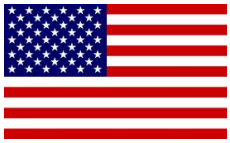

USAID/ENERGY POLICY PROGRAM

MONITORING AND EVALUATION PLAN

OCTOBER 2013 – OCTOBER 2015

October 2014

This program is made possible by the support of the American people through the United States Agency for International Development (USAID)

USAID/ENERGY POLICY PROGRAM

MONITORING AND EVALUATION PLAN

OCTOBER 2013 – OCTOBER 2015

Submission Date: October 20, 2014

Contract No: AID-EPP-I-00-03-00004
Order No: AID-391-TO-12-00002

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Acronyms

AEAI	Advanced Engineering Associates International, Inc.
CCA	Cross Cutting Activities
DISCO	Distribution Company
DO	Development Objective
DRF	Development Results Framework
EPP	Energy Policy Program
FESCO	Faisalabad Electricity Supply Company
G2G	Government to Government
GEPCO	Gujranwala Electric Power Company
GOP	Government of Pakistan
HR	Human Resources
IR	Intermediate Result
ITR	Indicator Tracking Sheets
M&E	Monitoring and Evaluation
MEP	Monitoring and Evaluation Program
MIS	Management and Information Systems
MOF	Ministry of Finance
MPNR	Ministry of Petroleum and Natural Resources
MSI	Management Systems International
MW	Megawatts
MWP	Ministry of Water and Power
NEPRA	National Electric Power Regulatory Authority
NPCC	National Power Control Center
NTDC	National Transmission and Dispatch Company Limited
O&M	Operations and Management
PC	Planning Commission, Energy Wing
PDP	Power Distribution Program
PESCO	Peshawar Electric Supply Company
PIR	Performance Indicator Reference
PMP	Performance Monitoring Plan
PSRP	Power Sector Reform Program
QER	Quarterly Evaluations Reports
USAID	United States Agency for International Development
USG	United States Government
WAPDA	Water and Power Development Authority

1. Project Overview

EPP is a multi-year, USAID-funded initiative to increase power generation, improve transmission capacity and reliability. EPP works with selected energy enterprises to assist the Government of Pakistan's (GOP) sector reform efforts. The program supports the joint goals of the United States Government (USG) and GOP in reforming the power sector, and is designed to address Pakistan's chronic electricity shortage.

While there is a continued and ongoing focus on due diligence and successfully implementing the G2G effort, EPP has begun integrating work on technical upgrades, policy reform implementation, and transmission-related activities. All of these efforts represent a comprehensive approach to help Pakistan expand its indigenous production capacity, eliminate the need for subsidies, and mitigate pressures contributing to the country's current energy crisis. At the conclusion of this important program, EPP will have contributed substantially to both the immediate energy shortages, and helped the country build longer-term energy sufficiency.

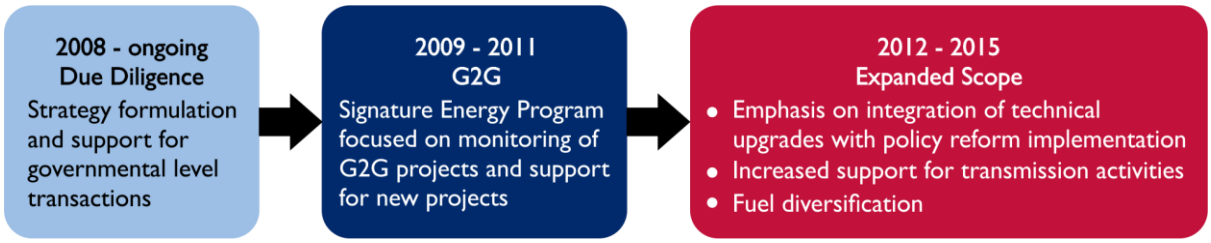


Figure 1: EPP Phases

EPP encompasses interrelated activities and targeted interventions that meet the objectives of the program's four components:

Component I- Monitoring & support of Project Implementation: EPP proactively advises and supports USAID and counterparts in the monitoring, implementation, and compliance of Fixed Amount Reimbursement Agreements (FARA) with GOP. This includes monitoring and supporting timely counterpart compliance with all of the terms and conditions of FARAs, and inspection and certification of deliverables.[1] Specifically, EPP provides monitoring and implementation support for six signature energy projects: four repair and maintenance projects (3 GENCOs and Tarbela); two multipurpose dam completion projects (Gomal Zam and Satpara); and one dam rehabilitation project (Mangla).

Component II – Advice and Support of Energy Sector Policy Reform: EPP actively supports energy sector reform by undertaking activities that are requested by one or more GOP entities and by the direct secondment of staff to work in the offices of the requesting entity as advisors and specialized support staff. [2] In achieving the objectives of this component, EPP supports generation and transmission-related studies and policy reform activities assigned by USAID with the support of GOP.

Component III – New Projects, Planning and Development: Based on frequently changing priorities and schedules of USAID and USG entities, EPP undertakes due diligence of projects and activities that are candidates for USG support.[3] Specifically, EPP conducts and prepares due diligence reports on new projects under consideration for USG support in order to provide detailed information,

1 C.4.2, Component One, pg. 8 of 46, Contract No: AID-EPP-I-00-03-00004
2 C.4.3, Component Two, pg. 11 of 46, Contract No: AID-EPP-I-00-03-00004
3 C.4.4, Component Three, pg. 12 of 46, Contract No: AID-EPP-I-00-03-00004

reduce USG risk, and set a basis for creating Project Implementation Agreements for the selected projects.

Component IV – New Activities: As a result of Modification Number 2[4] to EPP's Task Order Award, EPP provides policy assistance to improve energy sector governance and technical assistance to improve the transmission system and petroleum sector.

- **Improve governance**: EPP provides targeted assistance to the National Transmission and Dispatch Company (NTDC) and the Natural Power Control Center (NPCC) to mitigate unscheduled shortages and assist the generation companies (GENCOs) to improve baseline efficiency measurements and improved operations and maintenance.
- **NTDC Support:** Through rehabilitations, installations, participant training, and introduction of new management systems, EPP develops NTDC will develop improved efficiency, standardized systems, and assist in the removal of transmission bottlenecks.
- **Turnaround DISCO:** EPP support for PESCO includes substation audits, power transformer procurement and rehabilitation, and the development of best practices in operations and maintenance. These measures will add capacity to PESCO's grid, which will in turn result in improved revenue collection and delivery.
- **Live Line Maintenance:** EPP will develop live line crews on 132 kV and 66 kV transmission lines to improve reliability and decrease maintenance disruptions. All 9 DISCOs will receive modern live line kits and crew training to conduct live line maintenance nationwide.
- **Petroleum Sector Support**: include:: To assist the GOP in expanding fuel supply, EPP will lend support to MPNR and other stakeholders in developing a supply chain for import of LNG, support in resource technology and policy framework of unconventional gas, support in overall upstream oil and gas regulatory framework, and policy implementation with particular reference to conventional gas.

EPP reports Monitoring and Evaluation (M&E) data to USAID under development objective (DO) I: **Increased energy supplied to the economy**; and intermediate result (IR) areas **1.1 Increased Energy Supply** and **1.2 Improved Energy Sector Governance**. EPP submitted its last M&E plan to USAID in December 2013 as a Performance Monitoring Plan (PMP), and updated this version to comply with USAID's M&E Plan Criteria.

1.1 Project Locations

EPP implements program activities throughout Pakistan, as illustrated in **Annex I – Where We Work**.

1.2 Project Results

EPP's Logical Framework detailed results, indicators, assumptions and risks, and context indicators appear in **Annex II – EPP Logical Framework**.

[4] C.4.5.1, Component Four, pgs. 3-9 , Amendment/Modification No. 2 of Contract No: AID-EPP-I-00-03-00004

2. Project Data Management

EPP's Cross-Cutting Activities (CCA) Team manages all supporting documents and calculation databases that illustrate program results against indicators. CCA Team progress against indicators is reported to the program's Deputy Chief of Party and Chief of Party on a weekly basis.

2.1 Supporting Documents

CCA Team manages data in both hard and soft forms. When they are available, the CCA Team collects hard copies of supporting documentation to supplement EPP's electronic database of purchase orders, agreements, policies, log sheets, calculation methods, request letters from partner organizations, and contracts. The image below illustrates the electronic organization of Component I – Monitoring and Implementation Support's supporting documentation:

COMPONENT-I (GENERATION)

Indicator	Activity	Supporting Document	Reporting Period	Reporting Year
IR 1.1a	Number of Beneficiaries	[filepaths redacted]	Q2	FY2011
IR 1.1b	GW-h of Energy Availability		Q2	FY2011
IR 1.1a	Number of Beneficiaries		Q3	FY2011
IR 1.1b	GW-h of Energy Availability		Q3	FY2011
IR 1.1a	Number of Beneficiaries		Q4	FY2011
IR 1.1b	GW-h of Energy Availability		Q4	FY2011
IR 1.1c/1.1.1a	R&R JPGCL (25 MW)		Q2	FY2011
IR 1.1c/1.1.1a	R&R NPGCL (60 MW)		Q3	FY2011
IR 1.1c/1.1.1a	R&R Tarbela (44 MW)		Q3	FY2011
IR 1.1c/1.1.1a	R&R NPGCL (170 MW)		Q4	FY2011
IR 1.1c/1.1.1a	R&R Tarbela (64 MW)		Q4	FY2011
IR 1.1a	Number of Beneficiaries		Q1	FY2012
IR 1.1b	GW-h of Energy Availability		Q1	FY2012
IR 1.1a	Number of Beneficiaries		Q2	FY2012
IR 1.1b	GW-h of Energy Availability		Q2	FY2012
IR 1.1a	Number of Beneficiaries		Q3	FY2012
IR 1.1b	GW-h of Energy Availability		Q3	FY2012
IR 1.1c/1.1.1a	R&R Satpara Unit#1-PH 1(1.90 MW)		Q1	FY2012
IR 1.1c/1.1.1a	R&R Satpara Unit#2-PH 2 (4.10 MW)		Q1	FY2012
IR 1.1c/1.1.1a	R&R Tarbela Unit#1 (10 MW)		Q2	FY2012
IR 1.1c/1.1.1a	R&R NPGCL Unit#4 (50 MW)		Q2	FY2012
IR 1.1c/1.1.1a	R&R Tarbela Unit#2 (10 MW)		Q3	FY2012

COMPONENT-I COMPONENT-II COMPONENT-IV

Figure 2: Data Management Database

While electronic copies of data are not password protected, they are stored and archived in a designated M&E folder which can only be accessed by the CCA Team.

2.2 Calculation Storage

On a weekly basis, EPP receives megawatt (MW) achviements from the program's Component I and IV technical teams. These gains are provided to the CCA Team, which maintains an Excel spreadsheet of reported gains. A sample of the weekly MW gains and calculations is illustrated below:

EPP SUMMARY Weekly Report Calculation								
Week Ending In	Total MW Added/Saved	$USD Billion Contribution	% of 2012 GDP	# of Beneficiaries	Financial Performance Improvement	% of Population Bene. (179.2 million in 2012)	% Support to Circular Debt (Rs. 872 billion in 2012)	GWh
Friday, February 07, 2014	1071	$ 2,161,300,047.60	0.93%	10,407,570	$ 421,489,004	5.81%	4.83%	6048.765
Friday, February 14, 2014	1071	$ 2,161,300,047.60	0.93%	10,407,570	$ 421,489,004	5.81%	4.83%	6048.765
Friday, February 21, 2014	1122	$ 2,296,847,031.60	0.99%	11,060,268	$ 450,796,460	6.17%	5.17%	6406.173
Friday, February 28, 2014	1130	$ 2,318,109,303.60	1.00%	11,162,652	$ 455,393,708	6.23%	5.22%	6462.517
Friday, March 07, 2014	1136	$ 2,334,056,007.60	1.01%	11,239,440	$ 458,841,644	6.3%	5.3%	6504.565
Friday, March 14, 2014	1146	$ 2,360,633,847.60	1.02%	11,367,420	$ 464,588,204	6.3%	5.3%	6574.645
Friday, March 21, 2014	1173	$ 2,432,394,015.60	1.05%	11,712,966	$ 480,103,916	6.5%	5.5%	6763.861
Friday, March 28, 2014	1173	$ 2,432,394,015.60	1.05%	11,712,966	$ 480,103,916	6.5%	5.5%	6763.861
Friday, April 04, 2014	1173	$ 2,432,394,015.60	1.05%	11,712,966	$ 480,103,916	6.5%	5.5%	6763.861
Friday, April 11, 2014	1173	$ 2,432,394,015.60	1.05%	11,712,966	$ 480,103,916	6.5%	5.5%	6763.861
Friday, April 18, 2014	1173	$ 2,432,394,015.60	1.05%	11,712,966	$ 480,103,916	6.5%	5.5%	6763.861
Friday, April 25, 2014	1173	$ 2,432,394,015.60	1.05%	11,712,966	$ 480,103,916	6.5%	5.5%	6763.861
Friday, May 02, 2014	1173	$ 2,432,394,015.60	1.05%	11,712,966	$ 480,103,916	6.5%	5.5%	6763.861
Friday, May 09, 2014	1173	$ 2,432,394,015.60	1.05%	11,712,966	$ 480,103,916	6.5%	5.5%	6763.861
Friday, May 16, 2014	1213.1	$ 2,538,971,154.00	1.10%	12,226,166	$ 503,147,622	6.8%	5.8%	7044.882
Friday, May 23, 2014	1213.1	$ 2,538,971,154.00	1.10%	12,226,166	$ 503,147,622	6.8%	5.8%	7044.882
Friday, May 30, 2014	1227.1	$ 2,576,180,130.00	1.11%	12,405,338	$ 511,192,806	6.9%	5.9%	7142.994
Friday, June 06, 2014	1227.1	$ 2,576,180,130.00	1.11%	12,405,338	$ 511,192,806	6.9%	5.9%	7142.994
Friday, June 13, 2014	1227.1	$ 2,576,180,130.00	1.11%	12,405,338	$ 511,192,806	6.9%	5.9%	7142.994
Friday, June 20, 2014	1254.1	$ 2,647,940,298.00	1.15%	12,750,884	$ 526,708,518	7.1%	6.0%	7332.21

EPP MW Summary | Generation | Transmission | Weekly | Cross Cutting | Travel

Figure 3: Weekly MW Database

The USAID-approved calculation methods that are used to determine MW gains for each reported outcome are maintained by the CCA Team on a protected folder on EPP's share drive.

3. Project Learning

1. The Energy Office wants to review and evaluate the GOP's current calculation that links MW gains to a percentage change in GDP growth. The Energy Office wants to determine the validity of data collection and calculations.
2. Establish a link between increased availability and reliability of electricity to consumers to improved socio-political stability in the country.
3. While many policies follow international standards and reinforce best practices, the GOP lacks effective policy implementation to support the energy sector.
4. The Energy Office wants to determine how to effectively assist the GOP in programming renewable energy interventions in addition to hydro, including solar, wind, and geothermal to expand energy efficiency efforts and promote greater energy conservation.
5. Baseline data suggests a low level of female employment participation in the energy sector. EPP wants to determine, with donor support, how the GOP can effectively integrate gender considerations into hiring, promotion, and policy design outside of the current quota system.
6. Research strongly indicates a concrete relationship between energy consumption, energy prices and economic growth and employment. EPP wants to determine, with donor support, the nexus and causality between energy consumption and economic growth in Pakistan; and to work with GOP counterparts to craft and implement policies that promote adequate supply targeted towards high job-growth sectors that will accelerate economic growth.

4. Project Monitoring

EPP monitors activities across Components I, II, and IV. All project monitoring methods are detailed by indicator under the Performance Indicator Reference Sheet (PIRS) in **Annex IV – EPP PIRs.** EPP uses the following data monitoring process:

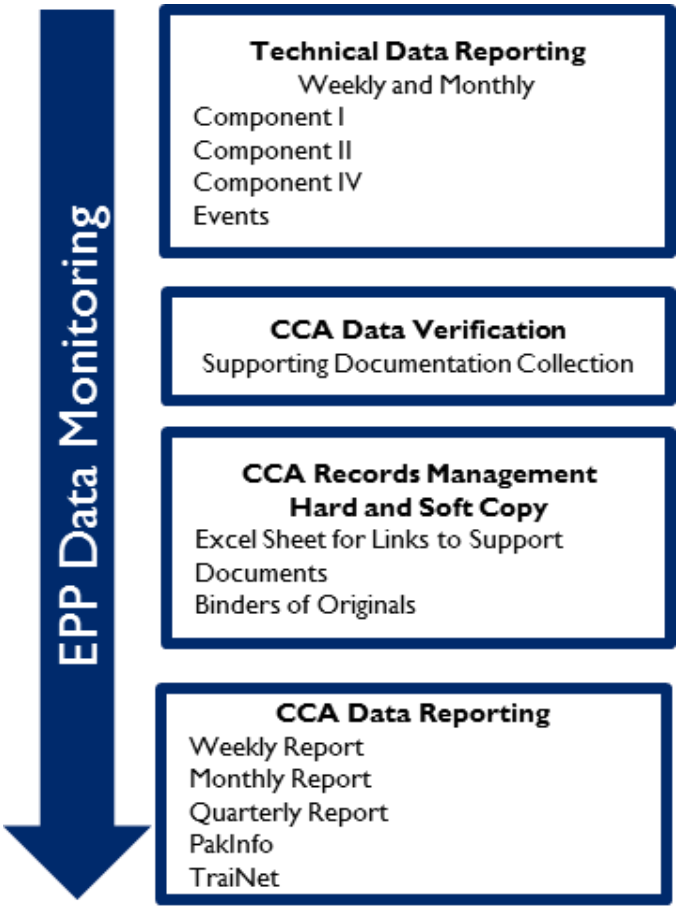


Figure 4: EPP Data Monitoring Process

1. EPP's technical teams from Components I, II and IV report results to the CCA Team on a weekly basis.
2. The CCA Team verifies the technical teams' reporting with supporting documentation of installations, policies pursued or implemented, rehabilitations, studies, tests, events, etc.
3. The CCA Team compiles all supporting documents in an Excel sheet, and maintains records in electronic and hard forms.
4. CCA will only report achievements against an indicator once the supporting documentation has been collected from the technical teams. CCA reports progress to USAID through weekly, monthly, quarterly, and annual reports; as well as through PakInfo, and TraiNet.

Depending on the indicator, EPP monitors progress with site visits, data reviews, calculations, reports, and acceptance letters from partner organizations. The shaded boxes below indicate the project monitoring method used when gathering data:

Table 1: EPP Monitoring Methods

DO/IR/ Sub - IR	MSF Energy Indicators for EPP	EPP Monitoring Method					
		Site Visits	Technical Team Review	CCA Team Review	Calculation Method Used	Report Weekly	Partner Acceptance Letter
1.1.a	Number of beneficiaries with improved energy services due to USG assistance						
1.1.b	GWh of energy availability						
1.1.c	MW available to meet power sector demand as a result of USG assistance						
1.1.1.a	MW of electrical power added or saved as a result of USG supported construction, rehabilitation, and other generation and transmission improvements						
1.1.1.b	Efficiency of thermal power plants						
1.1.1.c	Number of USG supported installations and operations and maintenance improvements of generation plants and transmission networks						
1.1.1.d	Number of transmission bottlenecks resolved						
1.1.1.e	MW of throughput capacity available to meet power sector demand as a result of USG supported transmission improvements						
1.1.4.a	Public and private funds leveraged by the USG for energy infrastructure projects						
1.2.c	USG Contributions to GDP through Generation and Transmission Improvements						
1.2.1.a	Number of key policies and regulations in development stages of analysis, drafting, stakeholder consultation, legislative review, approval, or implementation as a result of USG assistance						
1.2.2.a	Number of policies following international best practices developed and implemented						
1.2.2.b	Number of board recommendations following international best practices implemented by public sector entities						
1.2.3.a	Number of best practice-driven systems created, improved, and implemented						
1.2.4.b	Number of public forums resulting from USG assistance in which government officials and citizens interact						

5. Project Evaluation

EPP evaluates activities across Components I, II, and IV. All project evaluation methods are detailed by indicator in **Annex IV – EPP PIRs.** EPP uses the following evaluation process:

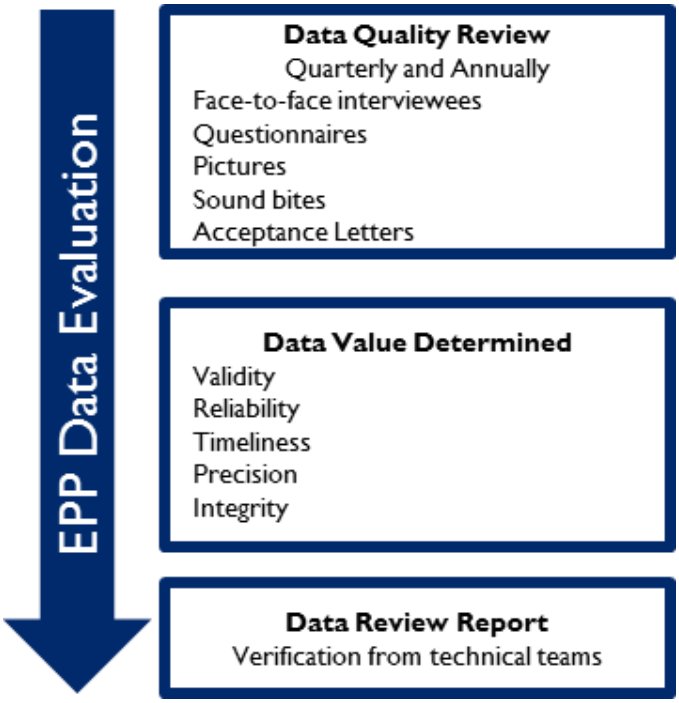


Figure 5: EPP Data Evaluation Process

1. The CCA Team reviews data reported by technical teams on a monthly, quarterly and annual basis. Data is verified and evaluated using focus group discussions, interviews, questionnaires, pictures, sound bites, and/or acceptance letters.
2. The CCA Team determines the supporting documentation validity, reliability, timeliness, precision and integrity using Management Systems International's (MSI) Data Quality Assessment (DQA) grading method. (**Annex V – Data Evaluation Grading**)
3. After the CCA Team grades the data for each indicator, findings are compiled into a quarterly report and reviewed by the technical team that initially presented the data.

6. Project Data Management and Reporting

EPP reports on indicator progress periodically:

Weekly

- The CCA Team collects Component I, II and IV technical team inputs and verifies their weekly reports.
- The CCA Team verifies Component I, II and IV technical team claims with supporting documentation. Claims are not reported until supporting documentation has been provided.
- The CCA Team maintains a weekly MW database disaggregated by generation plant and transmission MWs that have been restored or added. The MW database calculates the number of beneficiaries for improved energy services and infrastructure, GWh, and financial performance improvements.

Monthly

- The CCA Team compiles weekly achievements into a monthly table for M&E achievements. CCA verifies the monthly table with monthly narrative reports from technical teams.
- The CCA Team reports relevant capacity building programs to TraiNet with participant, training provider, and budget information.

Quarterly

- The CCA Team compiles monthly achievements into a quarterly table for M&E achievements.
- The CCA Team reports quarterly findings to PakInfo. EPP's COP reviews PakInfo data before it is submitted to USAID's Energy Office.
- The CCA Team develops a quarterly data audit to review all indicators, supporting documentation, and reporting.

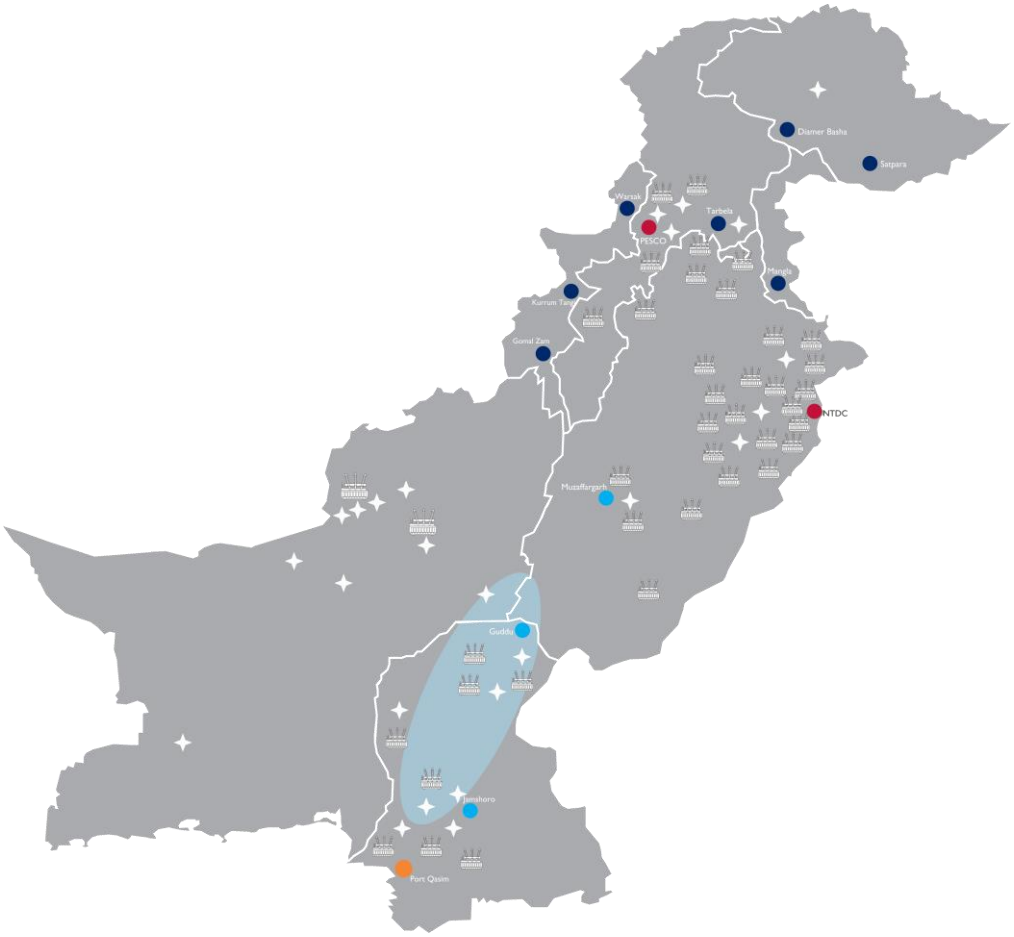
Annually

- The CCA Team collects verification acceptance letters from partner organizations or entities to confirm achievements against indicators.
- The CCA Team prepares all data and reporting for the annual Data Quality Assessment conducted by MSI or another independent M&E auditing team.

EPP's reporting to USAID is detailed in **Annex III – Monitoring, Evaluation, and Learning Table**.

