's conditions with GOP for lending funds</p> <p>5. Find champions and stakeholders wanting the same objective</p>

Task	Objectives	Risks / Challenges	Mitigation Approach
<b>Cross-Cutting Activities: Internship Program</b>	Instill best practices and increase the number of young professionals in the power sector to facilitate bottom-up transformational change at the DISCO	<p>5. Lack of support from the stakeholders</p> <p>1. DISCO staff unwilling to accept new interns</p> <p>2. Unavailability of space for interns and other initiatives</p> <p>3. Lack of intern capability to perform according to PDP and DISCO standards</p> <p>4. Obstacles in the sustainability of project</p>	<p>1. In order to avoid resistance on part of DISCO staff, the resource gap analysis, the respective positions, JDs and their section are being prepared keeping the DISCO Section Heads on board. Interns are being mentored under DISCO TLs</p> <p>2. DISCO section heads have agreed to attach their team members with the trainee /interns – who are working together in collaboration, thus reducing the eventual “work in isolation”</p> <p>3. The number of interns, their placement and other initiatives are taken with the buy in of DISCO senior management that ensure space availability</p> <p>4. Interns are monitored and evaluated under a strict performance management system, by PDP Internship team, PDP respective team members and DISCO management. Interns are disengaged if performance is below standard. In order to ensure sustainability of the project, interns are to perform all tasks with two or one appointed DISCO staff. This staff are being trained in the process of two years. Measures to keep Interns on board will also be encouraged in discussions with DISCO HR management</p>

Task	Objectives	Risks / Challenges	Mitigation Approach
<b>Cross-Cutting Activities: Gender Strategy</b>	Mainstreaming gender in target DISCOs where applicable to be fully aligned with USAID policy on gender equality and women's empowerment	<ol style="list-style-type: none"> <li>1. Culture of respective DISCO regions might be resistant to gender equity trainings (GET)</li> <li>2. Lack of females willing to work at DISCOs</li> <li>3. DISCO employee might be resistant to change</li> <li>4. Resistance in advancement of female employees stuck in dead end jobs</li> </ol>	<ol style="list-style-type: none"> <li>1. In order to avoid resistance, DISCO HR staff has been taken on board and accompany trainer where necessary. Undertaking GET will be mandatory for all the employees of all levels</li> <li>2. Measures are being taken to promote female employment in DISCOs, especially at policy level, with the help of the Governance Team. All employment opportunities will encourage females to apply</li> <li>3. All changes are being taken at policy level through regulatory bodies and Governance Team. Gender equity trainings will be made mandatory for all employees in order to help mainstream gender initiatives</li> <li>4. Policy level changes will be encouraged to promote advancement of women and change in job transfer and promotion strategies within the organization</li> </ol>
<b>Cross-Cutting Activities: Communications</b>	Improve USAIDs and DISCO's image and promote energy conservation	<ol style="list-style-type: none"> <li>1. Lack of cooperation from DISCO staff</li> <li>2. PR is a neglected area in DISCO business</li> <li>3. Lack of ownership and resources availability at DISCOs</li> <li>4. Weak internal coordination and information sharing among DISCO departments</li> </ol>	<ol style="list-style-type: none"> <li>1. Form a forum of DISCOs staff and meet periodically to discuss interventions</li> <li>2. DISCO management will empower PR department to effectively coordinate internal and external communications</li> <li>3. DISCO nomination of a fulltime focal person dedicated to website and branding</li> <li>4. Proposing internal coordination system and information system to</li> </ol>

Task	Objectives	Risks / Challenges	Mitigation Approach
		5. Limited use of DISCO official logo and uniform branding on stationery and events	DISCOs for implementation  5.Change management at all levels to stop “WAPDA” branding and encourage DISCO’s branding

