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ENERGY POLICY PROJECT - II QUARTERLY PROGRESS REPORT

OCTOBER - DECEMBER 2012



December 2012

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USAID/PAKISTAN: ENERGY POLICY PROJECT (EPP)

Quarterly Report: October - December 2012

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Acronyms

ADB	Asian Development Bank
AEAI	Advanced Engineering Associates International
AEDB	Alternate Energy Development Board
CCGT	Combined Cycle Gas Turbine
CPGCL	Central Power Generation Company, Ltd
CPPA	Central Power Purchasing Agency
DISCO	Distribution Company
ECC	Economic Coordination Committee
EMMP	Environmental Monitoring and Mitigation Plan
EPP	Energy Policy Project
FARA	Fixed Amount Reimbursable Agreement
FESCO	Faisalabad Electric Supply Company
GE	General Electric
GENCO	Generation Company
GOP	Government of Pakistan
GTPS	Guddu Thermal Power Station
GZDP	Gomal Zam Dam Project
IESCO	Islamabad Electricity Supply Company
IPP	Independent Power Producer
JTPS	Jamshoro Thermal Power Station
KESC	Karachi Electricity Supply Company
LESCO	Lahore Electricity Supply Company
LNG	Liquefied Natural Gas
MOF	Ministry of Finance
MPNR	Ministry of Petroleum and Natural Resources
MTPS	Muzaffargarh Thermal Power Station
MWP	Ministry of Water and Power
MW	Megawatt, unit of electrical power, 1 million watts,
NEPRA	National Electric Power Regulatory Authority
NPCC	National Power Control Center
NTDC	National Transmission and Despatch Company
PC	Planning Commission
PDP	Power Distribution Program
PEPCO	Pakistan Electric Power Company
PSRP	Power Sector Reform Program
SOP	Standard Operating Procedure
T&D	Transmission and Distribution
USAID	United States Agency for International Development
WAPDA	Water and Power Development Authority

Executive Summary

The Energy Policy Project (EPP) is a multiyear USAID funded initiative to increase power generation, decrease losses and increase cost recovery in Pakistan's power sector by working with selected energy infrastructure; and facilitating GOP reform efforts with technical assistance and new technology. EPP is designed to support the joint goals of the U.S. Government (USG) and the GOP. The general framework for the EPP work plan is guided by several documents: USG Energy Strategy for Pakistan, the GOP's Power Sector Reform Program (PSRP), the Integrated Energy Sector Recovery Report and the Friends of a Democratic Pakistan Report.

Advanced Engineering Associates Inc. (AEAI) began implementation of EPP in 2008, with a focus on strengthening the GOP's institutional framework for the energy sector. In 2009, EPP's mandate expanded beyond policy to assist USAID in financing and accelerating the completion of specific projects to help overcome power shortages, and to strengthen the power sector through structural reforms and improved corporate governance. Phase I of the Energy Policy Project was completed in Feb 2012. In March 2012, AEAJ started work on the EPP Phase II under a new contract. The scope of work of EPP Phase II was modified during the reporting quarter.

EPP is structured into three interrelated sets of program activities:

Component I - Monitoring and support of Project Implementation

EPP is providing monitoring and implementation support for the following six signature energy projects, announced by Secretary of State, Hillary Clinton:

- Four repair and maintenance projects (3 GENCOs and Tarbela.)
- Two multipurpose dam completion projects (Gomal Zam and Satpara)

When completed, these projects will add more than 863 MW to Pakistan's generation capacity. As of December 2012, a total of 559 MW have been added to Pakistan's electricity grid.

Project	Planned MW Gains per FARA	Expected Gains	MW added (as of 31 December 2012)
Muzaffargarh	165	475	330
Jamshoro	95	150	95
Guddu	55	75	-
Tarbela	80	128	128
Gomal Zam	17.4	17.4	-
Satpara	17.66	17.66	6
Total	430.06	863.06	559

Component II – Advice and Support of Energy Sector Policy Reform

EPP is supporting generation & transmission related studies and policy reform activities assigned by USAID. These include developing GENCO and NTDC business plans; developing policies/procedures for the National Power Control Center and providing technical expertise on the LNG import program. Component II supports policy reform and provides advisory services at Ministry of Water and Power (MWP), Planning Commission (Energy Wing), Ministry of Finance (MOF), Ministry of Petroleum and Natural Resources (MPNR).

Component III – New Projects, Planning and Development

EPP conducts and prepares due diligence reports on new projects being considered for USG support, such as Kurram Tangi, Warsak, and the Mangla Dam Project in order to provide detailed information on the projects, reduce USG risks, and set a basis for creating Project Implementation Agreements for selected projects.

PROGRAM COMPONENT I:

Monitoring and Support of Project Implementation

EPP is providing monitoring and implementation support for the six signature projects announced by the Secretary of State Hillary Clinton. These projects include rehabilitation of three thermal power plants (Muzaffargarh, Guddu and Jamshoro), and one hydropower plant (Tarbela Dam); and completion of two new multipurpose dams (Gomal Zam Dam and Satpara Dam). Total USG funding is \$136.731 million (per revised agreements) and the estimated gains are up to 863 MW.

EPP is working closely with the GOP implementing partners, GENCOs and WAPDA, to support implementation of a broad range of projects' activities, which include:

- Dedicated technical experts assigned to thermal and hydro projects (Jamshoro, Guddu, Muzaffargarh, Tarbela, Satpara and Gomal Zam).
- Regular monitoring visits to project sites to verify deliverables/milestones, check quality of procured equipment, and verify completed construction work.
- Verify megawatts added through rehabilitation or new construction.
- Support implementing partners in designing work schedules, adherence & compliance with agreement terms & conditions, opening of accounts, reimbursement of invoices, ensuring environmental compliance with EMMPs, and resolution of issues during implementation.
- Certify compliance with construction specifications and/or technical standards of equipment.
- Compile monitoring and tracking reports to verify financial disbursements and technical progress.

HYDROPOWER PLANTS

With a total funding of \$82.5 million, as much as 163MW of generation are estimated to be added through the rehabilitation of Tarbela hydropower plant and completion of two multipurpose dams, Satpara and Gomal Zam.

The baseline condition of Tarbela is tabulated below. For Satpara and Gomal Zam the baseline at the time of signing of the agreements was zero.

Tarbela Units under Rehabilitation	Baseline at the time of FARA signing		Baseline at shut down for replacement	
	Capacity (MW)	MW gains	Capacity (MW)	MW gains
Unit 1	185	10	185	10
Unit 3	185	10	185	10
Unit 4	135	60	87	108
	505	80	457	128

Achievements in the Quarter

A. Rehabilitation of Tarbela Hydropower Plant under FARA:

The rehabilitation/repair work to date has resulted in the restoration of 128 MWs at Tarbela Hydropower plant. Replacement of generator windings has been completed at units 1, 3 & 4, and spare seals & guides and pumps installed.

The remaining replacement/repair work, which will increase the reliability and sustainability of the power plant, but not support restoration of additional megawatts, includes:

- Replacing the Electromechanical governors with digital governors
- Up grading the SCADA system;
- Spare parts for Unit-3 winding; and
- Replacing one dewatering pump.

The above mentioned rehabilitation work is anticipated to go beyond the completion date of December 2012 due to the delay in the procurement of Digital Governors and SCADA System. In this regard, WAPDA submitted an extension request to USAID, which was approved and the completion date extended till December 2013.



Project staff in discussion with Chief Engineer at Tarbela Power Station

During the quarter, the complete equipment under FARA item 6 (digital governors) was received at the site. As per the FARA, the digital governors worth \$ 3 million will replace the electromechanical governors for units 1-10 and add to

reliability and sustainability at the Tarbela power plant. EPP certified the reimbursement claim of \$ 2.7 million for the equipment and submitted the invoice to the USAID Energy Office for approval. The remaining \$0.3 million will be processed upon installation of the equipment. EPP team visited Tarbela and inspected the digital governors procured under the FARA and urged the plant management to expedite completion of the work.

EPP assisted WAPDA in preparing request for an additional funding of \$25.26 million and submitted to USAID for consideration on October 10, 2012. Equipment purchased through additional funding will further enhance the reliability and sustainability at the Tarbela power plant. Discussions were also held on the training requirements of the WAPDA staff.

The Environmental Audit of Tarbela was shared with the concerned staff at the power plant to follow the recommendations given by the auditors to ensure compliance with the EMMP.

EPP coordinated and supported WAPDA in preparing responses to observations made by the GOP and USAID OIG auditors.