ANNEXES

Annex I:
Where We Work



Gilgit-Baltistan

- 17.6 MW Satpara Multipurpose Dam Project
- Step 1: Due Diligence for Diamer Basha Dam Project
- 24 Interns Water and Power Department Gilgit

Azad Jammu and Kashmir

- 90 MW Mangla Rehabilitation Project

Punjab

- 500 MW Muzaffargarh Thermal Power Station Rehabilitation Project
- 10 Linemen (FESCO) Live Line Maintenance Training
- 10 Linemen (GEPCO) Live Line Maintenance Training
- 10 Linemen (IESCO) Live Line Maintenance Training
- 10 Linemen (LESCO) Live Line Maintenance Training
- 10 Linemen (MEPCO) Live Line Maintenance Training
- 03 Interns (NTDC Muzaffargarh)
- 14 Interns (Muzaffargarh TPS)
- Shale Gas
- NTDC
  - NTDC Capacity Building and Organization Strengthening
  - Regional import of Power
  - SCADA System Implementation
  - RTDS

  - Smart Metering Systems
  - NTDC Technical Audits
- Ministry of Finance Policy Support
- Ministry of Water and Power Policy Support
- Planning Commission – Energy Wing Policy Support
- Ministry of Petroleum and Natural Resources Policy Support

FATA

- 17.4 MW Gomal Zam Multipurpose Dam Project
- Step 1: Due Diligence for Kurram Tangi Multipurpose Dam Project
- Step 1: Due Diligence for Warsak Multipurpose Dam Project

Khyber Pakhtunkhwa

- 128 MW Tarbela Hydroelectric Power Station Rehabilitation Project
- 16 Linemen (PESCO) Live Line Maintenance Crews
- 07 Interns Electra Consultants Peshawar
- 03 Interns (NTDC Peshawar)
- 02 Interns (NTDC Mangla)
- PESCO
  - Grid Reconfiguration
  - Power Transformer Program
  - Circuit Breaker Program
  - Technical Audit
  - Reactive Power Compensation
  - Capacity Building
  - Telemetering
- NTDC Technical Audits

Balochistan

- 10 Linemen (QESCO) Live Line Maintenance Training
- 08 Interns (QESCO)
- 06 Interns (SSGC Quetta)
- 06 Interns (NTDC Quetta)
- Shale Gas
- NTDC Technical Audits

Sindh

- 270 MW Jamshoro Thermal Power Station Rehabilitation Project
- 75 MW Guddu Thermal Power Station Rehabilitation Project
- 10 Linemen (SEPCO) Live Line Maintenance Training
- 10 Linemen (HESCO) Live Line Maintenance Training
- 24 Interns (Guddu TPS)
- 16 Interns (Lakhra TPS)
- 09 Interns (Jamshoro TPS)
- 02 Interns (NTDC Hyderabad)
- 01 Intern (NTDC Jamshoro)
- 01 Intern (NTDC Sukkur)
- 01 Intern (NTDC Dadu)

- LNG Import
- Shale Gas
- NTDC Technical Audit

Annex II:
EPP Logical Framework

USAID/PAKISTAN – ENERGY POLICY PROGRAM

LOGICAL FRAMEWORK

Date of current draft: October 14, 2014

Energy Policy Program Results (Mission Strategic Framework [MSF] linkages)	**Results Indicators and Data Sources** (tag as MSF &/or F Indicator # as appropriate)	**Assumptions & Risks** (factors affecting implementation & achievement of results)	**Context Indicators** (data often linked to assumptions)
Goal: Increased Sustainable Energy Supplied to the Economy *(MSF-DO 1)* Purpose: EPP represents a comprehensive approach to help Pakistan expand its indigenous production capacity, eliminate the need for subsidies, and mitigate pressures contributing to the country's energy crisis.	Goal indicator a) Gigawatt-hours (GW-h) of energy sold (MSF DO) [Target = 7,880 GWh] Indicator data sources: GOP sends to EPP for verification	• NEPRA implements annual tariff review • GENCO's continue annual heat rate testing and tariff revisions to NEPRA	• NEPRA tariff revision review (semi-annual report)
Objective 1: Increased Energy Supply *(MSF-IR 1.1)*	**1.1.a)** Number of beneficiaries with improved energy services due to United States Government assistance (4.4.1-31) [Target = 13,624,226 individuals] Indicator data sources: GOP sends to EPP for verification	• Hydrology affects seasonal water flows for hydels which can affect maximum MWs • Fuel availability will affect GENCO capacity to reach maximum MWs. • Import of LNG by 2015 will decrease costs and increase energy supply	• As reported by the GENCO and Hydel MW unit reports • MWP quarterly report on LNG pricing
	1.1.b) Gigawatt-hours (GW-h) of energy availability [Target = 7880 GWh] Indicator data sources: GOP sends to EPP for verification		
	1.1c) Power (megawatts) available to meet power sector demand as a result of United States Government assistance [Target = 1,303 MW] Indicator data sources: GOP sends to EPP for verification		

Energy Policy Program Results (Mission Strategic Framework [MSF] linkages)	**Results Indicators and Data Sources** (tag as MSF &/or F Indicator # as appropriate)	**Assumptions & Risks** (factors affecting implementation & achievement of results)	**Context Indicators** (data often linked to assumptions)
Sub-Objective 1.1: Increased generation and transmission capacity *(MSF-1.1.1)* Component I – Generation Component IV – New Activities (Transmission – PESCO)	**1.1.1.a)** Megawatts (MW) of electrical power added/saved as a result of United States Government supported construction, rehabilitation, and other generation and transmission improvements [Target = 1,303 MW] Indicator data sources: GOP sends to EPP for verification		
	1.1.1.b) Efficiency of thermal power plants (British thermal units of input heat energy per kilowatt-hour of electrical output energy (Btu/kW-h)) (MSF) [Target: GENCO I = 11,063 Btu/kW-h; GENCO II = 10,000 Btu/kW-h; GENCO III = 11, 547 Btu/kW-h] Indicator data sources: GENCOs		
	1.1.1.c) Number of United States Government supported installations and operations and maintenance improvements and generation plants and transmission networks [Target = 181 installations/operations] Indicator data sources: EPP		
	1.1.1.d) Number of transmission bottlenecks resolved [Target = 121 bottlenecks] Indicator data sources: EPP		
Sub-Objective 1.2: Increased Non-USG investment in the energy sector *(MSF-IR 1.1.4)* Component I – Generation	**1.1.4.a)** Public and private funds leveraged by the United States Government for energy infrastructure projects (alternative F indicator 4.4.1-32) [Target = $193.5 million USD] Indicator data sources: GOP G2G disbursements, LNG partners		
Objective 2: Improved energy sector governance *(MSF-IR1.2)*	**1.2.a)** Percent change in the gross annual accumulation of circular debt [Target = 140%] Indicator data sources: EPP is currently not collecting data REPLACEMENT INDICATOR **1.2.c)** USG Contributions to GDP through Generation and Transmission Improvements [Target = US$ 2,829 million] Indicator data sources: GOP sends to EPP for verification	• Remaining energy after losses per year from 1Generation or Transmission (throughput and added/saved) MW (kwh/yr.) multiplied by the Cost per kWh • Cost per kWh is $0.37 from the study on Economic Impact of Load shedding, conducted by Dr. Hafiz Pasha 2013	• Diversification of energy supply reported annually by MWP

Energy Policy Program Results (Mission Strategic Framework [MSF] linkages)	**Results Indicators and Data Sources** (tag as MSF &/or F Indicator # as appropriate)	**Assumptions & Risks** (factors affecting implementation & achievement of results)	**Context Indicators** (data often linked to assumptions)
Sub-Objective 2.1: Improved policy implementation *(MSF-IR 1.2.1)* Component II – Policy and Reform	**1.2.1.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 (MSF; F#) [Target = 10 policy and regulations] Indicator data sources: EPP collects MWP, PC, MPNR, GENCO, MOF, etc. accepted policies (reports, laws, regulations, etc.)		
Sub-Objective 2.2: More autonomous energy sector entities *(MSF-IR 1.2.2)* Component II – Policy and Reform	**1.2.2.a)** Number of policies following international best practices developed and implemented (MSF; F#) [Target = 5 policies] Indicator data sources: EPP		
	1.2.2.b) Number of board recommendations following international best practices implemented by public sector entities [Target = 4 board recommendations] Indicator data sources: EPP		
Sub-Objective 2.3: Improved capacity of USAID-supported energy public-sector entities *(MSF-IR 1.2.3)* Component II – Policy and Reform	**1.2.3.a)** Number of best practice-driven systems created, improved, and implemented (MSF) [Target = 10 systems] Indicator data sources: EPP		
Sub-Objective 2.4: Increased constructive civil society engagement in the energy sector *(MSF-IR 1.2.4)* Component I – Generation Component II – Policy and Reform Component IV – New Activities (Oil and Gas Support, Transmission – NTDC)	1.2.4.b) Number of public forums resulting from United States Government assistance in which government officials and citizens interact [Target = 12 public forums] Indicator data sources: EPP collects participant information (sign-in sheets, evaluations, photos etc.)		

SUMMARY OF ENERGY POLICY PROGRAM OUTPUTS BY COMPONENT

Outputs (Results)	Output Indicators	Component	Illustrative Activities
Output 1.1	Output indicator 1.1.1) Installations completed (MSF)[Target = 193 installations/operations] Indicator data sources: GOP	Component I – Generation Component II – Policy Component IV – New Activities (Transmission – PESCO, Transmission – NTDC)	Transformer Program, G2G Installations and tests, PowerSIM training, O&M trainings
	Output indicator 1.1.2) Best practices implemented [Target = 11] Indicator data sources: EPP		
Output 1.2	Output indicator 1.2.1) GOP funds cost shared [Target = $193.5 million] Indicator data sources: GOP	Component I – Generation Component IV – New Activities (Oil and Gas Support)	G2G agreements for Hydro Power Plants and LNG related purchases
Output 2.1	Output indicator 2.1.1) Policies leading to increased energy supply [Target =10] Indicator data sources: EPP	Component II – Policy Component IV – New Activities (Transmission – NTDC)	EE policy, Gasifier concept, private transmission line framework
Output 2.2	Output indicator 2.2.1) Policies implemented to improve governance [Target = 9] Indicator data sources: EPP	Component II – Policy	Power SIM and Business Plan implementation
Output 2.3	Output indicator 2.3.1) Institution of best practices [Target = 10 systems] Indicator data sources: EPP	Component I – Generation Component II – Policy Component IV – New Activities (Transmission – NTDC, Oil and Gas Support)	Performance efficiency improvement, mandatory plant testing, new technology
Output 2.4	Output indicator 2.4.1) Participation in public forums [Target = 300 participants] Indicator data sources: EPP	Component I – Generation Component II – Policy Component IV – New Activities (Transmission – NTDC, Oil and Gas Support)	Gender forum, university workshops, LNG private sector engagement

CROSS-CUTTING INPUTS (Project inputs which contribute to all Objectives and Sub-Objectives):

- *Ex - Create ICT-enabled project platform for xxxx*
- *Ex - Regional workshops xxx*
- *Ex - Participatory development of project quality standards and indicators of success for xxxxx*

Components	Project Sub-objectives	Illustrative Activities
1. Component I – Generation	Sub-Objectives 1.1, 1.2, 2.1, 2.2, 2.3, 2.4	Training; Facilitation Workshops; Drafting Legislation/Policies/Procedures; Software Purchase/Installation/Training; Equipment Installation/Monitoring/Evaluation; G2G Agreements
2. Component II – Policy	Sub-Objectives 2.1,2.2. 2.4	Training; Facilitation Workshops; Drafting Legislation/Policies/Procedures; Software Purchase/Installation/Training; Advisory services
3. Component III – New Activities (Transmission – NTDC, Transmission – PESCO, Oil and Gas Support)	Sub-Objectives 1.1, 1.2, 2.1, 2.2, 2.3, 2.4	Training; Facilitation Workshops; Drafting Legislation/Policies/Procedures; Software Purchase/Installation/Training; Equipment Installation/Monitoring/Evaluation; G2G Agreements; Advisory services and consulting

Annex III:
Monitoring, Evaluation, and Learning Table

Annex III attached as an excel sheet titled:

Annex III – EPP Monitoring, Evaluation and Learning. xls modified on July 8, 2014

Annex IV:
Performance Indicator Reference Sheets

1 (a): GWh of Energy Sold

This indicator represents the increased potential of energy that is sold and made available by restoring capacity/adding more capacity to generating and/or transmission facilities due to USG assistance. Once the program assistance megawatt figures from both generation and transmission activities are collected, EPP uses the following conversion formulas for calculating GWh of energy sold (equivalent to GWh of energy availability):

GWh = 8.76*∑ (MW Target in year for Plant1*Plant1 Availability Factor) + (MW Target in year for Plant2 *Plant2 Availability Factor)+(MW Target in year for Plant3*Plant3 Availability Factor)+(MW Target in year for Plant4*Plant4 Availability Factor)+ (MW Target in year for Plant5*Plant5 Availability Factor)+ (MW Target in year for Plant6*Plant 6 Availability Factor)+ (MW Target in year for Transmission Activities* Transmission P Factor)

GWh=8.76*∑[(Tarbela MW*50%)+(Satpara MW*68%)+(Gomal Zam MW*60%)+(Jamshoro MW*63.7%)+(Muzaffargarh MW*64.34%)+(Guddu MW*80%)+(Transmission MW*80%)]

Life of Program Target: Milestones and achieved results for generation and transmission are outlined below:

- Generation = 4,797 GWh
- Transmission Throughput Capacity = 2,999 GWh
- Transmission Added/Saved = 84 GWh
- TOTAL = 7,880 GWh

Contributing Entities	Power Factor	Power Factor * Hours per Year	LOP Target	Achieved GWh					Target
				FY 2011	FY 2012	FY 2013	FY 2014	Total Achieved	FY 2015
Tarbela	50.00%	4380	561	473	88	-	-	561	-
Guddu	80.00%	7008	526	-	-	-	560.64	560.64	-
Muzaffargarh	64.34%	5636	2,677	1,296	282	1,127	113	2817.72	-
Jamshoro	63.70%	5580	837	140	-	1,367	-	1507	-
Satpara	68.00%	5957	105	-	36	69	-	105	-
Gomal Zam	60.00%	5256	91	-	-	91	-	91	-
Generation TOTAL	n/a	n/a	**4,797**	**1,909**	**406**	**2,654**	**673**	**5,642**	**-**
Transmission Throughput Capacity TOTAL	80%	7008	**2,999**	**-**	**-**	**532.6**	**1,913.88**	**2446.48**	**833.95**
Transmission Added/Saved TOTAL			**84**			**42**	**-**	**42**	**42**
TOTAL GWh	n/a	n/a	**7,880**	**1,909**	**406**	**3,229**	**2,587**	**8,130.8**	**875.95**

PERFORMANCE INDICATOR REFERENCE SHEET (PIRS)
Indicator *- # and Title*: 1.a Gigawatt-hours (GWh) of energy sold
Development Objective (DO) *- # and Title*: 1. Increased Sustainable Energy Supplied to the Economy
Intermediate Result (IR) *- # and Title*:
Sub-Intermediate Result (Sub-IR) *- # and Title*:
Relationship between the Sub-IR and IR or IR and DO: *Enter the explanation of the linkage between the lowest level of result represented by the indicator, and the next level of result up; address the "so what?" question to move from outputs to outcomes, or outcomes to impact; explain in terms of the development hypotheses, do not simply restate the structure of the Results Framework.*
Increasing the availability of energy by restoring capacity and adding more capacity through generation and/or transmission facilities due to USG assistance results will lead to increased sales, provided there is enough fuel supply/water availability. Increased energy generated will increase supply to the economy. The amount energy generated per annum depends on the availability of the power plant. The GWh of energy sold is directly linked with the energy made available; however, there are other requirements that need to be met such as availability of fuel is the first step in increasing the supply of energy.
INDICATOR DESCRIPTION
Precise Definition(s): *Enter the precise definition of the indicator so it can be operationalized; define all terms, elements, implied actions and calculations; [for example, "farmers using better production techniques" – define "better production" and "techniques". Describe how this will be determined – e.g. Index, scale, standards]. For indicators that are percent or proportions explain how it will be calculated and what will serve as the numerator and denominator. If the indicator is cumulative, made up of stages or phases, or is a yes-no, please specify this and explain the stages/phases or how it is cumulative. If it is a Standard Program Structure ("F") Indicator, use and if necessary, refine the standard definition.*
GWh of energy availability (which is the total/net produced energy) is equal to the GWh of energy sold. The number of GWh of energy that is sold from the USG-supported power plants is calculated from the records of the power plant. The energy sales as measured in GWh will be reported for the power plants where EPP is working; which is equivalent to GWh of energy made available as a result of generation and transmission related activities. *Net energy produced (GWh) = Net energy available at the plants (GWh) = Net energy sold at the plants (GWh) = Net energy sold from the plants (GWh)*

Unit of Measure:	Type of Indicator:	Category:		Desired Direction:
Enter unit of measure (e.g. "number of___", "percent of ___" etc.)	*Enter "output", "outcome" or "impact".*	*Enter "Standard F" or "Custom"*	*If "Standard F indicator", enter the number*	*Enter "increasing", "decreasing" or 'static" to indicate the direction of success result.*
Gigawatt-hours	Outcome	Custom		Increasing

Aggregation Process: *If indicator will be collected by more than one source, explain how the data will aggregate across these multiple sources (e.g. in the case of # of jobs, demonstrate how data definitions for what is counted as a "job" is consistently interpreted across sources and specify that he data reported by each partner will be added together for a combined total; or in the case of a stage of phase indicator, state how data from different partners will combine into one final data). Also specify the timeline for aggregation (e.g. all sources will be added together each quarter).*
All data are added together across all data collection/reporting entities. Common collection instruments will be established across all data collection/reporting entities.
Disaggregates: *Enter all disaggregation titles/ categories and values (e.g. title: Household Head Type; values: Female no Male Adult households, Male no Female Adults households, Male and Female Adult households, Child no Adult households.)*

Type of Plant (Hydro, Thermal, Transmission), **Power Plant or Transmission System** (Gomal Zam, Satpara, Tarbela, Jamshoro, Muzaffargarh, Guddu, NTDC, PESCO), Distribution Company ('Faisalabad Electric Supply Company, Gujranwala Electric Power Company, Hyderabad Electric Supply Company, Islamabad Electric Supply Company, Lahore Electric Supply Company, Multan Electric Power Company, Peshawar Electric Supply Company, Quetta Electric Supply Company, Sukkur Electric Power Company, Karachi Water & Sewerage Board, Peshawar Regional Development & Rural Development Department, Islamabad Capital Development Authority), **Power Saving Intervention** (Municipal Pumps, Industrial Motors, Feeder Optimization & Metering, Automatic Meter Reading, Radio -Frequency Meters, and Aerial Bundled, Cables, Commercial Procedures Optimization

Project, High Tension Capacitors, Low Tension Capacitors, Conservation Campaign, Linemen Training, Tools, & Equipment)

DATA COLLECTION, STORAGE, and ANALYSIS		
Name of IP/ Responsible Party for Data Collection:	**Frequency of data collection:** *Enter how often the data will be collected (Weekly, Monthly, etc.)*	
EPP	Monthly	
Data Source: *Enter where IP obtains data (e.g. self-collected, GOP records or private sector).*	**Data Entry Frequency into PakInfo:** *Enter the anticipated frequency of regular data entry into PakInfo (e.g. Quarterly, Annually, etc.)*	**Responsible Party for Data Entry into PakInfo:** *Enter who will be responsible for inputting and submitting data via PakInfo.*
GOP	Quarterly	EPP

Data collection method: *Enter the tools and methods to be used for data collection and indicate for each method who (IP, USAID or third party) will collect the data. (e.g. telephone survey of household sample, reading assessment administered by third-party, sign-in sheets of training participants by IP)*

For Generation MWs: On a weekly basis, EPP's generation technical team, consisting of engineers and senior energy experts in thermal and hydro generation, monitors ongoing project activities at the 7 G2G signature projects. Prior to an installation or system improvement, the plant's staff produces a log sheet for the unit to show current MW capacity. Once the installation or system improvement is implemented, the plant's staff produces a post-installation log sheet to show any MWs gained as a result of USG assistance. The log sheets are sent to EPP's generation technical team for review and calculation, and ultimately verification.

For Transmission MWs: On a weekly basis, EPP's transmission technical team, consisting of engineers and senior energy and transmission experts, monitors ongoing project activities with respect to NTDC and PESCO. Prior to an installation or system improvement, the transmission technical team receives an activity acceptance letter stating the requested equipment and MVA capacity. After installation, the transmission technical team verifies installation with NTDC or PESCO with an onsite visit.

Data Analysis Plan: *Enter how the data will be analyzed, including description of methodology (e.g. descriptive, comparative, qualitative or quantitative) as well as who will participate in the data analysis process (e.g. activity manager, chief of party, other stakeholders, GOP representatives, etc.)*

To verify the MW data received from GOP partners, EPP's technical teams and the CCA Team will conduct onsite inspections to monitor the operational conditions of the plants. This is done before/after the completion of a milestone/equipment installation, to record the improvements in the power generation capacity. CCA Team works with the technical teams to verify the data through the USAID Performance Management Toolkit process (April 2003). In the event of suspect data, the CCA Team addresses the issues with the technical teams and, if necessary, GOP partners.

For Generation MWs: The plant log sheets are sent to EPP's generation technical team for review and calculation. EPP's generation technical team provides the CCA Team with the final MW calculation, log sheet, and calculation methodology. CCA Team maintains supporting documents and verifies weekly, monthly, quarterly, etc. reports to USAID. M&E maintains a weekly log of MW gains and monitors the generation technical team's reporting progress on a weekly basis.

Generation MWs to GWh: The GWh is derived from multiplying the specific G2G plant availability factor by the MW achieved. The calculation produces the kWh of energy availability and is divided by 1000 to give the GWh of energy availability; which is equal to the total GWh of energy sold. The specific plant availability factors and the target MWs below show how the GWh of energy availability and sold will be determined.

Plant	Plant Availability Factor*	MW LOP Target**	kWh LOP PAF * MW LOP Target	GWh LOP Target kWh/1000
Tarbela	50%	128	560,640	561
Guddu	80%	75	525,600	526
Muzaffargarh	64.34%	475	2,677,187	2677
Jamshoro	63.7%	150	837,018	837
Satpara	68%	17.6	104,840	105
Gomal Zam	60%	17.4	91,454	91

* Plant Availability Factor is determined by the G2G agreements

** MW targets determined in G2G agreements

For Transmission MWs: The transmission technical team sends the letters to the CCA Team for records maintenance. The CCA Team coordinates weekly with the technical transmission team to monitor the complete installation of the equipment. Once the equipment has been installed, the technical team and CCA Team verify installation with the purchase order certificate of materials received. The CCA Team maintains supporting documents and verifies weekly, monthly, quarterly, etc. reports to USAID. M&E maintains a weekly log of MW gains and monitors the transmission technical team's reporting progress. EPP disaggregates between throughput capacity and added/saved MWs for transmission achieved MWs.

Transmission MWs to GWh: The GWh is derived from multiplying the power factor by the MWs achieved. The MWs from transmission are disaggregated and calculated for GWh. The calculation produces the kWh of energy availability and is divided by 1000 to give the GWh of energy availability; which is equal to the total GWh of energy sold.

Contributing Entities	Power Factor*	MW LOP Target**	kWh LOP PAF * MW LOP Target	GWh LOP Target kWh/1000
Transmission Throughput Capacity	80%	428	2,999,424	2,999 GWh
Transmission Added/Saved		12	84,096	84 GWh
Transmission TOTAL		440	3,083,520	3,083.5 GWh

*Power factor determined by NTDC sourced document

**MW targets determined by PESCO and NTDC requested installations.

DATA QUALITY	
Data Quality Assessment (DQA): *Enter the date the DQA was conducted and the person who conducted the DQA*	
Date: *(MM/YY)*	**DQA completed by:**
Key Data Quality Limitations (if any) and Actions Planned to Address Those Limitations: *Enter data limitations identified in the data quality assessment process related to the five quality standards, namely validity, integrity, precision, reliability and timeliness; discuss the significance of data weakness that may affect the conclusions about the extent to which performance goals have achieved; describe corrective actions planned or taken for addressing data weakness.*	
EPP will gather supporting documentation wherever possible and appropriate (certain documents which are confidential cannot be shared without GOP's consent). Also feedback on implementation progress depends on the availability and veracity of input from other GOP stakeholders (factors beyond EPP's control).	

BASELINE		
Baseline Year: *(YYYY)*	**Baseline Data:**	**Reason for Postponement/Other Comments:** *If no baseline was established, enter the explanation and rationale for not establishing a baseline. Also indicate any other issues related to the baseline collection or data (such as rolling baselines or baselines from different sources rolling into one.*
2010	0	Agreement between USG and GOP signed in 2010, therefore zero will be used as a reference point

TARGET		
Initial Life of the Program Target:	**Date for Achievement of Initial Target:** *(MM/YY)*	**Date Initial Target was Set:** *(MM/YY)*
8,300 GWh[5]	n/a	12/12
Revised Life of the Program Target:	**Date for Achievement of Revised Target:** *(MM/YY)*	**Date Revised Target was Set:** *(MM/YY)*
7,600 GWh		3/14
2nd Revision to Life of the Program Target:	**Date for Achievement of Revised Target:** *(MM/YY)*	**Date Revised Target was Set:** *(MM/YY)*
7,880 GWh		9/14

OTHER NOTES / NEXT STEPS
If the indicator is pending, explain why and expected date when collection will begin. As appropriate, indicate any other important information about the indicator and/or its data collection as well as actions needing to be taken.
Updated PIR in September 2014 to distinguish throughput capacity versus added/saved MWs for transmission. Additional transmission throughput capacity MWs determined for LOP in FY2015. Generation = 4,797 GWh Transmission Throughput Capacity = 2,999 GWh Transmission Added/Saved = 84 GWh TOTAL = 7,880 GWh

CHANGES & UPDATES			
Date *(MM/YY)*	**Name** *Enter who made updates*	**Change or Update Made:**	**Reason for Change or Update:**
12/13	Richard Smith	Updated data collection and data analysis plan language	Requested by USAID in December 2013
3/14	Jimmy R. Hicks/EPP CCA Team	Revised LOP based upon transmission's GWh calculation method	Request by USAID.
9/14	EPP CCA Team	Revised PIR, developed LOP, and added disaggregation	Request by USAID.

[5] In March 2014, EPP revised the target to reflect an updated power factor from 100% to 80% in transmission. This resulted in a decreased GWh life of program target. The 80% power factor was determined by a NTDC report titled "*NTDC Power System Statistics – 2012 to 2013*" 38th edition from Planning Power department of NTDC.

1.1 (a): Number of Beneficiaries with Improved Energy Services due to USG Assistance

The number of beneficiaries with improved energy services is derived from the number of megawatts added/saved to the energy sector by GOP partners as a result of the program assistance. Once the program assistance megawatt figures from both generation and transmission activities are totaled, the program will use the following ratio to determine the total number of beneficiaries:

1 MW benefits (Generation) = 9,262 individuals

1 MW benefits (Transmission) = 12,798 individuals

Life of Program Target:

- Generation = 7,993,106 beneficiaries (863 MW*9,262 beneficiaries per MW)
- Transmission Throughput Capacity = 5,477,544 beneficiaries (428 MW *12,798 beneficiaries per MW)
- Transmission Added/Saved=153,576 beneficiaries (12 MW *12,798 beneficiaries per MW)
- TOTAL = 13,624,226 Beneficiaries[6]

Contributing Entities	LOP Target (individuals)	Achieved (individuals)					Target FY 2015
		FY 2011	FY 2012	FY 2013	FY 2014	Total Achieved	
Tarbela	1,185,536	1,000,296	185,240	-	-	1,185,536	-
Guddu	694,650	-	-	-	740,960	740,960	-
Muzaffargarh	4,399,450	2,130,260	463,100	1,852,400	185,240	4,631,000	-
Jamshoro	1,389,300	231,550	-	2,269,190	-	2,500,740	-
Satpara	163,011	-	55,572	107,347	-	162,919	-
Gomal Zam	161,159	-	-	161,159	-	161,159	-
Generation TOTAL	7,993,106	3,362,106	703,912	4,390,096	926,200	**9,382,314**	0
Transmission Throughput Capacity TOTAL	5,477,544	0	0	972,648	3,495,134	**4,467,782**	1,522,962
Transmission Added/ Saved TOTAL	153,576	0	0	76,788	0	**76,788**	76,788
TOTAL (Individuals)	**13,624,226**	**3,362,106**	**703,912**	**5,439,532**	**4,421,334**	**13,926,884**	**1,599,750**

[6] Prior to FY2014, the Life of the Program target was established based on 15,915 beneficiaries for both generation and transmission MW additions. USAID changed the calculation method in March 2014. EPP altered reporting in PakInfo to reflect this change.