## Results/Outputs Table

Indicator	Unit	Targets of FY 2015
<b>Task 1-A.i: Turnaround PESCO</b>		
<b>Activity 1: Wide-Scale Electronic Metering and Reconductoring Program</b>		
Revenue saved by installing electronic meters, RF enabled meters, ABC cables and revenue enhancement through theft control activities after one year of completion of the whole project	\$ million	3.0
Number of electronic meters to be installed up to	No.	60,000
Number of RF enabled meters to be installed up to	No.	42,000
<b>Activity 2: AMR on High-End Bulk, Industrial, Residential and Commercial Consumers</b>		
Revenue saved by installing AMR meters after one year of completion of the project	\$ million	5.3
Number of AMR meters to be installed up to	No.	13,200
<b>Activity 3: Revenue Enhancement Through Theft Control And Procedure Enforcement and HHU System</b>		
Revenue saved by implementation of Revenue Protection & Enforcement Cell	\$ million	Covered under Activity 1
Number of HHUs provided and implemented up to	No.	221
<b>Activity 4: Communications and Outreach – Corporate Communications &amp; Public Awareness</b>		
Number of awareness campaigns to be launched up to	No.	2
<b>Activity 5: Enterprise Resource Planning and Customer Information System</b>		
Revenue saved by installing ERP/CIS after one year of completion of the project	\$ million	2.2

Indicator	Unit	Targets of FY 2015
<b>Activity 7: Organizational Assessment and Restructuring</b>		
No. of best practice system implemented	No.	4
<b>Task 1-A.ii: Turnaround MEPCO</b>		
<b>Activity 1: AMR meters on all of the Tube-well connections in Multan and Other Selected Circle</b>		
Revenue saved by installing AMR meters on tube-wells after one year of completion of the project	\$ million	5.2
Number of AMR meters to be installed on tube-wells of Multan Circle up to	No.	13,000
Number of AMR meters to be installed on tube-wells of Other Selected Circle up to	No.	Almost equal to Multan Circle
<b>Activity 2: AMR Meters on High-End Customers having load 20 KW and above</b>		
Revenue saved by installing AMR meters on hi-end consumers after one year of completion of the project	\$ million	2.0
Number of AMR meters to be installed on hi-end consumers up to	No.	20,000
<b>Activity 3: Expanding GIS Mapping and Planning Functions to MEPCO Circles</b>		
Revenue saved by expanding GIS mapping and planning functions after one year of completion of the project	\$ million	2.4
<b>Activity 4: Launching Energy Loss Reduction (ELR) Program</b>		
Revenue saved by energy loss reduction program after one year of completion of the project	\$ million	1.1
Installation of CSP Transformers up to	No.	150
<b>Activity 5: Volt VAR Optimization (VVO)</b>		
Revenue saved by installing VVO devices after one year of completion of the project	\$ million	0.4
Number of HT Switched Capacitor units to be installed up to	No.	125
Number of Automatic Voltage Regulators to be installed up to	No.	80

Indicator	Unit	Targets of FY 2015
<b>Activity 6.1: Improved Meter Reading and Handheld Units</b>		
Revenue saved by implementing IMR & HHUs after one year of completion of the project	\$ million	2.7
Number of HHUs provided and implemented up to	No.	240
<b>Activity 6.2: Revenue Protection Through Surveillance</b>		
Revenue saved by Surveillance Cell	\$ million	Covered under Activity 1, 2 and 6.1 above
<b>Activity 6.3: Customer Service Improvement Initiatives</b>		
Reduction in customer complaints up to	%	40%
<b>Activity 7: Communications &amp; Outreach – Corporate Communications and Public Awareness</b>		
Number of awareness campaigns launched up to	No.	2
<b>Activity 8: Enterprise Resource Planning and Customer Information System</b>		
Revenue saved by installing ERP/CIS after one year of completion of the project	\$ million	4.1
<b>Activity 10.1: Organization Restructuring / Process Re-Engineering</b>		
No. of best practice system implemented	No.	4
<b>Task 1-B-i &amp; ii: Technical Assistance on Privatization of Selected DISCOs</b>		
Legal & regulatory due diligence determination of regulatory and legal constraints on privatization	-	-
<b>Task 3: Cost Reflective Tariff and NEPRA Reform</b>		
<b>Activity 3.1: Cost of Service Study and Tariff Design for all DISCOs</b>		
Revenue saved by reduction in cost recovery gap after one year of completion of the project	\$ million	61
<b>Task 4: Capacitors at Tube-wells for Power Factor Improvement and Loss Reduction</b>		
Number of LT capacitors to be installed up to	No.	44,000
MWs of power saved by installing LT capacitors on tube-wells up to	MW	66.0