Total disbursement made to WAPDA as of December 31, is \$13,949,9171 out of the total obligated amount of \$16,500,000. The current status of the Tarbela FARA is tabulated below:

LINE ITEM #	UNIT #	WORK ITEM DESCRIPTION	AMOUNT (USD)	CLAIMS SUBMITTED (USD)	PRESENT STATUS
1	4	Replacement of Damaged Generator Stator Windings with Class F Insulation Windings, Unit#4	3,700,000	3,700,000	Work completed and 100% amount reimbursed
2	3	Replacement of Damaged Generator Stator Windings with Class F Insulation Windings, Unit#3	3,700,000	2,849,917	Installation of windings completed on May 25, 2012. 100% amount-less spares-has been reimbursed. WAPDA has placed PO for the spares.
3	1	Replacement of Damaged Generator Stator Windings with Class F Insulation Windings, Unit#1	3,700,000	3,700,000	Work completed and 100% amount reimbursed
4	1-14	Upgrading of the SCADA System, Units 1-14	1,000,000		SCADA System award is in final stages with a completion period of 14 months. Therefore, the testing and commissioning of this activity is anticipated to go beyond the agreement completion date of Dec 31, 2012.
5	1-10	Spare Seals & Guides for Relief & Bypass Valves on Turbine Side, Units 1-10	500,000	500,000	Installation completed on all units. 100% amount has been disbursed to WAPDA
6	1-10	Replacement of Electromechanical Governors by Digital Ones, Unit 1-10	3,000,000	2,700,000*	The equipment arrived at site on 30 November. The installation and commissioning of the Digital Governors on Units 1 – 10 is anticipated to be completed in June 2013.90% amount

¹ EPP certified claims of \$13,949,917; out of which \$2,700,000 is in process with USAID

LINE ITEM #	UNIT #	WORK ITEM DESCRIPTION	AMOUNT (USD)	CLAIMS SUBMITTED (USD)	PRESENT STATUS
					reimbursed.
7	I-10	Replacement of Worn out Station Drainage & Dewatering Pumps, Units I-10	400,000		Installation completed on all units. However, reimbursement is on hold as one small pump (required under FARA) is being procured by WAPDA to comply the specifications of FARA.
8		Training	500,000	500,000	20 engineers from Tarbela power station have completed training on O&M in Switzerland. 100% amount disbursed to WAPDA.
Total			16,500,000	13,949,917	

B. Satpara Multipurpose Dam under Activity Agreement

Major equipment for Satpara power house 3 & 4 arrived at the site. Work under the Satpara Activity Agreement is progressing steadily. The dam and powerhouse 1 & 2 are 100% complete and the irrigation system is 99.9% complete. The overall civil, electrical and mechanical work at power house 3 & 4 is 77% complete. The expected completion date for units 3 & 4 is April 30, 2013 as per the agreement completion date. Installation/commissioning of the equipment is scheduled to be completed by April 2013.



View of turbines at Satpara Power House

WAPDA submitted a requested USAID to approve a reduction in the length of left bank canal² due to land acquisition issues along with supporting documents. EPP facilitated a series of meeting between USAID and WAPDA during the quarter to discuss the land acquisition issues on the left bank at Satpara Dam project. USAID is working in collaboration with WAPDA to explore all possible solutions which will provide the maximum benefits.

To ensure environmental compliance and implementation of the EMMP, the

EPP contracted engineering firm carried out a site visit in the reporting month. During the audit, observations were made and issues were shared with plant management to take necessary corrective actions. The audit report has been submitted to USAID for review.

²Total length of the canal is 56 km and WAPDA is requesting a reduction of 11,291 feet in length (6% of the total length of the canal).

The total amount disbursed as of December 31, 2012 is \$21,485,700. The project progress is tabulated below:

LINE ITEM #	WORK ITEM DESCRIPTION	COMPLETION STATUS	AGREEMENT AMOUNT (USD - Million)	CLAIMS SUBMITTED (USD- Million)	PRESENT STATUS
1.	Civil Works for Dam & Power House 1 & 2	94%	4.500	4.500	Work Completed. 100% Claim reimbursed.
2.	Civil Works for Dam and Power House 1 & 2	100%	1.877	1.877	Work Completed. 100% Claim reimbursed
3.	Civil, Electrical & Mechanical Work for Power Houses 3 & 4	50%	5.846	5.846	Work Completed. 100% reimbursed
4.	Civil, Electrical & Mechanical Work for Power Houses 3 & 4	100% by Apr 30, 2013	3.681		87% work completed and on schedule
5.	Irrigation System	78 %	2.530	2.530	Work Completed. 100% Claim reimbursed
6.	Irrigation System	89 %	2.282	2.282	Work Completed. 100% Claim reimbursed
7.	Irrigation System	90 % by Dec 09, 2011	2.0538	2.0538	Work Completed. 100% claim reimbursed
7a.	Irrigation System	100% by Jun 30, 2012	0.2282		99.9% work completed
8.	Consultancy Services	81%	0.0853	0.0853	Work Completed. 100% Claim reimbursed
9.	Consultancy Services	90%	0.400	0.400	Work Completed. 100% Claim reimbursed
10.	Consultancy Services	100% by Apr 30, 2013	0.390		Ongoing till project end
11.	Project completion with Testing & Placement in Commercial Operation	90% by Dec 09, 2011	1.9116	1.9116	Work Completed. 100% Claim reimbursed
11a.	Completion of Project, with Testing & Placement in Commercial Operation	100% by Jun 30, 2012	0.2124		Milestone 99.9% complete
Total (million)			\$26.00	\$21.4857	

C. Gomal Zam Multipurpose Dam under Activity Agreement

Main dam and spillway concrete and related works along with mechanical testing of dam fixtures are 100% complete. Hydropower and switchyard components are 98% complete. The installation of transmission line towers is complete and stringing of conductors is in progress; towers have been installed over a distance of 54 km (95% completion achieved) starting from the Tank grid station to the powerhouse.

Progress of work was slowed down at the Gomal Zam Dam due to security issues and WAPDA's inability to make outstanding payments of \$10 million to the contractors. WAPDA has made a payment of \$6 million to partially settle outstanding payments. The commissioning of the project is anticipated in Mar-Apr 2013.



A transmission tower at Gomal Zam

As per the G2G Agreement, it is WAPDA's responsibility for contributing all costs in excess of the award. However, considering WAPDA's limited financial resources which might delay the project completion in case the contractor's payment obligations are not met, additional funding will be required by WAPDA to complete the project. EPP has brought this issue to USAID's attention for an immediate action.

To ensure environmental compliance and implementation of the EMMP (Environmental Monitoring and Mitigation Plan), the EPP contracted engineering firm carried out a site visit in the reporting month. During the audit, observations were made and issues were shared with plant management to take necessary corrective actions. The audit report has been submitted to USAID for review.

Amendment No. 1 to the Activity Agreement revised the completion date of the project (including the irrigation component) to September 30, 2013. Of the \$40 million

USG funding committed for Gomal Zam (energy component), total disbursement as of December 2012 is \$36,589,000. The status of the Gomal Zam Activity Agreement is tabulated below:

LINE ITEM #	WORK ITEM DESCRIPTION	COMPLETION STATUS	AGREEMENT AMOUNT (USD- Million)	CLAIMS SUBMITTED (USD Million)	PRESENT STATUS
1.	Main Dam, Spillways Concrete & Related Works	88%	19.171	19.171	Work Completed. 100% Claim reimbursed
2.	Hydropower & Switchgear Component	90%	0.757	0.757	Work Completed. Claim of 0.757 million reimbursed
3	Main Dam and Spillways Concrete & Related Works	91%	5.125	5.125	Work Completed. Claim of 5.125 million reimbursed
4.	Main Dam & Spillways, Concrete & Related Works	100%	5.125	5.125	Work Completed. Claim of 5.125 million reimbursed
5.	Hydropower & Switchgear Component	50% of remaining 10% works by Dec 9, 2011	0.920	0.920	Work Completed. Claim of 0.920 million reimbursed
5a.	Hydropower & Switchgear Component	100% by Jun 30, 2012	0.920		98% completed
6.	132kV Transmission Line & related works	50%	1.0	1.0	Work Completed. Claim of 1.0 million reimbursed
7.	132kV Transmission Line and related works	100%	0.5	0.5	Work Completed. Claim of 0.5 million reimbursed
7a.	132kV Transmission Line and related works	100% by Apr 30, 2012	0.5		95% Completed
8a.	Completion of	100%	2.0	2.0	Work Completed. Claim of 2.0

	Mechanical testing of Dam fixture				million reimbursed.
8b.	Completion of Project - Filling of Reservoir, Testing, & Placement in Commercial Operation	50% by Dec 9, 2011	1.991	1.991	Work Completed. Claim of 1.991 million reimbursed
8c.	Completion of Project - Filling of Reservoir, Testing, & Placement in Commercial Operation	100% by Aug 30, 2012	1.991		Final testing depends upon completion of transmission line, switchyard and availability of water
Total			\$40	\$36.589	

THERMAL POWER PLANTS

With total funding of \$54.231 million, as much as 700MW are estimated to be restored through the rehabilitation of three thermal power plants, which will benefit more than 10.8 million individuals. The estimated MW gain for the plants at the time of signing of the FARA was 315 MW; however due to further deration in the plants' operational capacity, estimated gain has increased to 700 MW.