PERFORMANCE INDICATOR REFERENCE SHEET (PIRS)				
Indicator *- # and Title*: 1.1.a Number of beneficiaries with improved energy services due to United States Government assistance				
Development Objective (DO) *- # and Title*: 1 Increased Sustainable Energy Supplied to the Economy				
Intermediate Result (IR) *- # and Title*: 1.1 Increased Energy Supply				
Sub-Intermediate Result (Sub-IR) *- # and Title*: N/A				
Relationship between the Sub-IR and IR or IR and DO: *Enter the explanation of the linkage between the lowest level of result represented by the indicator, and the next level of result up; address the "so what?" question to move from outputs to outcomes, or outcomes to impact; explain in terms of the development hypotheses, do not simply restate the structure of the Results Framework.*				
Increased energy supply will result in improved energy service to end-users, which in turn, will support increased economic growth and employment to benefit the individuals.				
INDICATOR DESCRIPTION				
Precise Definition(s): *Enter the precise definition of the indicator so it can be operationalized; define all terms, elements, implied actions and calculations; [for example, "farmers using better production techniques" – define "better production" and "techniques". Describe how this will be determined – e.g. Index, scale, standards]. For indicators that are percent or proportions explain how it will be calculated and what will serve as the numerator and denominator. If the indicator is cumulative, made up of stages or phases, or is a yes-no, please specify this and explain the stages/phases or how it is cumulative. If it is a Standard Program Structure ("F") Indicator, use and if necessary, refine the standard definition.*				
Number of beneficiaries (individuals) benefitting from increased energy supply due to USG assistance. The USG support may include increased energy supply through construction, rehabilitation and upgrades in generation and transmission and improvements in energy sector performance and governance. See disaggregates and data collection section for formulas/calculations.				
Unit of Measure:	**Type of Indicator:**	**Category:**		**Desired Direction:**
Enter unit of measure (e.g. "number of___", "percent of___" etc.)	*Enter "output", "outcome" or "impact".*	*Enter "Standard F" or "Custom"*	*If "Standard F indicator", enter the number*	*Enter "increasing", "decreasing" or 'static" to indicate the direction of success result.*
Number of individuals	Outcome	Standard	4.4.1-31	Increasing
Aggregation Process: *If indicator will be collected by more than one source, explain how the data will aggregate across these multiple sources (e.g. in the case of # of jobs, demonstrate how data definitions for what is counted as a "job" is consistently interpreted across sources and specify that he data reported by each partner will be added together for a combined total; or in the case of a stage of phase indicator, state how data from different partners will combine into one final data). Also specify the timeline for aggregation (e.g. all sources will be added together each quarter).*				
All data are added together across all data collection/reporting entities. Common definition will be confirmed across all implementing partner PIRS, including consensus on the formula used for calculation of beneficiaries. Common collection instruments will be established across all data collection/reporting entities.				
Disaggregates: *Enter all disaggregation titles/ categories and values (e.g. title: Household Head Type; values: Female no Male Adult households, Male no Female Adults households, Male and Female Adult households, Child no Adult households.)*				
Location (Urban, Rural), **Sex** (Male, Female) **Note:** To determine the location and sex ratios of the beneficiaries, the IP will use the CIA World Fact Book that state the following: Male/Female Ratio=1.06 or Male=51.5% Female=48.5% (2013 estimate) Urban Population=36.2% and Rural Population=63.8% (2011 estimate)[7]				

[7] Figures taken from CIA World Fact Book in December 2013 - https://www.cia.gov/library/publications/the-world-factbook/geos/pk.html

<table>
<tr><th colspan="3">DATA COLLECTION, STORAGE, and ANALYSIS</th></tr>
<tr><td colspan="2">Name of IP/ Responsible Party for Data Collection:</td><td>Frequency of data collection: Enter how often the data will be collected (Weekly, Monthly, etc.)</td></tr>
<tr><td colspan="2">EPP/PDP</td><td>Quarterly</td></tr>
<tr><td>Data Source:
Enter where IP obtains data (e.g. self-collected, GOP records or private sector).</td><td>Data Entry Frequency into PakInfo:
Enter the anticipated frequency of regular data entry into PakInfo (e.g. Quarterly, Annually, etc.)</td><td>Responsible Party for Data Entry into PakInfo: Enter who will be responsible for inputting and submitting data via PakInfo.</td></tr>
<tr><td>GOP</td><td>Quarterly</td><td>EPP CCA Team</td></tr>
<tr><td colspan="3">Data collection method: Enter the tools and methods to be used for data collection and indicate for each method who (IP, USAID or third party) will collect the data. (e.g. telephone survey of household sample, reading assessment administered by third-party, sign-in sheets of training participants by IP)</td></tr>
<tr><td colspan="3">For Generation MWs: On a weekly basis, EPP's generation technical team, consisting of engineers and senior energy experts in thermal and hydro generation, monitors ongoing project activities at the 7 G2G signature projects. Prior to an installation or system improvement, the plant's staff produces a log sheet for the unit to show current MW capacity. Once the installation or system improvement is implemented, the plant's staff produces a post-installation log sheet to show any MWs gained as a result of USG assistance. The log sheets are sent to EPP's generation technical team for review and calculation, and ultimately verification.

For Transmission MWs: On a weekly basis, EPP's transmission technical team, consisting of engineers and senior energy and transmission experts, monitors ongoing project activities with respect to NTDC and PESCO. Prior to an installation or system improvement, the transmission technical team receives an activity acceptance letter stating the requested equipment and MVA capacity. After installation, the transmission technical team verifies installation with NTDC or PESCO with an onsite visit. EPP distinguishes between MWs added/saved and throughput capacity, which ultimately calculates the total number of beneficiaries.</td></tr>
<tr><td colspan="3">Data Analysis Plan: Enter how the data will be analyzed, including description of methodology (e.g. descriptive, comparative, qualitative or quantitative) as well as who will participate in the data analysis process (e.g. activity manager, chief of party, other stakeholders, GOP representatives, etc.)</td></tr>
<tr><td colspan="3">To verify the MW data received from GOP partners, EPP's technical teams and the CCA Team conduct onsite inspections to monitor the operational conditions of the plants. This is done before/after the completion of a milestone/equipment installation, to record the improvements. The CCA Team works with the technical teams to verify the data through the USAID Performance Management Toolkit process (April 2003). In the event of suspect data, The CCA Team addresses the issues with the technical teams and, if necessary, with the GOP partners.

For Generation MWs: The plant log sheets are sent to EPP's generation technical team for review and calculation. EPP's generation technical team provides the CCA Team with the final MW calculation, log sheet, and calculation methodology. The CCA Team maintains supporting documents and verifies weekly, monthly, quarterly, etc. reports to USAID. M&E maintains a weekly log of MW gains and monitors the generation technical team's reporting progress on a weekly basis.

For Transmission MWs: The transmission technical team sends activity acceptance letters to the CCA Team for records maintenance. The CCA Team coordinates, weekly, with the transmission team to monitor the complete installation of any equipment. Once the equipment has been installed, the technical team and the CCA Team verify the installation with the purchase order certificate of materials received. The CCA Team maintains supporting documents and verifies weekly, monthly, quarterly, etc. reports to USAID. M&E maintains a weekly log of MW gains and monitors the transmission technical team's reporting progress.</td></tr>
</table>

MWs to Beneficiaries: The number of beneficiaries with improved energy services is derived from the number of megawatts added/saved to the energy sector by GOP partners as a result of program assistance in generation and transmission. EPP's CCA Team collects the megawatt figures from both generation and transmission on a weekly basis after their analysis. The CCA Team then maintains an Excel database of MW's added to the program and converted into beneficiaries using the following ratio:

1 MW benefits (Generation) = 9,262 individuals

1 MW benefits (Transmission both throughput capacity and added/saved) = 12,798 individuals

USAID Energy Office determined the ratio in March 2014.

DATA QUALITY	
Data Quality Assessment (DQA)*: Enter the date the DQA was conducted and the person who conducted the DQA*	
Date: *(MM/YY)*	**DQA completed by:**
11/12	MSI Monitoring and Evaluation Program (DQA conducted for EPP and PDP)
06/14	MSI Monitoring and Evaluation program
Key Data Quality Limitations (if any) and Actions Planned to Address Those Limitations: *Enter data limitations identified in the data quality assessment process related to the five quality standards, namely validity, integrity, precision, reliability and timeliness; discuss the significance of data weakness that may affect the conclusions about the extent to which performance goals have achieved; describe corrective actions planned or taken for addressing data weakness.*	
The data from PDP and EPP programs was reviewed. The formula for number of beneficiaries is determined based on the number of MWs added or saved. The multiplier to calculate beneficiaries from MW is in the IP PIRS.	

BASELINE		
Baseline Year: *(YYYY)*	**Baseline Data:**	**Reason for Postponement/Other Comments:** *If no baseline was established, enter the explanation and rationale for not establishing a baseline. Also indicate any other issues related to the baseline collection or data (such as rolling baselines or baselines from different sources rolling into one.*
2011	0	

Initial Life of the Program Target:	**Date for Achievement of Initial Target:** *(MM/YY)*	**Date Initial Target was Set:** *(MM/YY)*
20,100,645[8] individuals	LOP	2/12
Revised Life of the Program Target:	**Date for Achievement of Revised Target:** *(MM/YY)*	**Date Revised Target was Set:** *(MM/YY)*
13,112,306 individuals	LOP	3/14
2nd Revision to Life of the Program Target:	**Date for Achievement of Revised Target:** *(MM/YY)*	**Date Revised Target was Set:** *(MM/YY)*
13,624,226 individuals	LOP	9/14

OTHER NOTES / NEXT STEPS
If the indicator is pending, explain why and expected date when collection will begin. As appropriate, indicate any other important information about the indicator and/or its data collection as well as actions needing to be taken.
The Life of the Program Target was established based on the anticipated number of megawatts to be added to the energy sector as a result of program assistance. (13,624,226 individuals=(863 MW ×9,262 individuals) + (440 MW × 12,798 individuals))

[8] This Life of Program is based on previous calculations of number of individuals benefitted per MW for both Generation and Transmission i.e. 1 MW = 15,915 individuals, (20,100,645 individuals = 1,263 MW × 15,915 individuals)

CHANGES & UPDATES			
Date *(MM/YY)*	**Name** *Enter who made updates*	**Change or Update Made:**	**Reason for Change or Update:**
12/13	Richard Smith/EPP CCA Team	Updated relationship between Sub-IR etc., Disaggregation, Data Collection Method, Data Analysis Plan, Targets, and Other Notes.	Requested by USAID on December 11, 2013
12/13	Harritt/Bukhari	Incomplete PIRS	Finalizing PIRS
12/13	Richard Smith/EPP CCA Team	Updated baseline, data analysis language, and aggregation	Requested by USAID
3/14	Jimmy R. Hicks/EPP CCA Team	Revised calculation of number of individuals benefitted per MW and baseline data.	Requested by USAID
6/14	EPP CCA Team	Revised data collection method and data analysis plans	Additional information requested by MSI after DQA.
9/14	EPP CCA Team	Revised LOP and added disaggregation	Updated disaggregation per USAID guidance.

1.1 (b): Gigawatt-Hours of Energy Availability

This indicator represents the increased potential of energy that is made available by restoring capacity/adding more capacity to generating and/or transmission facilities due to USG assistance. Once the program assistance megawatt figures from both generation and transmission activities are collected, EPP uses the following conversion formulas:

GWh = 8.76*∑ (MW Target in year for Plant1*Plant1 Availability Factor) + (MW Target in year for Plant2 *Plant2 Availability Factor)+(MW Target in year for Plant3*Plant3 Availability Factor)+(MW Target in year for Plant4*Plant4 Availability Factor)+ (MW Target in year for Plant5*Plant5 Availability Factor)+ (MW Target in year for Plant6*Plant 6 Availability Factor)+ (MW Target in year for Transmission Activities* Transmission P Factor)

GWh=8.76*∑[(Tarbela MW*50%)+(Satpara MW*68%)+(Gomal Zam MW*60%)+(Jamshoro MW*63.7%)+(Muzaffargarh MW*64.34%)+(Guddu MW*80%)+(Transmission MW*80%)]

Life of Program Target: Milestones and achieved results for generation and transmission are outlined below:

- Generation = 4,797 GWh
- Transmission Throughput Capacity = 2,999 GWh
- Transmission Added/Saved = 84 GWh
- TOTAL = 7,880 GWh

Contributing Entities	Power Factor	Power Factor * Hours per Year	LOP Target	Achieved GWh					Target
				FY 2011	FY 2012	FY 2013	FY 2014	Total Achieved	FY 2015
Tarbela	50.00%	4380	561	473	88	-	-	561	-
Guddu	80.00%	7008	526	-	-	-	560.64	560.64	-
Muzaffargarh	64.34%	5636	2,677	1,296	282	1,127	113	2817.72	-
Jamshoro	63.70%	5580	837	140	-	1,367	-	1507	-
Satpara	68.00%	5957	105	-	36	69	-	105	-
Gomal Zam	60.00%	5256	91	-	-	91	-	91	-
Generation TOTAL	n/a	n/a	**4,797**	**1,909**	**406**	**2,654**	**673**	**5,642**	**-**
Transmission Throughput Capacity TOTAL	80%	7008	**2,999**	**-**	**-**	**532.6**	**1,913.88**	**2446.48**	**833.95**
Transmission Added/Saved TOTAL			**84**			**42**	**-**	**42**	**42**
TOTAL GWh	n/a	n/a	**7,880**	**1,909**	**406**	**3,229**	**2,587**	**8,130.8**	**875.95**

PERFORMANCE INDICATOR REFERENCE SHEET (PIRS)				
Indicator - *# and Title*: 1.1b Gigawatt-hours (GWh) of energy availability				
Development Objective (DO) - *# and Title*: 1. Increased Sustainable Energy Supplied to the Economy				
Intermediate Result (IR) - *# and Title*: 1.1 Increased Energy Supply				
Sub-Intermediate Result (Sub-IR) - *# and Title*: N/A				
Relationship between the Sub-IR and IR or IR and DO: *Enter the explanation of the linkage between the lowest level of result represented by the indicator, and the next level of result up; address the "so what?" question to move from outputs to outcomes, or outcomes to impact; explain in terms of the development hypotheses, do not simply restate the structure of the Results Framework.*				
Increased energy availability can increase supply; however, there are other requirements that need to be met such as availability of fuel in order to ensure that any available energy potential can be generated. Increasing the availability of fuel is the first step in increasing the supply of energy.				
INDICATOR DESCRIPTION				
Precise Definition(s): *Enter the precise definition of the indicator so it can be operationalized; define all terms, elements, implied actions and calculations; [for example, "farmers using better production techniques" – define "better production" and "techniques". Describe how this will be determined – e.g. Index, scale, standards]. For indicators that are percent or proportions explain how it will be calculated and what will serve as the numerator and denominator. If the indicator is cumulative, made up of stages or phases, or is a yes-no, please specify this and explain the stages/phases or how it is cumulative. If it is a Standard Program Structure ("F") Indicator, use and if necessary, refine the standard definition.*				
Increased potential of energy that is made available by resorting capacity/adding more capacity to generating and .or transmission facilities due to USG assistance.				
Unit of Measure:	**Type of Indicator:**	**Category:**		**Desired Direction:**
Enter unit of measure (e.g. "number of___", "percent of ___" etc.)	*Enter "output", "outcome" or "impact".*	*Enter "Standard F" or "Custom"*	*If "Standard F indicator", enter the number*	*Enter "increasing", "decreasing" or 'static" to indicate the direction of success result.*
GWh	Output	Custom		Increasing
Aggregation Process: *If indicator will be collected by more than one source, explain how the data will aggregate across these multiple sources (e.g. in the case of # of jobs, demonstrate how data definitions for what is counted as a "job" is consistently interpreted across sources and specify that he data reported by each partner will be added together for a combined total; or in the case of a stage of phase indicator, state how data from different partners will combine into one final data). Also specify the timeline for aggregation (e.g. all sources will be added together each quarter).*				
All data are added together across all data collection/reporting entities. Common collection instruments will be established across all data collection/reporting entities.				
Disaggregates: *Enter all disaggregation titles/ categories and values (e.g. title: Household Head Type; values: Female no Male Adult households, Male no Female Adults households, Male and Female Adult households, Child no Adult households.)*				
Type of Plant (Hydro, Thermal, Transmission), **Power Plant or Transmission System** (Gomal Zam, Satpara, Tarbela, Jamshoro, Muzaffargarh, Guddu, NTDC, PESCO), Distribution Company ('Faisalabad Electric Supply Company, Gujranwala Electric Power Company, Hyderabad Electric Supply Company, Islamabad Electric Supply Company, Lahore Electric Supply Company, Multan Electric Power Company, Peshawar Electric Supply Company, Quetta Electric Supply Company, Sukkur Electric Power Company, Karachi Water & Sewerage Board, Peshawar Regional Development & Rural Development Department, Islamabad Capital Development Authority), **Power Saving Intervention** (Municipal Pumps, Industrial Motors, Feeder Optimization & Metering, Automatic Meter Reading, Radio -Frequency Meters, and Aerial Bundled, Cables, Commercial Procedures Optimization Project, High Tension Capacitors, Low Tension Capacitors, Conservation Campaign, Linemen Training, Tools, & Equipment)				

DATA COLLECTION, STORAGE, and ANALYSIS		
Name of IP/ Responsible Party for Data Collection:	**Frequency of data collection:** *Enter how often the data will be collected (Weekly, Monthly, etc.)*	
EPP	Monthly	
Data Source: *Enter where IP obtains data (e.g. self-collected, GOP records or private sector).*	**Data Entry Frequency into PakInfo:** *Enter the anticipated frequency of regular data entry into PakInfo (e.g. Quarterly, Annually, etc.)*	**Responsible Party for Data Entry into PakInfo:** *Enter who will be responsible for inputting and submitting data via PakInfo.*
GOP	Quarterly	EPP
Data collection method: *Enter the tools and methods to be used for data collection and indicate for each method who (IP, USAID or third party) will collect the data. (e.g. telephone survey of household sample, reading assessment administered by third-party, sign-in sheets of training participants by IP)*		
For Generation MWs: On a weekly basis, EPP's generation technical team, consisting of engineers and senior energy experts in thermal and hydro generation, monitors ongoing project activities at the 7 G2G signature projects. Prior to an installation or system improvement, the plant's staff produces a log sheet for the unit to show current MW capacity. Once the installation or system improvement is implemented, the plant's staff produces a post-installation log sheet to show any MWs gained as a result of USG assistance. The log sheets are sent to EPP's generation technical team for review and calculation, and ultimately verification. **For Transmission MWs**: On a weekly basis, EPP's transmission technical team, consisting of engineers and senior energy and transmission experts, monitors ongoing project activities with respect to NTDC and PESCO. Prior to an installation or system improvement, the transmission technical team receives an activity acceptance letter stating the requested equipment and MVA capacity. After installation, the transmission technical team verifies installation with NTDC or PESCO with an onsite visit.		
Data Analysis Plan: *Enter how the data will be analyzed, including description of methodology (e.g. descriptive, comparative, qualitative or quantitative) as well as who will participate in the data analysis process (e.g. activity manager, chief of party, other stakeholders, GOP representatives, etc.)*		
To verify the MW data received from GOP partners, EPP's technical teams and the CCA Team will conduct onsite inspections to monitor the operational conditions of the plants. This is done before/after the completion of a milestone/equipment installation, to record the improvements in the power generation capacity. CCA Team works with the technical teams to verify the data through the USAID Performance Management Toolkit process (April 2003). In the event of suspect data, the CCA Team addresses the issues with the technical teams and, if necessary, GOP partners. **For Generation MWs:** The plant log sheets are sent to EPP's generation technical team for review and calculation. EPP's generation technical team provides the CCA Team with the final MW calculation, log sheet, and calculation methodology. CCA Team maintains supporting documents and verifies weekly, monthly, quarterly, etc. reports to USAID. M&E maintains a weekly log of MW gains and monitors the generation technical team's reporting progress on a weekly basis. **Generation MWs to GWh:** The GWh is derived from multiplying the specific G2G plant availability factor by the MW achieved. The calculation produces the kWh of energy availability and is divided by 1000 to give the GWh of energy availability. The specific plant availability factors and the target MWs below show how the GWh of energy availability will be determined.		

Plant	Plant Availability Factor*	MW LOP Target**	kWh LOP PAF * MW LOP Target	GWh LOP Target kWh/1000
Tarbela	50%	128	560,640	561
Guddu	80%	75	525,600	526
Muzaffargarh	64.34%	475	2,677,187	2677
Jamshoro	63.7%	150	837,018	837
Satpara	68%	17.6	104,840	105
Gomal Zam	60%	17.4	91,454	91

*Plant Availability Factor is determined by the G2G agreements

**MW targets determined in G2G agreements

For Transmission MWs: The transmission technical team sends the letters to the CCA Team for records maintenance. The CCA Team coordinates weekly with the technical transmission team to monitor the complete installation of the equipment. Once the equipment has been installed, the technical team and CCA Team verify installation with the purchase order certificate of materials received. The CCA Team maintains supporting documents and verifies weekly, monthly, quarterly, etc. reports to USAID. M&E maintains a weekly log of MW gains and monitors the transmission technical team's reporting progress. EPP disaggregates between throughput capacity and added/saved MWs for transmission achieved MWs.

Transmission MWs to GWh: The GWh is derived from multiplying the power factor by the MWs achieved. The MWs from transmission are disaggregated and calculated for GWh. The calculation produces the kWh of energy availability and is divided by 1000 to give the GWh of energy availability.

Contributing Entities	Power Factor*	MW LOP Target**	kWh LOP PAF * MW LOP Target	GWh LOP Target kWh/1000
Transmission Throughput Capacity	80%	428	2,999,424	2,999 GWh
Transmission Added/Saved		12	84,096	84 GWh
Transmission TOTAL		440	3,083,520	3,083.5 GWh

*Power factor determined by NTDC sourced document

**MW targets determined by PESCO and NTDC requested installations.

DATA QUALITY

Data Quality Assessment (DQA): *Enter the date the DQA was conducted and the person who conducted the DQA*

Date: *(MM/YY)*	**DQA completed by:**
06/14	MSI Monitoring and Evaluation Program

Key Data Quality Limitations (if any) and Actions Planned to Address Those Limitations: *Enter data limitations identified in the data quality assessment process related to the five quality standards, namely validity, integrity, precision, reliability and timeliness; discuss the significance of data weakness that may affect the conclusions about the extent to which performance goals have achieved; describe corrective actions planned or taken for addressing data weakness.*

EPP will gather supporting documentation wherever possible and appropriate (certain documents which are confidential cannot be shared without GOP's consent). Also, feedback on implementation progress depends on the availability and veracity of input from other GOP stakeholders (factors beyond EPP's control).

BASELINE		
Baseline Year: *(YYYY)*	**Baseline Data:**	**Reason for Postponement/Other Comments:** *If no baseline was established, enter the explanation and rationale for not establishing a baseline. Also indicate any other issues related to the baseline collection or data (such as rolling baselines or baselines from different sources rolling into one.*
2010	0	Agreement between USG and GOP signed in 2010, therefore zero will be used as a reference point

TARGET		
Initial Life of the Program Target:	**Date for Achievement of Initial Target:** *(MM/YY)*	**Date Initial Target was Set:** *(MM/YY)*
8,300 GWh[9]	n/a	12/12
Revised Life of the Program Target:	**Date for Achievement of Revised Target:** *(MM/YY)*	**Date Revised Target was Set:** *(MM/YY)*
7,600 GWh		3/14
2nd Revision to Life of the Program Target:	**Date for Achievement of Revised Target:** *(MM/YY)*	**Date Revised Target was Set:** *(MM/YY)*
7,880 GWh		9/14

OTHER NOTES / NEXT STEPS
If the indicator is pending, explain why and expected date when collection will begin. As appropriate, indicate any other important information about the indicator and/or its data collection as well as actions needing to be taken.
Updated PIR in September 2014 to distinguish throughput capacity versus added/saved MWs for transmission. Additional transmission throughput capacity MWs determined for LOP in FY2015. Generation = 4,797 GWh Transmission Throughput Capacity = 2,999 GWh Transmission Added/Saved = 84 GWh TOTAL = 7,880 GWh

CHANGES & UPDATES			
Date *(MM/YY)*	**Name** *Enter who made updates*	**Change or Update Made:**	**Reason for Change or Update:**
12/13	Richard Smith	Corrected targets for LOP, change between MW and MVA, updated definitions/analysis	Requested by USAID in December 2013
12/13	Richard Smith/EPP CCA Team	Updated the data analysis plan language	Requested by USAID
3/14	Jimmy R. Hicks/EPP CCA Team	Revised LOP based upon transmission's GWh calculation method.	Requested by USAID
6/14	EPP CCA Team	Revised data collection method, data analysis plan.	Suggested edits made in data areas by MSI.
9/14	EPP CCA Team	Revised LOP target and updated disaggregation.	USAID guidance for distinguishing between throughput capacity and added/saved MWs for transmission.

[9] In March 2014, EPP revised the target to reflect an updated power factor from 100% to 80% in transmission. This resulted in a decreased GWh life of program target. The 80% power factor was determined by a NTDC report titled "*NTDC Power System Statistics – 2012 to 2013*" 38th edition from Planning Power department of NTDC.

1.1 (c): Power Available to Meet Power Sector Demand as a Result of USG Assistance

This indicator represents the MWs added and saved as a result of EPP efforts. MWs are made available through support to construction, rehabilitation of generation and transmission and distribution facilities.