Indicator	Unit	Targets of FY 2015
Revenue saved by LT capacitors up to	\$ million	14.5
Number of beneficiaries by installing LT capacitors up to	No.	990,000
<b>Task 6: Expansion of High Impact Opportunities and Improved Governance</b>		
<b>Activity 6.1: Load Data Improvement Project</b>		
Reduction in unplanned load shedding up to	%	85%
<b>Activity 6.2: Linemen Training</b>		
MWs of power saved by replacing bad connectors DISCO line crews will eventually result in saving of up to	MW	5.9
Revenue saved as a result of replacing bad connectors DISCO line crews will eventually result in saving of up to	\$ million	2.6
Reduction in fatal and non-fatal accidents in trained linemen up to	%	Significant
Number of linemen trained in MEPCO & PESCO up to	No.	700
<b>Activity 6.4: Governance at MWP and DISCO Level</b>		
Number of policies to be drafted for approval and implementation up to	No.	10

## Work Plan Mapping with USAID Result Framework

Task / Activities	USAID Results Framework Indicators
<b>Task 1-A.i: Turnaround PESCO</b>	
Activity 1: Wide-Scale Electronic Metering & Reconducturing	IR1.1(a): Number of beneficiaries with improved energy services due to United States Government assistance (4.4.1-31) IR1.1(b): Gigawatt-hours (GW-h) of energy availability I1.1.2(a): Megawatts (MW) of electrical power saved as a result of United States Government support to distribution companies IR1.1.2(b): Number of installations and operations and maintenance improvements IR1.1.3(a): Revenue at distribution companies
Activity 2: AMR on High End Bulk, Industrial and Commercial Consumers	IR1.1.3(a): Revenue at distribution companies IR1.1.2(b): Number of installations and operations and maintenance improvements IR1.2.2(b): Number of board recommendations following international best practices implemented by public sector entities
Activity 3: Revenue Enhancement Through Theft Control And Procedure Enforcement	IR1.2.2(b): Number of board recommendations following international best practices implemented by public sector entities IR1.1.3(a): Revenue at distribution companies
Activity 4: Communications & Outreach – Corporate Communications & Public Awareness	IR1.2.2(b): Number of board recommendations following international best practices implemented by public sector entities
Activity 5: Implement Enterprise Resource Planning (ERP)	IR1.2.2(b): Number of board recommendations following international best practices implemented by public sector entities IR1.2.3(a): Number of best practice-driven systems created, improved, and implemented
Activity 6: Strategic Business Plan for PESCO	IR1.2.2(b): Number of board recommendations following international best practices implemented by public sector entities
Activity 7: Organizational Assessment & Restructuring, Training & Capacity Building	IR1.2.2(b): Number of board recommendations following international best practices implemented by public sector entities IR1.2.3(a): Number of best practice-driven systems created, improved, and implemented
<b>TASK 1-A.ii: Turnaround MEPCO</b>	
Activity 1: AMR meters on all of the Tubewell connections in Multan & other Circle(s)	IR1.1(a): Number of beneficiaries with improved energy services due to United States Government assistance (4.4.1-31) IR1.1(b): Gigawatt-hours (GW-h) of energy availability I1.1.2(a): Megawatts (MW) of electrical power saved as a result of United States Government support to distribution companies IR1.1.2(b): Number of installations and operations and maintenance improvements IR1.1.3(a): Revenue at distribution companies IR1.2.2(b): Number of board recommendations following international best practices implemented by public sector entities
Activity 2: AMRs on High-End Consumers having load above 20 KW	IR1.1(a): Number of beneficiaries with improved energy services due to United States Government assistance (4.4.1-31) IR1.1(b): Gigawatt-hours (GW-h) of energy availability I1.1.2(a): Megawatts (MW) of electrical power saved as a result of United States Government support to distribution companies IR1.1.2(b): Number of installations and operations and maintenance improvements IR1.1.3(a): Revenue at distribution companies IR1.2.2(b): Number of board recommendations following international best practices implemented by public sector entities
Activity 3: Expanding GIS Mapping and Planning functions to Circle level	IR1.2.3(A): Number of best practice-driven systems created, improved, and implemented
Activity 4: Launching Energy Loss Reduction (ELR) Program	IR1.1.2(b): Number of installations and operations and maintenance improvements IR1.1.3(a): Revenue at distribution companies IR1.1(b): Gigawatt-hours (GW-h) of energy availability IR1.2.2(b): Number of board recommendations following international best practices implemented by public sector entities
Activity 5: Volt VAR Optimization (VVO)	IR1.1.2(b): Number of installations and operations and maintenance improvements IR1.1.3(a): Revenue at distribution companies IR1.1(b): Gigawatt-hours (GW-h) of energy availability
Activity 6: Improving Commercial Operations	IR1.1.2(b): Number of installations and operations and maintenance improvements IR1.1.3(a): Revenue at distribution companies IR1.2.3(a): Number of best practice-driven systems created, improved, and implemented