Thermal Plants under Rehabilitation	Baseline at the time of FARA signing		Present Operational Baseline	
	Capacity (MW)	MW gains	Capacity (MW)	MW gains
Muzaffargarh TPS	835	165	690	475
Jamshoro TPS	560	95	500	150
Guddu TPS	225	55	200	75
	1620	315	1390	700

Achievements in the Quarter

D. Rehabilitation of Muzaffargarh Thermal Power Station (MTPS) under Activity Agreement:

During the quarter, with the replacement of air preheater elements 50 MW were added to the plant's generation capacity. The rehabilitation work to date has resulted in 330 MW of capacity restoration at the power plant.

An inspection visit was made to MTPS to verify the delivery of three complete equipment (PIL Line Item# 6, 21 & 28) and one partial equipment (PIL Line Item#9). An inspection report was submitted to USAID for review.

In a meeting held with USAID on November 29, 2012, EPP provided a briefing on the GENCO's progress and on the PIL revision and also responded to audit queries. To provide support to the GECNO in revising the PIL, EPP visited Muzaffargarh on November 30. EPP will facilitate a meeting with USAID and MTPS in early December to finalize the PIL modifications. This will help expedite payment of reimbursement claims held up due to deviations from the agreement's technical specifications. EPP

visited MTPS in December and provided support to the GECNO in preparing a revision the PIL. EPP will facilitate a meeting with USAID and MTPS early next month to finalize the PIL modifications. The modification will help expedite payment of reimbursement claims held up due to deviations from the agreement's technical specifications.

The Environmental Audit Report of Muzaffargarh Thermal Power Station was shared with the concerned staff at the power plant to follow the recommendations given by the auditors to ensure compliance with the EMMP. The total amount disbursed to the GOP as of December 2012 is \$ 10,133,001³. The status of the MTPS Activity Agreement is tabulated on the next page:



View of Muzaffargarh Thermal Power Station

³ EPP certified claims of \$10,133,001; out of which \$337,605 is in process with USAID

Line Item No.	Unit No.	Work Item Description	Agreement Amount	Claims Submitted under FARA	Claims submitted under new PIL	Status
1	1,2&3	Rehabilitation of Boiler super heater tubes to overcome failure of tubes	\$4,080,000	\$4,080,000		Material received and installed at site. 100% Claim reimbursed
2	1- 4	Special Cooling Water Treatment.	\$187,440			Tender opened for the 4 th time on 26.06.2012 but no firm participated. Tender was again opened on 11.09.2012 and bids are under evaluation process.
3	1-6	Use of Fuel Oil Additive as done on Unit-4 (450 Tons).	\$921,225			PO issued on 23.11.2012
4	1,2&3	Replacement of Cold layer element for RAH (2 sets)	\$170,000	\$170,000		Material received and installed at site. 100% Claim reimbursed
5	1,2&3	Modification of Excitation system (3 set)	\$191,700			Tender opened in April 2012 and Bid Evaluation is in process
6	1,2&3	Electric motors for C.T. Fan (02 No) and for GRC fan. (01 No).	\$184,245		\$184,245	PO was issued on 23.09. 2011 for electric motors while LC opened on 02.02 2012 for GRC fan. Material received at site on 18.10.2012. Claim for 100% Payment reimbursed
7	3	D.C. Storage batteries (01 Set).	\$60,000	\$60,000		Material received and installed at site. 100% Claim reimbursed
8	1,2&3	220Kv circuit breaker SF6 type (06 No).	\$337,605		\$337,605*	LC established on 03.08.2012. Claim for 100% payment received and forward to USAID/ENR for approval on September 25, 2012
9	4	Re-blading of LP. Rotor (LP Turbine Rotor blades of row (6&7), pins & locking device).	\$787,035		\$787,035	Claim for 100% reimbursed
10	4	Air Pre-Heater Elements (Intermediate and Cold) 02 sets	\$255,000		\$255,000	Material received and installed at site. Claim for 100% Payment reimbursed
11	4	Up-grading of AVR System (01 set).	\$249,210		\$249,210	PO issued on 20.07.2012. LC opened on 12.10.2012. Claim for 100% Payment reimbursed
12	4	Replacing UPS 1&2. (01 set).	\$62,835		\$62,835	Claim for 100% reimbursed
13	4	DEH (01 set).	\$319,500			Tender again opened on 18.10.2012 and is under evaluation
14	4	Up-grading of FSSS System (01 set).	\$138,450			Tender again opened on 18.10.2012 and is under evaluation
15	4	Up-grading of TSI system BNC 3300 or equivalent (Turbine Supervisory Instrument) (01 set).	\$266,250			Tender again opened on 18.10.2012 and is under evaluation
16	1-6	Training and software/hardware cost for CMMS and off-line efficiency	\$1,000,000			Technical offer opened in Feb 2012 but it is now be retendered and it will open on 13.11.2012.

		monitoring system. All Units				
17	5&6	I.D. Fan Rotor/Impeller along with Housing and Dampers (04 Set).	\$625,000	\$562,500		Consignment received on 26.02.2011 and installed partially at unit 5. 90% claim reimbursed
18	5&6	Air Pre heater Elements Hot end, intermediate & cold end layers along with seals for both units (04 Set).	\$639,000			PO issued on 20.07.2012. LC established on 12.10.2012. LC established on 12.10.2012. Claim for 100% Payment (\$639,000) received but not forwarded to USAID/ENR due to specifications problem.
19	5&6	Procurement of G.R.C. Fan Impeller/Rotor (01 Set).	\$33,548		\$33,548	Po issued and LC opened on 27.01.2012. Material received at site on 16.07.2012. Claim for 100% payment reimbursed
20	5&6	Procurement of Cooling Tower Fan Gear Box & its parts. (06 No. gear box).	\$236,963		\$236,963	PO issued and LC opened on 27.01.2012. Material received on site on 27.08.2012. Claim for 100% payment reimbursed
21	5&6	Economizer Tubes for both Units (02 Sets)	\$2,130,000		\$2,130,000	Po issued and LC opened on 05.04.2012. Received at site on 24.10.2012. Claim for 100% Payment reimbursed
22	5&6	IP Turbine Rotor (01 No).	\$641,130		\$641,130	PO issued on 14.06.2012. LC established on 12.10.2012. Claim for 100% Payment reimbursed
23	5&6	Replacement of Damaged Exhaust flue gas ducts of material Russian Grade Steel sheets (50 M.T), Plate Type Heat Exchanger for Inner Water Cooling System of Generator and Motor for Starting Oil Pump (Vertical) Units 5-6	\$287,550			LC established for one PO while LC is awaited for the second PO. Request for foreign exchange allocation for the second PO was submitted on 15.10.2012.
24	5&6	Conversion of Boiler Ignition System from Natural Gas to HSD/Furnace Oil	\$277,965			Tenders opened and evaluation completed. LOI to be issued
25	5&6	Repair of winding and stator of Generators and testing	\$319,500			Draft tender documents sent to GM office on 06.08.2012. Tender to be opened on 28.11.2012.
26	5&6	Hydraulic coupling of Boiler Feed Water Pumps (01 No).	\$63,900			Tender opened but only one firm participated and rate quoted by the firm is ten times higher than the estimated cost
27	5&6	Modification of Excitation System	\$166,140			Tender opened and is under evaluation
28	5&6	Procurement of 0.4KV Motors for Cooling Towers Fan and APH 02	\$10,650		\$10,650	PO issued and LC opened in April 2012. Material received at site on 15.10.2012. Claim for 100% payment reimbursed
29	5&6	Procurement of 6.6KV Motor for C.W. Pumps, CP, ID Fan, FD Fan & BF Pumps (05 No).	\$162,945		\$162,945	Po issued and LC opened in April 2012. Claim for 100% payment reimbursed
30	5&6	Procurement of 6.6/0.4KV Breaker (5 No. 6KV breaker, 18Nos. 0.4Kv Breakers).	\$295,005			PO issued and LC of second PO was also opened but specifications were not as per PIL therefore NPGCL issued an amended PO for the short items.
31	5&6	Protection Relay for Generators.	\$29,820			Tenders opened and LOI issued on 24.02.2012. PO issued on

						31.05.2012. LC established on 12.10.2012. Claim for 100% Payment received but not forwarded to USAID/ENR due to specifications problem.
32	5&6	MK Breakers, Seal Oil Coolers, PMG	\$169,335		\$169,335	Consignment received at site. Claim for 100% payment reimbursed
33	5&6	Supply, Installation, Commissioning & Testing of complete distributed control system including field equipment such as sensors, transmitter & actuators etc. for turbine governing system DEH-III and Boiler Turbine Auto regulation system YEWPACK-II	\$213,000			Retendered and bid evaluation in process.
34	5&6	Rehabilitation of Furnace safety Supervisory System including Furnace camera, flame monitoring & ignition system	\$266,250			Tender opened and bid evaluation in process
Total			\$15,778,195	\$4,872,500	\$5,260,501	