Life of Program Target:

- Generation = 863 MW
- Transmission Throughput Capacity = 428 MW
- Transmission Added/Saved = 12 MW
- TOTAL MW = 1,303 MW

Contributing Entities	LOP Target MW	Achieved (MW)					Target FY 2015
		FY 2011	FY 2012	FY 2013	FY 2014	Total Achieved	
Tarbela	128	108	20	0	0	**128**	0
Guddu	75	0	0	0	80	**80**	0
Muzaffargarh	475	230	50	200	20	**500**	0
Jamshoro	150	25	0	245	0	**270**	0
Satpara	17.6	0	6	11.6	0	**17.6**	0
Gomal Zam	17.4	0	0	17.4	0	**17.4**	0
Generation TOTAL	**863**	**363**	**76**	**474**	**100**	**1013**	**0**
Transmission Throughput Capacity							
Rehabilitation of 3 Capacitor banks:	36	0	0	36	0	**36**	0
i) 132 kV Peshawar University GS (24) MVAR							
ii) 132 kV Shahi Bagh GS (24) MVAR							
iii) 132 kV Chakdara GS (36) MVAR							
Repair of 31.5/40 MVA, 132/66 KV ELTA Power Transformer for Shahi Bagh Grid Station PESCO, KPK	40	0	0	40	0	**40**	0
1st batch of Cooling Fans installed for existing Power Transformers-PESCO	152	0	0	0	192.1	**192.1**	0
Supply, Installation & commissioning of New 40MVA Power Transformer at Jamrud 132KV GS along with ancillaries	14	0	0	0	14	**0**	0
Supply, Installation & commissioning of New 40MVA Power Transformer at Hattar 132KV GS along with ancillaries	14	0	0	0	14	**0**	0
Supply, Installation & commissioning of New 40MVA Power Transformer at D.I. Khan 132KV GS along with	40	0	0	0	40	**40**	0

ancillaries							
Repair, installation and commissioning of 20/26 MVA, 132/11 KV ANSALDO Power Transformer at Gadoon Amazai 132kV GS PESCO, KPK	13	0	0	0	13	**13**	0
Supply of material and Rehabilitation of 3 Capacitor Banks	36	0	0	0	0	**0**	36
1. 132 kV Tall GS							
2. 132 kV Bannu GS							
3. 132 kV Jahangira GS							
2nd batch of Cooling Fans installed for existing Power Transformers	83	0	0	0	0	**0**	83
Transmission Throughput Capacity TOTAL	**428**	**0**	**0**	**76**	**273.1**	**349.1**	**119**
Transmission Added/Saved							
Rehabilitation of 3 Capacitor banks:	**6**	**0**	**0**	**6**	**0**	**6**	**0**
i) 132 kV Peshawar University GS (24) MVAR							
ii) 132 kV Shahi Bagh GS (24) MVAR							
iii) 132 kV Chakdara GS (36) MVAR							
Supply of material and Rehabilitation of 3 Capacitor Banks		**0**	**0**	**0**	**0**	**0**	**6**
1. 132 kV Tall GS							
2. 132 kV Bannu GS	6						
3. 132 kV Jahangira GS							
Transmission Added/Saved TOTAL	**12**	**0**	**0**	**6**	**0**	**6**	**6**
TOTAL MWs	**1,303**	**363**	**76**	**556**	**373.1**	**1368.1**	**125**

PERFORMANCE INDICATOR REFERENCE SHEET (PIRS)
Indicator: 1.1-c: Power (megawatts) available to meet power sector demand as a result of United States Government assistance.
Development Objective (DO): 1 Increased Sustainable Energy Supplied to the Economy
Intermediate Result (IR): 1.1 Increased Energy Supply
Sub-Intermediate Result (Sub-IR): N/A
Relationship between the Sub-IR and IR or IR and DO: *Enter the explanation of the linkage between the lowest level of result represented by the indicator, and the next level of result up; address the "so what?" question to move from outputs to outcomes, or outcomes to impact; explain in terms of the development hypotheses, do not simply restate the structure of the Results Framework.*
Energy generated/saving is regarded as an efficient measure for increased energy supply. In the case of PDP/EPP, the energy could be saved through technical, commercial and energy addition/conservation programs.

INDICATOR DESCRIPTION				
Precise Definition(s): *Enter the precise definition of the indicator so it can be operationalized; define all terms, elements, implied actions and calculations; [for example, "farmers using better production techniques" – define "better production" and "techniques". Describe how this will be determined – e.g. Index, scale, standards]. For indicators that are percent or proportions explain how it will be calculated and what will serve as the numerator and denominator. If the indicator is cumulative, made up of stages or phases, or is a yes-no, please specify this and explain the stages/phases or how it is cumulative. If it is a Standard Program Structure ("F") Indicator, use and if necessary, refine the standard definition.*				
A megawatt (MW) is a unit for measuring power that is equivalent to one million watts. This indicator focuses in two different aspects; MWs added/saved and MWs involving throughput capacity. MWs added means additional power generation capacity being added to the system, whereas MWs saved refers to power saved in the existing system that would have been lost otherwise and determined through USG interventions to support construction, rehabilitation of generation, transmission and distribution facilities. MWs throughput capacity is determined at the point where the improvement activity takes place from transmission improvements, which can be anywhere from the substation right outside the generation station to the substation where the delivery is made to the DISCO and anywhere in between. Timely procurement and installation of the equipment purchased under the present USAID funded rehabilitation of the three GENCOs will have a positive impact on achieving the MW targets. Moreover, load shedding is another major factor contributing against the energy saved through conservation campaigns. Another factor is the seasonal load variation of electricity affecting electricity consumption trend. Also, energy saved by commercial interventions can only be achieved if DISCOs properly implement the optimized procedures. Incorrect baseline due to overbilling can also cause variation from the target.				
Unit of Measure:	**Type of Indicator:**	**Category:**		**Desired Direction:**
Enter unit of measure (e.g. "number of___", "percent of ___" etc.)	*Enter "output", "outcome" or "impact".*	*Enter "Standard F" or "Custom"*	*If "Standard F indicator", enter the number*	*Enter "increasing", "decreasing" or 'static" to indicate the direction of success result.*
Number of Megawatts (MW)	Output	Custom		Increasing
Aggregation Process: *If indicator will be collected by more than one source, explain how the data will aggregate across these multiple sources (e.g. in the case of # of jobs, demonstrate how data definitions for what is counted as a "job" is consistently interpreted across sources and specify that he data reported by each partner will be added together for a combined total; or in the case of a stage of phase indicator, state how data from different partners will combine into one final data). Also specify the timeline for aggregation (e.g. all sources will be added together each quarter).*				
All data are added together across all data collection/reporting entities. Common collection instruments will be established across all data collection/reporting entities.				
Disaggregates: *Enter all disaggregation titles/ categories and values (e.g. title: Household Head Type; values: Female no Male Adult households, Male no Female Adults households, Male and Female Adult households, Child no Adult households.)*				
Type of Energy Power Plant Generation MWs Transmission Added/Saved MWs Transmission Throughput Capacity MWs				

DATA COLLECTION, STORAGE, and ANALYSIS		
Name of IP/ Responsible Party for Data Collection:	**Frequency of data collection:** *Enter how often the data will be collected (Weekly, Monthly, etc.)*	
EPP/PDP	Quarterly	
Data Source: *Enter where IP obtains data (e.g. self-collected, GOP records or private sector).*	**Data Entry Frequency into PakInfo:** *Enter the anticipated frequency of regular data entry into PakInfo (e.g. Quarterly, Annually, etc.)*	**Responsible Party for Data Entry into PakInfo:** *Enter who will be responsible for inputting and submitting data via PakInfo.*
GOP	Quarterly	EPP
Data collection method: *Enter the tools and methods to be used for data collection and indicate for each method who (IP, USAID or third party) will collect the data. (e.g. telephone survey of household sample, reading assessment administered by third-party, sign-in sheets of training participants by IP)*		
For Generation MWs: On a weekly basis, EPP's generation technical team, consisting of engineers and senior energy experts in thermal and hydro generation, monitors ongoing project activities at the 7 G2G signature projects. Prior to an installation or system improvement, the plant's staff produces a log sheet for the unit to show current MW capacity. Once the installation or system improvement is implemented, the plant's staff produces a post-installation log sheet to show any MWs gained as a result of USG assistance. The log sheets are sent to EPP's generation technical team for review and calculation, and ultimately verification. **For Transmission MWs**: On a weekly basis, EPP's transmission technical team, consisting of engineers and senior energy and transmission experts, monitors ongoing project activities with respect to NTDC and PESCO. Prior to an installation or system improvement, the transmission technical team receives an activity acceptance letter stating the requested equipment and MVA capacity. After installation, the transmission technical team verifies installation with NTDC or PESCO with an onsite visit.		
Data Analysis Plan: *Enter how the data will be analyzed, including description of methodology (e.g. descriptive, comparative, qualitative or quantitative) as well as who will participate in the data analysis process (e.g. activity manager, chief of party, other stakeholders, GOP representatives, etc.)*		
To verify the MW data received from GOP partners, EPP's technical teams and the CCA Team will conduct onsite inspections to monitor the operational conditions of the plants. This is done before/after the completion of a milestone/equipment installation, to record the improvements in the power generation capacity. The CCA Team works with the technical teams to verify the data through the USAID Performance Management Toolkit process (April 2003). In the event of suspect data, the CCA Team addresses the issues with the technical teams and, if necessary, GOP partners. **For Generation MWs:** The plant log sheets are sent to EPP's generation technical team for review and calculation. EPP's generation technical team provides the CCA Team with the final MW calculation, log sheet, and calculation methodology. The CCA Team maintains supporting documents and verifies weekly, monthly, quarterly, etc. reports to USAID. M&E maintains a weekly log of MW gains and monitors the generation technical team's reporting progress on a weekly basis. **For Transmission MWs**: The transmission technical team sends the letters to the CCA Team for records maintenance. The CCA Team coordinates weekly with the technical transmission team to monitor the complete installation of the equipment. Once the equipment has been installed, the technical team and the CCA Team verify installation with the purchase order certificate of materials received. The CCA Team maintains supporting documents and verifies weekly, monthly, quarterly, etc. reports to USAID. M&E maintains a weekly log of MW gains and monitors the transmission technical team's reporting progress.		

DATA QUALITY	
Data Quality Assessment (DQA): *Enter the date the DQA was conducted and the person who conducted the DQA*	
Date: *(MM/YY)*	**DQA completed by:**
11/12	Monitoring and Evaluation Program (DQA conducted for EPP and PDP) by MSI
06/14	MSI Monitoring and Evaluation Program
Key Data Quality Limitations (if any) and Actions Planned to Address Those Limitations: *Enter data limitations identified in the data quality assessment process related to the five quality standards, namely validity, integrity, precision, reliability and timeliness; discuss the significance of data weakness that may affect the conclusions about the extent to which performance goals have achieved; describe corrective actions planned or taken for addressing data weakness.*	
The data from PDP and EPP programs was reviewed by MEP. There were no data quality issues. Limitations could be measurement error, human error, reliance on statistics provided in DISCO/PEPCO publications. These can be overcome by field verification of data by the CCA Team.	

BASELINE		
Baseline Year: *(YYYY)*	**Baseline Data:**	**Reason for Postponement/Other Comments:** *If no baseline was established, enter the explanation and rationale for not establishing a baseline. Also indicate any other issues related to the baseline collection or data (such as rolling baselines or baselines from different sources rolling into one.*
2010	0	Although the dependable capacity at the time of the FARA signing in 2010 was 2125 MW, EPP chose to review 0 for reporting improvements. Also the support of USAID on rehabilitation/construction of power plants started in 2010.

Initial Life of the Program Target:	**Date for Achievement of Initial Target:** *(MM/YY)*	**Date Initial Target was Set:** *(MM/YY)*
1,263 MW	LOP	2/12
Revised Life of the Program Target:	**Date for Achievement of Revised Target:** *(MM/YY)*	**Date Revised Target was Set:** *(MM/YY)*
1,303 MW	LOP	9/14
2nd Revision to Life of the Program Target:	**Date for Achievement of Revised Target:** *(MM/YY)*	**Date Revised Target was Set:** *(MM/YY)*

OTHER NOTES / NEXT STEPS
If the indicator is pending, explain why and expected date when collection will begin. As appropriate, indicate any other important information about the indicator and/or its data collection as well as actions needing to be taken.
EPP revised target in September 2014 to account for transmission MWs either added/saved or throughput capacity. EPP estimates the following targets: Generation = 863 MW Transmission Throughput Capacity = 428 MW Transmission Added/Saved = 12 MW TOTAL MW = 1,303 MW

CHANGES & UPDATES			
Date *(MM/YY)*	**Name** *Enter who made updates*	**Change or Update Made:**	**Reason for Change or Update:**
12/13	Richard Smith, EPP CCA Team	Updated relationship between Sub-IR etc., Disaggregation, Data Collection Method, Data Analysis Plan, Targets, and Other Notes.	Requested by USAID on December 11, 2013.
12/13	Harritt/Bukhari	Incomplete PIRS	Finalize PIRS
12/13	Richard Smith/EPP CCA Team	Updated data analysis language and limitations.	Requested by USAID
3/14	Jimmy R. Hicks/EPP CCA Team	Revised LOP based upon transmission's MW calculation method.	Requested by USAID
6/14	EPP CCA Team	Revised data collection method, data analysis plan.	Suggested edits made in data areas by MSI.
9/14	EPP CCA Team	Updated LOP	Received guidance from USAID regarding transmission MWs.

1.1.1(a): MW of Electrical Power Added or Saved as a Result of USG Supported Construction, Rehabilitation, and Other Generation and Transmission Improvements

This indicator represents MWs added as a result of USG interventions to support construction and rehabilitation of generation and transmission improvements.

Life of Program Target:

- Generation = 863 MW
- Transmission Added/Saved = 12 MW
- TOTAL MW = 875 MW

Contributing Entities	LOP Target MW	Achieved (MW)					Target FY 2015
		FY 2011	FY 2012	FY 2013	FY 2014	Total Achieved	
Tarbela	128	108	20	0	0	**128**	0
Guddu	75	0	0	0	80	**80**	0
Muzaffargarh	475	230	50	200	20	**500**	0
Jamshoro	150	25	0	245	0	**270**	0
Satpara	17.6	0	6	11.6	0	**17.6**	0
Gomal Zam	17.4	0	0	17.4	0	**17.4**	0
Generation TOTAL	**863**	**363**	**76**	**474**	**100**	**1013**	**0**
Rehabilitation of 3 Capacitor banks:	6	0	0	6	0	**6**	0
i) 132 kV Peshawar University GS (24) MVAR							
ii) 132 kV Shahi Bagh GS (24) MVAR							
iii) 132 kV Chakdara GS (36) MVAR							
Supply of material and Rehabilitation of 3 Capacitor Banks	6	0	0	0	0	**0**	6
1. 132 kV Tall GS							
2. 132 kV Bannu GS							
3. 132 kV Jahangira GS							
Transmission Added/Saved TOTAL	**12**	**0**	**0**	**6**	**0**	**6**	**6**
TOTAL MWs	**875**	**363**	**76**	**480**	**100**	**1019**	**6**

PERFORMANCE INDICATOR REFERENCE SHEET (PIRS)				
Indicator - *# and Title*: 1.1.1.a Megawatts (MW) of electrical power added or saved as a result of United States Government supported construction, rehabilitation, and other generation and transmission improvements				
Development Objective (DO) - *# and Title*: 1 Increased Sustainable Energy Supplied to the Economy				
Intermediate Result (IR) - *# and Title*: 1.1 Increased Energy Supply				
Sub-Intermediate Result (Sub-IR) - *# and Title*: 1.1.1: Increased Generation and Transmission Capacity				
Relationship between the Sub-IR and IR or IR and DO: *Enter the explanation of the linkage between the lowest level of result represented by the indicator, and the next level of result up; address the "so what?" question to move from outputs to outcomes, or outcomes to impact; explain in terms of the development hypotheses, do not simply restate the structure of the Results Framework.*				
Increased energy saving and increased energy added will result in increased energy supplied to economy, which will in turn help improve the economic foundation for Pakistan.				
INDICATOR DESCRIPTION				
Precise Definition(s): *Enter the precise definition of the indicator so it can be operationalized; define all terms, elements, implied actions and calculations; [for example, "farmers using better production techniques" – define "better production" and "techniques". Describe how this will be determined – e.g. Index, scale, standards]. For indicators that are percent or proportions explain how it will be calculated and what will serve as the numerator and denominator. If the indicator is cumulative, made up of stages or phases, or is a yes-no, please specify this and explain the stages/phases or how it is cumulative. If it is a Standard Program Structure ("F") Indicator, use and if necessary, refine the standard definition.*				
This indicator measures the total energy (in megawatts) that is added or saved through USG-assisted interventions in host government-owned distribution companies. Energy savings can be achieved through increased efficient energy use, in conjunction with decreased energy consumption and/or reduced consumption from conventional energy sources. Energy added can be achieved through loss reduction and added production.				
Unit of Measure:	**Type of Indicator:**	**Category:**		**Desired Direction:**
Enter unit of measure (e.g. "number of___", "percent of ___" etc.)	*Enter "output", "outcome" or "impact".*	*Enter "Standard F" or "Custom"*	*If "Standard F indicator", enter the number*	*Enter "increasing", "decreasing" or 'static" to indicate the direction of success result.*
MW added /MW saved	Outcome	Custom		Increasing
Aggregation Process: *If indicator will be collected by more than one source, explain how the data will aggregate across these multiple sources (e.g. in the case of # of jobs, demonstrate how data definitions for what is counted as a "job" is consistently interpreted across sources and specify that he data reported by each partner will be added together for a combined total; or in the case of a stage of phase indicator, state how data from different partners will combine into one final data). Also specify the timeline for aggregation (e.g. all sources will be added together each quarter).*				
All data are added together across all data collection/reporting entities. Common collection instruments will be established across all data collection/reporting entities.				
Disaggregates: *Enter all disaggregation titles/ categories and values (e.g. title: Household Head Type; values: Female no Male Adult households, Male no Female Adults households, Male and Female Adult households, Child no Adult households.)*				
DISCOs: (Faisalabad Electric Supply Company, Gujranwala Electric Power Company, Hyderabad Electric Supply Company, Islamabad Electric Supply Company, Lahore Electric Supply Company Multan Electric Power Company, Peshawar Electric Supply Company, Quetta Electric Supply Company). Sukkur Electric Power Company, Karachi Water & Sewerage Board, Peshawar Regional Development & Rural Development Department, Islamabad Capital Development Authority), **Power Saving Intervention** (Municipal Pumps, Industrial Motors, Feeder Optimization & Metering, Automatic Meter Reading, Radio -Frequency Meters, and Aerial Bundled Cables, Commercial Procedures Optimization Project, High Tension Capacitors Low Tension Capacitors, Conservation Campaign, Linemen Training, Tools, & Equipment), **Province, Type of Energy Plant** (Hydroelectric Power Plants, Thermal Power Plants, Transmission system), **Energy Power Plant or Transmission System** (Gomal Zam, Satpara, Tarbela, Jamshoro, Muzaffargarh, Guddu, National Transmission and Dispatch Center Peshawar Electrical Supply Company)				

DATA COLLECTION, STORAGE, and ANALYSIS		
Name of IP/ Responsible Party for Data Collection:	**Frequency of data collection:** *Enter how often the data will be collected (Weekly, Monthly, etc.)*	
EPP/PDP	Monthly	
Data Source: *Enter where IP obtains data (e.g. self-collected, GOP records or private sector).*	**Data Entry Frequency into PakInfo:** *Enter the anticipated frequency of regular data entry into PakInfo (e.g. Quarterly, Annually, etc.)*	**Responsible Party for Data Entry into PakInfo:** *Enter who will be responsible for inputting and submitting data via PakInfo.*
GOP	Quarterly	EPP CCA Team

Data collection method: *Enter the tools and methods to be used for data collection and indicate for each method who (IP, USAID or third party) will collect the data. (e.g. telephone survey of household sample, reading assessment administered by third-party, sign-in sheets of training participants by IP)*

The data will be gathered with support from GOP partners. EPP will review and inspect during onsite inspection and validate the data under operational conditions.

For Generation MWs: On a weekly basis, EPP's generation technical team, consisting of engineers and senior energy experts in thermal and hydro generation, monitors ongoing project activities at the 7 G2G signature projects. Prior to an installation or system improvement, the plant's staff produces a log sheet for the unit to show current MW capacity. Once the installation or system improvement is implemented, the plant's staff produces a post-installation log sheet to show any MWs gained as a result of USG assistance. The log sheets are sent to EPP's generation technical team for review and calculation, and ultimately verification.

For Transmission MWs: On a weekly basis, EPP's transmission technical team, consisting of engineers and senior energy and transmission experts, monitors ongoing project activities with respect to NTDC and PESCO. Prior to an installation or system improvement, the transmission technical team receives an activity acceptance letter stating the requested equipment and MVA capacity. After installation, the transmission technical team verifies installation with NTDC or PESCO with an onsite visit. For this indicator, EPP only collects MWs added/saved to the energy sector; throughput capacity MWs are not accounted for under this indicator.

Data Analysis Plan: *Enter how the data will be analyzed, including description of methodology (e.g. descriptive, comparative, qualitative or quantitative) as well as who will participate in the data analysis process (e.g. activity manager, chief of party, other stakeholders, GOP representatives, etc.)*

To verify the MW data received from GOP partners, EPP's technical teams and the CCA Team will conduct onsite inspections to monitor the operational conditions of the plants. This is done before/after the completion of a milestone/equipment installation, to record the improvements in the power generation capacity. The CCA Team works with the technical teams to verify the data through the USAID Performance Management Toolkit process (April 2003). In the event of suspect data, the CCA Team addresses the issues with the technical teams and, if necessary, GOP partners.

For Generation MWs: The plant log sheets are sent to EPP's generation technical team for review and calculation. EPP's generation technical team provides the CCA Team with the final MW calculation, log sheet, and calculation methodology. The CCA Team maintains supporting documents and verifies weekly, monthly, quarterly, etc. reports to USAID. M&E maintains a weekly log of MW gains and monitors the generation technical team's progress on a weekly basis.

For Transmission MWs: The transmission technical team sends the letters to the CCA Team for records maintenance. The CCA Team coordinates weekly with the technical transmission team to monitor the complete installation of the equipment. Once the equipment has been installed, the technical team and the CCA Team verify installation with the purchase order certificate of materials received. The CCA Team maintains supporting documents and verifies weekly, monthly, quarterly, etc. reports to USAID. M&E maintains a weekly log of MW gains and monitors the transmission technical team's progress.

DATA QUALITY	
Data Quality Assessment (DQA): *Enter the date the DQA was conducted and the person who conducted the DQA*	
Date: *(MM/YY)*	**DQA completed by:**
12/12	Monitoring and Evaluation Program (MEP) (DQA for PDP;EPP)
06/14	MSI Monitoring and Evaluation Program
Key Data Quality Limitations (if any) and Actions Planned to Address Those Limitations: *Enter data limitations identified in the data quality assessment process related to the five quality standards, namely validity, integrity, precision, reliability and timeliness; discuss the significance of data weakness that may affect the conclusions about the extent to which performance goals have achieved; describe corrective actions planned or taken for addressing data weakness.*	
The data from PDP and EPP programs was reviewed by MEP. There were no data quality issues. Limitations could be measurement error, human error, reliance on statistics provided in DISCO/PEPCO publications. These can be overcome by field verification of data by the CCA Team.	

BASELINE		
Baseline Year: *(YYYY)*	**Baseline Data:**	**Reason for Postponement/Other Comments:** *If no baseline was established, enter the explanation and rationale for not establishing a baseline. Also indicate any other issues related to the baseline collection or data (such as rolling baselines or baselines from different sources rolling into one.*
2010	0	

TARGET		
Initial Life of the Program Target:	**Date for Achievement of Initial Target:** *(MM/YY)*	**Date Initial Target was Set:** *(MM/YY)*
1,263 MW		12/12
Revised Life of the Program Target:	**Date for Achievement of Revised Target:** *(MM/YY)*	**Date Revised Target was Set:** *(MM/YY)*
875 MW		9/14
2nd Revision to Life of the Program Target:	**Date for Achievement of Revised Target:** *(MM/YY)*	**Date Revised Target was Set:** *(MM/YY)*

OTHER NOTES / NEXT STEPS
If the indicator is pending, explain why and expected date when collection will begin. As appropriate, indicate any other important information about the indicator and/or its data collection as well as actions needing to be taken.
The target was revised in September 2014 to only reflect MWs added/saved from transmission interventions; not including throughput capacity MWs done previously.

CHANGES & UPDATES			
Date *(MM/YY)*	**Name** *Enter who made updates*	**Change or Update Made:**	**Reason for Change or Update:**
07/12	CVD/MS	Draft version-1.0 prepared	
12/13	Richard Smith	LOP target changed	Requested change by USAID in December 2013
12/13	Richard Smith/EPP CCA Team	Updated language in Data Analysis Plan Section	Requested by USAID
3/14	Jimmy R. Hicks/EPP CCA Team	Revised LOP based upon transmission's MW calculation method.	Requested by USAID
6/14	EPP CCA Team	Updated Data Collection Method and Data Analysis Plan	MSI requested additional information
9/14	EPP CCA Team	LOP updated	Only using transmission added/saved MWs – no throughput capacity MWs.

1.1.1 (b) Efficiency of Thermal Power Plants

This indicator represents the heat rate improvements of thermal plants Jamshoro, Guddu, and Muzaffargarh. The heat rate improvement is measured by the amount of thermal energy required to generate one unit of electrical energy expressed as calories/kWh or BTU/kWh. A decrease in the amount of BTU/kWh indicates more efficient operation of the thermal power plant and will ultimately result in more power generated at a lower cost.

Life of Program Target:

- Jamshoro (GENCO I): 11,063 BTU/kWh
- Guddu (GENCO II): 10,000 BTU/kWh
- Muzaffargarh (GENCO III): 11,547 BTU/kWh

Contributing Entities	Baseline BTU/kWh	LOP Target	Achieved (BTU/kWh)					
		BTU/kWh	FY 2011	FY 2012	FY 2013	FY 2014	Total Achieved	Target FY 2015
GENCO I	12,669	12,162	-	-	11,063	-	**11,063.07**	-
GENCO II	10,000	9,641	-	-	-	-	**-**	9,641
GENCO III	11,547	10,161	-	-	-	10,567.20	**10,567.20**	-

PERFORMANCE INDICATOR REFERENCE SHEET (PIRS)
Indicator *- # and Title*: 1.1.1-b Efficiency of Thermal Power Plants (British Thermal units of input heat energy per kilowatt-hour of electrical output energy (Btu/kW-h))
Development Objective (DO) *- # and Title*: 1 Increased Sustainable Energy Supplied To Economy
Intermediate Result (IR) *- # and Title*: 1.1 Increased Energy Supply
Sub-Intermediate Result (Sub-IR) *- # and Title*: 1.1.1 Increased Generation and Transmission Capacity
Relationship between the Sub-IR and IR or IR and DO: *Enter the explanation of the linkage between the lowest level of result represented by the indicator, and the next level of result up; address the "so what?" question to move from outputs to outcomes, or outcomes to impact; explain in terms of the development hypotheses, do not simply restate the structure of the Results Framework.*
To increase efficiency, heat rate improvements will allow more efficient operation of generating plants, resulting in more power generation at a lower cost. It will also provide a basis for improved cost recovery by revising the NEPRA tariff, subsequently improving the financial condition of the GENCOs.
INDICATOR DESCRIPTION
Precise Definition(s): *Enter the precise definition of the indicator so it can be operationalized; define all terms, elements, implied actions and calculations; [for example, "farmers using better production techniques" – define "better production" and "techniques". Describe how this will be determined – e.g. Index, scale, standards]. For indicators that are percent or proportions explain how it will be calculated and what will serve as the numerator and denominator. If the indicator is cumulative, made up of stages or phases, or is a yes-no, please specify this and explain the stages/phases or how it is cumulative. If it is a Standard Program Structure ("F") Indicator, use and if necessary, refine the standard definition.*
The heat rate of a plant is the amount of thermal energy required to generate one unit of electrical energy and is generally expressed as Btu/kWh. EPP will complete heat rate tests for three GENCOs under the program scope of work and the weighted average of the individual unit capacity and heat rate will be calculated using the average of the multiple units Btu/kWh output at the three GENCOs.

Unit of Measure:	Type of Indicator:	Category:		Desired Direction:
Enter unit of measure (e.g. "number of___", "percent of ___" etc.)	*Enter "output", "outcome" or "impact".*	*Enter "Standard F" or "Custom"*	*If "Standard F indicator", enter the number*	*Enter "increasing", "decreasing" or 'static" to indicate the direction of success result.*
British Thermal Unit/Kilowatt-hour	Outcome	Custom		Decreasing

Aggregation Process: *If indicator will be collected by more than one source, explain how the data will aggregate across these multiple sources (e.g. in the case of # of jobs, demonstrate how data definitions for what is counted as a "job" is consistently interpreted across sources and specify that he data reported by each partner will be added together for a combined total; or in the case of a stage of phase indicator, state how data from different partners will combine into one final data). Also specify the timeline for aggregation (e.g. all sources will be added together each quarter).*

Data reports will be collected from each of the three GENCO plants (GENCO I: Jamshoro, GENCO II: Guddu, and GENCO III: Muzaffargarh). Each GENCO has multiple units (Jamshoro (4), Guddu (3), and Muzaffargarh (6)) from which the average heat rate efficiency will be reported to USAID. The average will be calculated by EPP upon receipt of the heat rate test.