	IR1.2.2(b): Number of board recommendations following international best practices implemented by public sector entities
Activity 7: Communications & Outreach – Corporate Communications & Public Awareness	IR1.2.2(b): Number of board recommendations following international best practices implemented by public sector entities
Activity 8: Implement Enterprise Resource Planning	IR1.2.2(b): Number of board recommendations following international best practices implemented by public sector entities IR1.2.3(a): Number of best practice-driven systems created, improved, and implemented
Activity 9: Strategic Business Plan for PESCO	IR1.2.2(b): Number of board recommendations following international best practices implemented by public sector entities
Activity 10: Change Management & Human Resource Development	IR1.2.2(b): Number of board recommendations following international best practices implemented by public sector entities IR1.2.3(a): Number of best practice-driven systems created, improved, and implemented
<b>Task 1-B-i: Technical Assistance for the Transition of Selected DISCOs from Public to Private Management</b>	
Activity 1: Legal and Regulatory Due Diligence	IR1.2.1(a): Number of key policies and regulations in development stages of analysis, drafting, stakeholder consultation, legislative review, approval, or implementation as a result of United States Government assistance IR1.2.2(a): Number of policies following international best practices developed and implemented
<b>TASK 2: Energy Conservation and Demand Side Management</b>	
Activity 1: Solutions to enhance DISCOs Load Management and Reduce Unplanned Load Shedding	IR1.1.2(b): Number of installations and operations and maintenance improvements IR1.2.2(b): Number of board recommendations following international best practices implemented by public sector entities
<b>TASK 3: Cost Reflective Tariff</b>	
Activity 1: Cost of Service Study & Tariff Design for all DISCOs	IR1.1.2(b): Number of installations and operations and maintenance improvements IR1.1.3(a): Revenue at distribution companies IR1.2.2(b): Number of board recommendations following international best practices implemented by public sector entities IR1.2.3(a): Number of best practice-driven systems created, improved, and implemented
Activity 2: Assistance to NEPRA	IR1.2.1(a): Number of key policies and regulations in development stages of analysis, drafting, stakeholder consultation, legislative review, approval, or implementation as a result of United States Government assistance IR1.2.2(a): Number of policies following international best practices developed and implemented IR1.2.2(b): Number of board recommendations following international best practices implemented by public sector entities
<b>TASK 4: Capacitors at Tube-wells for Power Factor Improvement and Loss Reduction</b>	
LT Capacitor Installation	IR1.1(a): Number of beneficiaries with improved energy services due to United States Government assistance (4.4.1-31) IR1.1(b): Gigawatt-hours (GW-h) of energy availability IR1.1.2(a): Megawatts (MW) of electrical power saved as a result of United States Government support to distribution companies IR1.1.2(b): Number of installations and operations and maintenance improvements IR1.1.3(a): Revenue at distribution companies
<b>TASK 5: Feeder Optimization for Loss Reduction</b>	
Feeder Optimization	IR1.1(a): Number of beneficiaries with improved energy services due to United States Government assistance (4.4.1-31) IR1.1(b): Gigawatt-hours (GW-h) of energy availability IR1.1.2(a): Megawatts (MW) of electrical power saved as a result of United States Government support to distribution companies IR1.1.2(b): Number of installations and operations and maintenance improvements IR1.1.3(a): Revenue at distribution companies
<b>TASK 6: Expansion of High Impact Opportunities and Governance</b>	
Activity 1: Load Data Improvement Project	DO1(a): Reduction in unplanned load shedding IR1.1(a): Number of beneficiaries with improved energy services due to United States Government assistance (4.4.1-31) IR1.1(b): Gigawatt-hours (GW-h) of energy availability IR1.1.2(a): Megawatts (MW) of electrical power saved as a result of United States Government support to distribution companies IR1.1.2(b): Number of installations and operations and maintenance improvements IR1.1.3(a): Revenue at distribution companies IR1.2.3(a): Number of best practice-driven systems created, improved, and implemented
Activity 2: Linemen Training	IR1.2.3(a): Percent change in the number of lineman injuries and deaths IR1.1(a): Number of beneficiaries with improved energy services due to United States