Summary of Status of Muzaffargarh TPS as of December 31, 2012

Description	Number	PIL Item #	Amount
Material Received at Site	11	1,4,6,7,10,17,19,20,21,28,32	\$7,954,741
LC opened and material is awaited	9	8,9,11,12,18,22,29,30,31	\$3,204,585
PO issued and LC is awaited	2	3, 23	\$1,208,775
Performance Bond received and PO is awaited	-	-	-
LOI Issued and Performance Bond is awaited	-	-	-
Tender/Re-Tender opened and in process	10	2,5,13,14,15,16,24,25,26,27	\$2,930,845
Tender/Re-Tender Awaited	2	33,34	\$479,250
Total PIL Line Items	34		\$15,778,195

LC opened for PIL Item # 18, 30, 31 but their specifications are not as per PIL therefore claim will be processed on procurement of remaining items

E. Rehabilitation of Jamshoro Thermal Power Station (JTPS) under Activity Agreement:

During the reporting period, three major equipment (Air Pre heater Rotor for Unit 1, Super Heater Tube Elements for Unit 1 and Economizer for Unit 4) were delivered to the power station. EPP verified receipt the delivery of the equipment and an equipment inspection report was submitted to USAID for review

At JTPS with the installation of Economizer at unit#2 boosted output from 100MW to 170MW. The rehabilitation work to date has resulted in 95 MW of capacity being restored at JTPS. Installation of the economizers at Unit-3 and 4 is in progress.

An inspection visit Jamshoro Thermal Power Station was conducted during the reporting period along with Auditor from OIG office. During the visit meetings were held with all key JTPS staff and management in which they were interviewed to verify the compliance with the technical specifications and standards. EPP coordinated and supported JTPS in preparing responses to observations made by the GOP and OIG auditors. In addition, EPP responded to several queries from USAID OIG Auditors.

The Environmental Audit Report of Jamshoro Thermal Power Station was shared with the concerned staff at the power plant to follow the recommendations given by the auditors to ensure compliance with the EMMP.

In December, a joint visit of USAID and EPP was made to Jamshoro to discuss the work progress, issues in implementation of the activity agreement and the PIL revision.

The total amount disbursed to the GOP as of December 2012 is \$13,327,275⁴.



A technical staff at Jamshoro

⁴ EPP has processed and submitted to USAID \$13,327,275; out of which \$2,630,550 is in process with USAID

The status of the JTPS Activity Agreement is tabulated below:

LINE ITEM NO.	UNIT NO.	WORK ITEM DESCRIPTION	AGREEMENT AMOUNT	CLAIMS SUBMITTED ON THE BASIS OF OLD FARA	CLAIMS SUBMITTED ON THE BASIS OF NEW PIL	PRESENT STATUS
1	1	Rehabilitation of Air Pre-heater Side A&B Rotor.	\$1,672,050		\$1,672,050*	LC established on 18.10.2012. Claim for 100% payment received and forwarded to USAID for approval on November 21, 2012
2	1	Replacement of Final Super Heater Coils.	\$958,500		\$958,500	Material received on 16/12/12. 100% claim reimbursed
3	1	Complete replacement of Flue Gas Duct & Air Pre-heater Bottom hoppers and F.D Fan duct up to steam coil Air Heater.	\$720,000	\$720,000		The consignment received at JPCL on 16.01.2012. Installation completed. 100% Claims reimbursed
4	1	Complete Rehabilitation of Cooling Towers.	\$500,000	\$450,000	\$50,000	Material received at Jamshoro. Installation completed. 100% claim reimbursed
5	1	Up gradation / replacement of Auto Burner control system and Data Acquisition System.	\$300,000	\$300,000		Material received and installed at site. 100% Claim reimbursed
6	1	Hiring of services for major overhauling.	\$810,000			The tender opened on 20.02.2012. Only one firm M/s IED Ukraine through their local agent M/s Istil Karachi participated in the tender. The case will be finalized soon
7	1	Soot Blower Spare Parts.	\$117,150			LC opened on 28.12.2011. Material received at site on 12.05.2012 but specifications mentioned in PO are different from PIL specifications. EPP observations sent to USAID for decision
8	1	Tube Bundles of Steam Converter, unit#1	\$250,000	\$225,000	\$25,000	Material received at site on 21.11.2011 and installed. 100% Claim reimbursed
9	1	Spares for Oil & HSD Burners & Igniters.	\$213,000			LC Established on 28.12.2011 and material received at site but specifications mentioned in PO differs from PIL specifications. EPP Observations sent to USAID for decision
10	1	Air Pre-heater Elements & Seal,	\$670,000	\$670,000		Material Installed at site amount reimbursed. 100% Claim reimbursed.
11	1-4	Use of fuel oil additives to prevent slag formation and cooling water treatment chemicals to prevent scale buildup.	\$958,500			Tender was opened on: 17.02.2012. The case was sent to GM (Th.) for their expert opinion. It has been decided that fresh tender will be invited and opened by

						the office of GM Thermal Lahore
12	2-4	Replacement of H.P Heaters along with the valve and controllers including Rehabilitation of Instrument Control & Protection System.	\$3,306,825		\$3,306,825	LC Established on 30.09.2011. The material reached at site on 07.08.2012. New H.P heaters on unit 2 & 3 are completed and now new instrumentation & control is in progress. 100% Claim reimbursed
13	2-4	Complete Rehabilitation of Cooling Towers.	\$718,875			LC established on 27.06.2012, but it was not as per PIL specifications. Claim will be submitted after procuring the remaining items. Material reached at site on 26.09.2012
14	2-4	Complete Rehabilitation of drain valves.	\$351,450			LC Established on 28.12.2011. The material reached at site on 26.06.2012 but specifications mentioned in PO differ from PIL specifications. EPP observations sent to USAID for decision
15	2-4	Rehabilitation of soot blowing system.	\$702,900			Foreign Exchange Allocation received on 31.07.2012. LC established on 17.09.2012. Claim received but not forwarded due to specifications problem.
16	2-4	Supply, installation and commissioning of complete economizers of three units	\$3,195,000		\$3,195,000	LC has been established on 28.06.2012. First shipment consist of two economizers is received on 23.10.2012, installation on unit 2&3 is in progress. Claim for 100% Payment reimbursed by USAID
17	2	<p>a. Modification / Rehabilitation of Electro Hydraulic and Mechanical Hydraulic Governing system.</p> <p>b. Replacement of Data Acquisition System (DAS-100), Auto Regulation System (MZ-III) and Temperature Scanners for Generator Winding Temperature, Super Heater/Re- Heater Temperature, Boiler Drum Metal Temperature, F.D, I.D Fan motor Temperature, Boiler Feed Pump Temperatures with latest Distributed Control System (DCS)</p> <p>c. Replacement of existing FSSS along with Furnace Flame Monitoring on one unit. eplacement of Data Acquisition System (DAS-100), Auto Regulation System (MZ-III) and Temperature Scanners for Generator Winding Temperature, Super Heater/Re- Heater Temperature, Boiler Drum Metal Temperature, F.D, I.D Fan motor Temperature, Boiler Feed Pump Temperatures with latest Distributed Control System</p> <p>d. Replacement of Turbine Vibration system with</p>	\$1,171,500			Tender opened on 17.07.2012 and technical bids are under evaluation

		Vibro-Control-4000 Schenk or equivalent				
18	2	Procurement of Boiler Feed Pump Motor Complete.	\$117,150		\$117,150	LC was opened on 28.12.2011 and the equipment reached site and is installed. Claim for 100% Payment reimbursed
19	3	Replacement of Final Super Heater Coils.	\$958,500		\$958,500*	Foreign Exchange Allocation received on 31.07.2012. LC established on 11.09.2012. Claim for 100% payment received and submitted to USAID for approval.
20	3	Three-Way valve of Oil burner.	\$200,000	\$180,000	\$20,000	Material received at JPCL on 23.11.2011 and is installed. 100% Claim reimbursed
21	3	Spares for Overhauling of Turbine.	\$532,500			Consignment reached Jamshoro but specifications mentioned in PO are different from PIL specifications. EPP observations sent to USAID for decision.
22	4	I.D Fan Impellers.	\$479,250		\$479,250	Purchase Order issued on 16.03.2012. LC established on 28.06.2012. Claim for 100% Payment reimbursed
23	1-4	Off-line Efficiency Monitoring system and training.	\$426,000			Tender opened on 29.05.2012 and bids are under evaluation.
		Total	\$19,329,150	\$2,545,000	\$10,782,275	