Numerator: British Thermal Unit

Denominator: Kilowatt Hour

Disaggregates: *Enter all disaggregation titles/ categories and values (e.g. title: Household Head Type; values: Female no Male Adult households, Male no Female Adults households, Male and Female Adult households, Child no Adult households.)*

Project location of Thermal Power Plants (3 total)

DATA COLLECTION, STORAGE, and ANALYSIS

Name of IP/ Responsible Party for Data Collection:	Frequency of data collection: *Enter how often the data will be collected (Weekly, Monthly, etc.)*
EPP	Monthly

Data Source: *Enter where IP obtains data (e.g. self-collected, GOP records or private sector).*	Data Entry Frequency into PakInfo: *Enter the anticipated frequency of regular data entry into PakInfo (e.g. Quarterly, Annually, etc.)*	Responsible Party for Data Entry into PakInfo: *Enter who will be responsible for inputting and submitting data via PakInfo.*
GOP	Quarterly	EPP

Data collection method: *Enter the tools and methods to be used for data collection and indicate for each method who (IP, USAID or third party) will collect the data. (e.g. telephone survey of household sample, reading assessment administered by third-party, sign-in sheets of training participants by IP)*

EPP's subcontractor (PES) will submit a report on each unit of three GENCO plants' heat rate status, which is calculated based on the measurements recorded from the flow meters. This process will be overseen by NEPRA as well as by an EPP technical staff member. Upon receipt of the reports, EPP will review/verify the results, and in some cases inspect the plants and validate the data under operational conditions. The data collection will start once the flow meters are calibrated and operational. To verify, EPP will collect the log sheets, heat rate report (prepared by PES) and pictures.

Data Analysis Plan: *Enter how the data will be analyzed, including description of methodology (e.g. descriptive, comparative, qualitative or quantitative) as well as who will participate in the data analysis process (e.g. activity manager, chief of party, other stakeholders, GOP representatives, etc.)*

Upon receipt of one of the GENCO reports from PES, EPP's technical team will calculate the average heat rate efficiency of the units at the entire GENCO plant and determine one figure. To verify the data received from the thermal plant partners, the technical teams will provide the CCA Team with the relevant information from the data collection method section. Pre/Post-intervention (rehabilitation) data will be analyzed for comparing before and after results. The CCA Team will work with the technical team, and if necessary GOP partners, to verify the data through the USAID Performance Management Toolkit process (April 2003). In the event of suspect data, the CCA Team addresses the issues with the technical teams and, if necessary, GOP partners.

DATA QUALITY	
Data Quality Assessment (DQA)*: Enter the date the DQA was conducted and the person who conducted the DQA*	
Date: *(MM/YY)*	**DQA completed by:**
06/14	MSI Monitoring and Evaluation Program
Key Data Quality Limitations (if any) and Actions Planned to Address Those Limitations: *Enter data limitations identified in the data quality assessment process related to the five quality standards, namely validity, integrity, precision, reliability and timeliness; discuss the significance of data weakness that may affect the conclusions about the extent to which performance goals have achieved; describe corrective actions planned or taken for addressing data weakness.*	
The quality of the data depends on the precise measurement of fuel usage. Flow meters are installed at the GENCOs; however, these instruments often are not calibrated and some are not functional. Presently, the quantity of fuel used is measured manually. This could be a limitation in gathering precise measurements. USAID is supporting the GENCOs in calibration and replacement of flow meters.	

BASELINE		
Baseline Year: *(YYYY)*	**Baseline Data:**	**Reason for Postponement/Other Comments:** *If no baseline was established, enter the explanation and rationale for not establishing a baseline. Also indicate any other issues related to the baseline collection or data (such as rolling baselines or baselines from different sources rolling into one.*
2010	GENCO III = 11,547 BTU/kWh GENCO II = 10,000 BTU/kWh GENCO I = 12,669 BTU/kWh	

TARGET		
Initial Life of the Program Target:	**Date for Achievement of Initial Target:** *(MM/YY)*	**Date Initial Target was Set:** *(MM/YY)*
GENCO III = 10,161 BTU/kWh, GENCO II = 9,641 BTU/kWh, GENCO I = 12,162 BTU/kWh		2/12
Revised Life of the Program Target:	**Date for Achievement of Revised Target:** *(MM/YY)*	**Date Revised Target was Set:** *(MM/YY)*
2nd Revision to Life of the Program Target:	**Date for Achievement of Revised Target:** *(MM/YY)*	**Date Revised Target was Set:** *(MM/YY)*

OTHER NOTES / NEXT STEPS
If the indicator is pending, explain why and expected date when collection will begin. As appropriate, indicate any other important information about the indicator and/or its data collection as well as actions needing to be taken.

CHANGES & UPDATES			
Date *(MM/YY)*	**Name** *Enter who made updates*	**Change or Update Made:**	**Reason for Change or Update:**
12/13	Richard Smith	Updated definitions/data collection	Requested by USAID in December 2013
12/13	Richard Smith/EPP CCA Team	Updated the data analysis plan language	Requested by USAID
6/14	EPP CCA Team	Updated data collection method and data analysis plan	Per MSI suggestions to add content on process.

1.1.1 (c): Number of USG Supported Installations and Operations and Maintenance Improvements of Generation Plants and Transmission Networks

This indicator represents the number of installations, operations, and maintenance improvements of generation plants and transmission networks (involving the equipment for grid stations and transmission lines) supported by USG assistance, resulting in increased energy supplied to the economy.

Life of Program Target:

- Generation = 25 installations/operations
- Transmission = 156 installations/operations
- TOTAL = 181 installations/operations

Contributing Entities	LOP Target	Achieved					Target FY 2015
		FY 2011	FY 2012	FY 2013	FY 2014	Total Achieved	
Total	181	0	0	11	94	105	76

Contributing Entities	LOP Target	Achieved					Target FY 2015
		FY 2011	FY 2012	FY 2013	FY 2014	Total Achieved	
Tarbela Repair & Rehab Project	1	0	0	0	0	**0**	1
Muzaffargarh Repair & Rehab Project	1	0	0	0	0	**0**	1
Jamshoro Repair & Rehab Project	1	0	0	0	0	**0**	1
Guddu Repair & Rehab Project	1	0	0	0	0	**0**	1
Satpara Multipurpose Dam Project	1	0	0	1	0	**1**	0
Gomal Zam Multipurpose Dam Project	1	0	0	1	0	**1**	0
Meter Calibration at Muzaffargarh	1	0	0	1	0	**1**	0
Meter Calibration at Guddu	1	0	0	1	0	**1**	0
Meter Calibration at Jamshoro	1	0	0	1	0	**1**	0
Heat rate at Jamshoro	1	0	0	1	0	**1**	0
Heat rate at Muzaffargarh	1	0	0	0	1	**1**	0
Heat rate at Guddu	1	0	0	0	0	**0**	1
O & M Training on Hydro	7	0	0	0	0	**0**	7
O&M Training on Thermal	3	0	0	0	3	**3**	0
Providing orifice plates to Guddu	1	0	0	0	0	**0**	1
Providing Flow meters to Muzaffargarh	1	0	0	0	1	**1**	0
Providing Flow meters to Guddu	1	0	0	0	1	**1**	0
Generation TOTAL	**25**	**0**	**0**	**6**	**6**	**12**	**13**

Contributing Entities	LOP Target	Achieved					FY 2015
		FY 2011	FY 2012	FY 2013	FY 2014	Total Achieved	
Technical Audit of PESCO Grid Stations	1	0	0	0	0	**0**	1
Automated Metering System (AMR)-Telemetering	1	0	0	1	0	**1**	0
RPC Study	1	0	0	0	1	**1**	0
Provision of Secured Metering System (SMS) Panels	1	0	0	0	1	**1**	0
Supply and supervision of installation and commissioning of 7x 132kV Circuit Breakers	7	0	0	0	7	**7**	0
Repair of 31.5/40 MVA, 132/66 KV ELTA Power Transformer for Shahi Bagh Grid Station PESCO, KPK	1	0	0	1	0	**1**	0
2nd batch of Cooling Fans for existing Power Transformers	19	0	0	0	0	**0**	19
Rehabilitation of 3 Capacitor Banks ("1. 132 kV Peshawar University GS (24) MVAR 2. 132 kV Shahi Bagh GS (24) MVAR 3. 132 kV Chakdara GS (36) MVAR)	3	0	0	3	0	**3**	0
Supply of material and Rehabilitation of 3 Capacitor Banks: 1. 132 kV Tall GS 2. 132 kV Bannu GS 3. 132 kV Jahangira GS)	3	0	0	0	0	**0**	3
Transmission Line Towers Repair	9	0	0	0	0	**0**	9
Technical Audit of NTDC Grid Stations	1	0	0	0	0	**0**	1
Relocation, installation and commissioning of 160MVA 220/132kV Autotransformers along with ancillaries at Nishatabad 220kV GS	2	0	0	0	0	**0**	2
Provision of IT equipment for extension of SMS to DISCOs	1	0	0	0	0	**0**	1
Supply and supervision of installation and commissioning of 2x 250MVA 220/132kV Autotransformers along with ancillaries at Mardan 220kV GS	2	0	0	0	0	**0**	2
Supply, Installation & commissioning of New 40MVA Power Transformer at D.I. Khan 132KV GS along with ancillaries	1	0	0	0	1	**1**	0
Supply, Installation & commissioning of New 40MVA Power Transformer at Jamrud 132KV GS along with ancillaries	1	0	0	0	1	**1**	0
Supply, Installation & commissioning of New 40MVA Power Transformer at Hattar 132KV GS along with ancillaries	1	0	0	0	1	**1**	0

Contributing Entities	LOP Target	Achieved					FY 2015
		FY 2011	FY 2012	FY 2013	FY 2014	Total Achieved	
Repair of 20/26MVA Power Transformer commissioned at Gadoon Amazai 132 KV GS	1	0	0	0	1	**1**	0
Repair of 37.5/40 MVA, 132/66 KV ELTA Power Transformer from Kohat Grid Station PESCO, KPK	1	0	0	0	0	**0**	1
Replacement of 20/26MVA Power Transformer at Chakdara 132kV GS	1	0	0	0	0	**0**	1
Repair of 160MVA Autotransformer for NTDC	1	0	0	0	0	**0**	1
Supply and supervision of installation and commissioning of 20 x 132kV Circuit Breakers	20	0	0	0	0	**0**	20
Augmentation of 10/13MVA by 20/26MVA PTF at Khwaza Khela 132kV GS for PESCO	1	0	0	0	0	**0**	1
Oil Purification Plants for PESCO-O&M Improvement	1	0	0	0	0	**0**	1
1st batch of Cooling Fans for Existing Power Transformers PESCO	75	0	0	0	75	**75**	0
Transmission TOTAL	**156**	**0**	**0**	**5**	**88**	**93**	**63**

PERFORMANCE INDICATOR REFERENCE SHEET (PIRS)
Indicator *- # and Title*: 1.1.1-c Number of United States Government supported installations and operation and maintenance improvements of generation plants and transmission networks
Development Objective (DO) *- # and Title*: 1 Increased Sustainable Energy Supplied to the Economy
Intermediate Result (IR) *- # and Title*: 1.1 Increased Energy Supply
Sub-Intermediate Result (Sub-IR) *- # and Title*: 1.1.1 Increased Generation and Transmission Capacity
Relationship between the Sub-IR and IR or IR and DO: *Enter the explanation of the linkage between the lowest level of result represented by the indicator, and the next level of result up; address the "so what?" question to move from outputs to outcomes, or outcomes to impact; explain in terms of the development hypotheses, do not simply restate the structure of the Results Framework.*
This indicator represents the number of installations and operation and maintenance improvements supported by USG. More installations with such improvements will make more energy available for all cross sections of society.
INDICATOR DESCRIPTION
Precise Definition(s): *Enter the precise definition of the indicator so it can be operationalized; define all terms, elements, implied actions and calculations; [for example, "farmers using better production techniques" – define "better production" and "techniques". Describe how this will be determined – e.g. Index, scale, standards]. For indicators that are percent or proportions explain how it will be calculated and what will serve as the numerator and denominator. If the indicator is cumulative, made up of stages or phases, or is a yes-no, please specify this and explain the stages/phases or how it is cumulative. If it is a Standard Program Structure ("F") Indicator, use and if necessary, refine the standard definition.*
Number of installations and operation and maintenance improvements supported by USG,

Unit of Measure:	Type of Indicator:	Category:		Desired Direction:
Enter unit of measure (e.g. "number of___", "percent of ___" etc.)	*Enter "output", "outcome" or "impact".*	*Enter "Standard F" or "Custom"*	*If "Standard F indicator", enter the number*	*Enter "increasing", "decreasing" or 'static" to indicate the direction of success result.*
Number of Installations	Outcome	Custom		Increasing

Aggregation Process: *If indicator will be collected by more than one source, explain how the data will aggregate across these multiple sources (e.g. in the case of # of jobs, demonstrate how data definitions for what is counted as a "job" is consistently interpreted across sources and specify that he data reported by each partner will be added together for a combined total; or in the case of a stage of phase indicator, state how data from different partners will combine into one final data). Also specify the timeline for aggregation (e.g. all sources will be added together each quarter).*

All data are added together across all data collection/reporting entities. Common collection instruments will be established across all data collection/reporting entities.

Disaggregates: *Enter all disaggregation titles/ categories and values (e.g. title: Household Head Type; values: Female no Male Adult households, Male no Female Adults households, Male and Female Adult households, Child no Adult households.)*

Generation installation (hydro, thermal, etc.), **Type of Energy Plant** (hydroelectric plant, thermal plants), **Energy Power Plant** ('Gomal Zam, Satpara, Tarbela, Jamshoro, Muzaffargarh, Guddu, National Transmission and Dispatch Center, Peshawar Electrical Supply Company)

DATA COLLECTION, STORAGE, and ANALYSIS

Name of IP/ Responsible Party for Data Collection:	Frequency of data collection: *Enter how often the data will be collected (Weekly, Monthly, etc.)*
EPP/PDP	Continuous

Data Source: *Enter where IP obtains data (e.g. self-collected, GOP records or private sector).*	Data Entry Frequency into PakInfo: *Enter the anticipated frequency of regular data entry into PakInfo (e.g. Quarterly, Annually, etc.)*	Responsible Party for Data Entry into PakInfo: *Enter who will be responsible for inputting and submitting data via PakInfo.*
EPP	Quarterly	EPP

Data collection method: *Enter the tools and methods to be used for data collection and indicate for each method who (IP, USAID or third party) will collect the data. (e.g. telephone survey of household sample, reading assessment administered by third-party, sign-in sheets of training participants by IP)*

EPP collects purchase orders, pictures, acceptance letters and training reports as supporting documentation for generation and transmission activities related to increased installations and operations and maintenance (O&M) improvements of the plants/networks.

Generation Improvements: The agreed-upon G2G project installations for the 3 GENCOs and 4 Hydro-Power Plants are detailed in the G2G agreements. EPP's generation technical team monitors installation work on an on-going basis. EPP's CCA Team requests weekly status updates regarding installations and O&M improvements. Once notified, EPP's CCA Team coordinates supporting documentation with the generation technical team.

Transmission Improvements: Prior to delivery of installations or O&M improvements, the transmission technical team collects a letter of request from the partner organization (either PESCO or NTDC). EPP CCA Team maintains a list of anticipated installations and O&M improvements and monitors the progress of these activities on a weekly basis. When an installation or O&M improvement occurs, the CCA Team coordinates with the transmission technical team to provide supporting documentation.

Data Analysis Plan: *Enter how the data will be analyzed, including description of methodology (e.g. descriptive, comparative, qualitative or quantitative) as well as who will participate in the data analysis process (e.g. activity manager, chief of party, other stakeholders, GOP representatives, etc.)*

Generation Improvements: Once the installation subcontractors or plant staff has provided supporting documentation, the generation technical team will verify the installation with either an in-person site verification or purchase order and delivery verification. With generation technical team verification, the installation it is reported to the CCA Team with supporting documentation. The CCA Team conducts annual acceptance letters of installations of equipment for all plants as well to confirm the equipment was installed and operational.

Transmission Improvements: Once supporting documentation has been provided by the installation subcontractors or DISCO/NTDC staff, the transmission technical team will verify the installation with either an in person site verification or purchase order and delivery verification. The CCA Team receives supporting documentation once the transmission technical team verifies the installation occurred. The CCA Team conducts annual acceptance letters of installations or equipment for NTDC and PESCO to confirm the equipment was installed and operational.

DATA QUALITY	
Data Quality Assessment (DQA): *Enter the date the DQA was conducted and the person who conducted the DQA*	
Date: *(MM/YY)*	**DQA completed by:**
06/14	MSI Monitoring and Evaluation Program
Key Data Quality Limitations (if any) and Actions Planned to Address Those Limitations: *Enter data limitations identified in the data quality assessment process related to the five quality standards, namely validity, integrity, precision, reliability and timeliness; discuss the significance of data weakness that may affect the conclusions about the extent to which performance goals have achieved; describe corrective actions planned or taken for addressing data weakness.*	
Due to procurement delays or change in scope, the life of program targets could be delayed. All supporting documentation will have notes attached if installation is not obvious.	

BASELINE		
Baseline Year: *(YYYY)*	**Baseline Data:**	**Reason for Postponement/Other Comments:** *If no baseline was established, enter the explanation and rationale for not establishing a baseline. Also indicate any other issues related to the baseline collection or data (such as rolling baselines or baselines from different sources rolling into one.*
2012	0	

TARGET		
Initial Life of the Program Target:	**Date for Achievement of Initial Target:** *(MM/YY)*	**Date Initial Target was Set:** *(MM/YY)*
40 installations/operations	03/14	02/12
Revised Life of the Program Target:	**Date for Achievement of Revised Target:** *(MM/YY)*	**Date Revised Target was Set:** *(MM/YY)*
193 installations/operations		06/14
2nd Revision to Life of the Program Target:	**Date for Achievement of Revised Target:** *(MM/YY)*	**Date Revised Target was Set:** *(MM/YY)*

OTHER NOTES / NEXT STEPS
If the indicator is pending, explain why and expected date when collection will begin. As appropriate, indicate any other important information about the indicator and/or its data collection as well as actions needing to be taken.

CHANGES & UPDATES			
Date *(MM/YY)*	**Name** *Enter who made updates*	**Change or Update Made:**	**Reason for Change or Update:**
12/13	Richard Smith/EPP CCA Team	Updated the Data Analysis Plan Language	Requested by USAID
6/14	EPP CCA Team	Updated Data Collection Method, Data Analysis Plan, and Life of Program Target	After DQA meeting with MSI, EPP increased explanations for clarity and adjusted the LOP to reflect additionally approved installations in transmission.

1.1.1 (d) Number of Transmission Bottlenecks Resolved

This indicator represents the number of transmission bottlenecks resolved by addressing overloaded transmission lines and transformers, protection coordination, and improved maintenance practices in grid stations and transmission networks.

Life of Program Target: 121 bottlenecks to be removed

Contributing Entities	LOP Target	Achieved					Target FY 2015
		FY 2011	FY 2012	FY 2013	FY 2014	Total Achieved	
Repair of 31.5/40 MVA, 132/66 KV ELTA Power Transformer for Shahi Bagh Grid Station PESCO, KPK	1	0	0	1	0	**1**	0
Institution of Live Line PESCO Crew to resolve the line losses and power outages	1	0	0	0	0	**0**	1
Institution of Live Line GEPCO Crew to resolve the line losses and power outages	1	0	0	0	0	**0**	1
Institution of Live Line FESCO Crew to resolve the line losses and power outages	1	0	0	0	0	**0**	1
Institution of Live Line HESCO Crew to resolve the line losses and power outages	1	0	0	0	0	**0**	1
Institution of Live Line IESCO Crew to resolve the line losses and power outages	1	0	0	0	0	**0**	1
Institution of Live Line SEPCO Crew to resolve the line losses and power outages	1	0	0	0	0	**0**	1
Institution of Live Line MEPCO Crew to resolve the line losses and power outages	1	0	0	0	0	**0**	1
Institution of Live Line LESCO Crew to resolve the line losses and power outages	1	0	0	0	0	**0**	1
Institution of Live Line QESCO Crew to resolve the line losses and power outages	1	0	0	0	0	**0**	1
Rehabilitation of 3 Capacitor Banks 1. 132 kV Peshawar University GS (24) MVAR 2. 132 kV Shahi Bagh GS (24) MVAR 3. 132 kV Chakdara GS (36) MVAR)	3	0	0	3	0	**3**	0
Supply of material and Rehabilitation of 3 Capacitor Banks 1. 132 kV Tall GS 2. 132 kV Bannu GS 3. 132 kV Jahangira GS)	3	0	0	0	0	**0**	3
Repair, installation and commissioning of 37.5/40 MVA, 132/66 KV ELTA Power Transformer from Kohat Grid Station PESCO, KPK	1	0	0	0	0	**0**	1
Repair, installation and commissioning of 20/26 MVA, 132/11 KV ANSALDO Power Transformer at Gadoon Amazai 132kV GS PESCO, KPK	1	0	0	0	1	**1**	0
Supply, Installation & commissioning of New 40MVA Power Transformer at D.I. Khan 132KV GS along with ancillaries	1	0	0	0	1	**1**	0

Contributing Entities	LOP Target	Achieved					Target FY 2015
		FY 2011	FY 2012	FY 2013	FY 2014	Total Achieved	
Supply, Installation & commissioning of New 40MVA Power Transformer at Jamrud 132KV GS along with ancillaries	1	0	0	0	1	**1**	0
Supply, Installation & commissioning of New 40MVA Power Transformer at Hattar 132KV GS along with ancillaries	1	0	0	0	1	**1**	0
Repair of 160MVA Autotransformer for NTDC	1	0	0	0	0	**0**	1
Augmentation of 10/13MVA by 20/26MVA PTF at Khwaza Khela 132kV GS for PESCO	1	0	0	0	0	**0**	1
1st batch of cooling fans for Existing Power Transformers PESCO	75	0	0	0	75	**75**	0
Supply and supervision of installation and commissioning of 2x 250MVA 220/132kV Autotransformers along with ancillaries at Mardan 220kV GS	2	0	0	0	0	**0**	2
Relocation, installation and commissioning of 160MVA 220/132kV Autotransformers along with ancillaries at Nishatabad 220kV GS	2	0	0	0	0	**0**	2
2nd batch of Cooling Fans for existing Power Transformers	19	0	0	0	0	**0**	19
Total No. of Transmission Bottlenecks Resolved	**121**	**0**	**0**	**4**	**79**	**83**	**38**

PERFORMANCE INDICATOR REFERENCE SHEET (PIRS)
Indicator *- # and Title*: 1.1.1-d Number of transmission bottlenecks resolved
Development Objective (DO) *- # and Title*: 1 Increased Sustainable Energy Supplied To Economy
Intermediate Result (IR) *- # and Title*: 1.1 Increased Energy Supply
Sub-Intermediate Result (Sub-IR) *- # and Title*: 1.1.1 Increased Generation and Transmission Capacity
Relationship between the Sub-IR and IR or IR and DO: *Enter the explanation of the linkage between the lowest level of result represented by the indicator, and the next level of result up; address the "so what?" question to move from outputs to outcomes, or outcomes to impact; explain in terms of the development hypotheses, do not simply restate the structure of the Results Framework.*
A robust transmission network ensures minimum losses and more reliable power supply. Removing the transmission bottlenecks will be a step in ensuring that the power generated is supplied to distribution companies more effectively.
INDICATOR DESCRIPTION
Precise Definition(s): *Enter the precise definition of the indicator so it can be operationalized; define all terms, elements, implied actions and calculations; [for example, "farmers using better production techniques" – define "better production" and "techniques". Describe how this will be determined – e.g. Index, scale, standards]. For indicators that are percent or proportions explain how it will be calculated and what will serve as the numerator and denominator. If the indicator is cumulative, made up of stages or phases, or is a yes-no, please specify this and explain the stages/phases or how it is cumulative. If it is a Standard Program Structure ("F") Indicator, use and if necessary, refine the standard definition.*
There are several problems/bottlenecks within the transmission system, which need to be addressed to increase transmission capacity and reliability. Bottlenecks include, but not necessary limited to, overloaded transmission lines and transformers, protection coordination, disruption of services on live lines for maintenance, and outdated maintenance and management practices on the transmission network.

Unit of Measure:	Type of Indicator:	Category:		Desired Direction:
Enter unit of measure (e.g. "number of___", "percent of ___" etc.)	*Enter "output", "outcome" or "impact".*	*Enter "Standard F" or "Custom"*	*If "Standard F indicator", enter the number*	*Enter "increasing", "decreasing" or 'static" to indicate the direction of success result.*
Number of bottlenecks	Outcome	Custom		Increasing

Aggregation Process: *If indicator will be collected by more than one source, explain how the data will aggregate across these multiple sources (e.g. in the case of # of jobs, demonstrate how data definitions for what is counted as a "job" is consistently interpreted across sources and specify that he data reported by each partner will be added together for a combined total; or in the case of a stage of phase indicator, state how data from different partners will combine into one final data). Also specify the timeline for aggregation (e.g. all sources will be added together each quarter).*

All data are added together across all data collection/reporting entities. Common collection instruments will be established across all data collection/reporting entities.

Disaggregates: *Enter all disaggregation titles/ categories and values (e.g. title: Household Head Type; values: Female no Male Adult households, Male no Female Adults households, Male and Female Adult households, Child no Adult households.)*

Transmission System Entity (NTDC, PESCO, QESCO, MEPCO, SEPCO, FESCO, GEPCO, HESCO, IESCO, LESCO)

DATA COLLECTION, STORAGE, and ANALYSIS

Name of IP/ Responsible Party for Data Collection:	Frequency of data collection: *Enter how often the data will be collected (Weekly, Monthly, etc.)*
EPP/PDP	Monthly

Data Source: *Enter where IP obtains data (e.g. self-collected, GOP records or private sector).*	Data Entry Frequency into PakInfo: *Enter the anticipated frequency of regular data entry into PakInfo (e.g. Quarterly, Annually, etc.)*	Responsible Party for Data Entry into PakInfo: *Enter who will be responsible for inputting and submitting data via PakInfo.*
GOP	Quarterly	EPP

Data collection method: *Enter the tools and methods to be used for data collection and indicate for each method who (IP, USAID or third party) will collect the data. (e.g. telephone survey of household sample, reading assessment administered by third-party, sign-in sheets of training participants by IP)*

On a weekly basis, EPP's transmission technical team, consisting of engineers and senior energy and transmission experts, monitors on-going project activity with respect to NTDC, PESCO and live line maintenance DISCOs. The purchase orders and pictures of installations and rehabilitations, as well as training program reports, act as supporting documentation to show how EPP interventions to resolve bottlenecks were completed. Prior to receipt of the supporting documentation, the transmission technical team receives an activity acceptance letter stating the requested equipment or training program will lead to the resolution of bottlenecks.

Data Analysis Plan: *Enter how the data will be analyzed, including description of methodology (e.g. descriptive, comparative, qualitative or quantitative) as well as who will participate in the data analysis process (e.g. activity manager, chief of party, other stakeholders, GOP representatives, etc.)*

The transmission technical team sends the letters, purchase orders, and training guides to the CCA Team for records maintenance. The CCA Team coordinates weekly with the transmission team to monitor the completion of bottleneck related activities. Once an activity is completed, the technical team and the CCA Team verify completion of the activity with the purchase order certificate of materials received or training report.