	<p>Government assistance (4.4.1-31)</p> <p>IR1.1(b): Gigawatt-hours (GW-h) of energy availability</p> <p>IR1.1.2(a): Megawatts (MW) of electrical power saved as a result of United States Government support to distribution companies</p> <p>IR1.1.2(b): Number of installations and operations and maintenance improvements</p> <p>IR1.1.3(a): Revenue at distribution companies</p>
Activity 4: Governance	<p>IR1.2.1(a): Number of key policies and regulations in development stages of analysis, drafting, stakeholder consultation, legislative review, approval, or implementation as a result of United States Government assistance</p> <p>IR1.2.2(a): Number of policies following international best practices developed and implemented</p>

## **Data Collection at PDP**

### **Main Objective**

In this section the data collection method is briefly described for all the major interventions which are being performed in the DISCOs especially in both Turnaround DISCOs as described in this work plan. Most of the interventions such as meter installation, LT capacitors installation, improved commercial operations; LDI project etc. involves a common data collection method for all DISCOs. The data of all the following interventions is collected from a unique set of sources including DISCOs, NPCC, subcontractors and relevant PDP project teams.

### **LT Capacitors**

Two types of data sets are required to be collected for each LT capacitor installed i.e. pre-installation data and post-installation data in order to evaluate the performance of the tube-well after the capacitor is installed. The pre-installation data serves as the baseline while post-installation data is used to compare the improved performance of the equipment against the baseline. This pre and post installation data is collected by on-site physical measurement of each capacitor installed to calculate resulting impacts of the capacitors in terms of megawatts, energy and revenue savings.

The LT capacitor installation team is mainly comprised of linemen who are responsible for installation and an engineer who is responsible for supervision and pre and post installation audit and data collection/measurement. Engineer ensures that correct readings are taken and also records the reading on a prescribed data collection form. Three readings are taken before and after each installation. He also takes pictures of pre and post readings for verification purpose. Once the forms are completed and verified against the pictures taken, any necessary corrections are made on the forms before sending over to central data office, for data entry. At the central data office, data is again verified against the pictures received from the field and data entry operators enter the information in Data Management System. They are required to enter complete information available on each form and attach respective pictures with each form to ensure future referencing. Data is further verified by Quality Control Operator (QCO). QCOs conduct verification of data entered by the data entry team. Each value entered by data entry operators is verified against the data collection forms.