Claims Processed and Submitted to USAID = \$13,327,275 (including *\$2,630,550 that are under process with USAID)

Summary of Status of Jamshoro TPS as of December 31, 2012

Description	Number	PIL Item #	Amount
Material Received at Site	13	1,2,3,4,5,7,8,9,10,12,13,14,16, 18,20,21	\$13,822,500
LC opened and material is awaited	6	15, 19,22	%2,140,650
PO issued and LC is awaited	-	-	-
Performance Bond received and PO is awaited	-	-	-
LOI Issued and Performance Bond is awaited	-	-	-
Tender/Re-Tender opened and in process	4	6,11,17,23	\$3,366,000
Tender/Re-Tender Awaited	-	-	-
Total PIL Line Items	23		\$19,329,150

LC opened for PIL Item # 7,9,13,14,15,21 but their specifications are not as per PIL therefore claim will be processed once the procurement of remaining items is complete

F. Rehabilitation of Guddu Thermal Power Station (GTPS) under Activity Agreement:



The reporting period proved to be productive for GTPS. A new Activity Agreement and implementation letter were signed in April 2012 with a total funding of \$19,123,730 and the completion date was revised to June 30, 2013. Work under the Guddu Activity Agreement is steadily picking up pace after the opening of a letter of credit through joint efforts of EPP, USAID and GOP. A disbursement of \$15.5 million was made to GTPS on October 15th.

The total amount disbursed as of December 2012 is \$15,512,790. The status of the Guddu TPS Activity Agreement is tabulated below:

LINE ITEM	WORK ITEM DESCRIPTION	AGREEMENT AMOUNT	CLAIMS SUBMITTED	PRESENT STATUS
1.	Purchasing the supply of Spares / Equipment for reliability assurance (up-rating and upgrading) including MK Vle Control System for GT-7&8 and ST-05	\$8,889,555	\$8,889,555	LC opened on 28.09.2012. Claim for 100% Payment reimbursed by USAID.
2.	Replacement of existing DCS with new Mk Vle Single Platform DCS for ST-5, GTs 7 & 8	\$692,250	\$692,250	LC opened on 28.09.2012. Claim for 100% Payment reimbursed by USAID.
3.	Purchasing the Supply of 1 & 2 stage buckets and nozzles for GT-7&8	\$3,621,000	\$3,621,000	LC opened on 28.09.2012. Claim for 100% Payment reimbursed by USAID.
4.	Rehabilitation of HRSGs, replacement of Modified Bypass Dampers, all existing expansion joints of HRSGs and Replacement of Economizer tubes and bends of HRSG for GTs 7 & 8	\$1,571,940		Two PO have been placed and one tender is recalled
5.	Rehabilitation / Replacement of Evaporative Coolers and Cooling Media of GT-7&8	\$213,000		One tender under evaluation and other is recalled due to no bid participation
6.	Inspection, testing and repair of Generators of GT-7, GT-8, ST-5 along with supply of essential spares and testing kits	\$2,212,005	\$2,212,005	LC opened on 28.09.2012. Claim for 100% Payment reimbursed by USAID.
7.	Purchasing of Control Cables, Monitoring Instruments, Motorized and pneumatic Actuators and Turbine Supervisory Instruments / Equipment for ST-5	\$97,980	\$97,980	LC opened on 28.09.2012. Claim for 100% Payment reimbursed by USAID.

LINE ITEM	WORK ITEM DESCRIPTION	AGREEMENT AMOUNT	CLAIMS SUBMITTED	PRESENT STATUS
8.	Application of Service Charges for complete up-rate and upgrade package of GTs and replacement of controls etc. for block consisting of GT-7&8 and ST-5 on turnkey basis	\$1,826,000		Service order opened and LC will be opened soon.
Total		\$19,123,730	\$15,512,790	

Summary of Status of Guddu TPS as of December 31, 2012

Description	Number	PIL Item #	Amount
Material Received at Site	-	-	-
LC opened and material is awaited	5	1,2,3,6,7	\$15,512,790
PO issued and LC is awaited	1	8	\$1,826,000
Performance Bond received and PO is awaited	-	-	-
LOI Issued and Performance Bond is awaited	-	-	-
Tender/Re-Tender opened and in process	2	4,5	\$1,784,940
Tender/Re-Tender Awaited	-	-	-
Total PIL Line Items	8		\$19,123,730

Heat Rates Testing and Equipment:

Upon GENCO Holding Company Limited's request for support in performing heat rate tests of the GENCOs in order to obtain a revised tariff from NEPRA, EPP initiated work on the activity in October 2012. The activity is being carried out in phases:

Phase I - Conduct heat rate tests which would require calibration of existing equipment

- **Calibration of meters**

EPP contacted various reputed firms for hiring as a consultant to calibrate the equipment at the GENCOs before the heat rate tests could be carried out. The proposals submitted by the firms are being reviewed. During the quarter, EPP supported site assessments of meters at the three GENCOs.

- **Heat rate and dependable capacity testing**

Four internationally reputed firms provided an EOI for conducting the heat rate testing. Subsequently an RFP was prepared and the proposals submitted by vendors are under review. The CEO (GHCL) has recommended using local procurement to avoid time delays

Phase II - Installation of new equipment (flow meters)

An Expression of Interest (EOI) were received from two firms for the procurement of flow meters

Placement of Performance Monitoring Advisors at the GENCOs:

For improving the performance of the thermal power plants, GHCL requested EPP to provide additional technical support at each of the three thermal power plants (Jamshoro, Guddu and Muzaffargarh). In response, EPP will be placing performance monitoring advisors at each of the partner GENCOs.

In this regard, a recruitment process has been initiated. A performance monitoring expert has been placed at Guddu Thermal power station and is engaged in data collection and primarily preparing/training of the Guddu plant operators for carrying out of the heat rate and dependable capacity tests. For Muzaffargarh and Jamshoro, shortlisted candidates have been proposed to the CEO (GHCL) for review.

PROGRAM COMPONENT 2:

Advice and Support of Energy Sector Reform

EPP is supporting Energy Sector Reform through two basic mechanisms:

- a) Direct undertaking of specific activities requested by GOP energy entities, including the Ministry of Water and Power, Planning Commission, Ministry of Finance, Ministry of Petroleum and Natural Resources, NTDC, NPCC, ENERCON, and AEDB.
- b) Direct institutional support through the secondment of EPP staff in the offices of the energy sector entities as advisors and specialized support staff.

Manzoor Shaikh, Chief of Party EPP along with USAID officials participated in the Fourth Pakistan-U.S. Energy Working Group meeting held on December 7, 2012 in Islamabad. The meeting was chaired by Carlos Pascual, U.S. Special Envoy and Coordinator for International Energy Affairs Ambassador, and Nargis Sethi, Secretary Ministry of Water and Power and Dr. Waqar Masood Khan, Secretary Ministry of Petroleum and Natural Resources.



Participants at the 4th Pak-US Energy Working group meeting

SUPPORT TO MINISTRY OF WATER AND POWER

Activities in the Quarter

EPP facilitated a meeting between USAID and the Secretary, MWP on November 6, 2012. During the meeting, the Secretary, MWP was briefed about USAID's energy portfolio in Pakistan and the support provided to the Government of Pakistan in mitigating the energy crisis. To ensure strong coordination among USAID and MWP, the Secretary MWP asked EPP seconded staff to participate in the executive control meetings taking place via Skype with the DISCOs and NPCC.

Hydropower Projects Fund

A working paper for the creation of a Hydro Energy Development Fund was prepared and submitted to the Special Secretary, MWP. The working paper encompasses background information on funds previously created by the Government of Pakistan in the mid-80s and 90s. The paper also highlights steps required to be taken for creation of this fund. Upon MWP's decision, the working paper was shared with the provincial ministries for review. EPP also develop a financial model to depict the structuring of this fund and estimate its costs, lending rates, and rates of return that will be required to be paid out. The draft was reviewed by MWP and comments are being incorporated accordingly.

EPP conducted a meeting with the Managing Director Private Power Infrastructure Board (PPIB) to obtain input regarding creation of an Energy Development Fund. Information was collected regarding the Private Sector Energy Development Fund (PSEDF), which was created earlier by the GOP with the help

of the World Bank. EPP conducted meetings with various private sector and government entity Fund managers; including, Muslim Commercial Bank (MCB), BMA Capital, United Bank Limited (UBL) and National Investment Trust (NIT), to obtain input regarding creation of a Hydropower Development Fund and discuss their interest in managing of the Fund. A meeting was also held with IFC representative for Infrastructure sector to discuss fund structure and potential interest from IF

Reactivation of CPPA:

Upon a request from the Special Secretary MWP for support in improving the financial management of CPPA, EPP participated in meetings held by the Special Secretary, MWP regarding CPPA reform.