DATA QUALITY	
Data Quality Assessment (DQA): *Enter the date the DQA was conducted and the person who conducted the DQA*	
Date: *(MM/YY)*	**DQA completed by:**
06/14	MSI Monitoring and Evaluation Program
Key Data Quality Limitations (if any) and Actions Planned to Address Those Limitations: *Enter data limitations identified in the data quality assessment process related to the five quality standards, namely validity, integrity, precision, reliability and timeliness; discuss the significance of data weakness that may affect the conclusions about the extent to which performance goals have achieved; describe corrective actions planned or taken for addressing data weakness.*	
Due to procurement delays or change in scope, the life of program targets could be delayed. All supporting documentation will have notes attached if bottleneck removal is not obvious.	

BASELINE		
Baseline Year: *(YYYY)*	**Baseline Data:**	**Reason for Postponement/Other Comments:** *If no baseline was established, enter the explanation and rationale for not establishing a baseline. Also indicate any other issues related to the baseline collection or data (such as rolling baselines or baselines from different sources rolling into one.*
2012	0	

TARGET		
Initial Life of the Program Target:	**Date for Achievement of Initial Target:** *(MM/YY)*	**Date Initial Target was Set:** *(MM/YY)*
6 bottlenecks		2/12
Revised Life of the Program Target:	**Date for Achievement of Revised Target:** *(MM/YY)*	**Date Revised Target was Set:** *(MM/YY)*
13 bottlenecks		12/12
2nd Revision to Life of the Program Target:	**Date for Achievement of Revised Target:** *(MM/YY)*	**Date Revised Target was Set:** *(MM/YY)*
121 bottlenecks		06/14

OTHER NOTES / NEXT STEPS
If the indicator is pending, explain why and expected date when collection will begin. As appropriate, indicate any other important information about the indicator and/or its data collection as well as actions needing to be taken.
The Life of the Program Target for the number of transmission bottlenecks resolved is thirteen. Initially, six bottlenecks were set to be removed over the life of the program, however, with the expansion in transmission's scope of work over the course of the project and contract modification coming up we have revised the LOP even though the 6 have not been resolved as of 12/12.

CHANGES & UPDATES			
Date *(MM/YY)*	**Name** *Enter who made updates*	**Change or Update Made:**	**Reason for Change or Update:**
12/13	Richard Smith	Updated Life of the Program Target and data collection method	Requested by USAID December 2013
12/13	Richard Smith/EPP CCA Team	Updated data analysis plan language	Requested by USAID
6/14	EPP CCA Team	Updated definition, aggregation, LOP, data collection method and data analysis plan	Added more information requested by MSI and revised LOP to account for revised definition

1.1.1 (e): Megawatts of Throughput Capacity Available to Meet Power Sector Demand as a Result of USG Supported Transmission Improvements

This indicator represents the MWs of throughput capacity (active power) made available as a result of EPP efforts in support to transmission and distribution facilities.

Life of Program Target:

- Transmission Throughput Capacity = 428 MW

Contributing Entities	LOP Target MW	Achieved (MW)					Target FY 2015
		FY 2011	FY 2012	FY 2013	FY 2014	Total Achieved	
Rehabilitation of 3 Capacitor banks:	36	0	0	36	0	**36**	0
i) 132 kV Peshawar University GS (24) MVAR							
ii) 132 kV Shahi Bagh GS (24) MVAR							
iii) 132 kV Chakdara GS (36) MVAR							
Repair of 31.5/40 MVA, 132/66 KV ELTA Power Transformer for Shahi Bagh Grid Station PESCO, KPK	40	0	0	40	0	**40**	0
1st batch of Cooling Fans installed for existing Power Transformers-PESCO	152	0	0	0	192	**192**	0
Supply, Installation & commissioning of New 40MVA Power Transformer at Jamrud 132KV GS along with ancillaries	14	0	0	0	14	**14**	0
Supply, Installation & commissioning of New 40MVA Power Transformer at Hattar 132KV GS along with ancillaries	14	0	0	0	14	**14**	0
Supply, Installation & commissioning of New 40MVA Power Transformer at D.I. Khan 132KV GS along with ancillaries	40	0	0	0	40	**40**	0
Repair, installation and commissioning of 20/26 MVA, 132/11 KV ANSALDO Power Transformer at Gadoon Amazai 132kV GS PESCO, KPK	13	0	0	0	13	**13**	0
Supply of material and Rehabilitation of 3 Capacitor Banks	36	0	0	0	0	**0**	36
1. 132 kV Tall GS							
2. 132 kV Bannu GS							
3. 132 kV Jahangira GS							
2nd batch of Cooling Fans installed for existing Power Transformers	83	0	0	0	0	**0**	83
TOTAL MWs	**428**	**0**	**0**	**76**	**273**	**349**	**119**

PERFORMANCE INDICATOR REFERENCE SHEET (PIRS)			
Indicator: 1.1.1-e: Megawatts of Throughput Capacity Available to Meet Power Sector Demand as a Result of USG Supported Transmission Improvements			
Development Objective (DO): 1 Increased Sustainable Energy Supplied to the Economy			
Intermediate Result (IR): 1.1 Increased Energy Supply			
Sub-Intermediate Result (Sub-IR): 1.1.1: Increased Generation and Transmission Capacity			
Relationship between the Sub-IR and IR or IR and DO: *Enter the explanation of the linkage between the lowest level of result represented by the indicator, and the next level of result up; address the "so what?" question to move from outputs to outcomes, or outcomes to impact; explain in terms of the development hypotheses, do not simply restate the structure of the Results Framework.*			
Increased energy by throughput capacity increase will result in increased energy supplied to the economy, which will in return help improve the economic foundation for Pakistan.			
INDICATOR DESCRIPTION			
Precise Definition(s): *Enter the precise definition of the indicator so it can be operationalized; define all terms, elements, implied actions and calculations; [for example, "farmers using better production techniques" – define "better production" and "techniques". Describe how this will be determined – e.g. Index, scale, standards]. For indicators that are percent or proportions explain how it will be calculated and what will serve as the numerator and denominator. If the indicator is cumulative, made up of stages or phases, or is a yes-no, please specify this and explain the stages/phases or how it is cumulative. If it is a Standard Program Structure ("F") Indicator, use and if necessary, refine the standard definition.*			
A megawatt (MW) is a unit for measuring power that is equivalent to one million watts. This indicator measures the total increase of energy in megawatts of throughput capacity (active power) through USG-assisted interventions in host-government owned distribution companies. MWs throughput capacity is determined at the point where the improvement activity takes place from transmission improvements, which can be anywhere from the substation right outside the generation station to the substation where the delivery is made to the DISCO and anywhere in between. Congestion relief on transmission nodes (involving installation of capacitor banks on transformers) and increasing physical capacity of equipment (involving replacement/repair of transformers and transmission lines) will lead to an increase in efficiency of MWs of throughput capacity. The transmission improvements will lead to an increase in MWs of throughput capacity; impacting the power sector of Pakistan.			
Unit of Measure:	**Type of Indicator:**	**Category:**	**Desired Direction:**
Enter unit of measure (e.g. "number of___", "percent of ___" etc.)	*Enter "output", "outcome" or "impact".*	*Enter "Standard F" or "Custom"* / *If "Standard F indicator", enter the number*	*Enter "increasing", "decreasing" or 'static" to indicate the direction of success result.*
Number of Megawatts (MW)	Outcome	Custom	Increasing
Aggregation Process: *If indicator will be collected by more than one source, explain how the data will aggregate across these multiple sources (e.g. in the case of # of jobs, demonstrate how data definitions for what is counted as a "job" is consistently interpreted across sources and specify that he data reported by each partner will be added together for a combined total; or in the case of a stage of phase indicator, state how data from different partners will combine into one final data). Also specify the timeline for aggregation (e.g. all sources will be added together each quarter).*			
All data are added together across all data collection/reporting entities. Common collection instruments will be established across all data collection/reporting entities.			
Disaggregates: *Enter all disaggregation titles/ categories and values (e.g. title: Household Head Type; values: Female no Male Adult households, Male no Female Adults households, Male and Female Adult households, Child no Adult households.)*			
Transmission Throughput Capacity MWs: **Transmission System Entity:** (NTDC & PESCO)			

DATA COLLECTION, STORAGE, and ANALYSIS		
Name of IP/ Responsible Party for Data Collection:	**Frequency of data collection:** *Enter how often the data will be collected (Weekly, Monthly, etc.)*	
EPP/PDP	Quarterly	
Data Source: *Enter where IP obtains data (e.g. self-collected, GOP records or private sector).*	**Data Entry Frequency into PakInfo:** *Enter the anticipated frequency of regular data entry into PakInfo (e.g. Quarterly, Annually, etc.)*	**Responsible Party for Data Entry into PakInfo:** *Enter who will be responsible for inputting and submitting data via PakInfo.*
GOP	Quarterly	EPP CCA Team
Data collection method: *Enter the tools and methods to be used for data collection and indicate for each method who (IP, USAID or third party) will collect the data. (e.g. telephone survey of household sample, reading assessment administered by third-party, sign-in sheets of training participants by IP)*		
On a weekly basis, EPP's transmission technical team, consisting of engineers and senior energy and transmission experts, monitors ongoing project activities with respect to NTDC and PESCO. Prior to an installation or system improvement, the transmission technical team receives an activity acceptance letter stating the requested equipment and MW/MVA capacity. After installation, the transmission technical team verifies installation with NTDC or PESCO with an onsite visit.		
Data Analysis Plan: *Enter how the data will be analyzed, including description of methodology (e.g. descriptive, comparative, qualitative or quantitative) as well as who will participate in the data analysis process (e.g. activity manager, chief of party, other stakeholders, GOP representatives, etc.)*		
The transmission technical team sends the letters to the CCA Team for records maintenance. The CCA Team coordinates weekly with the technical transmission team to monitor the complete installation of the equipment. Once the equipment has been installed, the technical team and the CCA Team verify installation with the purchase order certificate of materials received. The CCA Team maintains supporting documents and verifies weekly, monthly, quarterly, etc. reports to USAID. M&E maintains a weekly log of MW gains and monitors the transmission technical team's reporting progress.		
DATA QUALITY		
Data Quality Assessment (DQA)*: Enter the date the DQA was conducted and the person who conducted the DQA*		
Date: *(MM/YY)*	**DQA completed by:**	
Key Data Quality Limitations (if any) and Actions Planned to Address Those Limitations: *Enter data limitations identified in the data quality assessment process related to the five quality standards, namely validity, integrity, precision, reliability and timeliness; discuss the significance of data weakness that may affect the conclusions about the extent to which performance goals have achieved; describe corrective actions planned or taken for addressing data weakness.*		

BASELINE		
Baseline Year: *(YYYY)*	**Baseline Data:**	**Reason for Postponement/Other Comments:** *If no baseline was established, enter the explanation and rationale for not establishing a baseline. Also indicate any other issues related to the baseline collection or data (such as rolling baselines or baselines from different sources rolling into one.*
2012	0	

Initial Life of the Program Target:	**Date for Achievement of Initial Target:** *(MM/YY)*	**Date Initial Target was Set:** *(MM/YY)*
428 MW	LOP	9/14
Revised Life of the Program Target:	**Date for Achievement of Revised Target:** *(MM/YY)*	**Date Revised Target was Set:** *(MM/YY)*
2nd Revision to Life of the Program Target:	**Date for Achievement of Revised Target:** *(MM/YY)*	**Date Revised Target was Set:** *(MM/YY)*

OTHER NOTES / NEXT STEPS
If the indicator is pending, explain why and expected date when collection will begin. As appropriate, indicate any other important information about the indicator and/or its data collection as well as actions needing to be taken.
EPP developed 1.1.1.e as a new indicator to analyze the throughput capacity MW gains through transmission improvements in September 2014. The intention of the new indicator was to contribute to the next level intermediate result area for MW available to meet energy sector demand with 1.1.1.a. EPP estimates the following targets: Transmission Throughput Capacity Total = 428 MW

CHANGES & UPDATES			
Date *(MM/YY)*	**Name** *Enter who made updates*	**Change or Update Made:**	**Reason for Change or Update:**
9/14	EPP CCA Team	Updated LOP	Received guidance from USAID regarding transmission MWs.

IR 1.1.4 (a): Public and Private Funds Leveraged by the USG for Energy Infrastructure Projects

This indicator represents the public and private funds leveraged by the USG through bilateral and trilateral agreements with other stakeholders and donors in the energy sector. These funds cast a multiplier effect on the outcome for each dollar spent, therefore, increasing the overall energy supply.

Life of Program Target: US$ 193.5 Million

Contributing Entities	LOP Target (Million US$)	Achieved					
		FY 2011	FY 2012	FY 2013	FY 2014	Total Achieved	Target FY 2015
G2G Fund							
Gomal Zam Multipurpose Dam	33.50	0	0	33.50	0.00	**33.50**	0
Mangla Dam Rehabilitation	15	0	0	0	0	**0**	15
G2G Fund TOTAL	**48.50**	**0**	**0**	**33.50**	**0.00**	**33.50**	**15**
LNG Fund							
6 Month Charter for Tugboats	5	0	0	0	$5	**5**	0
FSRU Charter	20	0	0	0	0	**0**	20
Infrastructure of Jetty & Pipelines	120	0	0	0	0	**0**	120
LNG Fund TOTAL	**145**	**0**	**0**	**0**	**5**	**5**	**140**
TOTAL (Million US$)	**193.50**	**0**	**0**	**33.50**	**5.00**	**38.50**	**155**

PERFORMANCE INDICATOR REFERENCE SHEET (PIRS)
Indicator *- # and Title*: 1.1.4- a: Public and private funds leveraged by the United States Government for energy infrastructure projects (alternative F indicator 4.4.1-32)
Development Objective (DO) *- # and Title*: 1 Increased Sustainable Energy Supplied to the Economy
Intermediate Result (IR) *- # and Title*: 1.1. Increased Energy Supply
Sub-Intermediate Result (Sub-IR) *- # and Title*: 1.1.4: Increased Non-USG Investment in the Energy Sector
Relationship between the Sub-IR and IR or IR and DO: *Enter the explanation of the linkage between the lowest level of result represented by the indicator, and the next level of result up; address the "so what?" question to move from outputs to outcomes, or outcomes to impact; explain in terms of the development hypotheses, do not simply restate the structure of the Results Framework.*
Given limitations of funding from USG sources, leveraging funds from other sources is critical to efforts to expand access to energy services necessary to increase the supply of energy to the economy. This indicator will be used to demonstrate the USG's ability to attract additional resources for critical energy projects and enhance cost-effectiveness by leveraging additional funding and in-kind resources.

INDICATOR DESCRIPTION				
Precise Definition(s): *Enter the precise definition of the indicator so it can be operationalized; define all terms, elements, implied actions and calculations; [for example, "farmers using better production techniques" – define "better production" and "techniques". Describe how this will be determined – e.g. Index, scale, standards]. For indicators that are percent or proportions explain how it will be calculated and what will serve as the numerator and denominator. If the indicator is cumulative, made up of stages or phases, or is a yes-no, please specify this and explain the stages/phases or how it is cumulative. If it is a Standard Program Structure ("F") Indicator, use and if necessary, refine the standard definition.*				
This indicator measures the dollar value of financial contributions and in-kind support provided to and by project-supported generation companies and the entities under the Liquefied Natural Gas (LNG) Import Program. Items counted for this indicator include provided and installed by GENCOs, cash or in-kind donations made by public or private entities, and buildings and office space made available by GENCOs and other entities. The LNG Import program aims to build Pakistan's first LNG terminal though a Public Private Partnership. The key contributing actors for this major energy infrastructure-related project include: Sui Southern Gas Company Limited (SSGCL), Elengy Terminal Pakistan Ltd. (ETPL), Port Qasim Authority (PQA), Inter-State Gas Systems (ISGS), Ministry of Petroleum and Natural Gas (MPNR), Ministry of Ports and Shipping (MOPS), Pakistan State Oil (PSO), and Oil & Gas Regulatory Authority (OGRA).				
Unit of Measure:	**Type of Indicator:**	**Category:**		**Desired Direction:**
Enter unit of measure (e.g. "number of___", "percent of ___" etc.)	*Enter "output", "outcome" or "impact".*	*Enter "Standard F" or "Custom"*	*If "Standard F indicator", enter the number*	*Enter "increasing", "decreasing" or 'static" to indicate the direction of success result.*
Millions of Dollars (USD)	Outcome	Standard	4.4.1-32	Increasing
Aggregation Process: *If indicator will be collected by more than one source, explain how the data will aggregate across these multiple sources (e.g. in the case of # of jobs, demonstrate how data definitions for what is counted as a "job" is consistently interpreted across sources and specify that he data reported by each partner will be added together for a combined total; or in the case of a stage of phase indicator, state how data from different partners will combine into one final data). Also specify the timeline for aggregation (e.g. all sources will be added together each quarter).*				
All data are added together across all data collection/reporting entities. Common collection instruments will be established across all data collection/reporting entities.				
Disaggregates: *Enter all disaggregation titles/ categories and values (e.g. title: Household Head Type; values: Female no Male Adult households, Male no Female Adults households, Male and Female Adult households, Child no Adult households.)*				
Public funds leveraged, Private funds leveraged				
DATA COLLECTION, STORAGE, and ANALYSIS				
Name of IP/ Responsible Party for Data Collection:	**Frequency of data collection:** *Enter how often the data will be collected (Weekly, Monthly, etc.)*			
EPP	Monthly			
Data Source: *Enter where IP obtains data (e.g. self-collected, GOP records or private sector).*	**Data Entry Frequency into PakInfo:** *Enter the anticipated frequency of regular data entry into PakInfo (e.g. Quarterly, Annually, etc.)*	**Responsible Party for Data Entry into PakInfo:** *Enter who will be responsible for inputting and submitting data via PakInfo.*		
Self-collected	Quarterly	EPP		
Data collection method: *Enter the tools and methods to be used for data collection and indicate for each method who (IP, USAID or third party) will collect the data. (e.g. telephone survey of household sample, reading assessment administered by third-party, sign-in sheets of training participants by IP)*				

G2G Funding:

On a weekly basis, EPP's generation technical team, consisting of engineers and senior energy experts in thermal and hydro generation, monitors on-going project activity at the 7 G2G power plants. When a G2G agreement has been completed and all funding dispersed by GOP, the generation technical team notifies the CCA Team. The CCA Team maintains documents for G2G agreements and planning commission confirmation letters to confirm the amount of funding by GOP.

LNG Funding:

On a weekly basis, the policy technical teams for MPNR report progress to the CCA Team regarding policy advisory and technical support. The CCA Team reviews progress made by advisory and technical teams and determines the funds leveraged as a result of EPP's technical assistance. When a RFP is underway for carrying out an LNG activity, the policy technical team notifies the CCA Team. The CCA Team maintains documents (certain documents which are confidential cannot be shared without GOP/Stakeholders consent-factors beyond EPP's control); including the RFP copy and confirmation letters, to confirm the amount of funding by the LNG sector entities.

Data Analysis Plan: *Enter how the data will be analyzed, including description of methodology (e.g. descriptive, comparative, qualitative or quantitative) as well as who will participate in the data analysis process (e.g. activity manager, chief of party, other stakeholders, GOP representatives, etc.)*

The CCA Team works with the technical teams to verify the data through the USAID Performance Management Toolkit process (April 2003). In the event of suspect data, the CCA Team addresses the issues with the technical teams and, if necessary, GOP partners.

Generation (G2G Funding): Once GOP notifies generation technical team of completion of the G2G plant, then the technical team will collect supporting documentation in form of an acceptance letter signed by the plant heads acknowledging the amount of funding dispersed. The funding dispersed amounts were pre-determined in the G2G agreements. EPP reports the figures once notified of project completion and acceptance letters are collected annually.

Policy (LNG Funding): Once the RFP is underway as a result of the policy technical team's assistance to the GOP, the technical team notifies the CCA Team. Supporting documents will be collected by the technical team in the form of acceptance letters signed by the stakeholders acknowledging the amount of funds dispersed. The funding dispersed amounts were pre-determined in discussions with MPNR and Port Qasim Authority. EPP reports the figures once notified of RFP circulation and acceptance letters are collected annually.

DATA QUALITY

Data Quality Assessment (DQA)*: Enter the date the DQA was conducted and the person who conducted the DQA*

Date: *(MM/YY)*	**DQA completed by:**
06/14	MSI Monitoring and Evaluation Program

Key Data Quality Limitations (if any) and Actions Planned to Address Those Limitations: *Enter data limitations identified in the data quality assessment process related to the five quality standards, namely validity, integrity, precision, reliability and timeliness; discuss the significance of data weakness that may affect the conclusions about the extent to which performance goals have achieved; describe corrective actions planned or taken for addressing data weakness.*

The distribution of funds under G2G agreements can be altered by GOP, which will affect the data. EPP will gather supporting documentation wherever possible and appropriate (certain documents which are confidential cannot be shared without GOP's/Stakeholders consent). Feedback on implementation progress depends on the availability and veracity of input from other GOP stakeholders (factors beyond EPP's control).

BASELINE

Baseline Year: *(YYYY)*	**Baseline Data:**	**Reason for Postponement/Other Comments:** *If no baseline was established, enter the explanation and rationale for not establishing a baseline. Also indicate any other issues related to the baseline collection or data (such as rolling baselines or baselines from different sources rolling into one.*
2012	0	

TARGET		
Initial Life of the Program Target:	**Date for Achievement of Initial Target:** *(MM/YY)*	**Date Initial Target was Set:** *(MM/YY)*
$48.5 million		2/12
Revised Life of the Program Target:	**Date for Achievement of Revised Target:** *(MM/YY)*	**Date Revised Target was Set:** *(MM/YY)*
$193.5 million		9/14
2nd Revision to Life of the Program Target:	**Date for Achievement of Revised Target:** *(MM/YY)*	**Date Revised Target was Set:** *(MM/YY)*

OTHER NOTES / NEXT STEPS
If the indicator is pending, explain why and expected date when collection will begin. As appropriate, indicate any other important information about the indicator and/or its data collection as well as actions needing to be taken.
Updated PIR in September 2014 to reflect new LNG contribution figure, which is US$ 145 million. The US$ 145 million figure consists of the 6-month charter for tugboats (US$ 5 million), FSRU charter (US$ 20 million), and infrastructure of jetty and pipelines (US$ 120 million). Life of Program Target: US$ 193.5 million; which consists of Gomal Zam funds (US$ 33.5 million), Mangla funds (US$ 15 million), and LNG fund (US$ 145 million).

CHANGES & UPDATES			
Date *(MM/YY)*	**Name** *Enter who made updates*	**Change or Update Made:**	**Reason for Change or Update:**
12/13	Richard Smith	Updated format and targets	Requested change by USAID in December 2013
12/13	Richard Smith/EPP CCA Team	Updated data analysis plan language	Requested by USAID
3/14	Jimmy R. Hicks/ CCA Team	Baseline revised to zero from US$ 33.5 million.	Requested by USAID
6/14	EPP CCA Team	Revised data collection method, data analysis plan, and data limitations.	Requested updates by MSI.
9/14	EPP CCA Team	LOP updated	Changed the LOP target to reflect new LNG contribution figure

1.2.1 (a): Number of Key Policies and Regulations in Development Stages of Analysis, Drafting, Stakeholder Consultation, Legislative Review, Approval, or Implementation as a Result of USG Assistance

This indicator represents the review of key energy sector policy issues that would assist GOP entities in addressing Pakistan's energy crisis, including: initial analysis and review; dissemination to internal stakeholders; inter-stakeholder dialogue/communication; and support/follow-up with GOP partners on policy/procedures.

Life of Program Target: 12 policies and regulations

Contributing Entities	LOP Target	Achieved					Target FY 2015
		FY 2011	FY 2012	FY 2013	FY 2014	Total Achieved	
Energy Efficiency Financing Mechanism	1	0	1	0	0	1	0
Draft supplemental agreement for Policy Conversions	1	0	0	0	1	1	0
Gasifier Concept Paper	1	0	1	0	0	1	0
GAP Analysis Policies and Regulations	1	0	0	1	0	1	0
Review of Electricity Act of 2013	1	0	0	1	0	1	0
Circular Debt Report	1	0	0	1	0	1	0
National Energy Power Policy	1	0	0	1	0	1	0
LNG LSA and Policy Framework	1	0	0	1	0	1	0
PPA for Jamshoro	1	0	0	0	0	**0**	1
PPA for Muzaffargarh	1	0	0	0	0	**0**	1
Draft Policy Framework for Private Power Transmission Line Projects	1	0	0	0	1	1	0
Draft Flare Gas Policy	1	0	0	0	1	1	0
Total No. of Policies and Regulations	**12**	**0**	**2**	**5**	**3**	**10**	**2**

PERFORMANCE INDICATOR REFERENCE SHEET (PIRS)
Indicator *- # and Title*: 1.2.1-a Number of policies and regulations in development stages of analysis, drafting, stakeholder consultation, legislative review, approval, or implementation as a result of USG assistance.
Development Objective (DO) *- # and Title*: 1 Increased Sustainable Energy Supplied To the Economy
Intermediate Result (IR) *- # and Title*: 1.2 Improved Energy Sector Governance
Sub-Intermediate Result (Sub-IR) *- # and Title*: 1.2.1 Improved Policy Implementation
Relationship between the Sub-IR and IR or IR and DO: *Enter the explanation of the linkage between the lowest level of result represented by the indicator, and the next level of result up; address the "so what?" question to move from outputs to outcomes, or outcomes to impact; explain in terms of the development hypotheses, do not simply restate the structure of the Results Framework.*
Proper analyses and implementation of policy recommendations can improve overall energy sector governance.

INDICATOR DESCRIPTION
Precise Definition(s): *Enter the precise definition of the indicator so it can be operationalized; define all terms, elements, implied actions and calculations; [for example, "farmers using better production techniques" – define "better production" and "techniques". Describe how this will be determined – e.g. Index, scale, standards]. For indicators that are percent or proportions explain how it will be calculated and what will serve as the numerator and denominator. If the indicator is cumulative, made up of stages or phases, or is a yes-no, please specify this and explain the stages/phases or how it is cumulative. If it is a Standard Program Structure ("F") Indicator, use and if necessary, refine the standard definition.*
Review of key energy sector policy options and issues assists GOP entities in their phased implementation. Necessary steps may include (but not necessarily be limited to): • Initial analyses and review/initial drafting by EPP; • Dissemination to internal stakeholders; • Subsequent drafting incorporating feedback of internal stakeholders; • Buy-in of implementing partner (at the Joint Secretary, Secretary and/or ministerial level); • Inter-stakeholder dialogue/communication (such as different ministries/departments); and • Providing support and follow-up with GOP partners on the status of implementation depending upon specific policy /procedures (as there are different approval/endorsement/notification SOPs of different GOP entities). EPP will count only those policies, which reach the highest stage completed during the reporting quarter of fiscal year. The stages have been disaggregated based on output and outcome level: **Output:** Stage 1: …underwent the first stage of the policy reform process i.e. analysis (review of existing policy / regulation / administrative procedure and/or proposal of new policy / regulations / administrative procedures). Stage 2: …underwent the second stage of the policy reform process. The second stage includes public debate and/or consultation with stakeholders on the proposed new or revised policy / regulation / administrative procedure. **Outcome:** Stage 3: … underwent the third stage of the policy reform process (policies were presented for legislation/decree to improve the policy environment for stakeholders.) Stage 4: …underwent the fourth stage of the policy reform process (official approval (legislation/decree) of new or revised policy / regulation / administrative procedure by relevant authority). Stage 5: …completed the policy reform process (implementation of new or revised policy / regulation / administrative procedure by relevant authority).