### **Electronic/RF enabled/AMR Meters**

The data is collected during the installation of meters, to maintain a record of the meters installed and same data is collected for all types of meters including electronic, RF enabled or AMR meters. The meter replacement team which comprised of three members; linemen superintendent (LS), enumerator and linemen is mainly responsible for on-site data collection. The LS is responsible for overall supervision of meter replacement program. Enumerator is the person who performs the survey and fills the form while linemen perform the actual installation pole by pole. The LS check the forms for completeness and send them to central office data manager, located at central data center, on weekly basis. Once all the forms are received at the central office, the central office data manager then manages overall data entry and verification. The data verification personnel sort pictures for each individual case, place them at a central repository, and use these for verification of data filled by the field enumerators. They also make necessary corrections on forms, based

on related pictures, before handing over the forms for data entry. Once data is verified against the pictures, data entry operator enters the information in Data Management System (DMS). They are required to enter complete information available on each form and attach respective pictures with each form to ensure future referencing. Data is further verified by Quality Control Operator (QCO). QCOs conduct verification of data entered by the data entry team. Each value entered by data entry operators is verified against the data collection forms.

For calculating the impacts of meter replacement activity, the baseline data of the targeted subdivision is collected at the start of the project from DISCO MIS department. After the project is completed, the unit loss and recovery data of the subdivision is monitored over a period of time to evaluate its performance. For this purpose the monthly data of the subdivision is collected directly from the DISCO and compared with the baseline data which reveals the benefits gained from the meter installation activity in terms of revenue and energy savings.

### **Miscellaneous Line Equipment**

As stated in the work plan, a number of miscellaneous line equipment are planned to be installed in both Turnaround DISCOs such as outage reduction devices, CSP transformers, VVO equipment etc. The installation of such equipment is a labor intensive task and would be performed by the subcontractor(s) in collaboration with relevant DISCO staff and linemen. Therefore the subcontractor and the relevant PDP project coordinator will be responsible for the primary data collection. The baseline data and the data for evaluating the post-project impacts would be collected in a similar manner as described above.

### **Load Data Improvement Project**

In LDI project AMR meters were installed on the incoming and outgoing feeder of all grid station across the nine DISCOs. The meter installation was done by a subcontractor in collaboration with the staff of metering & testing department of the concerned DISCOs. The subcontractor was mainly responsible to collect the meter installation data and to maintain the record of the meters installed. The data provided by the subcontractor was later verified by the relevant PDP staff by field visits.

For calculating the initial impacts of LDI project, the baseline data of planned and unplanned load shedding is collected at the start of the project from NPCC. In order to calculate the reduction in the magnitude of unplanned load shedding, the data is being collected from NPCC on a monthly basis to compare with baseline and to calculate the percentage of reduction as envisaged.

However it was decided later that a detailed post impact analysis of the LDI project needs to be performed to evaluate the technical, commercial and economic impacts that the project imparted on a national scale. For this purpose, the services of a third party consultant are being hired.

### **Commercial Operations**

The improved commercial operations involve improved meter reading, implementation of hand held units, revenue protection cells and customer service centers renovation. The data of these interventions is collected by the Field Project Manager and his team which are deployed at the target subdivision of both the Turnaround DISCOs. The baseline data of the subdivision is collected at the start of the project from MIS department. During the execution of the project and after its completion, the unit loss and recovery data of the subdivision is monitored to evaluate its performance. For this purpose the monthly data of the

subdivision is collected directly from the DISCO and compared with the baseline data which reveals the benefits gained from the improved meter reading activity.

### **Cost of Service Study**

The cost of service study aimed at reducing the cost-recovery gap of the DISCOs by enabling DISCOs to calculate the actual cost of service based on the customized cost model provided by PDP and filing a petition to NEPRA for tariff adjustment accordingly. To calculate the impact, the cost of service team collects the copy of the petition as filed by the DISCO to NEPRA which has the authority to approve or disapprove the petition as the expected reduction in cost-recovery gap will only be achieved if NEPRA approves the petition. After the petition is approved, the team collects the audited financial statements of the following year of the concerned DISCO to calculate the reduction in cost against revenue.