Proposed Organizational Structure: EPP attended a meeting presided by the Special Secretary Water and Power regarding reactivation of CPPA⁵ as an independent body. The meeting was attended by representative of ADB, Hagler Bailly, Pakistan and Deputy Secretary Power. In the meeting Hagler Bailly presented the proposed organization sector of CPPA.

Transfer of CPPA Staff: EPP participated in a meeting to decide on a phase-in approach for the operationalization of CPPA. EPP is facilitating MWP in highlighting key steps for the process including the identification of key personnel to be transferred immediately from Lahore to Islamabad.

EPP also visited CPPA/NTDC at Lahore and conducted a series of meetings with the management. EPP collected and reconciled data related to funds transferred by the DISCOs to CPPA and payments made to IPPs/fuel suppliers and WAPDA.

Based upon discussions in the meeting, EPP developed a payment model incorporating daily payment criteria for all power sector entities. The first draft of this model, which establishes a daily payment mechanism based on weighted averages of outstanding balances due, current invoices and an NEO has been submitted to MWP for review.

Diagnostic Study of Power Sector (2004-2012)

Upon the Joint Secretary's request, EPP provided assistance in the data collection for carrying on an analysis of the power sector since 2004. Compilation of a document entailing the analysis of different areas such as generation, distribution, recoveries, billing etc. is in progress.

Fuel Oil Management at GENCOs

In a meeting with the Secretary, MWP EPP discussed the impacts of fuel oil on the performance of the GENCOs. A paper on the same subject was developed and presented to MWP on the request of the Special Secretary.

Financial Analysis of Power Sector

EPP continued providing support in developing a financial model to be used by the Monitoring/Coordination and Finance Unit of MWP. Updates were made in the model to provide a framework that can enable monitoring of the status of power sector operations on timely basis, and

⁵ CPPA is one of the main pillars of power sector reform process. CPPA is a corporate entity registered with SECP working under NTDC. Now, the ministry wants to activate it as an independent body.

provide indications of likely impacts based on different scenarios. A brief on the financial model was developed and shared with the Special Secretary, MWP.

EPP held a meeting with PEPCO officials and discussed the designs of the financial model.

Smart Metering

EPP developed a financial model to calculate the long-term benefits resulting from the introduction of smart meters on the Pakistan power system and to analyze related key financial statistics. The model includes information on industrial and domestic consumers and a detailed discounted cash flow analysis. The information was shared with MWP for its review.

As a follow-up to Secretary, MWP's interest in bringing all Common Delivery Points onto Smart metering, USAID's involvement in the project was identified at CDPs of 16 IPPs under 1994 policy that were not included in NTDC's metering plan. MWP has requested for financial assistance in the procurement of 36 meters and 4-8 monitoring panels for these CDPs.

In this regard, EPP held a meeting with MD Planning and Chief Engineer, NTDC and discussed the specifications of the metering requirements. The specifications and costing of the requirements was established

SUPPORT TO MINISTRY OF FINANCE

Activities in the Quarter

EPP team led by Manzoor Shaikh, Chief of Party held a meeting with Additional Finance Secretary (Corporate Finance), Ministry of Finance on October 15, 2012. During the meeting, the AFS(CF) was apprised about the activities being carried out by EPP regarding improvements in power sector, with emphasis on the rehabilitation work ongoing at the six signature projects.

EPP provided assistance to the Ministry of Finance on the following policy issues:

- a) Provided input on the Government of Sindh proposals regarding (i) Retrofitting existing 800 MW and new 600 MW power plant at Jamshoro be designed on Thar Coal specifications; (ii) A coal off-take agreement for Thar Coal to be signed by GENCOs.
- b) On the request of MOF, EPP reviewed Ministry of Water and Power's concept paper on direct supply of bulk power to large scale consumers by private power producers (IPPs)/ Captive Power plants, and made the recommendation that the bulk purchase of idle capacity should be confined to industry and commercial consumers only and it should be on the basis of cost recovery tariff, so that it may not add up to Tariff Differential Subsidy (TDS).
- c) Facilitated the Ministry of Finance in preparing comments to be sent to NEPRA on the application by TESCO for grant of a distribution license. The ministry was advised that issuance of the license to TESCO should be linked with the economic/financial viability of the company. Therefore, TESCO should prepare a business plan that would indicate the time lines for improving its cost recovery. TESCO should also be advised to separate its 17 common feeders with PESCO.

- d) EPP assisted MoF in preparation of comments regarding purchase of electricity by CPPA from KESC to be generated through Bin Qasim Power Station (BQPS), Karachi.
- e) Assisted Ministry of Finance in preparation of their comments regarding the amendments being proposed by PPIB / Ministry of Water and Power to attract the private investment in Hydel Projects.
- f) Supported the Ministry in drafting comments on MWP's proposal to reduce the time period from 120 – 150 days to 45 days for tariff determination by NEPRA for Hydro Projects.
- g) Assisted Ministry of Finance in reviewing the proposal submitted by Ministry of Water and Power on the reduction in line losses of distribution companies, improvement in their revenue collection and mechanism for payment of subsidy on monthly basis.
- h) Reviewed the ECC summary on allocation/re-allocation of gas to fertilizer plants and highlighted that the diversion of gas presently being provided to power sector to the fertilizer sector, will add up to the cost of generation and will further increase the Tariff Differential Subsidy to be provided by Ministry of Finance. Facilitated Ministry of Finance in preparing comments on an ECC summary for development of Thar Coal.
- i) Assisted Ministry of Finance (Corporate Finance Wing) in finalization of their comments on the proposal of Ministry of Water and Power to allow IPPs to sell the power to the bulk purchaser (i.e. industry and commercial consumers) by utilizing their idle capacity which is available with them due to non-availability of fuel.

SUPPORT TO MINISTRY OF PETROLEUM & NATURAL RESOURCES and PLANNING COMMISSION

Activities in the Quarter

LNG Imports

During the reporting quarter, the LNG Import Program progressed rapidly. Energy Policy Project's efforts for developing the governance framework and supply chain for LNG import were formalized. Carlos Pascual, US Special Envoy for International Energy Affairs signed an MOU with Dr. Asim Hussain, Advisor to the Prime Minister on Petroleum and Natural Resources on the funding of LNG consultancy services.

Discussions were held with Directorate General (DG) Gas and his staff regarding the ECC decision on LNG import project including the appointment of proposed LNG consultants by SSGC or USAID. EPP developed an activity plan for the LNG import program over the next 2 years (as approved by ECC) in coordination with MPNR.

The LNG consulting contract with QED Gas was executed. EPP held a meeting with SSGCL and QED to discuss the delivery orders for priority of work items. The consultant's level of effort and input was finalized and two draft delivery orders were shared with QED.

Shale Gas

Meetings were held with the Director General Petroleum Concessions (DG PC), MPNR to finalize the TORs for USAID assistance in petroleum Exploration and Production (E&P) activities and shale gas.

Upon finalization of the TORs, a formal offer of USAID assistance was made to DGPC and approved by the Secretary MPNR.

EPP held discussions with LMKR (DGPC's resident consultant) regarding the proposed scope of work for shale gas. A Request for Proposal (RFP) was shared with LMKR soliciting their proposal.

Downstream Oil Policy

EPP continued internal discussions with the Director General Refineries and Financial Advisor MRNR and refinery professionals regarding amendments in the draft refining and marketing policy. Issues discussed include, quantification of the impact of incentives on the refinery's profitability. A revised draft of the policy was developed after incorporating the proposed amendments.

Meetings were held in Karachi with the management of National Refinery Ltd. (NRL), Pak Arab Refinery Ltd. (PARCO), Pakistan Refinery Ltd. (PRL) and BYCO, and with Attock Refinery Ltd. (ARL) in Islamabad. The input of the refineries was discussed in depth and an amended draft was reviewed.

Circular Debt

During the reporting period, EPP provided support to finalize the paper on power sector circular debt. The paper, which is being drafted in collaboration with the USAID Power Distribution Program, includes a comprehensive study of circular debt – including the primary and secondary causes for the rising amount of circular debt and recommendations for its reduction and eventual elimination.