Unit of Measure:	Type of Indicator:	Category:		Desired Direction:
Enter unit of measure (e.g. "number of___", "percent of____" etc.)	*Enter output", "outcome" or "impact".*	*Enter "Standard F" or "Custom"*	*If "Standard F indicator", enter the number*	*Enter "increasing", "decreasing" or 'static" to indicate the direction of success result.*
Number of policy options and regulations	Output (Stages 1&2) Outcome (Stages 3-5)	Standard	4.5.1-24	Increasing

Aggregation Process: *If indicator will be collected by more than one source, explain how the data will aggregate across these multiple sources (e.g. in the case of # of jobs, demonstrate how data definitions for what is counted as a "job" is consistently interpreted across sources and specify that he data reported by each partner will be added together for a combined total; or in the case of a stage of phase indicator, state how data from different partners will combine into one final data). Also specify the timeline for aggregation (e.g. all sources will be added together each quarter).*
All data are added together across all data collection/reporting entities. Common collection instruments will be established across all data collection/reporting entities.

Disaggregates: *Enter all disaggregation titles/ categories and values (e.g. title: Household Head Type; values: Female no Male Adult households, Male no Female Adults households, Male and Female Adult households, Child no Adult households.)*
USAID/Pakistan priority policy matrix issues, (Mounting Circular Debt, Insufficient Supply of Affordable Electricity, Inefficient Power Sector Operations and excessive sector energy losses, Poor Governance and management of pubic energy sector entities, Excessive Peak Demand in the Summer) **Type Energy Power Policy** (Key Ministry of Water and Power policies, Corporate Policies, Steps to create an Independent Central Power Purchasing Agency, Steps towards Dissolution of the Pakistan Electric Power Company, Key Ministries, Ministry of Petroleum and Natural Resources, Ministry of Finance, Generation, Transmission, Distribution, Regulation)

DATA COLLECTION, STORAGE, and ANALYSIS		
Name of IP/ Responsible Party for Data Collection:	**Frequency of data collection:** *Enter how often the data will be collected (Weekly, Monthly, etc.)*	
EPP	Monthly	
Data Source: *Enter where IP obtains data (e.g. self-collected, GOP records or private sector).*	**Data Entry Frequency into PakInfo:** *Enter the anticipated frequency of regular data entry into PakInfo (e.g. Quarterly, Annually, etc.)*	**Responsible Party for Data Entry into PakInfo:** *Enter who will be responsible for inputting and submitting data via PakInfo.*
Self-collected	Quarterly	EPP
Data collection method: *Enter the tools and methods to be used for data collection and indicate for each method who (IP, USAID or third party) will collect the data. (e.g. telephone survey of household sample, reading assessment administered by third-party, sign-in sheets of training participants by IP)*		
On a weekly basis, the policy technical teams for MOF, MWP, MPNR, PC, and NTDC report progress to the CCA Team regarding policy advisory support. The CCA Team reviews progress made by advisory teams and determines if a policy counts towards the indicator under output and outcome stages 1-5. When confirmed by the CCA Team and technical policy team, the CCA Team collects supporting documentation in the form of published policies, agreements, terms of reference, reports, power purchase agreements, and legal acts/regulations put in place.		

Data Analysis Plan: *Enter how the data will be analyzed, including description of methodology (e.g. descriptive, comparative, qualitative or quantitative) as well as who will participate in the data analysis process (e.g. activity manager, chief of party, other stakeholders, GOP representatives, etc.)*

To verify the data received from GOP partners regarding policy developments, the technical policy team will determine if the policy fulfills the PIR criteria and submit supporting documentation to the CCA Team. Analysis of a policy requires the technical expertise of the policy team to determine which stage (1-5) the policy falls under and the impact the policy has on the priority policy issues.

The policies will be reported based on the five (05) stages, which are broadly defined under output and outcome level of analysis as follows:

Contributing Entities	LOP Target	Achieved					Target FY 2015
		FY 2011	FY 2012	FY 2013	FY 2014	Total No. of Policies Achieved	
Energy Efficiency Financing Mechanism	1	0	PS_3	0	0	1	0
Draft Supplemental Agreement for Policy Conversions	1	0	0	0	PS_2	1	0
Gasifier Concept Paper	1	0	PS_1	0	0	1	0
GAP Analysis Policies and Regulations	1	0	0	PS_3	0	1	0
Review of Electricity Act of 2013	1	0	0	PS_2	0	1	0
Circular Debt Report	1	0	0	PS_3	0	1	0
National Energy Power Policy	1	0	0	PS_4	0	1	0
LNG LSA and Policy Framework	1	0	0	PS_4	0	1	0
PPA for Jamshoro	1	0	0	0	0	0	1
PPA for Muzaffargarh	1	0	0	0	0	0	1
Draft Policy Framework for Private Power Transmission Line Projects	1	0	0	0	PS_2	1	0
Draft Flare Gas Policy	1	0	0	0	PS_2	1	0
Total No. of Policies and Regulations	**12**	**0**	**2**	**5**	**3**	**10**	**2**

Policy Stages (PS)

Output Level:

PS_1 – (Stage 1: Analysis/review of existing policy / regulation / administrative procedure and/or proposal of new policy / regulations / administrative procedures)

PS_2 – (Stage 2: Public debate and/or consultation with stakeholders on the proposed new or revised policy / regulation / administrative procedure)

Outcome Level:

PS_3 – (Stage 3: Policies presented for legislation/decree to improve the policy environment for stakeholders)

PS_4 – (Stage 4: Official approval (legislation/decree) of new or revised policy / regulation / administrative procedure by relevant authority)

PS_5 – (Stage 5: Implementation of new or revised policy / regulation / administrative procedure by relevant authority)

EPP will report the progress, through regular monitoring exercise, of the advisory team's policy work and collect relevant publicly available supporting documentation on the number of policies falling under stages 1-5. The policies once reported, will not be counted twice; however, the CCA Team will maintain record and update the policy stage level at the end of the quarter of fiscal year. The formula of aggregation will be: [PS_{1-5} = 1 policy and regulation]

PS is Policy stage, $_{1-5}$ is subscript for the different stages (1-5) the policy work can be accounted for at the end of the reporting quarter of the fiscal year; equaling to the completion of 1 policy and regulation.

DATA QUALITY		
Data Quality Assessment (DQA): *Enter the date the DQA was conducted and the person who conducted the DQA*		
Date: *(MM/YY)*	**DQA completed by:**	
06/14	MSI Monitoring and Evaluation Program	
Key Data Quality Limitations (if any) and Actions Planned to Address Those Limitations: *Enter data limitations identified in the data quality assessment process related to the five quality standards, namely validity, integrity, precision, reliability and timeliness; discuss the significance of data weakness that may affect the conclusions about the extent to which performance goals have achieved; describe corrective actions planned or taken for addressing data weakness.*		
EPP will gather supporting documentation wherever possible and appropriate (certain documents which are confidential cannot be shared without GOP's consent). Feedback on implementation progress depends on the availability and veracity of input from other GOP stakeholders (factors beyond EPP's control). There is potential for under-reporting the indicator as additional policies/regulations may result from planned work; however, the CCA Team monitors policy team reports to find any additional policies/regulations.		

BASELINE		
Baseline Year: *(YYYY)*	**Baseline Data:**	**Reason for Postponement/Other Comments:** *If no baseline was established, enter the explanation and rationale for not establishing a baseline. Also indicate any other issues related to the baseline collection or data (such as rolling baselines or baselines from different sources rolling into one.*
2012	0	

TARGET		
Initial Life of Program Target:	Date for Achievement of Initial Target: *(MM/YY)*	**Date Initial Target was Set:** *(MM/YY)*
10 policies/ regulations	6/14	2/12
Revised Life of Program Target:	**Date for Achievement of Revised Target:** *(MM/YY)*	**Date Revised Target was Set:** *(MM/YY)*
12 policies/regulations		7/14
2nd Revision to Life of Program Target:	**Date for Achievement of Revised Target:** *(MM/YY)*	**Date Revised Target was Set:** *(MM/YY)*

OTHER NOTES / NEXT STEPS
If the indicator is pending, explain why and expected date when collection will begin. As appropriate, indicate any other important information about the indicator and/or its data collection as well as actions needing to be taken.

CHANGES & UPDATES			
Date *(MM/YY)*	**Name** *Enter who made updates*	**Change or Update Made:**	**Reason for Change or Update:**
12/13	Richard Smith	Updated the target to match records and data collection method	Requested by USAID in December 2013
12/13	Richard Smith/EPP CCA Team	Updated data analysis plan language	Requested by USAID
6/14	EPP CCA Team	Updated definition, data collection method, LOP target, data analysis plan and key limitations	Requested clarification by MSI
9/14	EPP CCA Team	Created policy stage framework	MSI recommended reporting on policy stages and adding methodology.

1.2.2 (a): Number of Policies Following International Best Practices Developed and Implemented

Description of Indicator: This indicator represents business operations and policies developed under EPP that follow international best practices and lead to a more autonomous energy sector. Business operations and policies like MIS, HR Policies, and O&M, when implemented, improve overall energy sector governance.

Life of Program Target: 6 entities

Contributing Entities	LOP Target	Achieved					
		FY 2011	FY 2012	FY 2013	FY 2014	Total Achieved	Target FY 2015
Business Transfer Agreement CPPA/NTDC	1	0	0	0	0	**0**	1
PowerSIM Training for MWP	1	0	0	0	1	**1**	0
PowerSIM Training for CPPA	1	0	0	0	0	**0**	1
PowerSIM Training for MPNR	1	0	0	0	1	**1**	0
PowerSIM Training for PC	1	0	0	0	0	**0**	1
Market Rules for CPPA	1	0	0	0	0	**0**	1
Total No. of Policies	**6**	**0**	**0**	**0**	**2**	**2**	**4**

PERFORMANCE INDICATOR REFERENCE SHEET (PIRS)			
Indicator *- # and Title*: 1.2.2a Number of policies following international best practices developed and implemented			
Development Objective (DO) *- # and Title*: 1 Increased Sustainable Energy Supplied to the Economy			
Intermediate Result (IR) *- # and Title*: 1.2: Improved Energy Sector Governance			
Sub-Intermediate Result (Sub-IR) *- # and Title*: 1.2.2: More Autonomous Energy Sector Entities			
Relationship between the Sub-IR and IR or IR and DO: *Enter the explanation of the linkage between the lowest level of result represented by the indicator, and the next level of result up; address the "so what?" question to move from outputs to outcomes, or outcomes to impact; explain in terms of the development hypotheses, do not simply restate the structure of the Results Framework.*			
Business operations and policies that parallel international best practices will lead to a more autonomous energy sector and attract investors, which in turn, improves energy sector governance.			
INDICATOR DESCRIPTION			
Precise Definition(s): *Enter the precise definition of the indicator so it can be operationalized; define all terms, elements, implied actions and calculations; [for example, "farmers using better production techniques" – define "better production" and "techniques". Describe how this will be determined – e.g. Index, scale, standards]. For indicators that are percent or proportions explain how it will be calculated and what will serve as the numerator and denominator. If the indicator is cumulative, made up of stages or phases, or is a yes-no, please specify this and explain the stages/phases or how it is cumulative. If it is a Standard Program Structure ("F") Indicator, use and if necessary, refine the standard definition.*			
Energy enterprises include generation companies, NTDC, CPPA and distribution companies. Improved business operations include management information systems, HR policies, revenue enhancement, profitability, and investments in O & M and/or capital improvement.			
Unit of Measure:	**Type of Indicator:**	**Category:**	**Desired Direction:**

Enter unit of measure (e.g. "number of___", "percent of ___" etc.)	*Enter "output", "outcome" or "impact".*	*Enter "Standard F" or "Custom"*	*If "Standard F indicator", enter the number*	*Enter "increasing", "decreasing" or 'static" to indicate the direction of success result.*
Number of policies	Outcome	Custom		Increasing

Aggregation Process: *If indicator will be collected by more than one source, explain how the data will aggregate across these multiple sources (e.g. in the case of # of jobs, demonstrate how data definitions for what is counted as a "job" is consistently interpreted across sources and specify that he data reported by each partner will be added together for a combined total; or in the case of a stage of phase indicator, state how data from different partners will combine into one final data). Also specify the timeline for aggregation (e.g. all sources will be added together each quarter).*

All data are added together across all data collection/reporting entities. Common collection instruments will be established across all data collection/reporting entities.

Disaggregates: *Enter all disaggregation titles/ categories and values (e.g. title: Household Head Type; values: Female no Male Adult households, Male no Female Adults households, Male and Female Adult households, Child no Adult households.)*

USAID/Pakistan priority policy matrix issues (Mounting Circular Debt, Insufficient Supply of Affordable Electricity, Inefficient Power Sector Operations and excessive sector energy losses, Poor Governance and management of pubic energy sector entities, Excessive Peak Demand in the Summer), **Type of Energy Policy** (Key MWP policies, Corporate Policies, Steps to create an independent central power purchasing agency, steps towards dissolutions of the Pakistan Electric Power Company, Key Ministries, MPNR, MOF, Generation, Transmission, Distribution, Regulation)

DATA COLLECTION, STORAGE, and ANALYSIS

Name of IP/ Responsible Party for Data Collection:	**Frequency of data collection:** *Enter how often the data will be collected (Weekly, Monthly, etc.)*
EPP	Monthly

Data Source: *Enter where IP obtains data (e.g. self-collected, GOP records or private sector).*	**Data Entry Frequency into PakInfo:** *Enter the anticipated frequency of regular data entry into PakInfo (e.g. Quarterly, Annually, etc.)*	**Responsible Party for Data Entry into PakInfo:** *Enter who will be responsible for inputting and submitting data via PakInfo.*
Self-collected	Quarterly	EPP

Data collection method: *Enter the tools and methods to be used for data collection and indicate for each method who (IP, USAID or third party) will collect the data. (e.g. telephone survey of household sample, reading assessment administered by third-party, sign-in sheets of training participants by IP)*

On a weekly basis, the policy technical teams for MOF, MWP, MPNR, PC, and NTDC report progress to the CCA Team regarding policy advisory support that they have provided. The CCA Team reviews progress made by advisory teams and determines if a policy counts towards the indicator. When confirmed by the CCA Team and technical policy team, the CCA Team collects supporting documentation in the form of published policies, agreements, training reports, terms of reference, reports, power purchase agreements, and legal acts/regulations put in place.

Data Analysis Plan: *Enter how the data will be analyzed, including description of methodology (e.g. descriptive, comparative, qualitative or quantitative) as well as who will participate in the data analysis process (e.g. activity manager, chief of party, other stakeholders, GOP representatives, etc.)*

To verify the data received from GOP partners regarding policy developments, the technical policy team will determine if the policy fulfills the PIR criteria, and submits supporting documentation to the CCA Team. Analysis of a policy requires the technical expertise of the policy team to determine the impact the policy has on the priority policy issues.

DATA QUALITY	
Data Quality Assessment (DQA): *Enter the date the DQA was conducted and the person who conducted the DQA*	
Date: *(MM/YY)*	**DQA completed by:**
06/14	MSI Monitoring and Evaluation Program
Key Data Quality Limitations (if any) and Actions Planned to Address Those Limitations: *Enter data limitations identified in the data quality assessment process related to the five quality standards, namely validity, integrity, precision, reliability and timeliness; discuss the significance of data weakness that may affect the conclusions about the extent to which performance goals have achieved; describe corrective actions planned or taken for addressing data weakness.*	
EPP will gather supporting documentation wherever possible and appropriate (certain documents which are confidential cannot be shared without GOP's consent). Feedback on implementation progress depends on the availability and veracity of input from other GOP stakeholders (factors beyond EPP's control). There is potential for under-reporting the indicator as additional policies/regulations may result from planned work; however, the CCA Team monitors policy team reports to find any additional policies/regulations.	

BASELINE		
Baseline Year: *(YYYY)*	**Baseline Data:**	**Reason for Postponement/Other Comments:** *If no baseline was established, enter the explanation and rationale for not establishing a baseline. Also indicate any other issues related to the baseline collection or data (such as rolling baselines or baselines from different sources rolling into one.*
2012	0	

TARGET		
Initial Life of Program Target:	**Date for Achievement of Initial Target:** *(MM/YY)*	**Date Initial Target was Set:** *(MM/YY)*
5 policies		02/12
Revised Life of Program Target:	**Date for Achievement of Revised Target:** *(MM/YY)*	**Date Revised Target was Set:** *(MM/YY)*
6 policies		7/14
2nd Revision to Life of Program Target:	**Date for Achievement of Revised Target:** *(MM/YY)*	**Date Revised Target was Set:** *(MM/YY)*

OTHER NOTES / NEXT STEPS
If the indicator is pending, explain why and expected date when collection will begin. As appropriate, indicate any other important information about the indicator and/or its data collection as well as actions needing to be taken.

CHANGES & UPDATES			
Date *(MM/YY)*	**Name** *Enter who made updates*	**Change or Update Made:**	**Reason for Change or Update:**
12/13	Richard Smith	Updated targets and definitions	Requested by USAID in December 2013
12/13	Richard Smith/EPP CCA Team	Updated data analysis plan language	Requested by USAID
6/14	EPP CCA Team	Updated data collection method, LOP target, and data analysis plan	Updated requested by MSI

1.2.2. (b): Number of Board Recommendations Following International Best Practices Implemented by Public Sector Entities

This indicator represents board recommendations following international best practices, which will lead to a more autonomous energy sector and improved energy sector governance.

Life of Program Target: 4 board recommendations

Contributing Entities	LOP Target	Achieved					Target FY 2015
		FY 2011	FY 2012	FY 2013	FY 2014	Total Achieved	
Business Plan for NTDC BOD	1	0	0	0	0	**0**	1
Human Resource Practices at NTDC	1	0	0	0	0	**0**	1
Business Plan for GENCO-II BOD	1	0	0	0	0	**0**	1
Business Plan for GENCO-III BOD	1	0	0	0	0	**0**	1
Total Board Recommendations	**4**	**0**	**0**	**0**	**0**	**0**	**4**

PERFORMANCE INDICATOR REFERENCE SHEET (PIRS)			
Indicator - *# and Title*: 1.2.2-b Number of board recommendations following international best practices implemented by public sector entities			
Development Objective (DO) - *# and Title*: 1 Increased Sustainable Energy Supplied To Economy			
Intermediate Result (IR) - *# and Title*: 1.2 Improved Energy Sector Governance			
Sub-Intermediate Result (Sub-IR) - *# and Title*: 1.2.2 More Autonomous Energy Sector Entities			
Relationship between the Sub-IR and IR or IR and DO: *Enter the explanation of the linkage between the lowest level of result represented by the indicator, and the next level of result up; address the "so what?" question to move from outputs to outcomes, or outcomes to impact; explain in terms of the development hypotheses, do not simply restate the structure of the Results Framework.*			
Board recommendations made that are according to international best practices will lead to a more autonomous energy sector which in turn will improve energy sector governance			
INDICATOR DESCRIPTION			
Precise Definition(s): *Enter the precise definition of the indicator so it can be operationalized; define all terms, elements, implied actions and calculations; [for example, "farmers using better production techniques" – define "better production" and "techniques". Describe how this will be determined – e.g. Index, scale, standards]. For indicators that are percent or proportions explain how it will be calculated and what will serve as the numerator and denominator. If the indicator is cumulative, made up of stages or phases, or is a yes-no, please specify this and explain the stages/phases or how it is cumulative. If it is a Standard Program Structure ("F") Indicator, use and if necessary, refine the standard definition.*			
Energy enterprises include generation companies, NTDC, CPPA and distribution companies. Recommendations made by their respective Boards of Directors are indicative of improved business operations and will result in revenue enhancement, profitability, and investments in O & M and/or capital improvements.			
Unit of Measure:	**Type of Indicator:**	**Category:**	**Desired Direction:**
Enter unit of measure (e.g. "number of___", "percent of ___" etc.)	*Enter "output", "outcome" or "impact".*	*Enter "Standard F" or "Custom"* / *If "Standard F indicator", enter the number*	*Enter "increasing", "decreasing" or 'static" to indicate the direction of success result.*
Number of board recommendations	Outcome	Custom	Increasing

Aggregation Process: *If indicator will be collected by more than one source, explain how the data will aggregate across these multiple sources (e.g. in the case of # of jobs, demonstrate how data definitions for what is counted as a "job" is consistently interpreted across sources and specify that he data reported by each partner will be added together for a combined total; or in the case of a stage of phase indicator, state how data from different partners will combine into one final data). Also specify the timeline for aggregation (e.g. all sources will be added together each quarter).*
All data are added together across all data collection/reporting entities. Common collection instruments will be established across all data collection/reporting entities.
Disaggregates: *Enter all disaggregation titles/ categories and values (e.g. title: Household Head Type; values: Female no Male Adult households, Male no Female Adults households, Male and Female Adult households, Child no Adult households.)*
USAID/Pakistan priority policy matrix issues, (Mounting Circular Debt, Insufficient Supply of Affordable Electricity, Inefficient Power Sector Operations and excessive sector energy losses, Poor Governance and management of pubic energy sector entities, Excessive Peak Demand in the Summer), **Public Sector Energy Entities** (DISCOs, Karachi Water and Sewerage Board, Islamabad CDA, GENCOs, NTDC)

DATA COLLECTION, STORAGE, and ANALYSIS		
Name of IP/ Responsible Party for Data Collection:	**Frequency of data collection:** *Enter how often the data will be collected (Weekly, Monthly, etc.)*	
EPP	Monthly	
Data Source: *Enter where IP obtains data (e.g. self-collected, GOP records or private sector).*	**Data Entry Frequency into PakInfo:** *Enter the anticipated frequency of regular data entry into PakInfo (e.g. Quarterly, Annually, etc.)*	**Responsible Party for Data Entry into PakInfo:** *Enter who will be responsible for inputting and submitting data via PakInfo.*
Self-collected	Quarterly	EPP

Data collection method: *Enter the tools and methods to be used for data collection and indicate for each method who (IP, USAID or third party) will collect the data. (e.g. telephone survey of household sample, reading assessment administered by third-party, sign-in sheets of training participants by IP)*
On a weekly basis, the policy technical teams for MOF, MWP, MPNR, PC, and NTDC report progress to the CCA Team regarding policy advisory support that they have provided. The CCA Team reviews progress made by advisory teams and determines if a policy counts towards the indicator. When confirmed by the CCA Team and technical policy team, the CCA Team collects supporting documentation in the form of published policies, agreements, training reports, terms of reference, reports, power purchase agreements, and legal acts/regulations put in place.
Data Analysis Plan: *Enter how the data will be analyzed, including description of methodology (e.g. descriptive, comparative, qualitative or quantitative) as well as who will participate in the data analysis process (e.g. activity manager, chief of party, other stakeholders, GOP representatives, etc.)*
To verify the data received from GOP partners regarding board recommendations, the technical policy team will determine if the recommendation fulfills the PIR criteria and submit supporting documentation to the CCA Team. Analysis of a policy requires the technical expertise of the policy team to determine the impact the recommendation has on the board.

DATA QUALITY	
Data Quality Assessment (DQA): *Enter the date the DQA was conducted and the person who conducted the DQA*	
Date: *(MM/YY)*	**DQA completed by:**
06/14	MSI Monitoring and Evaluation Program
Key Data Quality Limitations (if any) and Actions Planned to Address Those Limitations: *Enter data limitations identified in the data quality assessment process related to the five quality standards, namely validity, integrity, precision, reliability and timeliness; discuss the significance of data weakness that may affect the conclusions about the extent to which performance goals have achieved; describe corrective actions planned or taken for addressing data weakness.*	
EPP will gather supporting documentation wherever possible and appropriate (certain documents which are confidential cannot be shared without GOP's consent). Feedback on implementation progress depends on the availability and veracity of input from other GOP stakeholders (factors beyond EPP's control). There is potential for under-reporting the indicator as additional policies/regulations may result from planned work; however, the CCA Team monitors policy team reports to find any additional policies/regulations.	

BASELINE		
Baseline Year: *(YYYY)*	**Baseline Data:**	**Reason for Postponement/Other Comments:** *If no baseline was established, enter the explanation and rationale for not establishing a baseline. Also indicate any other issues related to the baseline collection or data (such as rolling baselines or baselines from different sources rolling into one.*
2012	0	

TARGET		
Initial Life of Program Target:	**Date for Achievement of Initial Target:** *(MM/YY)*	**Date Initial Target was Set:** *(MM/YY)*
4 board recommendations		02/12
Revised Life of Program Target:	**Date for Achievement of Revised Target:** *(MM/YY)*	**Date Revised Target was Set:** *(MM/YY)*
2nd Revision to Life of Program Target:	**Date for Achievement of Revised Target:** *(MM/YY)*	**Date Revised Target was Set:** *(MM/YY)*

OTHER NOTES / NEXT STEPS
If the indicator is pending, explain why and expected date when collection will begin. As appropriate, indicate any other important information about the indicator and/or its data collection as well as actions needing to be taken.

CHANGES & UPDATES			
Date *(MM/YY)*	**Name** *Enter who made updates*	**Change or Update Made:**	**Reason for Change or Update:**
12/13	Richard Smith	Revised target to match EPP records and updated data collection method	Requested by USAID in December 2013
12/13	Richard Smith/EPP CCA Team	Updated data analysis plan language	Requested by USAID
6/14	EPP CCA Team	Updated data analysis plan, data collection method, and data limitations	Clarification requested by MSI

1.2.3 (a): Number of Best Practice-driven Systems Created, Improved, and Implemented

This indicator anticipates that a greater number of best practice-driven business systems adopted will lead to improved capacity of public sector entities.

Life of Program Target: 10 systems created, improved and implemented

Contributing Entities	LOP Target	Achieved					Target FY 2015
		FY 2011	FY 2012	FY 2013	FY 2014	Total Achieved	
Meter Calibration at JTPS	1	0	0	1	0	1	0
Meter Calibration at MTPS	1	0	0	1	0	1	0
Meter Calibrations at GTPS	1	0	0	1	0	1	0
Heat Rate Test at JTPS	1	0	0	1	0	1	0
Heat Rate Test at MTPS	1	0	0	0	1	1	0
Heat Rate Test at GTPS	1	0	0	0	0	**0**	1
Performance Efficiency Improvement	1	0	0	0	0	**0**	1
Design Center Rehabilitation for NTDC	1	0	0	0	0	**0**	1
SAN Network for CPPA	1	0	0	0	0	**0**	1
Enterprise Resource Planning	1	0	0	0	0	**0**	1
Total No. of Systems	**10**	**0**	**0**	**4**	**1**	**5**	**5**

PERFORMANCE INDICATOR REFERENCE SHEET (PIRS)
Indicator *- # and Title*: 1.2.3.a - Number of best practice-driven systems created, improved, and implemented
Development Objective (DO) *- # and Title*: 1 Increased Sustainable Energy Supplied to the Economy
Intermediate Result (IR) *- # and Title*: 1.2 Improved Energy Sector Governance
Sub-Intermediate Result (Sub-IR) *- # and Title*: 1.2.3. Improved Capacity of USAID-Supported Energy Public-Sector Entities
Relationship between the Sub-IR and IR or IR and DO: *Enter the explanation of the linkage between the lowest level of result represented by the indicator, and the next level of result up; address the "so what?" question to move from outputs to outcomes, or outcomes to impact; explain in terms of the development hypotheses, do not simply restate the structure of the Results Framework.*
The productivity and accountability of the organization would be improved resulting in a better organization that has better operational capability, resulting in increased energy supplied to economy.
INDICATOR DESCRIPTION
Precise Definition(s): *Enter the precise definition of the indicator so it can be operationalized; define all terms, elements, implied actions and calculations; [for example, "farmers using better production techniques" – define "better production" and "techniques". Describe how this will be determined – e.g. Index, scale, standards]. For indicators that are percent or proportions explain how it will be calculated and what will serve as the numerator and denominator. If the indicator is cumulative, made up of stages or phases, or is a yes-no, please specify this and explain the stages/phases or how it is cumulative. If it is a Standard Program Structure ("F") Indicator, use and if necessary, refine the standard definition.*
This indicator measures the number of 'best practice' driven systems created, improved or implemented by USG assistance to improve the performance of GOP partners. Best practices include revenue enhancement, profitability, and investments in operations and Management and/or capital improvements that will improve the capacity of public-sector enterprises.

Unit of Measure:	Type of Indicator:	Category:		Desired Direction:
Enter unit of measure (e.g. "number of___", "percent of ___" etc.)	*Enter "output", "outcome" or "impact".*	*Enter "Standard F" or "Custom"*	*If "Standard F indicator", enter the number*	*Enter "increasing", "decreasing" or 'static" to indicate the direction of success result.*
Number of systems	Outcome	Custom		Increasing

Aggregation Process: *If indicator will be collected by more than one source, explain how the data will aggregate across these multiple sources (e.g. in the case of # of jobs, demonstrate how data definitions for what is counted as a "job" is consistently interpreted across sources and specify that he data reported by each partner will be added together for a combined total; or in the case of a stage of phase indicator, state how data from different partners will combine into one final data). Also specify the timeline for aggregation (e.g. all sources will be added together each quarter).*

All data are added together across all data collection/reporting entities. Common collection instruments will be established across all data collection/reporting entities.

Disaggregates: *Enter all disaggregation titles/ categories and values (e.g. title: Household Head Type; values: Female no Male Adult households, Male no Female Adults households, Male and Female Adult households, Child no Adult households.)*

Public Sector Entity (Faisalabad Electric Supply Company, Gujranwala Electric Power Company, Hyderabad Electric Supply Company, Islamabad Electric Supply Company, Lahore Electric Supply Company

Multan Electric Power Company, Peshawar Electric Supply Company, Quetta Electric Supply Company

Sukkur Electric Power Company, Jamshoro Power Company Limited (JPCL), Central Power Generation Company Limited (CPGCL), Northern Power Generation Company Limited (NPGCL) National Transmission and Despatch Center), **Systems Type** (Enterprise Resource Planning (ERP), Human Resource Information System (HRIS), Customer information System (CIS), Cost of Service Model, Load Data Improvement (LDI) at Grids , Automatic Meter Reading Systems (AMR's), Performance Management System (PMS)

DATA COLLECTION, STORAGE, and ANALYSIS

Name of IP/ Responsible Party for Data Collection:	Frequency of data collection: *Enter how often the data will be collected (Weekly, Monthly, etc.)*
EPP	Quarterly

Data Source: *Enter where IP obtains data (e.g. self-collected, GOP records or private sector).*	Data Entry Frequency into PakInfo: *Enter the anticipated frequency of regular data entry into PakInfo (e.g. Quarterly, Annually, etc.)*	Responsible Party for Data Entry into PakInfo: *Enter who will be responsible for inputting and submitting data via PakInfo.*
GOP	Quarterly	EPP

Data collection method: *Enter the tools and methods to be used for data collection and indicate for each method who (IP, USAID or third party) will collect the data. (e.g. telephone survey of household sample, reading assessment administered by third-party, sign-in sheets of training participants by IP)*

On a weekly basis, the policy technical teams for MOF, MWP, MPNR, PC, and NTDC report progress to the CCA Team regarding policy advisory support. The CCA Team reviews progress made by advisory teams and determines if a system counts towards the indicator. When confirmed by the CCA Team and technical policy team, the CCA Team collects supporting documentation in the form of published policies, agreements, training reports, terms of reference, testing reports, reports, power purchase agreements, and legal acts/regulations put in place.

Data Analysis Plan: *Enter how the data will be analyzed, including description of methodology (e.g. descriptive, comparative, qualitative or quantitative) as well as who will participate in the data analysis process (e.g. activity manager, chief of party, other stakeholders, GOP representatives, etc.)*

To verify the data received from GOP partners regarding policy developments, the technical policy team will determine if the system fulfills the PIR criteria and submit supporting documentation to the CCA Team. Analysis of a system requires the technical expertise of the policy team to determine the impact the system has on improving capacity.

DATA QUALITY	
Data Quality Assessment (DQA): *Enter the date the DQA was conducted and the person who conducted the DQA*	
Date: *(MM/YY)*	**DQA completed by:**
11/12	Monitoring and Evaluation Program (DQA conducted for EPP and PDP)
06/14	MSI Monitoring and Evaluation Program
Key Data Quality Limitations (if any) and Actions Planned to Address Those Limitations: *Enter data limitations identified in the data quality assessment process related to the five quality standards, namely validity, integrity, precision, reliability and timeliness; discuss the significance of data weakness that may affect the conclusions about the extent to which performance goals have achieved; describe corrective actions planned or taken for addressing data weakness.*	
Delays in procurement processes can lead to a delay in the delivery of Design Center rehabilitation, SAN Network, and Performance Efficiency Improvement programs.	

BASELINE		
Baseline Year: *(YYYY)*	**Baseline Data:**	**Reason for Postponement/Other Comments:** *If no baseline was established, enter the explanation and rationale for not establishing a baseline. Also indicate any other issues related to the baseline collection or data (such as rolling baselines or baselines from different sources rolling into one.*
2012	0	

Initial Life of the Program Target:	**Date for Achievement of Initial Target:** *(MM/YY)*	**Date Initial Target was Set:** *(MM/YY)*
10 systems		2/12
Revised Life of the Program Target:	**Date for Achievement of Revised Target:** *(MM/YY)*	**Date Revised Target was Set:** *(MM/YY)*
2nd Revision to Life of the Program Target:	**Date for Achievement of Revised Target:** *(MM/YY)*	**Date Revised Target was Set:** *(MM/YY)*

OTHER NOTES / NEXT STEPS
If the indicator is pending, explain why and expected date when collection will begin. As appropriate, indicate any other important information about the indicator and/or its data collection as well as actions needing to be taken.

CHANGES & UPDATES			
Date *(MM/YY)*	**Name** *Enter who made updates*	**Change or Update Made:**	**Reason for Change or Update:**
12/13	Richard Smith	Updated targets and definitions	Requested by USAID on December 11, 2013.
12/13	Richard Smith	Updated data analysis plan language and key limitations	Requested by USAID
06/14	EPP CCA Team	Updated analysis, limitations	Post DQA review from MSI asked for clarification.

1.2.4 (b): Number of Public Forums Resulting from USG Assistance in which Government Officials and Citizens Interact

Description of Indicator: This indicator represents EPP's ability to connect the citizens with government officials, generate awareness, and transfer knowledge to the public regarding the state of the energy sector.

Life of Program Target: 12 forums

Contributing Entities	LOP Target	Achieved					Target FY 2015
		FY 2011	FY 2012	FY 2013	FY 2013	Total Achieved	
Energy Seminar at UET, Taxila	1	0	0	1	0	1	0
Energy Seminar at BZU, Multan	1	0	0	1	0	1	0
Energy Seminar at WAPDA College, Guddu	1	0	0	1	0	1	0
Energy Seminar at SBKWU, Balochistan	1	0	0	1	0	1	0
Energy Seminar at FUUAST, Islamabad	1	0	0	1	0	1	0
LNG Imports Forum	1	0	0	0	0	0	1
Women in Pakistan's Power Sector Forum	1	0	0	0	0	0	1
Shale Gas in Diversification of Pakistan's Fuel Mix Forum	1	0	0	0	0	0	1
Economic Impacts of Load Shedding Forum	1	0	0	0	0	0	1
Hydroelectric Generation Forum	1	0	0	0	0	0	1
Pakistan's Transmission Network Forum	1	0	0	0	0	0	1
Increasing Electricity through Repair & Rehabilitation Forum	1	0	0	0	0	0	1
Total No. of Public Forums	**12**	**0**	**0**	**5**	**0**	**5**	**7**

PERFORMANCE INDICATOR REFERENCE SHEET (PIRS)
Indicator *- # and Title*: 1.2.4-b Number of public forums resulting from USG assistance in which Government officials and citizens interact
Development Objective (DO) *- # and Title*: 1 Increased Energy Supplied to the Economy
Intermediate Result (IR) *- # and Title*: 2 Improved Energy Sector Governance
Sub-Intermediate Result (Sub-IR) *- # and Title*: 2.4 Increased Constructive Civil Society Engagement in the Energy Sector
Relationship between the Sub-IR and IR or IR and DO: *Enter the explanation of the linkage between the lowest level of result represented by the indicator, and the next level of result up; address the "so what?" question to move from outputs to outcomes, or outcomes to impact; explain in terms of the development hypotheses, do not simply restate the structure of the Results Framework.*
Keeping stakeholders informed about the issues and challenges of energy sector reform will be an important element of a constructive engagement strategy. Informed stakeholders can support the needed reforms and improve sector governance.

INDICATOR DESCRIPTION				
Precise Definition(s): *Enter the precise definition of the indicator so it can be operationalized; define all terms, elements, implied actions and calculations; [for example, "farmers using better production techniques" – define "better production" and "techniques". Describe how this will be determined – e.g. Index, scale, standards]. For indicators that are percent or proportions explain how it will be calculated and what will serve as the numerator and denominator. If the indicator is cumulative, made up of stages or phases, or is a yes-no, please specify this and explain the stages/phases or how it is cumulative. If it is a Standard Program Structure ("F") Indicator, use and if necessary, refine the standard definition.*				
Increased stakeholders' engagement conducted through interactive events such as workshops and seminars to help enhance understanding of the energy crisis and proposed solutions.				
Unit of Measure:	**Type of Indicator:**	**Category:**		**Desired Direction:**
Enter unit of measure (e.g. "number of___", "percent of ___" etc.)	*Enter "output", "outcome" or "impact".*	*Enter "Standard F" or "Custom"*	*If "Standard F indicator", enter the number*	*Enter "increasing", "decreasing" or 'static" to indicate the direction of success result.*
Number of Public forums	Output	Custom		Increasing
Aggregation Process: *If indicator will be collected by more than one source, explain how the data will aggregate across these multiple sources (e.g. in the case of # of jobs, demonstrate how data definitions for what is counted as a "job" is consistently interpreted across sources and specify that he data reported by each partner will be added together for a combined total; or in the case of a stage of phase indicator, state how data from different partners will combine into one final data). Also specify the timeline for aggregation (e.g. all sources will be added together each quarter).*				
All data are added together across all data collection/reporting entities. Common collection instruments will be established across all data collection/reporting entities.				
Disaggregates: *Enter all disaggregation titles/ categories and values (e.g. title: Household Head Type; values: Female no Male Adult households, Male no Female Adults households, Male and Female Adult households, Child no Adult households.)*				
Geographic locations (cities/Districts/Province) **Institutions**, **Sex** (Male, Female), and **Priority Policy Matrix Issue** (Mounting Circular Debt, Insufficient Supply of Affordable Electricity, Inefficient Power Sector Operations and excessive sector energy losses, Poor Governance and management of pubic energy sector entities, Excessive Peak Demand in the Summer)				
DATA COLLECTION, STORAGE, and ANALYSIS				
Name of IP/ Responsible Party for Data Collection:		**Frequency of data collection:** *Enter how often the data will be collected (Weekly, Monthly, etc.)*		
EPP		Monthly		
Data Source: *Enter where IP obtains data (e.g. self-collected, GOP records or private sector).*	**Data Entry Frequency into PakInfo:** *Enter the anticipated frequency of regular data entry into PakInfo (e.g. Quarterly, Annually, etc.)*		**Responsible Party for Data Entry into PakInfo:** *Enter who will be responsible for inputting and submitting data via PakInfo.*	
Self-collected	Quarterly		EPP	
Data collection method: *Enter the tools and methods to be used for data collection and indicate for each method who (IP, USAID or third party) will collect the data. (e.g. telephone survey of household sample, reading assessment administered by third-party, sign-in sheets of training participants by IP)*				
EPP's CCA Team collects sign-in sheets, final agendas, evaluations, presentation materials, and/or press materials at the conclusion of all public forums and training activities Additionally, all training data will be entered into TraiNet within 30 days of completion.				
Data Analysis Plan: *Enter how the data will be analyzed, including description of methodology (e.g. descriptive, comparative, qualitative or quantitative) as well as who will participate in the data analysis process (e.g. activity manager, chief of party, other stakeholders, GOP representatives, etc.)*				
Prior to quarterly reporting, all public forums listed in TraiNet will be cross verified by the CCA Team to make sure all data collection materials are recorded and accessible. In the event documentation is not available, the CCA Team will work with the relevant public forum project manager to retrieve missing documentation or attendance records.				

DATA QUALITY	
Data Quality Assessment (DQA): *Enter the date the DQA was conducted and the person who conducted the DQA*	
Date: *(MM/YY)* 06/14	**DQA completed by:** MSI Monitoring and Evaluation Program
Key Data Quality Limitations (if any) and Actions Planned to Address Those Limitations: *Enter data limitations identified in the data quality assessment process related to the five quality standards, namely validity, integrity, precision, reliability and timeliness; discuss the significance of data weakness that may affect the conclusions about the extent to which performance goals have achieved; describe corrective actions planned or taken for addressing data weakness.*	
Some forums do not allow for sign-in sheets easily; however, EPP collects feedback forms at the end of the program that will determine the total number of attendees.	

BASELINE		
Baseline Year: *(YYYY)*	**Baseline Data:**	**Reason for Postponement/Other Comments:** *If no baseline was established, enter the explanation and rationale for not establishing a baseline. Also indicate any other issues related to the baseline collection or data (such as rolling baselines or baselines from different sources rolling into one.*
2012	0	

TARGET		
Initial Life of Program Target:	**Date for Achievement of Initial Target:** *(MM/YY)*	**Date Initial Target was Set:** *(MM/YY)*
12 public forums		02/12
Revised Life of Program Target:	**Date for Achievement of Revised Target:** *(MM/YY)*	**Date Revised Target was Set:** *(MM/YY)*
2nd Revision to Life of Program Target:	**Date for Achievement of Revised Target:** *(MM/YY)*	**Date Revised Target was Set:** *(MM/YY)*

OTHER NOTES / NEXT STEPS
If the indicator is pending, explain why and expected date when collection will begin. As appropriate, indicate any other important information about the indicator and/or its data collection as well as actions needing to be taken.

CHANGES & UPDATES			
Date *(MM/YY)*	**Name** *Enter who made updates*	**Change or Update Made:**	**Reason for Change or Update:**
12/13	Richard Smith	Updated target and collection method and updated data analysis plan language	Requested by USAID in December 2013

1.2 (c): USG Contributions to GDP through Generation and Transmission Improvements

Description of Indicator: This indicator represents the USG contributions to GDP through generation and transmission improvements causing a direct impact to the economy. The USG contribution to GDP equals the total addition of MWs from generation and transmission improvements multiplied by the total energy added through Generation and throughput capacity increase in Transmission interventions (considering losses and availability factor) kWh multiplied by the average cost of unserved energy to the economy[10].

Life of Program Target: US$ contributions to GDP = 2,829 Million

Contributing Entities	TOTAL MWs	LOP Target	Achieved					
		(US$)	FY 2011	FY 2012	FY 2013	FY 2014	Total Achieved	Target FY 2015
Generation	863	1,659,888,332	698,191,732	146,177,883	911,688,377	192,339,320	1,948,397,312	0
Transmission-Throughput Capacity	428	1,137,531,552	0	0	201,991,584	725,840,810	927,832,394	316,276,296
Transmission – Added/Saved	12	31,893,408	0	0	15,946,704	0	15,946,704	15,946,704
TOTAL (US$)	**1,303**	**2,829,313,292**	**698,191,732**	**146,177,883**	**1,129,626,665**	**918,180,130**	**2,892,176,410**	**332,223,000**

PERFORMANCE INDICATOR REFERENCE SHEET (PIRS)
Indicator *- # and Title*: 1.2.c. USG Contributions to GDP through Generation and Transmission Improvements
Development Objective (DO) *- # and Title*: 1 Increased Sustainable Energy Supplied to the Economy
Intermediate Result (IR) *- # and Title*: 1.2: Improved Energy Sector Governance
Sub-Intermediate Result (Sub-IR) *- # and Title*: N/A
Relationship between the Sub-IR and IR or IR and DO: *Enter the explanation of the linkage between the lowest level of result represented by the indicator, and the next level of result up; address the "so what?" question to move from outputs to outcomes, or outcomes to impact; explain in terms of the development hypotheses, do not simply restate the structure of the Results Framework.*
USG contributions to GDP (output) accounts as an effective measure for addition of MWs from generation and transmission improvements (input), total energy added through Generation and throughput capacity increase in Transmission interventions (considering losses) kWh, and average cost of unserved energy to the economy. Increase in USG contributions to GDP helps curtail problems in Pakistan's energy sector; such as, poor governance, poor policy implementation (IR 2) and the inefficient operations and business practices of public sector enterprises (IR 1) that are unable to generate the resources to meet growing demands for electricity in a sustainable way.

[10] *Study on Economic Impact of Load shedding, conducted by Dr. Hafiz Pasha 2013.*

INDICATOR DESCRIPTION				
Precise Definition(s): *Enter the precise definition of the indicator so it can be operationalized; define all terms, elements, implied actions and calculations; [for example, "farmers using better production techniques" – define "better production" and "techniques". Describe how this will be determined – e.g. Index, scale, standards]. For indicators that are percent or proportions explain how it will be calculated and what will serve as the numerator and denominator. If the indicator is cumulative, made up of stages or phases, or is a yes-no, please specify this and explain the stages/phases or how it is cumulative. If it is a Standard Program Structure ("F") Indicator, use and if necessary, refine the standard definition.*				
USG contributions to GDP is a resultant of the increased energy supply to Pakistan's economy due to USG assistance through generation and transmission improvements in the energy sector; leading to an increase in total Gross Domestic Product (GDP) of the economy.				
Unit of Measure:	**Type of Indicator:**	**Category:**		**Desired Direction:**
Enter unit of measure (e.g. "number of___", "percent of ___" etc.)	*Enter "output", "outcome" or "impact".*	*Enter "Standard F" or "Custom"*	*If "Standard F indicator", enter the number*	*Enter "increasing", "decreasing" or 'static" to indicate the direction of success result.*
USG Contribution to GDP	Outcome	Custom		Increasing
Aggregation Process: *If indicator will be collected by more than one source, explain how the data will aggregate across these multiple sources (e.g. in the case of # of jobs, demonstrate how data definitions for what is counted as a "job" is consistently interpreted across sources and specify that he data reported by each partner will be added together for a combined total; or in the case of a stage of phase indicator, state how data from different partners will combine into one final data). Also specify the timeline for aggregation (e.g. all sources will be added together each quarter).*				
All data are added together across all data collection/reporting entities. Common collection instruments will be established across all data collections/reporting entities.				
Disaggregates: *Enter all disaggregation titles/ categories and values (e.g. title: Household Head Type; values: Female no Male Adult households, Male no Female Adults households, Male and Female Adult households, Child no Adult households.)*				
Type of Energy Power Plant Generation MWs Transmission Added/Saved MWs Transmission Throughput Capacity MWs				

DATA COLLECTION, STORAGE, and ANALYSIS		
Name of IP/ Responsible Party for Data Collection:	**Frequency of data collection:** *Enter how often the data will be collected (Weekly, Monthly, etc.)*	
EPP	Quarterly	
Data Source: *Enter where IP obtains data (e.g. self-collected, GOP records or private sector).*	**Data Entry Frequency into PakInfo:** *Enter the anticipated frequency of regular data entry into PakInfo (e.g. Quarterly, Annually, etc.)*	**Responsible Party for Data Entry into PakInfo:** *Enter who will be responsible for inputting and submitting data via PakInfo.*
GOP	Quarterly	EPP

Data collection method: *Enter the tools and methods to be used for data collection and indicate for each method who (IP, USAID or third party) will collect the data. (e.g. telephone survey of household sample, reading assessment administered by third-party, sign-in sheets of training participants by IP)*

USG contributions to GDP are derived from the total generation, transmission MWs added/saved and transmission throughput capacity MWs as a result of USG assistance through the Energy Policy Program (EPP). The data for MW gains and throughput capacity will be gathered with support from GOP partners and verified by EPP's technical experts. EPP will review and inspect during onsite inspections and validate the data under operational conditions.

For Generation MWs: On a weekly basis, EPP's generation technical team, consisting of engineers and senior energy experts in thermal and hydro generation, monitors ongoing project activities at the 7 G2G signature projects. Prior to an installation or system improvement, the plant's staff produces a log sheet for the unit to show current MW capacity. Once the installation or system improvement is implemented, the plant's staff produces a post-installation log sheet to show any MWs gained as a result of USG assistance. The log sheets are sent to EPP's generation technical team for review and calculation, and ultimately verification.

For Transmission MWs: On a weekly basis, EPP's transmission technical team, consisting of engineers and senior energy and transmission experts, monitors ongoing project activities with respect to NTDC and PESCO. Prior to an installation or system improvement, the transmission technical team receives an activity acceptance letter stating the requested equipment and MVA capacity. After installation, the transmission technical team verifies installation with NTDC or PESCO with an onsite visit. For this indicator, EPP collects transmission MWs added/saved to the energy sector in addition to the throughput capacity MWs.

Data Analysis Plan: *Enter how the data will be analyzed, including description of methodology (e.g. descriptive, comparative, qualitative or quantitative) as well as who will participate in the data analysis process (e.g. activity manager, chief of party, other stakeholders, GOP representatives, etc.)*

Total USG contributions to GDP from EPP additions to Generation: (Remaining energy after losses per year from 1 MW (kWh/yr.) X Cost per kwh) X (Total Generation MWs)

Total USG contributions to GDP from EPP additions to Transmission: (Remaining energy after losses per year from 1 MW (kWh/yr.) X Cost per kwh) X (Total Transmission Added/Saved MWs + Throughput Capacity MWs)

* Generation: (Remaining energy after losses per year from 1 MW (kwh/yr.) X Cost per kWh) = 5,198,360 X $0.37

*Transmission: (Remaining energy after losses per year from 1 MW (kwh/yr.) X Cost per kWh) = 7,183,200 X $0.37

** Figures extracted from the study on Economic Impact of Load shedding, conducted by Dr. Hafiz Pasha 2013*

DATA QUALITY

Data Quality Assessment (DQA)*: Enter the date the DQA was conducted and the person who conducted the DQA*

Date: *(MM/YY)*	**DQA completed by:**

Key Data Quality Limitations (if any) and Actions Planned to Address Those Limitations: *Enter data limitations identified in the data quality assessment process related to the five quality standards, namely validity, integrity, precision, reliability and timeliness; discuss the significance of data weakness that may affect the conclusions about the extent to which performance goals have achieved; describe corrective actions planned or taken for addressing data weakness.*

EPP will gather supporting documentation wherever possible and appropriate (certain documents which are confidential cannot be shared without GOP's consent). Feedback on implementation progress depends on the availability and veracity of input from other GOP stakeholders (factors beyond EPP's control).

BASELINE		
Baseline Year: *(YYYY)*	**Baseline Data:**	**Reason for Postponement/Other Comments:** *If no baseline was established, enter the explanation and rationale for not establishing a baseline. Also indicate any other issues related to the baseline collection or data (such as rolling baselines or baselines from different sources rolling into one.*
FY 2012	0	

TARGET		
Initial Life of Program Target:	**Date for Achievement of Initial Target:** *(MM/YY)*	**Date Initial Target was Set:** *(MM/YY)*
$2,829 million		09/14
Revised Life of Program Target:	**Date for Achievement of Revised Target:** *(MM/YY)*	**Date Revised Target was Set:** *(MM/YY)*
2nd Revision to Life of Program Target:	**Date for Achievement of Revised Target:** *(MM/YY)*	**Date Revised Target was Set:** *(MM/YY)*

OTHER NOTES / NEXT STEPS
If the indicator is pending, explain why and expected date when collection will begin. As appropriate, indicate any other important information about the indicator and/or its data collection as well as actions needing to be taken.
EPP developed 1.2.c as a new indicator to reflect the financial impact in terms of USG contribution on Pakistan's economy as a result of USG assistance through generation and transmission improvements on September 2014. The intention of the new indicator was to highlight the direct impact on Pakistan's economy due to EPP's efforts in the energy sector.

CHANGES & UPDATES			
Date *(MM/YY)*	**Name** *Enter who made updates*	**Change or Update Made:**	**Reason for Change or Update:**
09/14	EPP CCA Team	Addition of a new indicator	Developed a new indicator to reflect USG contribution to Pakistan's GDP as a result of USG assistance.

Annex V: Data Evaluation Grading

EPP evaluates data on a quarterly basis using the following grading sheet:

S. No	Elements of Data Quality	Acceptable?		Comments
		Yes	No	
VALIDITY – Data should clearly and adequately represent the intended result.				
1	Face Validity: Would an outsider or an expert in the field agree that the indicator measures the result it is expected to measure? If the linkage is nots self-evident (for example, when using a proxy) is the rationale sound, grounded in analysis, and clearly articulated in the PMP?			
2	Attribution: Does the indicator measure the contribution of the project? For example, an indicator that measures changes at the national level is not usually appropriate for a project targeting a few areas or a particular segment of the population.			
3	Unbiased Data: Are there any measurement errors that could bias the data? Both sampling and non-sampling errors are areas where bias should be examined. Sampling errors apply to surveys. One key question is whether the sample surveyed is representative of the target group. Non-sampling error is a second type of measurement error. For example, if the survey instrument itself is not well designed (e.g. questions are not clear and direct) or if there are incentives for respondents to give incomplete or untruthful information, the resulting data may be biased.			
INTEGRITY – Data collected should have safeguards to minimize the risk of transcription error or data manipulation.				
1	Are procedures or safeguards in place to minimize data transcription errors? Are steps being taken to limit transcription error?			
2	Is there independence in key data collection, management, and assessment procedures?			
3	Are mechanisms in place to prevent unauthorized changes to the data?			
4	Is there an independent review of results reported?			
PRECISION – Data have a sufficient level of detail to permit management decision-making; e.g., the margin of error is less than the anticipated change.				
1	Has the margin of error been reported along with the data? (Only applicable to results obtained through statistical samples.)			
2	Is the margin of error less than the expected change being measured? (E.g. If a change of only 2% is expected and the margin of error in a survey used to collect the data is +/- 5%, then the tool is not precise enough to detect the change.)			

S. No	Elements of Data Quality	Acceptable?		Comments
		Yes	No	
3	Is the data collection method/tool being used to collect the data fine-tuned or exact enough to register the expected change? (e.g., a yardstick may not be a precise enough tool to measure a change of a few millimeters.)			
4	Is there a method for detecting duplicate data?			
5	Is there a method for detecting missing data?			
RELIABILITY – Data should reflect stable and consistent data collection processes and analysis methods over time.				
1	Is a consistent data collection process used from time to time, location to location, data source to data source (if data come from different sources)?			
2	Is the same instrument used to collect data from time to time, location to location? If data come from different sources, are the instruments similar enough that the reliability of the data are not compromised?			
3	Is the same sampling method used from time to time, location to location, data source to data source?			
4	Have the majority of key M&E and data-management staff received the required training?			
5	Are key M&E and data-management staff identified with clearly assigned responsibilities?			
6	Are data collection, cleaning, analysis, reporting, and quality assessment procedures documented in writing?			
7	Are data limitations and quality problems clearly described in final reports?			
TIMELINESS – Data should be available at a useful frequency, should be current, and should be timely enough to influence management decision-making.				
1	Are data available frequently enough to inform program management decisions?			
2	Are the data reported, the most current?			
3	Are the data reported as soon as possible after collection?			

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