General Support to Planning Commission

EPP staff seconded at the Planning Commission provided support to the Commission as follows:

- a. Attended meeting at Energy Wing (EW), Planning Commission with the Chief of Party, EPP and Senior Chief EW. The scope of USAID assistance was discussed as follows:
 - o Integrated Energy model.
 - o Review of power sector reforms and restructuring and
 - o Placing Advisors at EW and posting of Oil & Gas Advisor from MPNR to EW.
- b. A follow-up was held with the with Senior Chief, EW and the options for immediate and longer term assistance particularly related to Pakistan's Integrated Energy Model were discussed. EPP supported EW in drafting a request for assistance from USAID.
- c. Compiled brief for Deputy Chairman, Planning Commission on Thar Coal, and the issues arising on setting up the power plants powered by the Thar Coal for the Special Board Meeting of Thar Coal & Energy Board (TCEB) at Prime Minister Secretariat.
- d. Issued an advertisement for recruitment Project Director of National Trade Corridor Management Unit.
- e. Modified the Request for Proposal (RFP) advertisement for Sui Southern Gas Company Limited (SSGC) for Import of LNG and its delivery at Port Qasim, Karachi.
- f. Detailed working on estimated funds required by Government of Pakistan for the Power Sector if Government wants to keep electricity short fall at 2000, 3000, or 4000 MW.
- g. Developed a presentation for Deputy Chairman on Importance of Power Sector in the Economic Growth of Pakistan for the Meeting with Asian Development Bank (ADB), Ministry of Water and Power and Ministry of Finance hosted by Planning Commission.

- h. Finalized the speech for the Deputy Chairman, Planning Commission for the meeting with ADB, Ministry of Water and Power and Ministry of Finance arranged in Planning Commission.
- i. Modified comments of Planning Commission on Summary to ECC for preparing a pricing mechanism for CNG during upcoming winter season.
- j. Prepared a brief presentation for Secretary Finance on irregularities in the computation of Transmission and Despatch losses of the power sector, overbilling to consumer to reduce the amount of losses on DISCOs' account.
- k. Finalized a letter to Secretary, Ministry of Water and Power for finalizing requirements, procedures and other issues related to distribution of solar tubewells.
- l. Created comments of Planning Commission on Summary to ECC on LPG Production and Distribution Policy 2012.
- m. Drafted minutes of the meeting on Review of Tariff Regime of Gas Utility Company and Improvement in Changing Market Dynamics.
- n. Prepared a presentation on Energy Security for growth of economy to be delivered by Member Energy, Planning Commission at National Defense University.
- o. Set up a new computer system for Member (Energy) as his existing system broke and needed to be sent to Manufacturer for replacement of key element. Provided routine software and hardware maintenance in office of Member Energy.
- p. Additional IT support was provided in resolving issues arising in IT equipment provided in Member Energy's office. Routine updating of software and troubleshooting was also carried out as and when required.

SUPPORT TO NTDC/NPCC

Activities in the Quarter

- a) Developed a Power Point presentation with estimates of weekly power demand and supply (estimated generation) for each month of the quarter, and for the next five months to be presented to the Prime Minister.
- b) Prepared an analysis of daily data on generation and demand and dispatch patterns of generators for GENCOs and IPPs and for hydropower plants, for any possible improvement and advice to the MWP on the subject.
- c) As convener of the Energy Management Committee:
 - Held two meetings of the Energy Committee, on steps required for better Load Management and discussed with the GM SO NPCC.
 - Held two meeting with the Federal Minister, Water and Power regarding steps required for improvement of Load management and Restoration of Power sector. Discussions took place on reducing the load shedding and measures for better load management.
 - Held an orientation meeting with the newly appointed Joint Secretaries on different aspects and Issues of Power Sector, mainly the Generation, Dispatch and Distribution and the actions required for improvement.
 - Meetings were held with the Special Secretary, MWP and Additional secretary Power regarding the Load Management policy.

- Participated in a meeting with the Secretary Water and Power along with the Chairman Energy Management Cell and by Special secretary MWP, Joint Secretary (Power) and Deputy Secretary (Power). Discussions were held on energy management issues and the improvements needed for resolving the issues.
- Held a meeting with the new Joint Secretary power, regarding power position and Energy management Issues in DISCOs and other problems of power Sector.

Power Transmission Activities

EPP is focusing on strengthening the power transmission network and on capacity building for power sector entities involved in transmission.

Model DISCO

In a meeting held among USAID, PDP and EPP on December 6, 2012 the criteria for the selection of Model DISCO was discussed. A follow-up meeting will be held in January.

Live Line Training

To build the capacity of DISCOs in live line maintenance techniques on voltages of 132/66 kV, EPP has designed a live line training program for the 9 DISCOs. The training course will span over a period of 14 weeks and encompass both classroom and on-the-job training. Under first phase of the training, live line crew from PESCO would be provided training and subsequently staff from other DISCOs will be trained as well.

During the reporting quarter EPP selected of trainees from PESCO for the live line training. A total of 50 PESCO nominated personnel were interviewed at Bannu, D.I.Khan, Mardan, Abbottabad, and Chakdarra.

EPP visited the training facility at Gatti, Faisalabad and held discussions with FESCO officials on the live line training.

Power Import from Regional Countries

The draft concept paper outlining the scope of work of import of power from Car and Afghanistan was developed and submitted to USAID for review. Discussions were held with NTDC on the concept paper on import of power.

Power Planning/NTDC Capacity Building

The EPP team led by Chief of Party, Manzoor Shaikh held a meeting with the Managing Director, NTDC. The MD NTDC was briefed on activities of EPP and the support provided to NTDC. Discussions revolved around conducting a technical audit of NTDC, support to NPCC, and implementation of NTDC business plan.

PESCO Turn Around DISCO

EPP transmission team led by Manzoor Shaikh, Chief of Party EPP held a meeting with Tariq Saddozai, CEO PESCO and discussed in detail EPP's assistance to PESCO. EPP gave a presentation on the planned system improvement of the transmission network for PESCO. Discussions revolved around EPP's

planned activities, support required from PESCO, and identification of areas within PESCO that require immediate support. For better coordination of activities an office space was allotted to EPP within PESCO's premises.

During the reporting month, progress on the various projects being implemented at PESCO is as follows:

- **Transformer Program**

EPP conducted meetings with senior management of PESCO and discussed the activities to be undertaken for strengthening of PESCO's Transmission system by:

- repair and rehabilitation of power transformers and
- replacement of defective equipment (Circuit breakers, and
- Transformer oil sample testing to determine the condition of power

EPP developed the Scope of Work for:

- Overhaul and testing of power transformer of Shabqadar Grid Station.
- Repair of damaged power transformers at Jamrud Industrial Grid Station and Battal Grid Station.

- **Reactive Power Compensation Study**

EPP Transmission experts and NTDC discussed the strategy for identification of bottleneck in PESCO Transmission System. EPP and NTDC mutually agreed to conduct a study for the purpose. The study will also focus on required VAR compensation, and modifications required in the installed equipment for its optimal performance.

The contract for conducting the study on Reactive Power Compensation was awarded to PPI through a transparent procurement process

- **Circuit breaker Program**

Prepared Terms of Reference for the procurement of 132kV circuit breakers.

- **Transmission Technical Audit**

EPP initiated the technical audit of Shahi Bagh grid station to identify the transmission bottlenecks.

- **Transmission Maintenance Workshop**

A visit was made to the Rehman Baba Grid Station Peshawar to explore the location for setting up a maintenance workshop. The location was found to be easily accessible and PESCO expressed its agreement for the suitability of the location.

In a meeting held with PESCO on 3 December, 2012 EPP reviewed the layout of the transmission maintenance workshop to be constructed at Rehman Baba Grid Station. The SOW for procurement of PESCO relay protection test tools and equipment was drafted.

- **Telemetry on all CDPs including all transmission feeders**

To strengthen PESCO's transmission network, EPP explored opportunities for a cost effective mechanism to aid in economic power dispatch. In this regard, exploratory meetings and visits were conducted with PESCO and IESCO to learn about their network. IESCO being the only

DISCO to have a telemetry system implemented on its network is serving as an example for EPP. Brainstorming sessions were held with IESCO and PESCO on the use of the telemetry system and its benefits over the SCADA system presently being used by PESCO. EPP and PESCO were given a demonstration of the system by IESCO and provided details about its operation. Discussions revolved around deployment of the system, probable hazards, operating costs and the cost effectiveness of the telemetry system.

In November, a meeting was also held with the Pakistan Meter Factory, the vendors for IESCO to learn more about the telemetry solution. In December, EPP conducted a meeting was held with PESCO officials to discuss and finalize points for the installation of energy meters.

Energy Sector Internship Program

During the reporting quarter, the Energy Sector Internship Program was formally launched by EPP. A total of 56 young graduates started internships at JTPS, GTPS, and Lakhra Thermal Power Station in Sindh and with Electra Consultants in Peshawar. The interns were selected after a rigorous and transparent process comprising of an aptitude test and panel interviews. Preference was given to candidates hailing from remote areas of the country with marginalized income backgrounds.

- Sindh Chapter



Selection test underway at Mehran University Jamshoro

Placement aptitude test and interviews for the Sindh Chapter-Phase I were held at the Mehran University, Jamshoro. A total of 126 candidates (116 male and 10 female) appeared for the test. Fifty seven young graduates (47 male and 10 female) were shortlisted for the interview and 28 candidates (23 male and 5 female) were selected as the first batch of interns to work at Jamshoro and Lakhra Thermal Power Stations. A placement ceremony

was held at Jamshoro on October 24, 2012 to mark the commencement of the Energy Sector Internship Program – Sindh Chapter.

Phase -II of the Sindh Chapter was launched in December with a placement ceremony at Guddu Thermal Power Station on 12 December 2012 to mark the commencement of the Energy Sector Internship Program for fifteen interns (including one female). 123 applicants (including 4 female candidates) appeared for the selection test at Quaid-e-Awam University, Nawabshah. 45 candidates were shortlisted and interviewed. Fifteen



Selected interns at Guddu Thermal Power Station

interns, including two female candidates were selected and internship contracts were signed. The selected candidates hail from different areas of Sindh, including Sanghar, Khairpur, Hyderabad, Tharparkar, Kashmore, Larkana, Ghotki and Mirpurkhas.

- **KPK Chapter**

Placement aptitude test and interviews for the KPK Chapter were held at the University of Engineering and Technology. Peshawar.

A total of seventy two candidates (71 male and 1 female) appeared for the test out of which sixty seven applicants were interviewed and eight individuals were selected.

COMPONENT 3:

New Projects, Planning and Development

EPP continued its support to USAID in its efforts to determine funding levels and schedules for new projects.

Mangla

EPP continued its Step II Due Diligence effort for Mangla and held a series of meetings with WAPDA both at Lahore and Islamabad to assess the latest plans for the almost \$400 million Mangla Upgrade Project planned to be executed over the coming ten years.

WAPDA submitted a PC I (project description and budget document on the Planning Commission's specified format) and a revised schedule with expected implementation costs to USAID for review. Upon USAID's directives, EPP reviewed the documents and identified several inconsistencies between the figures and budgets for various activities and requested WAPDA to resolve them.

EPP held discussions on technical and implementation requirements, budget estimates, and allocation of costs with WAPDA and suggested that WAPDA adopt an alternative approach to reprioritize their replacement plans and strengthen the procurement strategy to derive maximum benefit from the USAID grant allocation for the project.

EPP also responded to various queries and clarifications from USAID regarding the Mangla project and provided technical advice for funding and implementation options for their consideration.

EPP's efforts regarding the Mangla Upgrade Project gained recognition with the US Government formally announcing its support for the refurbishment and upgrade of the Mangla Power Station.

A high level US delegation led by Ambassador, Richard Olson, visited the Mangla Dam and Power Plant on November along with the WAPDA Chairman and senior staff. Ambassador Olson pledged \$150 million for rehabilitation of the Mangla Power Station.



Ambassador Olson with Chairman WAPDA during his visit to Mangla Dam

Subsequent to the confirmation of USAID assistance, meetings were held with WAPDA officials regarding activities on the Mangla Refurbishment and Upgrade Project (MRUP)⁶.

⁶ The Mangla Refurbishment and Upgrade Project (MRUP) is budgeted at \$ 397 million. Under the project, the machines at the power station will be replaced raising the generation capacity from current 970 MW at the 1,000MW rate power station to 1,310MW. USAID has allocated \$150 million for the MRUP.



To leverage non-USG funding of energy project, EPP along with USAID held a meeting with WAPDA and JICA to discuss JICA interest in providing financial assistance for Mangla. Talks revolved around the funding mechanisms and how to proceed with the procurement of machinery for the refurbishment of the

power plant.

Following the meeting, WAPDA shared a “Draft advertisement to Pre-qualify bidders for supply of equipment” to USAID and JICA for their clearance. USAID is in agreement to proceed with work on the project, however JICA does not want WAPDA to take any action until its loan of \$140 million for the project is approved by their head office in Japan. This could cause at least a three months delay for WAPDA to start their pre-qualification exercise. Discussions are underway to resolve the issue and initiate work on MRUP.

WAPDA shared a draft Project Implementation Letter (PIL) and Activity Agreement for the Mangla project with EPP. The same has been forwarded to USAID for its review and feedback.

Kurram Tangi

USAID and WAPDA have agreed to start with a ‘stand-alone’ portion of the project comprising the Kaitu Weir Dam , the two canals leading from it to the Spaira Ragma and Sheratalla plants, and two associated powerhouses with 18.5MW capacity, all of which are expected to cost about \$93 million.

The GM North, WAPDA, who is responsible for the Kurram Tangi Dam project, shared a “Road Map” for identifying the first and subsequent steps needed with a time frame and cost estimates to start work on the Kaitu Weir project. This road map is under review and will be discussed at meetings with WAPDA. WAPDA is awaiting a decision from USAID to move forward with the project

During the reporting period, EPP visited Peshawar and held meeting with WAPDA and FATA Secretariat (FS) to request approval and arrangements for a visit to the site of the Kurram Tangi Dam project (KTDP) – which includes the Kaitu Weir and related structures.

However, due to social unrest and volatile security situation in the region both WAPDA and FS regretted that travel to the region was not permitted. On EPP insistence that a visit was essential to facilitate USAID funding decisions, the GM North and PD, KTDP said they will work with the FATA Secretariat and the Political Agent (PA) North Waziristan to arrange a visit for EPP and MPP, WAPDA consultants for the project.

A project kick off meeting was held at EPP office, Islamabad to facilitate USAID in conducting an environmental evaluation of the Kurram Tangi project. Representatives from USAID, WAPDA and FWO were present at the meeting.

Support to USAID on requests for new projects

EPP responded to various queries, clarifications and explanations sought by USAID to determine its funding requirements for new projects in the coming year. This could lead to USAID helping WAPDA overcome its ongoing financial shortcoming in fully funding the 96MW Jinnah, 121MW Alai Khwar and the 131MW Dubair Khwar run-of-river hydroelectric power projects that are all expected to be completed and commissioned in 2013.

Mr. Ghulam Abbas, Senior Advisor, EPP, attended 2 day training workshop “International best practices on Resettlement” in Islamabad organized by the Asian Development Bank (ADB). The workshop highlighted issues faced in acquisition of land and resettlement in different International financial institutions (IFI) funded projects.

Administration/Management Support to EPP

EPP administration is structured to support on-going and planned project activities while ensuring contractual compliance. Administration encompasses the following functions: Accounting/Finance, Human Resources, Procurement, Contracts, Logistics and IT. In implementing these functions, processes and policies are developed to ensure uniformity of efforts.

Accounting/Finance

Miscellaneous payments were made to the vendors during this quarter. Payroll and financial reconciliations were completed.

EPP carried out a variance analysis of utility cost incurred in the main office and the guest house during the year, as compared to the previous year. The reasons for the variations were identified and cost reduction techniques were suggested.

Procurement

During the reporting period, office equipment/supplies, security equipment, and services were procured to support operations. Office space was procured at Peshawar and refurbished.

A consultancy contract was issued to PPI for conducting a Reactive Power Compensation Study for PESCO. A draft RFP on the refurbishment of power transformers was developed and shared with USAID for approval. An RFP for oil testing on 168 power transformers at PTESU also was made and issued to FWO. A request for proposal regarding assessment of resources, technology and upstream costs in Pakistan was issued to LMKR. A subcontract for LNG consultancy service was prepared and signed with QED.

. Equipment procured for Peshawar office includes:

- 20 Users Kaspersky Anti-virus Licenses,
- LaserJet Printer,
- Scanjet Scanner & Multifunction Fax ,
- 2 Sony Digital Cameras ,
- 10 Nokia Asha
- 200 Cellular Phones
- 10, Dell Vostro 3550 Laptops and
- Dell T420 Server for Peshawar office

The following RFPs were issued during the reporting month:

- Procurement of Services for calibration RFO and Gas Flow Meters at the Thermal Power Plants was made and issued to SGS Pakistan Private Ltd and we received proposal and still working on it before issuance of purchase order.
- Technical Assistance for Heat Rate and Dependable Capacity Tests at the Thermal Power Plants.

- Rehabilitation of Damaged Power transformer at Jamrud Grid Station and Thermal Power Plants;
- Power Transformer Rewinding at Shahi Bagh Transformer

Logistics

- Provided logistical support for 80 trips made by the project staff. Arranged international travel for expats.

IT

Trouble shooting undertaken for IT equipment in the office and for operations at ministries; all related matters initiated have been resolved during this quarter:

- Internet Services Setup (Data/Video) @F-7/2 Guest House.
- Daily routine network and systems support for all project staff.
- Installation and configuration of a network color laser jet printer and fax machine at the Ministry of Water and Power.
- Complete hardware inventory inspection by USAID official.
- Relocated 1 CCTV camera.
- Set-up group e-mail account on *ep-ep.com.pk* domain.

Confidential information redacted

Confidential information redacted

Confidential information redacted

USAID ENERGY POLICY PROJECT

ADVACNED ENGINEERING ASSOCIATES INTERNATIONAL (USAID CONTRACTOR)